Revised Environmental Management Plan of
SDI Manufacturing Co., Ltd
(Garment Factory)

REVISED REPORT

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Prepared by

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List of Abbreviation

BOD	Biological Oxygen Demand
CO	Carbon monoxide
CO_2	Carbon dioxide
COD	Chemical Oxygen Demand
CSR	Corporate Social Responsibility
dB(A)	Decibel (unit used to measure noise level)
DMH	Department of Meteorology and Hydrology
ECC	Environmental Conservation Council
EIA	Environmental Impact Assessment
ERP	Emergency Response Plan
ESMP	Environmental and Social Management Plan
GAD	General Administrative Department
GPS	Global Positioning System
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
IFC	International Finance Cooperation
LED	Light-emitting Diode
MIC	Myanmar Investment Commission
MIMU	Myanmar Information Management Unit
MOECAF	Ministry of Environment, Conservation, and Forestry
MONREC	Ministry of Natural Resources and Environmental Conservation
NCEA	National Commission for Environmental Affairs
NO_2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
OHS	Occupational Safety and Health
PM_{10}	Particulate Matter less than 10 microns
$PM_{2.5}$	Particulate Matter less than 2.5 micron
PPE	Personal Protective Equipment
SIA	Social Impact Assessment
SO_2	Sulfur dioxide
SS	Suspended Solids
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UN	United Nations
UNREDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
VEC	Valued Ecosystem Components
WHMIS	Workplace Hazardous Materials Information System

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အစီရင်ခံစာအကျဉ်းချုပ်

၁.၁ နိဒါန်း

မြန်မာနိုင်ငံ၏စက်မှုလုပ်ငန်းများအတွက်လိုအပ်ချက်အနေနှင့် SMART DRAGON INTERNATIONAL (SDI) Manufacturing Company Limited သည်၊ သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့တင်ပြရန် ဤပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်(EMP)အစီရင်ခံစာကိုပြင်ဆင်ခဲ့ခြင်းဖြစ်ပါသည်။ ဤအထည်ချုပ်စက်ရုံသည် အကွက်အမှတ်၄၀၊ မြေတိုင်းရပ်ကွက်အမှတ် ၂၄၊ ငွေပင်လယ်စက်မှုဇုန်၊ လှိုင်သာယာမြို့နယ်၊ရန်ကုန်တိုင်းဒေသကြီး တွင်တည်ရှိပြီး အပြည်ပြည်ဆိုင်ရာစံချိန်စံညွှန်းမှီ အထည်များအား ထုတ်လုပ်နေသည့် စက်ရုံတစ်ခုဖြစ်ပါသည်။

ဤကဲ့သို့သောဖွံ့ဖြိုးရေးစီမံကိန်းစက်ရုံများသည်၊ မြန်မာလုပ်သားအင်အားထု အကြား တိုးမြင့်လာနေသောအလုပ်လက်မဲ့နှုန်းကိုလျှော့ချရန်နှင ကိုယ်ပိုင်စီးပွားရေးလုပ်ငန်းများကို တည်ဆောက်ရန် အထောက်အကူတစ်ခုဖြစ်နေပါသည်။ အထူးသဖြင့်သတင်းအချက်အလက်နည်းပညာ၊ ဝန်ဆောင်မှုနှင့်ဆက်စပ်မှုများမှ အကျိုးအမြတ်တစ်ခုအနေဖြင့် သတ်မှတ်ရရှိမည်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) အစီရင်ခံစာအတွက်လေ့လာမှုများကို ၂၀၁၃ ခုနှစ် အောက်တိုဘာလ နှင့် ၂၀၂၀ ခုနှစ် မေလများ အတွင်း AMK and Associate Environmental Consulting Limited မှ ဆောင်ရွက်ခဲ့ပါသည်။

ကုမ္ပဏီ၏သတင်းအချက်အလက်များ

SDI Manufacturing Company Limited ကို ၁၉၁၄ ခုနှစ် မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေပါပြဌာန်းချက်အရ၊ နိုင်ငံခြားရင်းနှီးမြုပ်နှံမှု ပုဂ္ဂလိက ကုမ္ပဏီ တစ်ခုအဖြစ် မြန်မာနိုင်ငံတွင် ၂၀၁၃ ခုနှစ်မှ စတင် တည်ထောင်ခဲ့ပါသည်။

ကုမ္ပဏီ၏သီးခြားအဖွဲ့ဝင်များမှာတရုတ်နိုင်ငံမှ Mr. Lai Kin Ching နှင့် Mr. Lok Tze Shan တို့ဖြစ်ပြီး၊ ၎င်းတို့မှာ အစုရှယ်ယာ ၁၄၉ ခုနှင့် ၆၀၀ အသီးသီးပိုင်ဆိုင်သော ရှယ်ယာရှင်များဖြစ်ပြီးစုစုပေါင်းရှယ်ယာအရင်းအနှီးဖွဲ့စည်းပုံသည်ရှယ်ယာ ၇၄၉ ခု ဖြစ်ပါသည်။

ဤကုမ္ပဏီအား ဒါရိုက်တာ၊ စီမံခန့်ခွဲရေးရုံး၊ အကွက်အမှတ် ၄၀၊ မြေတိုင်းရပ်ကွက် အမှတ်၂၄၊ ငွေပင်လယ်စက်မှုဇုန်၊ လှိုင်သာယာမြို့ သို့ ဆက်သွယ် နိုင်ပြီး ဒါရိုက်တာ၏ တယ်လီဖုန်းအမှတ်မှာ +၉၅ ၉ ၅၀၇၁၇၈၇ ဖြစ်ပြီး email မှာ s.hlaing99@gmail နှင့် kenlai@winner-gp.com ဖြစ်ပါသည်။ ဆက်သွယ်နိုင်သူမှာ ဤကုမ္ပဏီ၏ လူ့စွမ်းအားအရင်းအမြစ်မန်နေဂျာ ဦးချိုလွင်ဦး ဖြစ်ပြီး ၎င်းအားဆက်သွယ်ရန် ဖုန်းအမှတ် မှာ +၉၅ ၉ ၄၅၁၉၆၀၇၆၅ ဖြစ်ပါသည်။

ကုမ္ပဏီ၏ ဒါရိုက်တာစာရင်းနှင့် အစုရှယ်ယာပိုင်ဆိုင်မှုများကို ဤအစီရင်ခံစာ၏ 2.2 Company Information မှ Company Directors နှင့် Share Capital Structure တို့တွင်ဖော်ပြထားပါသည်။

အဆိုပြု စီမံကိန်းအကြောင်းအရာသတင်းအချက်အလက်များကို လည်းဤအစီရင်ခံစာ၏ 2.3 Project Proposal Informations and Investment Status တွင်ဖော်ပြထားပါသည်။

သဘာဝပတ်ဝန်းကျင်နှင့်လူမှုရေးကျွမ်းကျင်သူများ၏အချက်အလက်များ

(SDI) Manufacturing Company Limited သည် အထည်ချုပ်စက်ရုံအတွက် EMP ကိုပြင်ဆင်ရေးဆွဲရန် JOEY A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED ကိုတာဝန်ပေးအပ်ခဲ့ပါသည်။

စီမံကိန်းနေရာနှင့်ပတ်ဝန်းကျင်ဆိုင်ရာစစ်ဆေးခြင်းကို ဦးအောင်မြတ်ကျော်၊ ပါမောက္ခဒေါက်တာအောင်လေးတင်နှင့် ဦးသောင်းအေးလွင်တို့မှ ၂၀၂၀ ခုနှစ်၊ မေလမှ စတင်၍ဆောင်ရွက်ခဲ့ပြီး လိုအပ်သည့် အဓိကလက္ခဏာများကို ဖော်ထုတ်ခဲ့၍ လိုအပ်သည့်နေရာများတွင် ဓာတ်ပုံမှတ်တမ်း များရယူခဲ့ပါသည်။ တစ်ဦးတစ်ယောက်ချင်းစီအားမေးမြန်းခြင်း၊ အဖွဲ့အစည်းများနှင့်လည်းညှိနှိုင်းတိုင်ပင်မှုများကိုလည်း ဆောင်ရွက်ခဲ့ပါသည်။

လေ့လာမှုအတွက်သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာကျွမ်းကျင်သူနှင့်စီမံကိန်းဒါရိုက်တာအဖြစ် JOEY A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED မှ ဦးအောင်မြတ်ကျော်မှ ဆောင်ရွက်ခဲ့ပြီး၊ ၎င်းမှာ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့်လူမှုရေးအကဲဖြတ်မှုနှင့်စီမံခန့်ခွဲမှုဝန် ဆောင်မှုများအတွေ့အကြုံ ၁၅ နှစ်ကျော်ရှိသူ တစ်ဦးဖြစ်ပါသည်။ ဦးအောင်မြတ်ကျော်မှ ပတ်ဝန်းကျင်ဆိုင်ရာ အကြံပေးကုမ္ပဏီဖြစ်သော Associate EIA Consultant CO Ltd နှင့် Environmental Consultant Group ကို ဦးဆောင်ခဲ့ပြီး လိုအပ်သည့် ပတ်ဝန်းကျင်ဆိုင်ရာကဏ္ဍများ၊ သက်ဆိုင်သည့် မြန်မာနိုင်ငံ၏ဥပဒေလုပ်ထုံးလုပ်နည်းများ၊ အပြည်ပြည်ဆိုင်ရာဥပဒေများကိုလည်းထည့်သွင်းရေးသားခဲ့ပါသည်။

ဒေါက်တာအောင်လေးတင်အနေနှင့် စီမံကိန်းလေ့လာမှုတွင်ပါဝင်သောနည်းပညာကျွမ်းကျင်သူအဖွဲ့အားကူညီခဲ့ပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်တွင် အောက်ပါအချက်များပါဝင်ခဲ့ပါသည်။

- လေ့လာမှုဧရိယာ၏ အချက်အလက်များကိုစုဆောင်းရန်အချက်အလက်များ စာရွက်စာတမ်းများအားပြန်လည်သုံးသပ်ခြင်း၊
- လေ့လာမှုဧရိယာ၏လက်ရှိပတ်ဝန်းကျင်အခြေအနေကိုမှတ်တမ်းတင်ရန်ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးစစ်ဆေးခြင်းနှင့်ပတ်ဝန်းကျင်ဆိုင် ရာတိုင်းတာမှုများကိုကွင်းဆင်းလေ့လာဆောင်ရွက်ခြင်း၊
- ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း EIA နည်းစနစ်များနှင့် အတူလေ့လာမှုဧရိယာအတွင်းရှိသဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ ဂုဏ်သတ္တိ များ အပေါ် ခန့်မှန်းသက်ရောက်မှုများအားအကဲဖြတ်ခြင်း၊

- ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ကိုပြင်ဆင်ခြင်း၊
- စောင့်ကြည့်လေ့လာရန်လိုအပ်သည့်အရေးကြီးသည့်သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာဂုဏ်သတ္တိများဖော်ထုတ်ခြင်းအပါအဝင်ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေးနှင့်ပတ်ဝန်းကျင်ရေရှည်တည်တံ့ခိုင်မြဲသောဖွံ့ဖြိုးတိုးတက်မှုအတွက်အစီအစမံများဖော်ပြခြင်းတို့ပါဝင်ပါသည်။

၁.၂ စီမံကိန်းအကြောင်းအရာဖော်ပြချက်

နောက်ခံသမိုင်း

SDI Manufacturing Co. , Ltd ၏အထည်ချုပ်စက်ရုံစီမံကိန်းကို ၂၀၁၃ ခုနှစ်ဖွန်လတွင်စတင်တည်ထောင်ခဲ့ပြီး ၄.၄.၂၀၁၄ တွင်စီးပွားဖြစ်စတင်ခဲ့ပါသည်။ ခန့်မှန်းခြေစုစုပေါင်းထုတ်လုပ်မှုမှာတစ်လလျှင်အဆင်သင့်အဝတ်အထည် ၅၀,၀၀၀ ဖြစ်ပါသည်။ ပုံမှန်အားဖြင့် စက်ရုံလည်ပတ်မှုမှာ တစ်နှစ်လျှင်ရက်ပေါင်း ၃၀၈ ရက်ဖြစ်သည်။ အဝတ်အထည်ထုတ်လုပ်ခြင်း၊ စက်ပစ္စည်းများနှင့် ဆက်စပ်ပစ္စည်းများ အမျိုးအစုံအလင် အများစုကိုတရုတ်နိုင်ငံမှတင်သွင်းပြီး၊ ငွေပင်လယ်စက်မှုဇုန်၊ လှိုင်သာယာမြို့နယ်ရှိ အထည်ချုပ်စက်ရုံတွင်၊ ချုပ်လုပ် ထုတ်လုပ်ခဲ့ပါသည်။ ခန့်မှန်းခြေအားဖြင့်အထည်အလိပ်၊ချည်နှင့်ပန်းရိုက်ခြင်းကဲ့သို့သောကုန်ကြမ်းများအားလုံးကိုတရုတ်မှတင်သွင်းခဲ့ပါသည်။ အထည်ချုပ်စက်ရုံသည်အပြည့်အဝလည်ပတ်နေပြီး ၂၀၁၄ ခုနှစ်မှ ၂၀၁၉ ခုနှစ်အထိနှစ်စဉ်အဝတ်အထည် ၆၀၀,၀၀၀ ခန့်ထုတ်လုပ်တင်ပို့နိုင်ခဲ့ပါသည်။

အဆိုပြုထားသောစီမံကိန်းအတွက် SDI Manufacturing Co. , Ltd သည် ်နိုင်ငံခြားမတည်ငွေရင်းအမေရိကန်ဒေါ်လာ ဝ.၉၈၈ သန်းကိုထည့်ဝင်ရင်းနှီးမြှုပ်နှံမည်ဖြစ်ပါသည်။

စီမံကိန်းအစိတ်အပိုင်းများ

တည်နေရာ

စီမံကိန်းတည်နေရာသည် အကွက်အမှတ် ၄၀၊ မြေတိုင်းရပ်ကွက် အမှတ်၂၄၊ ငွေပင်လယ်စက်မှုဇုန်၊ လှိုင်သာယာမြို့ တွင်တည်ရှိပြီး စီမံကိန်းအနီးပတ်ဝန်းကျင်တွင် လူနေအိမ်ခြေနည်းပါးပြီး လူနေမှုသိပ်သည်းဆနည်းပါးပါသည်။

အရွယ်အစား (ဧရိယာ)

အထည်ချုပ်စက်ရုံစီမံကိန်းဧရိယာတစ်ခုလုံးမှာ စုစုပေါင်း၂.၂၇၅ ဧကရှိပြီး၊ ကုန်ကြမ်း၊ ကုန်ချောတင်ချနေရာ၊ အသင့်ချုပ်ပြီးအဝတ်အစားများ ချုပ်လုပ် ထုတ်လုပ်သည့်နေရာများ၊ ဘွိုင်လာနေရာ၊ အထည်လျှော်ဖွတ်ရန်နေရာ၊ ဆေးဆိုးပန်းရိုက်နေရာ၊ စီမံအုပ်ချုပ်ရေးအဆောက်အဦး နှင့် ဝန်ထမ်းအဆောင်တစ်ခုတို့ပါဝင်ပါသည်။ တည်နေရာမှာ မြေပြန့်လွင်ပြင်အနေအထားရှိပါသည်။

အထည်ချုပ်စက်ရုံစီမံကိန်းလည်ပတ်ခြင်းမှ လှိုင်သာယာနှင့်ရွှေပြည်သာမြို့နယ်ပတ်ဝန်းကျင်များမှ ပြည်တွင်းစက်ရုံဝန်ထမ်း ၅၆၆ ဦး ခန့်အလုပ်အကိုင်အခွင့်အလန်းရရှိစေပါသည်။ ပြည်ပကျွမ်းကျင်သူ ဝန်ထမ်း ၁၁ ဦးမှာလည်း ပြည်တွင်းလုပ်သားများနှင့်အတူ လုပ်ငန်းခွင်တွင် ဝင်ရောက်လုပ်ကိုင်နေပြီ လုပ်ငန်းချိန်မှာ နေ့ပိုင်းတစ်လှည့်ဆင်းစနစ်သာဖြစ်ပါသည်။ တစ်နှစ်လျှင် ခန့်မှန်းအလုပ်လုပ်ရက် ၃၀၈ ရက်ရှိပြီး တစ်နှစ်လျှင် အသင့်ဝတ် အဝတ်အထည်ပေါင်း ၆၀၀,၀၀၀ ထည် (၃၆၀တန်) ခန့်ထုတ်လုပ်နိုင်ခဲ့ပါသည်။

စက်ရုံဖွဲ့စည်းပုံတွင် ထရန်စဖော်မာနေရာ၊ လုံခြုံရေးအခန်း၊ ထမင်းစားဆောင်၊ မီးစက်၊ သိုလှောင်ခန်း၊ အထည်ညှပ်ဌာန၊ လျှော်ဖွပ်ရုံးခန်း၊ အခြောက်ခံခန်း၊ ဆေးဆိုးပန်းရိုက်နေရာ၊ (အထည်ဆေးဆိုးမှုမရှိသေးပါ)၊ လျှော်ဖွပ်ဧရိယာ၊ အထည်ချုပ်ဌာန၊ ရေစင်၊ Effluent Treatment Plant၊ ဘွိုင်လာခန်း၊ ဓာတုပစ္စည်းသိုလှောင်ခန်း၊ အသုံးဆောင်ပစ္စည်းခန်း၊ စီမံခန့်ခွဲရေး ဝန်ထမ်းအဆောင်တို့ပါဝင်ပါသည်။

တပ်ဆင်မှု

အဆောက်အဦးအနေအထားမှာ အမြင်ကောင်းမွန်စေရန်အတွက်သာမက စွမ်းအင်မှန်ကန်မှု၊ ပတ်ဝန်းကျင်နှင့်အလုပ်သမားများနှင့် ဧည့်သည်များအတွက်ပတ်ဝန်းကျင်ကိုပိုမိုကောင်းမွန်စေရန်ဆောင်ရွက်ထားရန်လိုအပ်ပါသည်။စီးပွားရေးအကျိုးအမြတ်အသင့်အတင့်ရှိ၍ ကောင်းမွန်သောရှုခင်းများမှအိမ်ခြံမြေတန်ဖိုးကို ၁၅ ရာခိုင်နှုန်းအထိတိုးမြှင့်စေနိုင်ပါသည်။ SDI ကုန်ထုတ်လုပ်မှုစက်ရုံသည်ဝန်ထမ်းများ၏ သက်တောင့်သက်သာရှိမှုအတွက်စီစဉ် ပြင်ဆင်ထားပြီး မော်တော်ယာဉ်လမ်းကောင်းမွန်၍နေရာကျယ်ပြန့်ပြီး ပတ်ဝန်းကျင်ကျယ်ပြန့်၍ မော်တော်ယာဉ်များ ရပ်နားရန်နေရာအလုံအလောက်ရှိပါသည်။

အဝီစိတွင်းများရှိ၍ စက်ရုံသုံးရန်ရေအလုံအလောက်ရရှိပါသည်။ စက်ရုံတွင်းရေစင် ၂ခုရှိပြီး ရေလှောင်ကန်၊ မီးသတ်ရေသိုလှောင်ကန်များလည်း တည်ဆောက်ထားပြီးဖြစ်ပါသည်။ လျှပ်စစ်ဓာတ်အားကို ရန်ကုန် လျှပ်စစ်ဓာတ်အားပေးရေးကော်မီတီထံမှ ရရှိထားပြီး အရံမီးစက်ကိုလည်းထားရှိပါသည်။ တယ်လီဖုန်းလိုင်း၊ အင်တာနက်လိုင်းများလည်းဆက်သွယ်မှုကောင်းမွန်ပါသည်။

လေဝင်လေထွက်အတွက် ပြူတင်းပေါက်များအလုံအလောက်ရှိပြီး၊ ပန်ကာ၊ exhaust or circulation fans များကိုလည်းတပ်ဆင်ထားပါသည်။

အလင်းရောင်အတွက် သဘာဝအလင်းရောင်အလုံအလောက်ရရှိနိုင်ပြီး မလုံလောက်သည့်နေရာများတွင် မီးချောင်းများအလုံအလောက်တပ်ဆင်ထားပါသည်။

ဇုန်သတ်မှတ်ထားမှု

အခြားအထည်ချုပ်လုပ်ငန်းများကဲ့သို့ပင် လုပ်ငန်းများကိုလည်းပတ်ရန်အဓိကဇုန် ၄ ခုအဖြစ်ခွဲခြားထားပါသည်။ ကုန်ပစ္စည်းများထုတ်လုပ်မှုအား ထိန်းချုပ်ရန် အုပ်ချုပ်ရေးဇုန်၊ ကုန်ပစ္စည်းများထုတ်လုပ်ခြင်းအတွက်လုပ်ငန်းလည်ပတ်မှုဇုန်၊ အများသုံးအဆောက်အအုံများအတွက် အပန်းဖြေဖို့

နှင့် စက်ပစ္စည်းခန်း နှင့် လျှပ်စစ်ဓာတ်အားထိန်းချုပ်ခန်းများ၊ သိုလှောင်ခန်း များစသည်တို့ရှိသည်။

SDI အထည်ချုပ်စက်ရုံတွင် ထမင်းစားခန်းများတွင်လေဝင်လေထွက်ကောင်းခြင်းနှင့်အလင်းရောင်ကောင်းခြင်း များအတွက်စီစဉ် ပေးထားပါသည်။ ဝန်ထမ်းတွေအတွက် ထမင်းစားခန်းမတစ်ခုရှိပြီး စားသောက်ဆိုင်ခန်းမရှိပါ။ စက်မှုလုပ်ငန်းကဏ္ဍတစ်ခုအနေနှင့် အပူချိန်မြင့်မားခြင်း၊ လုံလောက်သောအလင်းရောင်နှင့်လေဝင်လေထွက်မရှိခြင်းကြောင့် ဝန်ထမ်းများအနေဖြင့် ကျန်းမာရေးထိခိုက်ခြင်းမရှိစေရန် စီစဉ်တည်ဆောက်ပေးထားပါသည်။ ဝန်ထမ်းများအတွက် ကျန်းမာရေး အိမ်သာများကို လည်းလုံလောက်အောင်စီစဉ်ပေးထားပါသည်။

ဝန်ထမ်းများအတွက် ဆောင်ရွက်ထားပေးမှု

ထုတ်ကုန်များထွက်ရှိမှု အရေအတွက်နှင့်အရည်အသွေးနှစ်ခုလုံးသည်စက်ရုံ၊ စက်ရုံတွင်အသုံးပြုနေသည့် စက်ကိရိယာများနှင့် စက်ပစ္စည်းများ၏ စွမ်းဆောင်နိုင်ရည်များကိုသာမက၊ ဝန်ထမ်းများ၏ကျွမ်းကျင်မှု၊လုပ်ငန်းအပေါ်တွင်ထားရှိသည့် အာရုံစူးစိုက်မှုနှင့်လုပ်ရည်ကိုင်ရည်ပေါ်တွင်လည်း မူတည်နေပါသည်။ မကြာသေးမီနှစ်များကစ၍ စက်ရုံဒီဇိုင်းတည်ဆောက်မှုကို ဝန်ထမ်းများ သက်တောင့်သက်သာဖြင့် လုပ်ငန်းဆောင်ရွက် နိုင်မှုများအတွက် ပိုမို၍ အာရုံစိုက်၍ ရေးဆွဲတည်ထောင်လာခဲ့ပါသည်။

စက်ရုံအဆောက်အဦးဖွဲ့စည်းမှုပုံစံအရ၊ ဝန်ထမ်းများအတွက် ထမင်းစားခန်း၊ နားနေခန်းများထားရှိပြီး ကျန်းမာရေးအတွက် ဆေးခန်းငယ်ကိုလည်းဖွင့်လှစ်ထားရှိ၍ အသိအမှတ်ပြုလက်မှတ်ရ အတွေ့အကြုံရှိသူနာပြုတစ်ဦးကိုလည်းခန့်အပ်ထားပါသည်။ အကယ်၍ ကျန်းမာရေး စိုးရိမ်ရသည့်အခြေအနေ ရှိပါက ကုမ္ပဏီစီမံခန့်ခွဲရေးအဖွဲ့မှ မြို့နယ်ဆေးရုံ ဆေးခန်းများသို့ ပို့ဆောင်ရန်လည်းစီစဉ်ထားပါသည်။

ထမင်းစားခန်း ကိုလည်းသန့်ရှင်းစေပြီး အလုပ်သမားများ ထမင်းစားနားနေချိန်တွင် အနှောက်အယှက်မဖြစ်စေရန် စားပွဲ၊ ခုံများ အလုံအလောက် ထားရှိပေးထားပါသည်။

အိမ်သာများကို လည်း အသုံးပြုရန်ရေအလုံအလောက်ထားရှိပေးခြင်း ရေစီးကောင်းအောင်ထားပေးခြင်း၊ ဆပ်ပြာ၊ လက်ဆေးဇလုံများ စသည်ဖြင့် ပြည့်စုံအောင်စီစဉ်ထားပေးပါသည်။

သောက်ရေကိုလည်း အလုံအလောက်ရရှိအောင်ဖြည့်တင်းပေးထားပါသည်။

သန့်ရှင်းသပ်ရပ်မှု

အမှိုက်စွန့်ပစ်ပစ္စည်းများ၊ ပစ္စည်းများသိုလှောင်ခြင်းနှင့်ကိုင်တွယ်ခြင်းနေရာများကိုပုံမှန်လှည်းကျင်းခြင်း၊ အမှိုက်သရိုက်၊ အမှိုက်၊ အသုံးမပြုနိုင်သော ပစ္စည်းကိရိယာများနှင့်စွန့်ပစ်ပစ္စည်းများကို စက်ရုံအမှိုက်ပုံမှပုံမှန် စွန့်ပစ်ခြင်း၊ ပစ္စည်းများကို လမ်းကြောင်းများမှဝေးရာနေရာများတွင်နေရာချထားခြင်း နှင့်မော်တော်ယာဉ်များကိုစနစ်တကျစီမံခန့်ခွဲနေရာချထားခြင်း များကိုဆောင်ရွက်ထားပါသည်။

အရေးပေါ် အဓိက လျှပ်စစ်ဓာတ်အားပိတ်ခလုပ်ကို လက်လှမ်းမီသည့်နေရာတွင်ထားရှိခြင်း၊ အမှတ်အသားကိုထင်ရှားအောင်ပြသထားပြီး အချိန်မရွေး အသုံးပြုနိုင်ရန် အမြဲတမ်းစစ်ဆေးထားပါသည်။

အနိမ့်ဆုံးအဆင့်သတ်မှတ်ချက်ဖြစ်သော 2-A: 20-B: C နှင့်မီးသတ်ဆေးဘူးများကိုပန့်များနှင့်ဆေးပေးစက်များမှ ၂၃ မီတာ (၇၅ ပေ) ထက်မဝေးသော သတ်မှတ်နေရာများတွင်နေရာချထားပါသည်။ အချိန်မှန် မီးသတ်ဆေးဗူးများအားလုံးကို စစ်ဆေးထားပါသည်။

အနည်းဆုံးထွက်ပေါက်အရေအတွက်

ထုတ်လုပ်ရေးလုပ်ငန်းဌာနတစ်ခုစီအတွင်းရှိအခန်းများနှင့်နေရာများအားလုံးကို ဝန်ထမ်းအရေအတွက်အပေါ်အခြေခံ၍ ထွက်ပေါက်အနည်းဆုံး အရေအတွက်ကို စီစဉ်တည်ဆောက်ထားပြီးဖြစ်ပါသည်။ စုစုပေါင်းဝန်ထမ်း ၅၀၀ ကျော်အတွက် SDI အထည်ချုပ်စက်ရုံတွင် အခြေခံအဆောက်အအုံ၂ ခု တွင်ထွက်ပေါက် (၃) ခုစီထားရှိခြင်းမှာ အဆောက်အဦး တစ်ခုချင်းစီ အတွက်အရေးပေါ်ကိစ္စအတွက်လုံလောက်ပါသည်။

ဝန်ထမ်းအဆောင်

လက်ရှိတွင်ဒေသခံဝန်ထမ်း ၅၆၆ ဦး (ECကန်ထရိုက်စာချုပ်ချုပ်ဆိုထား) ကိုအလုပ်ခန့်ထားပြီးအများစုမှာ စက်ရုံဧရိယာ ပတ်ဝန်းကျင်ရှိ မြို့နယ်များမှဖြစ်ပါသည်။ ၎င်းအပြင်နိုင်ငံခြားသားပညာရှင် ၁၁ ဦးကိုလည်းခန့်အပ်တာဝန်ပေးထားပါသည်။ စက်ရုံဝင်းအတွင်း ၇.၂၃ မီတာ x ၃၀.၄ မီတာရှိသော ဝန်ထမ်းဆောင်တစ်ခုတည်ဆောက်ထားပြီး အထူးသဖြင့်ပြည်ပ စီမံခန့်ခွဲရေးပညာရှင်ဝန်ထမ်းများနေထိုင်ရန်ဖြစ်ပါသည်။ SDI သည် ၎င်းအဆောင်နေဝန်ထမ်းများအား နေရာထိုင်ခင်းနှင့်အဆောင်အတွက်အစားအစာစီစဉ်ပေးရန်တာဝန်ရှိပါသည်။

အဆိုပါ အဆောင်နေဝန်ထမ်းများအတွက် IFC စံနှုန်းများကိုလိုက်နာခြင်း၍နေရာထိုင်ခင်းကိုစီမံခန့်ခွဲမည်ဖြစ်ပါသည်။

ကြိုပို့မော်တော်ယာဉ်များကိုလည်း SDI အထည်ချုပ်စက်ရုံဝန်ထမ်းများအတွက် စာချုပ်ချုပ်ဆိုငှားရမ်းပြီးဖြစ်ပါသည်။ လုံလောက်မှု ရှိအောင်လည်း စီစဉ်ထားပြီးဖြစ်ပါသည်။

စက်ရုံဖွဲ့စည်းပုံ

SDI အထည်ချုပ်စက်ရုံတွင် အထွေထွေမန်နေဂျာသည်စက်ရုံအဖွဲ့အစည်းကို ဦးဆောင်ပါသည်။ ဤစက်ရုံတွင် အဓိကဌာနကြီး ၅ ခုရှိပြီး ၎င်းတို့မှာ ဘဏ္ဍာရေးဌာန၊ ပစ္စည်းတင်သွင်း/တင်ပို့ဌာန၊ ထုတ်လုပ်ရေးဌာန၊ ဆေးဆိုးပန်းရိုက်ဌာန (အဓိကအားဖြင့် ပန်းရိုက်လုပ်ငန်း သာဆောင်ရွက်ပြီး ဆေးဆိုးခြင်းမရှိသေးပါ)၊ နှင့် အုပ်ချုပ်ရေးဌာနတို့ဖြစ်ပါသည်။

ဤဌာနအားလုံးကိုအထွေထွေမန်နေဂျာကိုယ်စားစက်ရုံမန်နေဂျာမှ စီမံခန့်ခွဲခြင်းများပြုလုပ်နေပါသည်။

အထည်ချုပ်စက်ရုံလုပ်ငန်း၏သဘာဝများ

ဒီဇိုင်း ဝယ်သူကပေးသည့်။အမှာစာကိုဝယ်ပြီးနောက်ကုန်သည်သည်ကုန်ကြမ်းကုန်ပစ္စည်း(သို့) Style No. စာရွက် နှင့် ဒီဇိုင်းပုံစံကိုပေးပို့ပါသည်။ ဒီဇိုင်းကို လက်ဖြင့်ဖြစ်စေ ကွန်ပျူတာကိုသုံးခြင်းဖြင့်ဖြစ်စေလုပ်ဆောင်ပါသည်။

ပုံစံပြုလုပ်ခြင်း နည်းပညာပိုင်းဆိုင်ရာ စာရွက်များနှင့်ဒီဇိုင်းပုံစံ များကိုလိုက်နာခြင်းဖြင့် အဝတ်အစားပုံစံတစ်မျိုးစီ ကိုပြုလုပ်ရ သည်။ ၎င်းကိုကိုယ်တိုင် ဖြစ်စေ၊ ကွန်ပျူတာနည်းဖြင့်ဖြစ်စေပြုလုပ်သည်။

နမူနာပြုလုပ်ခြင်း အဓိကမှာထိုအဝတ်အစားပုံစံနှင့်ပတ်သက်သောအသေးစိတ်ညွှန်ကြားချက်ကိုလိုက်နာရန်ဖြစ်သည်။ (ဖြတ်စည်ပုပ်စအလေအလွင့်နည်းစေရန်ဖြစ်ပါသည်)။

ထုတ်လုပ်မှုပုံစံ။ အမြောက်အများထုတ်လုပ်မှုအတွက်ထောက်ပံ့ကြေးကိုအသားတင်အတိုင်းအတာဖြင့်ထည့်သွင်းထားသည်။ ထုတ်လုပ်မှုစက်ချုပ်စက်၊ တွဲစက်၊ ကြယ်သီးတတ်စက်များ ကို အသုံးပြု၍ ပြုလုပ်သည်။

အဆင့်သတ်မှတ်ခြင်း။ အမှာစာအတည်ပြုစဉ်အတွင်း ဝယ်သူကထိုအမှာစာ၏အရွယ်အစားအချိုးအစားကိုအကြံပြုသည်။ ညွှန်ကြားချက်အရ အဆင့် အလိုက်သတ်မှတ်ထားရပါမည်။ အဆင့်သတ်မှတ်ခြင်းကိုကိုယ်တိုင်သို့မဟုတ်ကွန်ပျူတာဖြင့်ပြုလုပ်သည်။

Marker သည်အထည်တစ်ခု၏အစိတ်အပိုင်းအားလုံးပါဝင်သည့်အလွန်ပါးလွှာသောစက္ကူဖြစ်သည်။ ဖြတ်တောက်ခြင်းဖြစ်စဉ်ကို လွယ်ကူစေရန်ပြုလုပ်ရန်လိုအပ်သည်။ Marker ပြုလုပ်ခြင်းလုပ်ငန်းကိုကိုယ်တိုင်ရောကွန်ပျူတာ အသုံးပြု၍ ပါလုပ်ဆောင်နိုင်သည်။

အထည်ဖြန့်ခြင်း။ အထည်ကိုစနစ်တကျဖြတ်တောက်ရန်အထည်ဖြန့်ခြင်းကိုလက်ဖြင့်ဖြစ်စေ၊ ကွန်ပျူတာနည်းဖြင့်ဖြစ်စေပြုလုပ်သည်။

အထည်ဖြတ်တောက်ခြင်း။ Style အထည် အဝတ်အစားအရပိတ်စများကိုဖြတ်ရမည်။ အထည်ဖြတ်တောက်ခြင်းလုပ်ငန်းကို လက်စွဲနည်းစနစ် (ပုံစံစာရွက်ကပ်၍) သို့မဟုတ်ကွန်ပျူတာနည်းဖြင့်သုံးခြင်းဖြစ်သည်။

အစိတ်အပိုင်းခွဲခြင်းအမျိုးတူစုစည်းခြင်း။ ဤနေရာတွင်ဖြတ်တောက်သောအပိုင်းအစများကိုခွဲခြားရန်လိုအပ်သည်သို့မဟုတ် ၎င်းတို့အားနောက်လုပ်ငန်းစဉ် သို့ အလွယ်တကူပို့နိုင်ရန်အတွက်စုစည်းထားရမည်။ ဤလုပ်ငန်းစဉ်ကိုကိုယ်တိုင်ပြုလုပ်ရသည်။

ပေါင်းစည်းခြင်း။ ပြီးပြည့်စုံသောအထည်အလိပ်ကိုပြုလုပ်ရန်အတွက်အထည်အစိတ်အပိုင်းအားလုံးသည်ဤတွင်ပေါင်းစည်းထားကြသည်။ အထည်ချုပ်ခြင်းလုပ်ငန်းကိုကိုယ်တိုင်ပြုလုပ်သည်။

အဝတ်စစ်ဆေးခြင်း။ အထည်ချုပ်ပြီးပါကအမှားနည်းပါးသော(အမှားမရှိသော)အဝတ်အစားများပြုလုပ်ရန်ဤနေရာတွင်စစ်ဆေးသည်။ အဝတ်အစားစစ်ဆေးခြင်းကိုလက်စွဲနည်းဖြင့်ကိုအသုံးပြု ၍ကိုယ်တိုင်ဆောင်ရွက်ပါသည်။

မီးပူတိုက်ခြင်း အဝတ်အစားကိုမီးပူတိုက်ခြင်းကို ပြီးအောင်လုပ်ရန်လိုအပ်သည်။ ဤလုပ်ငန်းစဉ်ကို manual method ဖြင့်ပြုလုပ်သည်။

နောက်ဆုံးစစ်ဆေးခြင်း နောက်ဆုံးတွင်ဝယ်သူ၏သတ်မှတ်ချက်အရအပြည့်အဝကြည့်ရှုစစ်ဆေးသည်။နောက်ဆုံးစစ်ဆေးခြင်းကိုသတ်မှတ်ထားသော လက်စွဲ နည်း(Check List) ဖြင့်ပြုလုပ်သည်။

အထည်ထုပ်ပိုးခြင်း ညွှန်ကြားချက်အပြည့်စုံ ဖြင့်ထုပ်ပိုး ရမည်ဖြစ်ပြီး manual နည်းလမ်းဖြင့်အသုံးပြုသည်။ အဂတ်အထည်များ၏ပျက်စီးဆုံးရှုံးမှုများကိုအနည်းဆုံးဖြစ်အောင်ဝယ်သူများ၏ညွှန်ကြားချက်ကိုထိန်းသိမ်းခြင်းဖြင့်အဝတ်အစားအားလုံးကိုစက္ကူကာတွန်းပုံ (Carton Box) ဖြင့်ထားရမည်။ ဤလုပ်ငန်းစဉ်ကိုကိုယ်တိုင်ပြုလုပ်သည်။

ပေးပို့ခြင်း လိုအပ်သောလုပ်ငန်းစဉ်များအားလုံးပြီးဆုံးပြီးနောက်၎င်းသည်နောက်ဆုံးတွင် ဝ ယ်သူထံပေးပို့သည်။

အဝတ်လျှော်လုပ်ငန်းစဉ်

အဝတ်လျှော်ခြင်းသည်အဝတ်ထည်ကုန်ထုတ်လုပ်မှုလုပ်ငန်းစဉ်များတွင်အထည်များတွက်ကပ်ညှိနေသောဖုန်၊ အစက်အပြောက်များ၊ ရေနံအစွန်းအထင်းများကိုဖယ်ရှားရန်နှင့်ဆေးဆိုးပန်းရိုက်လုပ်ငန်းစဉ်အတွင်းအသုံးပြုသောဓာတုပစ္စည်းများကျန်ရှိနေသည့် အထည်များကို သန့်စင်သွား ရန်အတွက် မရှိမဖြစ်လိုအပ်သည်။ အဝတ်လျှော်ခြင်းနည်းအမျိုးအစားများမှာ heavy enzyme or vintage wash သို့မဟုတ် vintage wash, cloud wash, stone wash, acid wash စသည်တို့ဖြစ်သည်။

ပန်းရိုက်ခြင်းလုပ်ငန်းစဉ်များ

ပန်းရိုက်ခြင်းStyle တစ်ခုသည်လုပ်ဆောင်မှုတစ်ခုပြုလုပ်သည့်ပုံစံကိုရည်ညွှန်းပါသည်။ ထို့ကြောင့်ပန်းရိုက်ခြင်းစတိုင်ဆိုသည်မှာ ပန်းရိုက်သောသောအကျိုးသက်ရောက်မှုကိုပုံစံဖြင့်ထုတ်လုပ်သောနည်းလမ်းနှင့်ပါဝင်သောပုံစံနှင့်ကွဲပြားသည်ဟုဖော်ပြသည်။

ပန်းရိုက်ခြင်းပုံစံတွင်စက်ပိုင်းဆိုင်ရာလည်ပတ်မှုနှင့်ဓာတုဓာတ်ပြုမှုများပါဝင်ပါသည်။

ပန်းရိုက်ခြင်းတွင်အဓိကနည်းလမ်း ၅ ခုရှိသည်။ ၎င်းတို့မှာ block, roller, screen, heat transfer and ink-jet methods နည်းလမ်းများဖြစ်ပါသည်။ Heat transfer နည်းလမ်းသည်အခြားနည်းလမ်းများနှင့်မတူသည်မှာ ၎င်းသည်စက္ကူပေါ်တွင်ပုံနှိပ်ထားသောဒီဇိုင်းမှအစည်မှအမျှင်များထဲသို့အငွေ့အဖြစ်သို့ကူးပြောင်းခြင်းပါဝင်သည်။ အခြားနည်းစနစ်များမှာ ဆေးဆိုးဆေး (သို့) ပန်းရိုက် ဆေးခြယ်ပစ္စည်းများကို အထည်မျက်နှာပြင်ပေါ်တွင်ပုံနှိပ်ထားသောအလွှာဖြင့်ဖိနှိပ်ခြင်းများအသုံးပြုခြင်းများဖြစ်ပါသည်။ ink jet printing လုပ်ငန်းသည်မကြာသေးမီကနှိုင်းယှဉ်ဆောင်ရွက်ခဲ့သည့်ဆန်းသစ်တီထွင်မှုတစ်ခုဖြစ်ပြီး 'ဆိုးကျိုးသက်ရောက်မှုမရှိသော' နည်းလမ်းဟုရည်ညွှန်းသည်။ အဘယ်ကြောင့်ဆိုသော်ပန်းရိုက်ပုံနှိပ်မှု ကိုအထည်နှင့်အမှန်တကယ်ထိတွေ့မှုမရှိသောကိရိယာတစ်ခု မှအထည်အလိပ်သို့ရောင်ခြည်ဖြင့် ပစ်ခြင်းကြောင့်ဖြစ်ပါသည်။

ဤ SDI အထည်ချုပ်စက်ရုံတွင် ပန်းရိုက်ထုတ်လုပ်ခြင်းကို Block Printing ကိုသာအသုံးပြုနေပါသည်။

Block Printing မှာ ပန်းရိုက်လုပ်ကွက်များကိုများသောအားဖြင့်သစ်သားဖြင့်ပြုလုပ်ထားပြီး ဒီဇိုင်းကိုလက်ဖြင့်တည်ဆောက်ရေးဆွဲထားပြီး အဆိုပါပန်းရိုက်ဒီဇိုင်းမျက်နှာပြင်မှ အထည်မျက်နှာပြင်သို့ ပုံနှိပ်ခြင်းပင်ဖြစ်ပါသည်။ ပန်းရိုက်ဒီဇိုင်း ပုံစံကိုပုံနှိပ်၍ မပြီးမချင်း ကွဲပြားခြားနားသောဒီဇိုင်းများနှင့်အရောင်များဖြင့်လုပ်ငန်းစဉ်ကိုထပ်ခါတလဲလဲပြုလုပ်ခြင်းဖြစ်ပါသည်။ Block printing သည်အချိန်ပေး၍ ကြိုးစား လုပ်ကိုင်ရသော လုပ်ငန်းစဉ်ဖြစ်ပြီးစီးပွားဖြစ်အသုံးပြုရန်အတွက်မသင့်တော်သော်လည်း အရှေ့တိုင်းနိုင်ငံများတွင်ထုတ်လုပ်သော ပန်းရိုက် ချည်ထည်အမျိုးအစားများအတွက်စျေးကွက်တည်ရှိနေဆဲဖြစ်ပါသည်။

အထောက်အကူပြုလုပ်ငန်းများ

စက်ရုံများစွာတွင်ကဲ့သို့ပင် အထည်ချုပ်စက်ရုံသည်စက်ရုံအတွင်းထုတ်လုပ်မှုကိုအထောက်အကူပြုရန်ထောက်ပံ့မှုအမျိုးမျိုးလိုအပ်ပါသည်။ ဤအထောက်အကူပြုလုပ်ငန်းများသည်စီမံခန့်ခွဲမှုဆိုင်ရာလုပ်ဆောင်မှုများ၊ စက်ရုံနှင့်စက်ပစ္စည်းများပြုပြင်ထိန်းသိမ်းခြင်း၊ ဘွိုင်လာနှင့် အရန်ပါဝါ မီးစက်ထုတ်လုပ်ခြင်းစသည့်မည်သည့်ကုန်ထုတ်လုပ်မှုလုပ်ငန်းတွင်မဆိုအသုံးများပါသည်။ သကြားစက်ရုံများ၏ ပုံမှန်အားဖြင့် စက်များကို လည်ပတ်ထိန်းသိမ်းခြင်း အတွက် များသောအားဖြင့် ထောက်ပံ့မှု လုပ်ငန်းများအတိုင်းအတာသည် စက်ရုံ၏ထုတ်လုပ်မှုနှင့် အချိုးကျဖြစ်ပြီး အောက်ဖော်ပြပါလုပ်ငန်းများကိုဤလိုအပ်ချက်များအတွက်ထောက်ပံ့ပေးပါသည်။

အသုံးပြုသော ပစ္စည်းများနှင့် အရင်းအမြစ်များ

<u>အဓိကတပ်ဆင်မှု</u>မှာများသောအားဖြင့် ကွန်ပြူတာထိန်းချုပ်သော အထည်ချုပ်စက်ရုံသုံး စက်အမျိုးမျိုးဖြစ်ပြီး Lockstitch machine with automatioc thread trimmer, Button sewing machine, Button holing machine, Computer-controlled, button sewing machine, Computer-controlled, button holing machine, Computer-controlled, lockstitch bartacking machine, Lockstitch machine with edge trimmer, Double. Chanstitch sewing machine, Double chainstitch machine, Machine for making the fornt facing on a 5-threed, overlock machine များ ဖြစ်ပါသည်။ အသုံးပြုပစ္စည်းများကိုအပိုဒ် 3.3 Use of materials and resources ၌ဖော်ပြထား ပါသည်။

ရင်းနှီးမြှုပ်နှံမှု

CMP စနစ်အခြေခံ အထည်ချုပ်စက်ရုံအတွက် <u>ရင်းနှီးမြှုပ်နှံမှု</u>မှာ အမေရိကန်ဒေါ်လာ ၀.၉၈၈ သန်းဖြစ်ပါသည်။ 2.3 Project Proposal Informations and Investment Status တွင်ဖော်ပြထားပါသည်။

စက်ရုံဝန်ထမ်းခန့်ထားမှု အတွက် အင်အားပြည့် အထွေထွေမန်နေဂျာ ၁ဦး၊ စက်ရုံမန်နေဂျာ ၁ဦး၊ ငွေစာရင်းအရာရှိ ၂ ဦး၊ ဈေးကွက်မန်နေဂျာ ၂ ဦး၊ အပါအဝင် လုပ်သား ပြည်တွင်းလုပ်သား ၅၆၆ ဦးအား အလုပ်ရှင်အလုပ်သမား သဘောတူ စာချုပ် ချုပ်ဆိုခန့်ထားခဲ့၍ ပြည်ပကျွမ်းကျင်လုပ်သား (ပညာရှင်) ၁၁ ဦးမှာ လုပ်ငန်းခွင် အတွင်းဝင်ရောက် လုပ်ကိုင်နေပြီဖြစ်ပါသည်။

ကုန်ကြမ်းပစ္စည်းများနှင့် ထုတ်ကုန်များ

CMP အခြေခံအနေဖြင့်နိုင်ငံရပ်ခြားပန်ဆောင်မှုများ၏ထုတ်ပြန်ကြေငြာချက် (အတွင်းအပြောင်းအလဲနှင့်ကုန်ကြမ်းသယ်ယူပို့ဆောင်ရေး) အချက်အလက်များ အပေါ်မူတည်၍ SDI အထည်ချုပ်စက်ရုံသည်အထည်ကုန်ပစ္စည်းများထုတ်လုပ်ရပြီးသတ်မှတ်ထားသော နေရာများသို့ တင်ပို့ခြင်း ဖြစ်ပါသည်။

ကုန်ချောထုတ်ကုန်များကိုအမှာစာလက်ခံရရှိခြင်းမှာ စက်ရုံအဖွဲ့အစည်း၊ သတ်မှတ်ချက်၊ စံချိန်စံညွှန်းများ၊ စက်ရုံတည်နေရာ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအခြေအနေများ စသည့် ပြည်ပမှ လုပ်ငန်းအပ်နှံသည့် ကုမ္ပဏီ၏လိုအပ်ချက်နှင့်လိုက်လျောညီထွေရှိမှုအပေါ်မူတည်ပါသည်။

SDI အထည်ချုပ်စက်ရုံအတွက် CMP အခြေခံ ထုတ်ကုန်များထုတ်လုပ်မှုခန့်မှန်းခြေစုစုပေါင်းထုတ်လုပ်မှုပမာဏမှာ တစ်နှစ်လျှင် ၆၀၀,၀၀၀ ထည် ဖြစ်ပါသည်။ တစ်နှစ်လျှင်နိုင်ငံရပ်ခြားသို့ ပို့ကုန်မှာ ထုတ်လုပ်မှု၏ (၉၉%) ဖြစ်ပြီး ဂျက်ကက်၊ တီရှပ်၊ ဘောင်းဘီ စသည့်အဝတ်အထည်များ ဖြစ်ပါသည်။ ခန့်မှန်းခြေအားဖြင့် တစ်ရက်လျှင် အထည် ၂,၀၀၀ နှင့် တစ်လလျှင် အထည် ၅၀၀၀၀ ကို ဝယ်သူ၏အမှာစာ (အတွင်းပိုင်းပြုပြင်ခြင်းနှင့်ကပ်လျက်သယ်ယူပို့ဆောင်ခြင်း) ပေါ်တွင်မူတည်၍ ကုန်ကြမ်း 92% cotton, 8% elastane pile and 100% polyester double knitted fabric per year မှ ထုတ်လုပ်ပါသည်။

CMP စနစ်ဖြင့် ထုတ်လုပ်ရန် တခြားကုန်ကြမ်းပစ္စည်းများမှာ Interlining, button, labels, hanger, security tag, hangtag, collar size reader, collar insert, collar bone, butterfly, sticker, thread, neck board, back board, tissue paper, photo inlay, plastic clip, pin, poly bag, clips, barcord sticker hanger, badge, tape, carton, ribber, and woven tape တို့ဖြစ်ပါသည်။

SDI အထည်ချုပ်စက်ရုံတွင် ဓာတုပစ္စည်းများအသုံးပြုမှု

SDI အထည်ချုပ်စက်ရုံတွင် စက်ရုံလည်ပတ်မှုလုပ်ငန်းစဉ်အရထုတ်လုပ်မှုလုပ်ငန်းစဉ်ကိုလုပ်ဆောင်ရန် ဓာတုပစ္စည်းအချို့လိုအပ်ပါသည်။ SMART Myanmar ၏ ဓာတုဗေဒပစ္စည်းစီမံခန့်ခွဲမှုအစီရင်ခံစာမှ ဆောင်ရွက်ခဲ့သော Chemical Assessment ၏အဆိုအရစုစုပေါင်းဓာတု ၁၅ မျိုး (အထည်လျှော်လုပ်ငန်းစဉ်မှ ၁၃ ခုနှင့် ပန်းရိုက်ခြင်းလုပ်ငန်းစဉ်အတွက် ၂ ခု) ရှိပါသည်။

အဝတ်လျှော်လုပ်ငန်းစဉ်တွင်အသုံးပြုသောဓာတုပစ္စည်းများနှင့် SDI စက်ရုံမှ ပန်းရိုက်ခြင်းလုပ်ငန်းများအတွက် SDI စက်ရုံရှိ ဓာတုပစ္စည်း

အသုံးပြုမှု ကို ဤအစီရင်ခံစာ၏ 3.3 Use of materials and resources မှ Chemical Material Usage in SDI Manufactory Factory တွင်ဖော်ပြထားပါသည်။

စွမ်းအင်အရင်းအမြစ်

ရေအရင်းအမြစ်၊ သိုလှောင်မှုနှင့် ခန့်မှန်းကုန်ကျမှု

နေ့စဉ်ရေလိုအပ်ချက်အတွက်ရေလိုအပ်ချက်မှာ ၈ တန် - ၈ ကုဗမီတာ(၁၇၆၀ ဂါလံ) ခန့်ဖြစ်ပြီး၊ လိုအပ်သော ရေပမာဏကို စက်ရုံဝင်းအတွင်း တူးဖော် ထားပြီးသော အဝီစိတွင်းများမှထုတ်ယူနိုင်ပါသည်။

စက်ရုံဝင်းအတွင်းရှိ အဝီစိတွင်းများမှ ရေထွက်နှုန်းမှာ တစ်မိနစ်လျှင် ၁၅ ဂါလံစီရှိပြီး(၆လက်မ အချင်း x ၂ လက်မ ပလတ်စတစ်ကွန်ကျူပိုက်) မြေအောက်ပေအနက် ၃၀၀ ပတ်ဝန်းကျင်ခန့်မှ ထုတ်ယူပါသည်။

ရေလှောင်ကန်များ၏ အတိုင်းအတာများမှာ 3.8 m x 2 m x 1.5 m ရေလှောင်ကန် တစ်ခု၊ 4 m x 2 m x 1.5 m ရေလှောင်ကန် (ရေစင်) နှင့် 4.8 m x 7.8 m x 2.5 m မီးသတ်ရေလှောင်ကန် တို့ဖြစ်ပြီး၊ ၂,၅၀၀ ဂါလံ၊ ၂,၆၀၀ ဂါလံနှင့် ၂၀,၀၀၀ ဂါလံအသီးသီးဆန့်ပါသည်။

၎င်းမြေအောက်ရေ၏အရည်အသွေး ဓာတ်ခွဲခန်းစမ်းသပ်မှုရလဒ်ကို အစီရင်ခံစာ၏ Figure 33: Result of Tube Well Water Quality တွင်ဖော်ပြထားပါသည်။

လျှပ်စစ်အရင်းအမြစ်

လျှပ်စစ်အရင်းအမြစ်ကိုရန်ကုန်လျှပ်စစ်ဓာတ်အားပေးရေးကော်ပိုရေးရှင်းမှ ရယူပြီး၊ စက်ရုံမျက်နှာစာတွင်တပ်ဆင်ထားသော ကိုယ်ပိုင် ထရန်စဖော်မာမှတဆင့် လျှပ်စစ်ဓာတ်အားဖြန့်ဝေသုံးစွဲပါသည်။ စက်ရုံအတွက်တစ်နှစ်လျှင် လျှပ်စစ်ဓာတ်အား ၆၀၀,၀၀၀ ယူနစ် သုံးစွဲမည် ဟုခန့်မှန်းထားပြီး၊ တစ်လလျှင် ဖြင့် ၅၀,၀၀၀ ယူနစ် ကုန်ကျမည်ဟု ခန့်မှန်းထားပါသည်။ မီးပျက်ချိန်တွင် အသုံးပြုရန် အရံမီးစက် ကိုလည်းထားရှိပြီး၊ မီးစက်အတွက် တစ်နှစ်လျှင်ဒီဇယ်ဆီ ၄၀,၀၀၀ လီတာခန့်လိုမည်ဟုခန့်မှန်းထားပါသည်။ လျှပ်စစ်ဓာတ်အား အသုံးပြုမှု အတွက် လျှပ်စစ်အန္တရာယ်ကင်းရှင်းရေးလက်မှတ်ကို EI ဦး စီးဌာနမှထုတ်ပေးထားပြီးဖြစ်ပါသည်။

ဘွိုင်လာနှင့်ရေနွေးငွေ့စနစ်

ဤအထည်ချုပ်စီမံကိန်းတွင် ရေနွေးငွေ့ဘွိုင်လာ ၂ ယူနစ်ရှိပြီး ထိုဘွိုင်လာများ၏စွမ်းရည်မှာ ၁.၂၅ နှင့် ၁ MPa အသီးသီးဖြစ်ပါသည်။

ဘွိုင်လာတွင်ရေနွေးငွေ့ပိုက်အတွက်လျှပ်ကာစနစ်၊ ပုံမှန်ရေနွေးငွေ့ပိုက်များ၊ ထိရောက်သောမီးခိုးငွေ့များကုသမှုစနစ်မှတဆင့်ထုတ်ယူခြင်း၊ ငွေ့ရည် ပြန်ခြင်းစနစ်ပြန်လည်ပြုပြင်ခြင်းစနစ်၊ အပူလဲလှယ်ကိရိယာများကို လေ့လာသည့်အချိန်တွင်အသေးစိတ် အချက်အလက်များကို စစ်ဆေးထားသည်ကိုတွေ့ရှိရပါသည်။ ယင်းသို့စစ်ဆေးပြုပြင်ထားခြင်းဖြင့် စွမ်းအင်သုံးစွဲမှုနှင့်ရေသုံးစွဲမှုကိုလျှော့ချနိုင်မည်ဖြစ်ပါသည်။ လက်ရှိ အချိန်တွင် ဘွိုင်လာများ၏ တစ်နေ့ရေအသုံးပြုမှုမှာ ၃၀ ဂါလံစီဖြစ်ပါသည်။ စက်မှုကြီးကြပ်ရေးနှင့်စစ်ဆေးရေးဦးစီးဌာန မှ ဘွိုင်လာ အသုံးပြုခွင့်လက်မှတ် ရရှိထားပြီးဘွိုင်လာ မှတ်ပုံတင်အမှတ် မှာ မစ-၅၉၁၄ ဖြစ်ပါသည်။

စွန့်ပစ်ပစ္စည်းထွက်ရှိမှုနှင့်စီမံခန့်ခွဲမှု

စွန့်ပစ်အစိုင်အခဲ အနေနှင့်ပလပ်စတစ် ပါကင်စက္ကူ၊ စက္ကူစုတ်နှင့်တခြား အထွေထွေအမှိုက်များဖြစ်ပါသည်။ စက်ရုံမှ ထွက်ရှိသော အမှိုက် များမှာ စားသောက်ဆောင်များမှ တစ်ရက်လျှင် ၂ ကီလိုခန့်အထိ ထွက်ရှိခြင်း၊ ဝန်ထမ်း ၅၀၀ ခန့်မှ တစ်ရက်လျှင် ၁၅ မှ ၂၅ ကီလိုဂရမ် ခန့်ထွက်ရှိခြင်းနှင့် စက်ရုံလုပ်ငန်းများမှထွက်သောဖြတ်စညှပ်စများပျမ်းမျှခြင်းအားဖြင့် တစ်ရက်လျှင် ၅၀ မှ ၁၀၀ ကီလို ရမ်ခန့်ထွက်ရှိပါသည်။ တစ်နှစ်လျှင် domestic waste စုစုပေါင်း ၆ တန်မှ ၉ တန်ခန့်အထိသာထွက်ရှိမည်ဖြစ်ပြီး စီမံခန့်ခွဲမှုအနေနှင့် ဤစက်ရုံမှထုတ်လုပ်သော အစိုင်အခဲ စွန့်ပစ်ပစ္စည်းပမာဏကိုလျှော့ချခြင်း၊ စွန့်ပစ်ပစ္စည်းများကိုတတ်နိုင်သမျှပြန်လည်စွန့်ပစ်ခြင်းနှင့်ပြန်လည်အသုံးပြုခြင်း၊ ပတ်ဝန်းကျင်ကို ညစ်ညမ်းမှု မရှိစေမည့်နည်းလမ်းများဖြင့်အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများကိုစွန့်ပစ်ခြင်း၊ ။ မိလ္လာကန်များမှမိလ္လာရေများကို YCDC နှင့်ညှိနိူင်း၍ စွန့်ပစ်ခြင်း များကိုထည့်သွင်းစဉ်းစားပြီး အစိုင်အခဲစွန့်ပစ်ပစ္စည်းစွန့်ပစ်ခြင်းများကို ဆောင်ရွက်နေပါသည်။ တာဝန်အနေနှင့် အမှိုက်ကားများအား ပုံမှန်ခေါ်ယူခြင်း၊ အမှိုက်စုပုံထားရှိမည့်နေရာများအား ဆေးဖြန်းခြင်း၊ သန့်ရှင်းရေးပြုလုပ်ခြင်း၊ အမှိုက်စို၊ အမှိုက်ခြောက်ခွဲခြားခြင်း၊ အမှိုက်ပုံနေရာများတွင် လေဝင်လေထွက်ကောင်းမွန်အောင်ဆောင်ရွက်ခြင်းနှင့်အနံ့များပျံ့လွင့်မှု နည်းပါးအောင် ဆောင်ရွက်ခြင်း များဖြစ်ပါသည်။

လက်ရှိအားဖြင့် YCDC နှင့်ညှိနှိုင်း၍ အခပေးပြီး စွန့်ပစ်ခြင်း၊ အမှိုက်စွန့်ပစ်ခြင်းအတွက် ယုံကြည်စိတ်ချရသော တဆင့်ခံကန်ထရိုက် ပေး၍ စွန့်ပစ်ခြင်း များကို စီမံခန့်ခွဲဆောင်ရွက်နေပါသည်။

စွန့်ပစ်အရည် သည် အဓိကအားဖြင့် ETP မှစွန့်ပစ်ပစ္စည်းစွန့်ပစ်ရေဖြစ်ပြီး၊ ရေဆိုးမှာ ဤစက်ရုံမှလုပ်ငန်းလည်ပတ်မှု အတိုင်းအတာ နှင့် ဆက်စပ်သော အချို့သောအန္တရာယ်ရှိသောဓာတုပစ္စည်းအနည်းငယ်ကိုအဝတ်လျှော်ဌာနနှင့် ပန်းရိုက်ဌာန တို့မှ အသုံးပြုခြင်းမှ ထုတ်လွှတ် ခြင်း ဖြစ်ပါသည်။

မိလ္လာမှစွန့်ပစ်မှုကို YCDC ၏လမ်းညွှန်ချက်နှင့်အညီစွန့်ပစ်ပြီး YCDC နှင့် ဆွေးနွေးတိုင်ပင် စီစဉ်ထားသည့်အတိုင်း YCDC on call စနစ်ဖြင့်ဆက်သွယ်ခြင်းဖြင့်စီမံခြင်းနှင့်စွန့်ပစ်ခြင်းတို့ကိုပြုလုပ်ပါသည်။ အိမ်သာများအတွက်မိလ္လာကန်များလုံလောက်စွာတည်ဆောက်ထားရှိပြီး ယေဘုယျအားဖြင့် ၄ လ မှ ၆ လလျှင် တစ်ကြိမ် တွင်မိလ္လာရေကိုစွန့်ပစ်ပါသည်။

ETP နှင့်ရေဆိုးသန့်စင်ခြင်းမပြုမီ၊ ETP သို့ဝင်ရောက်လာသော ရေဆိုးများ၏ အရည်အသွေးကို စောင့်ကြည့်စစ်ဆေးခြင်းကောက်ယူခဲ့ပြီး သတ်မှတ်ထားသောဓာတ်ခွဲခန်းတွင် ဓာတ်ခွဲစမ်းသပ်ပါသည်။ ရလဒ်ကို အစီရင်ခံစာ၏ Figure 51 တွင်ဖော်ပြထားပါသည်။

အန္တရာယ်ရှိစွန့်ပစ်ပစ္စည်း စက်ရုံ၏လည်ပတ်မှုလုပ်ငန်းစဉ်များအတွင်း အချို့ ဓာတုဗေဒပစ္စည်းများကို အသုံးပြုခဲ့ရပြီး ယင်း ဓာတုပစ္စည်း ထည့်ခဲ့သည့် ဗူးလွတ်၊ ပုလင်းလွတ်များကို စွန့်ပစ်ခြင်းမပြုမီ သီးခြားသိုလှောင်ထားရှိပြီး၊ YCDC ၏ လမ်းညွှန်ချက်အတိုင်းတိတိကျကျလိုက်နာ၍ စနစ်တကျစွန့်ပစ်ပါသည်။

ထုတ်လွှတ်မှုနှင့်အနောက်အယှက်

စက်ရုံမှာ လှိုင်သာယာ စက်မှုဇုန် အမှတ် ၁ အတွင်းတည်ရှိပြီး ပတ်ဝန်းကျင်တွင်တစ်ခြားစက်ရုံများလည်ပတ်နေသောကြောင့်လေထုအတွင်း သို့ ထုတ်လွှတ်မှုများ နှင့်ပူးပေါင်းထွက်ရှိမည်ဖြစ်ပါသည်။ လေထုညစ်ညမ်းမှုအနေနှင့် အလည်အလတ်အဆင့်တွင်ရှိမည်ဖြစ်ပါသည်။

ထုတ်လွှတ်မှုအရင်းအမြစ်

စက်ရုံလည်ပတ်မှုလုပ်ငန်းစဉ်များမှ ထုတ်လွှတ်မှု အရင်းအမြစ်များမှာလေထု၊ ဖုန်မှုန့်များ၊ စက်ရုံလုပ်ငန်းသုံးထွက်ရှိရေ၊ အထွေထွေသုံးစွန့်ပစ်ရေ၊ စီးဆင်းရေနှင့် ဆူညံသံများဖြစ်ပါသည်။

စီမံကိန်းအဆင့်တစ်ခုစီအတွက်စီမံကိန်းရွေးချယ်စရာများ

အခြားရွေးချယ်စရာခွဲခြမ်းစိတ်ဖြာခြင်းအနေနှင့်
SDI Manufacturing Co. , Ltd သည်သူတို့၏တူညီသောနည်းပညာနှင့်အရည်အသွေးကိုမြှင့်တင်ရန်၊ တူညီသောဒီဇိုင်းနှင့်ထုတ်ကုန်တစ်ခု တည်းကိုသာမြှင့်တင်ရန်နှင့်၎င်းတို့၏တည်နေရာအတွက်စံချိန်စံညွှန်းများထက်သာလွန်သောအကောင်းဆုံးစက်ရုံပတ်ဝန်းကျင်တစ်ခုကိုဖန်တီးရန် စီစဉ်ထားခြင်းကြောင့် အခြားရွေးချယ်ရန် မရှိသေးပါ။

ပတ်ဝန်းကျင်ဆိုင်ရာအကြောင်းအရာဖော်ပြချက်

စီမံကိန်းအနီး ပတ်ဝန်းကျင်နှင့် လူမှုဝန်းကျင် ဆိုင်ရာအခြေအနေများကို လေ့လာရာတွင် လိုအပ်သောအချက်အလက်များကို SDI manufacturing Company Limited မှ ၄င်း၊ ဒေသဆိုင်ရာ ဌာန များမှ ၄င်း၊ မိုးလေဝသနှင့်ဇလဗေဒဦးစီးဌာန၊ အင်တာနက်ကွန်ယက်များမှ သော်၄င်း၊ ဌာနဆိုင်ရာ အမိန့်နှင့်ညွှန်ကြားချက်များ အားး၄င်း၊ ဒေသခံ များထံမှ သော်၄င်း စက်ရုံလုပ်သား/ ဝန်ထမ်းများထံမှ သော်၄င်း ကောက်ယူ လေ့လာခဲ့ပြီး လေ့လာမှုကို စက်ရုံဝန်းကျင် အချင်းဝက် ၁ ကီလိုမီတာခန့် အတွင်း သတ်မှတ်၍ လေ့လာခဲ့ခြင်းဖြစ်ပါသည်။

လေ့လာမှုဧရိယာသတ်မှတ်ခြင်း

လေ့လာမှုကိုအဆိုပြုထားသောနေရာမှ ၁ ကီလိုမီတာအချင်းဝက်ပတ်ဝန်းကျင်ကိုဆောင်ရွက်ခဲ့ပါသည်။ SDI manufacturing Company Limited ၏ အထည်ချုပ် စက်ရုံမှာ ၁၆ ဒီကရီ ၅၅ မိနစ် ၄၆.၄၉ စက္ကန့် နှင့် အရှေ့လောင်ဂျီတွဒ် ၉၆ ဒီကရီ ၃ မိနစ် ၃၃.၃၉ စက္ကန့် ပင်လယ်မြေမျက်နှာပြင်အထက် ၂၆ ပေ တွင်တည်ရှိပါသည်။

လေ့လာမှုကိုစီမံကိန်းပတ်ဝန်းကျင် ၁ ကီလိုမီတာအကွာတွင်သာအလေးပေးဆောင်ရွက်ခဲ့ပါသည်။ စီမံကိန်းနေရာသည်ငွေပင်လဲစက်မှုဇုန်တွင် တည်ရှိသောကြောင့်စက်ရုံတည်နေရာနှင့် ၂ ကီလိုမီတာအကွာတွင်စက်မှုလုပ်ငန်းအမျိုးမျိုးလည်ပတ်နေပါသည်။ စက်ရုံတည်နေရာ၏ အနီးဆုံး လူနေထူထပ်သောဧရိယာသည်စက်မှုဇုန်ပင်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်ဆိုင်ရာအခြေခံအချက်များ (အနီးပတ်ဝန်းကျင်)

စီမံကိန်းတည်နေရ	စီမံကိန်းနေရာအတွင်းရှိမြေအသုံးပြုမှုသည်မြေလွတ်ဖြစ်သည်။ မြေလွတ်မြေရိုင်းများကို ယခင်ကအမှိုက်ပုံအဖြစ် အသုံးပြုခဲ့သည်ဟု ယူဆရပါသည်။
ပတ်ဝန်းကျင်မြေအသုံးပြုမှု	ပတ်ဝန်းကျင်မြေယာအသုံးပြုမှုစစ်တမ်းကောက်ယူခြင်းကို စီမံကိန်းနယ်နိမိတ်မှမီတာ ၂၀၀ အကွာအဝေးအထိသာ အလေးပေးခဲ့ပါသည်။ထားခဲ့သည်။ စက်မှုဇုန်၊ စီးပွားရေးနှင့်လူနေအိမ်အဆောက်အဦးများပါဝင်ပါသည်။။ ဤစက်ရုံပတ်လည်တွင်စက်ရုံများ၊ ကုမ္ပဏီများရှိပါသည်။ Universal Cold Store သည်ဤစက်ရုံ၏ဘယ်ဘက်ခြမ်းတွင်ရှိပြီး ဂိုဒေါင်အလွတ်သည်စက်ရုံ၏ အနောက်ဖက်တွင်ရှိပြီး၊ မြောက်ဘက်တွင် မြေလွတ်သည်လမ်းထက်ကျော်လွန်ပြီးညာဘက်ခြမ်းတွင်ရှိပါသည်။
ရာသီဥတု	လှိုင်သာယာမှာ အပူပိုင်းမုတ်သုန်ရာသီဥတုဖြစ်ပြီး ခြောက်သွေ့သောရာသီဥတုမှာ နိုဝင်ဘာမှ ဧပြီအထိ၊ စိုစွတ်သောရာသီ ဥတုကို ဧပြီမှ အောက်တိုဘာအထိဖြစ်သည်၊ ပျမ်းမျှမိုးရေချိန် ၂၉၀၃.၃ မီလီမီတာ ဖြစ်ပြီး အပူချိန်အမြင့်ဆုံးမှာ ၄၁.၀ ဆယ်စီးယပ်စ် နှင့် အနိမ့်ဆုံးမှာ ၂၅ ဒီကရီဆဲစီးရပ်စ်ဖြစ်ပါသည်။ နှစ်စဉ်အငွေ့ပျံနှုန်းမှာ ပျမ်းမျှ ၂၄၇ မီလီမီတာရှိပါသည်။ ဖေဖော်ဝါရီလမှ မေလမှာ အပူဆုံးလများဖြစ်ပါသည်။
မြေမျက်နှာသွင်ပြင် နှင့် ဘူမိအနေအထား	အကြမ်းအားဖြင့် ပြင်ညီဖြစ်ပြီး ပင်လယ်မြေမျက်နှာပြင်မှ ၁၀၀ ပေအထိရှိပါသည်၊ Gradient မှာ တောင်ဘက် ရန်ကုန်မြစ် ဘက်သို့တဖြေးဖြေးနိမ့်ဆင်းပါသည်၊ အခြေခံကျောက်မှာ အနည်ကျကျောက်ဖြစ်ပါသည်။
ရေပြင်အနေအထားနှင့် ရေစီးဆင်းမှု	စီမံကိန်းမှာ လှိုင်မြစ်၏အရှေ့ဘက် ၁ကီလိုမီတာခန့်အကွာတွင်ရှိပြီး တွံတေးတူးမြောင်းနှင့် ရန်ကုန်မြစ်အကြားတွင်ရှိပါသည်၊ သဘာဝအတိုင်းရေမှာ မြင့်ရာမှ နိမ့်ရာလှိုင်မြစ်ဘက်သို့စီးဆင်းသည်၊ စီမံကိန်းပတ်ဝန်းကျင်တွင် ချောင်းအသေးများသာ စီးဆင်းပြီး ရေလွှမ်းမိုးခြင်းမှာ ၅ နှစ်အတွင်းအနည်းငယ်မျှရှိပါသည်။
ငလျှင်အန္တရာယ်	ရန်ကုန်တိုင်းဒေသကြီးမြောက်ပိုင်းတွင်ဖြစ်နိုင်ချေရှိသောငလျင်အရင်းအမြစ်သည်သာယာဝတီဧရိယာတွင်တည်ရှိပါသည်။ ပဲခူး ၏အနောက် ဘက်အစိတ်အပိုင်းများအတွက် ပြတ်ရွှေ့များကိုတွေ့ရှိရပြီး ၎င်းပြတ်ရွှေ့များနှင့် ဆက်စပ်ဝိသေသလက္ခဏာများကြောင့် ငလျှင်အန္တရာယ်ဖြစ်နိုင်ဖွယ်ရှိပါသည်။

မြေအသုံးချမှု	စက်မှုဇုံ ၁ အတွင်းတည်ရှိပြီး လှိုင်သာယာမှာ မြို့ပြ ၁၃၁၉၁.၅၅၂ ဧကဖြစ်၍ စက်မှုဇုံမှာ ၃၄၅၅.၆၇၈ ဧကဖြစ်ပါသည်။.
လမ်းပန်းဆက်သွယ်ရေး	စီမံကိန်းပတ်ဝန်းကျင်တွင် အဓိကလမ်းမကြီး ၃ခုရှိပြီး ရန်ကုန်-ပုသိမ်လမ်း၊ လှိုင်မြစ်လမ်းနှင့် လှိုင်သာယာ တံတားလမ်းတို့ဖြစ်ပါသည်။
ရေပြင်အနေအထား	အနီးစပ်ဆုံးရေပြင်အနေအထားမှာ စီမံကိန်းနှင့် ၀.၇၀ ကီလိုမီတာတွင်လှိုင်မြစ်တည်ရှိပါသည်။
လူမှုစီးပွားရေး	ဤ ဧရိယာ၏ဇဟိုလ်မှာ ရန်ကုန်-ပုသိမ်လမ်းနှင့်လှိုင်မြစ်လမ်းဆုံရာတွင်တည်ရှိပြီး လှိုင်သာယာမီးခွက်ဈေးတည်ရှိပါသည်၊ FMI City တည်ရှိပြီး အိမ်ယာအဆောက်အဦးများရှိပြီး၊ မြို့ပြလူနေမှုစနစ်အဆင့်ရှိပါသည်။
အခြေခံအဆောက်အဦ	အခြေခံအဆောက်အဦးအနေနှင့် ရေ၊ လျှပ်စစ်၊ မိလ္လာ သန့်ရှင်းရေး များရှိပြီးတည်ဆောက်ဆဲအနေအထားဖြစ်ပါသည်၊ ဒေသဖွံ့ဖြိုးတိုးတက်ရန်အတွက် ရင်းနှီးမြုပ်နှံမှု များလိုအပ်နေဆဲဖြစ်ပါသည်။
ပတ်ဝန်းကျင်အရည် အသွေး	Air Quality - ဤဒေသ၏လေထုအရည်အသွေးမှာ အာရှတိုက်မြို့ကြီးများစံချိန်စံညွှန်းအတိုင်းရှိသည်ဟုမဆိုနိုင်ပါ၊ လေထုညစ်ညမ်းစေသော စက်ရုံလုပ်ငန်းများနှင့်မော်တော်ယာဉ်များသွားလာမှုများပြားလာသောအခြေအနေတွင်ရှိပါသည်၊ ၂၀၀၇-၂၀၀၈ အတွင်းရန်ကုန်မြို့တော်အတွင်း နေရာ ၃ ခုတွင်တိုင်းတာခဲ့ရာ ဆာလဖာဒိုင်အောက်ဆိုဒ်နှင့် နိုက်ထရိုဂျင်အောက်ဆိုဒ် အဆင့်မှာ WHO ၏ လက်ခံနိုင်သော အဆင့်အောက်တွင်ရှိနေပါသည်၊ PM 10 အဆင့်မှာ လက်ခံနိုင်သော အဆင့်ထက် ကျော်လွန်နေကြောင်းနမူနာကောက်ယူခြင်းမှ သိရှိရပါသည်၊ ကန်ရေချောင်းရေ မြစ်ရေအရည်အသွေး ကို ကောက်ယူစမ်းသပ်ခဲ့ခြင်းမရှိခဲ့ပါ၊ စိုက်ပျိုးရေးနှင့်မွေးမြူရေးအတွက် အသုံးပြုပြီးသော မြေအောက်ရေများကြောင့် လက်ရှိမြေအောက်ရေအရည်အသွေးမှာ စိုးရိမ်ဘွယ်ရာအခြအနေတွင်ရှိပါသည်၊ ၃၄ % သော မြေအောက်ရေများကို အဝီစိတွင်းများမှ ထုတ်ယူနေပြီး သံဓာတ်ပါဝင်မှုမြင့်မားနေပါသည်၊ (မူမူသန်း ၂၀၁၀)၊ ဆူညံသံအဆင့်အနေနှင့် အသေးစိတ် တိုင်းတာခြင်း မပြုခဲ့သော်လည်း သယ်ယူပို့ဆောင်ရေးနှင့်အုပ်ချုပ်ရေးဦးစီးဌာန၏ ခန့်မှန်းချက်အရ ၁၁၅ dB ထက်ကျော်လွန်ခြင်းမရှိ ဘဲ ခရီးသွားများနှင့်လုပ်သားပြည်သူများအတွက်ထိခိုက်နိုင်ခြင်းမရှိဟုဆိုခဲ့သော်လည်း ယေဘုယ အားဖြင့် မော်တော်ယာဉ် အသွားအလာများ မှ ဆူညံသံများထွက်ရှိခြင်းမှာ အရေးပါသောထိခိုက်မှုပင်ဖြစ်ပါသည်။ .

အရင်းအမြစ်မှာမြို့နယ်အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာနမှဖြစ်သည်။ လှိုင်သာယာမြို့နယ်ဧရိယာဆိုင်ရာသတင်းအချက်အလက်များကို ၂၀၁၇ ခုနှစ်၊ မတ်လ၊ တွင်ထုတ်ဝေသည်

ရုပ်ပိုင်းဆိုင်ရာပတ်ဝန်းကျင်

လေထုအရည်အသွေး

ပတ် ဝ န်းကျင်လေထုအရည်အသွေးကိုနမူနာယူခြင်းနှင့်လေ့လာသုံးသပ်ခြင်းအားအမေရိကန်ပြည်ထောင်စုပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအေဂျင်စီ (US EPA) ၏ထောက်ခံချက်ကိုကိုးကားခြင်းဖြင့်ပြုလုပ်ခဲ့ပါသည်။ Haz-Scanner ပတ်ဝန်းကျင်လေအရည်အသွေးတိုင်းတာရေးကိရိယာ (EPAS) ကိုပတ်ဝန်းကျင်လေထုစစ်တမ်းကောက်ယူရန်အသုံးပြုခဲ့ပါသည်။ နမူနာနှုန်း (သို့) လေအရည်အသွေးအရည်အသွေးအချက်အလက်များ ကို တစ်မိနစ်တိုင်းတိုင်းအလိုအလျောက်တိုင်းတာပြီးတိုင်းတာသောတိုင်းတာချက်များ (SO_2, NO_2, CO_2, CO, H_2S, O_3, CH_4, PM_{10} နှင့် $PM_{2.5}$) တို့ကိုတိုက်ရိုက်ဖတ်ပြီးမှတ်တမ်းတင်ခဲ့ပါသည်။

စစ်တမ်းကောက်ယူသည့်နေရာတစ်ခုတွင် တစ်မိနစ်လျှင်တစ်မိနစ်တိုင်းရရှိသောလေထုအရည်အသွေးစစ်တမ်းရလဒ်များကို ပေါင်းစပ်ခြင်းဖြင့် နေ့စဉ်ပျမ်းမျှတန်ဖိုးများကို (၂၄ နာရီသို့မဟုတ် ၈ နာရီသို့မဟုတ် ၁ နာရီသို့မဟုတ် ၁၀ မိနစ်) ထပ်မံအကဲဖြတ်ရန်နှင့် သက်ဆိုင်ရာ စံတန်ဖိုးများနှင့် နှိုင်းယှဉ်ရန်ဖြစ်ပါသည်။

လေထုညစ်ညမ်းမှုကိုထုတ်လွှတ်ခြင်းသည်ယာဉ်များလှုပ်ရှားနေစဉ်အမျိုးမျိုးသောလှုပ်ရှားမှုများမှဖြစ်ပေါ်နိုင်သည်။
အထွေထွေလေထုညစ်ညမ်းမှုအတွက်၊ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု) NEQEG နှင့် စီမံကိန်းအတွက် လေထုအရည်အသွေး သည်လမ်းညွှန်ချက်များအတွင်းတွင်ရှိမရှိနှိုင်းယှဉ်ရန် ကိုးကားအသုံးပြုခဲ့ပါသည်။။။

စစ်တမ်းရလဒ်အရလေထုထုတ်လွှတ်မှုအဆင့် PM_{10} နှင့် $PM_{2.5}$ သည်ဤဧရိယာတဝိုက်ရှိအခြားစက်ရုံများနှင့် ပေါင်းစပ် သက်ရောက်မှုရှိသော်လည်း လမ်းညွှန်ချက်များအတွင်းတွင်ရှိသည်ဟုမှတ်သားနိုင်ခဲ့ပါသည်။

PM_{10} (24 hr), $PM_{2.5}$ (24 hr), NO_2, SO_2, O_2 level စသည်တို့နှင့်ပတ်သက်သောအသေးစိတ်အချက်အလက်များကို အစီရင်ခံစာ၏ Figure 46 တွင်ဖော်ပြထားပြီး၊ လေထု၏အရည်အသွေးမှာ WHO ၏လေထုအရည်အသွေးလမ်းညွှန်မှုနှင့်နှိုင်းယှဉ်ဖော်ပြထားပြီးလက်ခံနိုင်ဖွယ် အခြေအနေတွင်ရှိပါသည်။

လက်ရှိဆူညံသံအဆင့်များ

စီမံကိန်းအနီးရှိဆူညံသံအဆင့်တိုင်းတာမှုကို ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေးအစီအစဉ်လေ့လာရေးအဖွဲ့မှပြုလုပ်သည်။ ဆူညံသံအဆင့်တိုင်းတာခြင်းနေရာ ၆ ခုတွင်ဆူညံမှုအဆင့်အားလုံးသည် ၅၅ dB အောက်လျော့နည်းသောကြောင့်၎င်းသည်လူနေအိမ်ရာအတွက် WHO ၏နေ့ခင်းဘက်ဆူညံသံ သတ်မှတ်ချက် စံနှုန်းအတွင်းတွင်ရှိပါသည်။

စီမံကိန်းဧရိယာများရှိဆူညံသံအဆင့်တိုင်းတာခြင်းရလဒ်အရထုတ်လုပ်မှုလုပ်ငန်းဧရိယာများတွင် ဆူညံသံအဆင့် (Leqday) သည် ၄၂.၀ မှ ၆၇ dB အကြားတွင်ရှိနေပြီး၊ ဘွိုင်လာဧရိယာလုပ်ငန်းလည်ပတ်ချိန်တွင် 44 dBရှိနေခြင်းကြောင့် WHO ၏နေ့ခင်းပိုင်း သတ်မှတ်ထားချက်လမ်းညွှန်အတွင်းရှိနေပါသည်။ မီးစက်မောင်းနှင်ချိန်တွင်မီးစက်တည်နေရာအနီး တိုင်းတာရရှိမှုမှာ ၅၅ dB အထိရှိနေသည်ကိုတွေ့ရှိရပြီး ပြင်ပ မှ မော်တော်ယာဉ်အသွားအလာမှထွက်ရှိသည့် ဆူညံသံများကြောင့်တိုးပွားသက်ရောက်မှုလည်း ဖြစ်နိုင်ပါသည်။

ရေအရည်အသွေး

SDI အထည်ချုပ်စက်ရုံတွင်အသုံးပြုသောရေအရည်အသွေးကောက်ယူစမ်းသပ်မှု တွင် ဤစက်ရုံအတွက်အသုံးမပြုသော မြေပြင်ရေ မျက်နှာပြင်အခြေအနေ (ဥပမာ လိုင်မြစ်ရေ) ကိုယာခုအချိန်ထိဓာတ်ခွဲခန်းစမ်းသပ်မှုမရှိသေးပါ။ စက်ရုံတွင်းရှိ အဝီစိတွင်းများမှ ထုတ်ယူသုံးစွဲသော မြေအောက်ရေအရည်အသွေးအခြေအနေ၊ စက်ရုံလုပ်ငန်းများလည်ပတ်ခြင်းမှ ထုတ်လွှတ်သော စွန့်ပစ်ရေ(Effluent Treatment Plant သို့ အဝင်) နှင့်(Effluent Treatment Plant) မှ ထုတ်လွှတ်သော သန့်စင်ပြီး စွန့်ပစ်ရေ (စုစုပေါင်းနေရာ ၃ ခု)တို့အားဓာတ်ခွဲခန်းသို့ပို့ဆောင်စမ်းသပ်ခဲ့ပါသည်။

ဓာတ်ခွဲခန်း စမ်းသပ်ချက်များအရ ယေဘုယျအားဖြင့် အဝီစိတွင်းမှ ထုတ်ယူသုံးစွဲခဲ့သော မြေအောက်အရည်အသွေးမှာ အသင့် အတင့်ကောင်းမွန်မှုတသောအနေအထားတွင်ရှိနေသည်ဟုခန့်မှန်းရရှိပါသည်။ Figure 33: Result of Tube Well Water Quality

Effluent Treatment Plant သို့အဝင် လုပ်ငန်းများမှ စွန့်ပစ်ရေအရေအသွေးရလဒ်ကို Figure 50 တွင်ဖော်ပြထားပြီး၊ သန့်စင်ပြီးစွန့်ပစ်ရေ၏အရေအသွေး ရလဒ်ကို Figure 52 တွင်ဖော်ပြထားပါသည်။

Effluent Treatment Plant ဖြင့်သန့်စင်ထားသောစက်မှုလုပ်ငန်းစွန့်ပစ်ရေအရည်အသွေးကို NEQEG မှ (Effectent နှင့် Sanitary Discharges (General Application) နှင့်နှိုင်းယှဉ်ထားသည်။ Table 27 တွင်ဖော်ပြထားပြီးအရည်အသွေးသည်လမ်းညွှန်မှုတန်ဖိုးအတွင်းဖြစ်ပါသည်။

ဇီဝပတ်ဝန်းကျင်

စီမံကိန်းနေရာသည်ငွေပင်လုံစက်မှုဇုန်အတွက်တည်ဆောက်ထားသောပတ်ဝန်းကျင်တစ်ခုဖြစ်သည်။
ထိုနေရာတွင်ရှာဖွေတွေ့ရှိခဲ့သည့်သစ်ပင်ပန်းမန်များနှင့်သတ္တဝါများသည်ရန်ကုန်ဇရိယာတွင်အဆန်းမဟုတ်သောဇာတိမျိုးစိတ်များဖြစ်သည်။
အကာအကွယ်ပေးထားသောမျိုးစိတ်များ၊ ထိန်းသိမ်းစောင့်ရှောက်ရေးတန်ဖိုးများကိုဖော်ထုတ်သတ်မှတ်ခြင်းမရှိပါ။

လူမှုစီးပွားရေးနှင့်ယဉ်ကျေးမှုဆိုင်ရာရှုထောင့်

ပြည်သူ့အင်အားဦးစီးဌာန(DOP) ၏ ၂၀၁၄ အစီရင်ခံစာအရလှိုင်သာယာမြို့နယ်တွင်နေထိုင်သူ ၆၈၇,၈၆၇ ဦး ရှိ၍ ယောကျ်ားနှင့်မိန်းမ ဦးရေအချိုးမှာ ၄၆.၉%၊ ၅၃.၁% နှင့် ၇၀.၁ ရာခိုင်နှုန်းသောမြို့ပြလူ ဦး ရေရှိသည်။ ရပ်ကွက် ၂၀၊ ကျေးရွာအုပ်စု ၉ ခုရှိသည်။ ထို့အပြင်အိမ်ထောင်စု ၁၄၈,၇၁၁ တွင်ပျမ်းမျှအိမ်ထောင်စုအရွယ် ၄.၅ ရှိသည်။ ၂၀၁၄ ခုနှစ်တွင်မြို့နယ်လူ ဦး ရေ၏ထက်ဝက်ကျော်သည်အသက် ၁၅ နှစ်မှ ၆၄ နှစ်ကြားဖြစ်ပြီးစုစုပေါင်းမှီခိုမှုအချိုးမှာ ၃၇.၃% ရှိသည်။ စတုရန်းကီလိုမီတာတိုင်းတွင်လူ ဦး ရေ ၁၀၂၁၀.၆ ရှိသည်။

လှိုင်သာယာမြို့နယ်တွင် " ကုန်ထုတ်လုပ်မှု" လုပ်ငန်းတွင်အလုပ်လုပ်ကိုင်သူ ဦး ရေအချိုးသည် ၂၉.၁ ရာခိုင်နှုန်းဖြင့်အမြင့်ဆုံးဖြစ်သည်။ ဒုတိယအမြင့်ဆုံးစက်မှုလုပ်ငန်းမှာဆောက်လုပ်ရေးလုပ်ငန်းဖြစ်ပြီး ၁၆.၁ ရာခိုင်နှုန်းဖြစ်သည်။ "ကုန်ထုတ်လုပ်မှု" လုပ်ငန်းတွင် အလုပ်လုပ်ကိုင်သော အမျိုးသား ၁၃.၇ ရာခိုင်နှုန်းနှင့်အမျိုးသမီး ၅၀.၇ ရာခိုင်နှုန်းရှိသည်။

မြို့နယ်သည်ရန်ကုန်မြို့၏အခြားဒေသများနှင့်အောင်ဇေယျတံတား၊ ဘုရင့်နောင်တံတားနှင့်ရွှေပြည်သာတံတားတို့ကို ဖြတ်၍ ရန်ကုန်မြစ်တစ်လျှောက် ချိတ်ဆက်မိနေသောကြောင့် အဆိုပြုထားသောနေရာ နှင့် ရန်ကုန်များသို့ အဝင်အထွက်အတွက် ဝင်ပေါက်ထွက်ပေါက် များများစွာရှိပါသည်။

လှိုင်သာယာသည် ၁၉၈၀ ပြည့်လွန်နှစ်များကတည်ထောင်ခဲ့သောမြို့ပြမြို့သစ်များတွင်အဖွံ့ဖြိုးဆုံးဖြစ်သည်။ လှိုင်သာယာစက်မှုဇုန်သည်အထည်ချုပ်နှင့်အခြားအပေါ့စားစက်မှုလုပ်ငန်းများစွာဖြင့်ဖွဲ့စည်းထားပါသည်။။ နိုင်ငံ၏အကြီးဆုံးစက်မှုဥယျာဉ်မြို့တစ်ခုလည်းဖြစ်ပါသည်။

မြို့နယ်၏အရှေ့တောင်ပိုင်းတွင် FMI City နှင့်ပန်းလှိုင်ဥယျာဉ်အိမ်ရာများရှိပါသည်။ နာဂစ်မုန်တိုင်းအပြီးတွင်လှိုင်သာယာ မြို့နယ်သည်ဒုက္ခသည်များကြောင့်လူ ဦး ရေများပြားလာခဲ့ပါသည်။

၁ ကီလိုမီတာအကွာအဝေးအတွင်းရှေးဟောင်းသုတေသနနှင့်ယဉ်ကျေးမှုအမွေအနှစ်နေရာများမရှိပါ။

၁.၃ ကျန်းမာရေးမူဝါဒများ၊ ကတိကဝတ်များ၊ ဥပဒေဆိုင်ရာလိုအပ်ချက်များနှင့်အဖွဲ့အစည်းဆိုင်ရာအစီအစဉ်များ

ကုမ္ပဏီမူဝါဒများ

ပတ်ဝန်းကျင်ဆိုင်ရာမူဝါဒ

စီမံကိန်းနှင့်ပတ်သက်သောပတ်ဂန်းကျင်ညစ်ညမ်းမှုများကိုစီမံခန့်ခွဲရန်နှင့်သဘာဝပတ်ဝန်းကျင်နှင့်သဘာဝအရင်းအမြစ်များကိုကာကွယ်ရန်အတွက် ပုံမှန်လွတ်လပ်သော တတိယပါတီစောင့်ကြည့်လေ့လာခြင်းနှင့် မြင့်မားသော ထိန်းသိမ်းမှုတန်ဖိုးကို အကဲဖြတ်ခြင်းများကို SDI Manufacturing Co., Ltd ၏အထည်ချုပ်စီမံကိန်း တွင်ပြဌာန်းထားသည်။

ကုမ္ပဏီအနေဖြင့်ဖက်စပ်လုပ်ဖော်ကိုင်ဖက်များနှင့်အသေးစားလုပ်ကိုင်သူများအားဤမူများကိုထိန်းသိမ်းရန်နှင့်အကောင်အထည်ဖော်ရန်အားပေးသည်။ ပတ်ဂန်းကျင်ဆိုင်ရာမူဝါဒအားအခါအားလျော်စွာပြန်လည်သုံးသပ်ခြင်းသည်၎င်းနှင့်သက်ဆိုင်မှုနှင့်အသုံးဝင်မှုတို့ကိုခေတ်မီစေရန် သေချာစေသည်။

လူမှုရေးမူဝါဒ

SDI ၏ရည်မှန်းချက်မှာပတ်ဝန်းကျင်ရှိအိမ်နီးချင်းများနှင့်သဟဇာတဖြစ်သောဆက်ဆံရေးမှတစ်ဆင့်ငွေရေးကြေးရေးအရအမှီအခိုကင်းသော

လူထုအဖွဲ့အစည်းထူထောင်ရန်ဖြစ်သည်။ SDI သည်အထည်ချုပ်လုပ်ငန်းနှင့်သက်ဆိုင်သောအခြေခံအဆောက်အအုံ၊ဝန် ဆောင်မှုနှင့် အလုပ်အကိုင်များ မှတစ်ဆင့်ဒေသတွင်းစီးပွားရေးများကိုအထောက်အကူပြုရန်ကြိုးပမ်းနေပါသည်။

အလုပ်ခွင်ကျန်းမာရေး၊ ဘေးကင်းရေးနှင့်ပတ်ဝန်းကျင်ဆိုင်ရာမူဝါဒ

SDI Manufacturing Factory ဝန်ထမ်းများ၏ကျန်းမာရေးလုံခြုံမှုနှင့်စပ်လျဉ်း။ ၎င်း၏ ဝန်ထမ်းများ၊ ကန်ထရိုက်တာများ၊ ဖောက်သည်များနှင့် ဧည့်သည်များ၏လုပ်ငန်းလည်ပတ်မှုတိုင်း၌လုံခြုံစိတ်ချရသောပတ်ဝန်းကျင်ကိုပေးအပ်ရန် SDI Manufacturing Co.,Ltd ၏ကျင့်ဝတ်နှင့် ဥပဒေရေးရာတာဝန်ဖြစ်ပါသည်။

<u>မူဝါဒနှင့်ဥပဒေမူဘောင်</u>

မြန်မာနိုင်ငံ၏မူဝါဒနှင့်ဥပဒေမူဘောင်သည်စီမံကိန်းနှင့်သက်ဆိုင်သည့်အပြည်ပြည်ဆိုင်ရာစာချုပ်များ၊ ယေဘုယျအားဖြင့်ဤပေါ်လစီ၊ ဥပဒေမူဘောင်၊လုပ်ငန်း စာချုပ်များနှင့်သဘောတူညီချက်များအားလုံးသည်ပတ်ဝန်းကျင်ကိုကာကွယ်ရန်၊ ခေါင်းပုံဖြတ်အမြတ်ထုတ်မှုကိုတားဆီးရန်နှင့် မြန်မာပြည်သူများအတွက်အာမခံချက်ပေးရန်ရည်ရွယ်ထားပါသည်။ SDI Manufacturing Co.,Ltd ၏ကိုယ်ပိုင်ပေါင်းစပ်ထားသောမူဝါဒများသည်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးကိုအထောက်အကူပြုပါသည်။။ မျှတသောအလုပ်သမားစံနှုန်းများကိုမြှင့်တင်ပေးထားပါသည်၊

<u>မြန်မာနိုင်ငံ၏သဘာဝပတ်ဝန်းကျင်၊ ကာကွယ်စောင့်ရှောက်ရေးနှင့်လူမှုရေးဆိုင်ရာဥပဒေများအတွက်ဥပဒေရေးရာကတိကဝတ်</u>

လုပ်ငန်းခွင် ကျန်းမာရေးနှင့်ဘေးအန္တရာယ်ကင်းရှင်းရေး၊ မတော်တဆထိခိုက်မှုများ၊ အလုပ်ချိန်နှင့်သက်သာချောင်ချိရေးနယ်ပယ်များ၊ ပြဌာန်းထားသောအားလပ်ရက်လစာများ၊ လုပ်ငန်းခွင်ဘေးအန္တရာယ်ကာကွယ်ရေးနှင့်ကျန်းမာရေးစောင့်ရှောက်မှုစသည့် လုပ်ငန်းခွင်များနှင့်ပတ်သတ်သည့် ပြဌာန်းချက်များ၊ နှင့်လူမှုရေးကိစ္စများအတွက်အထူးဆက်စပ်သောကဏ္ဍများအတွက်ဥပဒေများကိုဤအစီရင်ခံစာ၏ အခန်း ၄.၅ တွင်ဖော်ပြထားပါသည်။

အကျဉ်းချုပ်အားဖြင့် စီမံကိန်းနှင့်သက်ဆိုင်သည့် ဥပဒေရေးရာများအတွက် အုပ်ချုပ်ရေးဆိုင်ရာကဏ္ဍ (မြန်မာနိုင်ငံမီးသတ်တပ်ဖွဲ့ဥပဒေ-၂၀၁၅ အပိုဒ် ၂၅)၊ လယ်ယာမြေဥပဒေ ၂၀၁၂၊ ယဉ်ကျေးမှုအမွေအနှစ်ဒေသကာကွယ်စောင့်ရှောက်ရေးနှင့်ထိန်းသိမ်းရေးဥပဒေ -၂၀၁၉ (အပိုဒ် ၁၃၊ ၁၅၊၂၂)၊ ပို့ကုန်သွင်းကုန်ဥပဒေ ၂၀၁၂ အပိုဒ် ၁၂၊ ပြည်ထောင်စုမြန်မာနိုင်ငံပြည်သူ့ကျန်းမာရေးဥပဒေ၊ ၁၉၇၂၊ အပိုဒ် ၃-၅၊ မြန်မာဟိုတယ်နှင့်ခရီးသွားလာရေးဥပဒေ၊ ၁၉၉၃၊ ပုဂ္ဂလိကစက်မှုလုပ်ငန်းဥပဒေ ၁၉၉၀ (၂၆.၁.၁၉၉၉)၊ ရင်းနှီးမြှုပ်နှံမှုဥပဒေ၊ ၁၈.၁၀.၂၀၁၆၊. ရင်းနှီးမြှုပ်နှံမှုစည်းမျဉ်းများ) 20.09.2018], အပိုဒ် 202, 203, 206, 212၊ အလုပ်သမားအဖွဲ့အစည်းဥပဒေ၊ ၂၀၁၁၊ ၉.၃.၂၀၁၂၊ အပိုဒ် ၁၇၊ ၁၈၊ ၁၉၊ ၂၀၊ ၂၁၊ ၂၂၊ အလုပ်သမားအငြင်းပွားမှုဆုံးဖြတ်ချက်အက်ဥပဒေ [၂၈.၃.၂၀၁၂] [၃.၀.၀၂၀၁၉] ။ အပိုဒ် 38, 39, 40, 51၊ အလုပ်သမားများလျော်ကြေး အက်ဥပဒေကိုပြင်ဆင်သည့်ဥပဒေ ၁၉၂၃ (၁၁.၅.၂၀၀၅)၊ အလုပ်အကိုင်နှင့်ကျွမ်းကျင်မှုဖွံ့ဖြိုးတိုးတက်ရေးဥပဒေ (၃၀.၈.၂၀၁၃)၊ အပိုဒ် ၅၊ ၁၄၊ ၁၅၊ အနိမ့်ဆုံးလုပ်ခလစာဥပဒေ၊ ၂၀၁၃၊ အပိုဒ် ၁၂ (က - င)၊ ၁၃ (က - ဆ)၊ လုပ်ခလစာဥပဒေ၊ ၂၅.၀၁.၂၀၁၆၊ အပိုဒ် ၃၊ ၄၊ ၅၊ ၉၊ ၁၀၊ ၁၄၊ လုပ်ငန်းခွင်ကျန်းမာရေးနှင့်လုံခြုံမှုဥပဒေ (၂၀၁၉၉) ၁၅.၃.၂၀၁၉၊ အခန်း ၃၊ ၈၊ အခန်း ၇၊ အပိုဒ် ၂၂/၂၃၊ လူမှုဖူလုံရေးဥပဒေ၊ ၂၀၁၂၊ (၁.၄.၂၀၁၄)၊ အပိုဒ် ၁၁ (က) (ခ)၊ ၁၅ (က)၊ ၁၈ (ခ)၊ ၄၈ (က)၊ ၄၉ (က) (ခ)၊ ၅၁ (က) (ခ), 53 (က), 54 (က) (ခ), 75၊ သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ ၂၀၁၂၊ အပိုဒ် ၇ (()၊ ၁၄၊၁၅၊ ၂၃၊ ၂၄၊ ၂၉, ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာနည်းဥပဒေ ၂၀၁၄၊ နည်းဥပဒေ ၆၉၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းလုပ်ထုံးလုပ်နည်း ၂၀၁၅၊ အပိုဒ် ၁၀၂၊၁၀၃၊ ၁၀၄၊ ၁၀၅၊ ၁၀၆၊ ၁၀၇၊ ၁၀၈၁၁၀၊ အစရှိသည့်ဥပဒေ၊ နည်းဥပဒေ၊ လုပ်ထုံးလုပ်နည်းများကို လိုက်နာဆောက်ရွက်သွားမည်ဖြစ်ပါသည်။

၁.၄ ပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများနှင့်လျှော့ချရေးအစီအမံများ၏အကျဉ်းချုပ်

<u>ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ချက်</u>

လုပ်ငန်းခွင်အဆင့်များတွင်အထည်ချုပ်စက်ရုံကိုလည်ပတ်ရန်အသုံးပြုသော်လည်းအထည်ချုပ်နှင့်သက်ဆိုင်သောသက်ရောက်မှုများကို တစ်နှစ်ပတ်လုံးအတွက်စဉ်းစားရမည်ဖြစ်ပါသည်။ သက်ဆိုင်သောအစိတ်အပိုင်းများအပေါ် ပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများနှင့် ၎င်းတို့၏ထိခိုက်မှုပြင်းအားကို သက်ဆိုင်ရာ အဓိကအချက်အလက်ရင်းမြစ်များ၊ ယုံကြည်စိတ်ချရသောအလယ်တန်းအချက်အလက်များ၊ ကြိုတင်ဖော်ထုတ် ထားသည့် စစ်တမ်းအချက် အလက်များ ကောက်ယူခြင်း၊ စစ်ဆေးရမည့်စာရင်းများ၊စီမံကိန်းသက်ရောက်မှု၏အရေးပါမှုအဆင့်ကို IFC လမ်းညွှန်ချက်များနှင့် ကျွမ်းကျင်မှု ဆိုင်ရာဆုံးဖြတ်ချက်စံများအပေါ်အခြေခံ၍ ဆုံးဖြတ်ရမည်ဖြစ်ပါသည်။

စီမံကိန်းသက်ရောက်မှု၏အရေးပါမှုအဆင့်များကို IFC လမ်းညွှန်ချက်များနှင့်ပညာရှင်ဆိုင်ရာဆုံးဖြတ်ချက်စံများအပေါ် အခြေခံ၍ ဆုံးဖြတ်ခဲ့ပါသည်။ အဓိကအစိတ်အပိုင်းများမှာအထည်ချုပ်စက်ရုံ၏တိုက်ရိုက်နှင့်သွယ်ဝိုက်သက်ရောက်မှုဇုန်များအတွင်းရေ၊ လေ၊ ဆူညံမှု၊ ဇီဝနှင့်လူမှုပတ်ဝန်းကျင်ဖြစ်သည်။

ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် EMP ၏အဓိကရည်ရွယ်ချက်အရ သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုရေးထိခိုက်မှု အလားအလာ ရှိမရှိဆုံးဖြတ်ရန်မှာ စီမံကိန်းနေရာတွင်ဆောင်ရွက်နေသောလုပ်ငန်းများ၊ လုပ်ဆောင်မှုများနှင့် ဆက်စပ်နေပါသည်။ ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာအကဲဖြတ်မှု၏တွေ့ရှိချက်များကို အခြေခံ၍ အောက်ပါပတ်ဝန်းကျင်ဆိုင်ရာ ခံစားရနိုင်သည့်နေရာများသည် ညစ်ညမ်းမှု ဖြစ်နိုင်ချေရှိသည် ဟုလတ်တလောတွင်အကဲဖြတ်နိုင်ပါသည်။

၎င်းတို့သည် <u>မြေဆီလွှာများ၊ မြေအောက်ရေများ၊ မြေအောက်ရေ၊ မြေမျက်နှာပြင်ပတ်ဝန်းကျင် / ဂေဟာစနစ်၊ ဒေသတွင်းလေအရည်အသွေးနှင့်</u>

ရေအရင်းအမြစ် စသည်တို့ဖြစ်ပါသည်။

အလားအလာရှိသောသဘာဝပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများနှင့်အခြေခံလျော့ပါးစေရေးနည်းလမ်းများ

လေထုအတွင်းထုတ်လွှတ်မှု

စီမံကိန်းနေရာတွင်အထည်ချုပ်စက်ရုံ မှဓာတ်ငွေ့ထုတ်လွှတ်မှုကိုလေထုအတွင်းသို့ထုတ်လွှတ်သည့်နေရာ ၂ ခုရှိပြီး ၎င်းတို့မှာ ဘွိုင်လာ မီးခိုးခေါင်းတိုင် ၂ ခုမှ ထုတ်လွှတ်မှု၊ နှင့် အရံ ဒီဇယ်ဆီသုံး မီးစက် မီးခိုးခေါင်းတိုင်တစ်ခုမှ ထုတ်လွှတ်မှု၊တို့ဖြစ်ပါသည်။

ထိခိုက်မှုလျော့ချရေး

စီမံကိန်းသည် Boiler House မှလေထုထုတ်လွှတ်မှုများကိုတစ်နှစ်လျှင်နှစ်ကြိမ်သို့မဟုတ် ECD ၏ညွှန်ကြားချက်ကိုလိုက်နာ၍ ရလဒ်များကို IFC (ကမ္ဘာ့ဘဏ်) ၏ အသေးစားလောင်ကျွမ်းခြင်း အထောက်အကူများထုတ်လွှတ်မှုများအတွက် လမ်းညွှန်ချက်များနှင့်နှိုင်းယှဉ်ပြီးပြုပြင်ခြင်းနှင့် တတိယ ပါတီ ကို တာဝန်ပေးအပ်၍ စစ်ဆေးခြင်းစသည်တို့အားဆောင်ရွက်နေပါသည်။

စီမံကိန်းသည်နှစ်စဉ်တစ်နှစ်လျှင်နှစ်ကြိမ်စီမံကိန်းဧရိယာ၌ပတ်ဝန်းကျင်လေထုအရည်အသွေးကိုစောင့်ကြည့်ရန် ခန့်အပ်ထားသော တတိယ အဖွဲ့အစည်း ကိုတာဝန်ပေး တိုင်းတာစစ်ဆေးစေပြီး စီမံကိန်းစတင်ချိန် မှစ၍ ရလဒ်များကို WHO Ambient Air အရည်အသွေးလမ်းညွှန်ချက်များ (၂၀၀၅) နှင့် ECD ၏ NEQEG တို့နှင့်နှိုင်းယှဉ်ခဲ့ပါသည်။

ဆူညံသံ

စက်ရုံကိုစစ်ဆေးသည့်အချိန်တွင်စွမ်းအားပြည့်လုပ်ငန်းလည်ပတ်ခြင်းမရှိသော်လည်း အပြည့်အဝ လည်ပတ်သည့်အခါ ဆူညံသံအဆင့်များသည် မြင့်မားနိုင်ပါသည်။ ဒေသခံအသိုင်းအဝိုင်းထံမှဖြေဆိုသူစစ်တမ်းများအရ စက်ရုံမှဆူညံသံကိုပြဿနာတစ်ခုအဖြစ်ဖော်ပြခြင်းမရှိခဲ့ပါ။

အနံ့ဆိုး

စက်ရုံကိုစစ်ဆေးသည့်အချိန်တွင်စက်ရုံလည်ပတ်မှုရှိသော်လည်းစစ်တမ်းကောက်ယူမှု မှတ်တမ်းများအရ စီမံကိန်းနယ်မြေမှ ထွက်ရှိသော အနံ့ဆိုးများကိုပြဿနာတစ်ခုအဖြစ်ဖော်ပြခဲ့ခြင်းမရှိခဲ့ပါ။

စက်မှုစွန့်ပစ်ရေဆိုး

ဤ စက်ရုံတွင် ဘွိုင်လာများအလုပ်လုပ်ချိန်အတွင်း wet Scrubber unit ရေစစ်များကိုဖြတ်၍ထွက်ရှိသည့် တစ်နာရီလျှင် ၀.၀၂ ကုဗမီတာခန့်သာထွက်သည့် အနည်းငယ်သောစွန့်ပစ်ရေနှင့် အဝတ်လျှော်စက်များနှင့် ပန်းရိုက်ဌာနများမှ ထုတ်လွှတ်သည့် အခြား စွန့်ပစ်ရေ များကို ရေပိုက်လိုင်းများမှတစ်ဆင့်စက်ရုံအလယ်ပိုင်းဧရိယာတွင်တည်ရှိသော " Effluent Treatment Unit" သို့ထုတ်လွှတ်နေပါသည်။ ရေဆိုးသန့်စင်ခြင်းလုပ်ငန်းစဉ်မှတဆင့် ပိုက်လိုင်းများမှထုတ်လွှတ်သော နောက်ဆုံးထွက်ရှိသော သန့်စင်ပြီးစွန့်ပစ်ရေကို စီမံကိန်း ဧရိယာ၏ အလယ်ပိုင်းကိုဖြတ်ပြီးစက်ရုံအပြင်ဘက်ရှိ ပုဂ္ဂလိကရေမြောင်းသို့ ဆက်သွယ်ထားသည့် ရေမြောင်းငယ်ထဲသို့ ့စွန့်ပစ်ပါသည်။ ယင်းသို့ စွန့်ပစ်ခြင်းမပြုမီ လက်ခံနိုင်သည့် လမ်းညွှန်ချက်အဆင့် အတွင်းရှိ/မရှိ ရေအရည်အသွေးကိုဆန်းစစ်ရမည်ဖြစ်ပါသည်။

လျှော့ချရေး

စီမံကိန်းအနေဖြင့်နောက်ဆုံးစွန့်ပစ်ရေကို "Efflluent Treatment Plant"'s influent point (ထွက်ပေါက်) တွင် နမူနာကောက်ယူခဲ့၍ စက်မှုလုပ်ငန်းစွန့်ပစ်ရေစွန့်ပစ်ပစ္စည်းအရည်အသွေးစံချိန်စံညွှန်းများနှင့် ECD ၏ NEQEG တွင်ဖော်ပြထားသော စံချိန်စံညွှန်းအတွင်းရှိ /မရှိ နှိုင်းယှဉ်နိုင်ရန် ISO 17025 အသိအမှတ်ပြုဓာတ်ခွဲခန်းတစ်ခုသို့ ပို့ဆောင်စမ်းသပ်ခဲ့ပါသည်။

စက်ရုံဝင်းအတွင်း စီးဆင်းရေမြောင်းများကို ရေဆင်းကောင်းအောင်တည်ဆောက်ထားပြီးဖြစ်ပါသည်။

မိလ္လာရေဆိုး

စက်ရုံမန်နေဂျာမှရှင်းလင်းချက်အရမိလ္လာရေကိုမြေအောက်မိလ္လာကန်များသို့စွန့်ပစ်နေပါသည်။ မိလ္လာရေတွင် ammoniacal နိုက်ထရိုဂျင် ပါဝင်မှုမြင့်မားစွာ ပါဝင်နိုင်ပြီးမြေဆီလွှာနှင့်မြေအောက်ရေကိုထိခိုက်စေနိုင်သည့် ညစ်ညမ်းစေနိုင်၍ အန္တရာယ်ရှိဘက်တီးရီးယားများနှင့်ရောဂါပိုးများပါဝင်နိုင်ပါသည်။

SDI Manufacturing အထည်ချုပ်စက်ရုံတွင်မူ YCDC နှင့်ဆွေးနွေးစီစဉ်ထားသည့်အတိုင်းစီမံကိန်းစတင်ကတည်းကတစ်နှစ်အနည်းဆုံးနှစ်ကြိမ် YCDC ၏မိလ္လာထရပ်ကားမှထောက်ပံ့ခြင်းဖြင့်မိလ္လာများကိုစွန့်ပစ်နေပါသည်။

အန္တရာယ်ရှိသောပစ္စည်းများ

ဟိုက်ဒရိုကာဘွန် (ဒီဇယ်၊ ဓာတ်ဆီ၊ ဆီစသည့်လောင်စာ) ကိုကွန်ကရစ်ကြမ်းခင်းခင်းထားသော ကြမ်းပြင်ရှိအခန်းတွင်းတွင်သိုလှောင်ထားပါသည်။ အန္တရာယ်ရှိသောဓာတုပစ္စည်းများကိုလည်းကွန်ကရစ်ကြမ်းခင်းပါဝင်သော စက်ရုံအဆောက်အအုံရှိအခန်း တစ်ခုတွင် စနစ်တကျသိမ်းဆည်းထားပြီး၊ သိမ်းဆည်းသိုလှောင်ထားသောဓာတုပစ္စည်းများ၏အချက်အလက်များကိုလည်း မှတ်တမ်းများနှင့်တကွ မှတ်သား ဖော်ပြထားပါသည်။ ၎င်းတို့တွင် Brightener / 4bk and /ba, perhydrol, oxalic acid, Yuan Ming Powder, Enzyme powder, detergent, Fixing agent, bleach, Acetic acid, Stabilizer, environmental silicone, and Na_2CO_3 တို့ပါဝင်ပါသည်။

အန္တရာယ်မရှိသောအစိုင်အခဲစွန့်ပစ်ပစ္စည်းများ

စက်ရုံရှိ စနစ်တကျအမှတ်အသားများပြုလုပ်ထားသောအဓိကအန္တရာယ်ရှိသောအစိုင်အခဲစွန့်ပစ်ပစ္စည်းအခန်း (မှတ်သားထားသည် မှလွဲ၍) တွင်ရုံးနှင့်မီးဖိုချောင်သုံးစွန့်ပစ်ပစ္စည်းများကဲ့သို့သောယေဘုယျအမှိုက်များမှာ အန္တရာယ်မရှိသည့် စွန့်ပစ်ပစ္စည်းများပါဝင်ပါသည်။ လုပ်ငန်းခွင်လေ့လာစစ်ဆေးမှုပြုလုပ်စဉ်၊ အမှိုက်များကို စက်ရုံ၏မြောက်ဘက်တွင်ရှိသော စွန့်ပစ်အမှိုက်သိုလှောင်ခန်းတွင် စနစ်တကျထားရှိကြောင်း တွေ့ရှိရပါသည်။

အန္တရာယ်ရှိသောအစိုင်အခဲစွန့်ပစ်ပစ္စည်း

လုပ်ငန်းခွင်လည်ပတ်မှုများကြောင့်အစိုင်အခဲအန္တရာယ်ရှိသောစွန့်ပစ်ပစ္စည်းပမာဏသိသိသာသာများပြားလာခြင်းမရှိပါ။

စီမံကိန်းအဆင့်တစ်ခုစီအတွက်အလားအလာရှိသောသက်ရောက်မှုများ

ပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများခွဲခြားခြင်း

အထည်ချုပ်စက်ရုံအတွက်ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာသက်ရောက်မှုများနှင့်အထည်ချုပ်လုပ်ငန်းနှင့် ဆက်စပ်သောလှုပ်ရှားမှုများအတွက် ဖော်ထုတ်ရရှိသောသက်ရောက်မှုများ၏ပြင်းထန်မှု၊ အတိုင်းအတာနှင့်ကြာချိန်အပေါ် အခြေခံ၍ ခွဲခြားထားပါသည်။ သက်ရောက်မှုများ ၏ပြင်းထန်မှု၊ အစိတ်အပိုင်းများ၏သဘာဝပတ်ဝန်းကျင်တန်ဖိုးနှင့်နှောင့်အယှက်များ၏ဒီဂရီအားဖြင့်ဖော်ထုတ်ခဲ့ပါသည်။ ခွဲခြားခံရသည့် သက်ရောက်မှုများကို ၎င်းတို့၏ပြင်းထန်မှုအဆင့်နှင့်ပတ်ဝန်းကျင်ဆိုင်ရာအစိတ်အပိုင်းများ၏ထိခိုက်လွယ်မှုပေါ် မူတည်၍ သိသာထင်ရှားသောအဆင့်အဖြစ်ခွဲခြားထားသည်။ ဥပမာ။ (VH) အလွန်မြင့်မား, (H) အမြင့်, (M) အလတ်စား, (L) အနိမ့်နှင့် (VL) အလွန်နိမ့်သည် စသည်ဖြင့်၊

ပတ်ဝန်းကျင်နှင့်လူမှုပတ်ဝန်းကျင်ဆိုင်ရာထိခိုက်မှုများအားဖော်ထုတ်ခြင်းအတွက်စံတမ်းအဆင့်ကို အစီရင်ခံစာ၏ အခန်း (၅) သက်ရောက်မှု များ နှင့် လျော့ပါးစေရေးနည်းလမ်းများ မှ Table 32 တွင်ဖော်ပြထားပါသည်။

ပိတ်သိမ်းပြီးနောက်အဆင့်မှသဘာဝပတ်ဝန်းကျင်နှင့်လူမှုရေးသက်ရောက်မှုဖော်ထုတ်ခြင်း၏အနှစ်ချုပ်ကိုလည်း အခန်း (၅) သက်ရောက်မှု များ နှင့် လျော့ပါးစေရေးနည်းလမ်းများ မှ Table 33 တွင်ဖော်ပြထားပါသည်။

သိသာထင်ရှားသောဆိုးရွားသောပတ်ဝန်းကျင်နှင့်လူမှုရေးသက်ရောက်မှုများ

ပဏာမဆွေးနွေးချက်များ၊ နောက်ခံသုတေသနနှင့် ပရောဂျက်ဆိုက် ထောက်လှမ်းမှုတို့အပေါ် အခြေခံ၍ တိကျသောစီမံကိန်း၏အခြေအနေတွင် ထိခိုက်လွယ် သို့မဟုတ် အရေးပါသည်ဟု ယူဆရသော ပတ်ဝန်းကျင်၏ အဓိကရှုထောင့်များနှင့် အရင်းအမြစ်များစာရင်းကို အာရုံစိုက်ထားသောစာရင်းတစ်ခုလည်းဖြစ်သည်။ အနီးနားရှိ လူမှုအသိုက်အဝန်းရှိ ပရောဂျက်လှုပ်ရှားမှုများ၏ ဖြစ်နိုင်ချေရှိသော ဆိုးရွားသောပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ အကျိုးသက်ရောက်မှုများ၊ နှင့် လျော့ပါးရေးအစီအမံများကို **အောက်ဖော်ပြပါဇယား**တွင် ဖော်ပြထားပါသည်။

စီမံကိန်းဆောင်ရွက်မှုများကြောင့်ဖြစ်နိုင်ချေရှိသောဆိုးကျိုးသက်ရောက်မှုများနှင့်စီမံကိန်း၏ဆိုးကျိုးသက်ရောက်နိုင်သည့်လူမှုသက်ရောက်မှုများကို အစီရင်ခံစာ၏ Table 34 နှင့် Table 35 တို့တွင်ဖော်ပြထားပါသည်။

<u>လျှော့ချရေးအစီအမံ</u>

အကျိုးထိခိုက်မှုဖော်ထုတ်ခြင်းနှင့်သက်ရောက်မှုများအားကြိုတင်ကာကွယ်ခြင်းသို့မဟုတ်လျှော့ချခြင်းအတွက်လျော့ပါးစေမည့်နည်းလမ်းများကို ဤအစီရင်ခံစာ၏ အခန်း ၇ တွင်ဖော်ပြထားသည်။ စီမံကိန်းအဆိုပြုသူသည်လျှော့ချရေးအစီအမံများကို လက်တွေ့အကောင်အထည် ဖော်မည်ဖြစ်ပြီး စီစဉ်ထားသောအစီအမံများ၏ထိရောက်မှုကိုပုံမှန်စောင့်ကြည့်ပါမည်။ တိုင်းတာမှုတစ်ခုသည်ရည်ရွယ်ထားသောရလဒ်များနှင့် ကိုက်ညီမှုမရှိပါကမှန်ကန်သောအရေးယူမှုကိုထည့်သွင်းစဉ်းစားမည်ဖြစ်ပါသည်။

လေ၊ ရေ၊ မြေဆီလွှာ၊ ရေနံနှင့်အမဲဆီညစ်ညမ်းမှု၊ အစိုင်အခဲစွန့်ပစ်ပစ္စည်းနှင့် ဓာတုလေထုညစ်ညမ်းမှုတို့သည် ညစ်ညမ်းစေသောသက်ရောက်မှုများဖြစ်ကြပါသည်။ အန္တရာယ်ရှိသောဓာတုပစ္စည်းများကိုင်တွယ်ခြင်း၊ ယာဉ်အသွားအလာသက်ရောက်မှု၊ အလုပ်သမားလိုအပ်မှုနှင့် လူမှုရေးပဋိပက္ခများကိုလည်းလုပ်ငန်းလည်ပတ်နေစဉ်ကာလတွင်လျှော့ချရန်လိုအပ်ပါသည်။

အထက်ဖော်ပြပါသက်ရောက်မှုများအတွက်လျော့ပါးစေရေးနည်းလမ်းများကိုလုပ်ငန်းလည်ပတ်မှုအဆင့်တွင်သာမကရပ်သိမ်းခြင်းသို့မဟုတ်ပိတ်သိမ်းပြီးနောက်တွင်လုပ်ဆောင်ရမည်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်ဆိုင်ရာ အစိတ်အပိုင်း	ထိခိုက်မှု	သက်ရောက်မှု အရင်းအမြစ်များနှင့် အင်္ဂါရပ်များ	ထိခိုက်မှုအလားအလာ	လျှော့ပါးစေရေးအစီအမံများ
ပတ်ဝန်းကျင် လေထု	လေထုညစ်ညမ်းမှု အမှုန်အမွှားများ PM ပျံ့လွင့်ခြင်း။ ပြာပျံလွင့်ခြင်း SO2, NOX, VOCs ထုတ်လွှတ်မှု	အလတ်စား ထင်းအမှုန်များလောင်စာလောင်ကျွမ်းခြင်း နှင့် မီးခိုးအစုအဝေးများ ထုတ်လွှတ်ခြင်း။ မော်တော်ယာဉ်များမှ ထုတ်လွှတ်သော လောင်ကျွမ်း မှု	ဘွိုင်လာလုပ်သား၊ ဒေသခံအသိုင်းအဝိုင်းများ၊ ကျောင်းများ၊ ဆေးရုံ၊ ဘုန်းတော်ကြီးကျောင်း၊ စသည်	• ဘွိုင်လာများနှင့် ဆက်စပ်ပစ္စည်းများကို ပုံမှန်ထိန်းသိမ်းခြင်း၊ နှင့် ဘွိုင်လာတွင် အငွေ့ထုတ်လွှတ်မှုလျှော့ချရေးစနစ်များ တပ်ဆင်ခြင်း။
	ဖုန်မှုန့်များ လွင့်စင်ခြင်း	သယ်ယူပို့ဆောင်ရေးလမ်းများ	နေ့စဉ်လုပ်သားများ၊ ဒေသခံအသိုင်းအဝိုင်းများ၊ သယ်ယူပို့ဆောင်ရေးလုပ်သားများ၊ ရေမျက်နှာပြင်ကိုလည်း ရောက်ရှိနိုင်ပါသည်။	• ခြောက်သွေ့ပြီး လေတိုက်သည့် အခြေအနေများတွင် ရေလောင်း ခြင်းဖြင့် ဖုန်မှုန့်တွေကြောင့် သက်ရောက်မှုတွေကို လျှော့ချပေးနိုင်သည်။ မွန်းတည့်ချိန်မဟုတ်ပဲ မြေဆီလွှာမှ ရေများစုပ်ယူနိုင်စေရန်အတွက် နံနက်စောစောတွင် ဖြန်းခြင်း သို့မဟုတ် ရေလောင်းခြင်းများ ပြုလုပ်ရပါမည်။
ပတ်ဝန်းကျင်ဆူညံသံ	ဆူညံသံနှင့် တုန်ခါမှု	ကုန်ကြမ်း/ကုန်ချော သယ်ယူပို့ဆောင်ရေးကုန်တင်ယာဉ်များ သွားလာမှု အပ်ချုပ်ခြင်း၊ ဖြတ်တောက်ခြင်း၊ ဘွိုင်လာလုပ်ငန်းစဉ်များ၊ မီးစက်များကဲ့သို့သော စက်ရုံ၏စက်များလည်ပတ်ခြင်း၊	ဝန်ထမ်းများ၊ ဒေသခံအသိုင်းအဝိုင်းများ၊ ကျောင်းများ၊ ဆေးရုံဘုန်းတော်ကြီးကျောင်း၊ ကျေးငှက်တိရိစ္ဆာန်	• ပစ္စည်းတင်ခြင်းနှင့် သယ်ယူခြင်းများကို ဂရုတစိုက်ကိုင်တွယ်မှု • ထိခိုက်မှုနည်းသောနည်းပညာများ အလုပ်အကိုင်၊ • ခေတ်မီအသံလုံစက်ကိရိယာများကို အသုံးပြုခြင်း၊ • အသံအကာအရံများ သို့မဟုတ် နံရံများတည်ဆောက်ခြင်း၊ ဥပမာ၊ အုတ်နံရံဖြင့် စနစ်တကျ ကြားခံဇုန် ဧရိယာ
ပတ်ဝန်းကျင်မြေဆီလွှာ/ မြေအသုံးချမှု	တိုက်စားခြင်း၊ အနည်ထိုင်ခြင်း။	သက်ဆိုင်သောယာဉ်များနှင့် လမ်းများ	နေရင်းသတ္တဝါများ၊ ဝန်ထမ်းများ၊ ရေမျက်နှာပြင်၊ ရေကန်၊ ဒေသခံအသိုင်းအဝိုင်းများ	• သင့်လျော်သော ကွန်ကရစ်ရေနုတ်မြောင်းများ ဆောက်လုပ်ခြင်းဖြင့် ပြာများနှင့် စွန့်ပစ်ရေများ စုဆောင်းရန် ရေကန်များ စီးဆင်းလာခြင်း၊ ယိုစိမ့်ခြင်း၊ ယိုစိမ့်ခြင်း၊ မုန်တိုင်းဒီရေတက်ခြင်းနှင့် သဘာဝဘေးဒဏ်ကြောင့် ရေတိုက်စားခြင်းနှင့် ညစ်ညမ်းခြင်းတို့ကို ကာကွယ်ရန်။ • စက်ရုံနှင့်ရပ်ရွာနှစ်ခုလုံးတွင် ငလျင်နှင့် မုန်တိုင်းအန္တရာယ်ဖြစ်နိုင်ချေအတွက် အရေးပေါ်တုံ့ပြန်မှုအစီအမံများကို ဒီဇိုင်းရေးဆွဲထားခြင်း၊ ဥပမာ- ဓာတ်ဆီ သို့မဟုတ် ဒီဇယ်လောင်စာသုံးပစ္စည်းများအတွက် ယိုဖိတ်ခြင်းနှင့် ယိုစိမ့်ခြင်းအတွက် သင့်လျော်စွာ စီစဉ်ထားခြင်း၊
	သတ္တုမှုန်များအနည်ကျခြင်း	ပုဂ္ဂလိက ရေမြောင်းအတွင်း စွန့်ပစ်ရေ အနည်ကျခြင်း လုပ်ငန်းစဉ် သတ္တုမှုန်များပါဝင်နေသောစွန့်ပစ်ရေများ၊ စီးဆင်းရေ၊ ရေလျှံမှု		
လူ့ကျန်းမာရေး	ဓာတုညစ်ညမ်းမှု ယိုဖိတ်ခြင်း၊ ယိုစိမ့်ခြင်း။ ကျန်းမာရေး	ထိခိုက်မှု ဓာတုပစ္စည်းများ သယ်ယူပို့ဆောင်ရေး၊ သိုလှောင်မှု၊ ကိုင်တွယ်မှုနှင့် စီမံဆောင်ရွက်မှု၊ အမှားအယွင်း	ဓာတုအဖွဲ့သားများ အနီးနားရှိ ရေအရင်းအမြစ်များ၊ မြေဆီလွှာ၊ လေ၊ ရပ်ရွာလူထုကျန်းမာရေး	• ဓာတုသိုလှောင်ပုံးများကို တိုက်ရိုက်ဖြစ်စေ သို့မဟုတ် ဖယ်ရှားခြင်းမပြုမီ သိုလှောင်မှုအတွင်း၌ဖြစ်စေ ပတ်ဝန်းကျင်သို့ စိမ့်ဝင်မသွားစေရန် • ရေနံ သို့မဟုတ် ဓာတုပစ္စည်း၊ အစိုင်အခဲ၊ ညစ်ညမ်းသောအညစ်အကြေး များ၊ အပျက်အစီးများနှင့် အခြားညစ်ညမ်းမှုများကြောင့် ရေမျက်နှာပြင်နှင့် မြေအောက်ရေများသို့ ဓာတုဗေဒဆိုင်ရာညစ်ညမ်းမှုများ မှ ကာကွယ်ရန် သေချာစေရန်
စွန့်ပစ်အစိုင်အခဲ	အစိုင်အခဲအမှိုက်များအားစွန့်ပစ်မှု	အထွေထွေစက်ရုံအမှိုက်များ	အနီးနားရှိ နေထိုင်ရာများ၊ မြေဆီလွှာနှင့်ရေအရင်းအမြစ် များ၊ ဒေသခံအသိုင်းအဝိုင်းများ	• ပုံမှန်အမှိုက်စုဆောင်းမှုစနစ်ကို သေချာစေပြီး ဟင်းသီးဟင်းရွက်များ၊ သတ္တု၊ ပလတ်စတစ်၊ ဖန်ကဲ့သို့သော အမှိုက် ခွဲခြားမှုဆောင်ရွက်ခြင်း
	ပြာများအားစွန့်ပစ်မှု	ဘွိုင်လာပြာ	ကုန်း ရေမျက်နှာပြင်နှင့် မြေအောက်ရေများ၊ ဒေသခံ အသိုင်း	• ခွဲခြားထားသော အမှိုက်များကို ပြန်လည်အသုံးပြုပြီး စနစ်တကျ

ပတ်ဝန်းကျင်ဆိုင်ရာ အစိတ်အပိုင်း	ထိခိုက်မှု	သက်ရောက်မှု အရင်းအမြစ်များနှင့် အင်္ဂါရပ်များ	ထိခိုက်မှုအလားအလာ	လျော့ပါးစေရေးအစီအမံများ
			အဝိုင်းများ	စွန့်ပစ်ခြင်း။
	စက်မှုလုပ်ငန်းသုံး စွန့်ပစ်ပစ္စည်းများနှင့် အိမ်တွင်းအမှိုက်များ	စက်ကိရိယာအပိုင်းအစများ၊ သတ္တုအပိုင်းအစများ၊ အိမ်တွင်းစွန့်ပစ်ပစ္စည်းများ	မြေဆီလွှာနှင့် ရေထုညစ်ညမ်းမှု	• သင့်လျော်သော စွန့်ပစ်သည့်နေရာတွင်စွန့်ပစ်၍ စက်ယန္တရားများ၊ သတ္တုအပိုင်းအစများ၊ ကိရိယာများနှင့် စက်ချို့ယွင်းမှုများအတွက် ပုံမှန်စောင့်ကြည့်စစ်ဆေးခြင်း
အန္တရာယ်ရှိ စွန့်ပစ်ပစ္စည်း	အန္တရာယ်ရှိသော အမှိုက်/ပစ္စည်းများ စုဆောင်းခြင်း။	ဘက်ထရီ၊ လောင်စာဆီ၊ သုတ်ဆေး၊ ဓာတုပစ္စည်းများ အကြွင်းအကျန်များကို အသုံးပြုမှု	မြေဆီလွှာနှင့် ရေများ၊ ဝန်ထမ်းများ၊ ရပ်ရွာများ၊ အိုးအိမ်များ၊ ရေနေသတ္တဝါများ	• ဘက်ထရီနှင့် ဆက်စပ်သော အန္တရာယ်ရှိသော စွန့်ပစ်ပစ္စည်းများ ဖြစ်သည့် ဘက်ထရီ၊ မီးချောင်းများ၊ မီးသီးများ၊ ဓာတုပုံးများ၊ ဆေးဝါးနှင့် ဓာတုစွန့်ပစ်ပစ္စည်းများကဲ့သို့သော ဓာတုဆိုင်ရာ စွန့်ပစ်ပစ္စည်းများ အတွက် သီးခြားသတ်မှတ်ပြီး အကာအကွယ်ရှိသည့် နောက်ဆုံး နေရာအား သတ်မှတ်ထားခြင်း
စွန့်ပစ်ရေဆိုး	Effluent Treatment Plant (ETP)မှ သန့်စင်ပြီးရေများ	ဆေးကြောခြင်းလုပ်ငန်းစဉ်မှ ETP နှင့် သန့်စင်ရေးလုပ်ငန်းစဉ်သို့ လွှင့်ပျံပြီး မြေဆီလွှာနှင့် ရေနေသတ္တဝါများသို့ထိခိုက်မှု	ဝန်ထမ်းများနှင့် ရပ်ရွာအနီးနားရှိ အိမ်များ	• ရရှိလာသော သန့်စင်ပြီးရေသည် ခွင့်ပြုထားသော စံချိန်စံညွှန်းများနှင့် ကိုက်ညီကြောင်း သေချာစေရန်
လူမှုဝန်းကျင်				
လူမှုစီးပွား	ယာဉ်ကြောပိတ်ဆို့မှု	ရွှေ့ပြောင်းနေထိုင်ခြင်း၊ စက်ရုံသုံးပစ္စည်းများ ဝယ်ယူခြင်း, ဒေသစီးပွားရေး တိုးတက်လာခြင်း	နေ့စဉ် ဒေသတွင်းခရီးသည်များ၊ ထိခိုက်လွယ်သောအဖွဲ့များအပါအဝင် ဒေသခံပြည်သူများ	• လမ်းမတစ်လျှောက် ယာဉ်ကြောအချက်ပြ ဆိုင်းဘုတ်များထားခြင်း။ • ရပ်ရွာလူထု၏နေထိုင်ရာဧရိယာသို့ ဆူညံသံသက်ရောက်မှုကို ကာကွယ်ရန် သင့်လျော်သော ကြားခံအကွာအဝေး သို့မဟုတ် ကွန်ကရစ်နံရံဖြင့်ကာရံထားခြင်း
	လှိုင်သာယာမြို့နယ်အတွင်း အခြားဒေသ၊ မြန်မာနိုင်ငံနှင့် ပြည်ပနိုင်ငံများမှ ရွှေ့ပြောင်း အလုပ်သမားများရောက်ရှိခြင်း	စက်ရုံလည်ပတ်ရန်အတွက် ကျွမ်းကျင်လုပ်သားများ နှင့် အခြားလုပ်သားများကို ငှားရမ်းခြင်း။ လုပ်ငန်းသစ်များ ဒေသအတွင်း ကုန်စည်နှင့် ဝန်ဆောင်မှုများ၏ လိုအပ်ချက်ကို ဖြည့်ဆည်းခြင်း	ထိခိုက်လွယ်သောအဖွဲ့များ အပါအဝင် ဒေသခံများ ဒေသန္တရစီးပွားရေးလုပ်ငန်းများ ဒေသစံနှုန်းများ	• အသေးစားငွေရေးကြေးရေး အစီအစဉ်များကဲ့သို့သော CSR ရန်ပုံငွေမှ ရရှိနိုင်သော ပံ့ပိုးကူညီမှု အစီအစဉ်အချို့ကို ဆောင်ရွက်ခြင်း • စက်ရုံနှင့် ဒေသခံမဟုတ်သော စီးပွားရေးလုပ်ဖော်ကိုင်ဖက်များက ငှားရမ်းထားသော ရွှေ့ပြောင်းအလုပ်သမားများအကြား ဒေသစံနှုန်းများ နှင့် ယဉ်ကျေးမှုကို လေးစားလိုက်နာရန် အသိပညာပေးခြင်း • ဒေသတွင်း ယဉ်ကျေးမှုနှင့် စံနှုန်းများကို မလေးစားကြောင်း တွေ့ရှိရသည့် ရွှေ့ပြောင်းအလုပ်သမားများနှင့် ဒေသခံမဟုတ်သော စီးပွားရေး လုပ်ဖော်ကိုင်ဖက်များကိုလိုက်လျောမှုမပြုရန်
	အိမ်ရာလိုအပ်မှု တိုးလာခြင်း	ရွှေ့ပြောင်းအခြေချမှုနှင့် မကြာခဏ ခရီးသွားခြင်းကြောင့် လူဦးရေ တိုးလာခြင်း	ဒေသခံများ	• အလုပ်အကိုင် လျှောက်ထားရာတွင် ယှဉ်ပြိုင်နိုင်စွမ်း တိုးမြင့်လာစေရန် ဒေသခံပြည်သူများအကြား စွမ်းရည်များ မြှင့်တင်ကာ အလုပ်လျှောက်လွှာ တွင် အရည်အချင်းများနှင့် ပတ်သက်၍ ဒေသခံများအား ဦးစားပေး ထည့်သွင်း စဉ်းစားပေးစေခြင်း
	လုပ်သားလိုအပ်မှုတိုးလာခြင်း	အလုပ်သမားပြိုင်ဆိုင်မှု၊ ရွှေ့ပြောင်းအလုပ်သမား၊ ကျွမ်းကျင်သော၊ အတတ်ပညာရှင် အမြဲတမ်း လုပ်သား များကြောင့် အရည်အချင်းပြည့်မီရန် အခွင့်အလမ်း နည်းပါးသည်။	ဒေသခံများ	

ပတ်ဝန်းကျင်ဆိုင်ရာ အစိတ်အပိုင်း	ထိခိုက်မှု	သက်ရောက်မှု အရင်းအမြစ်များနှင့် အင်္ဂါရပ်များ	ထိခိုက်မှုအလားအလာ	လျော့ပါးစေရေးအစီအမံများ
	ဘေးကင်းလုံခြုံရေး	စက်ရုံလည်ပတ်မှုများ အရှိန်အဟုန်ဖြင့် ရွှေ့ပြောင်းနေထိုင်သူများ၊ ယာဉ်သွားလာမှု၊ ရာဇဝတ်မှုများ၊ ပဋိပက္ခများနှင့် ကူးစက်နိုင်သောရောဂါများ၊	ဒေသခံများ၊ ရွှေ့ပြောင်းလုပ်သားများ	• ထင်း၊ လောင်စာ စသည်တို့ကဲ့သို့သော ကုန်ကြမ်းဝယ်ယူခြင်းအတွက် ကန်ထရိုက်တာများနှင့် အားလုံးအတွက် တန်းတူအခွင့်အရေးပေးခြင်း ရွှေ့ပြောင်းနှင့် ဒေသခံအလုပ်သမားများအား ဒေသန္တရ နှင့် စီမံခန့်ခွဲရေးဆိုင်ရာ စည်းကမ်းဆိုင်ရာ ကြိုတင်အချက်အလက်များရှင်းလင်းခြင်း
ကျန်းမာရေး	လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး သက်ရောက်မှု	ယာဉ်မတော်တဆမှုကြောင့် လမ်းတွင် ဖုန်မှုန့်များ ပြန့်ကျဲနေခြင်း	လမ်းဘေးအသိုင်းအဝိုင်းများ၊ ကျောင်း၊ ဆေးရုံ၊ ကလေးနှင့် လူအိုများစသည့်ထိခိုက်လွယ်သည့်သူများ	• လုပ်ငန်းခွင်အတွင်း ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ဒေသခံလူထုအကြား လုံခြုံမှုရှိစေရန်အတွက် သဘာဝပတ်ဝန်းကျင်၊ ကျန်းမာရေးနှင့် ဘေးကင်းရေး၊ မီးဘေးနှင့် အရေးပေါ်တုံ့ပြန်ရေးနှင့် လုပ်ငန်းလည်ပတ်မှု အဆင့်အတွက် ရပ်ရွာဘေးကင်းရေးအချက်များဆောင်ရွက်ခြင်း
	ဆိုးဝါးသောအနံ့နှင့်အသက်ရှူခြင်းပြဿနာ	အညစ်အကြေးများနှင့် အိမ်သာများမှ အနံ့ဆိုးများ	ဒေသခံနှင့် ရွှေ့ပြောင်းအလုပ်သမားများ	• နေထိုင်မှုနှင့် လုပ်ငန်းခွင်အခြေအနေများအတွက် သင့်လျော်သော မိလ္လာသန့်ရှင်းရေးကို ဆောင်ရွက်ပေးခြင်း
အခြား	မီး	ဘွိုင်လာ	စက်ရုံ၊ နီးစပ်ရာအသိုင်းအဝိုင်း၊ ကျောင်းများ	• ဘွိုင်လာပြုပြင်ထိန်းသိမ်းမှုပုံမှန်ဆောင်ရွက်ခြင်း • မီးသတ်သင်တန်းများပေးခြင်း

အကျိုးဖြစ်ထွန်းနိုင်သည့်လူမှုရေးသက်ရောက်မှုများ

EMP အတွက်ကနဦး ပတ်ဝန်းကျင်ဆိုင်ရာအကဲဖြတ်မှုနှင့်ကနဦးလူမှုအကဲဖြတ်မှု၏တွေ့ရှိချက်များကို အခြေခံ၍ ်စီမံကိန်းများ၏ လုပ်ဆောင်မှုများသည်လူမှုရေးဆိုင်ရာအကျိုးရှိမှုများရှိသည်ဟုယခုအချိန်တွင်အကဲဖြတ်နိုင်ပါသည်။ အကျိုးရှိသောစီမံကိန်းဆောင်ရွက် မှုများသည် ပြည့်စုံလုံလောက်သောရည်ရွယ်ချက်များမဟုတ်သော်လည်း စီမံကိန်း၏ ဧရိယာအတွင်းရှိလူမှုစီးပွားရေးအခြေအနေများအပေါ် အပြုသဘောဆောင်သောအကျိုးသက်ရောက်နိုင်သည့်အလားအလာရှိသောစီမံကိန်း၏အဓိကကဏ္ဍများကိုဖော်ထုတ်ခြင်းဖြစ်သည်ဟုမှတ်သားသင့်ပါသည်။

တိုးပွားလာသောသက်ရောက်မှုကိုအကဲဖြတ်ခြင်း

တဖြည်းဖြည်းတိုးပွားလာသောသက်ရောက်မှုများကို " စီမံချက်၏သက်ရောက်မှုသို့မဟုတ်ဆိုးကျိုးထိခိုက်မှုများကို ကိုယ်တိုင်ခံစားရမည်ဖြစ်သော်လည်းအလားတူသို့မဟုတ်မတူကွဲပြားသောစီမံကိန်းများသို့မဟုတ်အလားတူပထဝီနယ်မြေသို့မဟုတ်ဒေသတစ်ခုတည်း၌ရှိသည့်အလားတူသို့မဟုတ်မတူကွဲပြားသောစီမံကိန်းများမှဖြစ်ပေါ်လာသောထိခိုက်မှု များနှင့်ပေါင်းစပ်သောအခါသိသာထင်ရှားစွာတိုးပွားလာနိုင်ပါသည်။ "

ဤ EMP အစီရင်ခံစာ သည် SDI ၏အဝတ်အထည်ထုတ်လုပ်မှုစီမံကိန်း၏တိုးပွားလာသောအကျိုးသက်ရောက်မှုကိုဆုံးဖြတ်ရာတွင် MONREC မှသတ်မှတ်ထားသောနည်းစနစ်နှင့်ချဉ်းကပ်မှုကိုလိုက်နာဆောင်ရွက်ခဲ့ပါသည်။

ဤစီမံကိန်းအတွက်စုပေါင်းသက်ရောက်မှုကိုအကဲဖြတ်ခြင်း

SDI အထည်ချုပ်စက်ရုံစီမံကိန်းကို ၂၀၁၄ ခုနှစ်မှစတင်လည်ပတ်ခဲ့ပြီးခန့်မှန်းခြေထုတ်လုပ်မှုပမာဏသည်တစ်လလျှင်အထည်ပေါင်း ၅၀,၀၀၀ ခန့်ရှိခဲ့ပါသည်။ စီမံကိန်းလည်ပတ်နေစဉ် EMP အတွက်အခြေခံအချက်အလက်များကိုကောက်ယူခဲ့ပါသည်။ အထည်ချုပ်စက်ရုံ၏ပတ်ဝန်းကျင်တွင်တဖြည်းဖြည်းပတ်ဝန်းကျင်အပေါ်ထိခိုက်သက်ရောက်မှုများရှိလာသည့်ထင်ရှားသောစက်မှုလုပ်ငန်းစီမံကိန်းအချို့ရှိပါသည်။
တိုးပွားလာသည့် ပူးပေါင်းထိခိုက်မှု (Cumulative Impact) အချက်အလက်များသည်စီမံကိန်းဧရိယာရှိနမူနာကောက်ယူသည့်နေရာများ၏ ပတ်ဝန်းကျင်အခြေအနေ ကိုထင်ဟပ်စေသော်လည်း၊ အချို့သောဒေသရှိအခြားသောစက်မှုလုပ်ငန်းများလည်ပတ်မှုကြောင့်လည်း ပါဝင်လာနိုင်ပါသည်။

၁.၅ ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေးအစီအစဉ် EMP အတွက်အကောင်အထည်ဖော်ရန်အတွက်အသုံးပြုမည့် ရန်ပုံငွေ

တည်ဆောက်ရေး၊ လည်ပတ်မှုနှင့် ရုပ်သိမ်းခြင်းစသည့်လုပ်ငန်းလည်ပတ်မှုအဆင့်အားလုံးအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေးအစီအစဉ် EMP မှာ မရှိမဖြစ်လိုအပ်ပါသည်။ ဤစက်ရုံအတွက်လုပ်ငန်းလည်ပတ်မှုအဆင့်အားလုံးအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် EMP ကိုဒီဇိုင်း ရေးဆွဲစဉ် ကတည်းကစီစဉ်ထားခဲ့ပါသည်။

ဤစီမံကိန်းအတွက်တည်ဆောက်ရေးအဆင့်ကို တည်ဆောက်ရေးအဆင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေးအစီအစဉ် EMP အကောင်အထည်ဖော်မှုနှင့် အတူအောင်မြင်စွာကျော်ဖြတ်ခဲ့ပြီးဖြစ်ပါသည်။

လုပ်ငန်းလည်ပတ်မှုအဆင့်တွင်သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုသဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအကောင်အထည်ဖော်မှုအတွက် အစီရင်ခံစာ၏ အခန်း ၆ တွင်ဖော်ပြထားသောဇယားများသည်ဘတ်ဂျက်ငွေလိုအပ်ချက်ကိုဖော်ပြထားသည်။

ထိခိုက်မှုလျှော့ချခြင်းအစီအစဉ်နှင့်စောင့်ကြည့်စစ်ဆေးခြင်းအပါအဝင်လုပ်ငန်းလည်ပတ်မှုအဆင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် EMP အတွက် ဘတ်ဂျက် (ခန့်မှန်းရန်ပုံငွေ) သည ်လေထုညစ်ညမ်းမှုအတွက် မြန်မာငွေ ၁,၀၀၀,၀၀၀ ကျပ်၊ ရေထုညစ်ညမ်းမှုအတွက် ၁,၀၀၀,၀၀၀ ကျပ်၊ မြေဆီလွှာပျက်စီးမှုအတွက် ၂၀၀,၀၀၀ ကျပ်၊ လူမှုပတ်ဝန်းကျင်အတွက် ညစ်ညမ်းသောအနေအထား (ဓာတုပစ္စည်းများ ရောနှောအနည်ထိုင်မှု၊ လူမှုရေးပတ်ဝန်းကျင်များအပါအဝင်) အတွက် ၉,၀၈၀,၀၀ ကျပ် အသီးသီးရှိဖြစ်ပါသည်။ အသေးစိတ်ဇယားကို ဤအစီရင်ခံစာ၏ 6.3.2 Operation Phase - Environmental Management and Mitigation plan တွင်ဖော်ပြထားပါသည်။

၁.၆ ဖော်ထုတ်ထားသောသက်ရောက်မှုတစ်ခုစီအတွက်စီမံခန့်ခွဲမှုနှင့်စောင့်ကြည့်ကြီးကြပ်ခြင်း

တည်ဆောက်ရေး၊ လည်ပတ်မှုနှင့် ရုပ်သိမ်းခြင်းစသည့်လုပ်ငန်းလည်ပတ်မှုအဆင့်အားလုံးအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေးအစီအစဉ် EMP မှာ မရှိမဖြစ်လိုအပ်ပါသည်။ ဤစက်ရုံအတွက်လုပ်ငန်းလည်ပတ်မှုအဆင့်အားလုံးအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် EMP ကိုဒီဇိုင်း ရေးဆွဲစဉ် ကတည်းကစီစဉ်ထားခဲ့ပါသည်။

လုပ်ငန်းလည်ပတ်မှုအဆင့်နှင့်ဖျက်သိမ်းမှုအဆင့်အတွက် ဤအစီရင်ခံစာတွင်လုပ်ငန်းလည်ပတ်ခြင်း အဆင့်နှင့်သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှု ဖော်ထုတ်ခြင်းကို ဖော်ပြပြီးဖြစ်သည်။ 5.2.2 Operation Phase နှင့် 5.2.3 Decommissioning, Closure, and Post-closure Phase
ဖော်ထုတ်ရရှိထားသော ပတ်ဝန်းကျင်ထိခိုက်မှုများအတွက် (ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီ အစဉ်တွင်ပါဝင်သော လျော့ပါးစေရေးနှင့် စောင့်ကြည့်စစ်ဆေးခြင်း - EMP) ကို SDI Manufacturing Company's Factory ၏ စက်ရုံစီမံခန့်ခွဲမှုကော်မတီက လုပ်ငန်းလည်ပတ်မှုအဆင့်များဆောင်ရွက်စဉ်ကတည်းက EMP အစီအစဉ်တွင်အကောင်အထည်ဖော် ဆောင်ရွက်ခဲ့ပါသည်။ ၎င်းတို့မှာ မြေဆီလွှာအရည်အသွေးနှင့် လေထုညစ်ညမ်းမှု၊ ပတ်ဝန်းကျင်လေထု အရည်အသွေး၊ ဆူညံသံနှင့်တုန်ခါမှု၊ အဓိကဘေးထွက်ပစ္စည်းများ / အစိုင်အခဲစွန့်ပစ်ပစ္စည်း၊ ဓာတုပစ္စည်းများအသုံးပြုခြင်းအတွက် ဤအစီအစဉ်ခွဲ သည် ညစ်ညမ်းမှု၊ စီမံကိန်းလုပ် ဆောင်မှုများအားလုံးအတွက် ဇလဗေဒလိုအပ်ချက်နှင့်လူမှုပတ်ဝန်းကျင်

စသည်တို့ပါဝင်ပါသည်။

၁.၇ စီမံချက်ခွဲတစ်ခုစီ၏အကြောင်းအရာ

ဤစီမံကိန်းအတွက်သတ်မှတ်ထားသောသက်ရောက်မှုများကိုဤအစီရင်ခံစာတွင်ဖော်ပြပြီးဖော်ထုတ်ထားသည့် သက်ရောက်မှု တစ်ခုစီအတွက် စီမံခန့်ခွဲမှုနှင့်စောင့်ကြည့်ကြီးကြပ်မှုအစီအစဉ်များကိုလည်းဖော်ပြခဲ့ပြီးငင်းကို SDI Manufacturing Company's Factory ၏ အထည်ချုပ် စက်ရုံတွင်အကောင်အထည်ဖော်ဆောင်ရွက်လျက်ရှိပါသည်။ ဤစီမံချက်ငယ်များသည်ဘေးကင်းရေးနှင့်ကျန်းမာရေးအစီအစဉ်နှင့် အရေးပေါ် ကြိုတင်ပြင်ဆင်မှုတို့အပေါ်တွင်အခြေခံပါသည်။

ဤစီမံကိန်းကိုစတင်စဉ်နှင့်စတင်ပြီးနောက်ပတ်ဝန်းကျင်ဆိုင်ရာအစီအမံများအားစောင့်ကြည့်စစ်ဆေးခြင်းအတွက် ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ် (သို့မဟုတ်) လမ်းညွှန်ချက်များကိုပြင်ဆင်ရန်လိုအပ်ပါသည်။ ဤအစီအစဉ်တွင်လိုအပ်သောကုန်ကျစရိတ်အစိတ်အပိုင်းများအပါအဝင် မည်မျှအတိုင်းအတာအထိဆောင်ရွက်ခဲ့သည်သို့မဟုတ်အဆိုပြုထားသည်ကိုအသေးစိတ်ဖော်ပြရန်လိုအပ်ပါသည်။

ပတ်ဝန်းကျင်ကာကွယ်မှုအတွက် ကုန်ကျစရိတ်များကိုစီမံကိန်းကုန်ကျစရိတ်၏အစိတ်အပိုင်းအဖြစ်သတ်မှတ်သင့်ပြီး အထည်ချုပ်စက်ရုံ အတွက် စီမံကိန်း၏အဆင့်အမျိုးမျိုးတွင်ပတ်ဝန်းကျင်ဆိုင်ရာရှုထောင့်များကိုထည့်သွင်းစဉ်းစားဖော်ပြထားပါသည်။

စီမံခန့်ခွဲမှုအစီအစဉ်တွင် သယံဇာတထိန်းသိမ်းရေးနှင့်ပတ်ဝန်းကျင်ညစ်ညမ်းမှုလျှော့ချရေး၊ စက်မှုလုပ်ငန်းအမျိုးအစား၊ ထုတ်လုပ်မှုပမာဏ၊ ကုန်ကြမ်းသွင်းအားစုနှင့်လုပ်သားအင်အားတို့ကိုထည့်သွင်းစဉ်းစားရပါမည်။ အထည်ချုပ်စက်ရုံတွင် လိုအပ်သော အရေးကြီးသောသက်ရောက်မှု ထိန်းချုပ်မှု အများစုမှာ အရည်ထွက်ရှိမှု၊ လေထုညစ်ညမ်းမှု၊ အစိုင်အခဲစွန့်ပစ်ပစ္စည်း၊ ဆူညံသံနှင့်တုန်ခါမှု၊ လုပ်ငန်းခွင် ဘေးကင်းလုံခြုံမှုနှင့် ကျန်းမာရေး၊ အိမ်စောင့်ရှောက်ခြင်း၊ လူ- အရင်းအမြစ်များ၊ အရေးပေါ်စီမံချက်များပါဝင်ပါသည်။

<u>လုပ်ငန်းအဆင့်အလိုက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်များ EMP (အကျဉ်းချုပ်)</u>

တည်ဆောက်ရေးအဆင့်

ဤစီမံကိန်းအတွက်တည်ဆောက်ရေးအဆင့်ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်(CEMP) ကိုအကောင်အထည်ဖော်သည့်အဆင့်များနှင့် လုပ်ထုံးလုပ်နည်းများ အတိုင်းဆောင်ရွက်ခဲ့ပြီး၊ အဓိကဆောင်ရွက်မှုများ ဖြစ်သည့် ဆူညံသံ၊ တုန်ခါမှု၊ ဖုန်မှုန့်နှင့် စွန့်ပစ် ပစ္စည်းများ အတွက်လျှော့ပါးစေရေးနှင့် ဖွံ့ဖြိုးတိုးတက်မှုနှင့်စီမံခန့်ခွဲမှုများကိုဆောင်ရွက်ခဲ့ပြီးဖြစ်ပါသည်။

လုပ်ငန်းလည်ပတ်ခြင်းအဆင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် OEMP သည် တည်ဆောက်ရေးကာလတွင် ဆောင်ရွက်ခဲ့သည့်စီမံခန့်ခွဲမှုများအပြင် ဓေတ်မီရေဆိုးသန့်စင်ခြင်း Advance Wastewater Treatment အစီအစဉ်ကိုလည်း စီစဉ်ဆောင်ရွက်ခဲ့ပြီးဖြစ်ပါသည်။ ၎င်းအစီအစဉ်မှာ သက်တမ်းအတွင်း သင့်လျော်သောပတ်ဝန်းကျင်ဆိုင်ရာထိန်းချုပ်မှုနှင့် စောင့်ကြည့်လေ့လာခြင်းနည်းလမ်းများကို ရွေးချယ်ခြင်းနှင့် အကောင်အထည်ဖော်ခြင်းနှင့် မြင့်မားသောပတ်ဝန်းကျင်ဆိုင်ရာစွမ်းဆောင်ရည်များ၏လိုအပ်ချက်များကို ထင်ဟပ်စေခဲ့ပါသည်။

စက်ရုံသည် ပတ်ဝန်းကျင်ထိခိုက်မှုအနည်းဆုံးနှင့်လည်ပတ်ကြောင်းသေချာစေရန် OEMP အနေဖြင့် အဆင့်မြင့်စွန့်ပစ်ရေဆိုးသန့်စင်စက်ရုံ (Effluent Treatment Plant) လည်ပတ်နေစဉ်အတွင်း သင့်လျော်သောပတ်ဝန်းကျင်ဆိုင်ရာအလေ့အထများကို သေချာစွာလိုက်နာရန် လိုအပ်ပါသည်။

လုပ်ငန်းပိတ်သိမ်းခြင်းအဆင့်

လုပ်ငန်းလည်ပတ်မှု၏အကျိုးအမြတ်နှင့်ပုဂ္ဂိုလ်ရေးဆိုင်ရာကိစ္စရပ်များအပေါ်မူတည်၍ ဆယ်စုနှစ်များစွာကြာရှည်လေ့ရှိသော လုပ်ငန်းလည်ပတ်ခြင်း အဆင့်ကာလလွန်မြောက်ပြီးနောက်တွင် လုပ်ငန်းပိတ်သိမ်းခြင်းအဆင့်သို့ရောက်ရှိလာမည်ဖြစ်ပါသည်။ ရှည်လျားသော လုပ်ငန်းလည်ပတ်ခြင်းအဆင့်ကာလအဆုံး၌မြေယာအခြေအနေသည်ပြောင်းလဲသွားပါမည်(သို့မဟုတ်)သို့မဟုတ် မြင်ကွင်းများအကြီးအကျယ် ပြောင်းလဲသွားမည်ဖြစ်ပါသည်။ Decommissioning အဆင့်မှာ လုပ်ငန်းလည်ပတ်မှုကြာချိန်နှင့်ပမာဏပေါ်မူတည်ပါသည်။ Decommissioning အဆင့်တွင် ပျက်စီးနေသောစက်များသို့မဟုတ်ပစ္စည်းကိရိယာများ၏ကိုယ်ထည်၊ စက်ဟောင်းအစိတ်အပိုင်းများနှင့်ပစ္စည်းများစသည်တို့သည် မူလရှုခင်း၏လုပသောသဘာဝအလှအပကိုများစွာအကျိုးသက်ရောက်စေမည်ဖြစ်ပါသည်။ decommissioning work ဆိုသည်မှာ site အဟောင်းအား ရှင်းလင်းခြင်းနှင့်ရှင်းလင်းခြင်းကိုသာဆိုလိုသည်။

SDI Manufacturing Co., Ltd အနေနှင့် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာဥပဒေ (၂၀၁၂) ၏ လမ်းညွှန်မှုကိုခံယူခြင်း နှင့် Decommissioning အဆင့်တွင် ပြန်လည်ထူထောင်ခြင်းလုပ်ငန်းများကိုလိုက်နာရန်ကတိကဝတ်ပြုထားခဲ့ပြီးဖြစ်ပါသည်။

<u>ဘေးကင်းစေရေးနှင့်ကျန်းမာရေးအစီအစဉ်</u>

အန္တရာယ်ကင်းရှင်းရေးနှင့်ကျန်းမာရေးအစီအစဉ်သည် အထည်ချုပ်စက်ရုံအတွက်သက်ဆိုင်သောစက်ပစ္စည်းများ၊ ၎င်းစက်ပစ္စည်းများနှင့် ဆက်စပ် အသုံးပြုသည့်ပစ္စည်းကိရိယာများနှင့်အလုပ်လုပ်သည့် လုပ်ငန်းလည်ပတ်မှုလုပ်ငန်းစဉ်များ၏ အရေးကြီးဆုံးအခန်းကဏ္ဍဖြစ်ပါသည်။ ဤစက်ရုံတွင် အပ်ချုပ်စက်များ၊ die cutting machines, bar tack machines နှင့် ကြယ်သီးဖောက်စက်များကိုအသုံးပြုနေသည်။ အခြားအသုံးပြုသောစက်များမှာ punching machines ၊ အ ဝ တ်လျှော်စက်နှင့်တခြားဆက်စပ်ပစ္စည်းကိရိယာများဖြစ်ပါသည်။

တစ်ခြားလုပ်ငန်းနှင့်ဆက်စပ်နေသည့် စက်ပစ္စည်းများဖြစ်သည့် ဘွိုင်လာများနှင့်ရေဆိုးသန့်စင်စက်ရုံ(Effluent Treatment Plant (ETP) တို့ကို

အန္တရာယ်ကင်းစွာအသုံးပြုရန်နှင့်လုပ်ငန်းခွင်ကျန်းမာရေးနှင့်လုံခြုံရေးအပေါ်အကျိုးသက်ရောက်နိုင်သောကြောင့်အလွန်အရေး ကြီးပါသည်။

အချို့သောဓာတုပစ္စည်းများကိုအဝတ်လျှော်ခြင်း၊ ဆေးဆိုးပန်းရိုက်ခြင်း၊ ၊ ဘွိုင်လာလည်ပတ်ခြင်းနှင့်ရေဆိုးသန့်စင်ရေးစက်များတွင်လုပ်ငန်းစဉ်အရ ထည့်သွင်း အသုံးပြု နေခြင်းကြောင့် ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့်ကျန်းမာရေးအစီအစဉ်တွင်ထည့်သွင်းစဉ်းစားရမည် ဖြစ်ပါသည်။

SDI သည်အန္တရာယ်ရှိသောနေရာများအတွက်ထည့်သွင်းစဉ်းစားပြီးလုပ်ငန်းခွင်ဧရိယာအတွင်း ဖြစ်နိုင်ချေရှိသောအန္တရာယ်များကိုဖော်ထုတ်ခဲ့ပါသည်။ ဘေးကင်းလုံခြုံရေးနှင့်ကျန်းမာရေးအစီအမံများကိုလည်းဤစက်ရုံတွင်စီစဉ်ထားပါသည်။

ကျန်းမာရေးဆိုင်ရာပြဿနာများရှိသော ဝန်ထမ်းများအားကျန်းမာရေးစစ်ဆေးပေးခြင်း၊ လုပ်ငန်းခွင်ပတ်ဝန်းကျင်တိုးတက်အောင်စီစဉ်ပေးခြင်း၊

တစ်ကိုယ်ရေကာကွယ်ရေးအစီအစဉ်အတွက် ဝန်ထမ်းများအားလုံးကိုလိုအပ်ချက်အရ ၎င်းတို့၏အလုပ်အကိုင်နှင့်ပတ်သက်သော PPE များကိုလည်း ထောက်ပံ့ပေးထားပါသည်။

<u>ဘေးကင်းလုံခြုံရေးအသိအမြင်</u>သည် ကျန်းမာရေးနှင့်လုံခြုံမှုအသိအမြင်မြင့်မားသောစီမံခန့်ခွဲမှု၏ လုပ်ငန်းခွင်ဘေးကင်းလုံခြုံရေးနှင့် ကျန်းမာရေး အပေါ်ထားရှိသော ကတိကဝတ်ဖြစ်ပါသည်။ စက်ရုံစီမံခန့်ခွဲမှုသည် ကုမ္ပဏီနှင့်အံဝင်ဂွင်ကျဖြစ်စေရန်နှင့်သူတို့၏အတွေ့အကြုံအားဖြင့် ကျန်းမာ ရေးနှင့်ဘေးကင်းရေးဆိုင်ရာအသိပညာအပေါ်အမြင်များကို ဖန်တီးခဲ့သည်။

<u>ဘေးကင်းလုံခြုံရေးသင်တန်း</u>အတွက်ကုမ္ပဏီ၏စီမံခန့်ခွဲမှုကော်မတီသည်ကျန်းမာရေးနှင့်လုံခြုံရေးသင်တန်းသည်အောင်မြင်သောကျန်းမာရေးနှင့်လုံခြုံရေးအစီအစဉ်၏အခြေခံဖြစ်သည်ကိုနားလည်ထားပြီး ကျန်းမာရေးနှင့်လုံခြုံရေးအတွက်လိုအပ်သောသင်တန်းများကို ဝန်ထမ်းများအားအခါအားလျော်စွာ ပေးခဲ့ပါသည်။

<u>လုပ်ငန်းခွင်တွင်းလုံခြုံရေးနှင့်ဘေးကင်းလုံခြုံရေးအစီအမံ</u>များအတွက် HSE အရာရှိနှင့်အလုပ်သမားများအားလုံးသည် မလုံခြုံသောလုပ်ရပ်၊ အဖြစ်အပျက်၊ တို့မဖြစ်ပွားစေရေးအတွက် ဘေးကင်းလုံခြုံမှုအစည်းအဝေးကိုနေ့စဉ် အပတ်စဉ်လုပ်ငန်းခွင်ဘေးကင်းလုံခြုံရေး အစည်းအဝေးများတွင် တိုင်ပင်ဆွေးနွေးခြင်းများဆောင်ရွက်ထားပါသည်။

<u>ဓာတုပစ္စည်းစီမံခန့်ခွဲမှုအစီအစဉ်</u>အတွက် အဝတ်လျှော်စက်၊ ဘွိုင်လာလည်ပတ်ခြင်းနှင့်ရေဆိုးသန့်စင်ခြင်းတို့တွင်ဓာတုလုပ်ငန်းစဉ်အချို့ရှိသဖြင့် SDI စက်ရုံ၏ စီမံခန့်ခွဲမှုကော်မတီသည်ဓာတုပစ္စည်းများအားကိုင်တွယ်နေသောကဏ္ဍ အားလုံးတွင် ဓာတုဗေဒ စီမံခန့်ခွဲမှု အားဂရုစိုက်ဆောင်ရွက် နေပါသည်။ ဓာတုပစ္စည်းများကိုအန္တရာယ်ကင်းစွာကိုင်တွယ်နိုင်ရန်အတွက်အခါအားလျော်စွာ သက်ဆိုင်ရာဌာနမှ ဝန်ထမ်းများ အားသင်တန်းပေး၍ သင်ကြား ပြသ ပေး နေပါသည်။

ဤစက်ရုံအတွက်အသေးစိတ်ဓာတုပစ္စည်းစီမံခန့်ခွဲမှုအစီအစဉ်ကိုဤအစီရင်ခံစာ၏ 8.2.6 Chemical Management Plan တွင်ဖော်ပြထားပါသည်။

SDI အထည်ချုပ်စက်ရုံ၏စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုအစီအစဉ်

အစိုင်အခဲစွန့်ပစ်ပစ္စည်းပမာဏလျှော့ချခြင်း၊ ပြန်လည်သန့်စင်ခြင်းနှင့်ပြန်လည်အသုံးပြုခြင်း၊ အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများကိုစွန့်ပစ်ရမည့်နည်းလမ်းများနှင့် မိလ္လာကန်များမှစွန့်ပစ်ပစ္စည်းများကိုအလေးအနက်ထားပါသည်။ စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုအားထည့်သွင်းစဉ်းစားထားပြီး စက်ရုံတွင် စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုအတွက် ဝန်ထမ်းတစ် ဦးချင်းစီအားတာဝန်ယူမှုနှင့်အရေးယူမှုတို့ကိုသတ်မှတ်ထားပြီးဖြစ်ပါသည်။

ဤစက်ရုံ၏စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုစနစ်မှာ၊

လူတို့၏နေ့စဉ်ဘဝသုံးစွဲခြင်း နှင့် စက်မှုလုပ်ငန်းမှထွက်ရှိသော စွန့်ပစ်ပစ္စည်း (အလုပ်ရုံများ၊ ဆေးခန်းများစသဖြင့်) မှပလတ်စတစ်အမှိုက်များ၊ အချိုရည်ပုလင်းများကဲ့သို့သောအမှိုက်များကို စုဆောင်းခြင်းစနစ်များနှင့် လိုအပ်သလို စွန့်ပစ်ပစ္စည်းများကိုစနစ်တကျသယ်ဆောင၍စွန့်ပစ်ခြင်းများဖြစ်ပါသည်။

ဤစက်ရုံအတွက်စီးပွားဖြစ် စွန့်ပစ်ပစ္စည်းများဖြစ်သောအထည်အလိပ်ဖြတ်စညှပ်စများ ချည်အမှိုက်များ၊ အသုံးပြုပြီးသည့် စက္ကူသေတ္တာအလွှတ်များ စက်ဆီချောဆီဟောင်းများ စသည့် စွန့်ပစ်ပစ္စည်းများကို ခွဲခြားပြီး မြို့တော်စည်ပင်သာယာရေးကော်မတီ မှ သတ်မှတ် ထားသောနေရာများသို့ ပို့ဆောင်စွန့်ပစ်နေပါသည်။

ဤစက်ရုံ၏စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုအစီအစဉ်အရ SDI သည် မြို့တော်စည်ပင်သာယာရေးကော်မီတီနှင့် ညှိနှိုင်းဆက်သွယ်၍ ဆောင်ရွက်ခြင်းနှင့် မြို့တော်စည်ပင်သာယာရေးကော်မီတီမှ စက်ရုံအတွင်း စနစ်တကျဆောင်ရွက်ထားခြင်းတို့အားလာရောက်စစ်ဆေးခဲ့ပြီး ဖြစ်၍ စစ်ဆေးမှုမှတ်တမ်း များ အားထုတ်ပြန်ပေးထားပါသည်။

SDI စက်ရုံအတွက် စွန့်ပစ်ရေစီမံခန့်ခွဲမှုအစီအစဉ် အနေနှင့်,

၁. ဤစက်ရုံမှစွန့်ပစ်ရေအရင်းအမြစ်များကို မိလ္လာစွန့်ပစ်ရေများ၊ အဝတ်လျှော်ဌာနမှလုပ်ငန်းသုံးစွန့်ပစ်ရေနှင့် အခြားအထွေထွေသုံးများမှ ထွက်ရှိ သည့် စွန့်ပစ်ရေဟူ၍ ကိုခွဲခြားနိုင်သည်။

၂. ဤစက်ရုံတွင် Effluent Treatment Plant ကို ၂၀၁၈ ခုနှစ် တွင်စတင်အသုံးပြုပြီး ထွက်ရှိသည့်ရေဆိုးများကို သန့်စင်ခြင်းများဆောင်ရွက်ခဲ့ပါသည်။

၃. လုပ်ငန်းသုံး စက်မှုစွန့်ပစ်ရေသည်အညိုရောင်ဖြစ်ပြီး၊ pH နိမ့်၍၊ အပူချိန်မြင့်မားခြင်း, BOD မြင့်မားခြင်း, COD မြင့်မားခြင်း,

အနည်းပအနည်းငယ်ရှိခြင်းစသည့်သွင်ပြင်လက္ခဏာရှိပါသည်။ ထို့အပြင်Total Solid အဆင့်များပြီး ပျော်ဝင်နေသော အော်ဂဲနစ်နှင့် အော်ဂဲနစ်မဟုတ်သောအရာများပါဝင်မှုမြင့်မားပါသည်။

၄. ဤစက်ရုံအတွက် Effluent Treatment Plant ဖြင့် ရေဆိုးသန့်စင်ရေးလုပ်ငန်းစဉ်များ၊ အဓိကလုပ်ငန်း၊ flow diagram and location တို့ကို အစီရင်ခံစာ၏ 8.2.8 Wastewater Management Plan of SDI Factory တွင်ဖော်ပြထားပါသည်။

၅. ဤစက်ရုံ၏ မိလ္လာရေသန့်စင်မှု စနစ်ကိုအစီရင်ခံစာ၏ 8.2.8 Wastewater Management Plan of SDI Factory မှ Typical Layout of Sewage Treatment System at factory တွင် ဖော်ပြထားပါသည်။

၆. ဤစက်ရုံ၏ စီးဆင်းရေစီမံခန့်ခွဲမှုအစီအစဉ်အတွက် ရေဆင်းမြောင်းများကို စက်ရုံဝင်းအတွင်း စနစ်တကျတည်ဆောက်ထားပြီး၊ စံချိန်စံညွှန်းမှီ (အရှည်၊ အကျယ်၊ အမြင့်) ပုဂ္ဂလိကရေမြောင်းနှင့် ဆက်သွယ်ထားပြီးဖြစ်ပါသည်။ အနည်ထိုင်ခြင်း၊ စစ်ယူခြင်းနေရာများထားရှိခြင်းနှင့် အနည်ထိုင်ခြင်း၊ ပလပ်စတစ်နှင့်တခြားအမှိုက်များပိတ်ဆို့ခြင်းများမဖြစ်စေရန် စက်ရုံ သန့်ရှင်းရေးအဖွဲ့များမှ အစဉ်ရှင်းလင်းထားပါသည်။ စက်ရုံသန့်ရှင်းရေးအဖွဲ့သည် စက်ရုံအတွင်းရေမြောင်းများ အပြင် စက်ရုံအပြင်ဘက် ပုဂ္ဂလိကရေမြောင်းအတွင်းသန့်ရှင်းမှုများနှင့် အမှိုက်များ၊ ဖိတ်စင်ခဲ့သော ဆီစဆီနများ မကျအောင်သန့်ရှင်းမှုများဆောင်ရွက်လျှက်ရှိပါသည်။

<u>ဘွိုင်လာလည်ပတ်မှုလုပ်ထုံးလုပ်နည်းနှင့်စီမံခန့်ခွဲမှုအစီအစဉ် (ပေါက်ကွဲမှု၊ လောင်ကျွမ်းမှု)</u>

SDI manufacturing garment factory ၏ အထည်ချုပ်စက်ရုံစီမံခန့်ခွဲမှုကော်မတီသည်ဘွိုင်လာ Standard Operation လုပ်ထုံးလုပ်နည်းအတိုင်း စက်ရုံလည်ပတ်မှုတွင်ဘွိုင်လာများအသုံးပြုမှုကိုတိတိကျကျလိုက်နာဆောင်ရွက်လျှက်ရှိပါသည်။ Boiler operation procedure and Management Plan ကိုအစီရင်ခံစာ၏ 8.2.9 Boiler operation procedure and Management Plan (Explosion, Burning) တွင်ဖော်ပြထားပါသည်။

<u>ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ (YCDC) မှစစ်ဆေးခြင်း</u>

၁၅.၆.၂၀၂၀ ရက်နေ့တွင်ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ (YCDC) သည် SDI အထည်ချုပ်စက်ရုံ၏ ဘေးအန္တရာယ်နှင့်အနှောက်အယှက်ဖြစ်စေတတ်သည့် လုပ်ငန်းများအခြေအနေကို စစ်ဆေးချက်ပုံစံနှင့်တကွ လာရောက်စစ်ဆေးခဲ့ပြီးဖြစ်ပါသည်။

<u>အရေးပေါ်ပြင်ဆင်မှု</u>

SDI အထည်ချုပ် စက်ရုံတွင်အရေးပေါ်ကြိုတင်ပြင်ဆင်မှုအစီအစဉ်ကိုရေးဆွဲထားပြီး မီးသတ်အစီအစဉ်နှင့်သဘာဝဘေးအန္တရာယ်ထိန်းချုပ်ရေးအစီအစဉ်တို့ပါဝင်ပါသည်။

မီးဘေးကာကွယ်ရေးအစီအစဉ်

မီးကာကွယ်ရေးအစီအစဉ်အတွက် hydrant စနစ်၊ high velocity water spray စနစ် နှင့် ကာဗွန်ဒိုင်အောက်ဆိုဒ်အမျိုးအစား၊ pressurized water အမျိုးအစားနှင့် foam အမြှုပ်အမျိုးအစား စသည့်သယ်ဆောင်နိုင်သောမီးသတ်ဆေးဗူး များကို လိုအပ်သည့်အမျိုးအစားအလိုက်ထားသင့်သောလုပ်ငန်းခွင်နေရာများတွင် နေရာတကျထားရှိခြင်း၊ မီးသတ်ဌာနများသို့ ဆက်သွယ်နိုင်ရန်ဖုန်းနံပတ်များအား အများတွေ့မြင်နိုင်သည့်နေရာတွင် ရေးဆွဲပြသထားခြင်း၊ အရေးပေါ်မော်တော်ယာဉ်များစီစဉ်ထားခြင်းများ အပါအဝင်မီးဘေးကာကွယ်ရေး စနစ်ကိုထည့်သွင်းထားပါသည်။

SDI Manufacturing factory အထည်ချုပ် စက်ရုံတွင်အရေးပေါ်မီးသတ်စနစ်များအတွက်ရေသိုလှောင်ခြင်း၊ ရေပိုက်များ၊ Way breeching ဝင်ပေါက်နှင့်မီးသတ်ဆေးများပါဝင်သည်။

သဘာဝဘေးအန္တရာယ်ထိန်းချုပ်ရေးအစီအစဉ်

သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲမှုသို့မဟုတ်ထိန်းချုပ်မှုအစီအစဉ်၏ရည်ရွယ်ချက်သည်ဘဝ၏လုံခြုံမှု၊ ပတ်ဝန်းကျင်ကိုကာကွယ်ရန်၊ တပ်ဆင်ထားမှု များကိုကာကွယ်ခြင်းတို့အပြင် သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲမှုအစီအစဉ်ကိုထိရောက်စွာအကောင်အထည်ဖော်ရန်အတွက် ကျယ်ကျယ်ပြန့်ပြန့်ဆောင်ရွက်သွားရန် ဖြစ်ပြီး၊ ၎င်းရည်ရွယ်ချက်အတွက် ဝန်ထမ်းများအားသဘောပေါက်နားလည်အောင်လေ့ကျင့်သင်ကြားပေးသွားမည်ဖြစ်ပါသည်။

စက်ရုံ၏အနီးတစ်ဝိုက်ရှိ အဆောက်အအုံများအတွင်းရှိ အရေးပေါ်အခြေအနေ၏ အကျိုးဆက်များကိုကိုင်တွယ်ထိန်းချုပ်ရန်၊ သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲမှုအစီအစဉ်ကိုရေးဆွဲထားခြင်းဖြစ်ပြီး၊ စီစဉ်ထားသောအရေးပေါ်အခြေအနေကို ဘေးအန္တရာယ်စီမံခန့်ခွဲမှုအစီအစဉ်ဟုခေါ်ပါသည်။ စက်မှုဘေးအန္တရာယ်စီမံခန့်ခွဲမှုအစီအစဉ်၏ရည်ရွယ်ချက်မှာအောက်ပါတို့ကိုရရှိရန်အတွက်ပြင်ပဝန်ဆောင်မှုများနှင့် ပေါင်းစပ်ထားသော အရင်းအမြစ်များကိုအသုံးပြုရန်ဖြစ်သည်။

- ပစ္စည်းနှင့်ပတ်ဝန်းကျင်ပျက်စီးမှုကိုအနည်းဆုံးဖြစ်စေရန်။
- ရောဂါဖြစ်ပွားမှုကိုကယ်ဆယ်ရေးနှင့်ဆေးကုသမှုခံယူရန်။
- ရပ်ဆွေရပ်မျိုးများ၏လိုအပ်ချက်များအတွက်ထောက်ပံ့ပေးရန်။
- သတင်းမီဒီယာကိုခိုင်လုံသောသတင်းအချက်အလက်ပေးရန်။

- ဘေးဒဏ်သင့်ဒေသများလုံခြုံစွာပြန်လည်ထူထောင်ရန်။
- လူများကို အကာအကွယ်ပေးရန်။
- အရေးပေါ်အခြေအနေများကို ထိန်းချုပ်မှုအောက်တွင်ရောက်စေရေးဆောင်ရွက်ရန်
- အရေးပေါ်အခြေအနေနှင့်စပ်လျဉ်း၍ နောက်ဆက်တွဲစုံစမ်းစစ်ဆေးမှုအတွက်နောက်ဆက်တွဲမှတ်တမ်းများနှင့် ပစ္စည်းကိရိယာများ ကို ထိန်းသိမ်းရန်

အရေးပေါ်အစီအစဉ်၏ရည်ရွယ်ချက်မှာ -

- အရေးပေါ်အခြေအနေ တွင်လိုအပ်သလိုဖယ်ရှားခြင်းနှင့်နေရာချထားရန်
- မတော်တဆမှု၏အကျိုးသက်ရောက်မှုအနည်းဆုံးဖြစ်အောင်လျှော့ချရန်။

စက်ရုံအတွင်းဖြစ်ပေါ်နိုင်သောအရေးပေါ်အခြေအနေများမှာအောက်ပါအတိုင်းဖြစ်သည် -

- ဓာတုပစ္စည်းများသိုလှောင်ခြင်းကြောင့် သိုလှောင်ကန်များမီးလောင်နိုင်ခြင်း
- အစားအစာ / ရေညစ်ညမ်းခြင်း။
- အဖျက်အမှောင့်နှင့် / လူမှုရေးပုံမှန်မဟုတ်သည့်အခြေအနေ
- ဖွဲ့စည်းတည်ဆောက်ပုံဆိုင်ရာအားနည်းမှုများ။
- မီးကြွင်းမီးကျန်
- ဥပမာ သဘာဝကပ်ဘေးများ ငလျင်များစသည်တို့

<u>**ကျန်းမာရေး၊ ဘေးကင်းလုံခြုံမှု၊ သဘာဝပတ်ဝန်းကျင်၊ အရေးပေါ်နှင့်လူမှုရေး ဘက်ပေါင်းစုံ အစီအစဉ်**</u>

- <u>ကျန်းမာရေးနှင့်လုံခြုံရေး</u>အတွက်စက်ရုံရှိအလုပ်သမားအားလုံးသည်သူတို့၏ အလုပ်နှင့်သက်ဆိုင်သော လုံလောက်သော တစ်ကိုယ်ရေ အကာအကွယ်ပစ္စည်းကိရိယာများကိုဝတ်ဆင်ရန်လိုအပ်သည်။
- ကြီးကြပ်ရေးမှူးများကိုၤင်းတို့၏ဌာနရှိသူတို့၏အဖွဲ့သားများ၏ကျန်းမာရေးနှင့်လုံခြုံမှုကိုစောင့်ကြည့်ရန် လေ့ကျင့်သင်ကြားထား ပါသည်။ ကျန်းမာရေးနှင့်ဘေးကင်းရေးနှင့်သက်ဆိုင်သည့်သတင်းအချက်အလက်များကိုကြော်ငြာသင်ပုန်းတွင် ဖော်ပြထား ပါသည်။
- အရေးပေါ်အခြေအနေအတွက်စက်ရုံသည်မီးသတ်ဌာနမှညွှန်ကြားထားသည့်အတိုင်းမီးသတ်ယာဉ်များအပါအဝင်မီးဘေးလုံခြုံရေးအစီ အမံများနှင့်စနစ်များကိုတပ်ဆင်ထားပါသည်။ အရေးပေါ်ထွက်ပေါက်အားလုံးသိသာစွာအမှတ်အသားများပြုလုပ်ထားပါသည်။
- မီးသတ်ဆေးဘူးများကိုစနစ်တကျတပ်ဆင်ပြီးပုံမှန်စစ်ဆေးထားပါသည်။
- စက်ရုံသည်မီးငြိမ်းသတ်ရန်အတွက်လုံလောက်သောရေပမာဏသိုလှောင်ထားပါသည်။ အရေးပေါ်မီးမတော်တဆမှုအတွက်ညှိနှိုင်းဆောင်ရွက်ရန်စက်ရုံကိုဌာနပေါင်းစုံမှ ဝန်ထမ်းများစွာတာဝန်ချထားပါသည်။ မီးဘေး ကာကွယ်ရေးအတွက်ပုံမှန်စစ်ဆေးခြင်းအပြင်စီမံကိန်းတွင်ဆေးလိပ်သောက်ခြင်းကိုတားမြစ်ထားပါသည်။
- ထို့အပြင်စက်ရုံသည်မတော်တဆယိုဖိတ်မှုအခြေအနေကိုတိုက်ဖျက်ရန်ယိုဖိတ်မှုအရေးပေါ်အစီအစဉ်ကိုအသုံးပြုနေပါသည်။ ယိုဖိတ်မှုတုံ့ပြန်မှုလုပ်ထုံးလုပ်နည်းများကိုလေ့ကျင့်သင်ကြားခြင်းအပြင်လောင်စာသိုလှောင်ရုံများနှင့်ကားရပ်နားရာနေရာအနီးရှိနံရံ များပေါ်တွင် သတိပေးဆိုင်းဘုတ်များနှင့်ရှင်းပြထားပါသည်။

လူမှုရေးမူဝါဒ၊ လူမှုရေးမူဝါဒအတွက်စက်ရုံစီမံခန့်ခွဲမှုသည်ၤင်း၏အလုပ်သမားများ၏အကျိုးကိုဂရုစိုက်သည်။ လူမှုရေးနှင့် ကျား/မတန်းတူညီမျှမှု ကို စီမံကိန်းတွင်အပေးအယူမပါဘဲဆောင်ရွက်နေပါသည်။ မည်သည့်ပုံစံကိုမဆိုခွဲခြားဆက်ဆံခြင်းကို တားမြစ်ထားပြီး ကြမ်းတမ်းသော ပြစ်ဒဏ်ပေးမည်ဖြစ်ပါသည်။ မျှတသောပတ်ဝန်းကျင်ကိုအာမခံနိုင်ရန် အလုပ်သမားများသည် အလုပ်သမားသမဂ္ဂများကိုဖွဲ့စည်းခွင့်နှင့် စီမံခန့်ခွဲမှု ဆိုင်ရာပြဿနာများကိုထုတ်ဖော်ပြောဆိုခွင့်ပေးထားပါသည်။

စက်ရုံအတွက်ကျန်းမာရေး၊ ဘေးကင်းရေး၊ သဘာဝပတ်ဝန်းကျင်နှင့်အရေးပေါ်နှင့်လူမှုရေးစီမံကိန်းများအတွက်စက်ရုံမန်နေဂျာ ဦးဆောင်သော HSE စီမံခန့်ခွဲမှုအဖွဲ့ကိုဖွဲ့စည်းထားပြီးဖြစ်ပါသည်။

HSE စီမံခန့်ခွဲမှုအဖွဲ့သည် အစီရင်ခံစာ၏ စက်ရုံ HSE စီမံခန့်ခွဲမှုအဖွဲ့ဖွဲ့စည်းခြင်း 8.4.1 Forming Factory HSE and Emergence Response Management Organization တွင်ဖော်ပြထားသော အဆိုပြု သဘာဝ ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုလျှော့ပါးရေးနှင့် စောင့်ကြည့်ကြီးကြပ်ရေး အဖွဲ့နှင့်ပူးပေါင်းပြီးစက်ရုံအတွက် EMP ကိုအကောင်အထည်ဖော်နေပြီဖြစ်ပါသည်။

SDI အထည်ချုပ်စက်ရုံစီမံခန့်ခွဲမှုအဖွဲ့သည်သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုစီမံကိန်းများအတွက် ဒေသခံပြည်သူများနှင့် ယခုအချိန် အထိ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု၊ ထိခိုက်မှုလျှော့ပါးစေရေးနှင့်စောင့်ကြည့်လေ့လာခြင်းတို့တွင်အမြဲပူးပေါင်းပါဝင်ခဲ့ပါသည်။ သဘာဝပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုနှင့်စောင့်ကြည့်လေ့လာရေးအဖွဲ့တည်ထောင်ရန်စက်ရုံစီမံခန့်ခွဲမှုကော်မတီသည် ငွေပင်လယ်စက်မှုဇုံမှတာဝန်ရှိသူများ၊ ဒေသခံ အဖွဲ့ အစည်းများ နှင့်အဆိုပြု ညှိနှိုင်းထားပြီးဖြစ်ပါသည်။

လူထုနှင့်ညှိနှိုင်းတိုင်ပင်မှု၏ရလဒ်

စီမံကိန်းသည် SDI Manufacturing Co. , Ltd. မှလည်ပတ်သည့်အထည်ချုပ်ထုတ်လုပ်သည့်စက်ရုံစီမံကိန်းဖြစ်ပါသည်။ ကုမ္ပဏီကို ၂၀၁၃ ခုနှစ်တွင်စတင်တည်ထောင်ခဲ့ပြီး၊ စက်ရုံမှာ ၂၀၁၄ ခုနှစ်တွင်စတင်လည်ပတ်ခဲ့ပါသည်။

စက်ရုံလည်ပတ်မှုနှင့် ပတ်သက်၍ ဒေသခံများနှင့်ဝန်ထမ်းများ၏သဘောထားကို လေ့လာရန်အတွက်ပထမဆုံးအကြိမ် လူထုညှိနှိုင်းအစည်းအဝေး ကိုပြုလုပ်ခဲ့ခြင်းဖြစ်ပါသည်။

SDI ထုတ်လုပ်မှုကုမ္ပဏီလီမိတက်သည်ငွေပင်လုံစက်မှုဇုန်တွင်အထည်ချုပ်ကုန်ပစ္စည်းထုတ်လုပ်ခြင်းစက်ရုံလုပ်ငန်းကိုလုပ်ကိုင်ခဲ့ပါသည်။

စီမံကိန်း၏သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများနှင့်လျှော့ချရေး၊ အလုပ်သမားများ၏ကျန်းမာရေးနှင့်လုပ်ငန်းခွင် ဘေးအန္တရာယ်ကင်းရှင်းရေး(HSE) နှင့်ပတ်ဝန်းကျင်ဆိုင်ရာလေ့လာမှုအတွက် ဥပဒေများနှင့်စည်းမျဉ်းများပါ ပြဋ္ဌာန်းချက်များကိုရှင်းလင်းတင်ပြရန် သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) အစည်းအဝေးကို ၂၀၂၀၊ ဇွန် ၁၂ ရက်နံနက် ၁၀ း ၀၀ နာရီအချိန်တွင်စက်ရုံ၏ခန်းမတွင် ကျင်းပခဲ့ပါသည်။

အစည်းအဝေးသို့ လှိုင်သာယာမြို့နယ်စည်ပင်သာယာရေးဌာန ဌာနမှူး ဦး ကျော်လွင်ဌေး၊ ငွေပင်လယ်စက်မှုဇုန်ကြီးကြပ်ရေးကော်မီတီ အမှုဆောင်အရာရှိ ဦးပြည့်ဖြိုးအောင်၊ သတင်းပြန်ကြားရေးအဖွဲ့(မီဒီယာ)မှ ဦး ထွန်းလှ၊ မြို့နယ်အထွေထွေအုပ်ချုပ်ရေး ဦး စီးဌာနမှ ဦးတင်ဌေး၊ Lucky Fortune အထည်ချုပ်စက်ရုံ၊ Universal Cold Store၊ ဆောင်းဦးရွှေနေ အထည်ချုပ်စက်ရုံစသည့် ပတ်ဝန်းကျင်စက်ရုံများမှ ကိုယ်စားလှယ်များ၊ ဒေသခံအသိုင်းအဝိုင်းခေါင်းဆောင်များ (ရပ်ကွက်/ကျေးရွာ/လမ်း အကြီးအကဲများ) နှင့် SDI အထည်ချုပ်စက်ရုံမှ ကြီးကြပ်ရေးမှူးများ တက်ရောက်ကြပါသည်။

SDI ကုန်ထုတ်လုပ်မှုကုမ္ပဏီလီမိတက်၊ အထည်ချုပ်စက်ရုံ ၏လူ့စွမ်းအားအရင်းအမြစ်မန်နေဂျာ ဦး ချိုလွင် ဦး သည် မန်နေးဂျင်းဒါရိုက်တာ Mr. Lai Kin Ching ကိုယ်စား ညှိနှိုင်းတိုင်ပင်ဆွေးနွေးခြင်းအစည်းအဝေးသို့ တက်ရောက် ခဲ့ပါသည်။

အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ရခြင်း၏ရည်ရွယ်ချက်မှာအောက်ပါအတိုင်းဖြစ်သည် -

- သက်ဆိုင်သူများနှင့်ဖြစ်နိုင်ချေရှိသောထိခိုက်ခံရသူများကိုဖော်ထုတ်ရန်အတွက်သတင်းအချက်အလက်များကိုစုဆောင်းရန်
- အခြေခံလူမှုရေးနှင့်ပတ်ဝန်းကျင်ဆိုင်ရာအချက်အလက်များနှင့်သတင်းအချက်အလက်များကိုစုဆောင်းရန်
- စီမံကိန်းနှင့်ဖြစ်နိုင်ချေရှိသောထိခိုက်မှုများကိုသက်ဆိုင်သူများနှင့်ထိခိုက်နစ်နာသူများကိုအသိပေးရန်။
- စီမံကိန်းနှင့် ပတ်သက်၍ လူထု၏စိုးရိမ်မှုများကိုမှတ်တမ်းတင်ရန်
- ထိခိုက်မှုလျော့ပါးရေးနှင့်စီမံကိန်း၏ပတ်ဝန်းကျင်လူမှုရေးဆိုင်ရာအကျိုးများထိရောက်စွာဆောင်ရွက်ပေးနိုင်ရန် အတွက် အများပြည်သူနှင့်ဆိုင်သောအကြံဥာဏ်များကိုမှတ်တမ်းတင်ရန်

အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးသော ယခုအစည်းအဝေးသို့တက်ရောက်သူများသည် စီမံကိန်းအပေါ် လူထု၏သဘောထားအမြင်များကို ရှင်းပြခဲ့ပြီး ၎င်းတို့၏စိုးရိမ်ပူပန်မှုများကိုလည်းတင်ပြခဲ့ကြပြီး စက်ရုံဖွံ့ဖြိုးတိုးတက်မှုနှင့် ပတ်သက်၍ ထိရောက်သော အကြံပြုချက်များ ပါဝင်သည့် အကြံပြုစာများ ကိုလည်းပြန်လည်ပေးအပ်ခဲ့ကြပါသည်။

အများပြည်သူနှင့်ဆွေးနွေးညှိနှိုင်းမှုအစည်းအဝေးများ၏ ရလဒ်ကိုအကျဉ်းချုပ်ဖော်ပြချက်အရ ဒေသခံအများစုမှစီမံကိန်းသည် မည်သည့် ပတ်ဝန်းကျင် ဆိုင်ရာ သို့မဟုတ်လူမှုရေးဆိုင်ရာထိခိုက်မှုများရှိမည်မဟုတ် ဟုယုံကြည်ကြပါသည်။

အများပြည်သူနှင့်ဆွေးနွေးတိုင်ပင်ခြင်းအတွက်အစည်းအဝေးမှတ်တမ်းများကို အစီရင်ခံစာ၏ 8.5 Result of the Public Consultation တွင် ဖော်ပြ ထားပါသည်။

ဆွေးနွေးပွဲများ၏ရလဒ်များနှင့် အကြံပြုချက်များအရ ဆောင်ရွက်ပေးခြင်းများ

SDI Manufacturing Co.Ltd ၏ အထည်ချုပ်စက်ရုံလုပ်ငန်းများအတွက် ပထမအကြိမ် အများပြည်သူဆိုင်ရာနှင့် ဆွေးနွေးတိုင်ပင်မှုရလဒ်အနေဖြင့် စီမံကိန်းကြောင့်ဒေသခံပြည်သူများအပေါ်ဆိုးကျိုးသက်ရောက်ခြင်းမရှိဟု ဆိုနိုင်ပါသည်။ ဒေသခံပြည်သူများ ၏ စိုးရိမ်ပူပန်မှုမှာအလွန်နည်းပါးပြီး၊ လူနေအိမ်ခြေနည်းပါးသော ငွေပင်စက်မှုဇုန်အတွင်းတွင်တည်ရှိသောကြောင့်လည်း ဖြစ်နိုင် ပါသည်။

၁. ဒေသခံအသိုင်းအဝိုင်း၏အကြံပြုချက်များနှင့်လိုအပ်ချက်များအရကုမ္ပဏီ စက်ရုံစီမံခန့်ခွဲမှုအဖွဲ့သည်အဝတ်အထည် ထုတ်လုပ်သည့် လုပ်ငန်းမှ ဘေးထွက်ဆိုးကျိုးများကိုရှောင်ရှားနိုင်ပြီးရေဆိုးစီမံခန့်ခွဲမှုကိုစနစ်တကျဂရုစိုက်အလေးထားဆောင်ရွက်လျှက်ရှိပါသည်။

၂. ထို့အပြင်စီမံကိန်းစတင်ကတည်းကကတည်းကအဝတ်လျှော်ခြင်းနှင့်မီလ္လာမှ စွန့်ပစ်ရေထုတ်လုပ်မှုများကို ပုဂ္ဂလိကရေမြောင်းသို့ တိုက်ရိုက် စွန့်ပစ်ခြင်းမရှိဘဲ၊ အထိုက်အလျောက်သန့်စင်ပြီးမှ စွန့်ပစ်ခြင်းနှင့် Effluent Treatment Plant တည်ဆောက်ပြီး ၎င်းမှ ရေဆိုးသန့်စင်ခြင်း လုပ်ငန်းစဉ်များ ဆောင်ရွက်ပြီးမှသာ စွန့်ပစ်ခြင်းများဆောင်ရွက်နေပြီဖြစ်ပါသည်။

၃. လျှပ်စစ်စစ်ဆေးရေး ဦးစီးဌာန၏ညွှန်ကြားချက်အရလျှပ်စစ်အန္တရာယ်မှရှောင်ရှားရန်လျှပ်စစ်ပစ္စည်းနှင့် လျှပ်စစ်ဓာတ်အားသုံး ဆက်စပ် ပစ္စည်း များ ကိုအချိန်ဇယားအတိုင်းသတ်မှတ်၍စစ်ဆေးလျှက်ရှိပါသည်။

၄. စက်ရုံ၏ကယ်ဆယ်ရေးအစီအစဉ်အရ အရေးပေါ်အခြေအနေအတွက် စီစဉ်ထားပြီးဖြစ်ပါသည်။ စက်ရုံအတွင်းရှိတံခါးအားလုံးကို

အမြဲတမ်းဖွင့်ထားပြီး မီးဘေး ရေကြီးခြင်းနှင့်ငလျင်ကဲ့သို့သောသဘာဝအန္တရာယ်များမှအလွယ်တကူ လွတ်မြောက်ရန် စီစဉ်ထားပါသည်။ ဌာနတစ်ခုချင်းစီ၏ ကယ်ဆယ်ရေးအစီအစဉ်နှင့်အရေးပေါ်ထွက်ပေါက် Sign Boards ကိုဤအစီရင်ခံစာ၏ နောက်ဆက်တွဲ ၁ မှနောက်ဆက်တွဲ ၈ တွင်ဖော်ပြခဲ့သည့်စက်ရုံရှိမည်သည့်နေရာတွင်မဆိုမြင်သာသည့်နေရာတွင် ပြသထားပါသည်။

၅. အဝတ်အထည်ထုတ်လုပ်သည့်လုပ်ငန်းမှ ထုတ်လွှတ်သောညစ်ညမ်းမှုအရင်းအမြစ်များအားလုံးအတွက်သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စိုးရိမ်မှုများအတွက်အကြံပေးသူများ၏ အကြံပြုချက်များအရဒေသခံလူထုနှင့်စိတ်အနှောင့်အယှက်မဖြစ်စေရန်စီစဉ်ထားပြီးစနစ်တကျလျှော့ချခြင်းများ ဆောင်ရွက်လျှက်ရှိပါသည်။

၆. လူမှုရေးတာဝန်ယူမှုအစီအစဉ် (CSR) လှုပ်ရှားမှုများသည် ဒေသဆိုင်ရာဖွံ့ဖြိုးတိုးတက်မှု၏ ရည်မှန်းချက်အတွက် စဉ်ဆက်မပြတ်အထောက်အပံ့များဖြစ်စေရန်ဆောင်ရွက်သွားမည်ဖြစ်ပြီး၊ CSR လုပ်ငန်းများအတွက်ရန်ပုံငွေကိုဒေသခံ အသိုင်းအဝိုင်း အတွက် ကဏ္ဍအမျိုးမျိုး တွင်အကောင်အထည်ဖော်ပြီးအသုံးပြုသွားမည်ဖြစ်ပါသည်။

SDI Manufacturing Co. , Ltd အတွက်ဒေသဖွံ့ဖြိုးတိုးတက်မှုနှင့်လူမှုဖွံ့ဖြိုးတိုးတက်မှုအစီအစဉ် (CSR) အရ အနာဂတ်ကာလများ တွင် ဒေသတွင်း နှစ်စဉ်မြန်မာကျပ်ငွေ သိန်း (၁၀၀) သိန်း (ပညာရေး၊ လူမှုရေးနှင့်ကျန်းမာရေး) ခန့်အသုံးပြု အသုံးပြုသွားမည်ဖြစ်ပြီး နောက်ထပ်လိုအပ်သောရန်ပုံငွေများရှိခဲ့ပါက။ ကုမ္ပဏီ၏ဆုံးဖြတ်ချက်များအရအကုန်အကျခံ၍အသုံးပြုသွားမည် ဖြစ်ပါသည်

စီမံကိန်းအဆိုပြုသူသည် ဒေသဖွံ့ဖြိုးတိုးတက်မှုနှင့် လူမှုဖွံ့ဖြိုးတိုးတက်မှုစီမံကိန်းကို စဉ်ဆက်မပြတ်အထောက်အကူပြု အကောင်အထည်ဖော်သွားပါမည် ဟု ကတိပြုပါသည်။

<u>မကျေနပ်ချက်ဖြေရှင်းခြင်းစနစ်</u>

စီမံကိန်းအဆင့်တွင် မကျေနပ်ချက်ဖြေရှင်းရေးယန္တရားအရ လက်ရှိအခြေအနေတွင်ထိခိုက်ခံစားနေရသောရပ်ရွာလူထုနှင့် ဝန်ထမ်းများထံမှရရှိသော မကျေနပ်မှုများနှင့်တိုင်ကြားမှုများကို စီမံခန့်ခွဲရန်စီမံလျက်ရှိပါသည်။

<u>စက်ရုံ၏မကျေနပ်ချက်ဖြေရှင်းခြင်းကော်မတီ</u>

မကျေနပ်ချက်ဖြေရှင်းရေးယန္တရား (grievance Redress Mechanism -GRM)ကိုမကျေနပ်ချက်ဖြေရှင်းရေးကော်မတီမှစီမံခန့်ခွဲမည်ဖြစ်ပြီး၊ အစီရင်ခံစာ၏ Figure 63: Grievance Redress Committee တွင်ဖော်ပြထားသည့်အတိုင်း မကျေနပ်ချက်ဖြေရှင်းရေး ကော်မတီကို ဖွဲ့စည်းမည်ဖြစ်ပါသည်။

<u>အကြံပြုသေတ္တာများ</u>

စီးပွားရေးလုပ်ငန်းဆောင်ရွက်နေစဉ်အတွင်းမကျေနပ်မှုများ၊ တိုင်ကြားချက်အစီရင်ခံခြင်းကိုအများမြင်နိုင်ပြီးလူသိရှင်ကြားထုတ်ပြန်နိုင်ပါသည်။ ဝန်ထမ်းများအလွယ်တကူမြင်တွေ့နိုင်သောနေရာရှစ်နေရာ၌အကြံပြုချက်သေတ္တာများနေရာချထားပြီးဖြစ်ပါသည်။

၁.၈ အကြံပြုချက်များနှင့်နိဂုံး

<u>အကြံပြုချက်များအနေနှင့်</u>

- စက်ရုံစီမံခန့်ခွဲမှုကော်မတီသည် ကုမ္ပဏီ၏ ဌာနတွင်းစည်းမျဉ်းများ၊ ကုမ္ပဏီ၏ ကိုယ်ပိုင်ကျန်းမာရေး၊ ဘေးကင်းလုံခြုံမှုနှင့် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး အစီအစဉ်ကိုပြဋ္ဌာန်းပြီးဝန်ထမ်းများအားသင်ကြားပေးပြီး လက်တွေ့ကျင့်သုံးစေသင့်ပါသည်။
- လူ့စွမ်းအားအရင်းအမြစ်ဆိုင်ရာမူဝါဒများနှင့်လုပ်ထုံးလုပ်နည်းများကိုချမှတ်သင့်ပြီး အလုပ်သမားအားလုံးကို လေ့ကျင့်သင်ကြားပေးသင့်ပါသည်။
- စက်ရုံ စီမံခန့်ခွဲမှုကော်မတီသည်ကျန်းမာရေးနှင့်ဘေးကင်းရေးသင်တန်းအစီအစဉ်များကို လုပ်သားအင်အားစုများမှ အများစုကို အနည်းဆုံး တစ်နှစ်လျှင် တစ်ကြိမ်စီစဉ်ဆောင်ရွက်ပေးသင့်ပါသည်။
- SDI အထည်ချုပ်စက်ရုံ အတွက်အောက်ပါအကြံပြုချက်သည် ကျန်းမာရေး၊ ဘေးကင်းလုံခြုံမှုနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး အစီအစဉ် HSE အတွက်ပိုမိုကောင်းမွန်သောအလေ့အကျင့်တစ်ခုဖြစ်ပါသည်။
  - သန့်ရှင်းသောထုတ်လုပ်မှုအတွက်မူဝါဒ၊ သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုစနစ်ကိုတီထွင်ပြီးအကောင်အထည်ဖော်သင့်ပါသည်။
  - သန့်ရှင်းသောထုတ်လုပ်မှုနှင့်ပတ်သတ်သောလုပ်ငန်းဥပဒေများနှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုစနစ် EMS ကို ပြင်ဆင်၍ အကောင်အထည် ဖော်ရပါမည်။

<u>နိဂုံး</u>

- သဘာဝအရင်းအမြစ်နှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန (ယခင် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာ ဝန်ကြီးဌာန MoECAF ၏ ကြေညာချက်အမှတ် ၆၁၆/၂၀၁၅၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းလုပ်ထုံးလုပ်နည်းများ၊ အခန်း ၄၊ EIA လုပ်ထုံးလုပ်နည်းအပိုဒ် ၆၃ (၁) (ဒီဇင်ဘာလ ၂၉၊ ၂၀၁၅ ရက်စွဲပါ) အရ စီမံကိန်းနှင့်အကျုံးဝင်သူများနှင့်ညှိနှိုင်း အစည်းအဝေး တွင် သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုပတ်ဝန်းကျင်ဆိုင်ရာပတ်ဝန်းကျင်နှင့်လူမှုရေးပတ်ဝန်းကျင် အတွက် ဒေသခံပြည်သူလူထု၏ အကောင်းဆုံး လိုအပ်ချက်များအတွက်လုပ်ငန်းစဉ်မစတင်မီနှင့်ကာလအတွင်းစဉ်ဆက်မပြတ်ကျင်းပမည်ဖြစ်ပါသည်။

- စက်ရုံအလုပ်သမားများနှင့်အတူဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့်ဘေးအန္တရာယ်ကင်းရှင်းရေးကျန်းမာရေးကိရိယာများ၊ ကြံ့ခိုင်မှု၊ သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် စီမံခန့်ခွဲရန် ဆောင်ရွက်မှုများနှင့်အတူ စက်ရုံအလုပ်သမားများ အားလုံးနှင့် အတူတကွ လုပ်ဆောင်ရန်ရည်ရွယ်ထားပါသည်။ ဆုံးဖြတ်ချက်အတွက်အကောင်အထည်ဖော်သည့်လမ်းညွှန်ချက်များ၏ထိပ်တန်းစီမံခန့်ခွဲမှုနှင့် အညီ ဆောင်ရွက်ခြင်းကိုပြုလုပ်လျှက်ရှိနေပြီဖြစ်ပါသည်။

DECLARATION AND PLEDGE

We hereby, declare that the information submitted in this report is, to the best of our knowledge, true and accurate up to the date of submitting this report.

This report has been prepared by the consultant firm AMK and Associate EIA Consulting Limited, with utmost effort with all reasonable skills, care and diligence within the term of contract with the client Smart Dragon Internationl (SDI) Manufacturing Company Limited.

This project is situated at Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar.

The proposed project, and the report compiled by a third party to verify the following information to add admission;

- The environmental Management assessment is accurate and efficient.
- This Environmental Management Plan for Project is strictly followed the environmental regulation and guide line set up the Ministry of National Resources, and Environmental Conservation (MoNREC) and commit to comply with relevant laws accurately.
- Smart Dragon Internationl (SDI) Manufacturing Company Limited is situated at No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar. SDI pledges to abide by the Environmental Laws, rules and regulation. The company also pledges to undertake all the mitigation measures and implement all the Environmental Management Plans (EMP) prescribed in this report.
- The project proponent promises to monitor compliance with the mitigation measures outlined in the report.
- When decommission or post closure phase of this industrial project, if their impact on the community, (SDI) Manufacturing Company Limited will manage to minimize the damage which would be original state to be displayed.

(By the consultant firm)

U Aung Myat Kyaw
Team Leader
Environmental Management Team
JOEY A.M.K and Associate EIA Consulting Ltd

(From SDI Manufacturing Company Limited's Commitment)

I agree to implement the environmental requirements detailed in this Environmental Management Plan Report.

Title :
Name :

Signature

CHAPTER 1 EXECUTIVE SUMMARY

1.1 Introduction (Summary)

SMART DRAGON INTERNATIONAL (SDI) Manufacturing Company Limited is conducting Environmental Management Plan (EMP) statements and report for submitting to Ministry of National Resources and Environmental Conservation as requirement of Myanmar's industry. This Factory is leading the way with garment manufacturing products for International Standard which are manufactured in Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar.

Such developmental projects, like the one under study here, will help to minimize the growing rate of unemployment among the Myanmar labor power and contribute to build a self-dependent economy for the whole Myanmar country. The project is expected to enforce and broaden the local private sector and especially Information Technology service necessarily and associated with related accessories will generate added value in terms of profit.

EMP study for the Project was conducted from October, 2013 and April - May 2020 by AMK Environmental Consulting Limited.

Company Information

SDI Manufacturing Co., Ltd has been founded in Myanmar since 2013, as a Foreign Company in accordance with the provision of the Myanmar Companies Act 1914 on 19 June 2013 as a private Company Limited by shar. Individual members for the company are shareholders of Mr. Lai Kin Ching and Mr. Lok Tze Shan, from China with 149 and 600 shares respectively and total share capital structure is 749 shares.
The contact of this Factory is Director, Management Office, Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar, Telephone: +95 9 5071787, email s.hlaing99@gmail, kenlai@winner-gp.com and contact person is U Cho Lwin Oo, HR Manager, mobile phone - +95 9 451960765.

Company Directors list and share Capital are mentioned at Company Directors of 2.2 Company Information and Share Capital Structure in this Report.

Project Proposal Informations and Investment Status is also shown in 2.3 Project Proposal Informations and Investment Status of this report.

Presentation of the Environmental and Social Experts

SDI Manufacturing Company Limited has appointed A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED to conduct revised EMP for the garment factory project in Hlaing Thar Yar Township.

The project site and environmental inspection was conducted by U Aung Myat Kyaw, Prof: Dr. Aung Lay Tin, and U Thaung Aye Lwin since March, 2020 and a photographic record of the key features identified during the inspection. Consultations were also held with the individuals and organizations. Environmental Professional and Project Director for study is lead by U Aung Myat Kyaw from JOEY AMK and Associate EIA Consultanting Limited, Environmental Consultant Group who is chartered Environmentalist with more than 15 years' experience providing environmental and social assessment and management services across a range of sectors and international jurisdictions. Dr. Aung Lay Tin was assisted, by a team of technical specialists who contributed to the project study.

The scope of EMP includes

- Literature review to collect secondary data of the study area;
- Environmental inspection and field and in-situ measurement of environmental parameters to document the existing environmental condition of the study area;
- Evaluation of the predicted impacts on the various environmental attributes in the study area with EIA methodologies;
- Preparation of an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality and environmentally sustainable development, including identification of the critical environmental attributes required to be monitored.

1.2 Project Description (Summary)

Background and Investment related to the project

SDI Manufacturing Co., Ltd's Garment Factory project was established in June 2013 and started operation as commercial start in 4.4.2014. The estimated total production is 50,000 pieces per month of ready made clothing. Normally the factory operating is approximately 308 days annually. The whole set of garment manufacturing, producing machines and related equipment were imported from China, then installed and modified to produce fished garment products in Ngwe Pin Lei Industrial Zone, Hlaing Tharyar Township, and Yangon Region of Myanmar. Approximately all most raw materials such as textile, thread, and printing materials were imported from China. The garment factory is in full-range operation and has been producing about 600,000 pieces of various clothing annually since 2014 to 2019.

For the proposed projects, SDI Manufacturing Co., Ltd will contribute foreign capital of US$ 0.988 million in cash upon Acquisition Completion.

Project Component

Location

The Project site is situated in Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar. The primary landuses in the locality of the Project site is low density residential.

Size (Land Area)

The whole project site covers nearly 2.275 acre totally. It is included unloading and loading raw material and finished products, and manufacturing of ready-made clothing area. Also consists of steam generation, washing, and printing machines area, administrative buildings, and staff dormitory.

Gentle gradient dominates the topography of generally flat plain project area.

SDM manufacturing Co., Ltd's garment factory project provides direct job opportunity for 566 local workers within the Hlaing Thar Yar/ Shwe Pyi Thar area. There are 11 oversea technicians working together with the local employees in working schedule with a one shift system operation. The total operation is approximately 308 days and producing about 600,000 pieces of ready-made clothing (360 ton of apparel in a year).

Transformer, Security Room, Dining area, Generator, Ware house, cutting department, washing office, drying area, dyeing area (currently no dyeing process), Wash area, and Finishing department are project layout which are involved in the operation phase. Also, Sewing Department, Water tower, ETP place area, Boiler room, Garbage room, Printing department, Chemical warehouse, Utility room, and Management dormitory are also involved in factory layout.

The project has planned, and already developed Effluent treatment plant for treating wastewater.

Installation

Landscaping can be used not only to enhance a buildings exterior, but also to improve energy efficiency and make the environment more pleasant for workers and visitors. The economic rewards are not bad; either good landscaping can boost a property"s value by up to 15 percent. SDI manufacturing Factory has outdoor function for employees'relaxation. Because of the wide and huge site, there is enough space for circulation space and parking, and enough to park for the vehicles.

The building services of SDI Manufacturing Garment Factory. There is enough water for Factory from own tube wells and Factory have 1 overhead water tanks with tower to store them. Since there is own transformer and supply of Yangon City Electrical Supplement Board (YESB), electricity is in good strength for the Factory. They operate own generator when electricity is power off. There are Telephone, Fax and Net for telecommunication system. For their safety, enough security control is provided.

Energy efficiency can be considered as the main energy saving opportunity for the manufacturing industry. The two factors should drive industry towards achieving it. The first is considering about natural ventilation for the garment industry and the second is natural lighting for very high temperature in garment industries. If energy constitutes a substantial input to industrial processes then this should be a straightforward incentive to improve energy efficiency

For ventilation, there has been already installed natural ventilation by windows, as well as artificialor mechanical ventilation by exhaust or circulation fans.

Lighting and Natural light - Every space intended human occupancy has been provided with natural light by means of exterior glazed openings or artificial light. Exterior glazed openings shall open directly onto a public way or onto a yard or court.

Skylights and windows high up the factory walls let in much more light (and air) than low windows, which often get blocked with stock, raw materials and so on.

It is also essential that lights are positioned in the correct place so that workers do not have to adopt poor working postures to see the task in hand. It is also important to have adequate lighting near any potential hazards such as steps, ramps, etc. and outside the factory for security at night.

Zoning Classification

In garment industries, there can be classified as four main zones to run their functions. There are Administration zone for controlling their commercial facilities, Operation zone for their products, recreation zone for public facilities and others for M and E rooms, store rooms and so on.

Dining halls from SDI Manufacturing garment factory has good ventilation and lighting, and it doesn't need protection from entering dust. There in one Canteen for employees, but no cafeteria. Because of high temperature, dust, inadequate lighting and ventilation, employees can suffer headache, fatigue and fever, so there should be first-aid room for health provision. Toilets can be seen for each section of industry and need to get good ventilation and lighting. Employees need library for their rest time because they want to relax their time by reading books.

Employee Facilities

Both the quantity and the quality of the product depend not only on the sequence precision, and efficiency of the factories, tools and machines but on the proficiency, pride, and fitness both mental and physical of the personnel. The development of factory design in recent years has become more and more concerned with creature comforts for the employees.

According to floor plan of the Factory, there are sufficient facilities for the employee by giving dining room, and Rest room for necessary requirements. In Mini Clinic, there has been already assigned certified nurse who has more experience in first aid treatment for emergency and minor accident. In case if there's a serious case, factory management will arrange to transfer to Towhship Hospital.

Dining area of SDI manufacturing factory is clean, protected from the weather, and have enough seating for all the workers who may be on break at any one time. Using cleaning rags instead of paper towels in this factory. Also using linen tablecloths and napkins in place of disposable ones in this factory

Toilet facilities has been provided with running water, and stocked with toilet paper (where culturally appropriate) and anti-bacterial soap or instant hand sanitizer at all times. This factory has been equipped with enough toilet facilities to serve the worker population.

The factory has plenty of safe drinking water; it must be available, at no cost, to all workers at all times. Drinking Water has been purchased by SDI manufacturing garment Factory since factory construction period and Factory supports Purify Drinking Water for all employees in daily. (Free Support)

Good housekeeping practices has been designed to maintain a neat, clean, and orderly factory.

- Regular sweeping of the potential contact zone areas (e.g., trash dumpsters, materials storage and handling areas, loading docks, and outdoor processing areas
- Regular removal of garbage, trash, unusable equipment, and waste material from the factory waste yard.
- Storing materials away from direct traffic routes and in a manner that provides space for vehicles to maneuver.

A master Emergency Shut-Off Switch is located in an accessible area within sight of all dispensers. This switch is labeled and is maintained in working condition at all times.

Fire extinguishers with a minimum rating of 2-A:20-B:C are located in accessible areas no further than 23 meters (75 feet) from pumps and dispensers. All extinguishers have been serviced within the last 12 months (verifiable via service tag).

Minimum Number of Exits

All rooms and spaces within each story has been provided with and have access to the minimum number of

approved independent exits as required minimum number of approved independent exits as required by based on the occupant load [6].As there are six exits and 500 employees (2 basic builing) in the SDI manufacturing garment factory, Three Exits each are enough to emergency case for each building.

Accommodation

Currently 566 local employees are being employed (Contracted EC), and most of them are from nearby Quarter around factory area. Also 11 Oversea employees are being employed. There is one Hostel for management especially oversea employees in the factory compound (7.23 m x 30.4 m). SDI is responsible to arrange accommodation, as well as meal for hostel. The accommodation has to be managed by following with the IFC Standards for workers accommodations.

Ferry buses for transportation has been contracted with SDI Garment Factory. These Ferry buses are enough for the employees and that the transportation is good without wasted time.

Factory Organization

General Manager leads the Factory Organization in SDI manufacturing garment factory. There are five main departments in this factory. They are financial department, shipping department, production department, printing / dyeing department (dyeing process has not been performed yet), and administratin department. These entire departments has been managed by factory manager on behalf of general manager.

Nature and Process of Garment Industries

The following processes are generally seen in garment industries. These processes may be increased depending on the type of products, more detail facts and number of employees.

1. Design:

Design is provided by the buyer. After placing an order buyer send the technical sheet and art-work of an order to the merchandiser. This process is done by both manually or by using computer.

2. Pattern Making:

By following technical sheet and art-work, pattern of each garment style should be made. It's done by both manually and by using computerized method.

3. Fit Sample Making:

The main target of making a fit sample is to follow the details instruction about that garments style. After making it's sent to the buyer to rectify. It's done by manually.

4. Production Pattern Making:

For bulk production, allowance added here with net dimension. Production Pattern Making is done by both manually and by using computer.

5. Grading:

During an order confirmation, the buyer suggests about the size ratio of that order. So that order should be graded according to the buyer's instruction. Grading is done by manually or by using computer.

6. Marker Making:

Marker is a very thin paper which contains all the parts of a particular garment. To make the cutting process easy, it's must be needed. Marker making process can be done by both manually and by using computer.

7. Fabric Spreading:

To cut the fabric properly fabric is spread in lay form. Fabric Spreading is done by manually or by using computerized method.

8. Fabric Cutting:

Fabrics have to cut here according to marker of garments. Fabric Cutting process is done by using manual method or computerized method.

9. Cutting Parts Sorting or Bundling:

Here, cutting parts have to sort out or make bundling to send these easily into the next process. This process is done by manually.

10. Sewing:

All the parts of a garment are joined here to make a complete garment. Sewing process is done by manually.

11. Garments Inspection:

After completing sewing, inspection should be done here to make fault free garments. Garments Inspection is done by using manual method.

12. Garments Ironing and Finishing:

Here garments are treated by steam; also required finishing should be completed here. This process is done by using manual method.

13. Final Inspection:

Finally the complete garments are inspected here according to the buyer's specification. Final Inspection is done by manual method.

14. Garments Packing:

Complete garments are packed here by using buyers instructed poly bag. Garments packing are done by using manual method.

15. Cartooning:

To minimize the damages of garments, all the garments have to cartoon by maintaining buyer's instruction. This process is done by manually.

16. Shipment:

After completing all the required processes it's finally send to the buyer.

Washing Process

Washing is an essential work to remove dirt, spots, oil stains that accumulate to garment at the garment manufacturing processes and chemicals used during printing process and embroidery process and to soften the garment hands feel and improve bulkiness. The types of washes are heavy enzyme or vintage wash, cloud wash, stone wash, acid wash and so on.

Printing Processes:

Style refers to the manner in which a particular action is performed; thus style of printing means the manner in which a printed effect is produced as distinct from the method which involves the means by which the pattern is produced. Style of printing involves certain mechanical operation and chemical reactions.

There are five main methods of printing a fabric, these being the block, roller, screen, heat transfer and ink-jet methods. The heat transfer method differs from the others in that it involves the transfer of color from the design printed on paper through the vapour phase into the fibres of the fabric. With the other methods the dye or pigment is applied to the fabric surface through a print paste medium. The ink jet printing process however is a comparatively recent innovation and is referred to as a 'non-impact' method, because the print paste is fired on to the textile from a jet which is not actually in contact with the fabric. In this SDI manufacturing, it has been only used blocking printing

Block Printing: is the blocks are usually made of wood and the design is hand carved, so that it stands out in relief against the background surface. The print paste is applied to the design surface on the block and the block then pressed against the fabric. The process is repeated with different designs and colours until the pattern is complete. Block printing is a slow, laborious process and is not suitable for high volume commercial use. It is a method still practised in the oriental countries where markets exist for the types of printed fabrics produced.

Supporting Operation

As is the case with many industries, garment manufacturing requires multiple support operations to enable production in the facility. Many of these support operations are common to any manufacturing industry, such as administrative functions, facility and equipment maintenance, and boiler and backup power generator operation. The garment factories also commonly operate and maintaining on-site employee dormitories. Often the scale of the support operations is proportional to the production of the facility.

Use of materials and resources

Main installations are usually computer controlled garment manufacturing machines such as : Lockstitch machine with automatioc thread trimmer, Button sewing machine, Button holing machine, Computer-controlled, button sewing machine, Computer-controlled, button holing machine, Computer-controlled, lockstitch bartacking machine, Lockstitch machine with edge trimmer, Double. Chanstitch sewing machine, Double chainstitch machine, Machine for making the fornt facing on a 5-threed, overlock machine (mentioned in 3.3 Use of materials and resources)

Investment Value

USD 0.988 Million for Manufacturing of various designs of on CMP Basis (mentioned in 2.3 Project Proposal Informations and Investment Status)

Employment for Factory

On full-strength recrutiment for employing, including 1 general manager, 1 factory manager, 2 accounting officers, 2 marketing managers Currently, 566 local workers have been contracted by the employer, and 11 foreign employees who are already working in the factory out of them.

Type of Raw Materials Finished Product and Production Program

Depends on the release order notification (inward processing and bonded transportation) of oversea client as CMP Basis, SDI manufacturing garment factory has to manufactured garment product, and export to designated places.

Receiving on quantities of finished products order is depened on comply with the oversea client company requirement such as factory organization, specification, standards, environment conservation of the factory location.

For SDI manufacturing garment factory, CMP Basic Manufacturing of products estimated total production is 600,000 pcs padded jacket, t-shirt, cargo shirt, and cargo pant (woven & knit) per year-1 on export sale (99%) and monthly production is approximately 50,000 pcs / month, depends on release order notification (inward processing and bonded transportation) of client which are manufactured from estimated raw 200,000 meters of 92% cotton, 8% elastane pile and 100% polyester double knitted fabric per year.

Interlining, button, labels, hanger, security tag, hangtag, collar size reader, collar insert, collar bone, butterfly, sticker, thread, neck board, back board, tissue paper, photo inlay, plastic clip, pin, poly bag, clips, barcord sticker hanger, badge, tape, carton, ribber, and woven tape are other required raw materials.

Chemical Material Usage in SDI Manufactory Factory

According to this factory's operation process, there are some chemical raw materials required as necessary to perform production process. According to Chemical Assessment, which has performed by SMART Myanmar's chemical management report, total 15 types of chemicals (13 for washing and 2 for printing) are used in this factory.

Chemicals used in washing process, and printing process at SDI Factory have been mentioned in Chemical Material Usage in SDI Manufactory Factory from 3.3 Use of materials and resources of this report.

Source of Energy

Source of water, storage capacity and estimated consumption

Daily requirements of water for water utilization is 8 tons ($8m^3$), and quantity of required water is extracted by pumped from four tube wells of the Project site.

Daily requirements of water for water utilization is 8 tons (8m3), and quantity of required water is extracted by pumped from four tube wells of the Project site. Water production rate is 15 gpm from 300 feet depth (6" diameter x 2" contube pipe) each. Producing rate for each tube wells is total 900 gallons per hours.

The dimensions of water storage tanks are 3.8 m x 2 m x 1.5 m (one ground tank), 4 m x 2 m x 1.5 m (overhead water tank), 4.8 m x 7.8 m x 2.5 m (one firefighting water tank) and storage volumes are 2,500 gallons, 2,600 gallons and 20,000 gallons respectively. The quality of ground water is tested by Laboratory (updated), which has shown in Figure 33: Result of Tube Well Water Quality .

Electrical Source and estimated consumption

According to the MIC Proposal, the annual requirement of power is estimated 600,000 units and monthly requirement is estimated 50,000 units. This is expected to be met from Government Supply. The 11KVA Transmission line is currently connected with National Grid. There is own transformer in front of the factory. However, promoter has planned and installed Silent D.G Set to meet emergent power need when if Govt: supply is not available / there is disruption due to breakdown or other eventuality. Diesel requirement for running DG sets is estimated at 40,000 liter per year, and it depends on the YESC's power break down time. Diesel is available in open market and shall be procured locally. Electrical Safety Certificates have been issued by EI Department.

Boiler and Steam System

This project had two steam boilers. The capacity of these boilers are 1.25 and 1 MPa respectively.

At boiler, insulation system for steam pipe, standard steam pipes, scrubber out via an effective flue gas treatment system in stack, stream condensate recovery system, heat exchanger equipment are found at study time and check the manufacture specification. It can reduce the energy consumption and water consumption. Currently water consumption for each boiler is 30 gallons / day. It has been issued certificated for boilers by EI with registration numbers is ဓစ-၅၉၁၄

Generation of waste and waste management at SDI Manufacturing Factory

Such as plastic garbage cans, soft drink bottles, which comes from people's daily lives and municipal waste from industry(workshops, clinics, etc.) has to be disposed under the direction of systematic or otherwise, Garbage Collection systems as necessary, and in conjunction with waste disposal is to be carried out properly.

In this factory, generation of domestic waste were mostly from dining room and it is estimated 1 - 2 kg per day and daily generated 15 - 25 kg from about 500 employees. Approximately 0.5 - 0.75 tons per month and 6 – 9 tons annually has been disposed.

Waste Disposal Procedure

Disposal of wastage should follow below procedure.

- A daily waste generated from the production system is keeping in the respective area and will be delivered to outside safe place by YCDC or qualified sub-contractor and sent to Htein Bin Waste Station.
- Waste fabric inside different department is keeping in a cartoon or waste box to ensure that fabrics are not scattered all over the floor.
- Persons involved in collecting & dispatching waste are ensuring that no waste falls out of waste box during handling or dispatching procedure.
- All waste fabrics are kept in covered boxes/ bags in the designate safe place and the storage place is always keeping dry. Currently **50- 100 kg of waste fabric / week has been sold out to reuse buyer with contract as a plan every month since 2014**.
- The residuals of empty Chemical container will be kept outside of the factory in a designated dry place.
- The empty Chemical containers are not used in the factory and not be given to workers for any other purpose.
- YCDC of sub-contractors for disposing waste will be made aware about different types of wastes and their possible effect & required recommendation.
- During the removal of wastes it is ensured that no nuisance is created because of the removing process and it does not affect the workers staff and also the tenants in and around.
- Records of all waste disposals are maintained by HR dept. on regular basis.

Detail Solid waste management plan of this factory has been shown in 8.2.7 Waste Management Plan during operation at factory.

Liquid waste Generation

- Liquid waste is mainly insustrial waste water from ETP including both dissolved and suspended matter and very small amount, discharged from Boiler.
- **Some Hazardous chemicals has been used in washing and printing, as it was related with operational scope by this factory. There's no dyeing operation in this factory.**
- The discharge effluent from sewage is disposed under guide line and arranged comply with YCDC and sewage is being managed and dischared by liaising with YCDC quartly by on call system. There is enough septic tanks for sewage. Generally, the sewage water has been disposed every 4 – 6 months.
- Before treatment in ETP Plant, Monitoring of effluent level for inlet wastewater is arranged and analyzed at certified laboratory and updated result has been mentioned in Figure 51.

Hazardous Waste Generation

- There's some chemical use in this factory operation and some chemical waste generation in this SDI Manufacturing Factory. Empty containers of chemical have been kept separately before selling to reused contractor.
- There is very small amount of hazardous waste such as defected fluorescent light, broken needle

from sewing machine, medical waste from clinic and its only 0.5 kg per month.

- For the used lubrication oil from machine /generator, from changing lubricant from generator engines (one time per 6 months/ 8 liter per one time) has been planned and sold to reused contractor and it is not too much amount.

Emissions and disturbances

Emission Sources of this factory operation are local air quality, dangers from dusts, water emissions, domestic wastewater, contaminated storm water, noise emissions.

Project alternatives for each project phase

This alternative is examined against technological and design consideration. Alternative analysis is considered for the following;

SDI Manufacturing Co., Ltd has been planning to be promoted their same only technology and quality, own same design, and same products and also plan to create an environment of best facility that surpasses the standardization for their location.

Description of the Environmental Setting

Information relating to the physical, technical and environmental parameters was collected from client and other organizations such as regional union council; head of the Company's management, meteorological department, internet and development directorates, and set up study limit is 1 kilo meter radius of the surrounding proposed factory area etc., employee was interviewed in detail to understand the socio economic, culture and customs of the area.

Study Area

The SDI Manufacturing Garment factory Project site is at an altitude of 30 feet above mean sea level, and it lies between 16°55'46.49"N, 96° 3'33.39"E. The study was focused on the area of 1 km radius around the project. As the project site is located in an existing Ngwe Pin Lae` Industrial Zone, various industries are operating within 2 km radius of the factory site. Nearest densely populated area of the factory site is the industrial estate itself. The study also focused on the outside the industrial estate.

Environmental Baseline (Surrounding Region)

The following table provides a brief summary of the characteristics of the existing baseline conditions of the Project site and its surrounding region.

Table 1: Base line condition of the project site

Item	Description
Project Site	The land use within the Project site is vacant land. It is believed the vacant land was previously used as a dumpsite as considerable amounts of solid waste were found during excavation work.
Surrounding land use	The survey of the surrounding land use was focused on a radius of 200 m from the Project boundary. The area is almost completely built-up comprising of institutional, commercial, and residential buildings. There are some factories and companies around this Factory. Universal Cold Store is at left side of this factory, Empty Warehouse is at the back side, and vacant land is at right side beyond street.
Climate	Hlaing Thar Yar experiences a tropical monsoon climate with a dry season from the November to April and a wet season from April to October. Mean annual rainfall is 2909.3 mm, mean temperature is 27.05°C and mean annual evaporation is 347 mm. Climate is tropical with average minimum and maximum temperature. February to May is hottest time.
Topography and Geology	The Project site is generally flat with elevations ranging from 100 ft a.s.I. The gentle gradient is in the southern direction towards the Yangon River. The base rock at the Project site consist consolidated sediments from the Miocene period which is overlain with sands, silt and clay originating later during the Quaternary period.
Geotechnical Hazard	At the north of Yangon, the possible seismic source area is in the Thayarwady area although regional tectonic framework has not been well established. The probable mode of faulting is in the sense of faulting is in the sense of reverse owing to the fact that the mega-sausage structure and associated characteristics of progressive deforming pattern in the western part of the Bago anticlinoria.
Hydrology and Drainage	The Project site is located less than one kilometer east of the Hlaing River. It is situated between the confluence of the Twante Canal and Yangon River and the confluence between Pazundaung, Bago and Yangon River. Surface runoff is expected to flow naturally along the gradient towards Hlaing River. No flood occurrence has however been reported at the Project

	site and its immediate surrounding area. A perimeter drain surrounds the Project site but is small and was most probably designed for an average rainfall interval occurrence of less than five years.
Land Use	The Project site is situated within the completely built-up area and located in industrial Zone. **Urban 13191.552 Acre and Industrial Zone 3455.678 Acre**.
Water body	The nearest water body is the Hlaing River which is well beyond the project vicinity of 1 km radius. Hlaing River is 0.70 km from the SDI Manufacturing factory Project.
Vegetation	There are unoccupied blocks and undeveloped roads within the area. Ale Ywa just outside the Industrial Zone trespassed and cultivated in the unoccupied lands. So, there a few exists farm land around the project site.
Traffic	The township is connected to other parts of Yangon across the Yangon River over the Aung Zeya Bridge, the Bayinnaung Bridge, and the Shwe Pyi Thar Bridge so that's why existing access to the proposed site is from more entries and exits to serve other entry and exits too downtown.
Socio-Economy	In the centre of this area is the (Junction) or Circle Road on Yangon-Pathein Road and Hlaing River Road, the township is home to Hlaing Tharyar Mi Khwet Market This area of Yangon has many residential buildings comprising mostly of FMI City and apartments, a feature of latter-day development. The apartment buildings supply a good proportion of urban living spaces making greater Yangon a highly dense and vibrant area.
Infrastructure	Infrastructure such as water supply, power supply, sewage treatment and solid waste management within Hlaing Tharyar Township is still under-developed. While investments are required for the situation to improve to allow to grow and develop, and project proponents
Environmental Quality	Air Quality - Air quality levels in these areas are not believed to be as critical as other major cities in Asia. This has been the result of a lack of large polluting industries within the city and the very recent growth in vehicle ownership. In 2007 and 2008, air quality measurements were conducted at three sites in Yangon City. The results of air quality measurements indicate that although sulphur dioxide and nitrogen dioxide levels were below WHO recommended limits, PM, () levels exceeded recommended limits at all locations sampled. Water Quality - Surface water quality is generally not monitored with the exception of seasonal tests conducted along Myanmar's major rivers. Of more concern is the quality of groundwater resources which has been exploited for centuries for domestic, livestock and agriculture purposes. It was reported that 34% of groundwater from tube wells were high in iron content exceeding 1 mg/l (Mu Mu Than, 2010). Noise Levels - Noise levels are generally not monitored although the Road Transport Administration Department recommends that traffic noise should not exceed a maximum limit of 115 dBA to ensure that people traveling on the road and working or living close to the road are not affected. Overall, vehicular traffic contributes significantly towards noise generated.

Regional Socio-Economical Environment for Hlaing Thar Yar has been mentioned also in Report for Myanmar Language in and source is from မြို့နယ်အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာန၊ လှိုင်သာယာမြို့နယ် ဒေသဆိုင်ရာ အချက်အလက်များ which is printed on 2017, March, 2017

Physical environment parameters: Air, Noise and Water

Air Quality

Sampling and analysis of ambient air quality were conducted by referring to the recommendation of the United States Environmental Protection Agency (U.S. EPA). The Haz-Scanner Environmental Perimeter Air Station (EPAS) was used to collect ambient air survey data. Sampling rate or air quality data were measured automatically every one minute and directly read and recorded onsite for measured parameters (SO_2, NO_2, CO_2, CO, H_2S, O_3, CH_4, PM_{10}, and $PM_{2.5}$)

The air quality survey results obtained every minute at each survey site were combined to make daily average values (24 hours or 8 hours or 1 hour or 10 minutes) for further evaluation and comparison with corresponding standard values.

Emission of air pollutants can occur from a wide variety of activities during the vehicle's movement. These activities can be point sources, fugitive sources, and mobile sources and by process. NEQEG for General air pollution has been applied for comparison whether the air quality for the project was within the guidelines.

According to the survey result, it could be noted PM_{10} and $PM_{2.5}$ of Air emission level is within the guidelines although there has been cumulative impact with other factory around this area.

Detail air quality on the parameter such as PM_{10} (24 hr), $PM_{2.5}$(24 hr), NO_2, SO_2, O_2 level has been performed in **Figure 46**, and comparison has been shown the air quality levels is almost within WHO air quality guideline, and it is acceptable condition.

Existing Noise Levels

Noise level survey at the near of the project was done by the EMP Study team. Among the 6 noise level measuring stations, all the noise level result of lower than 55 dB which is WHO standard of daytime noise level for residential area.

Based on survey result, monitored noise levels in project areas reveal that the daytime equivalent noise level (Leqday) varied between 42.0 and 67 dB at Project Compound and production area. 67 dB at Boiler area when operation. 55 dB near generator location (during running with idle speed) is currently settled as cumulative noise pollution for the engines of motor vehicles.

Water Quality

In addition to desktop data search visual survey was carried out to determine sample locations and due to the area coverage and variability of landscape and land-use, 3 locations in and around the project site were selected as sample collection points.

In the used water quality surveys of the SDI manufacturing factory, the state of the surface water has not been collected yet for analyzing as allmost no use for this factory. The quality conditions of ground water, which consists of tube wells from inside the factory, and wastewater from the factory's operations, which contains inlet, and outlet of effluent treatment plant have been surveyed.

Generally, the groundwater in the project area seemed to be in fair conditions which has been mentioned in Figure 33: Result of Tube Well Water Quality. The result of wastewater inlet before treatment by effluent treatment plant has been mentioned in Figure 50, and after treatment has been mentioned in Figure 52.

Treated industrial wastewater quality has been compared with Effluent and Sanitary Discharges (General Application) from (NEQEG) is mentioned in Table 27 **and it has been found, effluent water quality is within the guideline value.**

Biological Environment

The Project Site is a built-environment for Ngwe Pin Lae Industrial Zone and the species of flora and fauna surveyed at the site are native species not uncommon to the Yangon area. There were no protected species, or species of conservation value identified.

To comply with compensatory planting required by YCDC, the Developer has paid a fee to YCDC, to cut the trees that won't be used in the new development landscape.

Socio-Economic & Cultural Aspects

As of DOP's 2014 report, Hlaing Thar Yar Township had 687,867 residents with a male to female ratio of 46.9%, 53.1% and 70.1 % urban population. There were 20 wards, 9 village tracts. Additionally, there were 148,711 households with an average household size of 4.5. In 2014, over half of the township population was between 15 and 64 years old and the total dependency ratio was 37.3%. There were 10,210.6 persons in every square kilometre.

In 2014, the population of Ah Lel Village Tract where Ngwe Pin Lae Industrial Zone located was 23,214 persons with a population density of 10,939 male, and 12,275 females.

In Hlaing Thar Yar Township, at the Union level, the composition of the population by religion is 87.9% Buddhist, 6.2% Christian, 4.3% Islam, 0.5% Hindu, 0.8% Animist, and 0.2% Other religion and 0.1% No religion.

In Hlaing Thar Yar Township, the proportion of employed persons working in the industry of "Manufacturing"is the highest with 29.1 per cent. The second highest industry is "Construction" at 16.1 per cent. There are 13.7 per cent of males and 50.7 per cent of females working in "Manufacturing" industry.

The township is connected to other parts of Yangon across the Yangon River over the Aung Zeya Bridge, the Bayinnaung Bridge, and the Shwe Pyi Thar Bridge so that's why existing access to the proposed site is from more entries and exits to serve other entry and exits to downtown.

Hlaingthayar is the most developed of the new satellite towns founded in the 1980s. Hlaingthaya Industrial Zone, consisted of mostly garment and other light industries, is one of the largest industrial parks in the country. Showpiece gated communities of the wealthy like the FMI City and Pun Hlaing Garden Residences in the southeastern part of the township are the domain of the country's elite and are arguably among the best communities in the country. After Cyclone Nargis the township experienced a jump in population due to refugees.

No sites of archaeological or cultural heritage were identified within a 1km radius of the study site.

1.3 Health Policies, Commitments, Legal Requirements and Institutional Arrangements (Summary)

Company Policies

Environmental Policy

Regular independent third-party monitoring and high conservation value assessment are commissioned in all SDI's projects in order to manage project related pollutions and safeguard the environment and natural resources.

The company encourages joint venture partners and smallholders to uphold and implement these principles as well. Periodical review of the Environmental Policy seeks to ensure its relevancy and applicability up to date.

Social Policy

SDI's goal is to establish financially independent and self-reliant communities through harmonious relationships with its surrounding neighbours. SDI endeavors to support the local economies through the infrastructure, services, and employment associated with its garment manufacturing operations.

Occupational Health, Safety and Environmental Policy

Concerning the health and safety of SDI employees, it is the moral and legal responsibility of SDI to provide a safe and healthy environment for its employees, contractors, clients, and visitors in every part of its operations.

Policy and Legal Framework

Myanmar policy and legal frame work together with international treaties and agreements relevant to the project are summarized in this section. In general, these policy, legal frame work, treaties, and agreements all aim to safeguard environment, to prevent exploitation, and to provide assurance to the peoples of Myanmar. SDI's own integrated policies support environmental conservation, promote fair labour standards, and prevent exploitation of any kind.

Legal Commitment for Myanmar Laws relating to the Environment, Protecting and Social Issues

Provisions in relation to this project operations, personal hygiene of workers sites such as occupational health and safety in the metal, accidents, working time and welfare fields, promulgated holiday wages, Occupational disease prevention and health care for the this operations and protection of the environment and laws for social affair specifically related sectors has been shown in 4.5 Legal Commitment for Myanmar Laws relating to the Environment, Protecting and Social Issues of this report.

In summary, the all sectors for project-related legality shall be followed. (Myanmar Fire Brigade Rule 2015); Land Law 2012; Cultural Heritage Protection and Conservation Act 2019 (Paragraphs 13, 15-22); Export Import Law 2012 Article 12, Public Health Law of the Union of Myanmar 1972, Article 3-5. Myanmar Hotel and Tourism Law; 1993 Private Industrial Law 1990 (26.1.1999); Investment law; 18.10.2016,. Investment rules) 20.09.2018], Articles 202, 203, 206, 212, Labor Organization Law; 2011 9.3.2012; Article 17. 18 19 20 21 22 Labor Dispute Resolution Act [28.3.2012] [3.0.020]. Articles 38, 39, 40, 51; The Workers' Compensation Act 1923 (11.5.2005); Employment and Skills Development Law (30.8-2013); Article 5. 14 15 The minimum wage law; 2013 Article 12 (a); (G) The Salary Act; 25.01.2016, Article 3 4, 5, 9 10 14 Occupational Health and Safety Act (2019) 15.3.2019; Chapter 3, chap. 8 Chapter 7, chap. Article 22/23 Social security law; May 2012 (1.4.2014); Article 11 (a) (b); 15 (a) (B) 48 (a) 49 (a) (b); 51 (a) (b), 53 (a), 54 (a) (b), 75; Environmental Protection Law 2012; Article 7 ((), 14, 15, 23, 24, 29, Environmental Protection Act 2014, Rule 69, Environmental Impact Assessment Procedures 2015, Paragraphs 102, 103, 104, 105, 106, 107, 10810, etc.)

1.4 Summary of Environmental Impacts and Mitigation Measures (Summary)

Impact Assessment Method

While the garment factory is used to operate during the operational phases, the impact related to the garment has to be considered year-round. Based on relevant primary data sources, reliable secondary data sets, pre-identified survey data collection, checklists, matrixes, visual observation, and internationally accepted IFC performance standards, the environmental impacts and their intensity on the related components has to be identified.

The significance levels of the project impact was decided based on the IFC guidelines and professional judgment criteria. The major components are water, air, noise, biological and social environment within the

direct and indirect impact zones of the garment factory.

The primary objective of this EMP was to determine whether there are any potential adverse environmental or social impacts associated with the operations and activities being undertaken at the Project site. Based on the findings of the Initial Environmental Evaluation it is currently assessed that the following environmental receptors are potentially susceptible to pollution incidents.

They are groundwater, Surface water, Local Air quality, and Water Resources, etc.

Potential Adverse Environmental Impacts and baseline Mitigation Measures

Air Emissions

There are two-point sources of air emissions at the Project site that discharged gaseous emissions from the garment manufacturing factory into the atmosphere, these comprise:

- 2 no. Air emission stacks from the Boiler House
- 1 no. Exhaust vents from the three standby generators

Mitigation

The Project has frequently assigned to third party inspection to monitor the atmospheric emissions from the Boiler House a on a twice per year basis or comply with ECD's instruction and compare the results with the IFC (World Bank) Guidelines for Small Combustion Facilities Emissions.

The Project has assigned third party to monitor ambient air quality in the Project site area on twice per yearly basis and the results has been compared with the WHO Ambient Air Quality Guidelines (2005) and ECD's NEQEG since project started. And mini laboratory has been formed inside factory compound.

Nuisance Noise

The facility was not full strength operational at the time of the site inspection but noise levels when fully operational are likely to be high. Survey respondents from the local community; have not reported noise pollution from the facility as being an issue.

Nuisance Odor

Although the facility was fully operational at the time of the site inspection, Survey respondents from the local community have reported that no odors emanating from the project site

Industrial Wastewater

Small amount of wastewater from the Boiler House wet scrubber unit (0.02 m^3/hour during working days), and other wastewater from washing unit is transferred to "Effluent Treatment Unit", located in the central sector of the project site via pipe line and after treatment process, then flowed to drainage channel system. The final treated wastewater in "Effluent Treatment Plant" is discharged into a small drainage that bisects the centre of the Project site and eventually outfalls into the public drainage, outside of the factory. Before discharge, it has to be analysed quality whether acceptable level of guidelines or not.

Mitigation

The Project has sampled the wastewater at the final tank of "Efflluent Treatment Plant"'s influent point (outlet), and discharge point. The samples have been submitted to an ISO 17025 accredited laboratory for testing for the parameters listed in the Ministry of Industry Wastewater Effluent Quality Standards and ECD's NEQEG.

Sanitary Wastewater

The Factory Manager explained that sanitary wastewaters are discharged into below ground septic tanks prior to the supernatant being discharged directly into the ground and groundwater. These sanitary effluents are likely to contain elevated concentrations of ammoniacal nitrogen as well as harmful bacteria and pathogens which have the potential to locally pollute soils and groundwater.

As discussed with YCDC, sewage has been disposed by supporting from YCDC's sewage truck, minimum twice per year, since project start.

Storm water

There has been constructed storm water drainage system on the project compound and it is considered that the primary surface water drainage mechanisms will be infiltration and runoff that follows the topography of the land.

Hazardous Substances

The hydrocarbons (diesel, petrol, oils etc.) are stored in a small single storey building with a concrete floor.

Hazardous chemicals are stored in a small single storey building with a concrete floor and materials noted stored within this structure. Brightener / 4bk and /ba, perhydrol, oxalic acid, Yuan Ming Powder, Enzyme powder, detergent, fixing agent, bleach, Acetic acid, Stabilizer, environmental silicone, and Na_2CO_3 are included.

Non-Hazardous Solid Wastes

The primary non-hazardous solid waste room at the facility (other than those noted) comprise general refuse such as office and kitchen wastes. During the site inspection it was noted that trash is dumped on the garbage room, near by northern sector of the factory.

Hazardous Solid Wastes

No significant volumes of solid hazardous waste are generated as a result of operations on site.

Identified Potential Impacts for each Project phase

Classification of environmental impacts

Environmental and social impacts of the operation phase for garment factory and its related activities are classified based on the intensity, extent and duration of the identified impacts. The intensity of the impact is identified by the environmental value of components and the degree of disturbance. The classified impact is categorized as their level of significant, depending on their level of severity, and the sensitivity of the environmental components. eg. (VH) very high, (H) high, (M) medium, (L) low and (VL) very low

Summary of Environmental and Social Impact Identification for Operation Phase has been mentioned in below table.

And Summary of Environmental and Social Impact Identification for the Decommissioning to Post-closure Phase has been mentioned in Table 33 of Chapter 5 Summary of Impacts and Mitigation Measures.

Significant Adverse Environmental and Social Impacts

The list of environmental receptors and resources is also a focused list of the key aspects of the environment which are considered vulnerable or important in the context of this specific project based on preliminary consultations, background research and a Project site reconnaissance. Potential Adverse Environmental and Social Impacts of Project Activities on nearby communitiy, and mitigation measures are mentioned in below table.

Potential Adverse Environmental Impacts of Project Activities and Potential Adverse Social Impacts of Project Activities are mentioned in Table 34 and Table 35 of this report.

Mitigation Measures

The impact identified and comprehensive mitigation measures to prevent or minimize the impacts are described in Chapter 7 of this Report. The project proponent will implement mitigation measures and regularly monitor the effectiveness of the planned measures. Corrective action will be considered if a measure falls short of intended outcomes.

Pollution on air, water, soil, oil & grease pollution, solid waste, and chemical pollution are adversed impacts, which have to be mitigated in the operation phase. Also, hazardous chemical handling, traffic impact, labor demand, and social conflict has to be mitigated during operation phase.

Mitigation measures for the above impact has to be performed not only in the operation phase but also in decommission or post closure phase.

Potential Positive Social Impacts

Based on the findings of the Initial Environmental Evaluation and Initial Social Evaluation for EMP, it is currently assessed that the Project activities detailed below will have positive social impacts. It should be noted that the list of beneficial project activities is not intended to be exhaustive but rather an identification of the key aspects of the Project which have the potential to have an overall beneficial impact on socio-economic conditions in the Project site area.

Environmental component	Impact	Sources and Features	Potential receptors	Mitigation Measures
Ambient Air	Air pollution Particulate matter PM dispersion Flying ash dispersal SO_2, NO_X, VOCs emission	Semidried firewood particles stock Biomass fuel burning and smoke stack emission Combustion emission from the vehicles	Boiler crew, Local communities, Sensitive receptors like schools, hospital monastery, surface water	• Regular maintenance of the boilers and related equipment; and Installation of emission reduction systems on the boiler
	Dust dispersal	Unpaved road for transportation	Daily workers, road side communities, transport workers; can also reach surface water	• Watering disturbed areas during dry and windy conditions would minimize residual impacts from fugitive dust. For an efficient dust suppression method, spraying or watering has to be done during early morning so that the water will be absorbed by the soil and not during noon time.
Ambient noise	Noise and Vibration	Raw / finished products transportation trucks, traffic Operating of factory's machines, such as sewing, cutting, Boiler relief process, generators,	Employees, nearby communities, Sensitive receptors like schools, hospital monastery, habitats and birds	• Careful handling of material loading and unloading; • Employment of low impact technologies; • Using modern quiet power tools, and equipment; • Erecting sound shields or wall structures; e.g., systematic buffer zone area with brick wall
Ambient soil/ Land use	Erosion, sedimentation	Related vehicles and unpaved roads	Nearby Hlaing River and water body	• Constructing proper designed concrete drainage leading to collection ponds for ash- water and waste water to prevent erosion and contamination by over flow, runoff, leakage, storm surge and natural disaster. • Design and Install emergency response measures for earthquake and storm risk potential on both factory and communities. • Fuel containers e.g., for petrol or diesel fueled equipment has to be properly provided for with spill and leak containment such as trays.
	Heavy metal deposition	Waste water sedimentation process in the public drain Heavy metal in the collected waste water Runoff, Flooding, Storm surge,	Natural habitats, employees, surface water, aquifer, Nearby communities	
Human health	Chemical contamination by Spill, leakage Health impact	Chemicals transportation, storage, handling and processing, Runoff, Flooding, Storm surge, earthquake Management error	Chemical crews, Nearby water sources, soil, air, Community health	• Chemical containers are not to be allowed to leach into the environment, either directly from sheds or during any storage prior to removal. • Ensure to protect chemical contamination by accidental spillage of oil or chemical, solid matters, contaminants, debris and other pollutants to surface water and ground water
Solid Waste	Solid waste disposal	Domestic waste	Nearby habitats, Soil and water bodies, communities	• Ensure schedule or regular waste collection system and introduce waste segregation methods such as vegetables, metal, plastic, glass and Styrofoam. • Recycle and reuse segregated waste and proper disposing.
	Solid waste and ash disposal	Boiler ash	Terrestrial habitat, surface and ground water bodies, communities	
	Industrial process waste and domestic solid wastes disposal	Packaging, scrap equipment, scrap metals, domestic wastes	Soil and water bodies	• Ensure proper disposal site and regular monitoring for failure machinery, scrap metal, tools and equipment.

Environmental component	Impact	Sources and Features	Potential receptors	Mitigation Measures
Hazardous waste	Hazardous waste/ materials accumulation	Spent and used Batteries, fuel, oil, paint, chemicals residuals	Soil and water bodies, crew, communities, habitats, aquifer	• Prescribe specific and protected final destination area for some chemical related hazardous wastes such as battery, out of order fluorescence, bulbs, chemical containers, and medical and chemical wastes.
Liquid waste	Treated wastewater from Effluent Treatment Plant (ETP)	Wastewater from washing process and flew to ETP and treatment process	Soil and water bodies, crew and community, nearby habitatso	• Ensure that the resulting treated wastewater meets permissible standards.
Social Environment				
Socio Economic	Traffic congestion	In-migration Purchasing factory supplies Improved local economy	Daily local commuters' Local residents including vulnerable groups	• Provision of traffic signal and sign boards along the main transportation road. • Establish proper green buffer distance or concrete wall to prevent noise impact to sensitive receptors or communities' residential area.
	In-migration from other region, other areas of Myanmar and abroad, into Hlaing Thar Yar Township,	Hiring skilled and unskilled workers for the factory operations New businesses to fulfill the increase demand of goods and services in the area	Local residents including vulnerable groups Local businesses Local norms	• Make sure that some of the support programs available through CSR funding such as micro-financing programs. • Promote awareness and mandate the respect of local norms and culture among the migrant workers hired by the factory and non-local business partners. Practice no tolerance policy for the migrant workers and non-local business partners that are found disrespecting the local culture and norms.
	Increased housing demand	Surge of population due to in-migration and frequent commuters	Local residents	• Build capacity among the local residents to increase their competitiveness in job application and give priority consideration to the local residents in cases of tile qualifications in job application.
	Increased labour demand	Labour competition, immigrant labour, poor chance for qualification to skillful, professional, daily workers	Local residence,	
	Safety and security	Factory operations Surge of in- migrants, vehicle movement, crimes, conflicts and Communicable diseases	Local residents and in- migrants	• Ensure equal chances and opportunities to all contractors and partnesr for raw material collection such as firewood, fuel etc. • Provide prior information of local and administrative disciplines to migrant and local workers.
Health	Occupational Health and Safety impact	Traffic accident Dust dispersal of unpaved road	Roadside communities, school, hospital, child and aging, sensitive life Local and migrants' workers	• Develop environmental, health and safety, fire and emergency response and community safety protocols for operational phase to ensure safety and security in the work place as well as among the local communities.
	Inhaling/ breathing foul odor	Foul odor from solid waste and toilet	Nearby habitats, crew, communities, school, hospital, sensitive life	• Provide proper sanitation for living and working conditions
Others	Fire	Boiler	Factory, Nearby habitats, crew, communities	• Regular maintenance of the boilers • Firefighting Training

Cumulative Impact Assessment

Cumulative impacts can be defined as "the impact or impacts of a project that in itself or themselves may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse projects or undertakings in the same geographic area or region."

Methodology and Approach

This EMP follows the prescribed Methodology and Approach by MONREC in determining the Cumulative effect of the SDI's Garment Manufacturing project.

Cumulative Impact Assessment for this Project

The SDI Manufacturing Garment Factory project has been in operation since 2014 with estimated production capicity 50,000 pcs of various clothing per month. The baseline data for the EMP has been gathered while the project has been in operation. There are some prominent industrial projects that has cumulative impact potential in the surrounding of garment factory area. The data reflects the ambient conditions at the points of sampling in the project area but some may also be contributed by other industrial activities in the area.

1.5 Overall Budget for Implementation on the EMP (Summary)

All the operational phases such as Construction, operation, and Decommissioning phases, EMP has to be implemented essentially. For this factory, EMP for all operational phases has been planned since design stage.

The construction phase for this project has been already successfully passed over with implementation of Construction EMP.

For the implementation of Operation phase and Decommission Phase Environmental Management, the tables shown in Chapter 6 has mentioned the requirement of Budget.

It can be summarized that required budget for Operation phase EMP including both mitigation and monitoring is 1,000,000 kyats for Air Pollution, 1,000,000 kyats for water contamination, 200,000 kyats for soil degradation, 9,080,000 kyats for Management plan for pollution condition, and social environment (including chemical contamination disposition, social environment). Detailed table is mentioned in 6.3.2 Operation Phase - Environmental Management and Mitigation plan of this report.

1.6 Management and Monitoring Sub-Plans for Each Identified Impact (Summary)

All the operational phases such as Construction, operation, and Decommissioning phases, EMP has to be implemented essentially. For this factory, EMP for all operational phases has been planned since design stage.

The construction phase for this project has been already successfully passed over with implementation of Construction EMP.

For the operation phase and Decommission phase, it has been mentioned Environmental and Social Impact Identification for Operation Phase and Decommission phase in this report. (5.2.2 Operation Phase and 5.2.3 Decommissioning, Closure, and Post-closure Phase)

For the each identified impact, (Mitigation and monitoring which are included in Environment Management Plan - EMP) has been implemented by SDI Manufacturing Company's Factory Management Committee. Such a sub plan for EMP which has been performed since operational phases are Ambient Air Quality, Water Environment, Noise and vibration, Soil Quality and pollution, Human Health by chemical contamination, Major by-products/ Solid waste discharge, Hazardouse waste, and Social Environment.

1.7 Content of Each Sub – Plan (Summary)

Identified impacts for this project has been mentioned in this report and also Management and Monitoring Sub plans for each identified impact has been mentioned and these are being implemented at SDI Manufacturing Garment Factory. These sub-plans are based on the Safety and Health Plan and Emergency preparedness.

Preparation of environmental Management Plan (or) guidelines is required for formulation, implementation on monitoring of environmental measures during and after commissioning of this project. This plan will indicate the details as to how various measures have been or are proposed to be taken including cost components as may be required.

Cost of measures for environmental safeguards should be treated as an integral component of the project cost and environmental aspects should be taken into account at various stages of the project for garment manufacturing factory.

The management plan should be necessarily based on consideration of resource conservation and pollution abatement, type of industry, size of production, raw material input and labor force. At the garment manufacturing factory, most of the important impact control are Liquid effluents from washing process, Air pollution, Solid waste, Noise and Vibration, Occupational safety and Health, House-keeping, Human – Resources, Transport – System, Reuse, Recycle of waste products, and Emergency Planning.

EMP for Operational Phases (Summary)

For this project, the Construction Environmental Management Plan (C.E.M.P) has been identified the steps and procedures that has also been implemented and minimizing the creation and impact of noise, vibration, dust and waste disposal resulting from the site preparation, groundwork and construction phases of the development and managed.

The OEMP provides clear direction on the selection and implementation of appropriate environmental control and monitoring techniques during the operational life of the ADVANCE WASTE TREATMENT and reflects the requirements of high standard environmental performance.

In order to ensure that the facility operates with the least environmental impact, the OEMP has addressed a wide range of issues and purpose of this OEMP is to ensure that appropriate environmental practices are followed during operation of the advanced waste treatment facility.

The decommissioning or post closure phase will come after the long operation phase which usually last for several decades depending on the availability of benefit and profit of the working condition both personal and social. At the end of the long operation phase the relief of the land will change or the landscape will greatly alter, and that will depend on the duration and the magnitude of the operation. Damage machines or equipment' body, old parts of the machines, and materials etc. will remain greatly impacting the aesthetic natural beauty of the original landscape. The decommissioning work simply means the clearing and tidying up op the old site.

SDI Manufacturing gives commitment to comply and responsible for decommissioning and rehabilitation work guided by the Environmental Law (2012)

Safety and Health Plan

Safety and Health plan is the most important role of operational processes working with related equipment, machines, and materials for garment factory. In this factory, it is being used sewing machines, cutting fabric machines, die cutting machines, bar tack machines, and button hole machines. Other using machines are punching machines, washing machines, and also related material.

It is also important on safe using of boilers and effluent treatment plant (ETP) as they can be harm, and effect on occupational health and safety.

Some chemical substances have to be also considered in using at washing operation processing, Printing operations, boilers operation, and processing of effluent treatment plant.

SDI has considered for the hazards occurrence and identified potential hazards in the operational area. For safety measures and health measure has been planned at this factory.

For the hazard control, improvement for working environment, medical examination, and management of employee with health problems has been developed in this factory.

For the personal protection plan all employees has been provided PPE related with their job occupation as necessary.

For the safety awareness, the health and safety Awareness has been a straight forward statement of senior management's commitment to workplace safety and health. Factory Management has created one that suits the company and views on health and safety awareness by their experience.

For the safety training, company management committee has understood Health and safety training is the foundation of a successful health and safety program so required related courses for health and safety has been provided to employees.

For onsite security and safety measures, HSE officer and all working crews has took such safety meeting

which are daily tool box meeting, weekly worksite safety meeting, safety memos of an unsafe act, incident, near miss and accident.

For chemical management plan, as there are some chemical process in boiler operation and wastewater treatment process, SDI 's factory Management Committee has taken care for the Chemical Management in all sections that are handling of chemical materials. For the safe handling of chemical material, Chemical Management Courses has been provided to all chemical crew occasionally.

Detailed Chemical Management Plan for this factory has been mentioned in 8.2.6 Chemical Management Plan of this report.

For the waste Management plan of SDI Manufacturing Factory, reduction amount of solid waste produced, salvage and recycling, the ways where the solid waste to dispose, and sewage from septic tank are emphasised solid waste management has been considered. Also there has been designated responsibility and action for solid waste management at factory to each employee.

The waste management system of this factory is;

Such as plastic garbage cans, soft drink bottles, which comes from people's daily lives and municipal waste from industry (workshops, clinics, etc.) has to be disposed under the direction of systematic or otherwise, Garbage Collection systems as necessary, and in conjunction with waste disposal is to be carried out properly.

Commercial waste materials for this factory such as piece of textile, yarn dust, paper cupboard after using, lubricant products waste has to be disposed to the place designated by the City Development Committee.

According to this Waste Management Plan, SDI has been liaised with YCDC and waste has been disposed to the place designated by the City Development Committee and has been received recommendation for this waste management system.

For the wastewater management plan SDI Factory,

1. Sources of Wastewater from this factory can be divided with sanitary waste water, wastewater from industrial processes from washing room, and other all wastewater (generated from domestic use) etc.
2. This factory has been used of Effluent Treatment Plant and it has been processing since begin of 2018.
3. The industrial wastewater is characterized by its brown color, low pH, high temperature, high BOD, high COD, odor problem. Also, it is characterized as total solids, high percentage of dissolved organic and inorganic matter.
4. Wastewater from washing department, if discharged without treatment, poses pollution problem in both aquatic and terrestrial ecosystems. Also, industrial wastewater when not treated completely produces unpleasant smell when released into the environment.
5. Wastewater treatment process for this factory has been mentioned in 8.2.8 Wastewater Management Plan of SDI Factory of this report together with main facilities, flow diagram and location.
6. For the sewage treatment system at factory has been also mentioned in Typical Layout of Sewage Treatment System at factory from 8.2.8 Wastewater Management Plan of SDI Factory.
7. For the storm water management in this factory, there are storm water drains in factory compound and connect to public drain with standard specification (length, width, height) in these drain, settlement area, sieve area in place to protect sedimentation and plastic and other debris. The storm water drains near the factory should be cleaned for free of pollution (metal, plastic bags, paper bag / box and solid waste etc.). Factory housekeeping groups always clean the drains inside the factory to stop all waste, spillage from entering the storm water drains outside or public drain.

Boiler operation procedure and Management Plan (Explosion, Burning)

SDI manufacturing garment factory Management Committee comply exactly for the Boiler Standard Operation Procedure on using boilers in factory operations which has been mention in 8.2.9 Boiler operation procedure and Management Plan (Explosion, Burning) of this report.

Inspection from YCDC

Yangon City Development Committee (YCDC) has inspected for SDI Manufacturing Garment Factory's Harmful and disruptive activities on 15.6.2020.

Emergency Preparedness

In SDI manufacturing garment factory, Emergency Preparedness Plan has been developed and it includes firefighting arrangement and disaster Control plan.

Fire Protection Plan

Hydrant system for fire protection program; high velocity water spray system and type of carbon dioxide; It is possible to place a fire extinguisher in a suitable location for the appropriate type of operation, such as pressurized water and foam foam. There has been displayed firefighting Departments' contact phone numbers, at where most visable location. Also keeping standby of emergency vehicles are Included at factory fire protection system.

For occupational emergency firefighting system at SDI Manufacturing factory is also included water storage, hose reel, Way breeching inlet, and fire extinguishers.

Disaster Control Plan

The disaster Management or Control Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals.

To tackle the consequences of a major emergency inside the building of immediate vicinity of the factory, a Disaster Management Plan has to be formulated and this planned emergency is called Disaster Management Plan. The objective of the industrial Disaster Management Plan is to make use of the combined resources of the outside services to achieve the following;

- Minimize damage to property and the environment.
- Effect the rescue and medical treatment of causalities.
- Provide for the needs of relatives.
- Provide authoritative information to news media.
- Secure the safe rehabilitation of affected areas.
- Safeguard of the people.
- Initially contain and then ultimately bring the situation under the control.
- To preserve subsequent records and equipment for subsequent enquiry about the cause and circumstances leading to emergency.

The overall objective of the emergency plan will be:

- To localize the emergency and, eliminate it: and
- To minimize the effects of the accident on people and property.

The emergencies that could be envisaged in the plant are as follows:

- Pool fire scenario due to storage of chemicals
- Contamination of food/ water.
- Sabotage / social disorder.
- Structural failures.
- Slow isolated fires
- Natural calamities e.g. Earthquakes, etc.

Integrated Health, safety, Environmental and Emergency and Social Plan

For health and safety, all workers in the factory are required to wear adequate personal protective equipment relevant to their jobs. Supervisors are trained to monitor health and safety of their crews in their department. Health and safety related information is also posted on the announcement board.

For emergency condition, the factory has installed fire safety measures and system including firefighting trucks as instructed by the fire department. All emergency exits are visibly marked. Fire extinguishers are properly installed and regularly inspected and certified.

The factory stores sufficient amount of water for extinguishing fire. The plant assigns a number of staff to

coordinates for emergency fire accident. In addition to regular inspection for fire prevention, smoking is prohibited in the project.
In addition, the factory employs spill emergency plan to counter the accidental spill situation. The spill response procedures are explained and placed on walls near the fuel storages and vehicle parking in addition to training.
For Social policy, For Social Policy, factory Management takes care of the welfare of its workers. Social and gender equality is exercised without a compromise in the project. Discrimination of any forms is forbidden and harsh penalty is promised. To guarantee the fair working environment, workers are allowed to organize labor unions and bring up issues to the management.

For Integrated Health, safety, Environmental and Emergency and Social Plan for the factory, HSE Management organization has been formed which is led by Factory Manager.

That HSE Management is cooperated with formed proposed structure of Environmental Management Mitigation and Monitoring Organization (mentioned in 8.4.1 Forming Factory HSE and Emergence Response Management Organization of this report), and they are implementing EMP for Factory.

SDI Manufacturing Factory Management has always been involved in environmental management planning and monitoring with the local community up to now. To establish the Environmental Management and Monitoring organization, Factory Management committee is coordinating with Ngwe Pin Lae Industrial Zone authorities and organizations from local communication.

Result of the Public Consultation (Summary)

As the project is a Garment Manufacturing facility operated by the SDI Manufacturing Co., Ltd. Established of the Company facility commenced in 2013 and the factory became operational in 2014.
Between these periods from start operation (2014) to now on, there has been performed this first time public consultation meeting to study Attitude of local residents and employees regarding the operation of the factory.
SDI manufacturing Co., ltd has been operated Manufacturing and Producing garment product in Ngwe Pin Lae Industrial Zone.
To explain environmental impact by the project, and mitigation, workers health & occupational safety (HSE), and including the provisions set by the State Laws and Rules of the environmental case studies, Environmental Management Plan (EMP) meeting has been held at at the meeting hall of the factory at 10:00 AM, on 12, June, 2020.
Head of Office for Hlaing Thar Yar Township Municipal Department – U Kyaw Lwin Htay, U Pyae Phyo Aung (Executive) from Ngwe Pin Lae Industrial Zone, U Htun Hla from Information Organization (media), U Tin Htay of Township General Administration Department, Representatives from near by factory such as Lucky Fortune Garment factory, Universal Cool Store, Saung Oo Shwe Nay Garment factory, leaders of local community, and supervisor from SDI manufacturing Garment Factory attended this meeting.
Human Resources Manager U Cho Lwin Oo attended this meeting, on behalf of Managing Director of SDI Manufacturing Company Limited Mr. Lai Kin Ching.
The main purposes of conducting the public consultation are:

- Collect information for the identification of stakeholders and potentially affected persons;
- Collect baseline social and environmental data and information;
- Inform stakeholders and potentially affected persons about the project and its likely impacts;
- Record public concerns about the project;
- Record public ideas for impact mitigation and for maximizing any environmental/social benefits of the project.

Attendees of public consultation meeting has explained the public's attitudes towards the project. They have also given effective suggestion about the factory development.
As the summary of the result of public consultation meetings, most of the residents from surround area believe that the project does not pose any environmental or social impact.
The meeting minutes for the public consultation meetings has been mentioned in 8.5 Result of the Public Consultation of the report.
Results of public consultation Meetings and providing needs of the local community
As a result of the first public consultation meeting for the SDI Manufacturing Co., Ltd's garment factory, it can

be said there is no seriously affect to local community by the project. And the anxiety of the local community is very low as it is located in Ngwe Pin Lae Industrial Zone, with very low quantity of residents and houses.

1. In accordance with local community's recommendations and requirements, company management will promise to avoid side effect, from garment manufacturing process and systematically take care on wastewater management.
2. Also, wastewater generation from washing process and sewage has not been discharged directly to public drainage without treatment by effluent treatment plant, since project started.
3. In order to Electrical Inspection Department instruction, to avoid from electrical hazard, electrical equipment and materials has been checked, according to schedule.
4. According to factory's evacuation plan, it has been already arranged in case of emergency, all door inside the factory is never closed, and plan to escape from natural hazards such as fire, floods and earthquake. **Evacuation Plan and emergency exits Sign Boards are shown at every visible place in the factory which has been mentioned in** Appendix 1Error! Reference source not found. **to** Appendix 8 **of this report**.
5. For all pollution sources generated by garment manufacturing process, it has been planned and mitigated systematically which has been suggested by consultant for environmental concerns and avoid from annoying with local communities.
6. An addition, CSR activities will be a constant and consistent support for objective of regional development. The CSR functions will be implemented and use in various sectors for the local community

Commitment for the regional development projects and Socio economic development Projects

According to the local development and social development programs (CSR) for SDI Manufacturing Co., Ltd, in the future, there will be a budget of at least 100 lakhs each year in the region (education, social and health), and additional funding will be made, according to company decisions.

The project proponent promises that the regional development and socio development project will be implemented continuously.

Grievance Redress Mechanism

The Project-level Grievance Redress Mechanism is currently being developed to manage the grievances and complaints received from the Affected Community and employees during the phase of operation.

Grievance Redress Committee of the Factory

The GRM will be administered by the Grievance Redress Committee which will be formed as shown in Figure 63: Grievance Redress Committee of this report.

Suggestion Boxes

Grievances during business operations; Complaint reporting is publicly available and publicly available. Suggestion boxes have been positioning up in eight prominent locations where employees can easily see.

1.8 Recommendations and Conclusions (Summary)

For the recommendations;

- The factory management committee should establish and display the internal regulations, HSE plan of the company, the content of which should be as that stipulated in the legislation.
- Human resources policies and procedure should be put in place and all workers should be trained and informed.
- Management committee should arrange attendance of Health and safety training program for all of work force one time generally.

The recommendation for this SDI Manufacturing Factory should be considered a better practice for HSE plan.

- Policy for the cleaner production, environmental management system should be developed and implemented and frame work legislation on cleaner production and EMS must be prepared and put into effect.

Conclusion

- **According to the Ministry of Natural Resources and Environmental Conservation (Former MOCAF Notification No. 616/2015, Environmental impact assessment procedures, Chapter 4, Article 63 (i) of EIA procedure (Dated**

December 29, 2015), as a part of scoping in Public Consultation Meetings will be hold continuously before and during operation phase for the environmental and socio-environmental, as well as what local people's needs to perform best.

- **We intend to work together with all of factory workers with occupational and Disaster Safety health Equipment, fitness, Measures to maintain and manage for the environment, through the Joint Implementation Team Work already undertaken constant efforts Commitment to optimize Safety Culture continuously (Continuous Improvement) comply with the Top Management of the Guidelines implemented for decision has been present one underway.**

CHAPTER 2 INTRODUCTION

2.1 Presentation of the Project Proponent / Project developer

SDI Manufacturing Co., Ltd's garment factory has been founded in Myanmar since 2013, as a Foreign Company in accordance with the provision of the Myanmar Companies Act 1914 on 19 June 2013 as a private Company Limited by share. The investment value of the garment factory is 0.988 million USD.

SDI Manufacturing Co., Ltd has been incorporated with Mother Organization. The address is of 555, Yee Kuk Street, Cheung Sha Wan, Room 803, 8/F, YeeKuk Industrial Center, Kowloon, Hong Kong, China.

SDI Manufacturing Co., Ltd has been issued of Permit (No. 611/2013) from Myanmar Investment Commission in accordance with Foreign Investment Law, which was enacted by the Government of the Republic of the Union of Myanmar.

SDI Manufacturing Co., Ltd's proposes to set up the CMP Basis garment factory at Plot No. 40, Myay Taing Block No. 24, Ngwe Pin Lae` Industrial Zone, Hlaing Thar Yar Township, Yangon, Region, and Republic of the Union of Myanmar. This Factory will be operated by SDI Manufacturing Co., Ltd, 100% Foreign Investment based on CMP system. The proposed factory has been renovated the existing factory within a period of 6 months after getting MIC approval.

The main objective of this report is to identify the major Environmental Impacts due to implementation of the project along with the effective measures to mitigate the adverse impacts, if any. There is some chemical process in the SDI Manufacturing Co., Ltd's garment factory. This company Limited will make products of garment manufacturing as export quality by establishment of international standard factory 2.275 Acre (9206.5984 m^2) in area in Yangon Region.

The SDI Manufacturing Co., Ltd's garment factory project is located in Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar. The primary land uses in the locality of the Project site is industrial, low density residential and various factories communities.

The nearest operational airport is Yangon International Airport which is located approximately 16 km to the proposed factory. The project site covers approximately 2.275 acres and over 70% has been used for buildings. The coordinates for the approximate centre of the project site is: latitude/longitude 16°55'46.49"N, 96° 3'33.39"E. The location of the Project site is presented in………..

Project Contact Details

All enquiries pertaining to the Project shall be submitted to:

SDI Manufacturing Co., Ltd (Garment Factory)

A member of SDI Manufacturing Co., Ltd Management Office, Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar

Telephone	:	+ 95 (9)-451960765,
Inactive Directors / Officers	:	LOK TZE SHAN, director
		Lai Kin Ching, director (ph; +95 (9) 5071787, s.hlaing99@gmail.com
Contact Person	:	U Cho Lwin Oo, HR Manager
Company	:	SDI Manufacturing Company Limited
E mail	:	kenlai@winner-gp.com

2.2 Company Information

SDI Manufacturing Co., Ltd has been founded in Myanmar since 2013, as a Foreign Company in accordance with the provision of the Myanmar Companies Act 1914 on 19 June 2013 as a private Company Limited by shar. Individual members for the company are shareholders of Mr. Lai Kin Ching and Mr. Lok Tze Shan, from China with 149 and 600 shares respectively and total share capital structure is 749 shares.

SDI Manufacturing Co., Ltd has put up application in accordance of the Foreign Investment law with the following basic principles;

a. Promotion, expansion, of exports and import substitution
b. Acquisition of High Technology
c. Opening up of more employment opportunities, and

d. Regional development

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

အက်စ်ဒီအိုင် မန်နူဖက်ချားရင်း ကုမ္ပဏီ လီမိတက်

SDI MANUFACTURING COMPANY LIMITED

Company Registration No. 105606990

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ
အက်စ်ဒီအိုင် မန်နူဖက်ချားရင်း ကုမ္ပဏီ လီမိတက်
အား ၂၀၁၃ ခုနှစ် ဇွန်လ ၁၉ ရက်နေ့တွင်
အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ
အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that
SDI MANUFACTURING COMPANY LIMITED
was incorporated under the Myanmar Companies Act 1914 on 19 June 2013 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ
Registrar of Companies
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
Directorate of Investment and Company Administration

Figure 1: Company Registration

Company Directors and Individual Members

Name: Date of Appointment: Nationality: Gender:	LOK TZE SHAN 1/8/2018 China Male	Type: Date of Birth: N.R.C./Passport: Business Occupation:	Director 04/04/1970 KO2009883 Nil
Name: Date of Appointment: Nationality: Gender:	LAI KIN CHING 1/8/2018 China Male	Type: Date of Birth: N.R.C./Passport: Business Occupation:	Director 06/10/1969 KJ0334076 Nil

Share Capital Structure

Mr. LOK TZE SHAN China Passport No. K02009883

555, Yee Kuk Street, Cheung Sha Wan , Room 803. 8/F Yee Kuk Industrial center, Kowloon. Hong Kong, China

Shareholding

Share Class	Class Description	Total No. Shares	Total amount paid	Total amount unpaid
ORD	Ordinary	600	60,000	0

Mr. LAI KIN CHING China Passport No. KJ 0334076

555, Yee Kuk Street, Unit 3, 8/F Yee Kuk Industrial center, Kowloon. Hong Kong, China

Shareholding

Share Class	Class Description	Total No. Shares	Total amount paid	Total amount unpaid
ORD	Ordinary	149	14,900	0

Form (2)

Sr. No. 10273-J
Dated 9-9-2013

THE REPUBLIC OF THE UNION OF MYANMAR

The Myanmar Investment Commission

PERMIT

Permit No. 611/2013 Date 9 September 2013

The Myanmar Investment Commission issues this Permit under section 13(b) of the Republic of the Union of Myanmar Foreign Investment Law-

(a) Name of Investor/Promoter MR. LAI HAK MUN, YANNIS

(b) Citizenship CHINESE

(c) Address UNIT 3, 8/F, YEE KUK INDUSTRIAL CENTRE, 555 YEE KUK ST, KOWLOON, HONG KONG.

(d) Name and Address of principal Organization -

(e) Place of incorporation -

(f) Type of business in which investment is to be made MANUFACTURING OF GARMENTS ON CMP BASIS

(g) Place(s) at which investment is permitted PLOT NO. 40, MYAY TAING QUARTER NO. 24, NGWE PIN LEI INDUSTRIAL ZONE, HLAING THAR YAR TOWNSHIP, YANGON REGION

(h) Amount of foreign capital US$ 0.988 MILLION

(i) Period for bringing in foreign capital WITHIN THREE YEARS FROM THE DATE OF ISSUANCE OF MIC PERMIT

(j) Total amount of capital (Kyat) EQUIVALENT IN KYAT OF US$ 0.988 MILLION

(k) Construction period 6 MONTHS

(l) Permitted duration of investment 30 YEARS

(m) Form of investment WHOLLY FOREIGN OWNED INVESTMENT

(n) Name of the economic organization to be formed in Myanmar SDI MANUFACTURING CO., LTD.

Chairman

Figure 2: MIC Permit

014623

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

CERTIFICATE OF EXPORTER/IMPORTER REGISTRATION

1. Enterprise Name (မြန်မာ/အင်္ဂလိပ်) SDI Manufacturing Co., Ltd.

2. Registration No: 31631(16-09-13)

3. Registration Term: FIVE YEAR

4. Start Date : 19-06-2018

5. End Date : 18-06-2023

6. Address : (မြန်မာ/အင်္ဂလိပ်) No.(3) Main Road, Ngwe Pin Lei Industrial Zone, Plot No.40, Myay Taing Quarter No.24, Hlaing Tharyar Township,
Yangon Region,Myanmar

7. Business Registration No : 105606990(19-6-2013)

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

9. Type of Service : New Extension ☒ Amendment

10. Contact No :

09-421056341 09-5071787		s.hlaing99@gmail.com
Telephone No.	Fax No.	e-mail

11. Remarks :
Plot No.40, Myay Taing Quarter No.24, Ngwe Pin Lei Industrial Zone, Hlaing Thar Yar T/S, Form of Permit No.420/2013(Renewed) Date(19-6-2013)(Renewed)(10-5-2018) MIC Permit-611/2013(9-9-2013)CMP

12. Terms and Conditions : စည်းကမ်းချက်များ
I hereby register the above mentioned enterprise as Exporter/Importer subject to the following terms and conditions: (အောက်ဖော်ပြပါစည်းကမ်းချက်များဖြင့် ပို့ကုန်သွင်းကုန် လုပ်ငန်းရှင်အဖြစ် မှတ်တမ်းတင်ခွင့်ပြုသည်)
(a) Line of goods permitted - all items except prohibited and restricted items.
ခွင့်ပြုသည့်ကုန်ပစ္စည်းအမျိုးအမည် - တားမြစ်ကန့်သတ်ထားသော ကုန်ပစ္စည်းအမယ်များမှလွဲ၍ ကျန်ကုန်ပစ္စည်းများအားလုံး
(b) The enterprise must abide by the Export/Import rules and Regulations prescribed for the registered Exporters/Importers.(လုပ်ငန်းရှင်သည် မှတ်ပုံတင် ပို့ကုန်သွင်းကုန်လုပ်ငန်းလုပ်ကိုင်သူများ လိုက်နာရမည့်စည်းကမ်းချက်များကို လိုက်နာရမည်)

Stamp

For Director General

EIREGEX12130012

Figure 3: Certificate of Exporter/Importer Registration

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ

စက်မှုဝန်ကြီးဌာန

စက်မှုကြီးကြပ်ရေးနှင့် စစ်ဆေးရေးဦးစီးဌာန

ပုဂ္ဂလိကစက်မှုလုပ်ငန်း မှတ်ပုံတင်လက်မှတ်

စက်မှုမှတ်ပုံတင်အမှတ် ၁၈/ကြီး / ၃၆၇၂ ရက်စွဲ ၃၀ - ၄ - ၂၀၁၄

လုပ်ငန်းအရွယ်အစား အကြီးစား တိုင်းဒေသကြီး/ပြည်နယ် ရန်ကုန်

အောက်ပါလုပ်ငန်းသည် ပုဂ္ဂလိကစက်မှုလုပ်ငန်းဥပဒေ ပုဒ်မ ၇ ပုဒ်မခွဲ (ဂ) အရ မှတ်ပုံတင်ပြီးဖြစ်ပါသည်။ SDI Manufacturing Co.,Ltd(CMP စနစ်)

၁။ လုပ်ငန်းအမည် အထည်ချုပ်လုပ်ခြင်း လုပ်ငန်း

၂။ လုပ်ငန်းအမျိုးအမည် ဝတ်ဆင်ရေး လုပ်ငန်း

၃။ အဓိကကုန်ချောပစ္စည်းအမျိုးအမည် Knitted Tee /Jacket/Pants / Top / Dress/Woven Shorts/Pants/Jacket/Down Jacket /Blouse / Shirt / Dress

၄။ တည်နေရာလိပ်စာ အမှတ် ၄၀၊ ငွေပင်လယ်စက်မှုဇုန် လှိုင်သာယာမြို့နယ်

၅။ ပိုင်ဆိုင်မှုအမျိုးအစား နိုင်ငံခြား ကုမ္ပဏီ

၆။ လုပ်ငန်းရှင်အမည် Mr. Lai Hak Mun Yannis(M.D)

၇။ ကိုင်ဆောင်သည့်မှတ်ပုံတင်အမှတ် K 02009884

၈။ ရင်းနှီးမြှုပ်နှံမှုတန်ဖိုး (ကျပ်) US$ 217473.7 တည်ထောင်သည့်ခုနှစ် ၂၀၁၃

၉။ အသုံးပြုသည့်အားအမျိုးအစား လျှပ်စစ်/(ထရန်စဖော်မာ) မြင်းကောင်ရေ ၁၀၄.၁၄ ကေဗွီအေ

၁၀။ အလုပ်သမားဦးရေ ၂၂၂

၁၁။ မှတ်ပုံတင်သက်တမ်းကုန်ဆုံးသည့်နေ့ရက် ၃၀ - ၄ - ၂၀၁၅

သန်းဝင်

ညွှန်ကြားရေးမှူးချုပ်

Figure 4: ပုဂ္ဂလိကစက်မှုလုပ်ငန်းမှတ်ပုံတင်လက်မှတ်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ရန်ကုန်တိုင်းဒေသကြီးအစိုးရ
ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ
စီမံရေးရာဌာန

0037892

(၂၀၁၈) နှစ် လုပ်ငန်းလိုင်စင် ၂၉၃၇၂၀၀၂၈

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

ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ၊ စီမံခန့်ခွဲရေးဆိုင်ရာနည်းဥပဒေအခန်း (၂)၊ နည်းဥပဒေ ၃ (ဈ)အရ အောက်အမည်ပါသူတို့အား လိုင်စင်နှုန်း ၅၀၀၀၀၀/- စာဖြင့် (ကျပ် ကျပ်ငါးသိန်းတိတိ) ပေးသွင်းစေပြီး လိုင်သာယာ မြို့နယ်၊ ငွေပင်လယ်စက်မှုဇုန် ရပ်ကွက်၊ ၃ လမ်း၊ အမှတ် ၄၀ ၊ အခန်းအမှတ် တွင် SDI Manufacturing Co.ltd အမည်ပါ အထည်ချုပ် ဆိုင်/လုပ်ငန်းအား လုပ်ကိုင်ခွင့်ပြု၍ ဤလုပ်ငန်းလိုင်စင်ကို ထုတ်ပေးလိုက်သည်။

လိုင်စင်ခွင့်ပြုချက်ရရှိသူ

စဉ်	အမည်	နိုင်ငံသားစိစစ်ရေးကတ်ပြားအမှတ်	လိပ်စာ
၁။	Mr.LAI KIN CHING	KJ-0334076	၄၀၊ ၃လမ်း၊ ငွေပင်လယ်ဇုန်၊ လိုင်သာယာ
၂။			
၃။			
၄။			
၅။			

ဤလုပ်ငန်းလိုင်စင်သည် ၂၀၁၈ ခုနှစ်၊ စက်တင်ဘာ ၃၀ ရက်နေ့တွင် သက်တမ်းကုန်ဆုံးသည်။
ဤလုပ်ငန်းလိုင်စင်အား မြင်သာသောနေရာတွင် မှန်ဘောင်ဖြင့် ချိတ်ဆွဲထားရမည်။
လိုင်စင်အမှတ် ၂၉၃၇၂၀၀၂၈
လိုင်သာယာ
မြို့နယ်

Figure 5: မြို့တော်စည်ပင်သာယာရေးကော်မတီမှ ထုတ်ပေးသော လုပ်ငန်းလိုင်စင်

မြန်မာနိုင်ငံအထည်ချုပ်လုပ်ငန်းရှင်များအသင်း

MYANMAR GARMENT MANUFACTURERS ASSOCIATION

၂၉၊ မင်းရဲကျော်စွာလမ်း၊ လမ်းမတော်မြို့နယ်၊ ရန်ကုန်မြို့။

MYANMAR GARMENT MANUFACTURERS ASSOCIATION

MGMA

အသင်းဝင်လက်မှတ်

(၂၀၁၃ ခုနှစ်)

Mr. Lai Hak Mun, Yannis (SDI Manufacturing Co., Ltd.)

အမျိုးသားမှတ်ပုံတင်အမှတ် PP No. K 02009884 သည်

မြန်မာနိုင်ငံအထည်ချုပ်လုပ်ငန်းရှင်များအသင်းတွင် ၁၃၈၃ ခုနှစ်၊ သီတင်းကျွတ် လ၊

လဆုတ် ၆ ရက် (၂၀၂၂ ခုနှစ်၊ အောက်တိုဘာ လ၊ ၂၈ ရက်နေ့)

အသင်းဝင်အမှတ် ၂၆၃ ဖြင့် မြန်မာနိုင်ငံအထည်ချုပ်လုပ်ငန်းရှင်များအသင်း၏

အသင်းသားတစ်ဦး ဖြစ်ပါကြောင်း။

အတွင်းရေးမှူး ဥက္ကဋ္ဌ

000163

အသင်းသား (သို့မဟုတ်)
၎င်းကိုယ်စားလှယ်၏
နမူနာလက်မှတ်

Figure 6: အထည်ချုပ်လုပ်ငန်းရှင်များအသင်းဝင်လက်မှတ်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံ
ကုန်သည်များနှင့်စက်မှုလက်မှုလုပ်ငန်းရှင်များအသင်းချုပ်

The Republic of The Union of Myanmar Federation of Chambers of Commerce and Industry

No.(29), Min Ye' Kyaw Swar Road, Lanmadaw Township, Yangon, Myanmar.

Established In1919

အသင်းဝင်လက်မှတ်

Certificate of Membership

Membership No. & Date

27372(16-9-2013)

အောက်ဖော်ပြပါနိုင်ငံခြားကုမ္ပဏီ သည်ဤကုန်သည်စက်မှုအသင်းချုပ်တွင် ၂၀၁၃ခုနှစ်၊ စက်တင်ဘာလ(၁၆) ရက်နေ့မှစ၍ အသင်းဝင်တစ်ဦး ဖြစ်ပါကြောင်း။

The under - mentioned **Foreign Company** is a member of the UMFCCI with effect from 27372 (16-9-2013)

အသင်းဝင်အမည်နှင့် လိပ်စာ — အက်စ်ဒီအိုင်မန်နူဖက်ချားရင်းကုမ္ပဏီလီမိတက်
အမှတ် (၄၀)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၂၄)၊ ငွေပင်လယ်စက်မှုဇုံ၊ လှိုင်သာယာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။

Member's Name & Address — **SDI Manufacturing Company Limited**
Plot No.40, Myay Taing Quarter No.24, Ngwe Pin Lei Industrial Zone,
Hlaing Thar Yar Township, Yangon Region.

လုပ်ငန်းမှတ်ပုံတင်အမှတ်နှင့်ရက်စွဲ — ၂၁၃အက်ဖ်စီ/၂၀၁၃-၂၀၁၄ (၁၉.၆.၂၀၁၃)

Business Registration No. and Date — **213FC/2013-2014 (19.6.2013)**

Tel 95-1-613909,09-421056341 Fax **e-mail beckyli@winner-gp.com**

Secretary General **President**

Signature of Member (or) Representative

Name & NRC No. **Mr.Lai Hak Mun,Yannis (PP No.K 02009884)**

Designation **Managing Director**

Extended Period	Extended Registration No.	Authorized Signature
(1) From 1-1-2016 to 31-12-2018	(01436)	Joint Secretary General

Figure 7: ကုန်သည်များနှင့်စက်မှုလုပ်ငန်းရှင်များအသင်းချုပ်အသင်းဝင်လက်မှတ်

Daily Duty and responsibilities of directors,

- Determining the company's strategic objectives and policies.
- Monitoring progress towards achieving the objectives and policies.
- Making decision and annual meeting of shareholders
- Preparing and filing statutory documents with the Companies Office or other agencies
- Appointing senior management.
- Accounting for the company's activities to relevant parties, e.g. shareholders

Daily Duty and responsibilities of Factory Manager

- to plan, organize, direct and run optimum day-to-day operations to exceed our customers' expectations
- to increase production, assets capacity and flexibility while minimizing unnecessary costs and maintaining current quality standards
- Be responsible for production output, product quality and on-time shipping
- to allocate resources effectively and fully utilize assets to produce optimal results
- to implement strategies in alignment with strategic initiatives and provide a clear sense of direction and focus
- to monitor operations and trigger corrective actions
- to share a trusting relationship with workgroup and recruit, manage and develop plant staff
- to collect and analyze data to find places of waste or overtime
- to commit to factory safety procedures
- to develop systems and processes that track and optimize productivity and standards, metrics and performance targets to ensure effective return on assets
- to address employees' issues or grievances and administer collective bargaining agreements
- Influence and learn from below level
- to stay up to date with latest production management best practices and concepts

2.3 Project Proposal Informations and Investment Status

1. The Investor's or Promoter's: -

(a)	Name	:	Mr. Lai Kin Ching
(b)	Father's Name:	:	Mr. Lai
(c)	ID No./ National Registration Card No./ Passport No.:	:	KJ 0334076
(d)	Citizenship:	:	Chinese
(e)	Address:	:	
	(i) Address in Myanmar	:	N.A.
	(ii) Residence abroad	:	Unit 3.8/ Yee Kuk Industrial Centre, 555
(f)	Name of principle organization:	:	
(g)	Type of business	:	
(h)	Principle company's address:	:	

2. If the investment business is formed under Joint Venture, partners: -

Joint Venture Partner: Great Wall Food Stuff Industry Company Limited

(a)	Name:	:	
(b)	Father's Name:	:	
(c)	ID No./ National Registration Card No./ Passport No.:	:	
(d)	Citizenship:	:	
(e)	Address:		
	(i) Address in Myanmar	:	
	(ii) Residence abroad	:	
(f)	Parent company	:	
(g)	Type of business	:	
(h)	Parent company's address:	:	

3. Type of proposed investment business

(a)	Manufacturing	:	Production of Garments on CMP Basis
(b)	Service business As described in (a) above. related with manufacturing		
(c)	Service	:	N.A
(d)	Others	:	N.A

Remarks: Expressions about the nature of business with regard to the above paragraph (3)

4. Type of proposed investment business

(a)	One Hundred Percent	:	100% Foreign Company
(b)	Joint Venture:	:	
	(i) Foreigners and citizen		
	(ii) Foreigners and Government Department / Organization	:	N.A
(c)	By Contactual basis;		
	(i) Foreigners and citizen	:	N.A
	(ii) Foreigners and Government Department / Organization	:	N.A

Remarks: The following information needs to attach for the above Paragraph (4):

(i) Share ratio for the authorized capital from abroad and local, names, citizenships, addresses and occupations of the directors – Please refer to Annex F and Annex G.

(ii) Joint Venture Agreement (Draft) and recommendation of the Union Attorney General Office if the investment is related with the State – Please refer to Annex H.

(iii) Contract (Agreement) (Draft)

5. Particulars relating to company incorporation: -

(a)	Authorized Capital	:	US $ 2,000,000 divided into 20,000 shares of US $ 100 / - share
(b)	Type of Shares	:	Ordinary shares
(c)	Number of Shares	:	20,000 shares

6. Particulars relating to capital of the investment business: -

			USD (Million)
(a)	Amount/percentage of local capital to be contributed	:	0.988

(b) Amount/percentage of foreign capital to be brought in :

Total : 0.988

(c) Annually or period of proposed capital to be brought in:

(d) Last date of capital brought in

Within three years after MIC permit

(e) Proposed duration of investment 30 years, extendable by fifteen- year period

(f) Commencement date of construction Within 3 months after MIC Permit

(g) Construction period Six (6) months (Renovation period)

Remarks: Describe with annexure if it is required for the above Para 6(c) – Please refer to Annex J.

7. Detail list of foreign capital to be brought in: -

Note: Exchange Rate of USD 1 = Kyat 950

		Foreign Currency (million)	Equivalent Kyat (million)
(a)	Foreign currency (Type and amount)	US$ 0.150	Kyat 127.50
(b)	Machinery and equipment and value (to enclose detail list)	0.712	605.29
(c)	List of initial raw materials and value (to enclose detail list)	N.A	N.A
(d)	Value of Equipment List	0.50	42.21
(e)	Value of vehicles	0.33	28.05
(f)	Value of furniture & fixture	0.43	36.64
(g)	Value of technical know-how	N.A	N.A
(h)	Others		
	Total	US$ 0.988	839.68

Remarks: The evidence of permission shall be submitted for the above para 7 (d) and (e).

8. Details of local capital to be contributed: -

Note: Exchange Rate of USD 1 = kyat 950

		Kyat
(a)	Amount	N.A
(b)	Value of machinery and equipment (to enclose detail list)	N.A
(c)	Rental rate for building/land	-
(d)	Cost of building construction	N.A
(e)	Value of furniture and assets (to enclose detail list)	N.A
(f)	Value of initial raw material requirement (to enclose detail list)	N.A
(g)	Others	US$450,000 / Kyat 427,500,000

Please refer to Annex L for detailed breakdown of the land contributed as local capital.

9. Particulars about the investment business: -

(a) Investment location(s)/place: : Plot No. 40, Myay Taing Quarter 24, Ngwe Pin Lei Industrial Zone, Hlaing Tharyar Township, Yangon

(b) Type and area requirement for land or land and building: –

(i) Location : Plot No. 40, Myay Taing Quarter 24, Ngwe Pin Lei Industrial Zone, Hlaing Tharyar Township, Yangon

(ii) Number of land/ building and area : 110 x 220 ft one story building in 2.275 Acre

(iii) Owner of the land : U Aung Myint

(aa) Name/ Company / Department :

(bb) National Registation Card : 13/ Ka Ma Na (Naing) 065459

No.		
(cc) Address	:	No.6 Aye Yeikmon Street, 4th Quarter, Hlaing Township, Yangon
(iv) Type of Land	:	Private own
(v) Period of land lease contract	:	30 years extendable 15 years period
(vi) Lease period	:	30 years June 2013 to June 2043
(vii) Lease Rate		
(aa) land	:	US$ 6 per square meter per year
(bb) Building	:	
(viii) Ward	:	Myay Taing Quarter 24
(ix) Township	:	Hlaing Thar Yar, Yangon Region
(x) Lessee	:	
(aa) Name/ Name of Company/ Department	:	Mr. Lai Hak Mun, Yannis
(bb) Father's Name	:	Mr. Lai
(cc) Citizenship	:	Chinese
(dd) ID No./ Passport No.	:	PP No. KO 2009884
(ee) Residence Address	:	Unit 3/ 8 F, Yee Kuk Industrial Centre, 555
(c) Requirement of Building to be constructed	:	
(d) Product to be producedd	:	
1. Name of product	:	
2. Estimate amount to be produced annually	:	

(e) Annual requirement of materials/raw materials

(f) Production system	Production of garment on CMP Basis
(g) Technology	
(h) System of sales	Export sale 99%, and local 1%
(i) Annual fuel requirement (to prescribe type and quantity)	12800 gallons of diesel
(j) Annual electricity requirement	32000 unit
(k) Annual water requirement (to prescribe daily requirement, if any)	2,000,000 gallons

10. Detail information about financial standing: -

(a) Name/company's name:	:	Mr. Lok Tze Shan, Mr Lai Kin Ching
(b) ID No./ National Registration Card No./ Passport No.:	:	PP - KO 2009883, KJ 0334076
(c) `Bank Account No:	:	368-272134-888, in Hang Seng, 289-291270-882 in Hang Seng Bank

11. Number of personnel required for the proposed economic activity: -

(a) Local personnel	:	387 (97 %)
(b) Foreign experts and technicians	:	(11) number (3%)

12. Evaluation of environmental impact: –

(a) Organization for evaluation of environmental assessment;
(b) Duration of the evaluation for environmental assessment;
(c) Compensation programme for environmental damages;
(d) Water purification system and waste water treatment system;
(e) Waste management system;
(f) System for storage of chemicals.

13. Evaluation on social impact assessments: –

(a) Organization for evaluation of social impact assessment;
(b) Duration of the evaluation for social impact assessment;
(c) Corporate social responsibility programme.

2.4 Presentation of the Environmental and Social Experts

SDI Manufacturing Company Limited has appointed A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED to conduct EMP for the Garment Factory project in Yangon Region. A.M.K AND ASSOCIATES (E.I.A CONSULTING)

LIMITED is an Environmental consultancy company with a Myanmar entity, registered since 2016 in Myanmar. AMK and Associate combines resources across geographic boundaries and technical and scientific disciplines to provide clients with the best, most responsive team — whether responding to existing challenges, evaluating opportunities to improve performance, or seeking to reduce future liabilities. A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED for socio- economic analysis and public consultation process of the SDI Manufacturing Garment Factory project and a geology team to obtain geological data collections.

A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED Personnel for the EIA Study and their Qualifications

The project site and environs inspection were conducted by U Aung Myat Kyaw, Prof: Dr. Aung Lay Tin, and U Thaung Aye Lwin since December, 2019 and a photographic record of the key features identified during the inspection. Consultations were also held with the individuals and organizations. Environmental Professional and Project Director for study was U Aung Myat Kyaw of A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED, Environmental Management Team Environmental Consultant Group who is a chartered Environmentalist with more than 10 years' experience providing environmental and social assessment and management services across a range of sectors and international jurisdictions. Dr. Aung Lay Tin was assisted by a team of technical specialists who contributed to the project study as detailed in below table;

Table 2: EMP Implementation organization team and their Contribution

No.	Name	Qualifications	Transitional Consultant Reg. No	Experiences / Roles/ Responsibility
1.	U Aung Myat Kyaw	BSc(Geology)	00110	Team Leader Responsibility related with past experiences on Environmental • Overall in –charge of the Project • Preparation of Schedule for baseline data collection • Guided the team of experts for baseline data collection • Assess water quality status of the factory area • Identify and assess impacts on soil, water, air, noise and suggestion on mitigation measures • Preparation of EIA Report and EMP
2.	Dr.Aung Lay Tin	A.GTI(Machine Tools) B.E (Mining Engineering)	00065	Environmental Engineer Responsibility related with past experiences on Environmental • Assess air and noise quality status of the factory • Identify and assess environmental impacts on air, noise, water from process line, waste management and suggestion on mitigation measure • Preparation of EIA Report and EMP
3.	Mr. Josiah Bowles (U Kyaw Zeya)	M.S in water and wastewater Engineering	Processing	Hydrology, Ground water, waste conservation specialist Responsibility related with past experiences on water Environment and water analysis • Assess water quality status of the factory area • Identify assess impacts on water quality and suggestion on mitigation measures • Contribution and Preparation of EIA/SIA report and EMP preparation
4.	Ms. Swe Hlaing Win	-Master of Social Science (NUS)	Processing	Social Experts Responsibility related with past experiences on Environment and Social Science • Preparation of stakeholder consultation engagement plan and questionnaire form • Analysis and assessment of data collected in stakeholder consultation • Identify and assess impacts on socio-economic environment and suggestion on mitigatioin measures • Contribution in preparation of EIA report and EMP Preparation
5.	Daw Mya Mya Win	MBBS (YGN)	Processing	Medical Consultant for health and certification inspector • Suggestion of appropriate mitigation measures to minimize adverse impact on health safety and environment
6.	U Thaung Aye Lwin	B.E,AGTI (Mining Engineering)	00064	Risk and identification Experts, HSE Plan Module Construction Responsibility related with past experiences on HSE as ex

				drilling engineer from M.O.G.E • Site visit • Baseline and secondary data collection at site • Representation in local public consultations and stakeholder meeting • Identification of hazard/ risks, ie. Possible manmade and natural disasters, source of impact • Suggestion of appropriate mitigation measures to minimize adverse impact on health safety and environment • Contribution in preparation of EIA report and EMP Preparation
7.	Daw Cho Cho Aung	BSc (Chemistry),Chief technician- Irrigation Department	Processing	Senior Laboratory Technician Responsibility related with past experiences on Geotechnical Laboratory at Irrigation Department • Assess wastewater quality status of factory area by laboratory analyzing • Identify and assess impacts on impact on chemical using and suggestion on mitigation measures • Suggestion of appropriate mitigation measures to minimize adverse environmental impact on using chemical affect
8.	Daw Swe Zin win	MSc,BSc (Geology,Engineering Geologist)	00109	Project Management member Responsibility related with past experiences on Geotechnical Investigation as engineering geologist • Baseline and secondary data collection • Data analysis / report preparation • Translation and interpretation (Myanmar)
9.	Mr. Nay Soe Tun	B.Sc (Geology)	Processing	Environmental Surveyors Responsibility related with past experiences on Geological Investigation as Senior geologists and land surveyors • Site visit • Baseline and secondary data collection • Contribution in preparation of EIA report and EMP Preparation
10.	U Wai Lin Kyaw	BSc (Geology)	00063	
11.	U Thet Paing Oo	BSc (Geology)	00066	
12.	U Nay Lin Aung	B.E (Mining)	Processing	Responsibility related with past experiences on Mining Fields and Geological Investigation Public Consultation and site investigation
13.	U Kyaw Min Thein	B.Sc (Geology)	Processing	

The Transitional Consultant Registration (TCR) Certificates of above personnels are enclosed in the Annex.

Table 3: Working Experience for JOEY AMK and Associates EIA Consulting Limited (Summary)

2008 – 2009 EIA Consultant for following projects;

- Base line survey for PTTEP pipeline
- CNPC offshore pipeline project (international Environmental Management – Canada)
- Monitoring survey for onshore seismic survey project

2012 – 2015

A. Pathein Industrial Zone for F/S and EIA (study with Team Engineer / ACE Engineering)
B. EP-3, MP-4, B-2, M-4, YESB Blocks as local partner with international consultant firm
C. (ACE Engineering Company – Singapore and ARCADIS-SENESINDIA – India) for EIA Survey in Myanmar

2015 – 2018

D. Mong Kong Suger Mill Project for Wilmar (5000 TPD) (with Environ Myanmar)
E. NgaOo Sugar Mill Project for Wilmar (3000 TPD) (with Environ Myanmar)
F. LNG power plant project for Supreme Co., Ltd in Ayarwaddy Division (1000 MW Plant) (with Environ Myanmar)
G. Hydropower Project for Ayeyar Mon Co., Ltd in Tachileik Region (50 MW Plant) with Environ Myanmar)
H. Environmental Impact Assessment and Environmental Management Plan Development of Hot Dip Galvanizing Plant and Mechanical Work Shop for Ba An Technology Limited

I. Tong Thai Garment Factory in Yangon for IEE and EMP study, Prepared and submitted Report
J. Jinli Knitting and Spinning Factory in Yangon (Hmawbi) for IEE and EMP study, prepared and submitted Report
K. Wan He Knitting Factory in Yangon for IEE and EMP Study, prepared and submitted Report

The Contact Information for A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED is -

U Aung Myat Kyaw, 17 Bandar Bin Street, Kyee Myin Daing Township, Yangon, Myanmar and his contact mobile is 09-5162169 and e mail is joei0920@gmail.com .

2.5 Objectives of EMP

The main objectives of this EMP are:

- To classify the major environmental and social impacts due to implementation of the project;
- To provide an integrated social and environmental assessment of the SDI Manufacturing Garment Factory project across all social and environmental media;
- To identify measures that will minimize negative environmental, social and health impacts and maximize benefits to affected communities;
- To develop environmental, social and health management and monitoring plans to ensure that the requests from the government and the commitments of the project proponent are implemented.

The scope of the study includes:

- Literature review to collect secondary data of the study area;
- Environmental inspection and field and in-situ measurement of environmental parameters to document the existing environmental condition of the study area;
- Evaluation of the predicted impacts on the various environmental attributes in the study area with EIA methodologies;
- Preparation of an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality and environmentally sustainable development, including identification of the critical environmental attributes required to be monitored.

2.6 Commitment about the EMP Report

This Environmental Management Plan (EMP) report has been prepared by the relevant project proponent in accordance with the Environmental Impact Assessment Procedure, with experienced consultants acting as a third party.

CHAPTER 3 PROJECT DESCRIPTION

3.1 Project Background and Investment related to the project

Project Overview

SDI Manufacturing Co., Ltd's Garment Factory project was established in June 2013 and started operation as commercial start in 4.4.2014. The estimated total production is 50,000 pieces per month of ready-made clothing. Normally the factory operating is approximately 308 days annually. The whole set of garment manufacturing, producing machines and related equipment were imported from China, then installed and modified to produce fished garment products in Ngwe Pin Lei Industrial Zone, Hlaing Tharyar Township, and Yangon Region of Myanmar. Approximately all most raw materials such as textile, thread, and printing materials were imported from China. The garment factory is in full-range operation and has been producing about 600,000 pieces of various clothing annually since 2014 to 2019.

In order to Environmental Assessment Procedure (2015) and type of projects and specifications of capacity required to conduct, it can be said that SDI Manufacturing Co., Ltd's Garment Factory is a medium scale garment production facility as it is less than 1 ton per day. (No 58. Textile and garment manufacturing & No. 59 - Laundry washing, bleaching, silk manufacturing or textile, and garment dyeing) (20 gram / 1 pc - finished product)

For the proposed projects, SDI Manufacturing Co., Ltd will contribute foreign capital of US$ 0.988 million in cash upon Acquisition Completion.
As the aim of investment business of the Company, the following are being doing by SDI currently;
As the aim of investment related to thd project and business of the Company, the followings are being implementing by SDI Manufacturing currently;

1. production of ready-made clothing in Myanmar, comprising imported raw material as CMP Basis (they are approximately all most from China)
2. All other activities and services that are ancillary or incidental to the foregoing included - e.g.(transportation, logistics, management, supply chain management, packing, cleaning and warehousing services).

Salient Features of the SDI Manufacturing Garment Factory Project and Overview

Prominent features of SDI Manufacturing Garment MFG Factory Project are shown in the following table, and some of these features are discussed in advance.

No	Description	Capacity
1.	Total Project Area	2.275 Acre
2.	Construction Period	One year
3.	Estimate Production/ day	50,000 pcs per month
4.	Process Water Demand	400,000 + 140,000 gallons per/year
5.	Domestic Water Demand	
6.	Source of Process Water	Tube wella
7.	Source of Electrical Power	MEPE/ YESC
8.	Auxiliary Power	Diesel Generator set
9.	Energy Consumption	Annual 600,000 unit
10.	Raw Materials	Fabric, interlining, button, labels, hanger, ribben etc.
11.	Ground water tank	2,500 gallons capacity
12.	Overhead water tank	2,600 gallons capacity
13.	Size of firefighting water tank	Ground Tank (20,000 gallons capacity)
14.	No. of Workers Used	566 workers (Full Strength) (Currently employed)
15.	No. of Machinery Used	

3.2 Description of the Project

3.2.1 Project Components

Project Location

The Project site is situated in Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar. The primary landuses in the locality of the Project site is low density residential.

The nearest operational airport is Yangon International Airport which is located approximately 15 km to the south east. The location of the Project site is presented in Figure 8 below.

The coordinates for the approximate centre of the Project site are: 47Q 186740.39 m E, 1874149.24 m N (UTM) or Latitude/Longitude 16°55'47.84"N, 96° 3'33.10"E

Size of Project (Land Area)

The whole project site covers nearly 2.275 totally. It is included unloading and loading raw material and finished products, and manufacturing of ready-made clothing area. Also consists of steam generation, washing, and dyeing machines area, administrative buildings, and staff dormitory.

Gentle gradient dominates the topography of generally flat plain project area.

SDM manufacturing Co., Ltd's garment factory project provides direct job opportunity for 566 local workers within the Hlaing Thar Yar/ Shwe Pyi Thar area. There are 11 oversea technicians working together with the local employees in working schedule with a one shift system operation. The total operation is approximately 308 days and producing about 600,000 pieces of ready-made clothing (360 ton of apparel in a year)

According to the Ministry of Environment and Forestry Notification No. 616/2015, Environmental impact assessment procedures, Appendix – A (Dated December 29, 2015), table for type and size of Environmental Assment Analysis required to carry out the project, this textile manufacturing factory project proposes only producing estimated 160000 or under 10 ton per day from the garment factory as a SME Scale of factory.

Figure 8: SDI Manufacturing Garment Factory Project Location Maps

Factory Layout Plan

The project activities involved in the operation phase are:

- Transformer
- Security Room
- Dining area
- Generator
- Ware house
- Cutting department
- Washing office
- Drying area
- Dyeing area
- Wash area
- Finishing department
- Sewing Department
- Water tower
- Expected for ETP place area
- Boiler room
- Garbage room
- Printing department
- Chemical warehouse
- Utility room
- Management dormitory

The project has planned and already developed Effluent treatment plant for treating wastewater

Figure 9: SDI manufacturing Factory layout plan

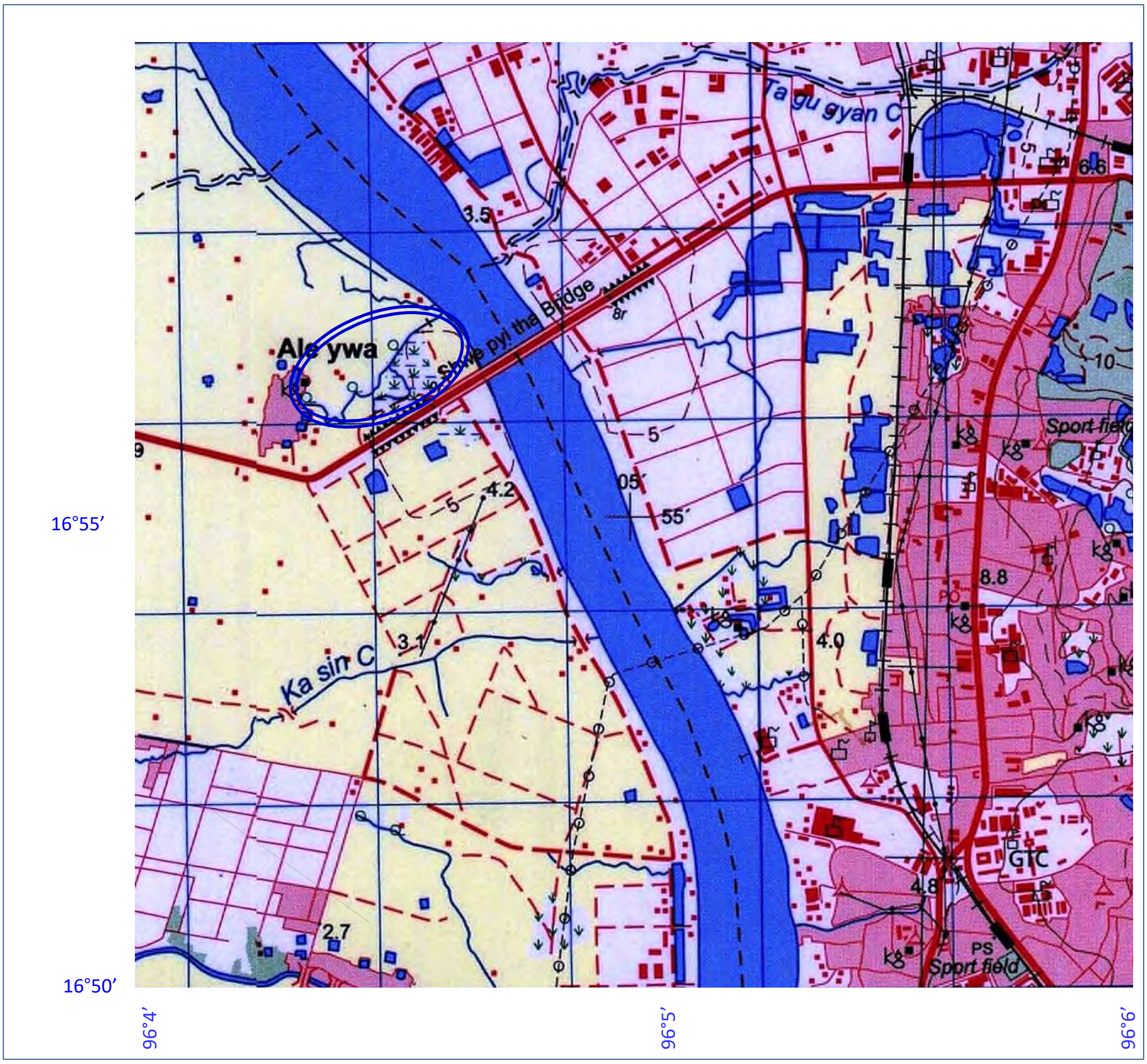


Figure 10: Around Factory in UTM Map

3.2.2 Installations

General

Concept of this Garment Industry is means for cutting, making and packing (CMP) with 5 production lines. Process flow is from raw materials up to finished products.

According to input, and output theory, e.g., input from raw materials can be output of scrapcloth and plastic as waste material by cutting with design failure and not skill in cutting. By making or manufacturing of garment, it can be caused consumption of ectricity and water. Also, manpower has to be utilized so has to take care on health and safety of them. There can be generated output of solid waste, oily water, sewage and garbages from supporting operations. (Boiler, generator, toilet, and dining room etc.)

Environmental Management System has to be implemented with Plan, Do, Check, Act circle by establish EMP organization. This organization has to emphasize mainly on wastewater treatment plant control, and management, worksite hygiene, firefighting, and emergency response plan.

Factory's EMP manual is being implemented base on BSCI guidelines, and emission standard and other law from MONREC. Budget for monitoring plan has been alocated from operation cost, and being carried out by above organization team. According to result of public consulting meeting, it is being carried out environmental mitigation plan and requests from employee by designated schedule.

Existing conditions of SDI Manufacturing Garment Factory

Site Planning

Site planning includes physical analysis, location analysis, infrastructure services, transportation accessibility, labour force supply, fixed cost and capital supply as shown in below figure;

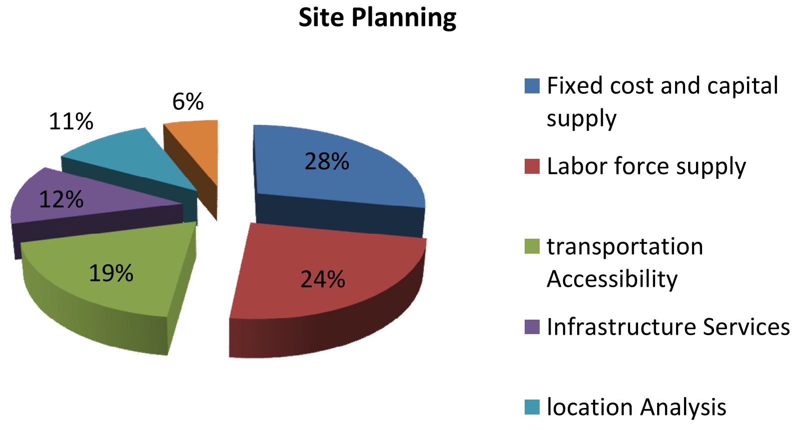


Figure 11: Site Selection Criteria of Garment Indstry

Landscaping, Parking and Vehicular Circulation

Landscaping can be used not only to enhance a buildings exterior, but also to improve energy efficiency and make the environment more pleasant for workers and visitors. The economic rewards are not bad; either good landscaping can boost a property"s value by up to 15 percent. Below table shows that there's landscaping for employees for relaxation in most of the garment industries. SDI manufacturing Factory has outdoor function for employees'relaxation. Because of the wide and huge site, there is enough space for circulation space and parking and enough to park for the vehicles.

Description	-	SDI manufacturing garment factory
Landscaping	-	Fair
Parking	-	At least 10-unit spaces, enough for use ferries from other car companies
Vehicular Circulation site	-	Enough because of the wide road and huge

Building Services

The building services of SDI Manufacturing Garment Factory. There is enough water for Factory from own tube wells and Factory have 2 overhead water tanks with tower to store them. Since there is own transformer and supply of Yangon City Electrical Supplement Board (YESB), electricity is in good strength for the Factory. They operate own generator when electricity is power off. There are Telephone, Fax and Net for telecommunication system. For their safety, enough security control is provided.

Description	-	Clothing
Water Supply	-	Get water from own Tube wells, and drinking water is purchased
Power Supply	-	YESB and have own one generator and one own transformer
Telecommunication System	-	Telephone, fax and net
Security Control	-	Private group

Energy Efficiency in Garment Industry

Energy efficiency can be considered as the main energy saving opportunity for the manufacturing industry. The two factors should drive industry towards achieving it. The first is considering about natural ventilation for the garment industry and the second is natural lighting for very high temperature in garment industries. If energy constitutes a substantial input to industrial processes, then this should be a straightforward incentive to improve energy efficiency.

Ventilation

All habitable inner spaces shall be provided with natural ventilation, or mechanical ventilation

Ceiling ventilation

The space between the ceiling and the roof shall be provided with openings for ventilation which shall be protected from intrusion of birds, insects and other animals.

Natural ventilation

Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

Ventilation area required

All habitable spaces which are meant for human occupation of more than 8 hours daily shall be provided with openings of minimum 10 per cent to the floor area for natural ventilation. Exception: Exterior openings required for ventilation in stairwell, corridors, etc. shall be in accordance with fire safety requirements.

Artificial or mechanical ventilation

This system may be regarded as generally desirable in all rooms occupied by more than 50 persons, where the space per occupant is less than 3 cu -m (105.86 cu-ft). Mechanical fan ventilation is used under many industrial applications. Exhaust or circulating fans are used to ventilate warehouses particularly in warehouse and storage buildings. Worldwide fan ventilation has been used in garment factories, warehouses of all types, and even ventilating buildings for animals, people and machinery in hot climates to lower temperature or outside temperature. Fan ventilation is beneficial to crops, people and animals to move air over the surface, helps remove humidity from the object and ventilate out of the buildings. Mechanical ventilation is also used in industrial applications for fan cooling and ventilating buildings for odour control, too high humidity and air moving for people comfort.

One of the most universally popular types of ventilation is the fan and shutter system. The principle is that the structure or controlled environment area is designed so that a shutter or series of shutter open on one side or end of a structure and on opposite side or end, the exhaust fan or fans come on to pull fresh outside air into the structure and exhaust the high humid, warm or stale air is exhausted through the fan. The object of course, is to reduce the temperature and ventilate the structure evenly and completely with as little turbulence as possible to lower the internal temperature to outside temperature and in the case of plants and other humid environments to reduce humidity. The larger the structure, the more fans and shutters required. There are many air conditions for working areas in the Myanmar Unique garment factory.

Lighting and Natural light

Every space intended human occupancy has been provided with natural light by means of exterior glazed openings or artificial light. Exterior glazed openings shall open directly onto a public way or onto a yard or court. The minimum net glazed area shall not be less than 10 per cent of the floor area of the room. Most garment factories have a combination of natural and artificial lighting. However, little attention appears to be paid on the nature of the work, it is as though all work in the factory requires the same degree of lighting. From the workers" perspective, poor lighting at work can lead to eye strain, fatigue, headaches, stress and accidents.

On the other hand, too much light can also cause health and safety problems such as headaches and stress. Both can lead to mistakes at work, poor quality and low productivity. Various studies suggest that good lighting at the workplace pays dividends in terms of improved productivity and a reduction in errors. Improvements in lighting do not necessarily mean that industry needs more lights and therefore use more electricity — it is often a case of making better use of existing lights; making sure that all lights are clean and in good condition; and that lights are positioned correctly for each task. It is also a case of making the best use of natural light.

There is also a need to make sure that all windows, skylights, are clean and in the best position to allow the maximum amount of natural light into the workplace. Garment industries can always use appropriate shading methods for reducing the temperature and should not rely on the windows being dirty. Skylights and windows high up the factory walls let in much lighter (and air) than low windows, which often get blocked with stock, raw materials and so on.

It is also essential that lights are positioned in the correct place so that workers do not have to adopt poor working postures to see the task in hand. It is also important to have adequate lighting near any potential hazards such as steps, ramps, etc. and outside the factory for security at night.

Zoning Classification

In garment industries, there can be classified as four main zones to run their functions. There are Administration zone for controlling their commercial facilities, Operation zone for their products, recreation zone for public facilities and others for M and E rooms, store rooms and so on.

1 Cutting 2 Store 3 Sewing 4 Office 6 Design room 7 Machine room 8 Spare Machine room	9 Utility room 10 Clinic 11 Chest Piece 12 Training Area 13 Dining 14 Ground Water Tank 15 Pump House 16 Over Head. Water Tank	17 Main Gate, 18 Finger Print 18 Toilets 19 Air Compressor 20 Transformer 21 Diesel Tank 22 Generator House

Table 4: Function and facility for Employee

Facilities	Clothing
Dining Hall	Yes, good ventilation and lighting
Canteen	No
First-aid	Yes, clean and healthy environment
Toilets	Yes, clean
Ferry	Yes
Lockers	Yes
Recreation	Yes

According to above tables, dining halls from SDI Manufacturing garment factory has good ventilation and lighting, and it doesn't need protection from entering dust. There in no Canteens and cafeteria for employees. Because of high temperature, dust, inadequate lighting and ventilation, employees can suffer headache, fatigue and fever, so there should be first-aid room for health provision. Toilets can be seen for each section of industry and need to get good ventilation and lighting. Employees need library for their rest time because they want to relax their time by reading books.

High internal gains from artificial lighting and equipment produce an intolerably hot work environment, which exacerbates the already uncomfortable climate. Extensive usage of artificial lighting in sewing and steam irons in the ironing space is the major cause of high internal temperatures. Most of the garment industries are criticized for their overheated working conditions, causing a health hazard for the workers. The high density of people, equipment and artificial lighting are the reasons for high internal temperatures.

For the usage of electricity units in lighting of selected local garment industries, the cost for those units is 3 to 10 %of total expenditures of garment industries. Up to 3 to 10 %of total costs for electricity in industries shall reduce if natural lighting can be given sufficiently. According to their roof type, inclined lantern light can give as natural lighting. In this industry, employees cannot suffer from heat because of high ceiling. And they keep separate ironing room so that it can reduce employees' heating condition.

According to their roof type, ridge lights can enter as natural lighting. The ceiling can be seen for reducing heat but there is a little sky light for natural lighting. There are the roofs of corridor; therefore, there is not enough natural lighting.

Figure 12: High Ceiling and Roof

3.2.3 Scoping of Textiles and Hazardous chemicals

Chemicals in textile Garment Factory

The process from fibre to finished textile is long and includes many steps in the textile production. Fibres and textiles are treated in a variety of chemical processes. In each step of the process, different chemicals are used for different purposes. There is a great variety of chemicals that can be used in textiles. Pesticides and fertilisers are frequently used in natural fibres production. Other chemicals used in textile production include chemicals in dyes, processing chemicals, water or stain repellents, performance enhancing coatings or treatments, flame retardants etc. Some of these chemicals are designed to remain within the finished product, whereas others are present as a carry-over from the manufacturing.

Hazardous chemicals

Chemicals may have many kinds of hazard properties; some are corrosive, some affect the neurological system etc. Therefore, when - using the term "hazardous substances", it is important to define which hazardous properties these substances are supposed to have. The health classifications chosen are: Carcinogenic, Mutagenic, and Toxic for Reproduction; Category 1 A and 1B, which means that the chemicals have been shown to be carcinogenic, mutagenic, or toxic for reproduction in humans or in animal tests. Substances with such classifications are highlighted in the environmental objective "A Non-Toxic Environment" and in the REACH Regulation (EC) No 1907/2006. Environmental exposure may occur both during production and later on during consumer use of textiles through leaching via washing or when the textile is disposed of. For protecting the environment, we have included the most severe classification category: Aquatic Chronic 1. It should be noted though that this does not cover for example vPvB (very Persistent and very Bio-accumulative) substances that may in the individual case be of similar or even higher concern for the environment than a substance classified as Aquatic Chronic 1.

3.2.4 Technology

Methodology

This report is prepared on the basis of the information supplied by the project proponent and by undertaking visit to the project site for a reconnaissance survey of the surrounding areas. This was followed by evaluation of the information to determine the possible environmental impacts due to the proposed project. Rapid Rural Appraisal (RRA) method was used to conduct the survey.

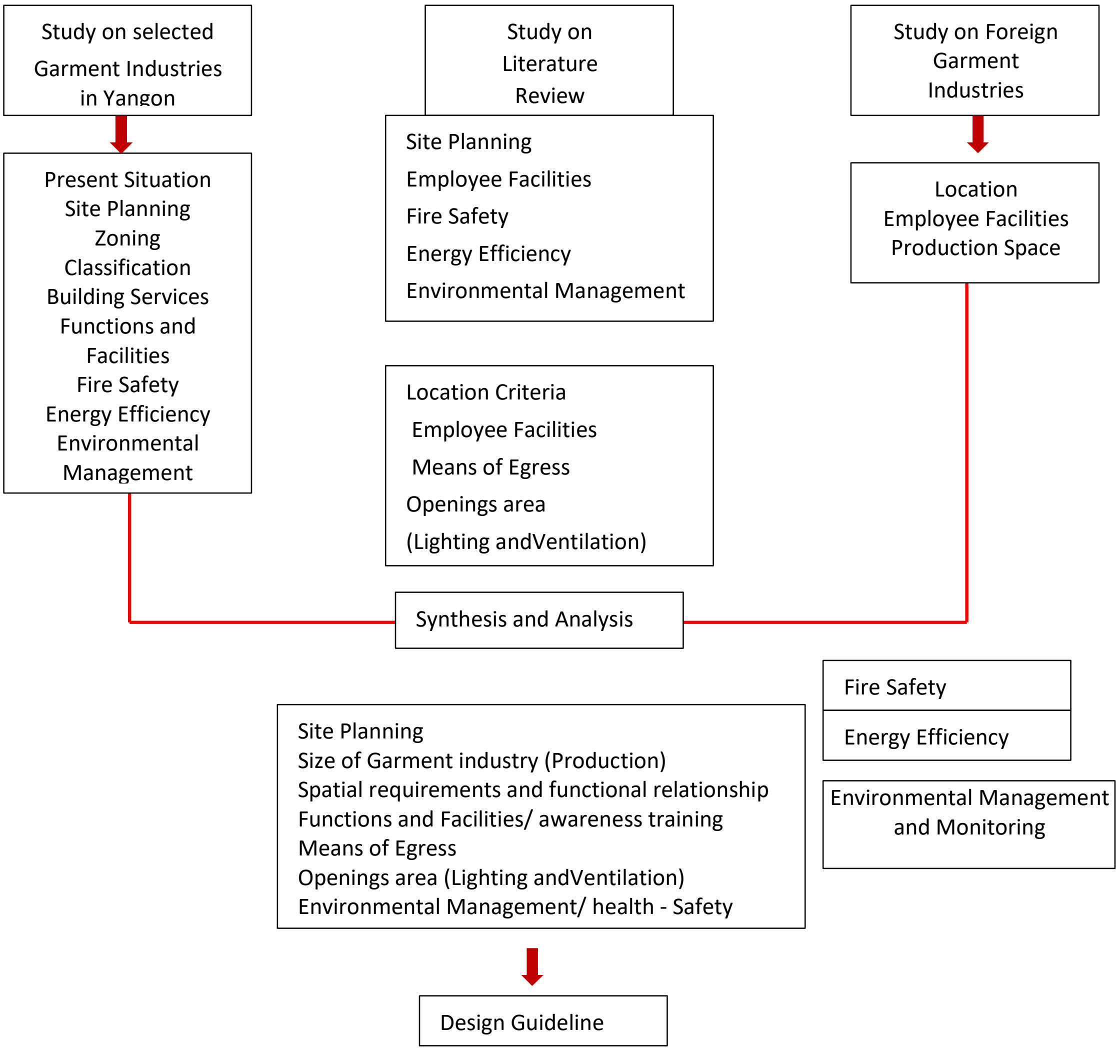


Figure 13: Research Methodology

Study on Literature Review for Process

Introduction

Textile Garment is produced in large quantities and is included in many types of products. The consumption of consumer textile products is high. There are no indications of a downward trend in the consumption of textile products in the foreseeable future. Large quantities of chemicals are used in the manufacture of textiles. Some are harmful to the human health and/or the environment, while others are currently not considered to have hazardous properties. Some of the chemicals used in the manufacture and finishing of textiles may remain in the final textile product, intentionally or unintentionally, when the products reach the consumer. It is difficult to know exactly which chemicals are present in the textiles since the supply chains are long, complex and global. Information regarding chemicals in textiles is therefore often decreasing when going down the supply chain. Many textiles' companies require their suppliers to comply with so called Restricted Substances Lists (RSLs). Textiles make up a very broad category of products and are used in a way that consumers, including children, are directly or indirectly exposed to their chemical content. Chemicals in textiles can have adverse effects by directly affecting health, such as causing allergic reactions. But they can also adversely affect the environment, for example by long term effects from persistent or bio-accumulating

substances. To deal with the problems posed by hazardous chemicals in textiles, there is a need for regulation of chemical content in textile products at the EU level.

Background

Some quantity of chemicals is used in the manufacture of textiles such as spot remover and it is not harmful.

The Project aims to promote growth and balanced development of the whole National Capital Region through providing economic base in the identified major settlements Regional Centers for absorbing economic development impulse of Yangon, efficient transport network, and development of physical infrastructure, rational land use pattern, improved environment and quality of life. In line with the objectives of the Regional Plan, the primary objective of this project are to improve quality of life and well-being of urban residents in the National Capital Region (NCR): This will be achieved by way of support to various agencies in the constituent States through the Myanmar Investment Commission Board (MICB) a line of credit to compliment the ongoing efforts of MICB in financing the regional Plan priorities and technical assistance to improve quality of planning, design and management interventions in the region.

The proposed project is designed to demonstrate (i) the business and environmental advantages of clpner production and (ii) a financially and technically sustainable model of central effluent treatment facilities in this factory. It will help to develop further capacity of the Ministry of National Resources and Environmental Conservation (MONREC) in monitoring and enforcing pollution control. The project will have four components: (i) Monitoring and Environmental Compliance; (ii) Industry Pollution Prevention and Abatement Demonstration Program; (iii) Design, Construction and Operationalization; and (iv) Program Management, Monitoring and Evaluation and Stakeholder Engagement.
This Draft Initial Environmental Examination (IEE) assesses the environmental impacts due to the proposed Myanmar Unique Garment Factory project. The IEE specifies measures towards addressal of the impacts. The IEE has been prepared based on a review of sub-project designs; field visits, and secondary data to characterize the environment and identify potential impacts; and consultations with stakeholders. An Environmental management plan (EMP) outlining the specific environmental measures to be adhered to during implementation of the sub-project has been prepared. Project being a Design-build-Operate contract, IEE/EMP is prepared based on preliminary design and will be updated/revised during the detailed design stage.

3.2.5 Infrastructure

Base Line Data (Project Components)

1. Location

a.	Elevation	:	(33 feet) above MSL
b.	Barometric pressure	:	760 mm/ hg, 4.69 psi a (Standard ASL)
c.	Summer cooling	:	Minimum
d.	Summer Evaporation	:	Minimum

2. Technical Information

Project Name	:	SDI Manufacturing Company Limited
Project Location	:	Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar
Project Co-ordinate	:	16°55'46.49"N, and 96° 3'33.39"E
MSL (Bench Mark 1)	:	Nil
MSL (Bench Mark 2)	:	Nil
Land Area	:	2.275 Acre
Build up coverage	:	
Building	:	
Residential component	:	1 x Staff Hostel
Commercial component	:	
Institutional component	:	
Amenities	:	
Open space	:	
Parking area	:	
Passenger area	:	
Solid waste management	:	About 40 kg domestic + 1000 kg industrial / day

Building Design and Layout

Front View | Side view | Side View

Figure 14: Buildings Design of factory

Employee Facilities

Both the quantity and the quality of the product depend not only on the sequence precision, and efficiency of the factories, tools and machines but on the proficiency, pride, and fitness both mental and physical of the personnel. The development of factory design in recent years has become more and more concerned with creature comforts for the employees.

The facilities should be near the work space, so that no time is lost getting back and forth but they should be sufficiently insulated from the sights and sounds of the work area it so that a real change of scene is provided. If a pleasant outside view is available, it should obviously be used. A clear distinction should be made between quiet lounging places and recreation and cafeteria areas.

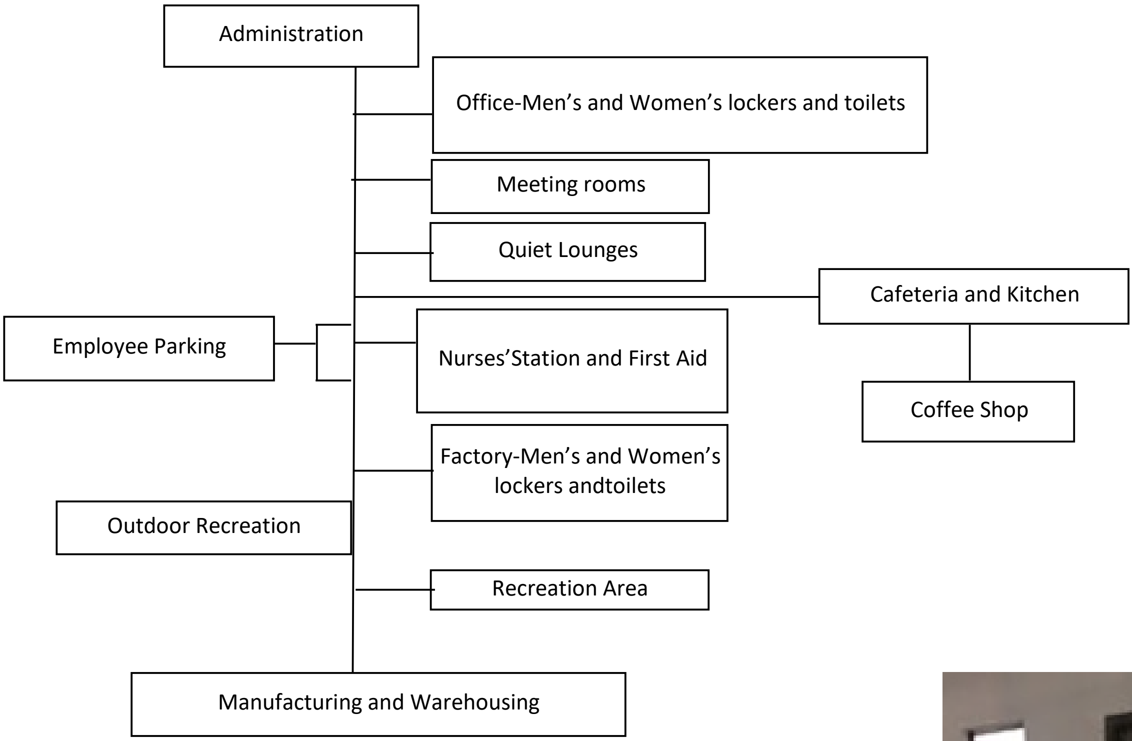
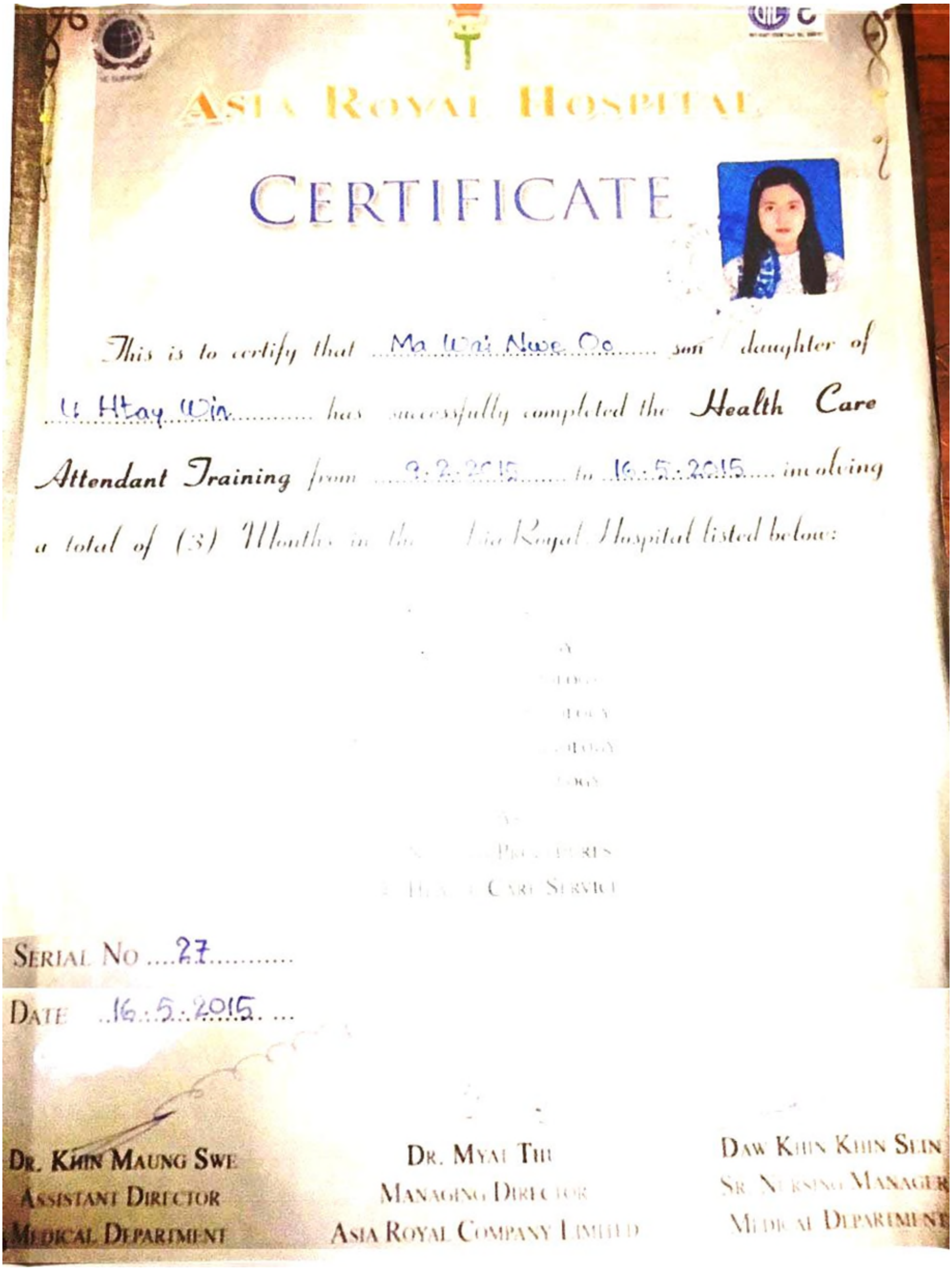


Figure 15: Employee facilities flow

They provide the rest room for the employee to rest comfortably. There is Mini clinic room for employees and toilets are clean and enough for all of the employees. According to floor plan of the Factory, there are sufficient facilities for the employee by giving dining room, and Rest room for necessary requirements. In Mini Clinic, there has been already assigned certified nurse who has more experience in first aid treatment for emergency and minor accident. In case if there's a serious case, factory management will arrange to transfer to Towhship Hospital.


ASIA ROYAL HOSPITAL

CERTIFICATE

This is to certify that Ma Wai Nwe Oo son / daughter of U Htay Win has successfully completed the Health Care Attendant Training from 9.2.2015 to 16.5.2015 involving a total of (3) Months in the Asia Royal Hospital listed below:

SERIAL NO ...27...

DATE ..16.5.2015...

DR. KHIN MAUNG SWE
ASSISTANT DIRECTOR
MEDICAL DEPARTMENT

DR. MYAT THU
MANAGING DIRECTOR
ASIA ROYAL COMPANY LIMITED

DAW KHIN KHIN SEIN
SR. NURSING MANAGER
MEDICAL DEPARTMENT

Dining Room

Dining areas should be clean, protected from the weather, and have enough seating for all the workers who may be on break at any one time. Use cleaning rags, not paper towels.

Use linen tablecloths and napkins in place of disposable ones.

Figure 16: Rest Room and Dining Room in SDI Manufacturing Garment Factory

Toilets

Toilet facilities has been provided with running water, and stocked with toilet paper (where culturally appropriate) and anti-bacterial soap or instant hand sanitizer at all times. This factory has been equipped with enough toilet facilities to serve the worker population. For example, if a factory employs many more female workers than males, it should provide more female toilet facilities than male toilet facilities. The factory must provide toilets that are clean and in good working condition for workers' use.

Figure 17: Toilets in Myanmar Unique Garment Factory

Drinking water

The factory has plenty of safe drinking water; it must be available, at no cost, to all workers at all times. Drinking Water has been purchased by SDI manufacturing garment Factory since factory construction period and Factory supports Purify Drinking Water for all employees in daily. (Free Support)

Figure 18: Drinking Water facilities for Employee

Good Housekeeping

Good housekeeping practices has been designed to maintain a neat, clean, and orderly factory. These are primarily measures to eliminate or reduce exposure of waste materials to precipitation runoff prior to disposal. These practices, when implemented on a routine basis during the course of work activities, minimize storm water contact with potentially polluting materials. Good housekeeping practices at the factory should include the following:

- Regular sweeping of the potential contact zone areas (e.g., trash dumpsters, materials storage and handling areas, loading docks, and outdoor processing areas
- Regular removal of garbage, trash, unusable equipment, and waste material from the factory waste yard.
- Storing materials away from direct traffic routes and in a manner that provides space for vehicles to maneuver.

Figure 19: Storing Materials and Waste Materials (Recycle)

Chemical Material Storage

Controlling material inventories to reduce quantities of materials stored and handled Routine inspection of potential contact zone areas for leaks or conditions that could lead to discharges of chemicals or fluids .Taking immediate action in the event a significant spill or release is detected, in accordance with established procedures Properly labeling material packages and containers to show the type and name of material or substance Staging, storing, or handling materials in areas that discharge to the wastewater treatment factory and not to the storm water drainage system Maintaining closed lids on dumpsters, other waste containers, and chemical storage containers, whenever practicable Maintaining dumpsters and other waste containers in good condition.

Emergency Shut-Off Switch:

A master Emergency Shut-Off Switch is located in an accessible area within sight of all dispensers. This switch is labeled and is maintained in working condition at all times.

Fire Extinguishers:

Fire extinguishers with a minimum rating of 2-A:20-B:C are located in accessible areas no further than 23 meters (75 feet) from pumps and dispensers. All extinguishers have been serviced within the last 12 months (verifiable via service tag).

Factories should keep records of emergency evacuation drills. These records should include details about the drill (e.g., the time the last person exited the building, an accounting of all workers, any issues noticed during evacuation, plans to correct such issues). Records should also be kept on the maintenance and testing of emergency equipment (such as fire extinguishers, lighting, alarms, etc.). Factories should post "Danger," "Warning," and "No Smoking" signs where needed, and in a language that all workers understand.

Fire Safety

Garment Factory includes in Factory Industrial F-1 Moderate- Hazard Group classified by fire service department

Table 5: General requirements for fire safety

Description	SDI Manufacturing Factory
Exit Discharge	All exit discharge at ground level directly into a safe exterior space
Exit Sign	All signage showing the emergency exit route can be visible.
Exit door opening	Always open
Water Tank for Fire	Four tanks
Fire Extinguishers	40 (2Kg), Small
Fire wire	News (good practices)

Table 6: Installation of firefighting equipment in selected Garment Industry

Fire Safety	Myanmar Unique Garment MFG Factory
Hose reel	Yes
Emergency generator	Yes
Emergency lighting	Yes
Exit signs	Yes
Firefighting & rescue stairways	No
Gas detection system	Yes
Underground static water storage tank	Yes
Terrace static water storage tank	Yes

(The general requirements for garment industry) Table 6: shows the firefighting equipment which should be in industries. By having those, it will protect the industries from fire hazards.

Exit discharge is the portion of a means of egress system between the termination of an exit and a public way. There are 3 Exits each for new building and existing building in this Garment Factory.

Figure 20: Fire extinguishers and alarms

Minimum Number of Exits

All rooms and spaces within each story have been provided with and have access to the minimum number of approved independent exits as required minimum number of approved independent exits as required by

Table 7: based on the occupant load [6]. As there are six exits and 500 employees (2 basic builing) in the SDI Manufacuring garment factory, Three Exits each are enough to emergency case for each building

Table 7: Minimum Number of Exits for Occupant Loads

Occupant Load	Minimum number of Exits
1-500	2
500-1000	3
More than 1000	4

Production space

The catwalk space can be seen to display their products and exhibition space in this industry. Lobby and private cabins for the customer service. Its hould be summarized by the followings:

The garment factory uses glass in façade of the building and front office which gives better lighting. Although many buildings are commonly seen in the garment factory, all of the zones in the production floor of their industry, there is enough circulation space and employees can work comfortably according to their machine layout which has been shown in figure;

Accommodation

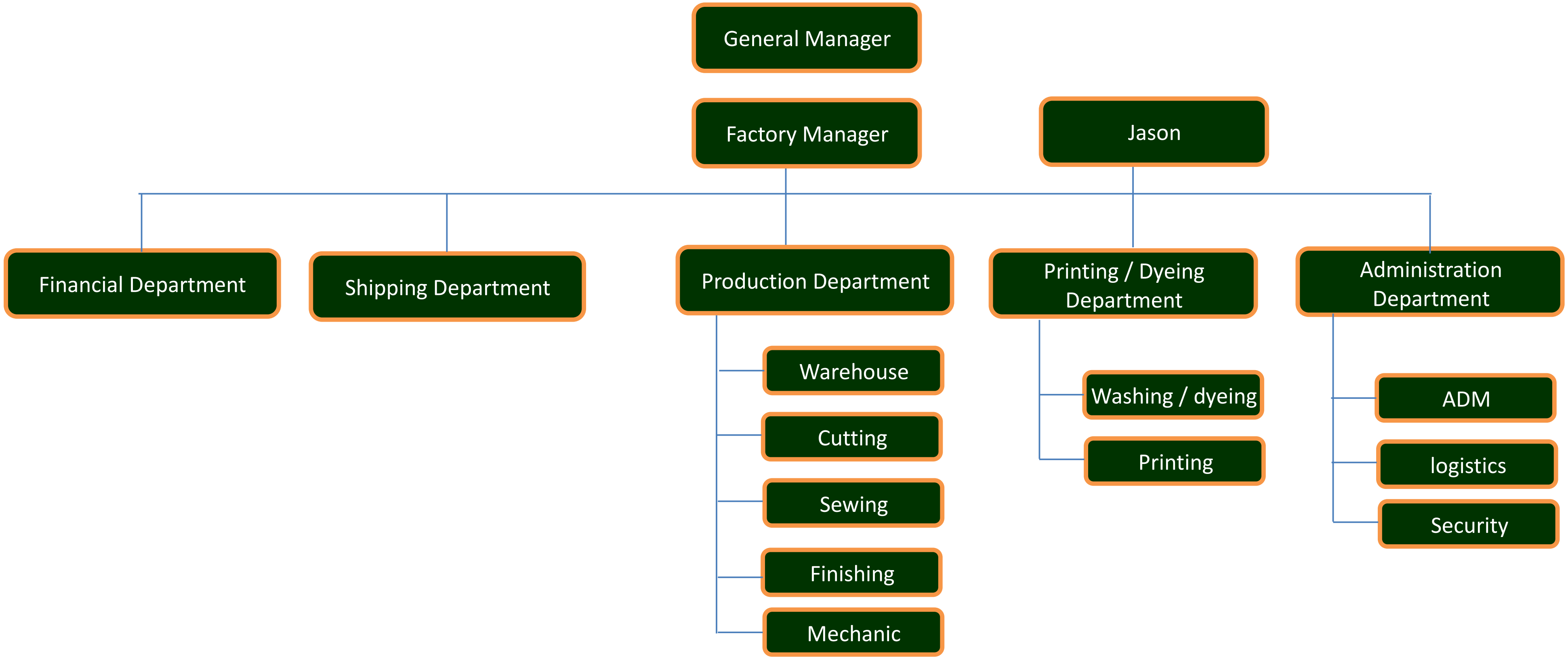
Currently 566 local employees are being employed **(Contracted EC)**, and most of them are from nearby Quarter around factory area. Also 11 Oversea employees are being employed. There is one Hostel for management employee in the factory compound (7.23 m x 30.4 m). Most of the employees are coming to factory and go home in the evening as only one shift operation from shift starts 8:00 AM to 5:00 PM, lunch break from 12:00 PM to 1:00 PM. SDI is responsible to arrange accommodation as well as meal for hostel. If the factory operation will have full strength operation, if necessary, the accommodation has to be managed for that employee who may necessary, following with the IFC Standards for workers accommodations, shown in 4.6 IFC Standards for workers' accommodation.

Ferry Buses

Ferry buses for transportation has been contracted with SDI Garment Factory. These Ferry buses are enough for the employees and that the transportation is good without wasted time.

The contract for hiring ferry buses has been mention in Appendix 10.

3.2.6 Factory Organization



3.2.7 The textile manufacturing process

The production of a textile starts either from natural fibers (for example wool and cotton) or from the production of man-made fibers (for example polyester and viscose). Mixed materials are also common. The next step is the production of yarns from the natural or synthetic fibers. Fabrics are produced of the yarns/fibers by different technologies (weaving, sewing, nonwoven technologies, braiding, tufting. The finishing processes, which includes several steps (pretreatment, not dyeing, printing, and finishing) then follows. Some textiles are coated or laminated. These process steps are not always in the same order. for example, can be carried out on loose fibers, on yarns, on fabrics, and on readymade textiles. The make-up (cutting, sewing and assembling) is the last step before selling in retail trade or whole trade and consumer use. Below figure describes a generalized picture of the textile process. Since most chemicals are used in the finishing step, focus is on this part of the process.

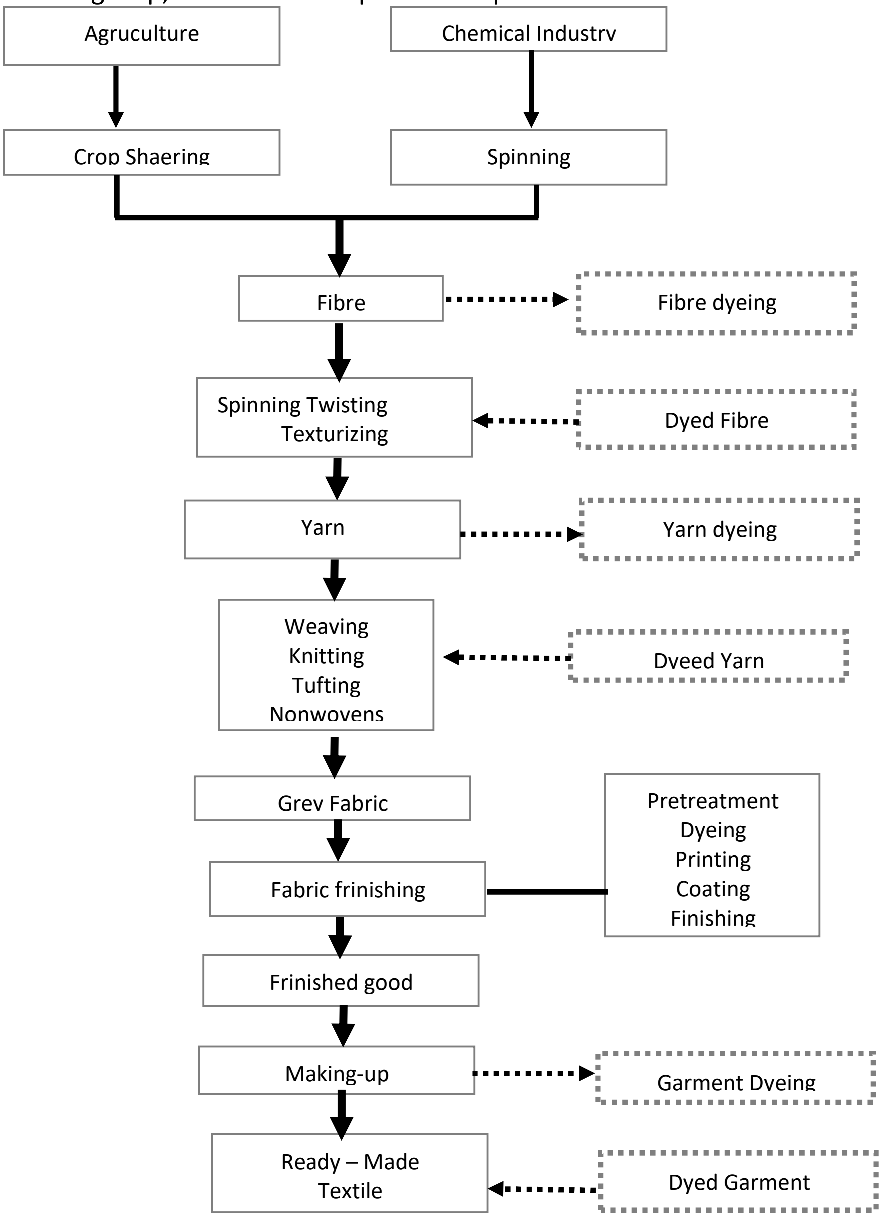


Figure 21: A simplified schematic picture of the textile manufacturing process

Nature and Process of Garment Industries

The following processes are generally seen in garment industries. These processes may be increased depending on the type of products, more detail facts and number of employees. Factory operation process has been mentioned in **Figure 23**.

Design or Sketch

In the garment manufacturing, the first step is designing the sketch for the dresses that have to be prepared. For this purpose, the designer first draws several rough sketches in the sketch book.

Pattern Design

The pattern maker now develops the first pattern for the designs in any one standard size. This is made by pattern drafting method and the purpose of making this pattern is to create the sample garment for test fit.

Sample Making

The first patterns are sent to the sewing unit for assembling them into garment. This is usually stitched which is an inferior quality of fabric and it reduces cost. This sample is constructed to analyze the pattern fit and design too. After the sample garment is stitched, it is reviewed by a panel of designers, pattern makers and sewing specialists. If any changes have to be made, they are made at this time.

Production Pattern

The pattern design is now taken for creating the production patterns. The production pattern is one which will be used for huge production of garments. The pattern maker makes the patterns on standard pattern making paper. These reports are made-up of various grades.

Grading

The purpose of grading is to create patterns in different standard sizes. Grading a pattern is really scaling a pattern up or down in order to adjust it for multiple sizes. Pattern sizes can be large, medium and small or else. There are standard patterns of size 10, 12, 14, 16 and so on for different figure and statures sizes. This is generally how we get small, medium, large, extra-large and extra extra-large sizing. Pattern grading by manual method is a cumbersome task because the grader has to alter the pattern on each and every point from armhole, to neckline, sleeve cap and wrist etc. by using CAD it is much easier and faster.

Spreading

With the help of spreading machines, fabric is stacked on one another in reaches or lays that may go over 100 ft (30.5 m) long and hundreds of plies (fabric pieces) thick.

Cutting

The fabric is then cut with the help of cloth cutting machines suitable for the type of the cloth. These can be band cutters having similar work method like that of band saws; cutters having rotary blades; machines having reciprocal blades which saw up and down; die clickers similar to die or punch press; or computerized machines that use either blades or laser beams to cut the fabric in desired shapes. Detail of cutting section has been mentioned in **Figure 24: Cutting Room Process Flow Chart**.

Sorting or Bundling

The sorter sorts the patterns according to size and design and makes bundles of them. This step requires much precision because making bundles of mismatched patterns can create severe problems. On each bundle there are specifications of the style size and the marker too is attached with it.

Sewing or Assembling

Process Flow chart of Sewing Operations:

The process flow chart of formal shirt sewing is shown in the following diagram. Numbers inside the circles represent operation name those are shown in the above table. Shirt parts are prepared first and later those parts are assembled one by one.

Washing

Washing is an essential work to remove dirt, spots, oil stains that accumulate to garment at the garment manufacturing processes and chemicals used during printing process and embroidery process and to soften the garment hands feel and improve bulkiness. The types of washes are heavy enzyme or vintage wash, cloud wash, stone wash, acid wash and so on.

Inspection

Open seams, wrong stitching techniques, non- matching threads, and missing stitches, improper creasing of the garment, erroneous thread tension and raw edges are some of the sewing defects which can affect the garment quality adversely. During processing, the quality control section needs to check each prepared article against these defects.

Pressing or Finishing

The next operations are those of finishing and/or decorating. Molding may be done to change the finished surface of the garment by applying pressure, heat, moisture, or certain other combination. Pressing, pleating and creasing are the basic molding processes. Creasing is mostly done before other finishing processes like that of stitching a cuff. Creasing is also done before decorating the garment with something like a pocket, appliqués, embroidered emblems etc.

The function of vertical and form presses is made by automated machines. Perform simple pressing operations, such as touching up wrinkles in knit shirts, around embroidery and snaps, and at difficult-to-reach places on garments.

Final Inspection

For the textile and apparel industry, product quality is calculated in terms of quality and standard of fibers, yarns, fabric construction, color fastness, designs and the final finished garments. Quality control in terms of garment manufacturing, pre-sales and posts sales service, delivery, pricing, and so on are essential for any garment manufacturer, trader or exporter. Certain quality related problems, often seen in garment manufacturing like sewing, color, sizing, or garment defects should never be over looked.

Packing

The finished garments are finally sorted on the basis of design and size and packed to send for distribution to the retail outlets.

Figure 22: Cutting, Sewing, and Finishing and Production Space

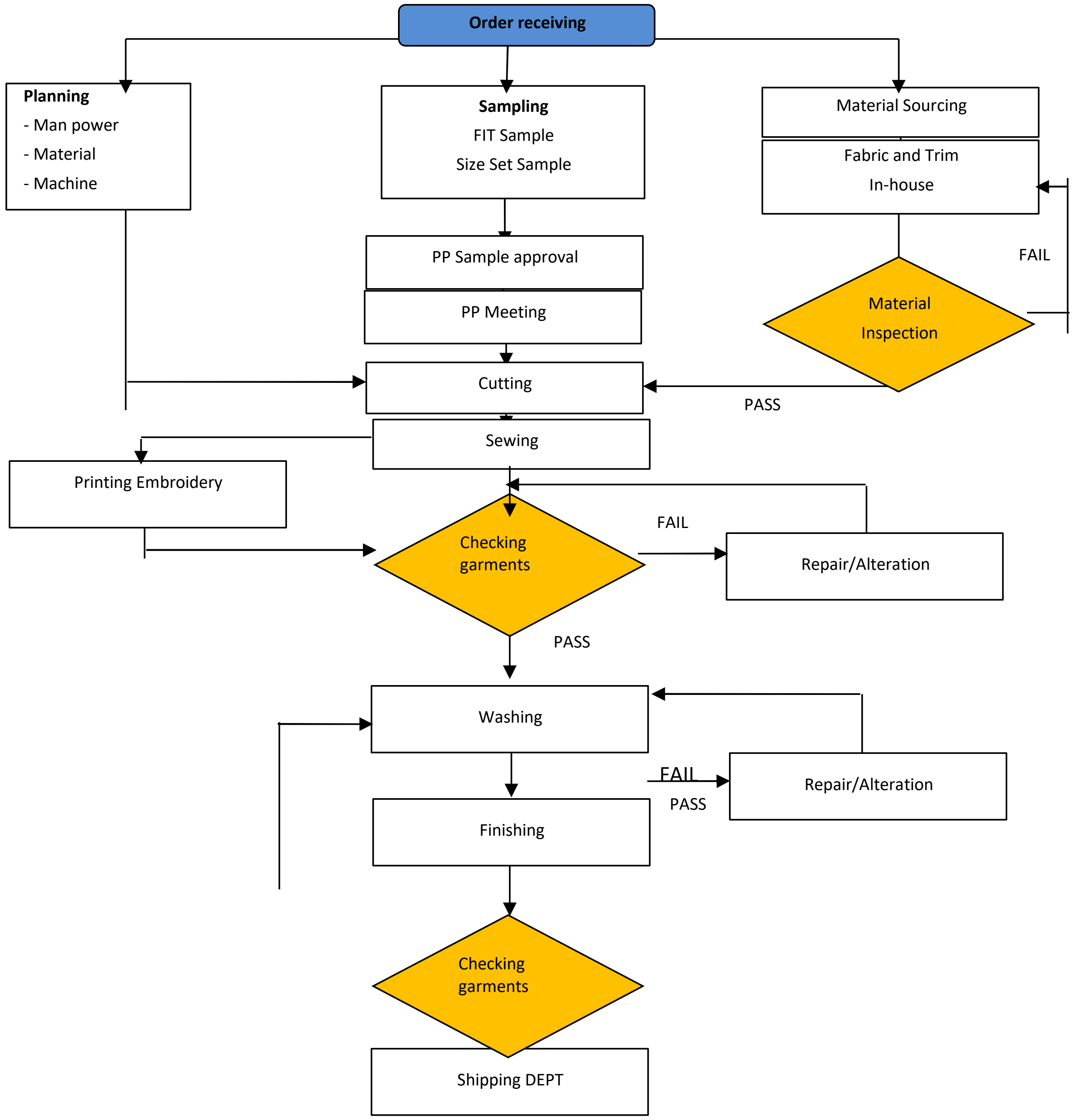


Figure 23: Factory Operation at SDI Manufacturing Garment Factory

Cutting Section Details

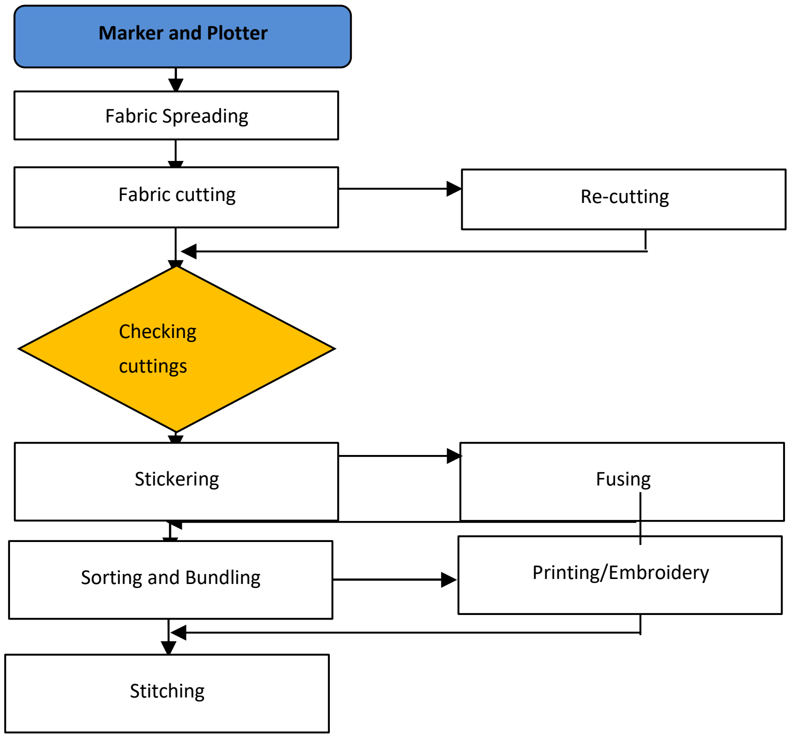


Figure 24: Cutting Room Process Flow Chart

Marker type Manual

Method of fabric inspection	:	Four-point grading system using fabric inspection machine
Spread checking	:	100% check during spreading
Cut piece checking	:	100% check of component from Cut block.

Procedures for cutting

After getting approval to start cutting, cutting staff will open all rolls of fabric required for days cutting at least 24 hours prior to commencement of cutting for the purpose of fabric setting. This fabric setting is required to make the fabric return to its actual shrink form. After setting of the fabric, laying of fabric if laying single color then paper separator to be used to separate each roll, if laying other colors too, then will use different color to separate rolls. This will reduce shading problem. The lay height not by any means exceed above 3"

Before start Cutting:

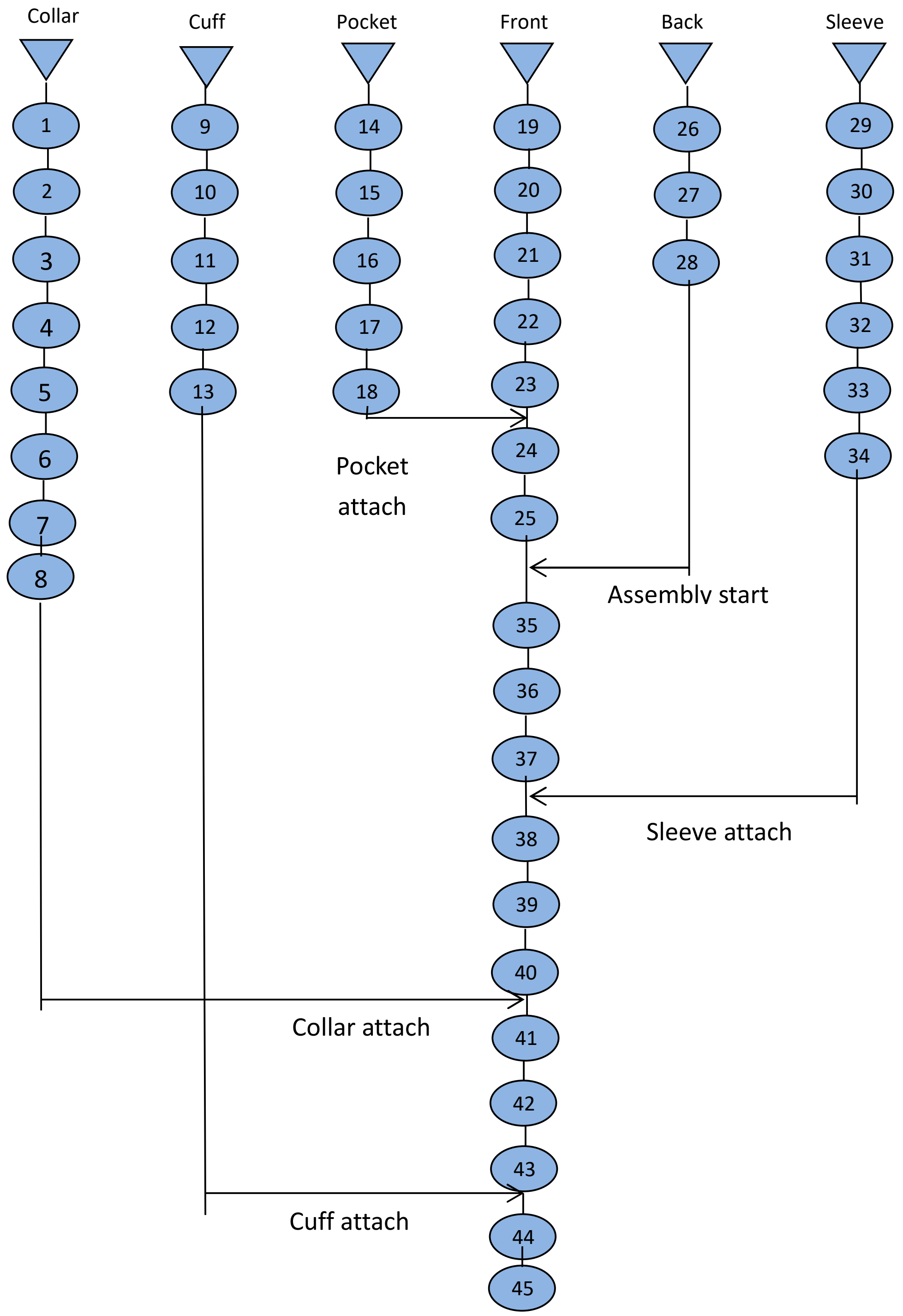
- Check that the marker is placed on the spread with edge parallel to the selvage of the piece goods. Verify that all cut pieces will complete. Also check that no markers are creased.
- Check for shading. Unless all parts are marked, it is essential to have a system to control shading.
- Check the sharpness of the cutting machine blade, do not use blunt blades, this will damage the fabric.
- While cutting the fabric make sure that: Cutting tolerance will exceed 1/32 of an inch.

During spreading cutting quality will fill-up the Spread check list. Will mark all defect parts during lying and will report in spread defect format. After cutting each cut blocks has to be checked by hard pattern. The cut block is to be placed in between two hard patterns and have to check for Miss Cuts, Matching plies, Notches.

Cut block inspection:

Cut block inspection is made and recorded as per cutting component replacement report. The defect components have to be replaced immediately and placed in the layer from where rejected. This has to be recorded strictly.

Shirt Making: Stitching Operation Flow Chart



Quality Defects Grades

Grade	Quality Audit Defects Definitions	Examples
Critical	A defect that would make the garment a second; would seriously shorten the life of the garment or would, if sold, resulting the garment being returned for full credit.	Holed Fabrics
Major	A defect which would be noticed by customer and would cause dissatisfaction.	Loose button
Minor	A defect which a customer would not notice but which manufacturer does not like and would put right.	Incorrect Positioning of label

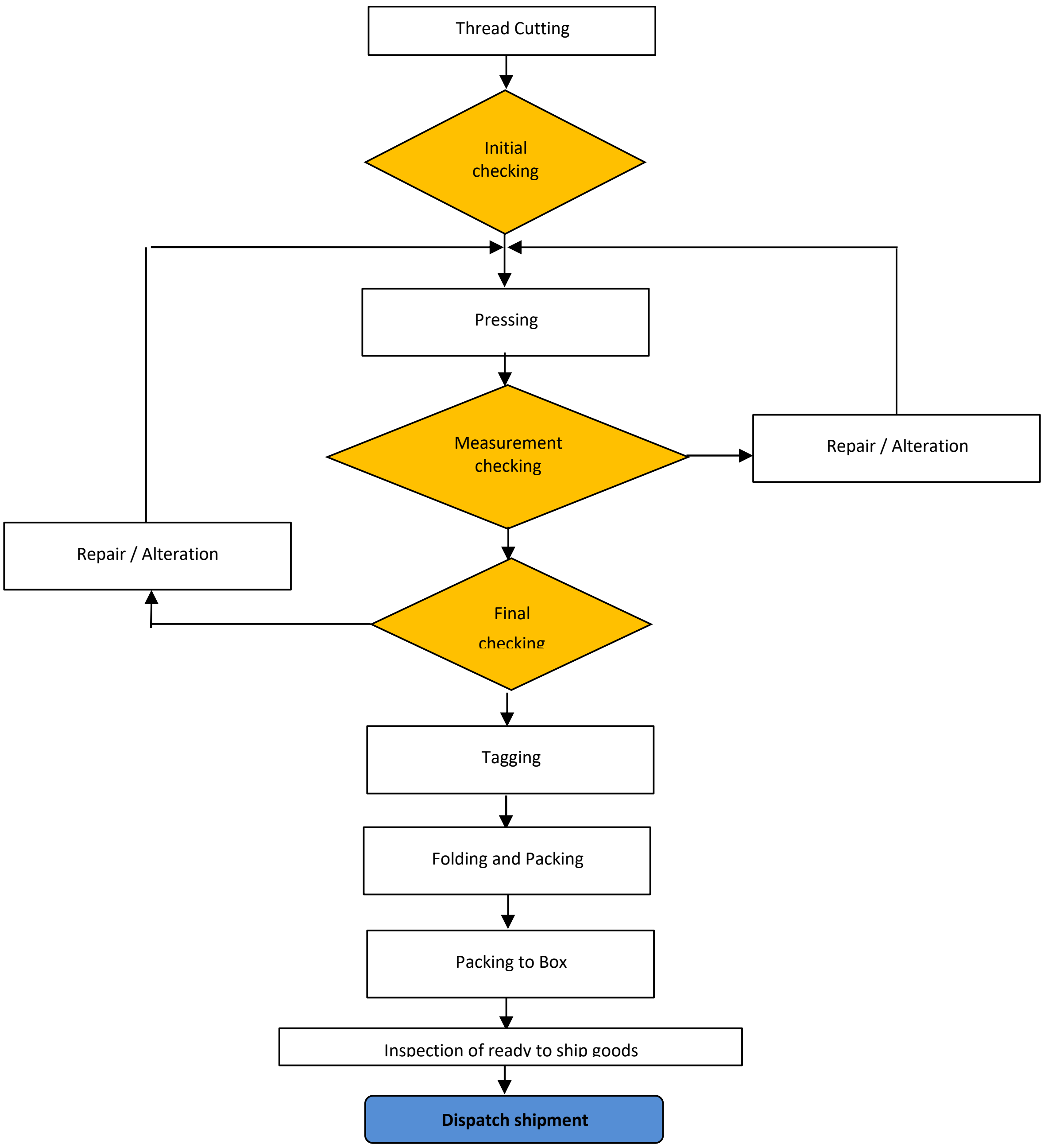


Figure 25: Finish Products Flow Chart

Finishing Activities:

Inside Processing:

Inside Process checkers check 100% of the garment from inside after thread cutting. The main things to be checked from inside is to check for; open stitch, open seam, missing Bar- tack etc. Inside Process checkers may need to trim uncut thread but not on regular basis as a thread trimmer. All defects are to be recorded in Process Checker hourly Defect Record Sheet.

Outside Process Checker's Job:

Outside Process checkers checks 100% of the garment from outside after Ironing, so if there are any oil spots, then it is very easy to identify and rectify. Outside Process checkers work in a group. Three outside process checker form one group. Procedure for Outside Process of the three checkers one will check front part; second person will check back part and third will check overall and will take 100% measurement of important part. For example, if trouser: Waist, inseam, out seam. If shirt: Front part etc. All defects are to be recorded in Process Checker's Hourly Defect Record Sheet.

Printing Processes:

Style of Printing:

Style refers to the manner in which a particular action is performed; thus, style of printing means the manner in which a printed effect is produced as distinct from the method which involves the means by which the pattern is produced. Style of printing involves certain mechanical operation and chemical reactions.

There are five main methods of printing a fabric, these being the block, roller, screen, heat transfer and ink-jet methods. The heat transfer method differs from the others in that it involves the transfer of color from the design printed on paper through the vapour phase into the fibres of the fabric. With the other methods the dye or pigment is applied to the fabric surface through a print paste medium. The ink jet printing process however is a comparatively recent innovation and is referred to as a 'non-impact' method, because the print paste is fired on to the textile from a jet which is not actually in contact with the fabric. In this SDI manufacturing, it has been only used blocking printing.

Block Printing:

The blocks are usually made of wood and the design is hand carved, so that it stands out in relief against the background surface. The print paste is applied to the design surface on the block and the block then pressed against the fabric. The process is repeated with different designs and colours until the pattern is complete. Block printing is a slow, laborious process and is not suitable for high volume commercial use. It is a method still practised in the oriental countries where markets exist for the types of printed fabrics produced.

Roller Printing:

Roller printing has traditionally been preferred for long production runs because of the very high speeds possible. It is also a versatile technique since up to a dozen different colours can be printed simultaneously. The basic roller printing equipment, shown in below figure, consists of a number of coppers faced rollers in which the design is etched. There is a separate printing roller for each colour being printed. Each of the rollers rotates over the fabric under pressure against an iron pressure roller. A blanket and backing cloth rotate over the pressure roller under the fabric and provide a flexible support for the fabric being printed. A colour doctor blade removes paste or fibres adhering to the roller after contact with the fabric. After the impression stage the fabric passes to the drying and steaming stages.

Screen Printing:

This type of printing has increased enormously in its use in recent years because of its versatility and the development of rotary screen-printing machines which are capable of very high rates of production. An additional significant advantage is that heavy depths of shade can be produced by screen printing, a feature which has always been a limitation of roller printing because of the restriction to the amount of print paste which can be held in the shallow depth of the engraving on the print roller. Worldwide, some 61% of all printed textile fabric is produced by the rotary screen method and 23% by flat screen printing.

There are two basic types of screen-printing process, the flat screen printing and the rotary screen printing methods.

Heat Transfer Printing:

Transfer printing techniques involve the transfer of a design from one medium to another. The most common form used is heat transfer printing, in which the design is printed initially on to a special paper, using conventional printing machinery. The paper is then placed in close contact with the fabric and heated, when the dyes sublime and transfer to the fabric through the vapor phase.

Ink-Jet Printing:

There has been considerable interest in the technology surrounding non-impact printing, mainly for the graphic market, but the potential benefits of reductions in the time scale from original design to final production has led to much activity in developing this technology for textile and carpet printing processes. The types of machines developed fall into two classes, drop-on-demand (DOD) and continuous stream (CS).

Figure 26: Printing Process in SDI manufacturing Garment factory

Washing Process

The technology which is used to modify the appearance, outlook comfort ability and fashion of the garments is called garment washing.

Depending on garments construction different types of washing process can be done.

1. Twill/Canvas/Knitted/Corduroy - Normal wash, Pigment wash, Caustic ,Si wash
2. Denim/Jeans/Gabardine - Enzyme wash, Stone wash, Bleach wash , Acid wash
3. Grey fabric- Super white wash

Objects of Garment Washing:

Garment washing is the best touch of a garment. Same type of garments can produce several effects for several wash. Like this:

1. To create wash, look appearance, seems the new touch of fashion.
2. By the washing technique, faded/old, color or tinted affect.
3. Washing technique creates new fashion such as tagging, grinding, destroy, blasting, whickering, permanent wrinkle, deep dye, tie dye, p.p spray, hand crapping, p.p spoonzing etc.
4. To reduce size materials that imports soft hand feels.
5. To attraction the customers/buyer by different types of fashionable washing and market development.
6. Due to washing, shrinkage occurs in the garments. There is no possibility of further shrinkage of the wash garments.
7. Any dirt, spot or germ if added in the garment's during manufacturing is also removed due to washing.

Advantages of Garment Washing

1. Starch materials is present in the new fabrics of the new garment are removed, hence feels soft during use.
2. Softness feeling of garments could be further increased. Washed garment could be wear directly after purchase from store.
3. Fading affect is produced in the garment in regular or irregular pattern.
4. Fading affect could be produced in the specific area of the garment as per specific design.
5. Different outlook of garment could be produced in the garment by different washing techniques.

6. Similar outlook can be produced in the garments by different washing techniques.
7. Initial investment cost to set up a garment washing plant is comparatively lower.
8. Dirts and spots if present in the garment are romoved.
9. Shrinkage occurs in the garment washing, hence no possibility of further shrinkage.

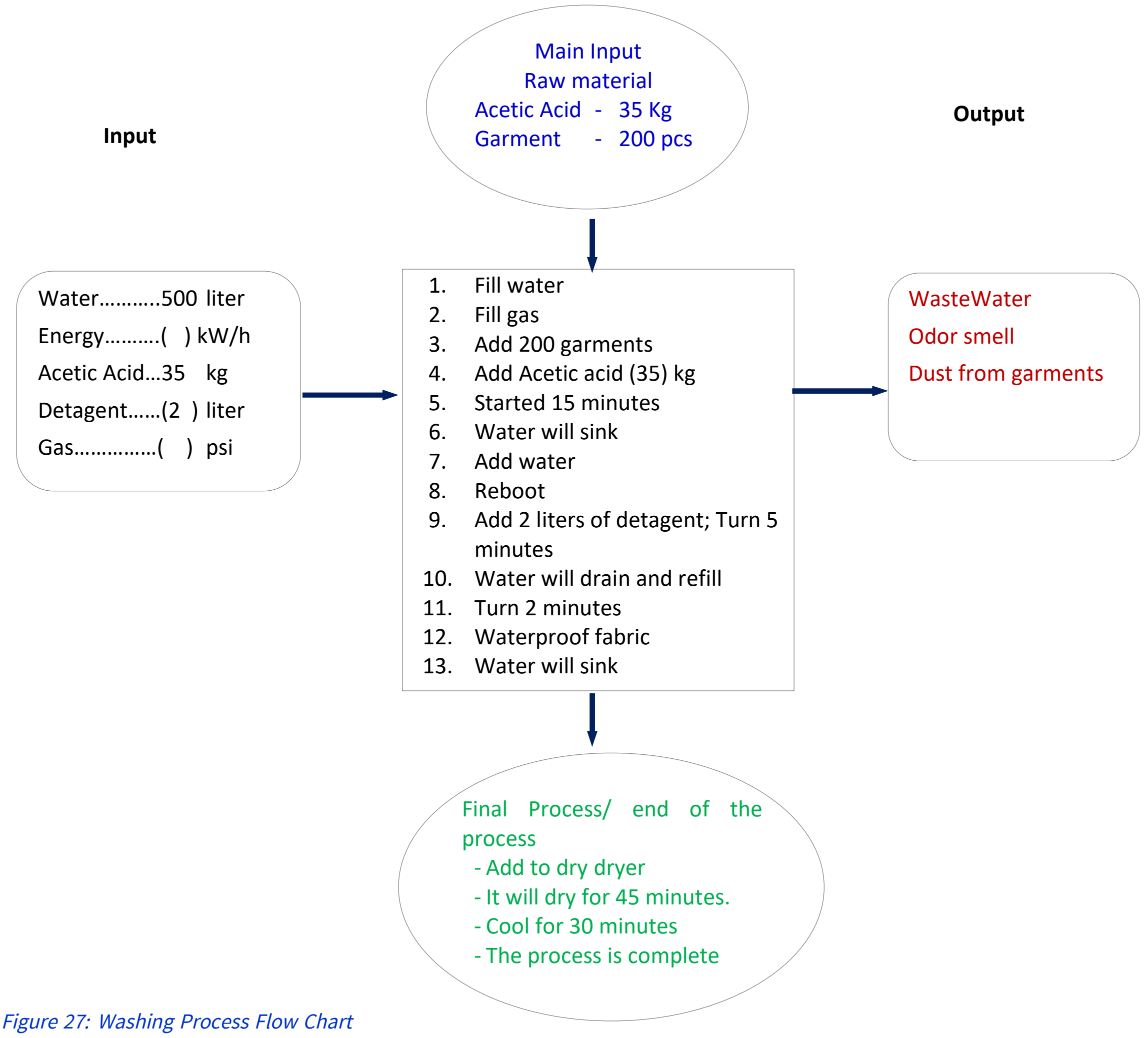


Figure 27: Washing Process Flow Chart

3.2.8 Project Control & standard

Quantity control & standard:

The quantity of garments mainly depends on quality of fabric used. Therefore, care must be taken while purchasing fabrics to ensure good colorfastness properties, uniformity in shade etc. Generally, garments are made as per customer's specification in respect of size, design and fashion.

Sr.No	SHE Policy	Title
1.	IS:12675	Garment Quality Guide
2.	IS:4039	Readymade Garment Packaging of Export
3.	IS:10194	Garment Guide for Positioning of Labels

SHE Policy

ISO 9000	:	Quality Control of Service for Product
ISO 9001	:	Design
ISO 9002	:	Production
ISO 9003	:	Audit
ISO 14001(Registered)	:	Own Policy of EMP (PDCA – Plan , Do, Check, Act)

OHSAS 18001 : Safety and Environment

The proportion of demand for CMP raw materials and finished products

Description	Standard raw material requirement	Product Products Quantity
1. Shirt (Long)	1.8 yards/ pc	720000 Pc
2. Shirt (short)	1.6 yards/ pc	480000 pc

It is complying with import quantity

Income	CMP rate	Standard rate
1. Shirt (long)	13.2 USD / Dozen	10 – 12 USD / Dozen
2. Shirt (Short)	12 USD / Dozen	10 – 12 USD / Dozen

Production Rate		
1. Shirt (long)	1 production line	1700 pc / 10 hours
2. Shirt (short)	1 production line	1560 pc / 10 hours

Yearly Production (working Day)	**310 days**
527000 Pc	**Shirt (long) / year**
483600 pc	**Shirt (short) / year**

3.2.9 Supporting Operations

As is the case with many industries, garment manufacturing requires multiple support operations to enable production in the facility. Many of these support operations are common to any manufacturing industry, such as administrative functions, facility and equipment maintenance, and boiler and backup power generator operation. The garment factories also commonly operate and maintaining on-site employee dormitories. Often the scale of the support operations is proportional to the production of the facility.

Administrative Offices

The administrative offices associated with a garment manufacturing facility are typically proportional to the size of the manufacturing operation (i.e., larger factories require more administrative support). Administrative staff manages corporate functions such as human resources, finance and accounting, billing, health and safety, and environmental compliance. Offices are equipped with basic technologies and amenities, such as computers, facsimile machines, printers, filing equipment, desk space, and meeting rooms. In some instances, retail customers may also maintain on-site administrative space for quality assurance personnel.

Steam Generation

All garment factories had an on-site boiler to centrally generate steam for ironing. In most facilities, the ironing boards are attached to a ventilation system that captures the heat emitted from the iron and exhausts it to the outside environment. The quantity and size of boiler (one-ton small boiler) located on-site is proportional to the manufacturing operation.

There is one 1.25 MPa, boiler and one 1 MPa Boiler (Total two) in the factory. These boilers are burnt by firewood and used for ironing and printing department.

Joints, valves and some areas of steam network are insulated.

Although factory has existing water condensate system, the condensates are not recycling to the boiler in-feed water tank. The current practice is factory drains out the condensate return to outside of factory compound.

Power Generation

SDI Manufacturing Co., Ltd's Factory has been utilized electricity from Yangon Electricity Distribution Committeefrom 11 KV transmission line and operated with one generator (429 HP + 330 kVA) for use during

power outages as auxiliarly.

3.3 Use of materials and resources

List of Machine

Table 8: Machinery and Equipment to be imported

Sr.	Name	Unit	Qty	Price (USD)	Amount (USD)
1.	Double needle flat sewing machine	Set	9	1,500	13,500
2.	Double needle flat sewing machine with tow	Set	3	600	1,800
3.	Zigzag stitch sewing machine	Set	3	1,500	4,500
4.	Felt seam sewing machine	Set	3	6,000	18,000
5.	Piping cover stitch machine	Set	8	1,500	12,000
6.	Cover stitch machine	Set	21	1,500	31,500
7.	Waist band sewing machine	Set	2	1,700	3,400
8.	Fusing machine	Set	1	1,700	1,700
9.	Cutting table 15 m x 2.2 m	Set	1	1,500	1,500
10.	Cutting table 15 m x 1.8 m	Set	1	1,500	1,500
11.	Cutting fabric machine	Set	4	500	2,000
12.	Electronic scissors	Set	6	500	3,000
13.	Cutting gloves	Set	6	50	300
14.	Flat sewing machine	Set	134	500	67,000
15.	3 threads over lock	Set	6	1,000	6,000
16.	5 threads over lock	Set	12	1,000	12,000
17.	Flat sewing machine with cutter	Set	6	600	3,600
18.	Button eyelet machine	Set	1	15,000	15,000
19.	Bar tack machine	Set	4	3,500	14,000
20.	Button hole machine	Set	2	1,500	3,000
21.	Sewing button machine	Set	2	3,500	7,000
22.	Blinding machine	Set	1	300	300
23.	Winding thread machine	Set	1	100	100
24.	4 threads over lock	Set	40	700	28,000
25.	Single needle chain back sewing machine	Set	3	500	1,500
26.	Double needle chain back sewing machine	Set	4	500	2,000
27.	Die cutting machine	Set	8	150	1,200
28.	Boiler	Set	1	1,000	1,000
29.	Irons	Set	12	100	12,00
30.	Irons	Set	8	50	400
31.	Electronic weight	Set	1	1,00	1,00
32.	Gas compressor	Set	1	1,000	1,000
33.	Heater	Set	1	9,000	9,000
34.	Pressing machine	Set	6	4,000	24,000
35.	EMB machine list	Set	4	70,000	28,000
36.	Laser cutter	Set	1	9,000	9,000
37.	Compressor	Set	1	1,000	1,000
38.	Punching machine	Set	1	20,000	20,000
39.	Drying machine	Set	5	3,000	15,000
40.	Washing machine - big	Set	2	7,000	14,000
41.	Washing machine – medium	Set	1	4,500	4,500
42.	Washing machine – small	Set	1	2,500	2,500
43.	Centrifugal machine	Set	1	4,500	4,500
44.	Boiler	Set	1	9,000	9,000
45.	Generator (500 kVA)	Set	1	50,000	50,000
46.	Fabric inspection	Set	2	1,800	3,600
47.	Needle detector	Set	1	2,500	2,500
48.	Strapping machine	Set	2	200	400
49.	Washing machine	Set	1	1,000	1,000
50.	Paper pattern plotter	Set	3	1,000	3,000
	Total		**350**		**712,100**

Investment Value

USD 0.988 Million for Manufacturing of various designs of on CMP Basis (mentioned in **2.3 Project Proposal Informations and Investment Status)**

Employment for Factory

Table 9: List of proposed Local Employee (Year 1 to Year 2)

Sr No.	Designation	Number of Person	Basic Pay (kyats) (in thousand)	Estimated Annual cost of Employees
	Foreign Personals			
1.	Expariates (Quality Controllers)	20		
	Local Personnel			
1.	General Manager	1	250	3,000
2.	Factory Manager	1	200	2,400
3.	Financial Manager	2	200	4,800
4.	Marketing Manager	2	150	3,600
5.	Clerk	5	120	7,200
6.	Office Staff	30	120	43,200
7.	Skill Workers	167	120	240,480
8.	Un-skilled Workers	230	100	276,000
9.	Driver	20	120	28,800
10.	Guard Man	15	90	16,200
	Total			
	Convert US$ In Million	493		625,680

Remarks:

1. **For the purpose of smooth operation, expatriates (quality controllers) will be appointed and their salaries will be provided by foreign buyer company**
2. **Salaries of local personal will be increased 2% per year**

Employment Contract

Employment and Skills Development Act, 2013, workers in the employment agreement are set to begin work on a responsible contract within 30 days.

During the period of apprenticeship, EC Contract has to be contracted between Employer and Employee.

SDI Manufacturing Co., Ltd has been contracted EC to about all local employees, before assigned to them, as Myanmar Unique is being in the implementation stage depends on the buyers purchasing order condition instead of full strength of Local employees.

Type of Raw Materials Finished Product and Production Program

The CMP system is a form of production on consignment in which the main raw materials (fabrics, ancillary materials, etc.) are provided by overseas buyers and imported free of charge, then cut, sewn and packed in the domestic factories, after which all of the finished products are exported.

In Myanmar, most firms in the garment industry operate on the basis of cutting, making, and packing (CMP) arrangements.

Depends on the release order notification (inward processing and bonded transportation) of oversea client, SDI manufacturing garment factory has to manufactured garment product, and export to designated places.

Receiving on quantities of finished products order is depened on comply with the oversea client company requirement such as factory organization, specification, standards, environment conservation of the factory location.

For SDI manufacturing garment factory, CMP Basic Manufacturing of products estimated total production is 600,000 pcs padded jacket, t-shirt, cargo shirt, and cargo pant (woven & knit) per year-1 on export sale (99%) and monthly production is approximately 50,000 pcs / day, depends on release order notification (inward processing and bonded transportation) of client which are manufactured from estimated raw 200,000 meters of 92% cotton, 8% elastane pile and 100% polyester double knitted fabric per year.

interlining, button, labels, hanger, security tag, hangtag, collar size reader, collar insert, collar bone, butterfly, sticker, thread, neck board, back board, tissue paper, photo inlay, plastic clip, pin, poly bag, clips, barcord sticker hanger, badge, tape, carton, ribber, and woven tape are other required raw materials.

Monthly raw material especially (92% cotton, 8% elastane pile and 100% polyester double knitted fabric) usage and production of finished products for 2022 up to August is shown in the table below.

Table 10: Estimated Raw Material Consumption and average production of finished Products

Sr.	Month	Raw Material (meter)		Finished Products (pcs)	
		Monthly	Daily Average	Monthly	Daily Average
1.	January	37938.5	1517.54	37794	1510
2.	February	12075.9	548.86	64612	2585
3.	March	11290.6	564.50	18529	926
4.	April	31168.5	1442.43	2198	147
5.	May	0	8112.25	7054	470
6.	June	6549	15775.00	16223	650
7.	July	17415	696.60	21088	845
8.	August	32980.9	1319.236	19159	760
	Total	**149418.4**	8200.00	**186657**	1067

Figure 28: Raw Material Warehouse

Figure 29: Finished Products Warehouse

According to the CMP Basis manufacturing of products, the example of raw material import procedure and export procedure has been mentioned below;

Receiving Raw material and finish products shipment program

Import

Currently SDI Manufacturing Co., ltd is provided CMP Basis raw material from Winer Enterprises Limited from Room 803/8F, Yee Kuk Indusrrial Center, 555 Yee KUK Street, Cheung Sha Wankln, Hong Kong and imported via seafreight. Below are some raw materials imported documents from Winer Enterprises Limited, to SDI manufacturing Co., Ltd. These imported documents were references of loading from Port of Tanjung Pelepas Malaysia and Port Kelang Malaysia.
The incoming raw materials are transported to the factory by trucks through the relevant port.

Release order notification (Inward processing) and bonded transportation 1 /

Representative HS	Type of import	Selectivity	Necessity of original document	Declaration No.
5514 -	INP - - T1 - 2	1	R	100132389930

Customs station A1 - HEAD QUARTER Section 04

Declaration date 2020/01/13 19:08 Special order application date / / :

Mode of transport 1 Declaration condition Expected declaration date 2020/01/13 Formal

Importer CSGJW5HU37-000SDI MANUFACTURING CO., LTD.

Address NO.40, NGWE PIN LAE MARINE INDUSTRIAL ZONE, HLAING THARYAR TOWNSHIP, YANGON,MYANMAR TEL: 95 01 613909 ATTN: MS WANG

Postcode Telephone 09456791122

Consignor - WINNER ENTERPRISES LIMITED

Address ROOM 803/8/F,YEE KUK INDUSTRIAL CENTRE,555 YEE KUK STREET,CHEUNG SHA WAN,KLN,HONG KONG

Postcode Country HK

Agency 1008R THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Customs broker code 531903

B/L (AWB) No.	MCPU588988888	Packages	587 RO
MAWB No.	-	Warehouse	A1Y011 - MITT
Unloading	MMTLATHILAWA	Gross	13,970.000 KGM
Loading	MYTPPTANJUNG PELEPAS	Net	13,678.700 KGM
Voyage No.		Arrival location	A1M329 - SDI MANUFACTURING
Conveyance	MV.FILOTIMO	Total containers	1 Container cargo C
Arrival date	2020/01/11	First approval declaration No.	Date / /

Marks and Nos. N/M MADE IN CHINA

OGA TEST After release order

Import license/approval

(01) ILNS ILC192002500
(02) ILNS ILC192000848
(03)
(04)
(05)
(06)
(07)
(08)
(09)
(10)
(11)
(12)

Invoice A - 20191229

Electronic No.

Invoice price A - CIF - USD 33,948

(MMK) 50,229,460.8

Freight - -

Insurance - -

Comprehensive insurance No.

Adjustment 0

Comprehensive adjustment No.

Correction Formula

Adjustment value - -

Total customs value 50,229,460.8

(USD) 33,948

Total item value 33,948.0000

Origin Inform to customs A

Taxes and fees

Code	Name	Total amount	Number
CD	IMPORT/EXPORT CUSTOMS DUTY	0	3
CT	COMMERCIAL TAX	0	3
AT	ADVANCED INCOME TAX	0	*
SF	SECURITY FEE	20,000	*
MF	MACCS SERVICE FEE	30,000	*

Total

Exemption/Reduction 11,050,481

Taxes and fees 50,000

Security 0

Exchange Rate (1) USD - 1,479.6

(2) -

(3) -

Deferred payment

BP reason

Deposit C

Total pages 3

Total items 3

Selectivity (1) ...

Notes1

Notes2

Release order notification (Inward processing) and bonded transportation 2 / 3

presentative HS 5514 | Type of import INP - - TI - 2 | Selectivity 1 | Necessity of original document R | Declaration No. 100132389930
stoms station A1 - HEAD QUARTER Section 04
claration date 2020/01/13 19:08 Special order application date / / :

ivanced Income tax
Value/Amount Rate 50,229,460.8 2% 0
Exemption/Reduction Code Reference ERMARAW MATERIALS FOR CMP Amount 1,004,589

her taxes/fees
Type MF Amount 30,000
SF 20,000
Exemption/Reduction Code Reference Amount

) PVRD Vehicle SF Declaration No. For goods to be paid to

er Type A
Code 1008R
Company THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Name U HLA MIN

Type of ID NRC ID No. 12/YAKANA(N)045029 Issuing country MM
iereby certify that this declaration is true and complete. Authentication AGREE

ie reference of customs decision
STRUCTION OF CUSTOMS DEPARTMENT - 36/2012

istoms chief officer name or station name DIRECTOR OF IMPORT AND EXPORT CONTROL DIVISION

elease order 2020/01/13 Declaration completion 2020/01/13
eferred payment limit / / Examination completion 2020/01/13 Post examination
ntil TBP completion
pecial Order Approval / / Non-approval / /
ate of bonded transportation 2020/01/13 - 2020/01/14

. 001 HS 5514.49.00 00 - 5 - Reconfirmation the amount
m name SHELL:94% COTTON 6% ELASTANE,PILE:100% POLYESTER DOUBLE KNITTED

Quantity (1) 11,263.70 KG
Quantity (2) 16,938 M

m value 25,407
voice unit price 1.5 / M Customs value 37,592,197.2
(USD) 1.5 (USD) 25,407
(MMK) 2,219.4
stoms quantity for specific duty
it price of customs value 3,337.46 / KG

stoms duty rate M- 15%
stoms duty Amount 0 Self-calculate customs value
Origin CN- CHINA Customs duty type M
Exemption Reduction) ERMD 5,638,829.58 RAW MATERIALS FOR CMP

Code Value/Amount Rate/Reference
ECIFIC GOODS TAX
37,592,197.2 0%
0
(Exemption Reduction)

(Exemption/Reduction)
mmercial tax 37,592,197.2 5%
0
(Exemption/Reduction) ERMT 1,879,609.86 RAW MATERIALS FOR CMP

Release order notification (Inward processing) and bonded transportation

Representative HS	Type of import	Selectivity	Necessity of original document	Declaration No.
5514	INP - - T1 - 2	3R	R	100134693410

Customs station A1 - HEAD QUARTER Section 04

Declaration date 2020/01/31 12:30 Special order application date / / :

Mode of transport 1 Declaration condition Expected declaration date 2020/01/31 Formal

Importer CSGJWSHU37-000 SDI MANUFACTURING CO., LTD.

Address NO.(3)MAIN ROAD, NGWE PIN LEI INDUSTRIAL ZONE PLOTNO.40 MYAY TAING QUARTER NO.24, HLAING THARYAR TOWNS HIP, YANGON, MYANMAR**

Postcode Telephone 09456791122

Consignor - WINNER ENTERPRISES LIMITED

Address ROOM 803, 8/F, YEE KUK INDUSTRIAL CENTRE, 555 YEE KUK STREET, CHEUNG SHA WAN, KLN, HONG KONG

Postcode Country HK

Agency 1008R THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Customs broker code 531903

B/L (AWB) No.	11HIS08AA50264	Packages	529 RO
MAWB No.	-	Warehouse	A1Y001 - HPT
Unloading	MMRGN YANGON	Gross	12,728.900 KGM
Loading	MYPKG PORT KELANG (SWETTEN	Net	12,570.200 KGM
Voyage No.		Arrival location	A1M329 - SDI MANUFACTURING
Conveyance	MV. PACAO	Total containers	1 Container cargo C
Arrival date	2020/01/30	First approval declaration No.	Date / /

Marks and Nos. MADE IN CHINA

OGA TEST After release order	Invoice A - 20200106
Import license/approval	Electronic No.
(01) ILNS ILC192002500	Invoice price A - CIF - USD - 40,998
(02)	(MMK) 60,637,681.92
(03)	Freight - -
(04)	Insurance - -
(05)	Comprehensive insurance No.
(06)	Adjustment 0
(07)	Comprehensive adjustment No.
(08)	Correction Formula
(09)	Adjustment value - -
(10)	Total customs value 60,637,681.92
(11)	(USD) 40,998
(12)	Total item value 40,998.0000
	Origin Inform to customs

Taxes and fees

Code	Name	Total amount	Number
CD	IMPORT/EXPORT CUSTOMS DUTY	0	1
CT	COMMERCIAL TAX	0	1
AT	ADVANCED INCOME TAX	0	*
SF	SECURITY FEE	20,000	*
MF	MACCS SERVICE FEE	30,000	*

Total	
Exemption/Reduction	13,340,
Taxes and fees	50,
Security	
Exchange Rate (1) USD -	1,479
(2)	-
(3)	-
Deferred payment	
BP reason	
Deposit	C
Total pages	2
Total items	1

Notes1 Declaration No.

Notes2

31.2/20

Release order notification (Inward processing) and bonded transportation 2/2

resentative HS	Type of import	Selectivity	Necessity of original document	Declaration No.
5514	INP - - T1 - 2	3R	R	100134693410

stoms station A1 - HEAD QUARTER Section 04

laration date 2020/01/31 12:30 Special order application date / / :

vanced Income tax

Value/Amount	Rate	Exemption/Reduction Code	Reference	Amount
60,637,681.92	2%			
0		ERMA	RAW MATERIALS FOR CMP	1,212,753

ner taxes/fees

Type	Amount	Exemption/Reduction Code	Reference	Amount
MF	30,000			
SF	20,000			

PVRD Vehicle SF Declaration No. For goods to be paid to

r Type A
Code 1008R
Company THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY
Name U HLA MIN
Type of ID NRC ID No. 12/YAKANA(N)045029 Issuing country MM

nereby certify that this declaration is true and complete. Authentication AGREE

e reference of customs decision
STRUCTION OF CUSTOMS DEPARTMENT - 36/2012

stoms chief officer name or station name DIRECTOR OF IMPORT AND EXPORT CONTROL DIVISION

lease order 2020/02/03 Declaration completion 2020/02/03
ferred payment limit / / Examination completion 2020/02/03 Post examination
til TBP completion
ecial Order Approval / / Non-approval / /
te of bonded transportation 2020/02/03 - 2020/02/04

. 001 HS 5514.49.00 00 - 5 - Reconfirmation the amount
em name SHELL:92% COTTON 8% ELASTANE, PILE:100% POLYESTER DOUBLE KNITTED

Quantity (1) 12,570.20 KG
Quantity (2) 27,332 M

em value 40,998
voice unit price 1.5 / M Customs value 60,637,681.92
(USD) 1.5 (USD) 40,998
(MMK) 2,218.56
stoms quantity for specific duty
it price of customs value 4,823.92 / KG

stoms duty rate M - 15%
stoms duty Amount 0 Self-calculate customs value
Origin CN - CHINA Customs duty type M
(Exemption/Reduction) ERMD 9,095,652.28 RAW MATERIALS FOR CMP

	Code	Value/Amount	Rate/Reference
ECIFIC GOODS TAX		60,637,681.92	0%
		0	
(Exemption/Reduction)			
(Exemption/Reduction)			
mmercial tax		60,637,681.92	5%
		0	

Release order notification (Inward processing) and bonded transportation 1 / 8

Representative HS	Type of import	Selectivity	Necessity of original document	Declaration No.
5514	INP - - T1 - 2	1	R	100133810340

Customs station A1 - HEAD QUARTER Section 04

Declaration date 2020/01/23 15:04 Special order application date / / :

Mode of transport 1 Declaration condition Expected declaration date 2020/01/23 Formal

Importer CSGJW5HU37-000SDI MANUFACTURING CO., LTD.

Address NO.(3)MAIN ROAD, NGWE PIN LEI INDUSTRIAL ZONE PLOT NO.40 MYAY TAING QUARTER NO.24,HL AING THARYAR TOWNSHIP, YANGON, MYANMAR TEL: 95 01 613909 ATT

Postcode Telephone 09456791122

Consignor - WINNER ENTERPRISES LIMITED

Address ROOM 803,8/F,YEE KUK INDUSTRIAL CENTRE,555 YEE KUK STREET,CHEUNG SHA WAN,KLN,HONG KONG

Postcode Country HK

Agency 1008R THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Customs broker code 531903

B/L (AWB) No.	MCPU590373131	Packages	735 PK
MAWB No.	-	Warehouse	A1Y011 - MITT
Unloading	MMTLATHILAWA	Gross	15,940.000 KGM
Loading	MYTPPTANJUNG PELEPAS	Net	15,423.900 KGM
Voyage No.		Arrival location	A1M329 - SDI MANUFACTURING
Conveyance	MV OSLO TRADER	Total containers	1 Container cargo C
Arrival date	2020/01/22	First approval declaration No.	- Date / /

Marks and Nos. N/M MADE IN CHINA

OGA TEST After release order		Invoice	A - 20200114
Import license/approval		Electronic No.	
(01)	ILNS ILC192003223	Invoice price	A - CIF - USD- 52,540.15
(02)			(MMK) 76,939,795.66
(03)		Freight	- -
(04)		Insurance	- -
(05)		Comprehensive insurance No.	
(06)		Adjustment	0
(07)		Comprehensive adjustment No.	
(08)		Correction	Formula
(09)		Adjustment value	- -
(10)		Total customs value	76,939,795.66
(11)		(USD)	52,540.15
(12)		Total item value	52,540.1500 -
		Origin	Inform to customs A

Taxes and fees

Code	Name	Total amount	Number	Total Exemption/Reduction	15,217,769
CD	IMPORT/EXPORT CUSTOMS DUTY	0	13	Taxes and fees	50,000
CT	COMMERCIAL TAX	0	13	Security	0
AT	ADVANCED INCOME TAX	0	*	Exchange Rate (1) USD-	1,464.4
SF	SECURITY FEE	20,000	*	(2) -	
MF	MACCS SERVICE FEE	30,000	*	(3) -	
				Deferred payment	
				BP reason	
				Deposit	C
				Total pages	8
				Total items	13

Notes1

Notes2 ဝင်းနိုင်-၅၄(ကဝ-၀၃၂၈) 23/1/2020

လက်မှတ်ရကုန်သွယ်ကြားခံ

၁၁၀-၃၀၉၈၊ ၃-အကောက်ခွန် ဝန်ထမ်း 23/1/20

Serial No. for users 00192 Declarant reference No.

Release order notification (Inward processing) and bonded transportation 2 / 8

Representative HS 5514
Type of import INP - - T1 - 2
Selectivity 1
Necessity of original document R
Declaration No. 100133810340
Customs station A1 - HEAD QUARTER
Section 04
Declaration date 2020/01/23 15:04
Special order application date / / :

Advanced Income tax

Value/Amount	Rate	Exemption/Reduction Code	Reference	Amount
76,939,795.66	2%			
0		ERM	ARAW MATERIALS FOR CMP	1,538,795

Other taxes/fees

Type	Amount	Exemption/Reduction Code	Reference	Amount
MF	30,000			
SF	20,000			

RD PVRD Vehicle SF Declaration No. For goods to be paid to

User Type A
Code 1008R
Company THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Name U HLA MIN

Type of ID NRC ID No. 12/YAKANA(N)045029 Issuing country MM

I hereby certify that this declaration is true and complete. Authentication AGREE

The reference of customs decision
INSTRUCTION OF CUSTOMS DEPARTMENT - 36/2012

Customs chief officer name or station name DIRECTOR OF IMPORT AND EXPORT CONTROL DIVISION

Release order 2020/01/23 Declaration completion 2020/01/23
Deferred payment limit / / Examination completion 2020/01/23 Post examination
Until TBP completion
Special Order Approval / / Non-approval / /
Date of bonded transportation 2020/01/23 - 2020/01/24

No. 001 HS 5514.49.00 00 - 5 - Reconfirmation the amount
Item name 98% COTTON 2% ELASTANE RIB

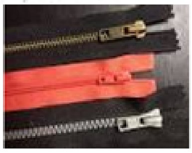
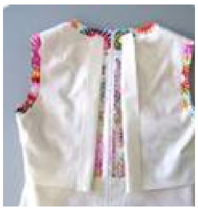
Quantity (1) 6,485.60 KG
Quantity (2) 12,946 M

Item value 19,419
Invoice unit price 1.5 / M Customs value 28,437,183.6
(USD) 1.5 (USD) 19,419
(MMK) 2,196.6
Customs quantity for specific duty
Unit price of customs value 4,384.66 / KG

Customs duty rate M- 15%
Customs duty Amount 0 Self-calculate customs value
Origin CN- CHINA Customs duty type M
(Exemption/Reduction) ERMD 4,265,577.54 RAW MATERIALS FOR CMP

Code Value/Amount Rate/Reference
SPECIFIC GOODS TAX
28,437,183.6 0%
0
(Exemption/Reduction)

(Exemption/Reduction)
Commercial tax 28,437,183.6 5%
0
(Exemption/Reduction) ERMT 1,421,859.18 RAW MATERIALS FOR CMP

Export

As per CMP Basis manufacturing program, finished products such as padded jacket, t-shirt, cargo shirt, cargo pant (woven & knit) is exported to designated country where CMP Contractor's instructed place. Currently SDI manufacturing Co., Ltd has exported to Europe countries, and USA. Below are some exported documents of finished products which are export to designated places, by SDI manufacturing Co., Ltd. These exported documents were example references of loading from MM RGN port to and USLAX LOS ANGELES CA, USA.

Allowed shipment notification (Inward processing) 1 / 3

Representative HS	Type of export	Selectivity	Necessity of original document	Declaration No.
6104	INP - - T1 - 2	2	R	200044798010

Customs station A1 - HEAD QUARTER Section 04
Declaration date 2020/01/09 19:15
Mode of transport 1 Declaration condition F Formal

Exporter CSGJW5HU37-000 SDI MANUFACTURING CO., LTD.
Address PLOT NO.40, MYAY TAING QUARTER NO.24 NGWE PIN LEI INDUSTRIAL ZONE,HLAING THAR YAR T OWNSHIP,YANGON ,MYANMAR.
Postcode Telephone 09456791122
Consignee - DANGROUP 2012 APS
Address BRANDEVE J 4, FASTERHOLT 7330 BRANDE DANMARK.
Postcode Country DK
Agency 1008R THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY
Customs broker code 531903

Export control No. 430035468850
AWB No. -
Loading location MMRGN YANGON
Via location -
Final destination DKAAR AARHUS,DANMARK
Voyage No. 880S
Loading planned IMO No./Vessel 9202792
Conveyance name MV.SINAR SOLO
Estimated departure 2020/01/11

Packages 187 CT
Warehouse A1Y002 - AWPT
Gross 2,385.000 KGM
Net 2,198.000 KGM
Total containers 1 Container cargo C

Marks and Nos. NM

Export license/approval
(01)
(02)
(03)
(04)
(05)
(06)
(07)
(08)
(09)
(10)
(11)
(12)

Invoice A - PI2020018A
Electronic No.
Invoice price A - FOB - USD- 26,343
FOB price
(MMK) 39,426,690
Total customs value 39,426,690
(USD) 26,342.97
Total item value 26,343.0000
Physical examination completion

Taxes and fees

Code	Name	Total amount	Number
CD	IMPORT/EXPORT CUSTOMS DUTY	0	0
AT	ADVANCED INCOME TAX	0	*
SF	SECURITY FEE	0	*
MF	MACCS SERVICE FEE	30,000	*

Total Exemption/Reduction 808,533
Taxes and fees 30,000
Exchange Rate (1) USD- 1,496.6666667
(2)
Deposit C
Total pages 3
Total items 3

Vanning place
Address

Allowed shipment notification (Inward processing)

2 / 3

esentative HS	Type of export	Selectivity	Necessity of original document	Declaration No.
6104	INP - - T1 - 2	2	R	200044798010

Customs station A1 - HEAD QUARTER Section 04
Declaration date 2020/01/09 19:15

Notes1 (100125102930)

Notes2 MICB BANK

Serial No. for users 00082 Declarant reference No.

Advanced Income Tax

Value/Amount	Rate	Exemption/Reduction Code	Reference	Amount
39,426,690	2%			
0			ERMARAW MATERIALS FOR CMP	788,533

Other taxes/fees

	Type	Amount	Exemption/Reduction Code	Reference	Amount
(1)	MF	30,000			
(2)	SF	0	EXSF	SECURITY FEES EXEMPTION	20,000
(3)					

SF Declaration No. Preference claimed Y For goods to be received from
Type of Payment NO No. Date / / Bank Name

Direct shipment
Domestic transport
Barge Port of loading Stowage status
Reason

User Type A Code 1008R
Company THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Name U HLA MIN

Type of ID NRC ID No. 12/YAKANA(N)045029 Issuing country MM
I hereby certify that this declaration is true and complete. Authentication AGREE

The reference of customs decision
INSTRUCTION OF CUSTOMS DEPARTMENT - 36/2012

Customs chief officer name or station name DIRECTOR OF IMPORT AND EXPORT CONTROL DIVISION
Allowed shipment 2020/01/09 Examination completion 2020/01/09
Date of bonded transportation 2020/01/09 - 2020/01/10

No. 001 HS 6104.42.00 00 - 0 Reconfirmation the amount
Item name LADIES' 100% VISCOSE WOVEN DRESS(U=PCS)

Country of origin MM Quantity (1) 4,405 U
Quantity (2)
Item value 13,215 CMP charges 1,321.50
FOB unit price (USD) 3 / U
Basic price Customs value 19,778,450
(USD) 13,214.99

Customs quantity for specific duty
Customs duty rate FREE
Customs duty Amount 0
(Exemption/Reduction)
Code Value/Amount Rate/Reference
Specific goods tax 19,778,450 0%
0
(Exemption/Reduction)

Allowed shipment notification (Inward processing) 3 / 3

:sentative HS	Type of export	Selectivity	Necessity of original document	Declaration No.
6104	INP - - T1 - 2	2	R	200044798010
ms station	A1 - HEAD QUARTER		Section 04	
ration date	2020/01/09 19:15			

002 HS 6206.40.00 00 - 3 Reconfirmation the amount
name LADIES' 100% VISCOSE WOVEN SHIRTS(U=PCS)

try of origin	MM		Quantity (1)	1,447 U
			Quantity (2)	
value		4,341	CMP charges	434.10
unit price	(USD)	3 / U		
price			Customs value	6,497,030
			(USD)	4,340.99

ms quantity for specific duty			
ms duty rate	FREE		
ms duty	Amount	0	
xemption/Reduction)			
	Code	Value/Amount	Rate/Reference
fic goods tax		6,497,030	0%
		0	
xemption/Reduction)			
nercial tax		6,497,030	0%
		0	
xemption/Reduction)			

003 HS 6109.90.20 00 - 6 Reconfirmation the amount
name LADIES' 100% VISCOSE WOVEN TOP(U=PCS)

try of origin	MM		Quantity (1)	2,929 U
			Quantity (2)	
value		8,787	CMP charges	878.70
unit price	(USD)	3 / U		
price			Customs value	13,151,210
			(USD)	8,786.99

ms quantity for specific duty			
ms duty rate	FREE		
ms duty	Amount	0	
xemption/Reduction)			
	Code	Value/Amount	Rate/Reference
fic goods tax		13,151,210	0%
		0	
xemption/Reduction)			
nercial tax		13,151,210	0%
		0	
xemption/Reduction)			

Allowed shipment notification (Inward processing)

1 / 4

Representative HS	Type of export	Selectivity	Necessity of original document	Declaration No.
6108	INP - - T1 - 2	2	R	200044478000

Customs station A1 - HEAD QUARTER Section 04

Declaration date 2020/01/03 13:13

Mode of transport 1 Declaration condition F Formal *

Exporter CSGJW5HU37-000 SDI MANUFACTURING CO., LTD.

Address PLOT NO.40, MYAY TAING QUARTER NO.24 NGWE PIN LEI INDUSTRIAL ZONE,HLAING THAR YAR T OWNSHIP,YANGON ,MYANMAR.

Postcode Telephone 09456791122

Consignee - DECKERS OUTDOOR CORPORATION

Address DSV SOLUTIONS HP2 BUILDING 250 COROMAR DRIVE GOLETA CA 93117 UNITED STATES

Postcode Country US

Agency 1008R THU KHA SAN AUTHORIZED CUSTOMS SERVICES AGENCY

Customs broker code 531903

Export control No. 430035177100
AWB No. -
Loading location MMRGN YANGON
Via location -
Final destination USLAX- LOS ANGELES CA,USA
Voyage No. 1114N
Loading planned IMO No./Vessel 8909082
Conveyance name MV.NINOS
Estimated departure 2020/01/07

Packages 82 CT
Warehouse A1Y002 - AWPT
Gross 1,146.000 KGM
Net 1,105.000 KGM
Total containers 1 Container cargo C

Marks and Nos. N/A

Export license/approval
(01)
(02)
(03)
(04)
(05)*
(06)
(07)
(08)
(09)
(10)
(11)
(12)

Invoice A - UGG-I-190283S
Electronic No.
Invoice price A - FOB - USD- 10,045.00
FOB price
(MMK) 15,134,399.7
Total customs value 15,134,399.7
(USD) 10,045
Total item value 10,045.0000
Physical examination completion

Taxes and fees

Code	Name	Total amount	Number
CD	IMPORT/EXPORT CUSTOMS DUTY	0	0
AT	ADVANCED INCOME TAX	0	*
SF	SECURITY FEE	0	*
MF	MACCS SERVICE FEE	30,000	*

Total Exemption/Reduction 322,687
Taxes and fees 30,000
Exchange Rate (1) USD- 1,506.66
(2) -
Deposit C
Total pages 4
Total items 5

2

Vanning place
Address

ကပ ၀၃၃၅၊လက်/ညွှန်မှူး၊တင်ထွင်

3/1/2020

Allowed shipment notification (Inward processing) 3 / 4

HS	Type of export	Selectivity	Necessity of original document	Declaration No.
	INP - - TI - 2	2	R	200044478000

A1 - HEAD QUARTER   Section 04

2020/01/03 13:13

S 6202.12.00 00 - 6   Reconfirmation the amount

DIES' 92% COTTON 8% ELASTANE KNITTED COAT(U=PCS)

gin	MM		Quantity (1)	227 U
			Quantity (2)	
		2,270	CMP charges	227
	(USD)	10 / U		
			Customs value	3,420,118.2
			(USD)	2,270

ity for specific duty

rate FREE

Amount 0

/Reduction)

	Code	Value/Amount	Rate/Reference
tax		3,420,118.2	0%
		0	
/Reduction)			
x		3,420,118.2	0%
		0	
/Reduction)			

IS 6104.62.00 00 - 3   Reconfirmation the amount

DIES' 92% COTTON 8% ELASTANE KNITTED PANTS(U=PCS)

gin	MM		Quantity (1)	115 U
			Quantity (2)	
		1,150	CMP charges	115
	(USD)	10 / U		
			Customs value	1,732,659
			(USD)	1,150

ity for specific duty

rate FREE

Amount 0

/Reduction)

	Code	Value/Amount	Rate/Reference
tax		1,732,659	0%
		0	
/Reduction)			
x		1,732,659	0%
		0	
/Reduction)			

IS 6202.12.00 00 - 6   Reconfirmation the amount

DIES' 30% COTTON 70% POLYESTER KNITTED COAT(U=PCS)

gin	MM		Quantity (1)	73 U
			Quantity (2)	
		730	CMP charges	73
	(USD)	10 / U		
			Customs value	1,099,861.8
			(USD)	730

ity for specific duty

rate FREE

Amount 0

/Reduction)

	Code	Value/Amount	Rate/Reference
tax		1,099,861.8	0%
		0	
/Reduction)			
x		1,099,861.8	0%
		0	

Chemical Material Usage in SDI Manufactory Factory

According to this factory's operation process, there are some chemical raw materials required as necessary to perform production process. According to Chemical Assessment, which has performed by SMART Myanmar's chemical management report, total 15 types of chemicals (13 for washing and 2 for printing) are used in this factory.

Chemicals used in washing process at SDI Factory

1. Almightiness Film
2. Brightener / 4 bk and
3. Brightener /ba

The product has an ideal whitening effect on cotton fiber as well as polyester fiber-containing fabrics including polyester-cotton blend fabric.

1. **With strong fluorescence, excellent whitening effect and slight bluish shade**
2. **With high light resistance and chemical stability.**
3. **Good acid resistance, stable in perborate and hydrogen peroxide.**

4. Perhydrol (Hydrogen peroxide [H_20_2]

It is used to bleach textile and paper products, manufacturer or process foodstuffs, minerals, petrochemicals and consumer products (detergent). It is also used for industrial waste treatment (detoxification).

5. Oxalic acid

Oxalic acid acts as a reducing agent for metal oxides to remove tarnish as well as rust or ink stains. It is used commercially as a laundry rinse, wood-bleaching agent, and calcium remover. Oxalic acid can remove some paints and varnishes. It is also used as a mordant in dyeing textiles and in the manufacture of ink

6. Yuan ming Powder

This product is white fine crystal; density 2.66-2.68, melting point 888 ℃, soluble in water was neutral. Mainly used for detergent for Paper, Glass, Vinylon and other industrial sectors.

7. Enzyme powder

The use of enzymes in textile industry is one of the most rapidly growing fields in industrial enzymology. The enzymes used in the textile field are amylases, catalase, and laccase which are used to removing the starch, degrading excess hydrogen peroxide, bleaching textiles and degrading lignin.

8. Enzyme water

The use of enzyme water results in reduced process times, energy and water savings. And it is improved product quality and potential process integration.

9. Detergent

The compounds which can remove dirt/oil from a material & keep it in solution by the means of suspension are called detergents. This property is called detergency. It's a property of a compound which is closely related with surface tension.

10. Fixative (Fixing agent)

After printing process, fabric has unfixed dyestuff on the surface and if it becomes final goods, it causes color migration when it is wet or during washing. Fixing agent is to be applied to dyed fabric to fix the unfixed dyestuff on fabric. It improves wet color fastness and fabric quality.

11. Bleach

Bleaching is the process of decolorization of raw textile material by removing inherent and or acquired coloring components from the fiber. It provides base whiteness to the textile material which could be further whitened with the help of optical brighteners or printed depending on the desired end use.

12. Acetic acid [CH_3-COOH]

Acetic acid is a colorless and corrosive liquid with pungent smell of its own. It is miscible with water, alcohol and ether in all proportions. Acetic acid is used in garment industry for dyeing purposesoiler water.

13. Insurance Powder (Stabilizer)

Working Process of Stabilizer in Textile Wet Processing. ... The role of the stabilizer is simply to control or regulate these effects the act as buffers, sequestrates and in special cases, enhancing performance of the surfactant used in the bleach bath.

Chemicals used in printing process at SDI Factory

- Reactive blue B

Reactive Blue B is most widely used for printing cellulose fibers in exhaustion printing, and it gives a brilliant reddish blue shade and excellent lightfastness.

- Environmental Silicone

With their non-toxic, environmentally sound formulations, silicone textile printing inks from Dow provide a long-lasting and sustainable decorating solution

- Soda ash ([Na_2CO_3)

Soda ash changes the pH of the fibre-reactive dye and cellulose fibre so that the dye reacts with the fibre, making a permanent attachment that holds the dye to the fibre. Sodium bicarbonate (technical and refined grades) is used in curing wool and silk fibre.

Chemicals used in ETP process

In SDI Manufacturing Garment Factory, there has been constructed Effluent Treatment Plant. It is for especially wastewater treatment, and the following some chemicals are used in its process.

1. Sodium hydrixide
2. Polyacrylamide
3. Polyaluminium Chloride

Table 11: Daily Chemical Usage

Washing Department		Printing Departement		
Chemical Name	Daily dose (kg)	Chemical Name	Daily dose (kg)	Monthly dose (kg)
Almighliness Film	5	Oil Pint	1	
Environmental Silicone	1	Yebar Pint	3	
Enzyme water	16	Water Pint		10
Silk smoothing agent	1	Silicone Pint		2
Soda ash	1	Plasteoe Pint		2
Yuan Ming Powder	1			
Enzyme Powder	1			

Figure 30: Chemical Warehouse

Because block printing technology uses more manpower, handling printed materials with volatile chemicals and handling and working can cause long-term respiratory diseases for employees, there are plans to use better and more innovative technologies in the future.

3.4 Energy Source and Consumption

3.4.1 Source of Water and Existing Water Quality

Water requirement for this project is estimated to be 540,000 gallons per year for both operation and domestic use such as boiler, washing, sanitation and gardening etc. Total requirement of water is quite nominal. Tube wells at this factory can produce the daily requirement and enough for this factory.

There are four tube wells at this factory and its production rate is 15 gpm from 300 feet depth each. Producing rate for each tube wells is total 900 gallons per hours. The location of these well are shown in figure below. These all-tube wells are 6" diameter and produced from 2" diameter con tube pipes. Locations of tube wells are 16°55'48.14"N - 96° 3'33.18"E, 16°55'46.84"N - 96° 3'34.66"E, 16°55'47.36"N - 96° 3'33.09"E, and 16°55'48.36"N - 96° 3'34.80"E.

Figure 31: Tube wells location

Groundwater is being used as a source of water in almost in Hlaing Thar YarIndustrial Zone. The area comes under the catchment of Hlaing River and a number of seasonal and perennial streams. The ground water from the study area was assessed by analyzing samples and, the quality has been comparing the results as shown below with the WHO guidelines for Drinking Water Quality, water and waste water quality standards recommended in Myanmar.

Water Storage Tank Position and daily consumption

The dimensions of water storage tanks are 3.8 m x 2 m x 1.5 m (one ground tank), 4 m x 2 m x 1.5 m (overhead water tank), 4.8 m x 7.8 m x 2.5 m (one firefighting water tank) and storage volumes are 2,500 gallons, 2,600 gallons and 20,000 gallons respectively.

Daily water consumption for SDI manufacturing factory is total 8 tons (8 m^3) (1760 imperial gallons), and it is used for domestic use for employees, kitchen for dormitory, and washing section, and some few amounts for printing section. Monthly consumption can be estimated 192 m^3 (42234 gallons), and annually approximately 2304 m^3 (500,000 gallons).

Existing Water Quality

Surface Water Quality

Surface water samples were not collected from the sampling station; Location of each sampling station was not recorded and photographed in this project area. The project is in special industrial zone and not more

uses water for Production Process. The Project use drinking water from others for employees.
The activities in the adjacent catchment may alter the water quality at the studied area.

Groundwater Quality

Ground water samples were collected from these locations and Project has four tube wells for processing and domestic used such as washing clothes, bathrooms and Toilets. The depth of these tube wells ranges from 300-350 ft.

The quality of ground water is tested by Laboratory (updated), which has shown in **Figure 33: Result of Tube Well Water Quality** .

Figure 32: Overhead water tank, fire water tank and water line for firefighting

Table 12: interpretation of results of physicochemical analysis

World Health Organization. International norms for drinking water. Toxic substances.	
Substance	Limiting concentration, mg per liter
Lead ……………………………………………………………………….	0.10
Arsenic ………………………………………………………………..	0.05
Selenium ……………………………………………………………..	0.01
Chromium (as Cr^{+6}) ……………………………………………….	0.05
Cyanides ……………………………………………………………..	0.05
Cadmium ……………………………………………………………..	0.01
Barium ……………………………………………………………. …..	1.0
Nitrates (as No_3) ……………………………………………………….	45

Table 13: Substances and chemical which affect the fitness of water for drinking

Substance	Maximum tolerable concentration	Maximum permissible concentration
Total solids ……………………………….	500 mg/liter	1,500 mg/liter
Color …………………………………………	5 units*	50 units
Turbidity …………………………………..	5 units*	25 units
Taste …………………………………………	Subjective limit of acceptability	-
Odor …………………………………………	Subjective limit of acceptability	-
Iron, as Fe …………………………………	0.3 mg/liter	1.0 mg/liter
Manganese, as Mn …………………	0.1 mg/liter	0.5 mg/liter
Copper, as Cu …………………………..	1.0 mg/liter	1.5 mg/liter
Zinc, as Zn ………………………………	5.0 mg/liter	15 mg/liter
Calcium, as Ca ………………………..	75 mg/liter	200 mg/liter
Magnesium, as Mg …………………	50 mg/liter	150 mg/liter
Sulfates, as SO_4 ………………………..	200 mg/liter	400 mg/liter
Chlorides, as Cl ………………………..	200 mg/liter	600 mg/liter
pH ……………………………………………	7.0 < pH <8.5	6.5 <pH<9.2
Magnesium sulfate + sodium sulfate.	500 mg/liter	1,000 mg/liter
phenolic compounds, as phenol	0.001 mg/liter	0.002 mg/liter
Chloroform extract on carbon (organic pollutants) ………	0.2 mg/liter	0.5 mg/liter
Alkyl benzene sulfonates (ABS surfactants) …………………..	0.5 mg/liter	1.0 mg/liter

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
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Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

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WATER QUALITY TEST RESULTS FORM

Client	SDI Co., Ltd
Nature of Water	Tube well waterr
Location	Ngwe Pin Lei Industrial Zone, Hlaing Thar Yar Township
Date and Time of collection	22.10.2019
Date and Time of arrival at Laboratory	22.10.2019
Date and Time of commencing examination	23.10.2019
Date and Time of completing	28.10.2019

Results of Water Analysis — **WHO Drinking Water Guideline (Geneva - 1993)**

pH	7.4		6.5 - 8.5
Colour (True)	5	TCU	15 TCU
Turbidity	7	NTU	5 NTU
Conductivity	2910	micro S/cm	-
Total Hardness	1080	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	722	mg/l as $CaCO_3$	
Magnesium Hardness	358	mg/l as $CaCO_3$	
Total Alkalinity	160	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	Nil	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	Nil	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	160	mg/l as $CaCO_3$	
Iron	0.32	mg/l	0.3 mg/l
Chloride (as CL)	1600	mg/l	250 mg/l
Sodium chloride (as NaCL)	2640	mg/l	
Sulphate (as SO_4)	110	mg/l	500 mg/l
Total Solids	1468	mg/l	1500 mg/l
Total Suspended Solids	13	mg/l	
Total Dissolved Solids	1455	mg/l	1000 mg/l
Manganese	2.5	mg/l	0.05 mg/l
Phosphate	Nil	mg/l	
Phenolphthalein Acidity	2	mg/l	
Methyl Orange Acidity	Nil	mg/l	
Salinity	1.4	ppt	

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

Tested by		**Approved by**	
Signature:	Heiny	Signature:	[signature]
Name:	Zaw Hein Oo ~~B.Sc (Chemistry)~~ Sr. Chemist ISO TECH Laboratory	Name:	Soe Thit ~~B.E (Civil) 1980,~~ Technical Officer ISO TECH Laboratory

(a division of WEG Co.,Ltd.)

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-30339681, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

Figure 33: Result of Tube Well Water Quality

3.4.2 Source of Electric Power

According to the MIC Proposal, the annual requirement of power is estimated 600,000 units and monthly requirement is estimated 50,000 units. This is expected to be met from Government Supply. The 11KVA Transmission line is currently connected with National Grid. There is own transformer in front of the factory. However, promoter has planned and installed Silent D.G Set to meet emergent power need when if Govt: supply is not available / there is disruption due to breakdown or other eventuality. Consideration about the YESC's power break down duration, the estimated diesel requirement for running DG sets is estimated at 40,000 liter per year, and it deeply depends on the YESC's power break down time. The diesel fuel consumption for the generators is 13.85 gallons (63 liters) per hour with full load. Diesel is being used average 3 - 4 hours per day, and estimated using 20 days per month. According to the specifications of generator, the maximum voltage is 415 Volt. Monthly usage is estimated 3,000 liters. Diesel is available in open market and shall be procured locally.

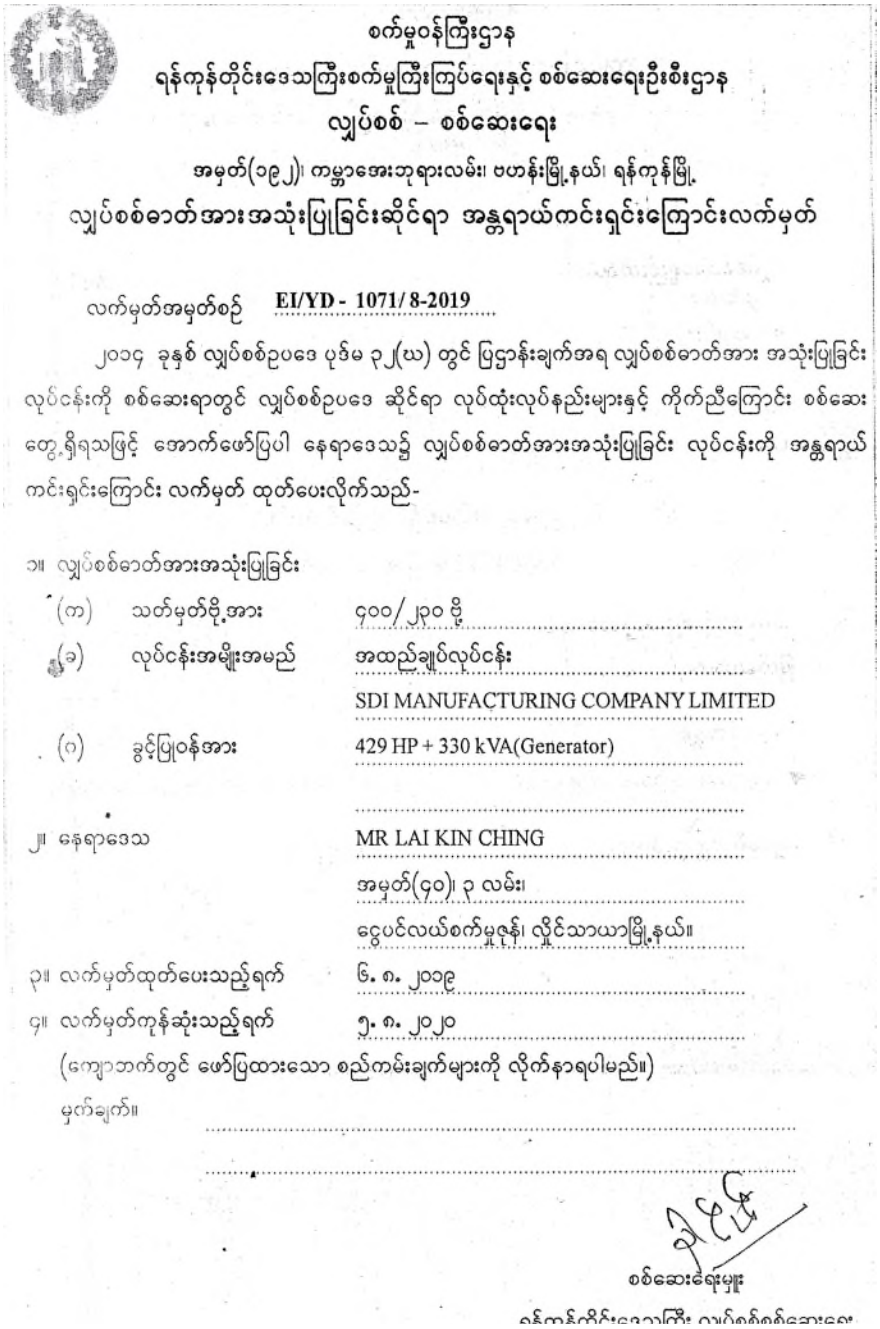
Figure 34: Transformer and Silent Type Diesel Generator

Below are the specifications of the Generator. It is China made Dongkang (Shandong) Silent Generator.

Standby Power Rating	330 kVA / 264 kW
Prime Power Rating	300 kVA / 240 kW
Engine	Cummins QSL9-G5
Engine Governor	Electronic
Engine Speed	1500 rpm
Alternator	Stamford HC4D
Voltage	380-415V
Frequency	50Hz
Amps Per Phase	475.2
Control Panel	1.2
Connection Type	Circuit Breaker
Circuit Breaker	4-Pole
Exhaust Emissions Level	Unregulated
Base Fuel Tank Capacity	691 Litres
Fuel Consumption	63 litres per hour (at 100% load)
Dimensions (L x W x H)	4258mm x 1424mm x 2215mm
Dry Weight	4,095kg
Canopy Noise Level	77 dB(A) at 1m
Additional Features	Battery Charger, Water Heater
Warranty	2 years or 500 hours standby / 1-year unlimited hours prime

450-liter (100 gallon) diesel tank attached to the generator and it has been fully stocked in the tank forever. There is some storage of diesel fuel in diesel drums.

Figure 35: Diesel Fuel Storage



စက်မှုဝန်ကြီးဌာန

ရန်ကုန်တိုင်းဒေသကြီးစက်မှုကြီးကြပ်ရေးနှင့် စစ်ဆေးရေးဦးစီးဌာန

လျှပ်စစ် – စစ်ဆေးရေး

အမှတ်(၁၉၂)၊ ကမ္ဘာအေးဘုရားလမ်း၊ ဗဟန်းမြို့နယ်၊ ရန်ကုန်မြို့

လျှပ်စစ်ဓာတ်အားအသုံးပြုခြင်းဆိုင်ရာ အန္တရာယ်ကင်းရှင်းကြောင်းလက်မှတ်

လက်မှတ်အမှတ်စဉ် EI/YD - 1071/8-2019

၂၀၁၄ ခုနှစ် လျှပ်စစ်ဥပဒေ ပုဒ်မ ၃၂(ဃ) တွင် ပြဌာန်းချက်အရ လျှပ်စစ်ဓာတ်အား အသုံးပြုခြင်း လုပ်ငန်းကို စစ်ဆေးရာတွင် လျှပ်စစ်ဥပဒေ ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများနှင့် ကိုက်ညီကြောင်း စစ်ဆေးတွေ့ရှိရသဖြင့် အောက်ဖော်ပြပါ နေရာဒေသ၌ လျှပ်စစ်ဓာတ်အားအသုံးပြုခြင်း လုပ်ငန်းကို အန္တရာယ်ကင်းရှင်းကြောင်း လက်မှတ် ထုတ်ပေးလိုက်သည်-

၁။ လျှပ်စစ်ဓာတ်အားအသုံးပြုခြင်း

(က)	သတ်မှတ်ဗို့အား	၄၀၀/၂၃၀ ဗို့
(ခ)	လုပ်ငန်းအမျိုးအမည်	အထည်ချုပ်လုပ်ငန်း
		SDI MANUFACTURING COMPANY LIMITED
(ဂ)	ခွင့်ပြုဝန်အား	429 HP + 330 kVA(Generator)

၂။ နေရာဒေသ MR LAI KIN CHING
အမှတ်(၄၀)၊ ၃ လမ်း၊
ငွေပင်လယ်စက်မှုဇုန်၊ လှိုင်သာယာမြို့နယ်။

၃။ လက်မှတ်ထုတ်ပေးသည့်ရက် ၆. ၈. ၂၀၁၉

၄။ လက်မှတ်ကုန်ဆုံးသည့်ရက် ၅. ၈. ၂၀၂၀

(ကျောဘက်တွင် ဖော်ပြထားသော စည်းကမ်းချက်များကို လိုက်နာရပါမည်။)

မှတ်ချက်။

စစ်ဆေးရေးမှူး

ရန်ကုန်တိုင်းဒေသကြီး လျှပ်စစ်စစ်ဆေးရေး

Figure 36: လျှပ်စစ်ဓာတ်အားအန္တရာယ်ကင်းရှင်းကြောင်းလက်မှတ်

3.4.3 Boiler and Steam System

This project had two steam boilers. The capacity of these boilers is 1.25 and 1 MPa respectively.

At boiler, insulation system for steam pipe, standard steam pipes, scrubber out via an effective flue gas treatment system in stack, stream condensate recovery system, heat exchanger equipment are found at study time and check the manufacture specification. It can reduce the energy consumption and water consumption.

Along steam pipe and drying process, it is found that following point;

Boiler Inspection record

Date	Boiler Maintenance Record	Section : Date :	
	Description	Maintenance and calibration Procedure	
		Worker	Remark
	Repairing water leakage at boiler		
	Repaired the shutter door at the steam boiler room		
	Assisted the boiler bed temperature low due to poor quality of rice husk		
	Checked and cleaned the damper ID fan at boiler		
	Checked the operation parts at boiler such as slide gate, solenoid valve, damper		
	Checked the operation parts at boiler such as slide gate, solenoid valve, damper		
	Cutting and welding of sand (open and close) valve arm at boiler		

In order to reduce steam leakage causing energy loss,

(a) Repair and replace baffles, lathes and gasket on the valve, connection joint.
(b) Enclose the space between the two dryer chambers
(c) Replace the steam coils in the dryer
(d) Install moisture content detector and programmable log is controller to control dryer speed.
(e) Monitor more frequently temperature in the dryers to ensure the desired temperature
(f) Modify air cool ducting in increase the cooling capacity
(g) According to boiler maintenance, record such as repairing water leakage at boiler, repaired the shutter door at the steam boiler room, controlling boiler bed temperature, cleaning the damper ID fan at boiler, checking regularly these parts (slide gate, solenoid, valve, damper), maintenance plan for every month.

These maintenance work by skilled foreman and they can control the conservation of water and supplied gas according to their consumption record.

Figure 37: 1 MPa and 1.25 MPa Boilers at Myanmar Unique Garment Factory

Specification of Boiler (Henan Yinchen Boiler Group)

DZH Series New-type Fire and Water Tube Steam Boiler						
Type	Rated Evaporation (T/H)	Rated Steam Pressure (Mpa)	Steam Temperature (°C)	Heating Area (M^3)	Grate Area (M^3)	Size L×W×H (M)
DZH1-1.0- AII	1	1.0	184	39.4	1.9	3.9×1.85×3.12
DZH2-1.25- AII	2	1.25	194	73.6	3.74	4.5×2.24×3.32

The wood consumption for these two boilers is 422 kg (0.4651 tons) per day. Maximum - 8 hours of use per day. The monthly consumption is 12600 kg or 12.6 tons.
There is an intention to switch from using wood as fuel for boilers to alternative fuels (e.g., rice husk fuel).
We also intend to use electric boilers in the future depending on the financial situation of the company, the receipt of orders and the availability of electricity.

ဘွိုင်လာယာယီအသုံးပြုခွင့်လက်မှတ်

{ လုပ်ထုံးလုပ်နည်း အပိုဒ် ၆ အပိုဒ်ခွဲ (ဆ) }

စာအမှတ် [illegible]

Mr. Lai Hak Mun Yannis ၊ SDI Manufacturing Co., Ltd ၊ [illegible] ငွေပင်လယ်စက်မှုဇုန် ၊ [illegible] ရန်ကုန်တိုင်းဒေသကြီး ၊

..................................အား ....

..................................ကုမ္ပဏီ၊ ....နိုင်ငံမှ

ထုတ်လုပ်သည့်ဘွိုင်လာအမှတ် ....ပါသော

သို့မဟုတ်ဘွိုင်လာမှတ်ပုံတင်အမှတ် မ.စ ....[illegible]......ဖြစ်သော ...[illegible]...ဘွိုင်လာကို

ခွင့်ပြုဖိအား ......[illegible]........ဖြင့်လက်မှတ်ထုတ်ပေးသည့်နေ့မှ (၆)လအသုံးပြုခွင့်ရှိသည်။

ယင်းကာလအပိုင်းအခြားကျော်လွန်သည့်အခါ ထုတ်ပေးထားသည့် ဤယာယီအသုံးပြုခွင့်လက်မှတ် ပျက်ပြယ်စေရမည်။

ဘွိုင်လာစစ်ဆေးရေးမှူး

ဒုတိယညွှန်ကြားရေးမှူး
(ဘွိုင်လာစစ်ဆေးရေး)
ရန်ကုန်တိုင်းဒေသကြီး

ဌာနခွဲမှူး
(ဘွိုင်လာစစ်ဆေးရေး)
ရန်ကုန်တိုင်းဒေသကြီး

ရက်စွဲ။ ...[illegible]............
6 . 11 . 19

မှတ်ချက် ။ ။ ဘွိုင်လာဥပဒေပုဒ်မ ၁၅ ပါပြဋ္ဌာန်းထားသည့် သက်ဆိုင်ရာအစိုးရဌာန အဖွဲ့အစည်းက လိုအပ်၍တောင်းဆိုသည့်အခါ ဤလက်မှတ်ကို တင်ပြရမည်။

ဘွိုင်လာယာယီအသုံးပြုခွင့်လက်မှတ်

{ လုပ်ထုံးလုပ်နည်း အပိုဒ် ၆ အပိုဒ်ခွဲ (ဆ) }

စာအမှတ်၊ [illegible]

M/s. Lai Hak Mum Yannus ... SDI Manufacturing Co., Ltd ... [illegible]

...အား...

...ကုမ္ပဏီ၊ ... China ... နိုင်ငံမှ

ထုတ်လုပ်သည့်ဘွိုင်လာအမှတ် ... ပါသော

သို့မဟုတ်ဘွိုင်လာမှတ်ပုံတင်အမှတ် မ.စ ... ဖြစ်သော ... ဘွိုင်လာကို

ခွင့်ပြုဖိအား ... [illegible] ... ဖြင့်လက်မှတ်ထုတ်ပေးသည့်နေ့မှ (၆)လအသုံးပြုခွင့်ရှိသည်။

ယင်းကာလအပိုင်းအခြားကျော်လွန်သည့်အခါ ထုတ်ပေးထားသည့် ဤယာယီအသုံးပြုခွင့်လက်မှတ် ပျက်ပြယ်စေရမည်။

ဘွိုင်လာစစ်ဆေးရေးမှူး

ဒုတိယညွှန်ကြားရေးမှူး

(ဘွိုင်လာစစ်ဆေးရေး)

ရန်ကုန်တိုင်းဒေသကြီး

ရက်စွဲ။ ... [illegible] ...

မှတ်ချက် ။ ။ ဘွိုင်လာဥပဒေပုဒ်မ ၁၅ ပါပြဌာန်းထားသည့် သက်ဆိုင်ရာအစိုးရဌာန အဖွဲ့အစည်းက လိုအပ်၍တောင်းဆိုသည့်အခါ ဤလက်မှတ်ကို တင်ပြရမည်။

Figure 38: ဘွိုင်လာယာယီအသုံးပြုခွင့်ပြုလက်မှတ်

3.5 Generation of waste at SDI Manufacturing Factory

3.5.1 Solid Waste Generation and waste disposal procedure

Such as plastic garbage cans, soft drink bottles, which comes from people's daily lives and municipal waste from industry (workshops, clinics, etc.) has to be disposed under the direction of systematic or otherwise, Garbage Collection systems as necessary, and in conjunction with waste disposal is to be carried out properly. In this factory, generation of domestic waste were mostly from dining room and it is estimated 1 - 2 kg per

day and daily generated 15 - 25 kg from about 500 employees. Approximately 0.5 - 0.75 tons per month and 6 – 9 tons annually has been disposed.

All of the solid waste has been planned and systematically and temporary stored at designated rubbish room (shown in No.16 of **Figure 9: SDI manufacturing Factory layout plan** and **Figure 57: Waste storage area before disposed, and throwing by contractor to Hlaing Tharyar YCDC Landfill.**

As a discussion with YCDC, sub contractor has been collected solid waste from factory minimum twice a week and disposed to Htein Bin waste station.

Record of Industrial waste materials such as waste yarn, cutting piece within 2018 are as follows;

Daily domestic waste, Industreial Solid Waste collected and recorded for 2019

2019 SOLID WASTE													
Solid Waste Type	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec	Total ton
Domestic Waste	16 kg	18 kg	20 kg	6 kg	18 kg	18 kg	17.5 kg	18 kg	19 kg	12 kg	18 kg	22 kg	0.18
Waste from Employees	0.75	0.60	0.70	0.52	0.73	0.70	0.69	0.72	0.65	0.75	0.66	0.50	7.97
Industrial Waste													
Cardboard (ton)	1.8	2.3	2.4	1.4	1.9	2.7	3.3	3.7	2.3	2	1.5	1	26.3
Cutting piece and waste piece (ton)	11	13	12	6	16	17	21	24	25	17	15	0.3	177.3

According to above record, it could be noticed that average 0.6 – 0.8 ton of industrial solid waste per week is produced from this factory. Some has been sold out to qualified recycle contractor annually.

Waste Disposal Procedure

Disposal wastage has been followed by below procedure

- A daily waste generated from the production system is keeping in the respective area and it has been delivered to outside safe place by YCDC or qualified sub-contractor and sent to Htein Bin Waste Station.
- Waste fabric inside different department is keeping in a cartoon or waste box to ensure that fabrics are not scattered all over the floor.
- Persons involved in collecting & dispatching waste are ensuring that no waste falls out of waste box during handling or dispatching procedure.
- All waste fabrics are kept in covered boxes/ bags in the designate safe place and the storage place is always keeping dry. Currently 50- 100 kg of waste fabric / week has been sold out to reuse buyer with contract as a plan every month since 2017.
- The recyclable waste that is released from the project (water bottle shell, soft drink shell, coffee milk shell etc.) without being mixed with disposing wet waste. These types of waste have been carried out to re-delivery to re-used factories/small businesses, performed by selling to recycle contractor since project started.
- The residuals of empty Chemical container were kept outside of the factory in a designated dry place.
- The empty Chemical containers are not used in the factory and not be given to workers for any other purpose.
- YCDC of sub-contractors for disposing waste will be made aware about different types of wastes and their possible effect & required recommendation.
- During the removal of wastes it is ensured that no nuisance is created because of the removing process and it does not affect the workers staff and also the tenants in and around.
- Records of all waste disposals are maintained by HR dept. on regular basis.

Detail Solid waste management plan of this factory has been shown in 8.2.7 Waste Management Plan during operation at factory.

Fire Prevention Plan at Rubbish Room Area

- Proper packing for disposal of waste
- Preparation of adequate fire extinguishers
- Holding Hose Reel with Cabinet from fire extinguisher not far from the rubbish room

- Assigned one employee who has attended firefighting training course
- Arranging for an emergency report in case

3.5.2 Liquid waste Generation

- Liquid waste is mainly insustrial waste water from ETP including both dissolved and suspended matter and very small amount, discharged from Boiler.
- **Some Hazardous chemicals has been used in washing and printing, as it was related with operational scope by this factory. There's no dyeing operation in this factory.**
- The discharge effluent from sewage is disposed under guide line and arranged comply with YCDC and sewage is being managed and dischared by liaising with YCDC quartly by on call system. There is enough septic tanks for sewage. Generally, the sewage water has been disposed every 4 – 6 months.
- Before treatment in ETP Plant, Monitoring of effluent level for inlet wastewater is arranged and analyzed at certified laboratory and updated result has been mentioned in **Figure 51** to compare with NEQEG.
- The result of outlet wastewater quality and drain plan have been shown in Outlet Wastewater Quality **Figure 50** and **Figure 52**.
- Process of Effluent treatment plant (ETP) in this factory has been mention in **Wastewater Treatment System** from **8.2.8 Wastewater Management Plan of SDI Factory** of this report.
- Treated Industrial wastewater has been discharged into public drain, which has been constructed beside of the factory. It was analyzed laboratory test occasionally before flowing to public drain, for safety purpose.

3.5.3 Hazardous Waste Generation

- There's some chemical use in this factory operation and some chemical waste generation in this SDI Manufacturing Factory. Empty containers of chemical have been kept separately before selling to reused contractor.
- There is very small amount of hazardous waste such as defected fluorescent light, broken needle from sewing machine, medical waste from clinic and its only 0.5 kg per month.
- For the used lubrication oil from machine /generator, from changing lubricant from generator engines (one time per 6 months/ 8 liter per one time) has been planned and sold to reused contractor and it is not too much amount.

3.6 Emissions and disturbances

Emission Sources

Local air quality

The project site is located in Ngwe Pin Lae Industrial Zone in Hlaing Thar Yar Township. The proposed project will emit gaseous emission to the air and the surround factories which emit the cumulative effect of these emissions could have determental impact on local air quality.
Based on these factors the sensitivity of local air quality with respect to additional atmospheric emission from this area is assessed as moderate.

Dangers from dust

Dust is generated during the beneficiation process especially washing, and printing (that is printing with water base chemical material)
Dust is also generated from unpaved road or dirt road during vehicular movement. Strong wind can generate dust.
Dust from engine running is mainly in the form of particulate matter and SO_2. Particulate matter usually ranges from PM_{10} to $PM_{2.5}$. The smaller $PM_{2.5}$ is also known as respiratory particulate matter (RPM) and is more harmful than PM_{10}.

Water Emissions

Emission of wastewater is generated from boiler water system, contaminated storm water, and industrial wastewater from washing & printing departments.

Domestic Wastewater

Approximately 60 L/day/person of sewer and grey water will be generated by amenities for site personnel and visitors.

Contaminated Storm water

Contaminated storm water from external operational areas should be low in volume and potential contaminant levels, as the majority of activities will be undertaken within the main building. External activities will primarily comprise into the building and product transport vehicles leaving the building.

Contaminants may include traces of oil and fuel associated with vehicle movements

ETP plant has been established in this factory since 2018 and wastewater treatment process is being performed in progress currently.

Noise Emissions

Factory workers operate with many and moderate noisy machines. When possible, noise should be controlled at the source by enclosing and insulating the machine. Well-maintained machines make less noise.

The assessment of the impacts of noise on the surrounding community depends upon;

- characteristics of noise source (instantaneous, intermittent, or continuous in nature, with the latter contributing the least to noise pollution);
- time of day at which noise occurs; and
- location of noise source with respect to noise sensitive receptor

For the purposes of predicting noise emissions impacts from the site, the noise emission sources were examined during both construction and operation phases.

Pollution Sources-Characteristics, Quantification and prediction

Pollutants generated due to project activities during both the construction and operation phase are solid, liquid and gaseous in nature. Also, the generation of pollution could be construction and operation phase are given below;

Table 14: Generation of Pollution Sources

Sr.	Activity / Area	Pollutant	Pollutant Characteristics	Frequency
CONSTRUCTION PHASE				
1.	Ground working and leveling	Air emissions – SPM, RSPM, CO, NO_x, SO_2	Dust from construction activities and excavation. Particulates, NO_x and CO from vehicle exhaust	Temporary during construction phase only-bulk of the emissions are expected from ground working and leveling activities
		Earth / solid waste	Solid waste from construction activity and excavation.	Periodic
		Noise	Noise generated from construction equipment and machinery	Temporary –during the initial construction phase
2.	Labor Camp	Sewage	Sewage generated from temporary labor camps on site	Temporary –during the initial construction Phase
		Solid Waste	Solid waste generated from temporary labor camps on site	Temporary –during the initial construction Phase
OPERATION PHASE				
1.	Vehicular movement	Air emissions and noise	Vehicle exhaust emissions	Continuous/periodic
2.	Operation	Air emissions – SPM, CO. NOx, SO_2	Dust from operation activities. Particulates, NO_x and CO from cutting textile, cutting pieces of fabric in manufacturing process	Continuous during operation phase
		Noise	Noise due to running of equipment	
		Waste	Generation	Periodic, during oil change
		Domestic Solid Waste	Bio-degradable and non-biodegradable waste	Continuous-small quantities
3.	Diesel power generators	Air emission	SO_2, NOx, SPM, CO from fuel burning	Periodic, only during power failure
		Noise	Noise due to running of equipment	
		Waste	Used oil Generation	Periodic, during oil change
		Domestic Solid Waste	Bio-degradable and non-biodegradable waste	Continuous-small quantities
4.	Raw water treatment	Wastewater	Blackwash water discharge	Continuous
		Solid waste	Sludge from coagulation process	Continuous

Sr.	Activity / Area	Pollutant	Pollutant Characteristics	Frequency
5.	Sewage treatment Plant	Solid waste	Settled and stabilized sludge	Continuous
		Treated water	Treated sewage used for horticulture	Continuous
		Odor release to air	Treated sewage used for horticulture	Continuous-small quantities
6.	Diesel Storage	Solid waste	Settled sludge during tank cleaning	Occasional
		Oil	Oil spillage-Accidental large spills due to pipe rupture Oil spillage – Small quantities due to small pipe leaks	Accidental / Only due to poor housekeeping
7.	Maintenance / housekeeping	Wastewater	Floor washing	Continuous
		Solid waste	Used equipment parts and garden wastes	Continuous
8.	Air conditioners	Air emission	Ozone Depleting Substance release	Continuous
9.	Vehicle Parking Area	Oil spills	Minor oil leaks in parking lot	Continuous-small quantities
10.	Storm water drains	Wastewater	Contamination discharge from site – mainly suspended solids	During rainy season
11.	Waste Yard	Odor release to air	Health impact	Accidental / Only due to poor housekeeping
12.	Chemical Storage	Odor release to air	House keeping, Management plan	Continuous-small quantities

3.7 Project alternatives for each project phase

Description of alternative Environmental Management

When examines arrange of reasonable alternatives to the proposed project, this area of project size limits to low density business uses. Therefore, commercial alternatives are feasible.

The Construction Phase Environmental Management Plan

The construction phase EMP provides specific environmental guidance for the implementation and construction phase of a project. It is intended to enable the management and mitigation of construction activities so that environmental impacts are avoided or reduced. These impacts range from those incurred during start up (e.g., site clearing, erection of the construction camp) to construction activities (i.e. erosion, pollution of watercourses, noise, dust). Information presented in the EMP is typically categorized as follows:

- Identify the specific activity or potential impact that requires management;
- Determine the mitigation measures to be implemented;
- Identify the performance indicator;
- Identify who would be responsible for implementation and
- Identify who would be responsible for monitoring.

The construction Phase has been passed over and the project is now performing in Operation Phase

The Operational Phase Environmental Management Plan

The operational phase EMP provides specific guidance related to the operational activities associated with a particular development. The roles and responsibilities for mitigation, monitoring and performance assessment for the operational life of the development are specified in the environmental management plan.

The Decommissioning Phase Environmental Management Plan

Decommissioning may present positive environmental opportunities associated with the return of the land for alternative use and the cessation of impacts associated with operational activities. However, depending on the nature of the operational activity, the need to manage risks and potential residual impacts may remain well after operations have ceased. Examples of potential residual impacts and risks include contamination of soil and groundwater, stock that has been abandoned (e.g., oil drums, scrap equipment, old chemicals) and old structures. The decommissioning phase of EMP provides specific guidance with respect to the management of the environmental risks associated with the decommissioning stage of a project. The decommissioning phase EMPs are typically encountered within extractive industries such as minerals mining and oil and gas exploration and extraction.

Importance of Environmental Management

Environmental management promotes physical, social and economic environment of the enterprise or project. It encourages planned investment at the start of the production chain rather than forced investment in cleaning up at the end. The importance of environmental management is as follows

- To clarify modern environmental concept like how to conserve biodiversity;
- To know the more sustainable way of living;
- To use natural resources more efficiently;
- To know the behavior of organism under natural conditions;
- To know the interrelationship between organisms in populations and communities;
- To aware and educate people regarding environmental issues and problems at local, national and international levels.

Environmental management is vital to confirm socio-economic development project to environmental safety and thereby ensure sustainable economic development. Its impact on the environment is also ever increasing, leading to rapid deterioration in environmental conditions. It helps the planning and management to take long term measures for effective management as well as environment conservation.

Analysis for Alternative on technological and design (No-go-alternative)

This alternative is examined against technological and design consideration. Alternative analysis is considered for the following;

- SDI Manufacturing Co., Ltd has been planning to be promoted their same only technology and quality, own same design, and same products and also plan to create an environment of best facility that surpasses the standardization for their location.

Comparison and Selection of Alternative Environmental Management Concept

Environment is a fundamental and most essential part of our day-to-day life. Environmental management offers us a better livelihood by ensuring proper management in different sector of our life. Environment comprises various types of forces such as physical, intellectual, economic, political, cultural, social, moral and emotional. Environment is the sum total of all these external forces, influences and conditions, which affect the life, nature, behavior and the growth, development and maturation of living organisms. In another word, Environment refers to the sum total of condition, which surrounds point in space and time. And environmental management is an attempt to control human impact on and interaction with the environment in order to preserve natural resources. It focuses on the improvement of human welfare for present and future generations. Environmental management system is simply a collection of activities undertaken to ensure that environmental issues are managed. It provides the following functions

- Consistently complying with environmental laws;
- Improving overall environmental performance;
- Addressing environmental liability from current or past practices;
- Maximizing investment in environmental affairs;
- Integration of environmental objectives into overall mission and business objectives;
- Providing an environmentally safe workplace.

Basically an Environmental Management Framework is Plan, Do, Check and Act with a continuous cycle.

Environmental Management Plan (EMP)

Preparation of environmental management plan is required for formulation, implementation and monitoring of environmental protection measures during and after commissioning of projects. The plans should indicate the details as to how various measures have been or are proposed to be taken including cost components as may be required. Cost of measures for environmental safeguards should be treated as an integral component of the project cost and environmental aspects should be taken into account at various

stages of the projects:

- Conceptualization: preliminary environmental assessment
- Planning: detailed studies of environmental impacts and design of safeguards
- Execution: implementation of environmental safety measures
- Operation: monitoring of effectiveness of built-in safeguards

The management plans should be necessarily based on considerations of resource conservation and pollution abatement, some of which are:

- Liquid Effluents
- Air Pollution
- Solid Wastes
- Noise and Vibration
- Occupational Safety and Health

Prevention, maintenance and operation of Environment Control Systems

- House-Keeping
- Human Settlements
- Transport Systems
- Recovery - reuse of waste products
- Vegetal Cover
- Disaster Planning
- Environment Management Cell

3.8 Description of the Environmental Setting

This Title provides a general description of the current state of the environmental setting and socio-economic stand point of the project area. This covers the project site, local communities, and the areas around the site where the development is planned to take place which may be directly or indirectly affected by activities of the project. This section presents data collection methodology, primary baseline field data of the project site, and the secondary background environmental information of the project region from the published sources.

3.8.1 Setting the Study Limit

Information relating to the physical, technical and environmental parameters was collected from client and other agencies such as regional union council; head of the Company's management, meteorological department, internet and development directorates, and set up study limit is 1 kilo meter radius of the surrounding proposed factory area etc., employee were interviewed in detail to understand the socio economic, culture and customs of the area.

a. Data Analysis
The collected data were analyzed in the frame work of (j). Environmental Conservation Law (2012), Environmental Conservation Law (2014), The Environmental Impact Assessment Procedure (2015) Article 34,35, 36, National environmental quality (emissions) guidelines (2015) (and ISO 14000 / system and Existing labor laws (Employment, payment, workers compensation act.etc.)

b. Initial Environmental Examination.
Initial Environmental Examination has to be carried out for Construction and operation period which measured in topography and physiographic, ambient air quality, noise, raw material, land use, terrestrial and Socio-economic

c. Environmental Management Plan Report

Study Area

The SDI Manufacturing Garment factory Project site is at an altitude of 30 feet above mean sea level, and it lies between 16°55'46.49"N, 96° 3'33.39"E. The study was focused on the area of 1 km radius around the project. As the project site is located in an existing Ngwe Pin Lae` Industrial Zone, various industries are operating within 2 km radius of the factory site. Nearest densely populated area of the factory site is the

industrial estate itself. The study also focused on the outside the industrial estate.

Study Period

As part of the Environmental Management Plan study, baseline environmental study at this area and around the project site was carried out in September to October of 2013 and January, 2020.

Archaeological and Cultural Resources

There is no archeological site or recreational area within the project vicinity. So, the project has no impact on archaeological and cultural resources.

Land Use

Hlaing Thar Yar Township occupies an estimated area of 22.64 mile ^{2} (14489.6 acres). Among them, urban area occupies estimated 13191.55 acres and Industrial Zone occupies estimated 3455.678 acres. As the township is in Hlaing Thayar City urban area, prominent land use is urban purpose with 79 % of total land area, largest land quota of about 21%, and the least available one I s agricultural sector with no land use of the township. Land use pattern of the township can be seen in the following figure.

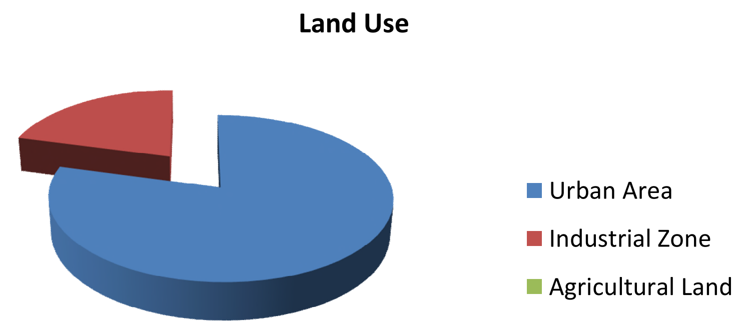


Figure 39: Land Use Pattern of Hlaingthayar Township

Sensitive Zones

The project site and its surroundings, upon investigation, are not classified as protection zones.

Forest and Wetlands

There is no forest and wetland area within or near the project compound.

Vegetation

Although nearly the whole township is utilized for urban and industrial purposes, there are unoccupied blocks and undeveloped roads within the area. Ale Ywa just outside the Industrial Zone trespassed and cultivated in the unoccupied lands. So, there exists farm land around the project site.

Water Body

The nearest water body is the Hlaing River which is well beyond the project vicinity of 1 km radius. Domestic water from the Project is discharged to a sanitary sewer provided by YCDC with an enclosed PVC pipe. Other effluent of the project is discharged to the nearby sewer. Hlaing River is 0.70 km from the SDI Manufacturing factory Project.

Figure 40: Hlaing River around Project Site

The Project site is situated within Hlaing Tharyar Industrial zone - 4, a completely built-up area. The land use around the Project site was described along a 200m radius of the Project boundary.

<u>Project Site</u>

The land use within the Project site is vacant land. It is believed the vacant land was previously used as a dumpsite as considerable amounts of solid waste were found during excavation work.

Determination of the Area is to be impacted by the project. (Base line – information of land) Around project site has been determined with interaction of the project with economic, social, biological and physical environment.

There is no land use for forest, agriculture, and farming purposes and so the proposed project will also have no impact on land utilization pattern and land use plan.

There is no further additional land use for that project. In Hlaing Thar Yar Township, there are no land use for forest, agriculture, and farming purposes and so the proposed project will also have no impact on land utilization pattern and land use plan. The land use area of the proposed project is;

- Ware House
- Electrical Room
- Main Office
- Canteen (Dining Room)
- Production by each section

<u>Surrounding Land Use</u>

The survey of the surrounding land use was focused on a radius of 200 m from the Project boundary. The area is almost completely built-up comprising of institutional, commercial, and residential buildings. There are some factories and companies around this Factory. Universal Cold Store is at left side of this factory, Empty Warehouse is at the back side, and vacant land is at right side beyond street.

<u>Traffic</u>

There is only one major road surrounding the Project site: it is Kha Yay Bin Road which is connected from Pyay Road to Yangon-Pathein Road passing through Shwe Pyi Thar Bridge.

3.8.2 Description of the Environment at Project Site

In order to fulfill the requirement of this EMP, the team undertook such a study for examining the existing physical parameters of climatic, hydrological, geological, and acoustic conditions at the vicinity of the project.

<u>Meteorological Condition & Meteorological Data</u>

Generation of Base line environment data was carried out during the period from (2014) May to June 2014 and 2016 - 2018. Data has been generated by the approved lab in Myanmar. Study area of 1 km radius distance around the site has been considered for the EMP study.

Rainfall

Mean annual rainfall is 2909.3 mm, mean temperature is 27.05°C and mean annual evaporation is 347 mm. Climate is tropical with average minimum and maximum temperature. February to May is hottest time.

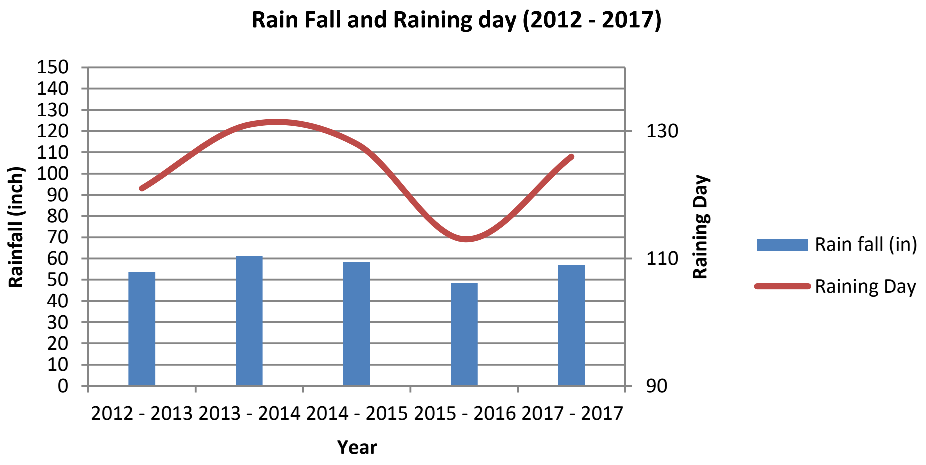


Figure 41: Rainfall and Raining Day 2012 - 2017 in Hlaing Tharyar

Ground water and Hydrogeology

Hydrological characteristic of this area is based on underlying sediments and surrounding drainage system. Most of underlying sediments are alluvium units and Valley-fill deposit. Water bearing horizon is nearly 300 ft in this Hlaing Thar Yar (Ngwe Pin Lae` Industrial Zone) is 3600 gph for 4 x 8 inches diameter tube well.

Wind

The prevailing winds are from the south and south east, from April to December then north and west during the summer monsoonal period, wind strength is generally greater in the afternoons.

The north = easterlies (monsoons) generally between December and mid-April and the south easterly trade winds which prevail between June and mid-October. The trade winds are stronger usually 5.9 km /h and the max wind speed is 14.6 km / h during 2003 to 2014.

Temperature

Hlaing Tharyar Township has a dry and hot climate with a highest temperature of 42°C and the lowest temperature of 12°C. Temperature and rainfall from year 2011 and 2012 can be seen in the following table. The dry season of the area in which the project lies starts in February and ends in May. The rainy season starts in June and ends in September and the cold season following with the cooler, drier months of October to January. Some Metrological data such as temperature, rainfall, humidity, and wind speed and wind direction are collected from Kaba aye Station.

Humidity and Evaporation

Relative humidity is high throughout the year with monthly average raining between 54-95%. The monthly average is always above 75.7%

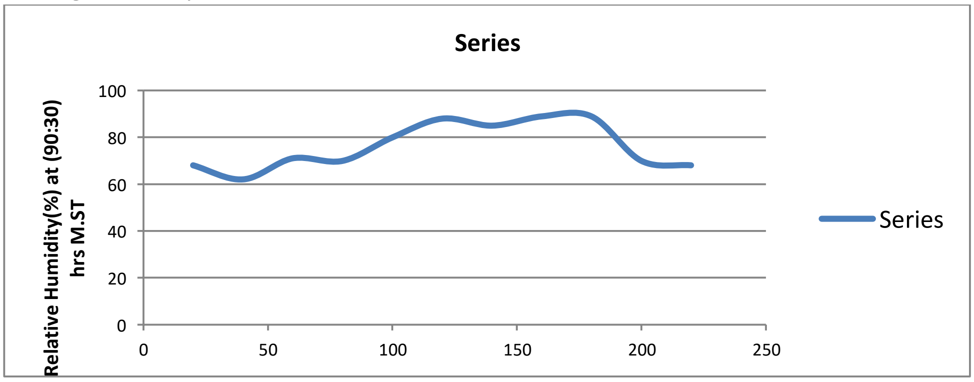


Figure 42: Relative Humidity % (Average Annual)

Table 15: Annual Average Temperature in Yangon

Month	High / low	Temperature	Humidity	Pressure
January	High	34 °C (10 Jan, 12:30)	100% (9 Jan. 06:30)	1015 mbar (9 Jan, 06:30)
	Low	16 °C (30 Jan. 06:00)	21% (30 Jan, 10:00)	1006 mbar (24 Jan, 16:00)
	Average	26 °C	71%	1011 mbar
February	High	37 °C (22 Feb. 13.00)	100% (8 Feb. 06 00)	1018 mbar (8 Feb. 06.00)
	Low	16 °C (1 Feb. 04:30)	22% (25 Feb, 15:00)	1006 mbar (21 Feb. 17.00)

	Average	27 ' C	65%	1012 mbar
March	High	38 °C (6 Mar, 14:00)	100% (2 Mar. 06 30)	1019 mbar (2 Mar. 06:30)
	Low	21 °C (3 Mar. 03:30)	24% (6 Mar. 14.00)	1005 mbar (22 Mar. 15.00)
	Average	29 °C	69%	1010 mbar
April	High	39 CC (11 Apr. 16:00)	100% (7 Apr. 14:00)	1015 mbar (7 Apr. 14:00)
	Low	23 CC (8 Apr. 00:30)	29% (11 Apr. 16:00)	1004 mbar (5 Apr, 16:00)
	Average	31 °C	66%	1009 mbar
May	High	39 °C (10 May, 14:00)	100% (10 May. 21.30)	1013 mbar (10 May, 21:30)
	Low	23 °C (15 May. 03:00)	19% (3 May. 22 00)	1003 mbar (19 May. 17:00)
	Average	30 °C	74%	1008 mbar
June	High	33 °C (13 Jun. 12.00)	100% (2 Jun. 04:30)	1010 mbar (2 Jun. 04.30)
	Low	24 °C (2 Jun, 04:30)	59% (30 Jun, 15:00)	1001 mbar (9 Jun, 15:30)
	Average	27 °C	89%	1006 mbar
July	High	33 °C (1 Jul. 13 30)	100% (1 Jul. 18.00)	1009 mbar (1 Jul. 18:00)
	Low	24 °C (9 Jul, 21:30)	59% (1 Jul, 13:30)	999 mbar (18 Jul, 16:30)
	Average	27 °C	92%	1005 mbar
August	High	32 °C (6 Aug. 11 30)	100% (1 Aug. 08 30)	1011 mbar (1 Aug. 08:30)
	Low	24 °C (2 Aug, 15:30)	63% (29 Aug, 13:30)	998 mbar (18 Aug. 16:00)
	Average	27 °C	90%	1005 Mar
September	High	35 °C (30 Sep. 13.30)	100% (1 Sep. 08 00)	1014 mbar (1 Sep 08 00)
	Low	24 °C (4 Sep. 07:30)	53% (30 Sep, 1330)	1001 mbar (10 Sep. 0400)
	Average	28 °C	85%	1008 mbar
October	High	34 °C (1 Oct, 11-00)	100% (7 Oct_ 04 00)	1016 mbar (7 Oct, 04:00)
	Low	23 °C (31 Oct. 06 30)	53% (28 Oct. 15:00)	1007 mbar (1 Oct, 16:00)
	Average	28 °C	83%	1011 mbar
November	High	35 °C (17 Nov. 14.30)	100% (4 Nov. 13:00)	1019 mbar (4 Nov. 13:00)
	Low	21 °C (22 Nov. 06:30)	39% (25 Nov, 16:00)	1006 mbar (13 Nov. 14:30)
	Average	28 °C	78%	1012 Mbar
December	High	35 °C (4 Dec. 15-00)	100% (6 Dec. 04 30)	1018 mbar (6 Dec. 04:30)
	Low	19 °C (27 Dec, 05 00)	40% (27 Dec. 12:00)	1007 mbar (5 Dec, 15:00)
	Average	27 °C	77%	1012 mbar

This is the monthly total of sunhours

Table 16: Average Monthly hours of sunshine over the year

This is the mean monthly precipitation, including rain, snow, hail etc. Show in **Inches »**

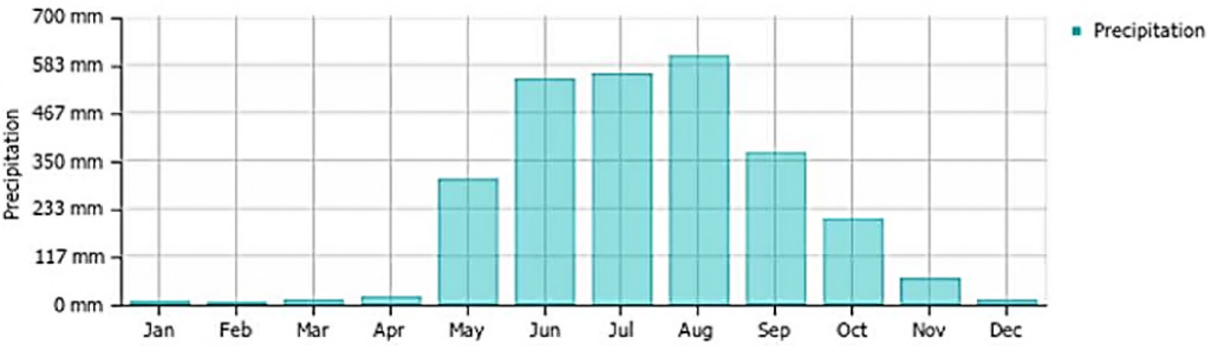
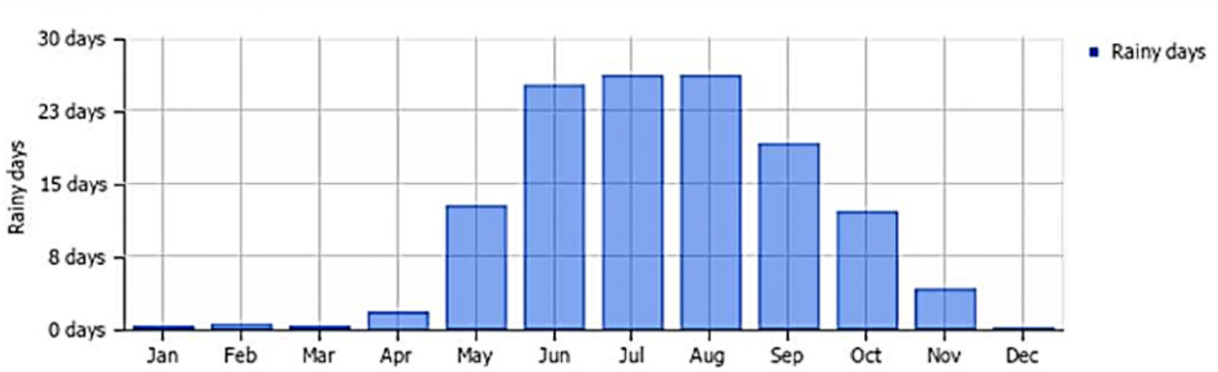
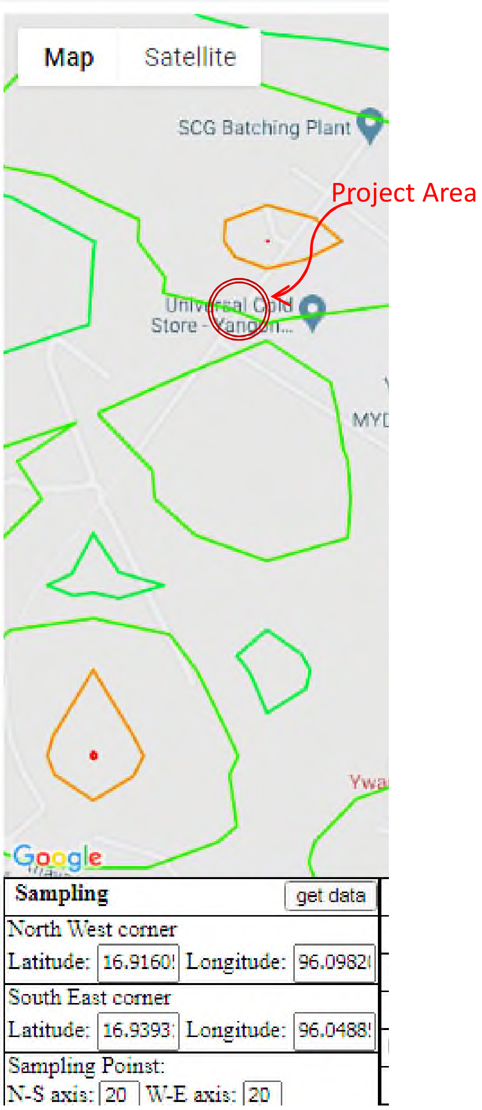


Table 17: Average monthly precipitation over the year (rainfall, snow)



Existing Topography

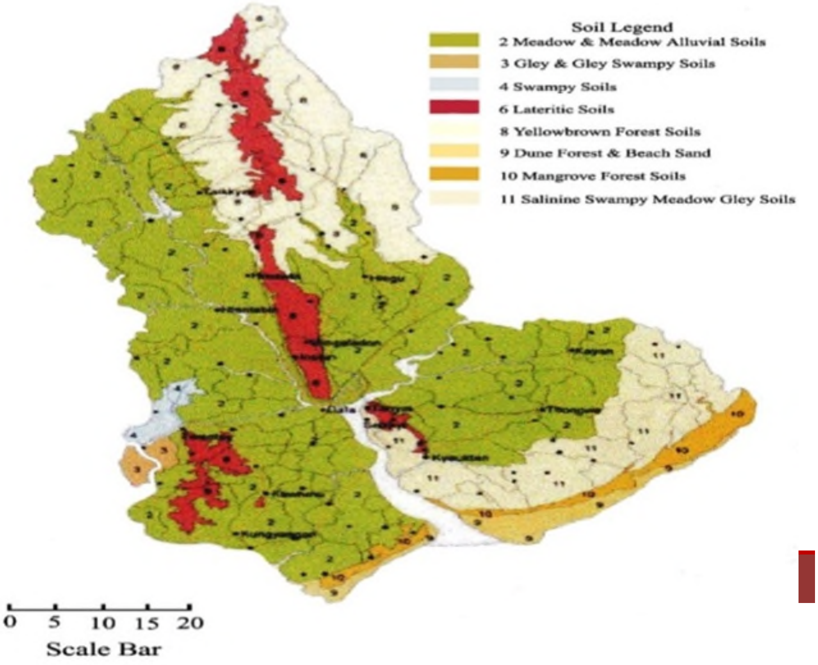
According to topographic map of Yangon Region, this area is flat plain area and it is implemented by DEHSD for industrial Zone since 2000. No.2 Main Street, Myanmar (Burma), NgwePinLae Industrial Zone, Lng: 96.05926959489841, Lat: 16.929524175639685, Elevation: 6m / 20 feet.
Below map shown topography, water bodies and drainage for the surrounding of this factory project;
Location of this factory is within Ngwe Pin Lae Industrial Area (Hlaing Thar Yar Township), and there's no sensitive area.



Topographic condition of project area with contour lines

Regional Geology of Yangon

Being largely a flat alluvium-

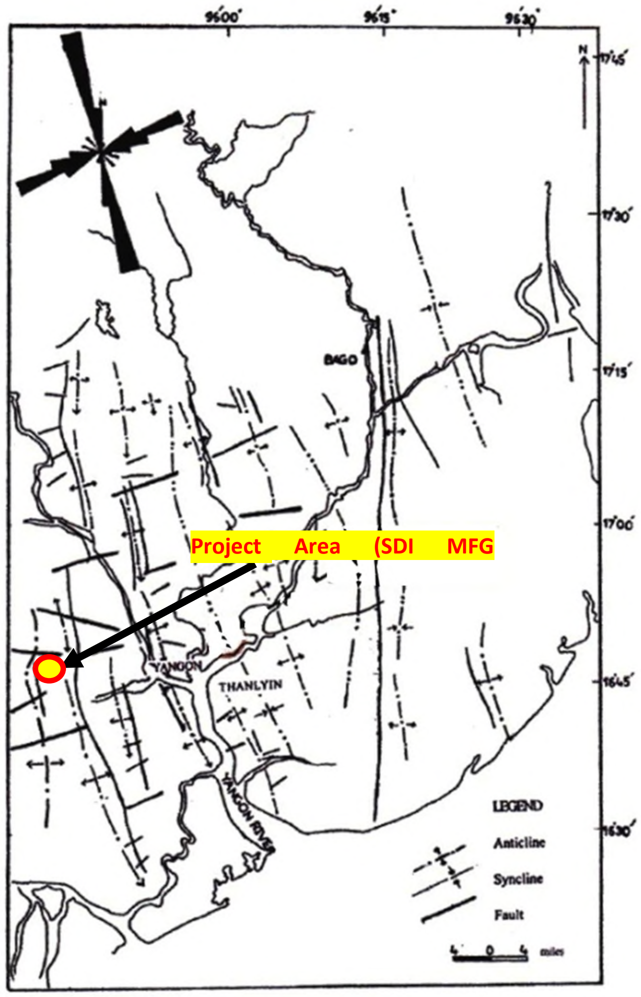


covered terrain with no notable economic mineral potential, Yangon Region has not attracted much of the attention of the geologists from the mineral prospect point of view. The Yangon area, however, was investigated in 1932 for groundwater resources by Leicester. In 1977, the Coco islands were surveyed by the Myanmar geologists.

Soil

Alluvial soils (fluvic Gleysols) can be found in the flood plains. They have the texture of silty clay loam and they have the neutral soil reaction and are rich in available plant nutrients. Medadow gley soils (Gleysol) and Meadow swampy (Histic Gleysol) occur in the regions of lower depressions where the lands are inundated for more than 6 months in a year. The texture of this soil is clayey to clay and usually having very strong acid reaction and contain large amount of iron.

Geotechnical Hazard



At the north of Yangon, the possible seismic source area is in the Thayarwady area although regional tectonic framework has not been well established. The probable mode of faulting is in the sense of faulting is in the sense of reverse owing to the fact that the mega-sausage structure and associated characteristics of progressive deforming pattern in the western part of the Bago anticlinoria.

To the south, the earthquakes frequently happen in the south of the Mottama Gulf and the Andaman Sea where the extensional horsetail structure of the southern termination of the Sagaing Fault (Earn, 2003) is well dominated, it cannot be defined as a single seismic source, but the source area, likewise in the earthquakes is and thus, the whole area, in general, should be the seismic source areas.

The Bago earthquake in 5 May 1930 is associated with the right lateral strike slip movement along the west segment is long enough to generate large magnitude earthquakes in this region the location of this event was reported in NEIC Catalogue as 17 N and 96.5 E and the magnitude is 7.3. The records on damage and causality in this region such as Bago and Yangon suggested that the size of the earthquake was not less than 7.3 Richter Magnitude, regarding ancient records of the Shwedagon Pagoda in Yangon and the Shwemawdaw Pagoda in Bago areas, there were at least (30) times since 197 BC (Win Swe, person, comm..). However in present study, the earthquake data are used from NEIC and other sources for the period from 1930 to 2004 with regardless of the large earthquakes on the historic record.

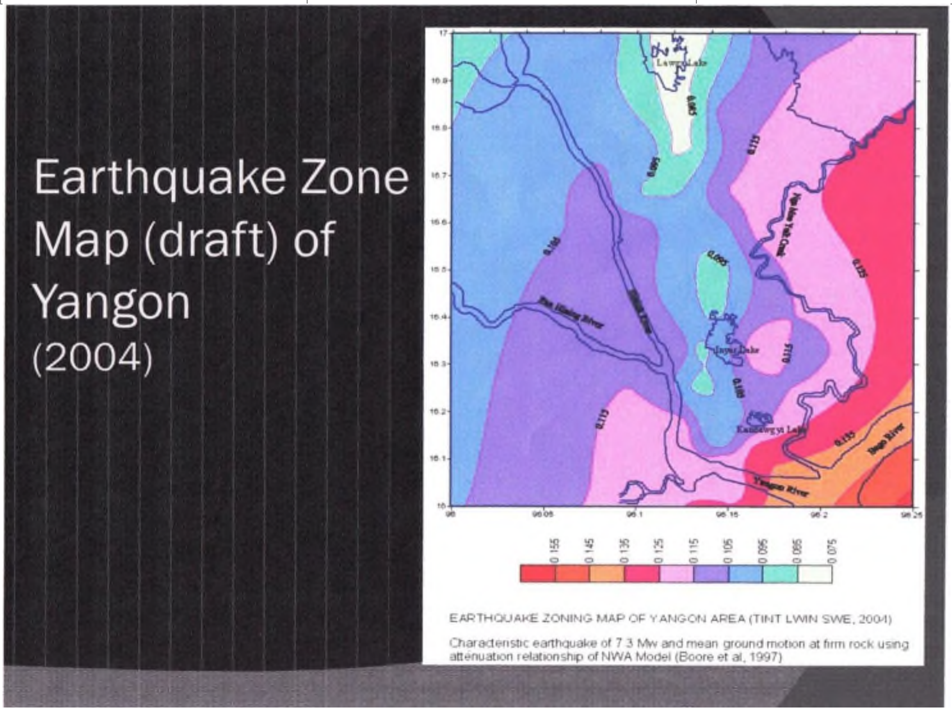
The highest intensity zone designated for Myanmar is the Destructive Zone (with porbable maximum range of ground acceleration 0.4 -0.5 g), which is equivalent to modified Mercalli (MM) class IX. There are four areas in that vulnerable zone; namely, Bago, Phyu, Mandalay-Sagaing-Tagaung, Putao Tanaing, and Kale Myo – Homalin areas. Although the latter two have major earthquake hazards, they may be less vulnerable as are major earthquake hazards, they may be less vulnerable as are sparsely populated, Important cities and towns that lie in Zone IV (Severe Zone, with probable maximum range of t ground acceleration 0.3 – 0.4 g) are Taungoo, Taungwingyi, Bagan-
Nyaung U, Kyaukse, Pyin Oo Lwin, Shwebo Wuntho, Hkamti, Haka, Myitkyina, Taunggyi and Kaunglone, Yangon straddles the boundary between Zone II and Zone III with the old and satellite towns in the eastern part in Zone III, and the original city in Zone II>

Major Earthquake Intensities around Yangon Area

According to the records of Meteorology & Hydrology Department (Yangon)

Table 18: The major Earthquake intensities around Yangon area

AREA	DATE	NEAREST MODIFIED MERCALLI (MM)
Yangon	November 1620	6.0-6.5
Yangon	26 Dec3mber 1644	5.5
Yangon	6 may 1652	5.0-5.5
Yangon	December 1664	5.5
Yangon	13 June 1768	5.0-5.5
Yangon	23 August 1864	4.5
Yangon	23 July 1884	4.5-5.0
Yangon	10 October 1888	5.5
Yangon	13 December 1894	5.0
Yangon	19-August-1919	5.0
Yangon	10-September-1927	4.0
Yangon	5-May-1930	7.0-7.5
Yangon	9-February-1951	4.0-4.5
Yangon	17-August-1964	4.0
Yangon	9-February-1969	5.0
Yangon	9-September-1970	6.0-6.5
Yangon	1970-1980	4.0-6.5
Yangon	1980-1990	3.5-5.5
Yangon	1990-2000	4.0-5.5
Yangon	2000-2003	4.0-6.0
Yangon	Dec-04	5.5
Yangon	2005-2012	<5.0



Hydrology and Drainage

Rivers

The Project site is located about 0.65 kilometer west of the Hlaing River. The Hlaing River is a marine estuary that runs through Yangon before discharging into the Gulf of Martaban of the Andaman Sea. The river is used by ocean-going vessels to reach the Yangon Port, and is a source of irrigation water for paddy cultivation in

the Ayeryawaddy Delta via the Twante Canal.

Local Drainage

A perimeter drain surrounds the Project site. The drain is small and was most probably designed for an average rainfall interval occurrence of less than five years. The perimeter drain does not appear to be connected to any main drainage network. Surface runoff is expected to flow naturally along the gradient towards Yangon River. A storm water drain will therefore be constructed from the development with its discharged point one kilometer away. No flood occurrence has however been reported at the Project site and its immediate surrounding area.

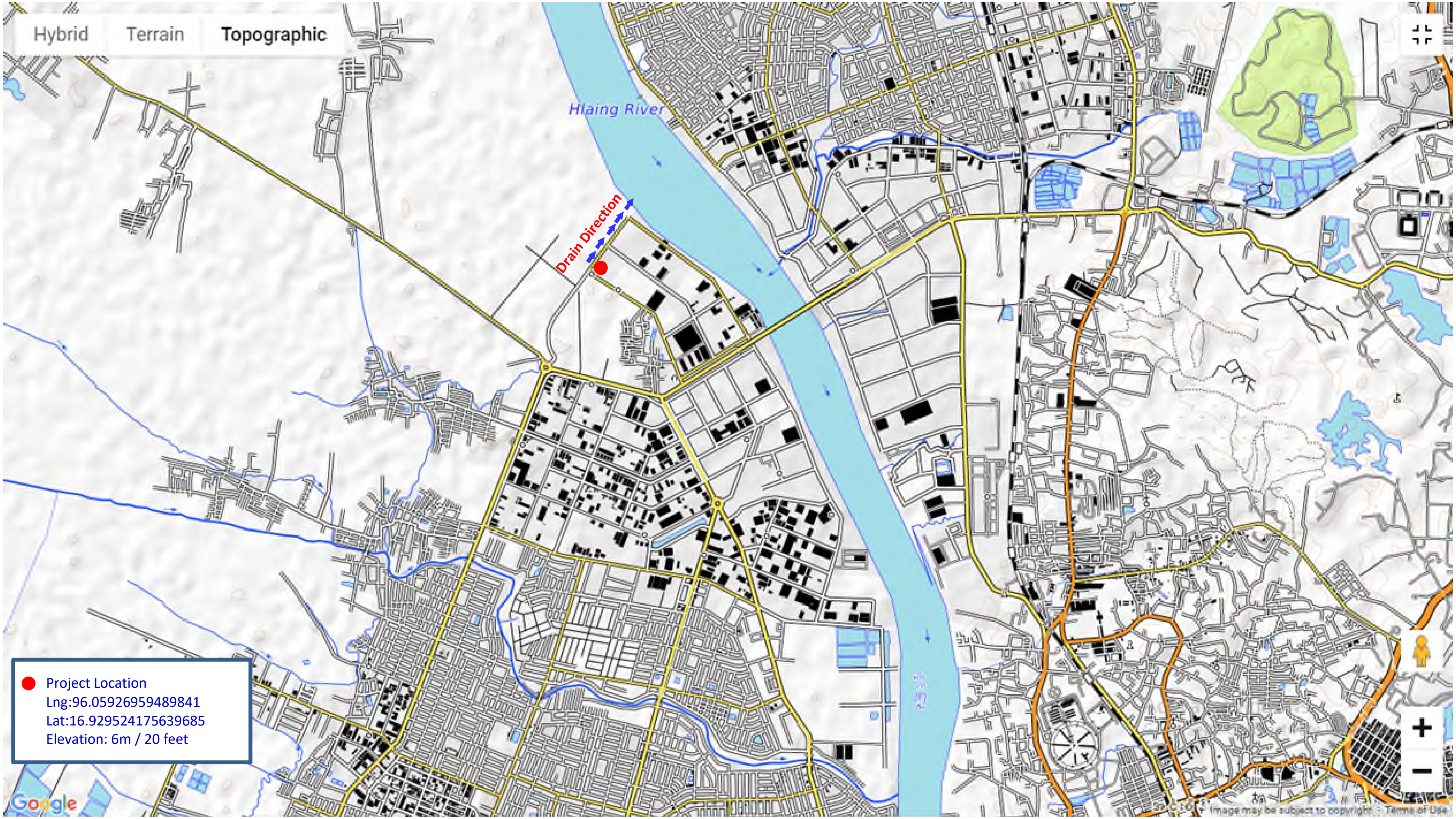


Figure 43: Local Drainage around Ngwe Pin Lae Industrial Zone

3.8.3 Physical environment parameters: Air, Noise and Water

In respect to ambient air quality, there is no available air quality standard established in Myanmar for its own use previously. Therefore, relevant international guidelines and standards were used to compare the findings. The 24 hours average concentrations of NO2 and SO2 levels in elected sites are well below the WHO Guideline.

In 2015, December 29, National Environmental Quality (Effluent) Guideline (NEQEG), has been promulgated by Environmental Conservation Department under Ministry of Natural Resources and Environmental Conservation with Notification No. (615/2015)

More generally, air quality is still reasonably good in this Area. Suspended matter is sometimes high, but it is just the consequence of the prevailing dry climate conditions combined with a multitude of areas with bare ground.

Ambient Air Quality

Emission of air pollutants can occur from a wide variety of activities during the construction, operation, and decommissioning phases of the project. These activities can be point sources, fugitive sources, and mobile sources and by process such as combustion, materials storage, or other specific processed. SDI Manufacturing Garment Factory projects will prevent or minimize impacts by ensuring that emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standard, and emission do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards. Following is the NEQEG's Air emission levels for Txtiles Manufacturing (2.3.2.1) guidelines values and General guide line values for ambient air quality standard applicable as a reference standard for the current project.

Duration for Air Quality Survey and Methodology

Sampling and analysis of ambient air quality were collected within about 8 hours for the projects during the operation phase of the Project.

Sampling and analysis of ambient air quality were conducted by referring to the recommendation of the United States Environmental Protection Agency (U.S. EPA). The Haz-Scanner Environmental Perimeter Air Station (EPAS) was used to collect ambient air survey data. Sampling rate or air quality data were measured automatically every one minute and directly read and recorded onsite for measured parameters (SO_2, NO_2, CO_2, CO, H_2S, O_3, CH_4, PM_{10}, $PM_{2.5}$), as shown in Table. Sampling pump was operated at 2 L/min. Different analysis methods are integrated in the instrument, such as Particulates 90° Infrared Light Scattering for particulate matters (PM_{10}, $PM_{2.5}$), electrochemical sensors for toxic gases (SO_2, NO_2, CO, H_2S), NDIR (optional sensor) for (CO_2, CH_4) and Gas Sensing Semiconductor- GSS technology (optional sensor) for O_3.

Sampling and Analysis Method for Air Quality

No.	Parameter	Analysis Method
1	Sulfur dioxide (SO_2)	On site reading
2	Nitrogen dioxide (NO_2)	On site reading
3	Carbon Dioxide (CO_2)	On site reading
4	Carbon monoxide (CO)	On site reading
5	Hydrogen Sulfide (H_2S)	On site reading
6	Particulate matter 2.5 (PM2.5)	On site reading
7	Particulate matter 10 (PM10)	On site reading
8	Methane (CH_4)	On site reading
9	Hydrogen Sulfide (H_2S)	On site reading
10	Solar Radiation	On site reading
11	Wind Direction	On site reading
12	Wind Speed	On site reading
13	Temperature	On site reading
14	Relative Humidity	On site reading

Survey Result

The air quality survey results obtained every minute at each survey site were combined to make daily average values (24 hours or 8 hours or 1 hour or 10 minutes) for further evaluation and comparison with corresponding standard values.

Emission of air pollutants can occur from a wide variety of activities during the vehicle's movement. These

activities can be point sources, fugitive sources, and mobile sources and by process. NEQEG for General air pollution has been applied for comparison whether the air quality for the project was within the guidelines.

Table 19: Air Pollution Guide Line (General Guide Line) NEQEG

Parameter	Averaging Period	Guideline Value µg/m³
Nitrogen dioxide	1-year 1-hour	40 200
Ozone	8-hour daily maximum	100
Particulate matter PM10[a]	1-year 24-hour	20 50
Particulate matter PM25[b]	1-year 24-hour	10 25
Sulfur dioxide	24-hour 10-minute	20 500

[a] Particulate matter 10 micrometers or less in diameter
[b] Particulate matter 2.5 micrometers or less in diameter

Table 20: (NEQEG)'s Air Emission Levels for Textiles Manufacturing (2.3.2.1)

Parameter	Unit	Guide Line Value
Ammonia	mg/Nm^{3a}	30
Carbon disulfide	mg/Nm^3	150
Chlorine	mg/Nm^3	5
Formaldehyde	mg/Nm^3	20
Hydrogen sulfide	mg/Nm^3	5
Particulates	mg/Nm^3	50
Volatile organic compounds	mg/Nm^3	2/20/50/75/100/10 c. d

a Milligrams per normal cubic meter specified temperature and pressure
b As the 30 – minute mean for stack emissions
c Calculated as total carbon
d As the 30- minute mean for stack emissions; 2 mg/Nm^3 for volatile organic compounds classified as carcinogenic or mutagenic with mass flow greater than or equal to 10 g/hour: 20 mg/ Nm^3 for discharges of halogenated volatile organic compounds with mass flow equal or greater than 100 g/ hour. 50 mg/Nm^3 for waste gases from drying of large installations (solvent consumption > 15 tons / year); 75 mg/Nm3 for coating application processes for large installations (solvent consumption> 15 tons / year); 100 mg/Nm^3 for small installation (solvent consumption< 15 tons / year); if solvent is recovered from emissions and reused, the guideline value is 150 mg/Nm^3

According to the above tables, the project is not a polluting industry which emits into the atmosphere, there could be no impact from the project on the background emissions level of local community.

It could be noted PM_{10} and $PM_{2.5}$ of Air emission level is within the guidelines although there has been cumulative impact with other factory around this area shown at below figure.

Detail air quality on the parameter such as PM_{10} (24 hr), $PM_{2.5}$(24 hr), NO_2, SO_2, O_2 level has been performed in **Figure 46**, and comparison has been shown the air quality levels is within Emission Guidelines (WHO and National Environmental Quality). It is acceptable condition.

Figure 44: Air Level Survey Point

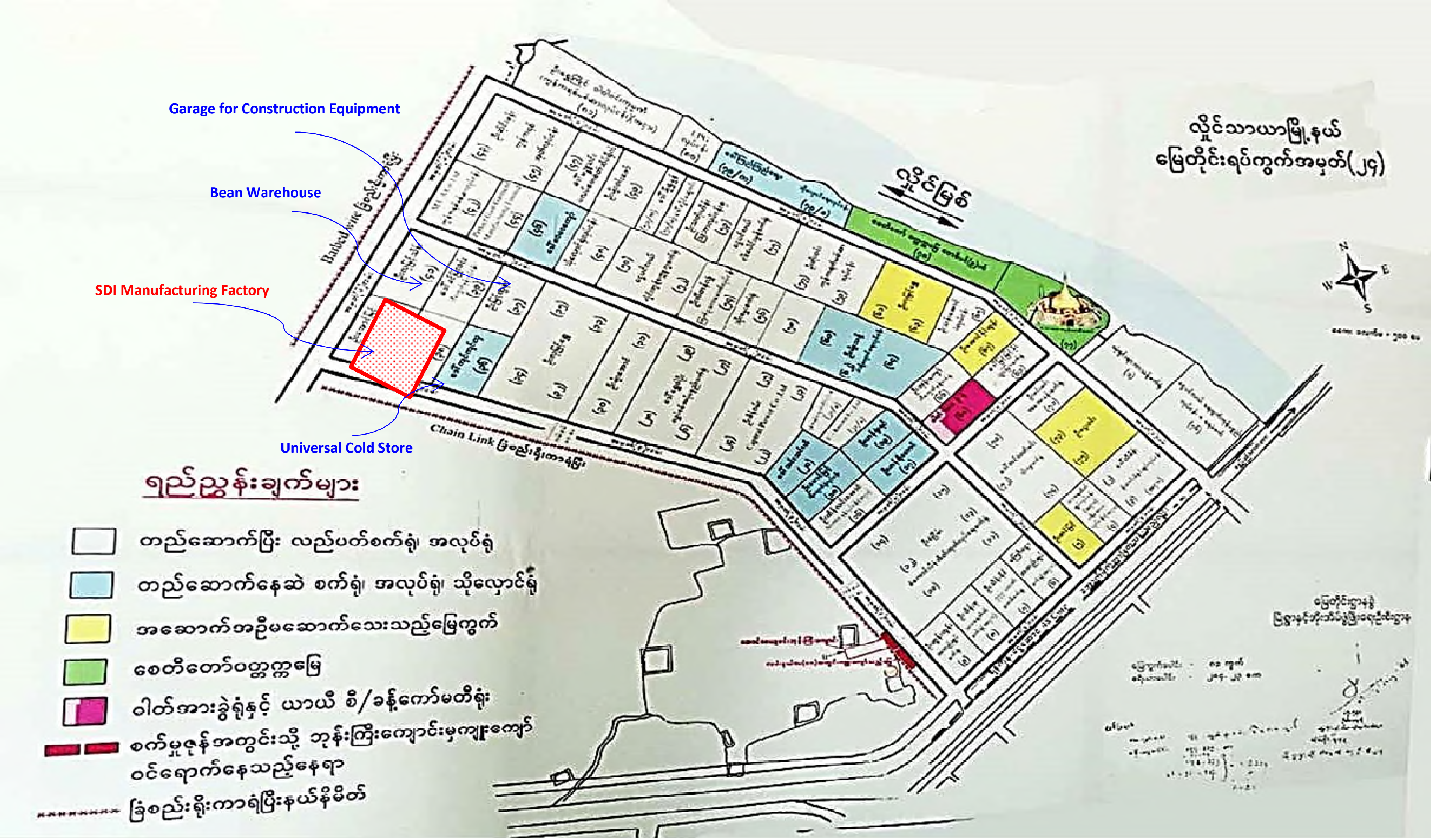


Figure 45: Potential Cumulative Impact from surrounding factories

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Reference Number/ စာအမှတ်: EL-R /260

Date / နေ့စွဲ: 3 December, 2019

Air Analysis Report /လေတိုင်းတာ စစ်ဆေးမှု အစီအရင်ခံစာ

Air Analysis Info / လေတိုင်းတာမှု အချက်အလက်

လေတိုင်းသည့်နေရာSample site:	SDI Garment Factory	လေနမူနာအမှတ်စဉ်Sample I.D.	265	
နေရာ (မြို့နယ်) Location (township)	Plot.40 Myay Taing Quater /No.24 Ngwe Pin Lel Industrial Zone/ Hlaing Thar Yar Township	လတ္တီတွဒ် Latitude	N 16˚ 55′ 47.85″	
		လောင်ဂျီတွဒ် Longitude	E 096˚ 03′ 33.11″	
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	Yangon	နည်းစဉ် Method	HAZ-SCANNER ™ Model-EPAS	
		စက် တည် အမြင့်(မြေပြင်မှ) Station height (above ground)	Ground	
တိုင်းတာလိုသူ အမည် Name of customer:	SDI Manufacturing Co.,ltd	စတင်တိုင်းတာသည့်ချိန် (နေ့အချိန်) log on time (Date,Time)	**25.11.2019**	8:47AM
တိုင်းတာသည့်နေ့စွဲ Air Sampling Testing Date	**25.11.2019**	တိုင်းတာပြီးသည့်အချိန်(နေ့အချိန်) log off time (Date,Time)	**26.11.2019**	8:47AM
ဆက်သွယ်ရန် လိပ်စာ/ဖုန်း Contact Address/phone	-	တိုင်းတာမှု ကြာချိန် Logging Duration (hours)	24 hours	

Air sampling result / လေထုတိုင်းတာစမ်းသပ်ချက်အဖြေ

စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period		ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period
၁	နိုက်ထရိုဂျင်ဒိုင်အောက်ဆိုဒ် Nitrogen dioxide	67.65	μg/m³ μg/m³	1	year hour	*40 μg/m³ * 200 μg/m³	1-year 1-hour
၂	Particulate matter PM_{10}	38.24	μg/m³ μg/m³	24	year hours	*20 μg/m³ * 50 μg/m³	1-year 24-hour
၃	Particulate matter $PM_{2.5}$	23.16	μg/m³ μg/m³	24	year hours	* 10 μg/m³ * 25 μg/m³	1-year 24 hour
၄	ဆာလဖာဒိုင်အောက်ဆိုဒ် Sulfur Dioxide	285.63	μg/m³ μg/m³	10	hours mins	* 20 μg/m³ * 500 μg/m³	24-hour 10 minute
၅	ကာဗွန်ဒိုင်အောက်ဆိုဒ် Carbon dioxide	352.06	ppm ppm	24	hour hours	NG	-
၆	ကာဗွန်မိုနောက်ဆိုဒ် Carbon monoxide	851.11	ppb ppb	24	hour hours	NG	-

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စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period		ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period
၇	ဟိုက်ဒရိုကာဗွန် Hydrocarbon	11.38	ppm		hour		
			ppm	24	hours	NG	-
၈	မီသိန်း Methane	44.79	ppm		hour		
			ppm	24	hours	NG	-
၉	ရေဒီယိုသတ္တိကြွ Atomic Radiation	18.61	CPM		hour		
			CPM	24	hours	NG	-
၁၀	အပူချိန် Temperature	25.87	°C		hour		
			°C	24	hours	NG	-
၁၁	Volatile Organic Compound (VOC)	0.251	ppm		hour		
			ppm	24	hours	NG	-
၁၂	လေတိုက်နှုန်း Wind Speed	0.537	Kph		hour		
			Kph	24	hours	NG	-
၁၃	လေတိုက်ရာအရပ် Wind Direction	153.02	Deg		hour		
			Deg	24	hours	NG	-
၁၄	စိုထိုင်းဆ Relative Humidity	80.48	RH%		hour		
			RH%	24	hours	NG	-

* Myanmar Environmental Quality Emission Guideline 2015 NG= No Guideline

မှတ်ချက်။ ။တိုင်းတာသည့်ကြာချိန်သည် သတ်မှတ်စံနှုန်းအချိန်ထက်နည်းပါက အများဆုံးတိုင်းတာခဲ့သည့်အချိန်၏ ပျမ်းမျှရလဒ်ကိုသာဖော်ပြထားပါသည်။

သတ်မှတ်စံနှုန်းအချိန်ထက် ပိုမိုတိုင်းတာထားသောအရည်အသွေးများအတွက် သတ်မှတ်အချိန် ပျမ်းမျှရလဒ်များ၏ အများဆုံးရလဒ်တစ်ခုသာဖော်ပြထားပါသည်။

တိုင်းတာတွက်ချက်သူ Analyzed by	စစ်ဆေးသူ Checked by
Sa Aung Thet Oo Mobile Lab Technician Ecological Laboratory ALARM	Dr. Aye Aye Win Laboratory In-Charge Ecological Laboratory (ALARM)

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Figure 46: Result of Air Quality Survey (25.11.2019)

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Reference Number/ စာအမှတ်: EL-R / 007

Date / နေ့စွဲ: 24 August 2022

Air Analysis Report / လေတိုင်းတာ စစ်ဆေးမှု အစီအရင်ခံစာ

Air Analysis Info / လေတိုင်းတာမှု အချက်အလက်

လေတိုင်းသည့်နေရာ Sample site:	SDI အထည်ချုပ်စက်ရုံ	လေ နမူနာအမှတ်စဉ် Sample I.D.	011	
နေရာ (မြို့နယ်) Location (township)	လှိုင်သာယာမြို့နယ်	လတ္တီတွဒ် Latitude	N 16°55'47.85"	
		လောင်ဂျီတွဒ် Longitude	E 96° 03'33.11"	
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	ရန်ကုန်တိုင်းဒေသကြီး	နည်းစဉ် Method	HAZ-SCANNER ™ Model-EPAS	
		စက် တည် အမြင့်(မြေပြင်မှ) Station height (above ground)	Ground (Sea Level – 29 Ft)	
တိုင်းတာလိုသူ အမည် Name of customer:	SDI အထည်ချုပ်ကုမ္ပဏီ	စတင်တိုင်းတာသည့်ချိန် (နေ့အချိန်) log on time (Date,Time)	12.8.2022	11:09 am
တိုင်းတာသည့်နေ့စွဲ Air Sampling Testing Date	12.8.2022	တိုင်းတာပြီးသည့်အချိန်(နေ့အချိန်) log off time (Date,Time)	13.8.2022	11:09 am
ဆက်သွယ်ရန် လိပ်စာ/ဖုန်း Contact Address/phone		တိုင်းတာမှု ကြာချိန် Logging Duration (hours)	24 hours	

Air sampling result / လေထုတိုင်းတာ စမ်းသပ်ချက်အဖြေ

စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period		ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period	မှတ်ချက် Remarks
၁	နိုက်ထရိုဂျင်ဒိုင်အောက်ဆိုဒ် Nitogen dioxide	25.15	µg/m³ µg/m³	 1	year hour	*40 µg/m³ * 200 µg/m³	1-year 1-hour	Normal
၂	Particulate matter PM 10	44.87	µg/m³ µg/m³	 24	year hours	*20 µg/m³ * 50 µg/m³	1-year 24-hour	Normal
၃	Particulate matter PM 2.5	24.72	µg/m³ µg/m³	 24	year hours	* 10 µg/m³ * 25 µg/m³	1-year 24 hour	Normal
၄	ဆာလဖာဒိုင်အောက်ဆိုဒ် Sulfur Dioxide	68.52	µg/m³ µg/m³	24 10	hours mins	* 20 µg/m³ * 500 µg/m³	24-hour 10 minute	Normal
၅	အမိုးနီးယား Ammonia (NH3)	0.62	ppm ppm	 24	hour Hours			
၆	ကာဗွန်ဒိုင်အောက်ဆိုဒ် Carbon dioxide	457	ppm ppm	 24	hour hours			
၇	ကာဗွန်မိုနောက်ဆိုဒ် Carbon monoxide	50	ppb ppb	 24	hour hours			

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စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period		ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period	မှတ်ချက် Remarks
၈	ဟိုက်ဒရိုကာဗွန် Hydrocarbon		ppm		hour			
		70	ppm	24	hours			
၉	မီသိန်း Methane		ppm		hour			
		745	ppm	24	hours			
၁၀	ရေဒီယိုသတ္တိကြွ Atomic Radiation		CPM		hour			
		18	CPM	24	hours			
၁၁	အပူချိန် Temperature		°C		hour			
		24.92	°C	24	hours			
၁၂	Volatile Organic Carbon (VOC)		ppm	4	hour			
		5.94	ppm	24	hours			
၁၃	လေတိုက်နှုန်း Wind Speed		Kph		hour			
		0.011	Kph	24	hours			
၁၄	လေတိုက်ရာ အရပ် Wind Direction		Deg		hour			
		193.35	Deg	24	hours			

* Myanmar Emission Guideline 2015

မှတ်ချက်။ ၊ တိုင်းတာသည့်ကြာချိန်သည် သတ်မှတ်စံနှုန်းအချိန်ထက်နည်းပါကအများဆုံး တိုင်းတာခဲ့သည့်အချိန်၏ ပျမ်းမျှရလဒ်ကိုသာ ဖော်ပြထားပါသည်။

သတ်မှတ်စံနှုန်းအချိန်ထက် ပိုမိုတိုင်းတာထားသောအရည်အသွေးများအတွက် သတ်မှတ်အချိန် ပျမ်းမျှရလဒ်များ၏ အများဆုံးရလဒ်တစ်ခုသာဖော်ပြထားပါသည်။

တိုင်းတာတွက်ချက်သူ
Analyzed by:

Sa Aung Thet Oo
Mobile Lab Technician
Ecological Laboratory
ALARM

စစ်ဆေးသူ
Checked by:

Dr. Aye Aye Win
Project Team Leader
Ecological Laboratory
ALARM

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(ဓါတ်ခွဲခန်း၏ စာဖြင့်ရေးသားသဘောတူညီချက်မရှိပဲ ယခုအစီရင်ခံစာကို အပြည့်အစုံမှလွဲ၍ တစ်စိတ်တစ်ပိုင်း ဖြတ်ယူအသုံးပြုခြင်း၊ ဓိတ္တူပွားခြင်းမပြုလုပ်ရ)

A2, Kan Street, Quarter 10, Hlaing Township, Yangon. Tel: +95 1 503 301 / +95 973076412

Website : http//www.ecolabmyanmar.org Email : info@ecolabmyanmar.org

Figure 47: Result of Air Quality Survey (12.8.2022)

Table 21: Comparison of WHO Air Quality Guide Line Value and NEQEG (General application)

Parameters and Guide Line	PM_{10}	$PM_{2.5}$	NO_2	SO_2	CO_2	CO	NH_3	VOCS	HC	CH_4
Unit	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	ppb	mg/NM³	ppb	ppm	ppm
Average period	24 hrs	24 hrs	1 hr	10 min	24 hrs	24 hrs	24 hr	24 hr	-	-
WHO / US. EPA(CO) / VOCS California EPA	50	25	200	500		9000		44		
NEQEG (General)/ 2.3.2.1	50	25	200	500	-	-	30	2-100	-	150
Monitoring Point (Near Boiler) 16°55'47.85" N, 96°03'33.11" 25.11.2019	28.24	23.16	67.65	285.63	352.06	851.11	-	0.251	11.38	44.79
Monitoring Point (Near Boiler) 16°55'47.85" N,96°03'33.11" 12.08.2022	44.87	24.72	25.15	68.52	457	50	1.77	5.94	70	74.5

For NH_3 0.62 ppm = 0.62 x 2.86 = 1.77

According to the above table, as per air quality monitoring (on 25.11.2019 and 12.8.2022), Air quality for near boiler is within the (General) National Environmental Quality (Emission) guideline value. The same location is for 2 times monitoring.

For (NEQEG)'s Air Emission Levels for Textiles Manufacturing (2.3.2.1), it cannot be available to monitor in Carbon disulfide, Chlorine, Formaldehyde, and Hydrogen sulfide as per 3rd party's requirement in this time.

For further monitoring, it will be attempted to monitor these parameters as much as possible.

However, it could be said there could be almost no impact from the project on the background Air Emission level of local community.

Conclusion and Recommendation

Results of ambient air quality measured are mentioned in above results. Measured data has been compared with WHO Guidelines, and NEQEG value. SDI has to manage to mitigate and minimize for this pollution impact, which has been cumulatived with surrounding factories by self mitigation plan as well as discussed with Industrial Zone Management Committee for all potential impact occur in this factory andsurrounding.

Generator Stack Emission Monitoring Results

Table 22: Small Combustion Facilities Emission Guidelines (NEQEG)

Combustion Technology / Fuel	Particulate matter PM10[a]	Sulfur Dioxide	Nitrogen Oxides
Gas	-	-	200^{b} mg/Nm^{3c} 400^{d} mg/Nm^3 $1{,}600^{e}$ mg/Nm^3
Liquid	100	3 %	$1{,}600\text{-}1{,}850^{f}$ mg/Nm^3
Natural gas (3-<15 MW^{g})	-	-	200^{h} mg/Nm^3 310^{i} mg/Nm^3
Natural gas (3-<15 MW)	-	-	50 mg/Nm^3
Fuels other than natural gas (3-<15 MW)	-	0.5 % sulfur	200^{h} mg/Nm^3 310^{j} mg/Nm^3
Fuels other than natural gas (15-<50 MW)	-	0.5 % sulfur	150 mg/Nm^3
Gas	-	-	320 mg/Nm^3

Liquid	150 mg/Nm³	2,000 mg/Nm³	460 mg/Nm³
Solid	150 mg/Nm³	2,000 mg/Nm³	650 mg/Nm3

[a] Particulate matter 10 micrometers or less in diameter
[b] Spark ignition
[c] Milligrams per normal cubic meter at specified temperature and pressure
[d] dual fuel
[e] compression ignition
f higher value applies if bore size > 400 m
g Megawatt
h Electric generation
i mechanical drive
j Includes biomass

Note: mg/Nm³ = mg/m³ because temperature is same.

ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း
Ecological Laboratory
စိမ်းလန်းအမိမြေဖွံ့ဖြိုးတိုးတက်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)

Reference Number/ စာအမှတ်: EL R / 010

Date / နေ့စွဲ: 24 August, 2022

Gas Analysis Report / ဓာတ်ငွေ့တိုင်းတာ စစ်ဆေးမှုအစီရင်ခံစာ

Gas Analysis Info / ဓာတ်ငွေ့ တိုင်းတာမှုအချက်အလက်

လေတိုင်းသည့်နေရာ Sample site:	SDI အထည်ချုပ်စက်ရုံ	ဓာတ်ငွေ့နမူနာအမှတ်စဉ် Sample ID	010	
နေရာ (မြို့နယ်) Location (Township)	လှိုင်သာယာမြို့နယ်	လတ္တီတွဒ် Lattitude	N 16°55′45.10"	
		လောင်ဂျီတွဒ် Longitude	E 096°03′33.37"	
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	ရန်ကုန်တိုင်းဒေသကြီး	နည်းစဉ် Method	HAZ-SCANNER TM MODEL-EPAS	
		စက် တည် အမြင့် (မြေပြင်မှ) Station Height (above ground)	Ground (Sea level - 30 Ft)	
တိုင်းတာလိုသူအမည် Name of customer:	SDI အထည်ချုပ်ကုမ္ပဏီ	စတင်တိုင်းတာသည့်ချိန်(နေ့အချိန်) log on time (Date, Time)	14.8.2022	12:00 PM
တိုင်းတာသည့်နေ့စွဲ Air sampling Testing Date	14.8.2022	တိုင်းတာပြီးသည့်အချိန်(နေ့အချိန်) log off time (Date, Time)	14.8.2022	1:00 PM
ဆက်သွယ်ရန် လိပ်စာ/ ဖုန်း Contact Address/phone		တိုင်းတာမှုကြာချိန် Logging Duration (Hours)	1 Hour	

Generator Stack Emission Monitoring results / မီးစက် မီးခိုးခေါင်းတိုင် အခငွ့်မှုတိုင်းတာစစ်ဆေးမှု စမ်းသပ်ချက်အဖြေ

Fuel Type ± Diesel

Parameter		Result
Gas	O_2 (%)	17.4
	CO (mg/NM³)	229
	CO_2 (%)	2.61
	NO_2 (mg/NM³)	59
	SO_2 (mg/NM³)	0

တိုင်းတာတွက်ချက်သူ
Analyzed by:
Sa Aung Thet Oo
Mobile Lab Technician
Ecological Laboratory
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စစ်ဆေးသူ
Checked by:
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Figure 48: Generator Stack Emission Monitoring

Existing Noise Levels

Noise level survey at the near of the project was done by the EMP Study team. The noise levels and their coordinates are shown in the following table. Among the 6 noise stations, all the noise level result of lower than 55 dB which is WHO standard of daytime noise level for residential area. All the noise sites are mapped in **Figure 49**.

Officials from Factories and General Labour Laws Inspection Department from Hlaing Thar Yar Township have tested noise level in 5 work places on 17.9.2021 and the results were mentioned in this report.

Table 23: World Bank Standards and NEQEG Guidelines for Noise Level

Receptor	Leq (dBA)	
	Day time (0700 – 2200 hrs)	Night Time 2200 – 0700 hrs)
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Table 24: Noise Level measurement inside factory building Compare with NEQEG'

No.	Test Area	Ventilation (m/s)	Lighting (Lux)	Noise (dBA)	Guide Line value (Day)	Heat	Recommendation
1.	Cutting Dept	0.5	420	54	70	29°C	Acceptable Condition
2.	Wash area	0.4	434	62	70	30°C	Acceptable Condition
3.	Sewing	0.3	580	57	70	28°C	Acceptable Condition
4.	Ironing	1.2	360	42	70	31°C	Acceptable Condition
5.	Cutting	0.4	365	54	70	30°C	Acceptable Condition
6.	Boiler	0.5	410	67	70	27°C	Acceptable Condition
7.	QC andfinishing	1.0	390	60	70	29°C	Acceptable Condition
8.	Printing	0.4	365	52	70	32°C	Acceptable Condition

*** Noise level measuring is taken by Sound Meter Applications from Mobile Phone**

Table 25: Result of Noise Monitoring Survey in SDI manufacturing Factory

Sr. No.	Sampling Location	Co-ordinate points		Noise Level Ld dB	World Bank Standards (City) dB(A)	
		Latitude (N)	Longitude €	Day Time	Day Time	Night Time
1.	NS-1(Near Generator house)	16°55'44.84"	96° 3'33.04"	55	55	45
2.	NS-2(Near Boiler)	16°55'47.68"	96° 3'33.73"	55	55	45
3.	NS-3(Warehouse)	16°55'46.00"	96° 3'32.37"	38	55	45
4.	NS-4 (QC Section)	16°55'46.08"	96° 3'33.23"	40	55	45
5.	NS-5(Meeting Room)	16°55'45.46"	96° 3'32.78"	45	55	45
6.	NS-6 (No. 3 Main Road) Main gate	16°55'45.11"	96° 3'31.99"	48	55	45

Based on above details, following observations are made:

- Monitored noise levels in project areas reveal that the daytime equivalent noise level (Leqday) varied between 42.0 and 67 dB at Project Compound and production area. 67 dB at Boiler area when operation. 55 dB near generator location (during running with idle speed) is currently settle as cumulative noise pollution for the engines of motor vehicles.
- Noise limitation: Fixed workstations at checkpoints must be soundproof. If the permanent noise level remains above 70 dB (A), SDI Manufacturing Factory has provided employees with hearing protection, which must be worn from 80 dB (A) to prevent hearing disorders. In these areas, the use of ear protection is mandatory even for brief interventions. SDI Manufacturing Factory has also provided for protective measures against noise (sound insulating enclosure, etc.). To avoid disturbing local residents, the future factory respects a minimum distance of 100 m from populated areas (recommended distance by the hazard survey). This is understood that the noise level in residential areas in the vicinity should not exceed 50-60 dB (A) during the day and 35-45 dB (A) at night.

(၈)

Ministry of Labour

Factories and General Labour Laws Inspection Department

Working Environment Measurement(WEM)

Date: 17-9-2021

Factory Name: : SDI Manufacturing Co., Ltd

Adress : Plot No. 40, Myay Taing Quarter
No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township

Tested Equipment : Sound Level Meter(Extech 407730)
Digital Light Meter (TES 1330A)
Electronic Anemometer (AR 816)

Type of Test : Personal Sampling

NO	Test Area	Venti Lation (m/s)	Lighting (Lux)	Noise (dBA)	Heat (.c)	Recommendation
1	Sewing Line (5)	0.3	1239	48	28.4	Acceptable Condition
2	Sewing Line (15)	0.4	1231	57	28.9	Acceptable Condition
3	Ware-house	0.3	424	60	29.3	Need more lighting
4	Cutting Room	0.3	1294	54	29.0	Acceptable Condition
5	Packing room	0.4	850	62	30.2	Acceptable Condition

Tested By ;

(ကောစာလင်းထွန်း၊ဦးစီးအရာရှိ)
အလုပ်ရုံစစ်ဆေးရေး

Witnessed By ;

Figure 49: Noise sampling project area

Water Quality

Water quality for this proposed factory has been shown for extracted tube wells' water in 3.4.1 Source of Water and Existing Water Quality from Because block printing technology uses **more manpower, handling printed materials with volatile chemicals and handling and working can cause long-term respiratory diseases for employees, there are plans to use better and more innovative technologies in the future.**

3.4 Energy Source and Consumption of this report

Outlet Wastewater Quality

This project has been operated with some chemical Process since Project Started. Washing and printing process has been operated in this factory since project starting and water is used for spraying on ironing process and domestic use also. However, the wastewater has been monitoring in progress as EIA / IEE / EMP procedure.

Outlet wastewater sample has been collected on 22.10.2019 (11:00) AM and wastewater quality has been analysed. (It has been mentioned in **Figure 52**)

Inlet wastewater sample from inlet of ETP has been collected and, the analytal results have been shown in **Figure 50.**

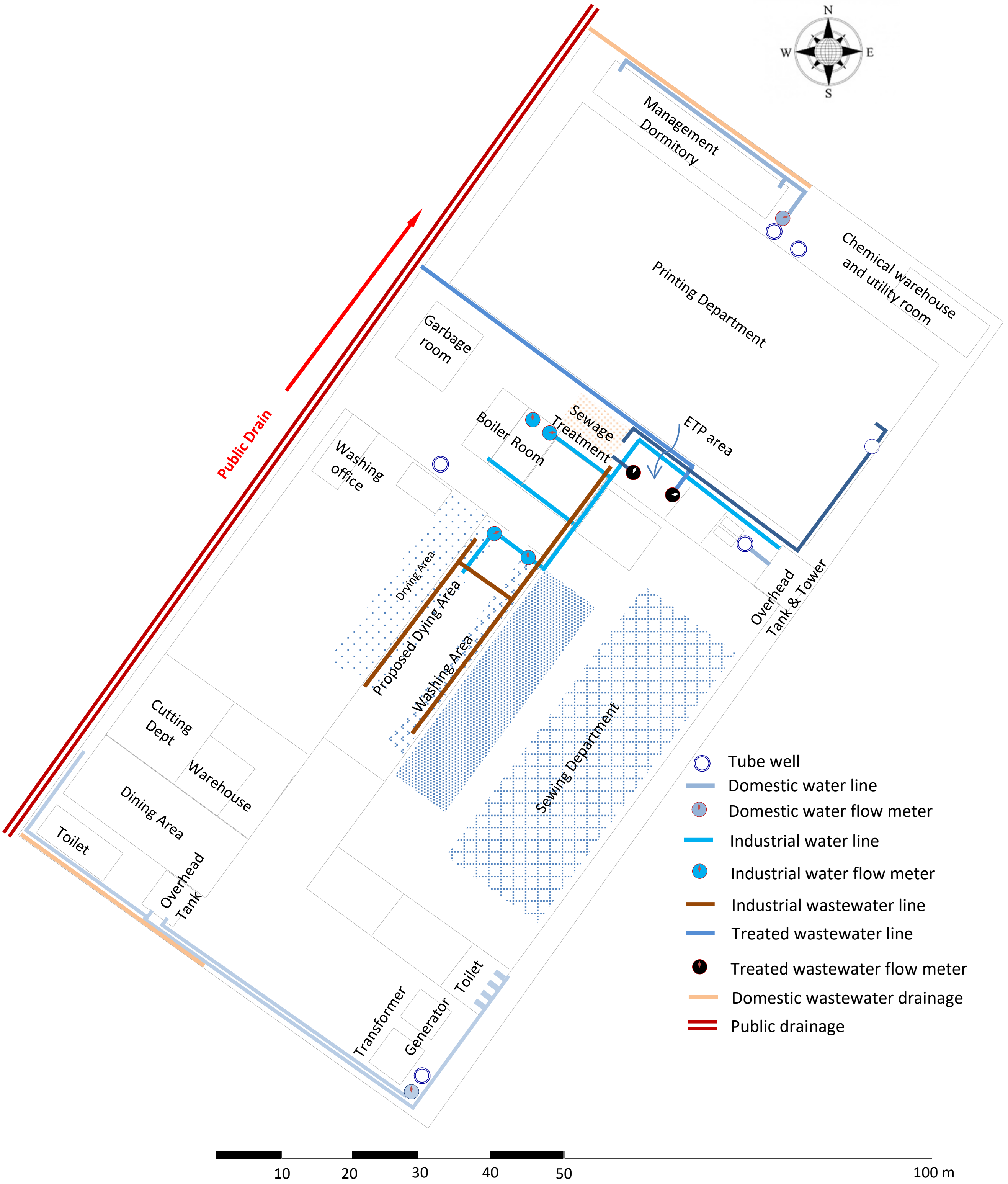

Figure 50: Drainage plan for SDI Manufacturing factory

SGS

ANALYSIS REPORT

ORIGINAL

Job Ref: 2000355/19
Date: 31/01/2019
Page 1 of 1

Sample Described as	:	**Treated Waste Water**
Client Name	:	**SDI Manufacturing Co.,Ltd**
Sample Received Date	:	23. January .2019
Sample Brought By	:	Client
Sample Marking	:	Inlet Water
Sample Location	:	SDI Factory
Analysed Date	:	23. January .2019
Lab Code No.	:	005/19

No.	Test Parameter	Method	LOQ	Result	Unit
1	pH	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 4500-H+ B.Electrometric Method	-	5.45	
2	Total Suspended Solid	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 2540-D.Dried at 103-105 °C	20	83	mg/L
3	BOD	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 5210 D & Instruction Manual BOD-System Oxidirect (Lovibond)	2	162	mg/L
4	COD	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;5220 D.Closed Reflux, Colorimetric Method	10	495	mg/L

********************************** End of Report **********************************

SGS (Myanmar) Limited

(Nu Nu Yi)
Manager

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Figure 51: Analysing Result of wastewater inlet at Effluent Treatment Plant

ISO TECH LABORATORY

ISO 9001:2015 Cert. No. 688600

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

WTL-RE-002
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 1

WW1019 072

WASTEWATER QUALITY TEST RESULTS FORM

Client: SDI Co.,Ltd.
Nature of Water: Wastewater (Outlet)
Location: Ngwe Pin Lel Industrial Zone, Hlaing Thar Yar Township.
Date and Time of collection: 22.10.2019
Date and Time of arrival at Laboratory: 22.10.2019
Date and Time of commencing examination: 23.10.2019
Date and Time of completing: 28.10.2019

Results of Wastewater Analysis

Parameters	Results	
pH	7.1	
Biochemical Oxygen Demand (BOD) (mg/l) (5 days at 20 °C)	12	
Chemical Oxygen Demand (COD) (mg/l)	32	
Dissolved Oxygen (DO) (mg/l)	4.0	
Total Solids (mg/l)		
Total Suspended Solids (mg/l)	20	
Total Dissolved Solids (mg/l)		
Nitrate ($N.NO_3$) (mg/l)		
Ammonia Nitrogen (NH_3) (mg/l)		
Ammonium Nitrogen (NH_4) (mg/l)		
Phosphate (mg/l)		

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

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

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

Figure 52: Analysing Result of treated wastewater outlet at Effluent Treatment Plant (22.10.2019)

ALARM Ecological Laboratory

Water Testing Result Report

Report Number : EL-WR-22-00061 Date : February 8, 2022

Client Information

Client Name	:	-
Organization	:	SDI Manufacturing Co., Ltd
Client ID	:	-
Registration Date & Time	:	27.1.2022
Contact	:	09-423154620
Testing Purpose	:	-

Sample Information

Sample ID	:	7628
Sample Name	:	Wastewater Treatment Plant Outlet
Sample Type / Source	:	Treated
Sampling Date & Time	:	26.1.2022
Sample Location	:	Ngwe Pinlae Industrial Zone, Hlaing Thar Yar
Latitude	:	-
Longitude	:	-

Testing Results

This laboratory analysis report is based solely on the sample submitted by the client unless client took our sampling service.
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Sr.	Quality Parameters	Results	Units	Emission Standards	Remarks
1	BOD_5[6]	15	mg/L	≤ 50[d]	Normal
2	COD[3]	< 30	mg/L	≤ 250[d]	Normal
3	Arsenic[8]	0	mg/L	≤ 0.1[d]	Normal
4	Oil & Grease[9]	3	mg/L	≤ 10[d]	Normal
5	Total Nitrogen[3]	< 0.5	mg/L	-	-
6	Mercury	0	mg/L	≤ 0.01[d]	Normal
7	Total Phosphorus	0	mg/L	≤ 2[d]	Normal
8	Sulfide	0	mg/L	≤ 1[d]	

"ND" = Not Detected "LOD" = Lower limit of detection " - " = No Reference Standard

Tested by	Checked by	Approved by
Daw May Myat Khine Lab. Technician II Ecological Laboratory ALARM	Daw Lin Myat Myat Aung Lab. Technician I Ecological Laboratory ALARM	Dr. Aye Aye Win Laboratory In-Charge Ecological Laboratory (ALARM)

531 (D), MarlarMyaingYeikThar Street, Kamayut Tsp., Yangon, Myanmar Tel: 01-503301, 01-503302, 09-407496078
Email: aelab@alarmmyanmar.org , websites: www.alarmmyanmar.org

Figure 53: Analysing Result of treated wastewater outlet at Effluent Treatment Plant (8.2.2022)

ALARM Ecological Laboratory

Water Testing Result Report

Laboratory Testing Methods		
Index	**Instrument / Method**	**References / Descriptions**
1	pH Meter	Electrode method (Approved by EPA, ISO, ASTM), Hanna electrode meter Certified by 2014 EMS, Certified by QMS
2	DO Meter	Electrochemical probe method, Dissolved Oxygen Probe Measurement (Approved by EPA, ISO, ASTM) Horiba DO electrode certified with IP67 standards and measures
3	SpectroDirect Methods	Lovibond brand reagent testing methods, precision of the methods are identical to the precision specified in the standard literature of AWWA and ISO
4	TDS Meter	Electrode method (Approved by EPA, ISO, ASTM), Hanna electrode meter Certified by 2014 EMS, Certified by QMS
5	Conductivity Meter	Electrode method, conductivity cell (Approved by EPA, ISO, ASTM), Hanna electrode meter Certified by 2014 EMS, Certified by QMS
6	BOD Testing Method	Method 405.1, USEPA Method for Chemical Analysis of Water and Waste water
7	Atomic Adsorption Spectrophotometer	Shimadzu AA-6200, which is based on the Japan Water Standard Testing Method also approved by EPA and ASTM
8	Arsenic Test Kit	Lovibond brand Arsenic Test kit certified by DIN ISO 1997/ Follow Procedure: Meets WHO requirements:
9	Liquid-Liquid Partition Gravimetric Method	Test Method for Oil and Grease (Solvent Extractable Substances) in Water (EPA 1664)by using n-Hexane

Standards References		
Index	**Standard Names**	**References**
a	WHO Standard for Drinking Water (2011)	Guidelines for Drinking-water Quality 4rd edition, World Health Organization, 2011.
b	US EPA Drinking Water Standard 2018	2018 Edition of the Drinking Water Standards and Health Advisories, EPA 822-F-18-001, Office of Water, USEPA, Washington, DC, March 2018
c	Myanmar National Drinking Water Quality Standard	Myanmar National Standard Department, Department of Research and Innovation, Ministry of Education
d	Myanmar Emission Guideline (2015)	National Environmental Quality (Emission) Guidelines, Order No. (615/2015) MOECAF, 2015, December 29.
*	At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity; when the zone is not defined, use 100 meters from the point of discharge.	

Quality Parameters Descriptions

pH: Although pH usually has no direct impact on consumers, it is one of the most important operational water quality parameters. Water generally becomes more corrosive with decreasing pH; however, excessively alkaline water also may be corrosive. **Temperature:** will have an impact on the acceptability of a number of other inorganic constituents and chemical contaminants that may affect taste. High water temperature enhances the growth of microorganisms and may increase problems related to taste, odor, color and corrosion. **Color:**Drinking-water should ideally have no visible color. Color in drinking-water is usually due to the presence of colored organic matter (primarily humic and fulvic acids) associated with the humus fraction of soil. Color is also strongly influenced by the presence of iron and other metals, either as natural impurities or as corrosion products. It may also result from the contamination of the water source with industrial effluents and may be the first indication of a hazardous situation.**Turbidity:** Turbidity in water is caused by suspended particles or colloidal matter that obstructs light transmission through the water. It may be caused by inorganic or organic matter or a combination of the two. Microorganisms (bacteria, viruses and protozoa) are typically attached to particulates, and removal of turbidity by filtration will significantly reduce microbial contamination in treated water. **Total Dissolved Solid (TDS):** The total of all dissolved mineral constituents, usually expressed in milligrams per liter. The concentration of dissolved solids may affect the taste of water. Water that contains more than 1,000 mg/L is unsuitable for many industrial uses. Some dissolved mineral matter is desirable, otherwise the water would have no taste. The dissolved solids concentration commonly is called the water's salinity and is classified as follows: fresh, 0-1,000 mg/L; slightly saline, 1,000-3,000 mg/L; moderately saline, 3,000-10,000 mg/L; very saline, 10,000-35,000 mg/L; and briny, more than 35,000 mg/L. **Total Suspended Solid (TSS):** Both organic and inorganic particles of all sizes can contribute to the suspended solids concentration. These solids include anything drifting or floating in the water, from sediment, silt and sand to plankton and algae. TSS are particles that are larger than 2 microns found in the water column. Anything smaller than 2 microns (average filter size) is considered a dissolved solid. **Total Solid:** Total solids are dissolved solids plus suspended solids in water. **Conductivity:** Conductivity is nothing but the measure of the capability of water to pass the flow of electric current. This ability of conductance is said to be directly proportional to the concentration of the ions present in the water. **Chloride:** Large concentrations increase the corrosiveness of water and, in combination with sodium, give water a salty taste. **Hardness:** Related to the soap-consuming characteristics of water; results in formation of scum when soap is added. May cause deposition of scale in boilers, water heaters, and pipes. Hardness contributed by calcium and magnesium, bicarbonate and carbonate mineral species in water is called carbonate hardness; hardness in excess of this concentration is called noncarbonate hardness. Water that has a hardness less than 61 mg/L is considered soft; 61-120 mg/L, moderately hard; 121-180 mg/L, hard; and more than 180 mg/L, very hard.**Dissolved Oxygen:** Required by higher forms of aquatic life for survival.Depletion of dissolved oxygen in water supplies can encourage the microbial reduction of nitrate to nitrite and sulfate to sulfide. It can also cause an increase in the concentration of ferrous iron in solution. **Biological/Chemical Oxygen Demand (BOD & COD):** BOD is similar in function to chemical oxygen demand (COD), in that both measure the amount of organic compounds in water. However, COD is less specific, since it measures everything that can be chemically oxidized, rather than just levels of biologically active organic matter. **Aluminium:** No known necessary role in human or animal diet. Nontoxic in the concentrations normally found in natural water supplies. Elevated dissolved aluminum concentrations in some low pH waters can be toxic to some types of fish. **Manganese:** Causes gray or black stains on porcelain, enamel, and fabrics. Can promote growth of certain kinds of bacteria that clog pipes and wells. **Sodium & Potassium**: Large concentrations may limit use of water for irrigation and industrial use and, in combination with chloride, give water a salty taste. Abnormally large concentrations may indicate natural brines, industrial brines, or sewage. **Zinc:** Essential and beneficial in metabolism; its deficiency in young children or animals will retard growth and may decrease general body resistance to disease. Seems to have no ill effects even in fairly large concentrations (20,000-40,000 mg/L), but can impart a metallic taste or milky appearance to water. Zinc in drinking water commonly is derived from galvanized coatings of piping. **Iron:** Forms rust-colored sediment; stains laundry, utensils, and fixtures reddish brown. Objectionable for food and beverage processing.Can promote growth of certain kinds of bacteria that clog pipes and well openings.**Arsenic:** is toxic. A cumulative poison that is slowly excreted. Can cause nasal ulcers; damage to the kidneys, liver, and intestinal walls; and death. Recently suspected to be a carcinogen.**Chlorine:** Chlorine is added to water supplies to kill bacteria. Short term exposure to chlorine comes primarily from bathing and other activities that use hot water rather than from drinking. Short term exposure irritates the eyes and lungs, and within 15 minutes of exposure victims experience coughing, shortness of breath and headaches. Regular exposure to chlorine in the home has been associated with asthma and other respiratory diseases. **Cyanide:** Cyanide is highly acutely toxic. It is detoxified in the liver by first-pass metabolism following oral exposure. As a consequence, exposure to a dose spread over a longer period, through a day, for example, will result in lower toxicity, or higher tolerance, than the same dose given in a single bolus dose. **Nitrite:** Commonly formed as an intermediate product in bacterially mediated nitrification and denitrification of ammonia and other organic nitrogen compounds. An acute health concern at certain levels of exposure. Nitrite typically occurs in water from fertilizers and is found in sewage and wastes from humans and farm animals. Concentrations greater than 1.0 mg/L, as nitrogen, may be injurious when used in feeding infants. **Nitrate & Nitrate-N:** Concentrations greater than local background levels may indicate pollution by feedlot runoff, sewage, or fertilizers. Concentrations greater than 10 mg/L, as nitrogen, may be injurious when used in feeding infants. **Phosphorus &ortho-phosphate:** Dense algal blooms or rapid plant growth can occur in waters rich in phosphorus. A limiting nutrient for eutrophication since it is typically in shortest supply. Sources are human and animal wastes and fertilizers. **Ammonia:** Plant nutrient that can cause unwanted algal blooms and excessive plant growth when present at elevated levels in water bodies. Sources include decomposition of animal and plant proteins, agricultural and urban runoff, and effluent from waste-water treatment plants. **Lead:** A cumulative poison, toxic in small concentrations. Can cause lethargy, loss of appetite, constipation, anemia, abdominal pain, gradual paralysis in the muscles, and death. **Copper:** Essential to metabolism; copper deficiency in infants and young animals results in nutritional anemia. Large concentrations of copper are toxic and may cause liver damage. Moderate levels of copper (near the action level) can cause gastro-intestinal distress. **Cadmium:** A cumulative poison; very toxic. Not known to be either biologically essential or beneficial. Believed to promote renal arterial hypertension. Elevated concentrations may cause liver and kidney damage, or even anemia, retarded growth, and death. **Nickel:** Very toxic to some plants and animals. Toxicity for humans is believed to be very minimal. **Sulfide:** The "rotten eggs" odor of hydrogen sulfide is particularly noticeable in some ground waters and in stagnant drinking-water in the distribution system, as a result of oxygen depletion and the subsequent reduction of sulfate by bacterial activity. Sulfide is oxidized rapidly to sulfate in well-aerated or chlorinated water, and hydrogen sulfide levels in oxygenated water supplies are normally very low. **Sulfate:** Sulfates of calcium and magnesium form hard scale. Large concentrations of sulfate have a laxative effect on some people and, in combination with other ions, give water a bitter taste. **Alkalinity:** A measure of the capacity of unfiltered water to neutralize acid. In almost all natural waters alkalinity is produced by the dissolved carbon dioxide species, bicarbonate and carbonate. **Phenol:** The presence of phenol in drinking water probably results from using contaminated surface water or groundwater as a source. Its presence in groundwater is probably the result of release to soil, often industrial releases or leachate from waste dumps, and the subsequent leaching of phenol through the soil to the groundwater. Chlorophenols are present in drinking-water as a result of the chlorination of phenols, as by-products of the reaction of hypochlorite with phenolic acids, as biocides or as degradation products of phenoxyherbicides.IARC has classified 2,4,6-trichlorophenol in Group 2B (possibly carcinogenic to humans).**Boron:** Essential to plant growth, but may be toxic to crops when present in excessive concentrations in irrigation water. Sensitive plants show damage when irrigation water contains more than 670 µg/L and even tolerant plants may be damaged when boron exceeds 2,000 µg/L. The recommended limit is 750µg/L for long-term irrigation on sensitive crops. **Fluoride:** To produce signs of acute fluoride intoxication, minimum oral doses of about 1 mg of fluoride per kilogram of body weight were required. Concentrations above this guideline value (1.5mg/L) carry an increasing risk of dental fluorosis and that progressively higher concentrations lead to increasing risks of skeletal fluorosis. **Oil & Grease:** Organic toxic waste (oil and grease (O&G)) causes ecology damages for aquatic organisms, plant, animal, and equally, mutagenic and carcinogenic for human being. They discharge from different sources to form a layer on water surface that decreases dissolved oxygen.

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Below guideline table applies to textile manufacturing using natural fibers, synthetic fibers (made entirely from chemicals), and regenerated fibers (made from natural materials by processing these materials to form a fiber structure). It does not include polymer synthesis and natural raw material production.
Treated industrial wastewater quality has been compared with Effluent and Sanitary Discharges (General Application)

from (NEQEG) is mentioned in Table 27 and it has been found, effluent water quality is within the guideline value.

Table 26: Comparison with Effluent Levels for 2.3.2.1 Textiles Manufacturing and 2.4.2 Wastewater Treatment Facilities

This guideline applies to textile manufacturing using natural fibers, synthetic fibers (made entirely from chemicals), and regenerated fibers (made from natural materials by processing these materials to form a fiber structure). It does not include polymer synthesis and natural raw material production.

Parameter	Unit	Guide Line Value	Result (22.10.2019)	Result (8.2.2022)
5 – days Biochemical oxygen demand	mg/l	30	12	15
Ammonia	mg/l	10		
Arsenic	mg/l	0.1		0
Cadmium	mg/l	0.1		
Chemical oxygen demand	mg/l	250	32	30
Chlorine (total residual)	mg/l	0.2		
Chromium (hexavalent)	mg/l	0.1		
Chromium (total)	mg/l	0.5		
Copper	mg/l	0.5		
Cyanide (free)	mg/l	0.1		
Cyanide (total)	mg/l	1		
Fluoride	mg/l	20		
Heavy metal (total)	mg/l	10		
Iron	mg/l	3.5		
Lead	mg/l	0.1		
Mercury	mg/l	0.01		0
Nikel	mg/l	0.5		
Oil and grease	mg/l	10		3
pH	S.U.[c]	6 – 9	7.1	
Phenol	mg/l	0.5		
Selenium	mg/l	0.1		
Silver	mg/l	0.5		
Sulfide	mg/l	1		0
Temperature increase	°C	<3°		
Total coliform bacteria	mg/l	400		
Total nitrogen	mg/l	10		< 3
Total phosphorus	mg/l	2		< 0.5
Total suspended solids	mg/l	50	20	
Zinc	mg/l	2≤ 2		

[a] **standard unit**

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

Table 27: Comparison with Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application) (NEQEG)

Parameter	Unit	Guideline Value	Result (22.10.2019)	Result (8.2.2022)
5-day Biochemical oxygen demand	mg/l	50	12	15
Ammonia	mg/l	10		
Arsenic	mg/l	0.1		0
Cadmium	mg/l	0.1		
Chemical oxygen demand	mg/l	250	32	< 30
Chlorine (total residual)	mg/l	0.2		
Chromium (hexavalent)	mg/l	0.1		
Chromium (total)	mg/l	0.5		
Copper	mg/l	0.5		
Cyanide (free)/ Cyanide (total)	mg/l	0.1 / 1		
Fluoride	mg/l	20		
Heavy metals (total)	mg/l	10		
Iron	mg/l	3.5		
Lead	mg/l	0.1		
Mercury	mg/l	0.01		0
Nickel	mg/l	0.5		
Oil and grease	mg/l	10		3
pH	mg/l	6-9	7.1	
Phenols	mg/l	0.5		
Selenium	mg/l	0.1		

Parameter	Unit	Guideline Value	Result (22.10.2019)	Result (8.2.2022)
Silver	mg/l	0.5		
Sulphide	mg/l	1		0
Temperature increase	mg/l	<3b		
Total coliform bacteria	mg/l	400		
Total phosphorus	mg/l	2		0
Total suspended solids	mg/l	50	20	
Zinc	mg/l	2		

[a] **standard unit**

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

Pollution prevention and handbook, 1998 toward cleaner production

World Bank Group in collaboration with United Nations Environment Programme and the United Nations Industrial Development Organization

Table 28: Comparison with NEGEG's 2.4.3 Biosolids and Sludge Disposal[60]

Sludge from wastewater treatment facilities can be dewatered and disposed of to a landfill or through incineration. Where sludge has been demonstrated to have sufficiently low levels of toxic and microbial constituents, solids can be applied to land as a soil amendment material or used in agriculture as a fertilizer. The following guideline values should apply.

Parameter	Unit[a]	Guideline Value	Result (22.10.2019)	Result (8.2.2022)
Arsenic	mg/kg	0.1		0
Cadmium	mg/kg	0.1		
Chlorine (total residual)	mg/kg	0.2		
Chromium (hexavalent)	mg/kg	0.1		
Copper	mg/kg	0.5		
Lead	mg/kg	0.1		
Mercury	mg/kg	0.01		0
Molybdenum	mg/kg			
Nickel	mg/kg	0.5		
Selenium	mg/kg	0.1		
Total coliform bacteria	g[b]	400		
Zinc	mg/kg	2		

[60] **Use and disposal of sewage sludge. 2006. Title 40 Code of Federal Regulations Part 503, United States Environmental Protection Agency.**

[a] **Dry weight**

[b] **Per gram of total solids (dry weight)**

In this monitoring, parameters such as pH, TSS, COD, BOD, Temperature, as well as Oil & grease, total Phosphorus, sulfide were analyzed from wastewater from the outlet of Effluent Treatment Plant, but could not be analyzed in Ammonia. It is due to the third party's requirement. In future monitoring, all the required parameters will be performed analyzing.

Discharge of treated wastewater, biosolids and sludge from a wastewater treatment plant will only be disposed of in accordance with the requirements of the National Environmental Quality (Discharge) Guidelines, Part (a) No. (2.4.2) of wastewater treatment.

Figure 54: Industrial Wastewater outlet ((16°55'48.14"N, 96° 3'33.18"E)

3.8.4 Biological Environment

The Project Site is a built-environment and the species of flora and fauna surveyed at the site are native species not uncommon to the Yangon area. There were no protected species or species of conservation value identified.

To comply with compensatory planting required by YCDC, the Developer has paid a fee to YCDC, to cut the trees that won't be used in the new development landscape.

3.8.5 Regional Socio-Economical Environment

Population

As of DOP's 2014 report, Hlaing Thar Yar Township had 687,867 residents with a male to female ratio of 46.9%, 53.1% and 70.1 % urban population. There were 20 wards, 9 village tracts. Additionally, there were 148,711 households with an average household size of 4.5. In 2014, over half of the township population was between 15 and 64 years old and the total dependency ratio was 37.3%. There were 10,210.6 persons in every square kilometre.

In 2014, the population of Ah Lel Village Tract where Ngwe Pin Lae Industrial Zone located was 23,214 persons with a population density of 10,939 male, and 12,275 females.

Economic Profile

According to the Myanmar Times report, Hlaing Thar Yar industrial zone economic profile was recollect tales of those working in the industrial era.

In Hlaing Thar Yar Township, the proportion of employed persons working in the industry of "Manufacturing"is the highest with 29.1 percent. The second highest industry is "Construction" at 16.1 per cent. There are 13.7 per cent of males and 50.7 per cent of females working in "Manufacturing" industry.

Dozens of little houses are perched along the edge of the factory areas, some recently settled, while other others have been living for over 10 years.

Meanwhile, if minimum wages is fixed at K 4,800, a worker will earn K 144,000 as basic salary and get K206, 400 if five hours overtime is added.

According to workers, living costs – including room rental and food expenses – amounted to nearly K-80,000 a month and rose to K-120,000 due to the rising cost of basic commodities.

Unfortunately, these are not isolated cases. Many others migrated from rural areas to Yangon's industrial zone, in search of employment. In 2016-17, over 130,000 workers have been employed in seven categories of work throughout the complex

According to the workers from Hlaing Tharyar industrial zones, their monthly living cost is between K100, 000 and K-200, 000.

Religion

In Hlaing Thar Yar Township, at the Union level, the composition of the population by religion is 87.9% Buddhist, 6.2% Christian, 4.3% Islam, 0.5% Hindu, 0.8% Animist, and 0.2% Other religion and 0.1% No religion.

Existing Access

The township is connected to other parts of Yangon across the Yangon river over the Aung Zeya Bridge, the Bayinnaung Bridge, and the Shwe Pyi Thar Bridge so that's why existing access to the proposed site is from more entries and exits to serve other entry and exits to downtown.

Overview

Hlaingthayar is the most developed of the new satellite towns founded in the 1980s. Hlaingthaya Industrial Zone, consisted of mostly garment and other light industries, is one of the largest industrial parks in the country. Showpiece gated communities of the wealthy like the FMI City and Pun Hlaing Garden Residences in the southeastern part of the township are the domain of the country's elite and are arguably among the best communities in the country. After Cyclone Nargis the township experienced a jump in population due to refugees.

Education

The township has 48 primary schools, 9 middle schools and 8 high schools. And Yangon Technological University also maintains a campus in Hlaingthaya.

Cultural & Archaeological Heritage

No sites of archaeological or cultural heritage were identified within a 1km radius of the study site.

3.9 Commitment about the Project

- **During the day, consumer waste, construction waste and hazardous waste, will be segregated, before disposing of performing waste treatment**
- **The project will focus on air emissions; Wastewater treatment; Noise and vibration; Relevant standards and regulations for the disposal of waste, we will follow the guidelines of NEQEG.**

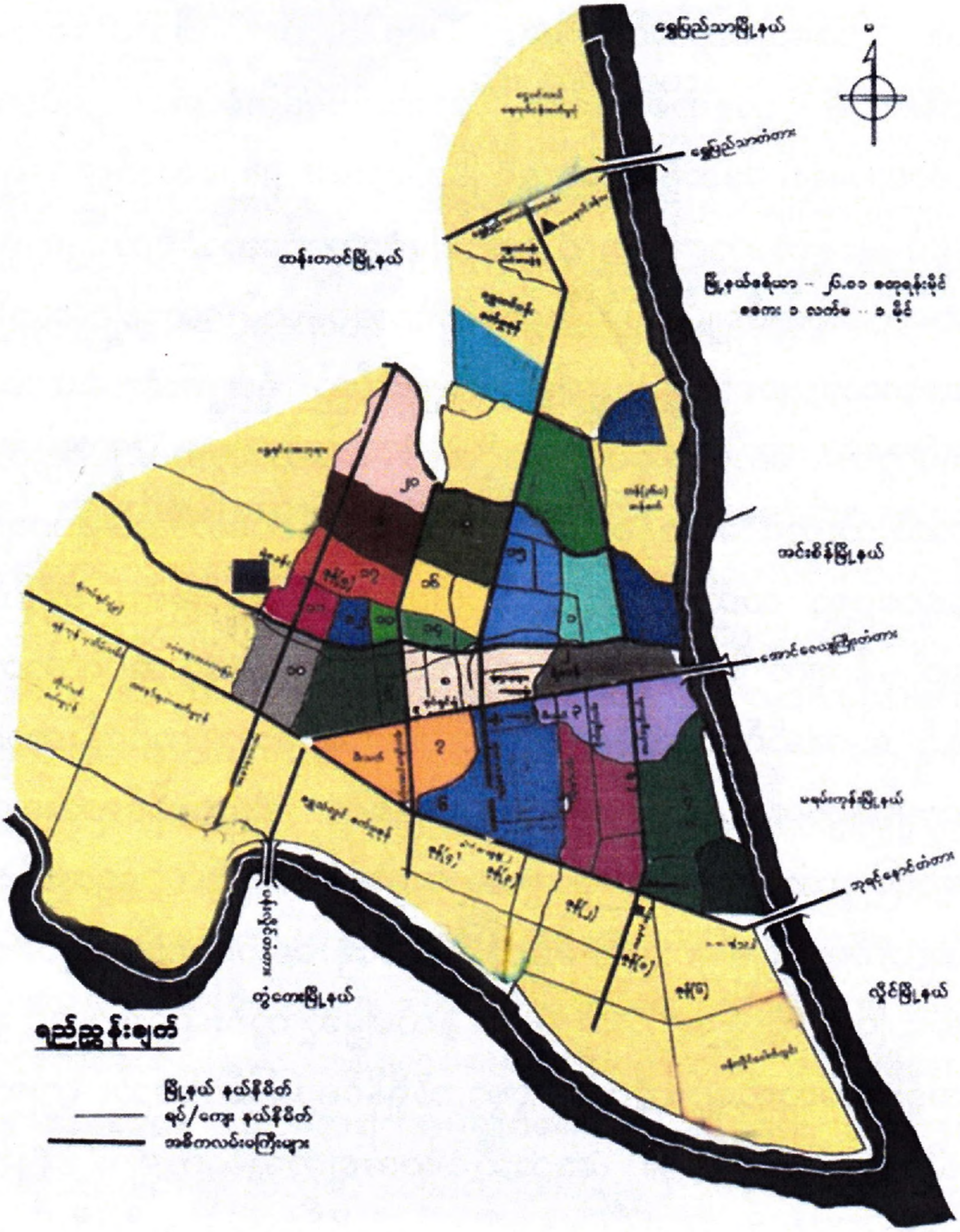


Figure 55: Hlaing Tharyar Township Area of Yangon Region

CHAPTER 4 HEALTH POLICIES, COMMITMENTS, LEGAL REQUIREMENTS AND INSTITUTIONAL ARRANGEMENTS

4.1 Corporate Environmental and Social Policies

SDI Manufacturing Company Limited strives to ensure through its environmental and social appraisal and supervision process that its investment and business operations are undertaken under an environmental and social sustainability vision and responsible manner. SDI requires that its business models are designed to minimize pollution and maximize resource efficiency in accordance with the standards and policies endorsed by the company. Specific areas of corporate policies are addressed below. -

4.1.1 Environmental Policy

SDI Manufacturing promotes the value and importance of its obligations to manage its mills and plantations without compromising the rights and resources of future generations. In its business activities, SDI complies with the prevailing statutory environmental obligations and laws; and other applicable requirements to which the SDI Manufacturing Group subscribes. The Group implements and maintains an environmental management system conforming to the ISO 14001, RSPO (Roundtable on Sustainable Palm Oil) Principles & Criteria standards, and the Group's Standard Operating Procedures and Best Practices. Zero-burning in all plantation development activities, which SDI Manufacturing's partners and contractors are also required to uphold, is practiced and similar measures are taken in regard of waste disposal. The projects of SDI avoid development on peat-land, regardless of depth. Regular independent third-party monitoring and high conservation value assessment are commissioned in all SDI's projects in order to manage project related pollutions and safeguard the environment and natural resources.

It is SDI Manufacturing's top priority to prevent land, air and water pollution through reduced use of chemicals, resource conservation, waste reduction / recycling / reuse and proper waste disposal in every aspect of its business activities. SDI Manufacturing's project developers prevent erosion and degradation by adopting the Best Code of Practices through educating and training. By raising awareness on environmental and related issues, SDI promotes employees' voluntary participation and cooperation to minimize adverse impacts and protect the environment. The company encourages partners and smallholders to uphold and implement these principles as well. Periodical review of the Environmental Policy seeks to ensure its relevancy and applicability up to date.

4.1.2 Social Policy

SDI's goal is to establish financially independent and self-reliant communities through harmonious relationships with its surrounding neighbours. SDI endeavors to support the local economies through the infrastructure, services, and employment associated with its garment manufacturing operations. To achieve the goal SDI will:

- Comply with the prevailing statutory employment and social obligations and laws; and other applicable requirements to which the group subscribes;
- Embrace a policy of open engagement and on-going consultation in an honest, peaceful, and fair manner with local communities and other stakeholders or credible organizations, which represent them to resolve all disputes within its concession area;
- Identify skill gaps in the communities and provide the necessary capacity building scheme that is carefully designed to improve education and welfare;
- Preserve indigenous cultural values;
- Periodically review the social policy to ensure it remains relevant, applicable, and up to date.

4.1.3 Equal Opportunity Policy

SDI abides by the principle of fairness and no-discrimination, and treats individuals with dignity and respect. In particular, it prevents discrimination based on gender, race or ethnic origin, disability, sexual orientation, age, or faith. SDI intends to build capable workforce that is solely based on merit. This policy sets out SDI's position as equal opportunity employer in all aspects of its employment including recruitment, training, and promotion.

4.1.4 Occupational Health, Safety and Environmental Policy

Concerning the health and safety of SDI manufacturing factory employees, it is the moral and legal responsibility of SDI to provide a safe and healthy environment for its employees, contractors, clients, and visitors in every part of its operations.

It is important to incorporate the Health and Safety issue of the proposed project on both construction and operation phase. The major hazard in the project is caused by Electricity and Fire. Electrical Hazard will be prevented by establishing trained and skilled personnel on respective works and installing protection barriers. The most likely possible Fire Hazard will be protected by fixed and portable fire extinguishing systems in the plant wherever necessary. In common, CO_2 Fixed Fire Extinguishing System in general are used. Portable Fire Extinguishers are also to be provided at respective position with approved type of extinguishers.

After approved the MIC proposal for establishing company, the contractor has to produce a HSE plan and submit it for the approval by owner / engineer. The HSE Plan is described in the following sections. The primary objective of the HSE plan is to demonstrate the capability to carry out the contract work in a cost-effective manner, and giving due consideration to the Health, Safety and Environmental management of his own employees, those of owner / engineer. Consideration has to be made for even anyone who may be affected by operations' activities.

HSE plan for this factory conforms to the following general structure;

- Owner's Policy Statement
- Health, First Aid, Primary health care and occupational health
- Safety objectives and targets, organization and responsibilities, HSE meetings, motivation and communication, HSE training, audits and inspection, emergency response, safety function, accident investigating and reporting, standards and personal protective equipment
- Environment of waste management, chemicals management and environmental impact
- Critical areas (Sub contractors)
- Summary of hazards and controls

In addition to the general hazards and their controls, the following hazards have been identified as specific to the works specified in these technical specifications and therefore the contractor should demonstrate that he is capable of providing the necessary controls for the work;

- working adjacent to live high voltage equipment
- working at elevation
- lifting operation

4.1.5 Child Labor Policy

Child labor is defined by the International Labor Organization (ILO) Convention as: work by children under the age of 12; and work by children under the age of 18 that is hazardous to the physical or mental health of the child. SDI International has zero tolerance for the use of child or forced labor, or exploitation of children in any of its global operations and facilities.

4.1.6 Sexual Harassment Policy

Sexual harassment is defined as the making of unwanted and offensive advance; requests for sexual favours and/or other verbal or physical conduct of a sexual nature. The company provides a conductive working environment that is characterized by equality and mutual respect. To that end, sexual harassment policy encourages the reporting of all incidents of sexual harassment experienced by any individual – regardless of gender or age – as a result of his or her work with the firm. SDI will take all reasonable measures to prevent such incidents and deal promptly and fairly with any incident of sexual harassment in a confidential and discreet manner. Where allegations of sexual harassment are substantiated, the offender will be sanctioned in strict accordance with this policy, regardless of his or her status at the company.

SDI Manufacturing expects its business partners and associates to have and uphold similar standards and abide by country-governing laws in countries wherein they operate. Should violation to exercise these principles be reported,

prompt investigation and serious action including termination of the business relationship with the responsible party by SDI Manufacturing is inevitable.

4.2 Policy and Legal Framework

Myanmar policy and legal frame work together with international treaties and agreements relevant to the project are summarized in this section. In general, this policy, legal frame work, treaties, and agreements all aim to safeguard environment, to prevent exploitation, and to provide assurance to the peoples of Myanmar. SDI Manufacturing's own integrated policies support environmental conservation, promote fair labour standards, and prevent exploitation of any kind.

National Commission for Environmental Affairs – (Also known as Environmental Conservation Committee) and MOECAF. The National Commission for Environmental Affairs (NCEA) was formed in 1990 and was chaired by the Minister of Foreign Affairs until 2005. In 2005 the NCEA was transferred under the Minister of Forestry (MOF), which assumed the role of the NCEA chairperson and changed into the Ministry of Environmental Conservation and forestry (MOECAF) and finally renamed again to Ministry of Natural Resources and Environmental Conservation (MONREC). The stated objectives of MONREC include setting environmental standards, creating environmental policies for using natural resources and laying down rules and regulations to control pollution, as well as to create short- and long-term environmental policies which balance environmental needs and long overdue development requirements.

To complement the Environmental Conservation Law promulgated in 2012, MONREC has drafted the "Environmental Impact Assessment Procedure and ESIA and EQEG Guidelines" which are recently approved by the government. Thus, the ESIA study for the project has been conducted according to the EIA Procedure and relevant national and international guidelines.

4.2.1 Myanmar Environmental Legislations

There are currently several laws and regulations related to environmental protection in Myanmar. Most are ancient and outdated environmental laws, for which enforcement was branched over to many ministries without a centralized environmental regulatory agency until 2011. The authority of the Ministry of Natural Resources and Environmental Conservation (MONREC) formerly known as (MOECAF) was established in September 2011 as a main focal and coordinating agency for the overall environmental management including monitoring and auditing based on the Environmental Conservation Law 2012. Detailed tasks for MONREC are presented in section.

The environmental legislation and regulation considered relevant for the garment manufacturing and production industries with CMP System which will be complied by SDI Garment Factory are shown below.

National Environmental Policy (1994)✓

The National Environmental Policy of December 1994 integrates environmental considerations into the development process and acknowledges that, while there is a sovereign right to use natural resources, environmental protection should also be the primary objective at all times.

This policy states: "To establish sound environmental policies, utilization of water, land, forests, mineral, marine resources and other natural resources in order to conserve the environment and prevent its degradation, the Government of the Union of Myanmar hereby adopts the following policy: The Wealth of a nation is its people, its cultural heritage, its environment and its natural resources. The objective of Myanmar's environment policy is aimed at achieving harmony and balance between these through the integration of environmental considerations into the development process to enhance the quality of the life of all its citizens. Every nation has a sovereign right to utilize its natural resources in accordance with its environmental policies, but great care must be taken not to exceed its jurisdiction or infringe upon the interests of other nations. It is the responsibility of the State and every citizen to preserve its natural resources in the interest of present and future generations. Environmental protection should always be the primary objective in seeking the development."

Further, the National Environmental Policy aims to provide long-term guidance for government, civil society, the private sector and development partners in Myanmar regarding environmentally sustainable development objectives, including but not limited to the introduction of detailed strategic frameworks and action plans targeting the environment sector, such as green economic development, climate change and waste management strategies, and other relevant plans and policies. Similarly, both National Climate Change

Policy and Strategy and National Green Economy Policy and Strategic Framework (currently being drafted) are also aimed at achieving green growth, climate resilient, inclusive and sustainable development in Myanmar.

Myanmar's National Waste Management Strategy and Action Plan

https://optoce.no/wp-content/uploads/2019/04/Myanmar-National-Waste-Management-Strategy_Mar-2018.pdf

The Myanmar National Waste Management Strategy and Core Action Plan (2018-2030) was approved by the President's Office Notification No. 21/2020 on 27-1-2020.

Scope and Period Covered by the Strategy

The National Waste Management Strategy and Action Plan for Myanmar aims to make transformation from conventional waste management towards achieving a goal of a zero waste, resource-efficient and sustainable society by 2030. This recognises that waste to be regarded as resources. Thus, waste management needs to be environmentally effective, economically affordable and socially acceptable. To this end, it sets strategic plan with short-term targets (2017-2020), mid-term targets (20212025) and long-term targets (2025-2030) to be achieved. It also includes a comprehensive list of strategies and actions that are based on the findings of a quick study and feedback from a range of city-level stakeholders. The National Waste Management Strategy and Action Plan thus reflects the stated goals and directives of public authorities with a view towards efficient and effective implementation of waste management.

Therefore, the National Waste Management Strategy and Action Plan makes efforts to link with other existing and proposed national environmental policies, laws/regulations, development plans and strategies. The National Comprehensive Development Plan (NCDP) 2015 of Myanmar identifies the importance of managing the environment and natural resources in a sustainable manner, promoting sustainable and transparent investments in ways that sustain the resource base and benefit the local and national population as a whole; reducing environmental health risks from air and water pollution with improved access to those services, and reducing vulnerability to climate change related disasters and impacts.

2008 Constitution of the Republic of the Union of Myanmar [29.05.2008] Chapter 8, Citizens, Citizens' rights and responsibilities

Similarly, to the National Environmental Policy, the 2008 Constitution affirms that the Government will conserve Myanmar's natural environment, and that the National Parliament can enact environmental and other protective laws.

349 Citizens shall have the same opportunity to perform the following tasks:

a) civil service;
b) employment;
c) trade and commerce;
d) business activities;
e) professional and career;
f) Science and Technology Discovery

350 Women are entitled to equal rights and salaries for men for the same work.

351 Mothers Children and pregnant women must be afforded equal rights under the law.

Myanmar National Climate Change Policy✓

The National Climate Change Policy, published alongside the National Environment Policy, aims at creating a more robust policy framework to make sure that investment and development plans at all levels tackle climate change-related challenges. It further seeks to identify and make use of the benefits of a low-carbon, sustainable path forward.

The document establishes sectoral guidelines on 1) food and water security, 2) ecosystems, 3) low-carbon growth, 4) urban and rural urbanisation, 5) human wellbeing and health, and 6) public awareness and research. In that regard, it stresses the need to 1) pass more laws and adopt more regulations with regard to climate change in a cross-cutting manner, 2) improve the institutional framework, 3) enhance the national capabilities and international potential to foster climate-sensitive budgets, 4) capacity-building, 5) research, 6) partnerships, 7) transparency, and 8) monitoring.

This Policy adopts the Myanmar Climate Change Strategy and Master Plan to be implemented for the period 2018-2030.

Environmental Conservation Law (2012)

The Environmental Conservation Law was promulgated in 2012. It lists a set of broad principles and empowers the Ministry of Natural Resources and Environmental Conservation (MONREC) formerly known as (MOECAF) to enforce environmental standards.

The Environmental Conservation Law was enacted to implement the national environmental policy of 1994. It lays down basic principles and provide guidance to systematically integrate environmental conservation matters with the sustainable development works.

Specifically, it emphasizes the need to reduce air pollution, water pollution and land pollution. It also requires public engagement to increase the awareness of the affected people with respect to environmental pollution and social issues and encourages public participation. The responsibility to enforce these requirements has been given to MONREC. Chapter IV, section 7(m) refers to MONREC duties and powers in relation to environmental and social impact assessments. Under this chapter, the Law notes that MONREC's duties and powers include the prescription of environmental quality standards including standards on emissions, effluents, solid wastes, production procedures, processes and products for conservation and enhancement of environmental quality (such formalized standards are not available yet).

Chapter IX, section 19 of the Law requires MONREC to cooperate with the relevant Government departments and organizations for the conservation of cultural heritages sites and natural heritage sites, cultural monuments, and natural areas.

The objectives of the Law include enabling promotion of international, regional and bilateral cooperation regarding environmental conservation as well as co-operation with the government departments and organizations, international organizations, non-governmental organizations and private individuals on environmental conservation matters.

The Environmental Conservation Law paves the way for the preparation of EIAs and/or SIAs. During this study, almost all the draft regulations, rules, procedures and guidelines are in various stages of development. MONREC recently promulgated regulatory guidelines, EIA procedure and National Environmental Emission Guidelines to specify to enable the Environmental Conservation Law to be operable in practice, as for example setting the environmental quality standards, emission standards and classes of hazardous substances and waste.

The obligations of Business owners and occupiers under the environmental conservation law is that the polluter shall treat, emit, discharge, and deposit pollutants in accordance with stipulated environmental quality standards. The owner or occupier of business activities, materials or places that are the source of the pollution must install or use an on-site facility or controlling equipment to monitor, control, manage, reduce or eliminate environmental pollution. If this is not possible it must be arranged to dispose the wastes in accordance with environmentally sound methods.

No one shall violate any prohibition contained in the rules, notifications, orders, directives and procedures issued under the Environmental Conservation Law. The violation of this prohibition constitutes an offence punishable by imprisonment with a term not exceeding one year, a monetary fine, or both.

Overall, the Environmental Conservation Law (ECL) of 30 of March 2012 has listed a set of broad principles and empowers MONREC to enforce environmental standards (not yet formalized). The ECL addresses in its several chapters the: (i) environmental conservation, (ii) conservation of natural and cultural resources, (iii) process for businesses to apply for permissions to engage in an enterprise that has the potential to damage the environment, (iv) prohibitions and (v) describes the offences and their respective penalties.

Foreign Investment Law (2012) and Rules

The Foreign Investment Law (FIL) Rules clarify Myanmar's foreign investment framework. Basic Principles of the FIL state that the investment shall be allowed based upon principles including protection and conservation of the environment and developments that save energy consumption. The duties and rights of the investor requires the business be carried out in a manner that does not cause environmental pollution or damage according to existing laws.

Clause 37 of the Rules of the FIL states "In order to scrutinize accepted proposals sector by sector, a Proposal Review Group, composed of high-ranking officers from several departments (including the Environmental Conservation Department), is to be formed to perform preliminary scrutiny".

Environmental Impact Assessment Procedure

The Environmental Conservation Law, under Section 42 gives the responsibility to MONREC to implement the law. Under this provision, the Ministry issued the Environmental Impact Assessment Procedure in December 2015.

The Environmental Impact Assessment Procedure defines Environmental Impact as 'the probable effects or consequence on the natural environment and people of a proposed Project or businesses or activities or undertaking. Impacts can be direct or indirect, cumulative, and positive or adverse or both. For purposes of this Procedure, Environmental Impacts include occupational, social, socio-economical, community health, and safety issues.

The Procedure also defines EIA Report as 'a report comprising a systematic assessment of a proposed activity or project that is prepared to aid in determining whether such activity or project has the potential significantly to affect the environment, humans and other living things, including socio-economic impacts, and in deciding whether such activity or project should be allowed or not. The form, content and structure of the report shall be in accordance with the Ministry's requirements and guidelines and international best practice, and include the EMP'.

Prevention of Hazard from Chemical and Related Substances Law (2013)

The Chemical Safety Law on the safe use and disposal of hazardous chemicals was enacted in August, 2013.

The law stipulates how potentially hazardous chemicals should be used, stored, handled and disposed of. It also mandates the use of international standards for categorizing and labeling chemicals, known as the Globally Harmonized System of Classification and Labeling of Chemicals, which is widely used in the ASEAN region.

Boiler law 2015

The boiler law was enacted in 2015 for the development of utilizing safe and efficient boilers with the compliance of national and international standards in order to prevent environmental and social health impacts. Boiler law is cover for all industry which utilize boilers and its related facilities in their production process. Boilers need to be utilized with the proper license and frequent monitoring schedules to prevent accidental hazard on operators, related facilities and environment.

Forest Law 1992

The Forest Law, 1992 mentions offences for extracting, moving, keeping in possession unlawfully any forest produce, including fauna and flora. These are liable to be punished with fine or imprisonment, or both. For offences relating to teak trees the punishment is heavier.

Protection of Wildlife and Conservation of Natural Areas Law (1994)

This law is under the jurisdiction of the Ministry of Natural Resources and Environmental Conservation (MONREC). It is lacking in actual numerical criteria to protect the natural environment.

National Food Law (1997)

This law was enacted to enable the public to consume food of genuine quality, free from danger, to prevent public consumption of food that may cause danger or are injurious to health, to supervise production of controlled food systematically and to control and regulate the production, import, export, storage, distribution and sale of food systematically. The law also describes the formation of the Board of Authority and its functions and duties.

Conservation of Water Resources and Rivers Law (2006)

The aims of this law are as follows;

a. To conserve and protect the water resources and rivers system for beneficial utilization of the public;
b. To enable smooth and safe waterways navigation along rivers and creeks;
c. To contribute to the development of the State economy through improving water resources and river system;
d. To protect against environmental impacts.

The Electricity Law [27.10.2014], Chapter 12, Prohibitions, Clause 44 - 48

44. No person shall operate the electrical business without permit.

45. No permit holder shall operate any other electrical business except the business contained in the permit.
46. No person shall operate the electrical installation and repair without obtaining the electrical professional certificate.
47. No person shall operate the generation, transmission, connection of electric power without obtaining the electrical safety certificate.
48. No person shall operate the importing, manufacturing in the country, exporting, distributing and selling of the electrical equipment which are not consistent with the prescribed norm and standard**.**

The Standardization Law [03.07.2014], Chapter 9, Offences and Penalties, Article 24, Chapter 11, Miscellaneous Article 29

24. Whoever issues quality recommendation without obtaining the accreditation certificate shall, on conviction, be punished with imprisonment for a term not exceeding three years or with fine not exceeding Kyat three million or with both.

29. The person who has obtained the quality recommendation, its agent and its successor shall comply with compulsory standards.

Social Legislation

A synopsis is presented below of the social legislation and regulations that are considered relevant to the Garment Manufacturing industry. Myanmar has ratified numerous International Labour Organization Conventions. According to Section 24 of Myanmar's constitution, the government must provide the means to protect Labour.

The Consumer Protection Law (14.3.2014) Chapter 7, Article 8 (f, g, h) Prohibitions for Entrepreneurs

8. The entrepreneur shall not carry out the production, trade of the followings:

f) goods that are not in conformity with the recommendation of aknowledged department or organization of domestic and abroad; or the prescribed standard;
g) goods that are stated the guarantee of health and nutrition without reference of scientific research finding by the respective organization;
h) goods that do not meet specified standards;

Factories Act 1951 ပြင်ဆင် 09.10.1953, 21.10.1954, 22.05.1962, 20.01.2016 > all chapter to comply

The Factories Act 1951 is the principal Labour Law dealing with Safety, Health, Welfare and working hours of industrial workers in Myanmar. It is the act relating to occupational safety for workers. It provides requirements concerned with working hours, working days, overtime, and certain health and safety measures. The provisions relating to health and safety aim at ensuring a healthy and safe workplace for workers.

The provisions regarding hours of work and days of rest include limiting hours of work to 8 hours a day and 48 hours a week, granting a day off and rate of payment for overtime work. The Factories Act also has stipulations relating to children and young persons. A child under the age of 13 years is prohibited from working in any factory. A child who is between 13 and 15 years of age may work for a maximum of 4 hours a day subject to certain conditions.

Public Health Law (1972)

It is concerned with protection of people's health by controlling the quality and cleanliness of food, drugs, environmental sanitation, epidemic diseases and regulation of private clinics.

Law on Health and Safety in the Workplace (2014)

The first law on safety and health in workplaces was drafted by the Ministry of Labor, Employment and Social Security and has been promulgated in 2014. The law will prevent air and water pollution and improve safety at work sites including fire prevention, the enforcement of the use of protective equipment ensuring the safety of work site operators, and taking precautions from impending natural disasters.

Minimum Wage Law, 2013 Latest Notice

The Minimum Wage Law was enacted on 22 March 2013 and Minimum Wage Rules have been issued on 12 July 2013. The national minimum wage determination committee issued minimum wage notification 2/2015 on 28 August 2015. The stipulated minimum wage determined uniformly for the entire country without differentiation in respect of location or type of enterprise is to be Kyat 3,600 (US$ 2.80) per day with eight

working-hours, being a rate of Kyat 450 (US $ 0.35) per hour. That such determination shall not apply to small enterprises and family-owned self-managed enterprises with 15 or less employees.

Commercial Tax Law 1990 < Amendment 29.03.1991, 24.03.2006, 27.01.2011, 29.09.2011, 24.03.2014, 02.04.2015 >

4. Any person shall be subject to taxation as shown in the table for the following activities: <Amended 24.03.2014>

(A) Production of goods in the country;

(B) importing goods;

(C) conduct trade;

5. The tax due under section 4 shall be:

In case of importation of goods, the Supplier shall pay.

(B) if the manufacturer or trader sells or sells or imports goods or services, or sells goods or services before the commercial tax is charged; You must collect and pay taxes from the buyer or customer who purchased the product along with your earnings.

(C) if the goods are special goods under the Union tax law; The supplier must pay.

<Amended 24.03.2014>

4.2.2 International and Regional Conventions, Agreements and Treaties

Myanmar has signed 31 international treaties related to the environment. However, the contents of those treaties still need to be incorporated into domestic law. Table 29 presents a summary of the most significant conventions in the context of environmental protection in Myanmar.

Table 29: International and Regional Treaties to which Myanmar is a Party

No.	Name
1.	Plant Protection Agreement for the Southeast Asia and Pacific Region
2..	International Tropical Timber Agreement (ITTA)
3.	ASEAN Agreement on the Conservation of Nature and Natural Resources
4.	Ramsar Convention on Wetlands
5.	International Civil Aviation Organization: ANNEX 16 Annex to the Convention on International Civil Aviation Environmental Protection Vol. I, II, Aircraft Noise
6.	Convention on Biological Diversity (CBD)
7.	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
8	Stockholm Convention on Persistent Organic Pollutants
9.	Convention concerning the Protection of the World Cultural and Natural Heritage
10.	London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
11.	Vienna Convention for the Protection of Ozone Layer
12.	Montreal Protocol on Substances that Deplete the Ozone Layer
13.	Kyoto Protocol to the United Nations Framework Convention on Climate Change

Of this list of international treaties signed by Myanmar, the most relevant for the Project are the ones related to the Ozone Layer, Climate Change, Persistent Organic Pollutants, Wetlands, and protection of natural environment, and resources.

Agenda 21

The development of the environmental policy was followed by the drafting of 'Myanmar Agenda 21' in February 1997, which follows a UN framework for a multi-pronged approach to sustainable development. The Myanmar Agenda 21 recognizes the need for Environmental Impact Assessments and is an environmental action plan policy document which provides an integrated framework of programmes and actions aimed at securing the aims of sustainable development. The document is divided into 4 Parts and 19 Chapters, and reviews the current state of Myanmar's development and environment. It suggests policies to be undertaken for improving environmental protection in Myanmar.

The most important part of the Myanmar Agenda 21 documentation is the recommendation for creating national framework legislation on the environment to improve coordination and cooperation between Ministries on issues related to the environment; and creating legislation that requires that environmental impact assessments are conducted before any development project is undertaken.

4.3 Institutional Framework

Environmental protection in Myanmar generally comes under the authority of the Ministry of Natural Resources and Environmental Conservation (MONREC) formerly known as MOECAF which replaced the Ministry of Forestry in September 2011 as the focal and coordinating agency for overall environmental management in Myanmar. MOECAF has the responsibility for planning environmental management at the national and regional level; planning, implementing and monitoring environmental conservation measures and preventing, controlling and or otherwise reducing environmental pollution. MOECAF's responsibilities under the Environmental Conservation Law 2012 include establishing an environmental framework which includes the setting of environmental quality standards, hazardous substances and wastes classes, wastewater and air emissions, EIA and SIA guidelines and rules, biodiversity and climate change setting of environmental quality standards, defining hazardous substances, classifying wastes, and characterization of wastewater and air emissions.

The following tasks fall under mandate of the Environmental Conservation Department (ECD), an environmental wing of MONREC:

- to implement National Environmental Policy,
- to develop Short-, Medium- and Long-Term Strategies, Frameworks, Planning and Action Plans for the integration of environmental considerations into the national sustainable development process,
- to manage natural resources and conservation,
- to manage the control of air, land and water pollution for a sustainable environment, and
- to cooperate with Government Organizations, Civil Society Organizations (CSOs), Private and International Organizations concerned with Environmental Management.

The Environmental Conservation Department comprises of i) Policy, Planning, International Relations, Research and Extension Division, ii) Pollution Control Division and iii) Natural Resources and EIA Division.

4.4 Health Standards for Projects with Health Impacts

IFC's EHS Guidelines describe potential health impacts due to exposure to dust and biological hazards, exposure to chemicals (including gases and vapors), and exposure to heat and cold radiation are associated with garment manufacturing operations.

Recognizing moral and legal responsibility for health and safety, SDI Manufacturing is committed to safeguarding healthy environment for both its employees and the communities in all aspects of its garment manufacturing operation. SDI Manufacturing's Occupational Health & Safety Policy will be implemented in conformity with RSPO Principles and Criteria. In addition, SDI Manufacturing requires its partners including contractors and small-holders to uphold these health and safety obligations.

Moreover, periodical review of SDI Manufacturing's Occupation Health & Safety Policy by Occupational Health & Safety Management Committee guarantees its policy's relevancy and applicability. SDI Manufacturing strives to keep its policy current and upholds it in every aspect of its operations.

4.5 Legal Commitment for Myanmar Laws relating to the Environment, Protecting and Social Issues

Provisions in relation to this project operations, personal hygiene of workers sites such as occupational health and safety in the metal, accidents, working time and welfare fields, promulgated holiday wages, Occupational disease prevention and health care for these operations and protection of the environment and laws for social affair specifically related sectors as shown bellows;

<u>A. Administrative Sector</u>

1. The Towns Act, 1907
2. Village Law, 1907 Ward or Village Tract Administration Law [24.02.2012] [02.12.2016]
3. The Explosive Substances Act, 1908 13.06.2018
4. The Poisons Act, 1919
5. The Police Act, 1945
6. The Emergency Provision Act, 1950 /The Law Relating to Assistance, Care and Treatment on Injured Emergency Patient
7. THE UNDERGROUND WATER ACT. [21.06.1930] Clause 3

   <u>We commit to comply for the stipulations</u>

3. **No person shall sink a tube for the purpose of obtaining underground water except under and in accordance with the terms of a licence granted by the water officer.**
   Every person owning a tube which was in existence before the extension of this Act to the local area concerned shall apply to the water officer for a licence for the said tube, and such licence shall be granted free of charge.

8. Myanmar Fire Brigade Act [17.03.2015] [17.03.2015] Clause 25
   We commit to comply for the stipulations:
   - For the requirement to 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.
   - For the requirements for the factory, workshop, highway bus, airport, jetty, hotel, motel, guest house, collective-owned building, market, work-site or business exposed to fire hazard of the owner or manager;
     (a). Not fail to form the reserve fire brigade
     (b). Not fail to provide materials and apparatuses for fire safety; in conformity with the directive of the Fire Services Department.

B. Agriculture and Irrigation Sector

Ministry of agriculture, Livestock and Irrigation

9. Vacant, Fallow land and wastelands Management Act [30.03.2012] [11.09.2018] Chapter 6, Article 16
   Vacant land, the right to land, fallow and virgin lands; Terms and conditions applicable to the recipient
   16 Vacant lands, the right to land, fallow and virgin lands; Who has access:
   a) Only the type of business permitted and related business shall be conducted.
   b) shall operate within the prescribed period within 4 years from the date of grant of the permitted land. Because of natural disasters; The Central Committee may reschedule the period for the time that has passed due to the situation of unrest or insecurity.
   c) permitted vacant land; Lands and fallow lands without the permission of the Union Government; Give, give, and give. Selling Renting Do not transfer or have surgery.
   d) the vacant land for which he is entitled to work; Land tax shall be paid in full for vacant and fallow lands.
   e) vacant land; The right to land, fallow and virgin lands; The Central Committee shall abide by the rules set by the Central Committee.
   f) shall not extract other resources on the ground except from the permitted business;
   g) If the resource is found within the permitted land and the Government wants to commercialize it, it shall return it as directed by the Union Government.

10. The Embankment Act, 1909 /8.8.2017
11. The Canal Act, 1905 / 31.08.2017
12. The Plant Pest Quarantine Law, 1993 and amended in 2011
13. The Farmland Act 2012
    We commit to comply the stipulations for empowering
    - In respect of the application to utilize the farmland for other purposes in the interest of the public: -
      1. The Central Farmland Management Body to give permission to utilize the paddy land for other purposes, with the recommendation of the Region or State Farmland Management Body;
      2. The respective Region or State Government shall give permission to utilize the farmland for other purposes except paddy land, with the recommendation of the Region or State Farmland Management Body;

C. Culture Sector

Ministry of Culture and Religious Affairs

14. The Protection and Preservation of Cultural Heritage Region Law, (28.2.2019)1998, Clause 13, 15, 22
    The State Peace and Development Council Law enacted this law-by-Law No. 9/ 98 on the date of 10 September, 1998. The Ministry of Culture may, with the approval of the Government Issue notification for the protection of cultural heritage areas are categorized as following kinds of zones / region:
    (a) Ancient monumental zone;
    (b) Ancient site zone.
    We commit to comply the stipulations:
    - That certain land-based construction works must apply for prior permission and must abide by provisions of existing laws.
    - For the person desirous of carrying out construction works to abide by the provisions of other existing laws and also apply in accordance with the stipulations to the Department to obtain prior permission under this law.
    - For Buildings in cultural heritage region to conform to conditions prescribed by the Ministry of Culture.

15. The Protection and Preservation of Antique Objects Law [22.07.2015], Clause 12, 13

We commit to comply the stipulation:

- That person who finds any object which has no owner or custodian, needs to inform the relevant Ward or village-tract administrator if he knows or it seems reasonable to assume that the said object is an antique object.
- For a procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation

16. Protection of Ancient Buildings Act [26.08.2015], Clause 12, 13, 15, 20

We commit to comply the stipulations:

- That a person who finds an ancient monument over one hundred years old under the water or above ground shall promptly inform the relevant Ward or Village-Tract Administrative Office.
- For procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation.
- Requirement for prior permission to obtain from the Department before searching for and extracting oil and gas or constructing pipelines
- For prohibitions not to damage ancient monuments including using machinery which causes vibration and discharging chemical substance.

D. City Development Sector

17. Yangon City Development Law [28.06/2018] [09.10.2018] - Yangon City Development Committee✓

The objectives of this law are as follows:

We commit to comply the stipulations:

- To develop the city in a sustainable manner with the development of the city, under the leadership of the Development Affairs Committee;
- To obtain full tax on development tax and the existing laws and regulations for development projects within the city boundaries. Rules and regulations to use it in accordance with the rules;
- Clean and tidy like international capitals. Pleasant To encourage the city's residents to contribute to the development of a beautiful and vibrant city.
- Responsibility for development activities; Accountability To develop a transparent, people-centered management system;
- To formulate responsible agencies and departments in order to be more effective in development activities.

18. The Underground Water Act, 1930

The underground water act is enacted on the date of 21st June in 1930 whereas it is expedient to conserve and protect underground sources of water supply in the Union of Myanmar.

We commit to comply the stipulations:

- For prohibition from 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.
- For the powers of Township Officer or sub-divisional officer to close a license tube after exercising jurisdiction over the local area concerned and the expense of such closure shall be recoverable from the owner of the tube as if it were an arrear of land-revenue.

E. Economic and commercial sectors

19. Import-export laws [07.09.2012], Clause 12

We commit to comply stipulation for a person who obtained any license not to violate the conditions contained in the license.

F. Ethnic Affairs Sector

20. Ethnic rights protection law [24.02.2015] Ministry of Ethnic Affairs
21. Consumer Protection Law [15.03.2019] Clause 21

We commit to comply the following clause strictly

21 The business owner's responsibilities are as follows:

(A) warranty of the goods or services; Providing simple, straightforward information on the terms and conditions;
(B) treating consumers fairly and indiscriminately;
(C) Business ethics; Acting in accordance with the rules;
(D) relevant Government Department in respect of goods or services for trade and production; Insurance based on quality standards set by government agencies;
(E) giving consumers the opportunity to test before purchasing the goods required for quality testing;
(F) clearly indicate the value of the additional payment for the product or service before the consumer purchases it;

(G) refrain from directly selling or selling goods or services that may cause the consumer to suffer;
(H) Fulfilling the Promise as Without the Promise Regarding the Product or Service.
(I) While communicating the dispute while resolving the dispute; Or in any other way, threatening to harm the consumer; Misrepresentation; Avoid writing and acting;
(J) risk of harm to the goods or services produced; If you know about it in any other way or if it is known in any other way, it can be communicated to the Department or to the public through the medium of communication. Notify me in any other way;
(K) To adhere to the resolutions and resolutions of the respective committees in the event of any dispute regarding the goods or services.

G. Finance and Revenue Sector

22. The Myanmar Insurance Law, 1993, Clause 15, 16✓

Myanmar Insurance is established under this Law as a legal entity having perpetual succession, capable of suing and being sued in its own name.

15. Owners of motor vehicles shall affect compulsory Third Party Liability Insurance with the Myanma Insurance.

16. An entrepreneur or an organization operating an enterprise which may cause loss to State-owned property or which may cause damage to the life and property of the public or which may cause pollution to the environment shall affect compulsory General Liability Insurance with the Myanma Insurance.

We commit to comply the stipulations:

- For compulsory requirement for owners of motor vehicles to have Third Party Liability Insurance with Myanma Insurance
- For compulsory requirement for organizations operating as an enterprise which may cause damage to life and property of the public or may pollute the environment to have General Liability Insurance with the Myanma Insurance:

H. Health Sector

Ministry of Health and Sport Affairs

23. The National Food Law, 1997
24. The Traditional Drug Law, 1996
25. The National Drug Law, 1992
26. The Union of Myanmar Public Health Law, 1972, Clause 3,5

We commit to cooperate with the authorized person or organization in line with the stipulations

- To abide by any instruction or stipulation for public health.
- To accept any inspection, anytime, anywhere if it is needed.

27. The Control of Smoking and Consumption of Tobacco Product Law, 2006, Clause 9(a-d),

We commit to comply the stipulation:

- For the person-in-charge
  (a) To keep the caption and mark referring that it is a non-smoking area,
  (b) To arrange the specific place
  (c) To supervise and carry out measures so that no one shall smoke at the non-smoking area
  (d) To accept the inspection when the supervisory body comes to the place for which he is responsible.

28. Infectious Diseases Prevention and Suppression Act [20.03.1995] [27.01.2011], Clause 3(a), 9, 11

We commit to comply the stipulations:

- That the Department of Health will carry out immunizations and health education activities related to communicable diseases
- That all persons are responsible for reporting an outbreak of a communicable disease to the nearest Health Officer.
- That Health Officer may undertake investigations and medical examinations to prevent the control the spread of Principal Epidemic Disease.

I. Hotels and Tourism Sector

29. The Myanmar Hotels and Tourism Law, 1993-Ministry of Hotels and Tourism

To prevent damage to cultural heritage areas or sites of natural beauty, caused by the hotel and tourism industry

30. The Myanmar Tourism Law – 2018, Clause 3✓

(g) to develop local business, small and medium enterprises based on tourism and economic opportunities for local communities, as well as Community-Based Tourism (CBT);

J. Industrial Sector

31. Law on oil and oil products (1.8.2017), Clause 7,9,10,11, Ministry of Electrical Power and Energy

We commit to comply the stipulations:

(a) That the Ministry of Commerce shall functions relating to:

(a) Issuing licenses relating to import and export. Determining procedures and conditions related to import and export
(b) Prohibition not to import or export from the other places except from the places stipulated for import or export;
(c) Determining procedures, and conditions relating to import or export;

(b) That the Ministry of Transport and Communications shall carry out the following functions relating to any petroleum and petroleum product.
(a) issuing licenses relating to refining, transit, transport by pipeline, sale and distribution, inspection, and testing; issuing joint license or compound license for carrying out more than a type of business activities;
(b) Taking action, as necessary, in accordance with the existing laws if it occurs spill or accident in carrying out import, export, transport, and sale and distribution of petroleum and petroleum product by water;
(c) Determining standard and quality of receptacles for transport, and procedures and conditions for the pipelines;

(c) That the Ministry of Transport and Communications shall carry out the following functions relating to any petroleum and petroleum product.
(a) Issuing license for the right to store for the storage tanks and warehouses;
(b) Issuing transport permit for the vehicles, vessels and barges that shall carry any petroleum and petroleum product;
(c) If it occurs environmental impacts in carrying out petroleum and petroleum product business activities, taking action, as necessary, in accordance with the existing laws of on-site inspection.
(d) For stating warning sign of danger or if not, possible writing shall be displayed on all receptacles containing any dangerous petroleum and petroleum product.

32. The Oilfield (Workers and Welfare) Act, 1951 [01.06.1951] [08.10.1953]
33. The Private Industrial Enterprise Law, 1990 (26.11.1990)✓

4(b) Any person conducting any private industrial enterprise on the day this Law is enacted;
13 (f) shall shift the place of enterprise, change the nature of enterprise, amalgamate enterprises and split up enterprises only with the approval of the Directorate;
(g) shall abide by the orders and directives issued from time to time by the Ministry and the Directorate;
15 (a) appointing foreign exports and technicians with the approval of the Ministry;
(b) carrying out change of the name of enterprise, transfer of ownership, temporary suspension or permanent closing down of the enterprise in the manner prescribed and with the approval of the Directorate.

34. Prevention of Hazard from Chemical and Related Substances Law -2013, Clause 8, 13, 20, 22, 15, 16, 17, 23, 27 Ministry of Industry✓

<u>We commit to comply the stipulations:</u>

- For Any person, who wants to do the business of chemical and associated materials, to apply to the central body for the acquisition of the license, attached with the management plan for the environmental conservation in accord with the stipulations".
- For License holder has to apply to the central supervising body in accord with the stipulation for the relevant chemicals and associated materials using for his chemicals and associated materials business" for a certificate.
- For the registered certificate holder to abide by the regulations contained in the registered certificate and shall follow the order and directives issued from time to time by the central supervising body".
- For the duties and powers of the central supervising board.
- For the requirements:
  a) before works, license holder to be inspected by the relevant supervising and inspection team for safety and machinery/equipment check and
  b) The persons who are discharging the duty to be asked to attend foreign training or preventative trainings conducted by government departments and organizations.
- For license holders to
  a) follow the license regulations,
  b) follow directives on safe handling and shall ask workers to strictly follow
  c) shall provide necessary safety equipment and issue free personal protective equipment to workers,
  d) provide training in occupational safety
  e) determine the hazard to the environment, people and animals
  f) provide fit for work medical check-up and keep records
  g) send permission letter to Department of Township Administration if the chemicals and associated material are permitted to store
  h) acquire in advance guidance and agreement from fire service department if using inflammable materials or explosives

i) transport only the permitted amount of chemicals in accordance with prescriptive stipulations
j) obtain approval of central supervising body if transporting chemical and associated material from the permitted region to any other region
k) Abide and operate in accordance with related environmental laws to avoid impacts and damage to the environment.

- For the license holder to have insurance in accordance with stipulations in case of compensation is required for losses related to people, animals and environment.
- For the registered certificate holder shall apply again for using chemical which are not in the registered list.
- For the license holder to
  (a). classify the hazard level of chemicals and related substances in advance
  (b). show Material Safety Data Sheet and warning signage
  (c). provide safety equipment, personal protective equipment and training on their use
  (d). possess, transport, store, use and discharge chemicals and related materials in accordance with stipulations,
  (e). not import or export chemicals and related materials banned by the central supervising board.

List of Restricted Chemical

List of Restricted Chemicals issued by the Central Committee for Prevention of Chemical and Related Hazards; According to Notification No: 2/2016 of 30th June, 2016 from Central Leading Board on Prevention of Hazard from Chemical and Related Substances, the 26 numbers of restricted chemicals which are mentioned below; (Issuing the List of Restricted Chemical)

They were issued by Ministry of Health with the notification number (1/2012), the one number of chemicals which was banned by Vienna Convention and Montreal Protocol and two other chemicals, totally, the 29 numbers of chemical are specified as the Restricted Chemicals under section 5, sub-section (h) of Prevention of Hazard from Chemical and Related Substances Law:

(a) Controlled Precursor Chemicals

1. Acetic Anhydride
2. N- Acetylanthranilic Acid
3. Ephedrine
4. Ergometrine
5. Ergotamine
6. Isosafrole
7. Lysergic Acid
8. 3-4 Methylenedioxyphenyl-2-propanone
9. Norephedrine
10. 1-Phenyl-2-Propanone
11. Piperonal
12. Potassium Permanganate
13. Pseudoephedrine
14. Safrole
15. Acetone
16. Anthranilic Acid
17. Ethyl Ether (or) Diethyl Ether
18. Hydrochloric Acid
19. Methyl Ethyl Ketone
20. Phenylacetic Acid
21. Piperidine
22. Sulphuric Acid
23. Toluene
24. Safrole rich oil
25. Caffeine
26. Thionyl Chloride

(b) Banned Chemical by Vienna Convention and Montreal Protocol (1) Hydro-chloro-fluro-carbon(HCFC)

(c) Other Chemicals

1. Mercury
2. Sodium Cyanide

K. Investment and Foreign Economic communications

35. Myanmar Citizens Investment Law [29.07.2013] [29.07.2013] chapter 10 Clause 19 (a) to (f)

a) arrange to provide practicing and training to citizen staff for improvement of their working skills;
b) carry out the recruitment of workers from the Labour Exchange Office or local labour exchange agencies or by the arrangement of the investor;
c) appoint skilled workers, technicians and staff by signing an employment agreement between employer and workers in accord with the existing labour laws and rules;
d) in appointing staff and workers, conclude an employment agreement in accord with the existing labour laws;
e) carry out to enjoy the rights contained in the existing labour laws including minimum wages and salary, leaves, holiday, overtime fee, damages, workman's compensation, social welfare and other insurance relating to workers in stipulating the rights and duties of employers and workers or the occupational terms and conditions contained in the employment agreement;
f) settle the disputes arisen among employers, among workers, between employers and workers and technicians or staff in accord with the relevant existing laws.

36. Investment Law, 18.10.2016, 06.06.2019], Clause (50) (d), (51), (65),

We commit to comply

- The stipulation that the investor has to register the land lease contract at the office of Registry of Deeds in accordance with the Registration Act.
- The mentioning for appointment, replacement, providing for the employment of staff and workers, ensuring to comply the entitlements and rights in the labor laws and rules, settling dispute regarding HR issues.
- Stipulation:

g) To respect and comply with the customs, traditions and traditional culture of the ethnic groups in the Union;
h) To inform to the Commission if it is found that natural mineral resources or antique objects and treasure trove are not related to the investment permitted;
i) Not to make any significant alteration of topography or elevation of the land on which is entitled to lease or to use, without the approval of the Commission;
j) To abide by applicable laws, rules, procedures and best standards practiced internationally for this investment so as not to cause damage, pollution, and loss to the natural and social environment and not to cause damage to cultural heritage;
k) To list and keep proper records of books of account and financial statement and necessary financial matters relating to the investments performed by permit or endorsement in accordance with internationally and locally recognized accounting standards;
l) To pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directive and so forth during the period of suspension of investment for a credible reason;
m) To pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease or death due to the work;
n) To supervise foreign experts, supervisors and their families, who employ in their investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar;
o) To respect and comply with the labor laws;
p) To have the right to sue and to be sued in accordance with the laws;
q) To pay effective compensation for loss incurred to the victim, if there are damage to the natural environment and socioeconomic losses caused by logging or extraction of natural resources which are not related to the scope of the permissible investment, except from carrying out the activities required to conduct investment in a permit or an endorsement;
r) To allow the Commission to inspect in any places, when the Commission informs the prior notice to inspect the investment;
s) To take in advance permit or endorsement of the Commission for the investments which need to obtain prior approval under the Environmental Conservation Law and the procedures of environmental impact assessment, before undertaking the assessment, and shall submit the situation of environmental and social impact assessment to the Commission along the period of activities of the investments which obtained permit or endorsement of the Commission.

37. Investment rules) [30.03.2017] [20.09.2018], Clause 202, 203, 206, 212,

We commit to comply

- To comply with all terms and conditions in the permit and other applicable laws when the investment is carried out.
- To fully assist while negotiating with the Authority for settling the grievances of the local community that has been affected due to Investments.
- To appoint expert foreigner as senior manager, technical and operational expert or advisor according to subsection (a) of the section 51 of the Law, he shall submit the application attached with passport, expertise evidence or degree certificate and summary of biography of such foreigner to the Commission and obtain the approval.
- To obtain the permit or tax exemption or relief to ensure the relevant insurance out of the following types of the insurance at any insurance business entitled to carry out insurance business within the Union based on the nature of the business: Property and Business Interruption Insurance; Engineering Insurance; Professional Liability Insurance; Bodily Injury Insurance; Marine Insurance; or Workmen Compensation Insurance; Life Insurance; Fire Insurance.

38. Myanmar Foreign Investment Law, 2012✓
    - To restrict or prohibit investment activities which affect public health, the environment and ecosystems, which produce toxic waste or which engage with toxic chemicals, duties of investors to conduct business in such a way as to avoid environmental damage, air and water pollution, in accordance with existing laws.

L. Livestock and Fisheries Sector

39. The Law Relating to Aquaculture, 1989 (7.9.1989)
40. Fishing Rights of Foreign Fishing Vessels, 1989 and amended in 1993 (25.10.1993)
41. The Myanmar Marine Fisheries Law, 1990, and amended in 1993, Clause 39

    We commit to comply the stipulations:
    - For prohibition from disposing of living aquatic creatures or any material into the Myanmar Marine Fisheries Waters to cause pollution of water or to harass fishes and other marine organisms.
42. The Freshwater Fisheries Law, 1991 (4.3.1991)
43. The Animal Health and Development Law, 1993 /31.12.2010
44. The Veterinary Council Law, 1995, 22.12.2015

M. Labour Sector

Ministry of Labour, Immigration and Population

45. Labor Organization Law, 2011, 9.3.2012, Clause 17, 18, 19, 20, 21, 22

    This Law was enacted, to protect the rights of the workers, to have good relations among the workers or between the employer and the worker, and to enable to form and carry out the labor organizations systematically and independently.

    We commit to comply the stipulations:
    - That Labor Organizations are free to organize and negotiate workers' rights if not meeting lab our laws.
    - That Labor Organizations may demand re-appointment of worker if cause of dismissal is related to labor organization membership or activities or not conform with lab our laws.
    - That Labor Organizations have the right to send representatives to conciliation tribunals.
    - That Labor Organizations have the right to participate and discuss workers' rights and interests with government and employers
    - That Labor Organization has the right to participate in collective bargaining in accordance with labor laws.
    - That Labor Organization may take collective actions in accordance with the relevant procedures, regulations and law.
46. Labor Dispute Law (2012) And Resolution Law (2014)✓

    It was enacted in 2012, with a stated purpose that includes safeguarding workers' rights, peaceful workplaces, and "obtaining rights fairly, rightfully, and quickly by settling the dispute of the employer and worker justly." Historically, disputes between employers and workers
47. Labor Dispute Resolution Act [28.03.2012] [03.06.2019]. Clause 38, 39, 40, 51

    The Pyidaungsu Hluttaw hereby had enacted this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly.

    We commit to comply the stipulations:
    - Not to fail to negotiate and coordinate in respect of a complaint within the prescribed period without sufficient cause
    - Not to alter the conditions of service of workers involved in disputes prior to investigation by tribunals
    - That no party shall strike or lock-out without negotiation, conciliation and arbitration by Arbitration Body.

- For the employer if commits acts without sufficient cause, may be liable to pay full compensation to workers as determined by Arbitration Body or Tribunal.

The Workmen's compensation act had been promulgated in 1923, amended in 2005,

48. The Law Amending the Workmen's Compensation Act, 1923 (11.5.2005)

We commits to comply the stipulations:

- For the payment by certain classes of employers to their workmen of compensation for injury by accident.
- For the liability for compensation of employer's, amount of compensation, compensation to be paid when due and penalty for default, method of calculating wages, review, commutation of half-monthly payments, payment of a lump sum amount, distribution of compensation, compensation not to be assigned, attached or charged, notice and claim, power to require from employers statements regarding fatal accidents, reports of fatal accidents and serious bodily injuries, medical examination, contracting, remedies of employer against stranger, compensation to be first charge on assets transferred by employer, special provisions relating to masters and seamen.
- In the amendment law for revising the monetary amount to update.

49. The Employment and Skill Development Law (30.8.2013), Clause 5, 14, 15 ✓

We commit to comply the stipulation

(a) For the agreement, training and probation period as in:
   1. If the employer has appointed the employee to work for an employment, the employment agreement shall be made within 30 days. But it shall not be related with government department and organization for a permanent employment.
   2. If pre training period and probation period are stipulated before the appointment the said trainee shall not be related with the stipulation of sub-section (1).

(b) For particulars to be included in the employment agreement:
   1. the type of employment;
   2. the probation period;
   3. wage, salary;
   4. location of the employment;
   5. the term of the agreement;
   6. working hour;
   7. day off, holiday and leave;
   8. overtime;
   9. meal arrangement during the work hour;
   10. accommodation;
   11. medical treatment;
   12. ferry arrangement to worksite and travelling;
   13. regulations to be followed by the employees;
   14. if the employee is sent to attend the training, the limited time agreed by the employee to continue to work after attending the training;
   15. resigning and termination of service;
   16. termination of agreement;
   17. the obligations in accord with the stipulation of the agreement;
   18. the cancellation of employment agreement mutually made between employer and employee;
   19. other matters;
   20. specifying the regulation of the agreement, amending and supplementing;
   21. Miscellaneous.

(c) For the worksite regulations contained in the employment agreement to 'be in compliance with any existing law and the benefits of the employee not to be less than those of the any existing law.

(d) For the employment agreement, the Ministry shall issue the notification for paying the stipulated compensation to the employee by the employer, if the work is completed earlier than the stipulated period or the whole work or any part of it have to be terminated due to unexpected condition or the work has to be terminated due to various conditions.

(e) For the employment agreement made under sub-section (a) to be related with daily wage workers, piece rate workers who are appointed temporarily in the government department and organization.

(f) For the worksite regulations and benefits contained in the employment agreement mutually made between the employer and employee or among the employees to be amended as necessary, in accord with the existing law.

(g) For the employer to send a copy of the employment agreement made between the employer and employee, to the relevant employment and labor exchange office within the stipulated period and to get the approval of it.

(h) For the employment agreement made before the enforcement of this law has been confirmed up to the end of the term of the original agreement.
(i) The employer shall carry out the training program in accord with the work requirement in line with the policy of the skill development team to develop the skill relating to the employment for the workers who are proposed to appoint and working at present.

For the Employer:

(a) to carry out the training for each work or compounding the work individually or group-wise by opening on-job training, training systematically at worksite, sending outside training and training by using information technology system, for arranging the training program to enhance the employment skill of the workers;
(b) for appointing the youths of 16 years as apprentice, shall arrange the training for technology relating to the employment systematically in accord with the regulations prescribed by the skill development team.
    (a) For the employer of the industry and service business to put in to the fund monthly as put in fees without fail for the total wages of the subordinates and the supervisors' salary for not less than 0.5%;
    (b) To put in money paid under sub-section (a) not to be deducted from the wage and salary of the employees.

50. The minimum wages Law, 2013, Clause 12 (a-e), 13 (a-g)

We commit to comply the stipulations:

- Those salaries are to be paid at the end of the month or, depending on the size of the employing enterprise, between 5-10 days before the end of the month. The employer is permitted and required to withhold income tax and social security payments. Other deductions, e.g., for absence, may only be withheld in accordance with the law.
- For the employer (a) to pay for salary either Myanmar Kyats or Foreign Cash permitted by National Bank of Myanmar. When delivery the salary (b) If the employer needs to pay the other opportunities or advantages, he can pay cash together with other materials according employee's attitude.
- For finishing the contract, employer needs to pay the salary (not more than one month) to employees. For the permanent worker, need to pay per monthly. If more than 100 employees, need to pay within the 5 days from the end of month. If fire the employees, need to pay salary within two days after fire. When employee dies due to the accident, need to pay money as insurance to employee's family within two days.
- If the employer has difficulties to pay wages on time because of significant events (e.g., natural disaster), the employer must report to the Department with evidence of payment at later date agreed with the employee
- When cut the salary due to the employees' absence, total cut salary not more than 50 % of his salary.
- For the Employer need to approval form the department as a penalty and cannot more than actual ravage rate when cut salary. No cut salary from the employees under 16 ages.
- If an Employee carries out overtime work, he/she must be allowed the presiding overtime rate as set by the Law.

51. The Payment of Wages Law, 25.01.2016, Clause 3, 4, 5, 9, 10, 14

We commit to comply the stipulations:

- Those salaries are to be paid at the end of the month or, depending on the size of the employing enterprise, between 5-10 days before the end of the month. The employer is permitted and required to withhold income tax and social security payments. Other deductions, e.g., for absence, may only be withheld in accordance with the law.
- For the employer (a) to pay for salary either Myanmar Kyats or Foreign Cash permitted by National Bank of Myanmar. When delivery the salary (b) If the employer needs to pay the other opportunities or advantages, he can pay cash together with other materials according employee's attitude.
- For finishing the contract, employer needs to pay the salary (not more than one month) to employees. For the permanent worker, need to pay per monthly. If more than 100 employees, need to pay within the 5 days from the end of month. If fire the employees, need to pay salary within two days after fire. When employee dies due to the accident, need to pay money as insurance to employee's family within two days.
- If the employer has difficulties to pay wages on time because of significant events (eg natural disaster), the employer must report to the Department with evidence of payment at later date agreed with the employee
- When cut the salary due to the employees' absence, total cut salary not more than 50 % of his salary.
- For the Employer need to approval form the department as a penalty and cannot more than actual ravage rate when cut salary. No cut salary from the employees under 16 ages.
- If an Employee carries out overtime work, he/she must be allowed the presiding overtime rate as set by the Law.

52. The Leave and Holiday Act, 1951, The Law Amending the Leave and Holiday Act, 1951(18.7.2014)✓

We commit to comply the stipulations:

- For employee to be granted to pay public holidays as announced by the Government in the Myanmar Gazette. On average, Myanmar has 26 public holidays per year, depending on the date of the variable holidays.
- For additional rules to apply in accordance with other laws, such as the Social Security Law (2012) for employees contributing to the Social Security Fund.

53. Occupational Health and Safety Law (2019) 15.3.2019, Chapter 3, 8, Chapter 7, Clause 22/23

We commit to comply the stipulations:

- Concerned Government department (ministry of Mine)
- Worksite safety and Health.
- Health impact and Toxic at work site.
- Formation of Health and Safety committee at worksite and appointed manager and classification of duty and function.
- Dealing with Health and Safety officer from Government (report/checklist/evidence)
- Duty and Responsibility of owner (Employee) and Workers.
- Preparing of HSE Plan
- Provision of PPE
- Preparing, Budgeting and organization of Firefighting plan, Emergency response plan and Pre-Hospital training to workers.

54. The social security Law, 2012, (1.4.2014), Clause 11 (a)(b), 15(a), 18(b), 48(a), 49(a)(b), 51(a)(b), 53(a), 54(a)(b), 75

We commit to comply the stipulations:

- For compulsory registration for social security system and benefits, the following establishments can be applied if they employ minimum number of workers and above determined by the Ministry of Labor in co-ordination with the Social Security Board:
- production industries doing business whether or not they utilize mechanical power or a certain kind of power, works of production, repairing or services, or engineering works, mills, warehouses, establishments;
- Government departments, Government organizations and regional administrative organizations doing business;
- development organizations;
- financial organizations,
- companies, associations, organizations and their subordinate departments and branch offices doing business;
- shops, commercial establishments, public entertaining establishments;
- Government departments and Government organizations doing business or transport businesses owned by regional administrative body, and transport businesses carried out with the permission of such department, body or in joint venture with such department or body;
- construction works carried out for a period of one year and above under employment agreement;
- works carried out with foreign investment or citizen investment or joint ventured businesses;
- works relating to mining and gemstone contained in any existing law;
- works relating to petroleum and natural gas contained in any existing law;
- ports and out-ports contained in any existing law;
- works and organizations carried out with freight handling workers;
- Ministry of Labor and its subordinate departments and organizations;
- Establishments determined by the Ministry of Labor from time to time, in co-ordination with the Social Security Board and with the approval of the Union Government; that they shall be applied with the provisions of compulsory registration for Social Security System and benefits contained in this Law.
- For provisions of compulsory registration under sub-section (a) to continue to be applied by this Law even though any of the following situations occurs if it continues to carry out such work

i. carrying out work by employing under stipulated minimum number of workers but more than one worker;
ii. Changing the employer or changing the type of business.

- For the Social security fund, to include the funds for health and social care, family assistant, invalidity benefit, superannuation benefit and survivors' benefit, unemployment benefit, other social security fund for social security system of compulsory registration and contribution stipulated by the Ministry of labor, other social security fund and social security housing plan fund.
- That the employer can deduct contributions to be paid by worker from his wages together with contribution to be paid by him and pay to the social security fund and in such case, he can incur the expense.
- For the employer to effect insurance by registering for employment injury benefit insurance system contained in section 45 at the relevant township social security office and pay contribution to employment

injury benefit fund in accord with stipulations in order that workers applied to provisions of compulsory registration may obtain the employment injury benefits.

- For the inapplicability to the Workmen's compensation act.
- For the employer (a) to pay contribution monthly to Employment Injury Benefit Fund at the rates stipulated under section 50. Moreover, he shall also bear the expenses for paying as such; (b) to pay defaulting fee stipulated under section 88, in addition to the contribution if fails to contribute after effecting insurance for employment injury benefit.
- For the employers and workers (a) to 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;
- For the employer (a) to report to the relevant township social security office immediately if a serious employment accident occurs to his insured worker. There shall not be any delay without sufficient cause to report as such. (b) A team of officers and other staff who inspect the establishments, if it is found out the employment injury, death, and contracting disease, shall report to the relevant township social security office in accord with the stipulations.
- For keeping records of work and lists.

55. The Law Amending the Factories Act, 1951 [20.01.2016] Clause 8, 14

8: (1) the owner of the business; Any building, as a workshop, Getting Started Or before using the building. At least fifteen days in advance; Department of Labor and Labor Law Inspection; The Director-General shall send a letter to the Director concerning the following points:

(A) Name and location of the workshop.

(B) the full name and address of the business owner.

(C) the complete address to be notified of the workshop; Contact Information phone number, Fax number email address.

(D) Type of process:

Disposal of waste and leachate.

14 : (1) In every workshop Disposal of waste materials; Leaks and vapors; Particles To eliminate odors, be environmentally friendly.

N. Natural Resources and Environmental Conservation Sector

Ministry of Natural Resources and Environmental Conservation

56. Environmental Conservation Law 2012, Clause 7(o), 14,15, 23, 24, 29

We commits to comply as there prescribed

- That the Ministry (MONREC) has the right to require a proponent to provide compensation for environmental impact and contribute funds and need for prior permission from the Ministry for the business that have been categorized for causing impact on the environmental quality and right to issuing permit with terms and conditions relating to environmental conservation after scrutinizing.
- That the emissions to the environment to meet stipulated environmental quality standards.
- To provide onsite controlling equipment to monitor, control, manage, reduce or eliminate pollutants, or if impracticable, arrange environmentally-sound disposal.
- Not to violate any prohibition contained in the rules, notifications, orders, directives and procedures under the Environmental Conservation Law.

57. Environmental Conservation Rule 2014, Rule 69

We commits to comply the stipulations:

- Not to emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means,
- the pollutants and the hazardous waste or hazardous material stipulated by notification under the Law and any of these rules at any place which may affect the public directly or indirectly.
- Not to carry out to damage the ecosystem and the natural environment this is changing due to such system, except for carrying out with the permission of the Ministry for the interest of the people.

58. Environmental Impact Assessment Procedure 2015, Clause 102,103, 104, 105, 106, 107, 108,110, 113, 115, 117

We commit to take the responsibilities for adverse impacts, and

- To bear full legal and financial responsibility for actions and omissions and those of other related to the project proponents
- To support programs for livelihood restoration and resettlement in consultation with all stakeholders.

- For EMP, we commit to comply to implement the EMP, the requirements set forth in ECC, Project commitments and conditions when providing services to the Project and inform the Ministry with detailed information as to the propose project's potential adverse impacts.
    - For the monitoring, we commit to comply to implements;
    - to undertake comprehensive self-monitoring
    - to notify and identify in writing to the Ministry for any breaches of its obligations or other performance failures or violations of the ECC and EMP
    - to submit monitoring reports to the Ministry to submit the monitoring report within ten (10) days of completing a monitoring report and the information to be included.
- For the purposes of monitoring and inspection, the event of emergency, we commit to
    - grant the ministry and/or its representatives;
    - grant the Ministry access to any places relating to project activities;

59. National Environmental Quality (Effluent) Guideline 2015

We commit to comply the NEQ guidelines and it's setting out for emission standards for air, noise and effluent discharges for oil and gas operations. We consider these emissions standards in its environment impact assessment and environmental management plan.

60. Natural Disaster Management Law, (31.7.2013) Chapter 6 Natural Disaster Management, Clause a, 1,2,3

(a) shall undertake the following functions after laying down the plan in accord with the natural disaster management plans in order to reduce damage and losses that are likely to be caused by the natural disaster;

(i) preparatory and preventive measures for natural disaster risk reduction before the natural disaster strikes;

(ii) emergency responses including search and rescue when the natural disaster strikes;

(iii) rehabilitation and reconstruction activities for improving better living standard after the natural disaster strikes and conservation of the environment that has been affected by natural disaster;

<u>O. Forestry Sector</u>

61. The Forest Law, 1992 **.2018, Clause 12**

The Forest Law is enacted by Pyihtaungsu Hluttaw in September, 2018. It empowers, to declare for the reserved forest for the maintaining a sustained yield of the forest produce, to manage the forest land.

We commit to comply the stipulation

a) For requiring prior approval from the Ministry if desirous to implement the development work or economic project within a forest land and forest covered land
b) Whoever desirous to undertake as in sub-section (a), has to comply the Environmental Conservation Law and the stipulations from respective Laws.

62. Protection of Biodiversity and Conservation Areas Law 2018, Clause 39 (d) (e),

We commit to comply the stipulation that there may be charge with fine or imprisonment or both if finds guilty of

- using dynamite or explosive chemicals, electrolyzing, destroying water flow or poisoning water, intentionally pollutes the soil, water, air in the conservation area;
- Disposing or handling chemical waste and poisoning materials in the conservation area.

<u>Q. Science and Technology Sector</u>

63. The Law on Standardization (2014)

<u>**We commit to comply the stipulations:**</u>

- For the smoothness of technology transfer and invention, utilizes the standardization to reduce the technological barriers for the trade and supportive for the development international free trade zone and for the development of Myanmar economy and social,

For empowering to organize the council for setting up the policy, guideline and to implement to practice the national standard in respective production and service

64. The Science and Technology Development Law, 1994
65. The Atomic Energy Law, 1998

<u>R. Transportation Sector</u>

66. The Inland Steam Vessels Act, 1917 Now Inland Vessels Act (19.05.2015)
67. The Myanmar Port Authority Law (09.04.2015)
68. The Myanmar Aircraft Act, 1934 / The Myanmar National Airlines Law (5.12.2014)
69. The Motor Vehicles Law, 1964 and amended in 1989 [7.9.2015] Chapter 10 Prohibitions

45. No person shall drive, permit to drive or stop a motor vehicle in a public place under any of the following situations:

(a) having no registration of a motor vehicle;

(b) termination, being seized, expiry of a registration certificate of a motor vehicle or not displaying it according to the prescribed manner;

(c) cancellation or expiry of the registration of a motor vehicle.

70. The Motor Vehicles Rule 29.11.89

    We commits to comply the stipulations:
    - for reducing environmental pollution caused by motor vehicles
    - for the right of the Department to issue directives, the standards, guidelines for the purposes of importing, manufacturing, assembling, maintaining to be safe in accident and environment conservation.
71. The Highways Law, 17.11.2000, 27.11.2015
72. The Express Highways Law, (9.4.2015, 27.11.2015)
73. Conservation of Water Resources and River Law, 2006 (11.07.2017), Clause (10), (11)(a), (19),

    We commit to comply prohibitions for the following activities:
    - o "No person shall anchor the vessels where vessels are prohibited from anchoring in the rivers and creeks.
    - o No person shall dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage, or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk.
    - o No one shall dispose of any substance into the river creek that may cause damage to waterway or change of watercourse from the bank or vessel."
    - The empowerment of this Law is provided to the Ministry of Transport for controlling navigation of vessels in the rivers and creeks as Well as communicating with local and foreign government and organizations for conservation of water resources, rivers and creeks. Also, to carry out conservation works for water resources, rivers and creeks, in accordance with the relevant international conventions, regional agreements and bilateral agreements for environmental conservation.
74. (Water Resources and Rivers Conservation Regulation) [22.01.2013]

S. National Land Resource Management Central Committee Sector

75. National Land use Policy, 2016

    To promote sustainable land use management and protection of cultural heritage areas, environment, natural resources for the interest of all people in the country. To develop transparent, fair, affordable and independent dispute resolution mechanism in accordance with rule of law

4.6 IFC Standards for workers' accommodation

A. National/local standards

The key standards that need to be taken into consideration, as a baseline, are those contained in national/local regulations. Although it is quite unusual to find regulations specifically covering workers' accommodation, there may well be general construction standards which will be relevant. These may include the following standards:

„Building construction: for example, quality of material, construction methods, and resistance to earthquakes.

„Housing and public housing: in some countries regulations for housing and public housing contain requirements on issues such as the basic amenities, and standards of repair.

„General health, safety and security: requirements on health and safety are often an important part of building standards and might include provisions on occupation density, minimal air volumes, ventilation, the quality of the flooring (slip-resistant) or security against intrusion.

„ Fire safety: requirements on fire safety are common and are likely to apply to housing facilities of any type. This can include provision on fire extinguishers, fire alarms, number and size of staircases and emergency exits, restrictions on the use of certain building materials.

„ Electricity, plumbing, water and sanitation: national design and construction standards often include very detailed provisions on electricity or plumbing fixtures/fittings, water and sanitation connection/ equipment.

B. General living facilities

Ensuring good standards in living facilities is important in order to avoid safety hazards and to protect workers from diseases and/or illness resulting from humidity, bad/stagnant water (or lack of water), cold, spread of fungus, proliferation of insects or rodents, as well as to maintain a good level of morale. The location of the facilities is important to prevent exposure to wind, fire, flood and other natural hazards. It is also important that workers' accommodation is unaffected by the environmental or operational impacts of the worksite (for example noise, emissions or dust) but is sufficiently close that workers do not have to spend undue amounts of time travelling from their accommodation to the worksite. Living facilities should be built using adequate materials and should always be kept in good repair, clean and free from rubbish and other

refuse.

Drainage

The presence of stagnant water is a factor of proliferation of potential disease vectors such as mosquitoes, flies and others, and must be avoided.

Water

Special attention to water quality and quantity is absolutely essential. To prevent dehydration, water poisoning and diseases resulting from lack of hygiene, workers should always have easy access to a source of clean water. An adequate supply of potable water must be available in the same buildings where bedrooms or dormitories are provided. Drinking water must meet local or WHO drinking water standards and water quality must be monitored regularly. Depending on the local context, it could either be produced by dedicated catchment and treatment facilities or tapped from existing municipal facilities if their capacity and quality are adequate.

Wastewater and solid waste

Wastewater and effluent discharge as well as solid waste treatment and disposal must comply with local or World Bank effluent discharge standards9 and be adequately designed to prevent contamination of any water body, to ensure hygiene and to avoid the spread of infections and diseases, the proliferation of mosquitoes, flies, rodents, and other pest vectors. Depending on the local context, treatment and disposal services can be either provided by dedicated or existing municipal facilities.

C. Room/dormitory facilities

The standards of the rooms or dormitory facilities are important to allow workers to rest properly and to maintain good standards of hygiene. Overcrowding should be avoided particularly. This also has an impact on workers' productivity and reduces work-related accidents. It is generally acknowledged that rooms/dormitories should be kept clean and in a good condition. Exposure to noise and odour should be minimized. In addition, room/dormitory design and equipment should strive to offer workers a maximum of privacy. Resorting to dormitories should be minimized and single or double rooms are preferred. Dormitories and rooms must be single-sex.

D. Sanitary and toilet facilities

It is essential to allow workers to maintain a good standard of personal hygiene but also to prevent contamination and the spread of diseases which result from inadequate sanitary facilities. Sanitary and toilet facilities will always include all of the following: toilets, urinals, washbasins and showers. Sanitary and toilet facilities should be kept in a clean and fully working condition. Facilities should also be constructed of materials that are easily cleanable and ensure privacy. Sanitary and toilet facilities are never shared between male and female residents, except in family accommodation, where necessary, specific additional sanitary facilities are provided for women.

Toilet facilities

Toilet arrangements are essential to avoid any contamination and prevent the spread of infectious disease.

E. Canteen, cooking and laundry facilities

Good standards of hygiene in canteen/dining halls and cooking facilities are crucial. Adequate canteen, cooking and laundry facilities and equipment should also be provided. When caterers are contracted to manage kitchens and canteens, special attention should be paid to ensure that contractors take into account and implement and that adequate reporting and monitoring mechanisms are in place. When workers can individually cook their meals, they should be provided with a space separate from the sleeping areas. Facilities must be kept in a clean and sanitary condition. In addition, canteen, kitchen, cooking and laundry floors, ceilings and walls should be made of easily cleanable materials.

Laundry facilities

Providing facilities for workers to wash both work and non-work-related clothes is essential for personal hygiene. The alternative is for the employer to provide a free laundry service.

Canteen and cooking facilities

Canteen and cooking facilities should provide sufficient space for preparing food and eating, as well as conform to hygiene and safety requirements.

F. Standards for nutrition and food safety

When cooking for a number of workers, hygiene and food safety are absolutely critical. In addition to

providing safe food, providing nutritious food is important as it has a very direct impact on workers' productivity and well-being. An ILO study demonstrates that good nutrition at work leads to gains in productivity and worker morale, prevention of accidents and premature deaths and reductions in health care costs.

4.7 Compliance of National Environmental quality (Emission) standards

For Environmental Quality, it will be followed the National Environmental Quality (Emission) Guidelines issued by the Ministry of Natural Resources and Environmental Conservation (formerly the Ministry of Environment and Forestry) on December 29, 2015.

For environmental Quality, it will be complied with National Environmental Quality (Emission)Guideline No. 1 of (General application), and 2.3.2.1of (Textiles Manufacturing).

If one or more parameters mentioned in the guidelines is excessive than acceptable limit, it may harm, environmental affect, and affect to the human health.

Wastwater Quality

For discharge wastewater, it will be complied the effluent standards for NEQEG's 1.2 Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application)) and effluent levels for 2.3.2.1 (Textiles Manufacturing) mentioned in **Table 27** and **Table 26** of this report

In above effluent standards for wastewater of 2.3.2.1 (Textiles Manufacturing), the characteristics of the parameters are as follows;

Biochemical Oxygen demand (BOD) represents the amount of oxygen consumed by bacteria and other microorganisms while they decompose organic matter under aerobic (oxygen is present) conditions at a specified temperature.

Chemical oxygen demand (COD) The COD is the estimate of oxygen required for the portion of organic matter in wastewater that is subjected to oxidation and also the amount of oxygen consumed by organic matter from boiling acid potassium dichromate solution.

Total organic halogen (TOX) is a surrogate bulk organic parameter indicating a variety of fluoridated, chlorinated, brominated, and iodinated organic compounds either formed in water/wastewater disinfection processes or present in the environment derived from natural products and anthropogenic activities.

Ammonia in wastewater could originate from a variety of sources, including proteins (meat and blood), urea, amino acid products, casein, corrosion inhibitors, process chemicals and raw materials, or cleaning chemicals containing quaternary ammonium compounds.

Heavy metal ions in water affect both environment and human health. Cadmium has been identified as one of the heavy metals that causes acute or chronic toxic effects if ingested.

If ingested as drinking water, **hexavalent chromium** (Cr-VI) is likely to be a carcinogen at a certain level, but studies are still being conducted to evaluate what level is unsafe and whether it does cause cancer or not. The best way to reduce chromium-6 is through a reverse osmosis system.

Due to wide industrial use, chromium is considered a serious environmental pollutant. Contamination of soil and water by chromium is of recent concern chromium occurs nature in bound forms that constitute 0.1 - 0.3 mg kg-1 of the Earth's Crust.

Cobalt is beneficial to human because it is part of vitamin B12 but exposure to high levels of cobalt results in lung and heart diseases and dermatitis.

Consuming **high levels of copper** may cause nausea, vomiting, diarrhea, and stomach cramps. Some infants and children, people with liver disease, and people with Wilson's disease have trouble eliminating copper from their bodies and are more likely to experience negative health effects, such as kidney and liver damage.

Nickel is toxicity. While nickel can be naturally found in water and soil, it is often encountered in areas with human pollution. In small quantities, it is eliminated through urine or the intestinal tract, in larger doses, however, it is toxic and may cause serious health conditions and contact dermatitis.

Oil & grease may get pollution occurs, when these are poured down sinks, garbage disposals, or stormwater drains.

When **pesticides** are found in water supplies, they normally are not present in high enough concentrations to

cause acute health effects such as chemical burns, nausea, or convulsions.

Acute effects are those which show up soon after exposure and are likely to be relatively severe.

In chemistry, **pH** is a measurement of the concentration of hydrogen ions in a water-based solution. A lower pH means that there are more hydrogen ions in the liquid, whereas a higher pH indicates fewer hydrogen ions in the liquid.

Phenol is considered to be quite toxic to humans via oral exposure. Anorexia, progressive weight loss, diarrhea, vertigo, salivation, a dark coloration of the urine, and blood and liver effects have been reported in chronically (long-term) exposed humans.

Hydrogen **sulfide** occurs naturally through the anaerobic decay of organic matter and is recognized by its characteristic rotten egg odor. In typical domestic wastewater, microbial reduction of the sulfate ion is the dominant mechanism for sulfide formation.

Most **coliform bacteria** are not harmful. However, some can make you sick. A person that has been exposed to these bacteria may have an upset stomach, vomiting, fever, or diarrhea. Children and the elderly are more at risk from these bacteria.

Too much **nitrogen** and phosphorus in the water causes significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive.

Excess nitrogen in the atmosphere can produce pollutants such as ammonia and ozone, which can impair our ability to breathe, limit visibility and alter plant growth.

In water, white **phosphorus** reacts with oxygen within hours or days. In water with low oxygen, white phosphorus may degrade to a highly toxic compound called phosphine, which eventually evaporates to the air and is changed to less harmful chemicals.

High **total suspended solids** in drinking water or wastewater can have both environmental effects and effects on human health. When it comes to water quality, high TSS may decrease water's natural dissolved oxygen levels and increase water temperature.

Elevated levels of **zinc** in drinking water may cause the water to have a milky, chalky, or turbid appearance and a metallic/astringent taste. The symptoms of zinc poisoning include "low blood pressure, urine retention, jaundice, seizures, joint pain, fever, coughing, and a metallic taste in the mouth"

Air Quality

For air emission levels, it will be complied the effluent standards for NEQEG's 1.2 Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application)) and effluent levels for 2.3.2.1 (Textiles Manufacturing) mentioned in **Table 20** and **Table 19** of this report

In above Air Emission Standard for Air Quality of 2.3.2.1 (Textiles Manufacturing), the characteristics of the parameters are as follows;

Properties of measured Parameters for Air emission

Carbon dioxide CO_2	At normal atmospheric temperatures and pressures, carbon dioxide is colorless, odorless and about 1.5 times as heavy as air. Carbon dioxide is sensed by some persons as having a slight pungent odor and biting taste. It is normally inert and nontoxic. High carbon dioxide levels can cause poor air quality and can even extinguish pilot lights on gas-powered appliances
Nitrogen dioxide NO_2	NO2 is linked with a number of adverse effects on the respiratory system. NOx reacts with ammonia, moisture, and other compounds to form small particles. These small particles can penetrate deeply into sensitive parts of the lungs. Nitric oxide is a sharp sweet-smelling gas at room temperature, whereas nitrogen dioxide has a strong, harsh odor and is a liquid at room temperature, becoming a reddish-brown gas above 70 EF.
Carbon monoxide CO	Carbon monoxide gas is colourless and does not smell, so you cannot tell if it is around you. Symptoms of carbon monoxide poisoning include: headache.
Sulfur dioxide SO2	At room temperature, sulfur dioxide is a nonflammable, colorless gas with a very strong, pungent odor. Most people can smell sulfur dioxide at levels of 0.3 to 1 ppm. Sulfur dioxide affects the respiratory system, particularly lung function, and can irritate the eyes. Sulfur dioxide irritates the respiratory tract and increases the risk of tract infections. It causes coughing, mucus secretion and aggravates conditions such as asthma and chronic bronchitis.

Ammonia	Ammonia has a very strong odor that is irritating and that you can smell when it is in the air at a level higher than 5 ppm. Therefore, you will probably smell ammonia before you are exposed to a concentration that may harm you. Exposure to high concentrations of ammonia in air causes immediate burning of the eyes, nose, throat and respiratory tract and can result in blindness, lung damage or death. Inhalation of lower concentrations can cause coughing, and nose and throat irritation.
Carbon Disulfide	Carbon Disulfide is a clear, colorless to light yellow liquid with an unpleasant, rotten egg odor as a reagent or commercial grade. Pure Carbon Disulfide has a sweet, pleasant odor. Carbon disulfide (CS_2) is a colorless liquid with an ether-like odor. Exposure can cause dizziness, poor sleep, headache, anxiety, anorexia, weight loss, and vision changes. It can harm the eyes, kidneys, blood, heart, liver, nerves, and skin.
Chlorine	Chlorine gas can be recognized by its pungent, irritating odor, which is like the odor of bleach. The strong smell may provide adequate warning to people that they are exposed. Chlorine gas appears to be yellow-green in color.
Formaldehyde	Formaldehyde is a colorless chemical with a strong pickle-like odor that is commonly used in many manufacturing processes. It easily becomes a gas at room temperature, which makes it part of a larger group of chemicals known as volatile organic compounds (VOCs). At higher levels, formaldehyde exposure can cause skin rashes, shortness of breath, wheezing and changes in lung function. Children, the elderly and people with asthma or other breathing problems may be more sensitive to the effects of formaldehyde.
Hydrogen sulfide	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. The most common sources of H_2S emissions are oil and natural gas extraction and processing, and natural emissions from geothermal fields. Workers are primarily exposed to hydrogen sulfide by breathing it. The effects depend on how much hydrogen sulfide you breathe and for how long. Exposure to very high concentrations can quickly lead to death.
volatile organic compounds (VOCs)	Odors are caused by the presence of volatile organic compounds (VOCs) in the air. Often, these compounds are thought of as being innocuous or as a health and safety concern. VOCs play a significant role in the formation of ozone and fine particulates in the atmosphere. Under sunlight, VOCs react with nitrogen oxides emitted mainly from vehicles, power plants and industrial activities to form ozone, which in turn helps the formation of fine particulates

4.8 Commitment for the complying of Laws and Regulation

- **The project proponent is responsible for enforcing laws and regulations issued by local and relevant departments related to environmental protection. Rules and requirements; All obligations and responsibilities will be complied with.**
- **Committed to ensure policies which are prescribed by SDI Manufacturing Company Limited will be followed strictly**

CHAPTER 5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

5.1 Impact Assessment

5.1.1 Impact Assessment Methodology

Described in this chapter are the methodologies adopted in determining the impacts of the project on the natural environment and on the community within the identified impact areas.

As the project has been operating since April 2014, the potential impact of pre-construction and construction phases are not considered in this study. The impacts on physical, chemical and biological conditions of the project area were identified for the operation, and decommissioning or post closure phase of the project.

The impact related to the garment factory has to be considered year-round. The environmental impacts and their intensity on the related components are identified based on relevant primary data sources, reliable secondary data sets, pre-identified survey data collection, checklists, matrixes, visual observation and internationally accepted IFC performance standards.

The significance levels of the project impact were decided based on the IFC guidelines and professional judgment criteria.

Water, air, noise, biological and social environment within the direct and indirect impact zones of the factory are major components.

The direct impact zone was defined by a 0.5-km radius circle, while for the indirect impact the radius has been estimated up to 1 km. (Figure 56).

Figure 56: SDI Manufacturing Factory's location and its potential impact zones

5.1.2 Impacts Screening Assessment

The primary objective of this EMP was to determine whether there are any potential adverse environmental or social impacts associated with the operations and activities being undertaken at the Project site. Based on the findings of the Initial Environmental Evaluation it is currently assessed that the following environmental receptors are potentially susceptible to pollution incidents.

Soils

The Project site stores moderate quantities of hazardous substances such as fuels and chemicals. The chemical warehouse located in the south-east sector of the project site has no secondary containment to contain any leaks or spills, but it will not result in significant soil contamination, because concrete floor of that area has been constructed. Furthermore, evidence of localised leaks and spills of hydrocarbons was not

found during the facility inspection. The geology underlying the fuel storage facility comprises permeable alluvial sands, gravels and silts and there is no natural geologic barrier to retard the infiltration of any uncontrolled releases of hazardous substances. Based on these factors the sensitivity of the site soils with respect to any pollution incident is assessed as minor.

Ground water

The Project site stores moderate quantities of hazardous substances such as fuels and chemicals. The chemical warehouse located in the south-east sector of the project site has no secondary containment to contain any leaks or spills, but it will not result in significant soil contamination, because concrete floor of that area has been constructed. Furthermore, evidence of localised leaks and spills of hydrocarbons was not found during the facility inspection.

The groundwater body underlying the project site area is an important natural resource as it is moderately exploited for domestic and industrial uses, both by the facility itself and by local villagers. Based on these factors the sensitivity of the groundwater underlying the site with respect to any pollution incident is assessed as moderate.

Surface Water

The Project site is situated adjacent and about 0.70 kilo meter away to the Hlaing River. This watercourse is an important natural resource for local people as it is exploited to provide water for industrial, domestic and other uses. Some people rely on the river for their livelihoods which makes it particularly vulnerable to any significant pollution incident. Wastewater from the Project site discharges directly into the river via the onsite wastewater ponds.

Based on these factors the sensitivity of surface waters with respect to any pollution incident is assessed as Moderate.

Aquatic Habitats/Ecology

The Project site is situated adjacent to the Hlaing River in a lowland floodplain setting and the relative scarcity of significant industry upstream of the Project site coupled with the moderate flow rates (dilution potential) in the Hlaing River indicates that water quality can be expected to be fair to moderate and support a healthy aquatic ecosystem.

There is no aquatic ecological data available for the study site area although there have been some studies in the Hlaing River.

Based on these factors the sensitivity of the aquatic habitats/ecology within the Project site area with respect to any pollution incident is assessed as low.

Local Air Quality

The Project site is situated in a predominantly urban area with little industry and the natural background ambient air quality would be expected to be good. The garment factory uses small amount of firewood as its main fuel source for boilers. Emissions of sulphur dioxides and nitrogen oxides from combustion are lower than for conventional fossil fuels (USEPA) and the most significant pollutant emitted by coal and firewood fired boilers is particulate matter (PM).

Based on these factors the sensitivity of local air quality with respect to atmospheric emissions from the Project site is assessed as Moderate.

Water Resources (Scarcity/Security)

The project abstracts some volumes of underground water from tube wells. Care should be taken in over-abstraction of ground water has the potential to reduce yields and quality for other users of these vitally important natural resources.

Based on these factors the potential of the Project activities to contribute towards water scarcity is currently assessed as Moderate.

5.1.3 Potential Adverse Environmental Impacts and baseline Mitigation Measures

Based on the findings of the Environmental Evaluation, it is currently assessed that the Project activities detailed below have the potential to adversely impact the above identified environmental receptors. It should be noted that the list of project activities/hazards is not intended to be exhaustive, but rather to provide an identification of the key aspects of the Project which have the potential to interact with the

environment and result in significant adverse environmental impacts. The list of environmental receptors and resources is also a focused list of the key aspects of the environment which are considered vulnerable or important in the context of this specific project based on preliminary consultations, background research and a Project site reconnaissance.

Air Emissions

There are two-point sources of air emissions at the Project site that discharged gaseous emissions from the boilers and generator into the atmosphere, these comprise:

- 2 no. Air emissions stack from the Boilers. This is the primary sources of potential air pollution and the emissions will include particulates, SO_2 and NO_X. The emissions are passed through a wet scrubber unit before being discharged to the atmosphere which reduces the ash and particulate matter discharged in the gaseous emission.
- 1no. Exhaust vents from the one standby generator located in the Generator House. This exhaust gases are discharged directly to the atmosphere without any pre-treatment.
- These point sources emission is not considered environmentally significant but will likely contain low concentrations of VOCs.

<u>Mitigation</u>

The Project has appointed an independent laboratory or frequently assigned to third party inspection to monitor the atmospheric emissions from the Boiler House twice per year basis or comply with ECD's instruction and compare the results with the IFC (World Bank) Guidelines for Small Combustion Facilities Emissions.

The Project has appointed an independent laboratory or assigned third party to monitor ambient air quality in the Project site area on twice per yearly basis and compare the results with the WHO Ambient Air Quality Guidelines (2005) and ECD's NEQEG.

Nuisance Noise

Although the facility was not fully operational at the time of the site inspection, noise levels when fully operational are likely to be high. Survey respondents from the local community; have not reported noise pollution from the facility as being an issue.

Nuisance Odor

Although the facility was fully operational at the time of the site inspection, Survey respondents from the local community have reported that no odors emanating from the project site.

Industrial Wastewater

The facility generates no significant wastewater streams in the form of "Ash Water". This effluent is produced in the Wet Scrubber units which remove the ash and particulates from the Boiler House combustion emissions prior to the gas being vented to the atmosphere.

Small amount of wastewater from the Boiler House wet scrubber unit (2 m^3/hour during working days), and other wastewater from washing unit is transferred to "Effluent Treatment Unit", located in the central sector of the project site via pipe line and after treatment process, then flowed to drainage channel system. The final treated wastewater in "Effluent Treatment Plant" is discharged into a small drainage that bisects the centre of the Project site and eventually outfalls into the public drainage, outside of the factory. Before discharge, it has to be analysed quality whether acceptable level of guidelines or not.

<u>Mitigation</u>

The Project has sampled the wastewater at the final tank of "Efflluent Treatment Plant"'s influent point (outlet), and discharge point. The samples has been submitted to an ISO 17025 accredited laboratory for testing for the parameters listed in the Ministry of Industry Wastewater Effluent Quality Standards and ECD's NEQEG.

Sanitary Wastewater

The Factory Manager explained that sanitary wastewaters are discharged into below ground septic tanks prior to the supernatant being discharged directly into the ground and groundwater. These sanitary effluents are likely to contain elevated concentrations of ammoniacal nitrogen as well as harmful bacteria and pathogens which have the potential to locally pollute soils and groundwater.

As discussed with YCDC, sewage has been disposed by supporting from YCDC's sewage truck, minimum twice per year, since project start.

Storm water

There has been constructed storm water drainage system on the project compound and it is considered that the primary surface water drainage mechanisms will be infiltration and runoff that follows the topography of the land.

Hazardous Substances

The facility has a main chemical substances warehouse area; located in the south east sector of the site as shown on No. 18 of **Figure 9: SDI manufacturing Factory layout plan**.

The hydrocarbons (diesel, petrol, oils etc.) are stored in a small single storey building with a concrete floor.
Hazardous chemicals are stored in a small single storey building with a concrete floor and materials noted stored within this structure. Brightener / 4bk and /ba, perhydrol, oxalic acid, Yuan Ming Powder, Enzyme powder, detergent, fixing agent, bleach, Acetic acid, Stabilizer, environmental silicone, and Na_2CO_3 are included.

Non-Hazardous Solid Wastes

The primary non-hazardous solid waste room at the facility (other than those noted) comprise general refuse such as office and kitchen wastes. During the site inspection it was noted that trash is dumped on the garbage room, near by northern sector of the factory. (No. 16 of Figure 9)

Hazardous Solid Wastes

No significant volumes of solid hazardous waste are generated as a result of operations on site.

5.2 Identified Potential Major Impacts for each Project phases

All potential environmental and social impacts from the operation phase were identified to develop preventive mechanisms and mitigation plans.

This project has been established since 4.4.2014 as commercial starting date according to MIC letter number Ya Ka – 9/ 1/ 2015 (00114) of 2015, January, 2015.

This section of the EMP summarizes the potential positive and negative consequences of the operation periods of the project. The significance or importance of each impact has been categorized according to the classification criteria listed below.

5.2.1 Classification of environmental impacts

The significance level of environmental and social impacts for the project implementing phases of garment factory are classified based on their intensity, extent and duration of the identified impacts. The intensity of the impact is identified by the environmental value of components and the degree of disturbance. The extent and duration are considered for the spatial and temporal influencing potential of the impact of the factory. The classified impact are categorized as their level of significance: (VH) very high, (H) high, (M) medium, (L) low and (VL) very low depending on their level of severity and the sensitivity of the environmental components.Table 30, and Table 31

Table 30: Impacts Significance Matrix

Intensity	Extent	Duration	Significance
Very High	Regional	Long	Very High
		Medium	Very High
		Short	Very High
	Local	Long	Very High
		Medium	Very High
		Short	High
	Site-specific	Long	Very High
		Medium	High
		Short	High
High	Regional	Long	Very High
		Medium	High
		Short	High
	Local	Long	High
		Medium	High
		Short	Medium
	Site-specific	Long	High
		Medium	Medium

		Short	Medium
Medium	Regional	Long	High
		Medium	Medium
		Short	Medium
	Local	Long	Medium
		Medium	Medium
		Short	Low
	Site-specific	Long	Medium
		Medium	Low
		Short	Low
Low	Regional	Long	Medium
		Medium	Low
		Short	Low
	Local	Long	Low
		Medium	Low
		Short	Very low
	Site-specific	Long	Low
		Medium	Very low
		Short	Very low

* Allows technical discipline author to decide if impact significance is Not Significant or Low.

Table 31: Impacts Significance Definition

Very high	The environmental condition is irreversible, immediate response and mitigation measure is needed.
High	The environmental condition is reversible, proper treatments and mitigation measure is needed for recovery of the environmental context.
Medium	The environmental condition is interrupted by the activities of the project, intervention, avoidance and mitigation measures are required.
Low	The environmental impact are detectable and noticeable changes to baseline conditions, beyond natural variation, but are not expected to cause hardship, degradation, or impair the function and value of the resource/receptor. However, these impacts warrant the attention of decision-makers, and should be avoided or mitigated where practicable.
Very low	The environmental impacts could not lead to change the ecological services or function of the natural environment.

Likelihood

Likelihood is the probability of an activity occurring. Four likelihood categories and their ranking are provided below;

Rank	Category
5	The activity/event is certain to occur under normal operating conditions.
4	The activity/event is occurred at some time (1 to 5 years) under normal operating condition.
3	The activity/event is likely to occur at some time (5 – 10 years) under normal operating conditions.
2	The activity/event is unlikely to occur but may occur at some time (10 – 20 years) under normal operating conditions.
1	The activity/event is very unlikely to occur (> 25 years) under normal operating conditions but may occur in exceptional circumstances.

5.2.2 Operation Phase

The identification and classification of the impacts for the operation phase is summarized in below table;

Table 32: Summary of Environmental and Social Impact Identification for Operation Phase

Environmental component	Impact	Sources and Features	Potential receptors	Intensity	Extent	Duration	Significance level
Water	Increased water abstraction from tube wells	Water abstraction for washing processes and staff housing	Damage of underground water aquifer	High	Regional	Long	H
	Water contamination	• Washing operation • Effluent from washing and printing department	Pollution of underground water aquifer	Medium	Regional	Short	M
	Water pollution/ Effluent discharge, without treatment	Not cleaning of Effluent collecting tank Runoff, storm surge, Natural calamity	Terrestrial and aquatic habitats, surface water body, aquifer/ ground water sources, nearby drinking water sources, domestic use, bathing, fishing	High	Regional	Short	H
	Sewage disposal	Housing, accommodation	Soil and terrestrial habitats, nearby community. Can also reach nearby water bodies	Low	Site-specific	Long	L
	Thermal discharge	• Boiler discharge hot water without cooling • Boiler fuel burning area	Habitats, Water body, Boiler operators, Workers	Low	Site-specific	Medium	M
Ambient Air	Air pollution Particulate matter PM dispersion Flying ash dispersal SOx, NOx, VOCs emission	Semidried firewood particles stock Biomass fuel burning and smoke stack emission Combustion emission from the vehicles	Boiler crew, Local communities, Sensitive receptors like schools, hospital monastery, surface water	Very high	Regional	Long	VH
	Dust dispersal	Unpaved road for transportation	Daily workers, road side communities, transport workers; can also reach surface water	Medium	Regional	Long	M
Ambient noise	Noise and Vibration	Raw / finished products transportation trucks, traffic Operating of factory's machines, such as sewing, cutting, Boiler relief process, generators,	Employees, nearby communities, Sensitive receptors like schools, hospital monastery, habitats and birds	Medium	Local	Long	M
Ambient soil/ Land use	Erosion, sedimentation	Related vehicles and unpaved roads	Nearby Hlaing River and water body	Low	Local	Low	L
	Heavy metal deposition	Waste water sedimentation process in the public drain Heavy metal in the collected waste water Runoff, Flooding, Storm surge,	Natural habitats, employees, surface water, aquifer, Nearby communities	Medium	Local	Long	M
Human health	Chemical contamination by Spill, leakage Health impact	Chemicals transportation, storage, handling and processing, Runoff, Flooding, Storm surge, earthquake Management error	Chemical crews, Nearby water sources, soil, air, Community health	High	Site Specific	Long	H
Solid Waste	Solid waste disposal	Domestic waste	Nearby habitats, Soil and water bodies, communities	Medium	Local	Medium	M
	Solid waste and ash disposal	Boiler ash	Terrestrial habitat, surface and ground water bodies, communities	Low	Local	Medium	L
	Industrial process waste and domestic solid wastes disposal	Packaging, scrap equipment, scrap metals, domestic wastes	Soil and water bodies	Low	Local	Medium	L

Environmental component	Impact	Sources and Features	Potential receptors	Intensity	Extent	Duration	Significance level
Hazardous waste	Hazardous waste/ materials accumulation	Spent and used Batteries, fuel, oil, paint, chemicals residuals	Soil and water bodies, crew, communities, habitats, aquifer	Medium	Local	Medium	M
Liquid waste	Treated wastewater from Effluent Treatment Plant (ETP)	Wastewater from washing process and flew to ETP and treatment process	Soil and water bodies, crew and community, nearby habitats	Medium	Local	Long	M
	Oil and grease spill and leakage	Oil tanks and storage area, vehicles, mis-management, fire, equipment failure, poor maintenance	Soil and water bodies, natural habitats,	Low	Local	short	VL
Social Environment							
Socio Economic	Job opportunities stability for local community, and nearby food sellers	Local community and nearby job seakers	Local communities,	High	Site-specific	Medium	H(+)
	Improvement of local economy	Purchasing factory supplies Dependence on local stores by factory workers, Raw material suppliers and other stakeholders Employment of the local residents	Local businesses	High	Site-specific	Long	H(+)
	Traffic congestion	In-migration Purchasing factory supplies Improved local economy	Daily local commuters' Local residents including vulnerable groups	Medium	Local	Medium	M
	In-migration from other region, other areas of Myanmar and abroad, into Hlaing Thar Yar Township,	Hiring skilled and unskilled workers for the factory operations New businesses to fulfill the increase demand of goods and services in the area	Local residents including vulnerable groups Local businesses Local norms	High	Site-specific	Long	H
	Increased housing demand	Surge of population due to in-migration and frequent commuters	Local residents	Medium	Local	Medium	M
	Increased social demand and conflict	Land, housing, electricity, food, water, public transportation, public services, health services, social and administration	Employees, communities, township to region	Medium	Local	Long	M
	Increased labour demand	Labour competition, immigrant labour, poor chance for qualification to skillful, professional, daily workers	Local residence,	Medium	Local	Long	M
	Instability of income	Pause of factory operations during the off season	Factory workers, raw material suppliers and other business partners	Medium	Local	Long	M
	Safety and security	Factory operations Surge of in- migrants, vehicle movement, crimes, conflicts and Communicable diseases	Factory workers Local residents and in- migrants	High	Local	Medium	H
Health	Occupational Health and Safety impact	Traffic accident Dust dispersal of unpaved road Cane loading, unloading, cane and public transportation in cane season	Roadside communities, school, hospital, child and aging, sensitive life Staff and workers of the garment factory, Local and migrants' workers	Medium	Site Specific	Long	M

Environmental component	Impact	Sources and Features	Potential receptors	Intensity	Extent	Duration	Significance level
		Lack of training and knowledge, unskillful/ unqualified workers, without PPE					
	Inhaling/ breathing foul odor	Foul odor from solid wast	Nearby habitats, crew, communities, school, hospital, sensitive life	High	Site Specific	Long	H
	Noise related hearing loss	Boiler, garment manufacturing processes, without PPE for specific site	Crew, daily workers	High	Site Specific	Long	H
	Communicable and non-communicable disease dispersal	Daily worker, migrant workers Respiratory tract infections and skin rashes	Potential impacts on all Workers, crew, family	Medium	Local	Medium	M
Others	Compliance on Labour Laws	HR administration, insurance system	Staff, crew, daily workers,	Medium	Local	Medium	M
	Gender discrimination	Working hours, leave, insurance, holidays	Daily workers, staff, crew	Low	Regional	Long	L
	Child labour	Factory operations Increased demand for garment manufacturing, loading Booming of local businesses	Children including students	High	Local	Medium	H
	Flash flood	Storm surge, spillway relief form upstream dam into nearby Hlaing River	Mill, crew, nearby communities	Low	Regional	Long	VL
	Fire	Boiler	Mill, Nearby habitats, crew, communities	Medium	Local	Medium	M

5.2.3 Decommissioning, Closure, and Post-closure Phase

The identification and classification of the impacts for the decommissioning, closure and post-closure phase is summarized in Table 33. The assessment was based on the findings of the impact assessment study as detailed in this section. There need to be noted that demolition is a short duration activity and its potential impacts are predicted based on professional judgment and legal criteria.

Table 33: Summary of Environmental and Social Impact Identification for the Decommissioning to Post-closure Phase

Environmental component	Impact	Sources	Potential receptors	Intensity	Extent	Duration	Significance level
Water	Water quality changes inside and outside the project site	Withdrawing water abstraction equipment, engines, pipe line, canals	Water body (Hlaing River), nearby community aquatic life, fishing family	Medium	Local	Medium	M
	On site water contamination	Effluent and hazardous residues left after stopped operation and with- drawing equipment	Surface (Hlaing River) and ground water bodies, aquatic life, fishing family, domestic user	Medium	Local	Medium	M
Soil	Erosion, siltation, Sedimentation	Land excavation, leveling after withdrawing buildings, ponds, tanks, facilities	Terrestrial habitats, nearby water body	Low	Site-specific	Short	L
	On site soil contamination	Residues from spill and leakage of storage tanks, collection area Demolition of storage tanks, buildings and poor management	Close-set surface water (Hlaing River) and ground water sources, natural habitats, life cycle of biological system	Low	Site-specific	Short	M
	Heavy metal accumulation	Site cleaning of waste, water sedimentation, treatment area Ash collecting area	Close-set surface water (Hlaing River)and ground water sources, terrestrial and aquatic habitats, site cleaning crew, local community	Medium	Regional	Short	M
	Hazardous substances left after factory facility shut down Hazardous materials, substances and their residues	Waste water discharge drainage Solid waste disposal sites Chemical storage area Demolition wastes Washing operation processing tanks chemical mixing area. Out of order equipment, electric fluorescence bulbs, lamps and various kinds of batteries, oil and paint	Terrestrial and aquatic habitats, water sources, aquifer, top soil and sub soil, demolition employees, workers	Medium	Regional	Short	M
Ambient Air	Fugitive dust and particulate matter emission Combustion emission and black carbon, CO, NOx, SOx	Demolition of garment factory and its related facilities Vehicles for withdrawing equipment, machines, tools and furniture	Demolition employees, communities, surface water, natural habitats	Medium	Regional	Short	M
	Foul odor	Abandoned waste water treatment tanks Abandoned chemical containers	Nearby communities, school, hospital, children, aged people, demolition crew	Medium	Regional	Short	M
Noise and vibration	Hearing lost Physical and mental stress Infrastructure vibration	Demolition process on garment factory facilities, buildings, storage tanks, drainage, culvert, engines,	Demolition crew, nearby community, housing, sensitive receptor like school, hospital, children and aged people, stupa	Medium	Regional	Medium	M
	Traffic accident and injury	Project withdrawing vehicles, equipment	Vehicles drivers, demolition crew, worker				

Environmental component	Impact	Sources	Potential receptors	Intensity	Extent	Duration	Significance level
Residual impact	Waste residue Contamination on soil surface and subsurface Chemical contamination of surface and ground water	Wastewater sedimentation area Heavy metal accumulation at WWTP Solid and liquid waste dumping sites Runoff, storm surge, flooding Residue from Chemicals storage area, spill and leakage	Close by Communities especially those engaged in agriculture/ Demolition crew, Nearby water	Medium	Regional	Medium	M
			Socio Economic				
Social	Livelihood change	Non operation (stoppage) of garment factory operation	Staff, employees, daily workers, families, community and local services farm	Low	Local	Short	L
	Loss of Job	Garment factory and related process shut down	Staff, employee, daily worker	Low	Local	Short	L
	Small scale economic activities	Loss of market demand for food and small-scale production and service industry such as recycle/reuse contractors	Local residents with small scale business	Medium	Regional	Medium	M
	Decline of local economy	Stopping factory operations, unemployment of workers and decrease in commuters to the area	Factory workers, raw material suppliers and other business partners Local businesses	Medium	Regional	Medium	M
	Safety and security	Demolition of the factory buildings Surge of crimes due to unemployment	Village tract residents	Low	Local	Short	L
Health	Health and safety	Accident, risky demolition process, poor equipment, lack of knowledge and poor handling of hazardous and chemical residues	Daily workers, demolition crew transport workers,	Low	Local	Short	L
	Disease dispersal	Abandoned waste water ponds Unused water tanks Abandoned standing water inside and outside of project Rusty failure machines	Demolition crew, workers, nearby communities	Low	Local	Short	L
	Solid wastes disposal	Demolition scrap equipment, scrap metals, domestic wastes	Soil and water bodies, Nearby communities'	Low	Local	Short	L

5.3 Significant Adverse Environmental and Social Impacts

Based on the findings of the Initial Environmental Evaluation for EMP, it is currently assessed that the Project activities detailed below have the potential to adversely significant impact the above identified environmental receptors. It should be noted that the list of project activities or hazards is not intended to be exhaustive, but rather to provide an identification of the key aspects of the Project which have the potential to interact with the environment and result in significant adverse environmental impacts. The list of environmental receptors and resources is also a focused list of the key aspects of the environment which are considered vulnerable or important in the context of this specific project based on preliminary consultations, background research and a Project site reconnaissance.

It is important to note that the preliminary impact assessment does take into account any pollution mitigation or control measures that have already been incorporated into the Project design.

Table 34: Potential Adverse Environmental Impacts of Project Activities

Activity/Source of Impact	Impact Nature	Receptor	Impact Severity
Hazardous Substances Storage	Accidental Releases- Infiltration	Soil Quality	Minor in this factory
Hazardous Substances Storage	Accidental Releases- Infiltration - Downward Percolation	Groundwater Quality	Major
Hazardous Substances Storage Wastewater Discharges	Direct Discharges, Run-off, Infiltration and Groundwater Solute Transport	Surface Water Quality	Moderate
Hazardous Substances Storage Wastewater Discharges	Direct Discharges, Run-off, Infiltration and Groundwater Solute Transport	Aquatic Ecology	Minor
Abstraction of River Water and Groundwater	Over Abstraction and Water Scarcity	Water Resources	Moderate
Emissions from Boiler	Atmospheric Dispersion	Ambient Air Quality	Moderate
Emissions from Standby Generator Sets	Atmospheric Dispersion	Ambient Air Quality	Minor
Poor Environmental Management General Poor Housekeeping	Accidental Releases - Infiltration - Downward Percolation Environmental degradation	Soil, Groundwater, Surface Water, Air Pollution	Moderate

The Project activities detailed below have the potential to adversely impact social receptors. It should be noted that the list of Project activities with potentially negative social impacts is not intended to be exhaustive, but to provide an identification of the key aspects of the Project which have the potential to interact with the socio-economic structure in the Project site area, and also result in significant adverse social impacts.

Table 35: Potential Adverse Social Impacts of Project Activities

Activity/Source of Impact	Impact Nature	Receptor	Impact Severity
Factory Operations	Inward Migration; added pressure on local services	Local Community	Moderate
Factory Operations	Inward Migration; conflict & resentment potential	Local Community	Moderate
Factory Operations	Inward Migration; pressure on local infrastructure	Local Community	Moderate
Factory Operations	Smoke and Odours; public health	Local Community	Moderate
Factory Operations and presence of Containing Materials	Inadequate Personal Protective Equipment & Health and Safety Training	Health and Safety	High
Factory Operations	Long Working Hours, Insufficient Holidays	Worker Wellbeing	Moderate

5.4 Mitigation Measures

The impact identified and comprehensive mitigation measures to prevent or minimize the impacts are described in Chapter 7 Management and Monitoring Sub-plans for each Identified Impact. The project proponent will implement mitigation measures and regularly monitor the effectiveness of the planned measures. Corrective action will be considered if a measure falls short of intended outcomes.

The mitigation measures for each component are listed below;

5.4.1 Mitigation Measures for the Operation Phase

The mitigation measures identified for the operation phase are listed below.

Water Pollution

The mitigation measures identified for operation phase are listed below.

- To ensure water balance between demand and supply, preserving alternative water sources and condensation tanks to avoid over pumping water from public depending sources especially during the dry season.
- To install systematic water management system and Effluent treatment plant (ETP) with appropriate treatment procedure and processes before discharge into the public area.
- To undertake onsite waste water (effluent) treatment practices with reliable methods and procedure as a preventive maintenance program.
- Reduce water use as much as feasible and removing solid particles before cleaning with water.
- Reduce water use by using water efficient equipment such as small flush tanks for toilets. New toilets provide for water conservation with two devices for solids and liquids only.
- Reduce spills on cleaning the mill by preventing overflow of watering devices and using calibrated, well-maintained self-watering devices.
- Ensure settlement/cooling time and buffer space of boiler discharge which temperature should not be greater than 3℃ of ambient water.
- Water from kitchens, showers, lavatories, sinks etc. shall be firstly discharged into a conservancy tank, for removal from the site.
- Kitchen should be equipped with grease traps to reduce the production of foul smelling decomposing particles from bacterial action.
- Reduce or prevent runoff from workshops / machinery washing areas and concrete batching areas by directing them to a collection conservancy tank and disposed of at an approved site.
- Gray water can be recycled and reused for non-critical purposes.
- Segregate non-contaminated waste water stream from contaminated stream to water recycle ponds.
- Contaminated wastewater from utility operations, non-contaminated storm water, and sanitary sewage systems of factory's accommodation should be routed to wastewater treatment system.
- Implement contingency plan and immediate remedial measures by monitoring the quality of effluent discharged in compliance with the acceptable level of standards.
- Mainstreaming disaster risk and emergency response plans in the design and system of waste water treatment plant and process.

Air pollution

To control PM_{10}, $PM_{2.5}$, and NO_X emissions from the boilers, SDI Manufacturing Garment Factory is committed to the following measures:

- Regular maintenance of the boilers and related equipment; and Installation of emission reduction systems on the boiler
- In particular, particulate matter collection efficiencies for wet scrubbers will be 90 percent or greater; gaseous emissions such as NO_X and organics may also be absorbed to a significant extent in a wet scrubber.
- Implementation of these measures will reduce the PM_{10}, $PM_{2.5}$ and NO_X concentration levels at the nearest receptors to acceptable levels below WHO standards which are protective of human health. This will reduce PM_{10} impacts from major to minor (low severity; medium likelihood) and PM2.5 and NOx impacts from moderate to minor (low severity; medium likelihood). Impacts from other air pollutants will remain minor.
- Dust suppression is needed, i.e., watering disturbed areas during dry and windy conditions would minimize residual impacts from fugitive dust. For an efficient dust suppression method, spraying or watering should be done during early morning so that the water will be absorbed by the soil and not during noon time.
- CO_2 gas from boiler chimney will be recycled in CO_2 compressors after passing through a cyclone system.
- The facility is committed to control air pollution. To reduce the air pollution impacts, the facility adopts and implements the policy of maximum energy efficiency, manages well-coordinated traffic

flows, and establishes re- greening plan. These will serve as the facility's drive to minimize air pollution issues.

Air pollution resulting from the use of vehicles and machinery will be minimized by the adoption of the following mitigation measures:

- Careful selection and the use of low emission vehicles;
- Appropriate management of project traffic (e.g. providing collective trips of project staff members);
- Systematic arrangement of delivery operation schedules and times;
- Proper maintenance procedures and regular inspection schemes;
- Educating drivers and vehicle operators to stop engine idling;
- Actively seeking cleaner technologies and investing in less polluting technologies; and
- Installing an adequate chimney stack designed in accordance with Good International Industry Practice'

Noise Pollution

The project needs to implement the following mitigation measures to minimize the noise impact:

- Careful handling of material loading and unloading;
- Employment of low impact technologies;
- Using modern quiet power tools, and equipment;
- Erecting sound shields or wall structures; e.g., systematic buffer zone area with brick wall
- Giving consideration to careful sequencing and scheduling times;
- Rerouting traffic through less populated areas;
- Combine noisy operations at the same time but avoid combination of vibration;
- Sufficient buffers with trees, buildings, and greenbelt;
- Personal protective gears for all staffs;
- High wall along the factory complex; and careful traffic scheduling
- Provision of PPE (earplugs) to crew who work very near to the generator and boilers operation

Soil pollution

The mitigation measures identified for the soil pollution are listed below.

- Boiler ash capture from flue gas using wet scrubbers in a multi cyclone system and recycled to farms for soil improvement.
- Constructing proper designed concrete drainage leading to collection ponds for ash- water and waste water to prevent erosion and contamination by over flow, runoff, leakage, storm surge and natural disaster.
- Establishing grasses or leaving natural vegetation as a soil cover
- Design and Install emergency response measures for earthquake and storm risk potential on both factory and communities.
- Fuel containers e.g., for petrol or diesel fueled equipment should be properly provided for with spill and leak containment such as trays. For larger volume tanks, the area should be bunded or the tanks should be double lined.

Oil and grease pollution

The mitigation measures identified for the oil and grease pollution are listed below.

- Provide oil trapping equipment.
- Prompt cleaning of oil and fuel spills.
- Proper disposal of rags and sand contaminated with oil.
- Prevent against collapse or fall of bulk storage tanks with regular maintenance system
- Ensure warehouse walls, partitions, stairs and passages are of sound construction and properly maintain.

Solid waste

The mitigation measures identified for the non-hazardous solid waste are listed below.

- Ensure schedule or regular waste collection system and introduce waste segregation methods such as vegetables, metal, plastic, glass and Styrofoam.
- Recycle and reuse segregated waste and proper disposing.
- Compost biodegradable wastes at a suitable location within the project site.
- For the garbage and detritus are to be disposed of on site, buffer distances must be preserved between land disposal areas and sensitive features.
- Prescribe specific and protected final destination area for some chemical related hazardous wastes such as battery, out of order fluorescence, bulbs, chemical containers, and medical and chemical wastes.
- Ensure proper disposal site and regular monitoring for failure machinery, scrap metal, tools and equipment.

Chemical pollution

- Chemical containers should not be allowed to leach into the environment, either directly from sheds or during any storage prior to removal.
- It is preferable for chemical containers and boxes to be cleaned from the sheds and removed from the site on the same day.
- Ensure to protect chemical contamination by accidental spillage of oil or chemical, solid matters, contaminants, debris and other pollutants to surface water and ground water (e.g. use of concrete floors, use of roof gutters on buildings and covering for all chemical processing and storages areas with a fixed roof or plastic sheeting).
- Provide proper space and time to settle heavy metal and chemicals so as to reduce chemical pollution
- Providing training to improve awareness on environmental protection and sustainable development.
- Prescribed label on all chemical containers and ensure handling by qualified skillful workers only.
- Any toxic and hazardous chemical should be properly labelled and stored in a separate secured location or storage area.
- The chemical and diesel storage tank shall be located away from any water sources and should have facilities for accidental spillage and leakage control measures.

Hazardous chemicals handling

The mitigation measures identified for the handling of hazardous chemicals are listed below.

- Ensure all chemicals used in Garment / Textile Factory operation are labelled and safety data sheet are easily available and recorded.
- Ensure that only certified/qualified workers are in charge of hazardous waste management
- Careful handling and managing all chemicals and detail information of every natural and manmade accident should be recorded for further management.
- Provide training and education for self-protection and environmental safety for hazardous wastes management and chemical handling of operational staff.

Socio economic and environmental health

Job opportunities and stability for local community

- Encourage local community to engage in factory as employee by collaborating with the relevant government organizations and civil society organizations.
- Utilize a portion of CSR fund to support vocational training course and practices improvement among the employees and or through micro-financing program. In doing so, collaborate with the non-profit and community-based organizations in the area for efficient delivery of the financing programs.
- Develop internship programs for job positions that do not require intensive skill training. Moreover, provide financial support to the local residents for short skill training courses such as equipment maintenance and repair, office; etc.

- Employment preference should be given to the local residents. This could be implemented by asking for letters of recommendation from the local administrative office or other local authoritative figures for a job applicant.

Improvement of local economy

- Identify local sources for the goods and services in demand and depend on the local businesses as much as possible. Moreover, promote buying local products among the factory workers, raw material suppliers and other business partners.
- Inform the local residents on the goods and services in demand not adequately available in the industrial zone area. Assist the interested local parties on venturing businesses to fulfill the project's goods and services in need.
- Utilize a portion of CSR money to incubate start-up businesses among the local communities through CSR Program. In doing so, collaborate with the non-profit and community-based organizations in the area for efficient delivery of the financing programs.

Traffic accident and community health impact

The mitigation measures identified for the traffic accident and health impact are listed below.

- Use alternative farm roads or dust suppression measures for the raw material and finished products transportation trucks, shuttle bus and deliver trucks going into and out of the garment factory site.
- Providing awareness training for traffic rules and regulations to all mill staffs and communities.
- Regular maintenance, setting safe speed limits and inspection on garment factory related vehicles to ensure registered and licenced vehicles with experienced drivers to prevent traffic accident.
- Provision of traffic signal and sign boards along the main transportation road.
- Consolidate the raw material supplies shipments to lessen the truck trips.
- Water spraying on the unpaved road portions which is close to the communities especially in the hot and dry season to prevent dust dispersal and inhaling diseases.
- Ensure proper management practices like biological/chemical treatments with reliable buffer distance from foul odor emission wastes for preventing inhalation health impacts
- Establish proper green buffer distance or concrete wall to prevent noise impact to sensitive receptors or communities' residential area.

In-migration

- Build capacity among the local residents to increase their competitiveness in job application and give priority consideration to the local residents in cases of tile qualifications in job application.
- Make sure that some of the support programs available through CSR funding such as micro-financing programs.
- Promote awareness and mandate the respect of local norms and culture among the migrant workers hired by the factory and non-local business partners. Practice no tolerance policy for the migrant workers and non-local business partners that are found disrespecting the local culture and norms.

Maintenance and Skill trainings

- Assign employees for maintenance of tools and machines at the factory at every time.
- Provide skill improvement trainings or financial support for the employees during factory operation.

Social Conflict

The mitigation measures identified for the social conflict are listed below.

- Ensure equal chances and opportunities to all contractors and partnesr for raw material collection such as firewood, fuel etc.
- Provide prior information of local and administrative disciplines to migrant and local workers.
- Frequent checking on registration and administrative requirements to prevent conflict and crime.
- Setting proper disciplines for specific work nature and gender.
- Provision of prior information on rules and regulation concerning with belief and religion.

Health, safety and security

- Develop environmental, health and safety, fire and emergency response and community safety protocols for operational phase to ensure safety and security in the work place as well as among the local communities.
- Fully comply with both corporate and ILO policies and regulations regarding labor rights and safe workplace. Also comply with the regulations of the Labor Safety Law once it is enacted by the Union.
- Provide occupational health and safety (OHS) training by experts to the existing employees. Moreover, capacity building of site supervisors to provide OHS trainings for the new hires
- Educate the local communities about traffic safety.
- Compensations should be made to the parties affected by the project activities covering all the healthcare related fees and the loss of money caused by the injury or disability.
- Empower and strengthen the capacity of the local law enforcement to report and handle the increase in crimes in the area. Regularly consult with the local representatives and the law enforcement officials to provide solutions for the increase in crimes. Moreover, regularly inform the public on the activities taken by the project proponent to reduce crimes in the area.
- Empower and strengthen the capacity of the local firefighting team to effectively handle fire outbreaks in the area. Moreover, ensure that fire hazards are isolated to hinder the spread of fire.
- Consult with local administrative officials, public health officials, civil society organizations and the public especially the affected parties to provide solutions and compensations for any adverse effects on the vulnerable groups related to the project activities. Clearly inform the public about the actions taken to protect the vulnerable groups.

Communicable and non-communicable diseases

- Provide proper sanitation for living and working conditions
- Undertaking training and educational programs for self-protection and raising health awareness on communicable and non-communicable diseases
- Annual medical checkup on project personal for some communicable diseases (HIV, AIDS, Hepatic B and C) and vector-borne (Malaria) diseases and provision of vaccine
- Ensure proper vector control systems in its potential proliferation period and or drain out of standing water
- Educating project personal and area resident on risk, prevention, available treatment and providing health services

Labor law and demand

The mitigation measures identified for the labor demand are listed below.

- Provide housing, transportation facility, health care services, social welfare and administration requirements
- Training local residents for domestic skilled l labor sources.
- Proper care and management on social welfare, worker right, insurance, compliance on labor law and educational support to all labor and their family.

Child labor

- Fully comply with corporate policies in addition to the Union's regulations and policies on child labor. Moreover, make sure that all the business partners including the contracted farms fully respect both corporate and the Union's policies on child labor and practice no tolerance policy.
- Collaborate with relevant government agencies and civil society organizations to promote awareness of child rights and protection among the local communities.
- Make sure that all the current factory employees and future hires are above a certain age by keeping records of the birth certificates, government IDs or asking for age clearance from the local administration office.

Fire and flash flood impact

- Leaving proper buffer distance between fire potential materials like solid waste pile, fuel storage tanks, chemicals and the communities

- Readiness of fire response water sources, vehicles, equipment, qualified crew and emergency contact
- Provide clear information among the staffs and crew for role, responsibility and communication systems for fire alarm, emergency level with signals and check points for evacuation actions.
- Distributing contact lists to public access area including communicating details on the nature of the emergency
- Provide training for upgrading capacity of fire fighters and emergency response persons
- Practice and testing equipment in proper time interval.
- Readiness of medical first aid kits and services for emergency concerns.

5.4.2 Mitigation Measures for the Decommissioning Phase

The mitigation measures identified for the decommissioning, closure, and post closure phase are listed below.

Water

- Declare official ceasing of water pumping for garment factory and removal of pumping station and equipment in a period.
- Systematic withdrawal of hard project equipment (pump, valve, pipe, ditch, canal) including storage tanks for the clearance after closure
- Recycle usable equipment
- Ensure clean water source for all used water and waste water storage and discharge areas after completely stopping the factory's operation
- Ensure proper waste removal or treatment before starting every demolition process
- Employ water quality status in compliance with national/WHO standards after demolition the garment factory project for site rehabilitation references and required treatments

Air pollution

- Spraying water ahead on the potential dust emitter or buildings being demolished
- Regular maintenance and installation of emission efficacy equipment in operating vehicles
- Ensure proper waste removal or treatment mechanism before starting very demolition process
- Treating using control measures like adsorption in activated carbon, anaerobic digestion, bio-digestion or proper design bio-filtration and chlorination measure. Used activated carbon shall be disposed off properly.

Noise and vibration

- All demolition works should be performed during daytime to avoid noise exceedance and unnecessary vibration
- Using effective and efficient demolition machines and equipment to ensure safety and decrease noise and vibration.
- Inform nearby residents for demolition schedule.
- Use acoustic barriers and mufflers to reduce noise.
- Prepare protection measure to avoid damage to nearby infrastructure and building

Hazardous waste

- Select skilled operators for withdrawing and demolition process for specific buildings like chemicals storage area and waste water tanks.
- Ensure safe and efficient demolition operators for accountability.
- Hire well qualified/registered contractors for handling hazardous waste and site clearance.
- Providing pretreatments or proper collection methods for safety.
- Ensure there is no residual impact for post closure phase of the project

- Planting chemical absorbing plant species on the waste disposal area as a bio- remediation measure.
- Showing proper signals or boards on the hazardous waste disposal sites to prevent subsequent problem to animals and human health.
- Establish project site rehabilitation program with proper management practices and remediation measures

Solid waste

- Solid waste has to be properly cleaned and cleared by the former operator/owners
- Provide proper collecting methods for solid waste discharge and final destination
- Recycle and reuse decommissioning solid waste for landfill sites or soil leveling
- Reuse some building materials to other suitable construction sites
- Recycle or repair to utilize in a suitable industry

Chemical contamination and Water pollution

- Treating with chemicals, biological and possible measures before closure for post closure clean condition.
- Providing bioremediation programs for long term treatment.
- Proper eradication on all waste water collection tanks and ponds before closure and during decommissioning phase.
- Ensure no more residual impact on the surrounding soil, water and communities.
- Finding chemical experts to dilute chemical concentration of some heavy metal contaminated water especially for waste water pond sediments.

Socio economic and environmental health impact

- Compensation for permanent job loss of workers, creating other job opportunity or transfer of workers to other related jobs with proper negotiation and mutual respect
- Provide prior information of decommissioning plan to garment factory related small scale industries or services centers.
- Ensure to wear self-protection equipment and use of safe and effective machines in all demolition process
- Use of well-trained workers with qualified supervisor to avoid risk and accidents
- Ensure no standing waste or abandoned water in the project site to prevent insect vector dispersal
- Educate communities and workers to protect them from communicable and non- communicable diseases and sanitation measures

Decline of local economy

- Assist the local communities to explore alternative markets for their products.
- Moreover, using the remaining fund from the CSR program, assist the current employees financially to receive trainings and education to advance their career. The human resources office should also assist the employees in seeking for jobs.
- Compensate the employees according to the laws in Myanmar.

Safety and security

- Develop environmental, health and safety, fire and emergency response and community safety protocols for the decommissioning, closure and post-closure phases to ensure safety and security in the work place as well as among the local communities.
- Fully comply with both corporate and ILO policies and regulations regarding labor rights and safe workplace. Also comply with the regulations of the Labor Safety Law once it is enacted by the Union.
- Empower and strengthen the capacity of the local law enforcement to report and handle the increase in crimes in the area. Regularly consult with the local representatives and the law enforcement officials to provide solutions for the increase in crimes. Moreover, regularly inform the public on the activities taken by the project proponent to reduce crimes in the area.

5.5 Potential Positive Social Impacts

Based on the findings of the Initial Environmental Evaluation and Initial Social Evaluation for EMP, it is currently assessed that the Project activities detailed below will have positive social impacts. It should be noted that the list of beneficial project activities is not intended to be exhaustive but rather an identification of the key aspects of the Project which have the potential to have an overall beneficial impact on socio-economic conditions in the Project site area.

Table 36: Potential Positive Social Impacts of Project Activities

Activity/Source of Benefit	Method of Benefit	Nature of Benefit	Beneficiary
Garment Factory operations	Purchasing food from local sellers by factory employees	Economic	Local food sellers and their families
Factory Operations	Employment Opportunities	Economic	Local community
Factory Operations	Workers' Salaries; Disposable Income	Economic	Local Businesses
Employees Transportation	Free	Economic	Employees
Factory Pre-School	Free Education	Education and Economic	Workers and their young children
Factory Health Clinic and Pre-School facility	Free Health Care	Economic and Medical	Workers and their families

5.6 Cumulative Impact Assessment

Cumulative impacts can be defined as "the impact or impacts of a project that in itself or themselves may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse projects or undertakings in the same geographic area or region."

5.6.1 Methodology and Approach

This EMP follows the prescribed Methodology and Approach by MONREC in determining the Cumulative effect of the SDI's Garment Manufacturing project. Below are the steps from MONREC:

- Step 1: Identify incremental effects of the proposed project on selected valued ecosystem components (VECs) within the area affected by the project.
- Step 2: Identify other past, present and reasonably foreseeable actions (projects and activities) within time and space that have been or could contribute to the cumulative impacts on each VEC or their indicators. Establish appropriate temporal and spatial boundaries.
- Step 3: Assemble information on VECs and assess historical to current conditions.
  This should include any consideration of thresholds or limits.
- Step 4: Connect the proposed project and other projects or activities in the defined cumulative impact assessment area to the VECs.
- Step 5: Assess the significance of cumulative impacts on each VEC over the identified time frame. It is suggested to use the same methodology to define the significance of the impact as the one used in the environmental impact assessment. The significance of the residual cumulative impact should be determined after considering the implementation of the mitigation measures (Step 6).
- Step 6: For each VEC, identify mitigation or management actions, including management mechanisms for joint cumulative impacts.

5.6.2 Cumulative Impact Assessment for this Project

The SDI Manufacturing Garment Factory project has been in operation since 2014 with estimated production capicity 50,000 pcs of various clothing per month. The baseline data for the EMP has been gathered while the project has been in operation. There are some prominent industrial projects that has cumulative impact potential in the surrounding of garment factory area. The data reflects the ambient conditions at the points of sampling in the project area but some may also be contributed by other industrial activities in the area.

5.7 Commitment for Environmental Conservation by SDI Manufacturing Co., Ltd

Regarding objects emitted into soil, water and air environment, SDI Manufacturing Co., Ltd will comply with National Environmental Quality (Effluent) Guidelines issued by Myanmar Environmental Conservation Department in 2015 and it is their committment.

CHAPTER 6 OVERALL BUDGET FOR IMPLEMENTATION ON THE EMP

As a requirement of the Myanmar Environmental Impact Assessment Procedure, this section therefore provides an EMP according to the applicable local and international standards.

It should be noted that there are different approaches and standard format for EMPs. However, the format needs to fit the circumstances in which the EMP is being developed and the requirements which it is designed to meet.

The EMPs presented in this Chapter therefore summarizes the key impact elements identified and the remedial measures, the actions to be taken by various parties and the monitoring activities. An indication of the time scale for implementation and cost involved is also provided. The EMP tables can be further expanded with documented procedures and guidelines for work practices so as to be as responsive to the situations that various contract parties will encounter. The parties must be formulated procedures and practices and maintain records as required by MONREC.

The implementation of the EMP must be done within the provisions of the law and for the ultimate benefit of the stakeholders in the Project area. The effectiveness of the EMP shall be monitored and assessed during spot checks, formal inspections and at the end of the project when an overall audit of the works shall be carried out.

6.1 Environmental management plan and monitoring measure

The EMP described in this chapter forms an integral part of the environmental conservation prepared for the Project. It establishes the strategy for how environmental and social impacts will be managed during the operational and post-operational phases of the Project and provides a framework upon which SDI Manufacturing Factory. And it is as the Developer sets environmental and social management requirements for the project via its contractual documents with relevant parties to operate the various development components within the project Site.

Broadly, the objectives of the EMP are to:

- Document practical and achievable plans for the management of the project specifically ensuring that environmental requirements are complied with, by providing for the monitoring and control of the predicted impacts;
- Providing the regulatory authorities with the SDI's framework to confirm compliance with environmental policies and requirements; and
- Providing the community with evidence of the management of the project in an environmentally and socially acceptable manner.

This EMP provides the delivery mechanism to address the adverse environmental and social impacts of the project during its operational and post-operational phases will enhance project benefits. And also introduces standards of good practices applicable to operational and post- operational project stages.

Environmental and Social Management Plan Measures

Following the assessment, environmental impacts are identified and addressed. The project has come up with a set of environmental mitigation measures to avoid or minimize adverse impacts throughout the Project's life cycle. These measures are set as requirements for every activity of the Project, either implemented by its own staff or by contractors.

6.2 Types of environmental management plans

There are three broad categories of EMPs in the project lifecycle: i) operation, ii) decommissioning, iii) closure and post closure. The objectives of these EMPs are all the same, that is to identify the possible environmental impacts of the proposed activity and to develop measures to minimize, mitigate and manage these impacts. The difference between these EMPs is related to the difference in mitigation actions required for the different stages of the project cycle.

Operation Phase Environmental Management Plan

An operational environmental management plan provides specific guidance related to the operational activities associated with a particular project. It is focused on sound environmental management practices that will be undertaken to minimize adverse impacts on the environment through normal operation of a facility. The operational management plan further identifies what measures should be taken in the event of emergencies or incidents during the operation of the proposed Project. The roles and responsibilities for mitigation, monitoring and performance assessment for the operational life of the development are specified in the EMP. Table 37 shows the operation phase EMP and SMP of the proposed SDI manufacturing factory project.

Decommissioning, Closure and Post-closure phases

Decommissioning refers to the formal process of removing something from the operational status. As the final phase in the project cycle, decommissioning may present positive environmental opportunities associated with the return of the land for alternative use and the cessation of impacts associated with operational activities. However, depending on the nature of the operational activity, the need to manage risks and potential residual impacts may remain well after operations have ceased. This EMP should be treated as a guiding document that will be employed in the initial stages of the decommissioning. Detailed procedures will be developed with the cause of decommissioning in mind by competent persons and agencies Table 38 shows the ESMP of the decommissioning phase for the proposed project.

6.3 Budgets for Implementation on the EMP

All the operational phases such as Construction, operation, and Decommissioning phases, EMP has to be implemented essentially. For this factory, EMP for all operational phases has been planned since design stage.

The construction phase for this project has been already successfully passed over with implementation of Construction EMP during construction phase.

The CEMP has been addressed issues associated with:

- Noise and Vibration
- Air Quality
- Archaeology and Cultural Heritage
- Visual Impact
- Ecology
- Water Pollution
- Waste
- Contaminated Land
- Construction Traffic Management
- Protection of Existing Services
- Community Responsibility

For the implementation of Operation phase and Decommission Phase Environmental Management Plan, and require budget has been shown in the following tables.

The Environmental monitoring plan outlined in the environmental management plan during operation and closure; such as Air quality, Noise levels, Water quality, wastewater and soil quality, waste (solid / liquid), biodiversity, and potential fire (shown at following tables) will be monitored with frequency and parameters which are accordance with the National Environmental Quality (Effluent) guidelines. Also, these parameters will be monitored accordance with international standards.

If this expenses which has been shown in the following tables are not enough according to the project environmental activities, additional expenses will be utilized which are going to be approved by top management of the SDI Manufacturing Company Limited.

6.3.1 Environmental Impacts and Benefit Augmentation/Adverse Impact Mitigation Measures

Domain	Impacts	Benefit Augmentation/Adverse Impact, and Mitigation Measures	Mitigation Cost
Construction stage			
Beneficial Impacts			
Socio Economics	Employment opportunity to local people	- Maximize the use of local labor force - Maximize public participation about project related activities - Keep the public informed about project related activities	No extra cost
	Impact on local economy due to increased economic activities	Maximize the use of local labor force - Provide training on income generating activities - Orientation program to officials and other local people. - Training program for local people for skill augmentation - Training program on entrepreneurship development - Extension of agricultural support programs	500,000
	Enhancement of technical skill	- Maximize the use of local labor force - Provide training on income generating activities	No extra cost
	Other enhancement issues	- No mitigation measures suggested	No extra cost
Physical	Protection of river bank and adjacent command area from erosion by Hlaing River and local drains causing loss of land and settlement	- Develop and implement measures for water conservation and soil erosion control in the bank of Hlaingi river - Develop and implement land use plan in the project area	1,000,000
Adverse Impacts			
Socio- Economic Environment	Possible impact on law and order	- Frequent Consultation and interaction with local people - Coordinate with local security agencies	No extra cost
	Possible impact on social, cultural and religious	- Awareness development and quality improvement of social services	No extra cost
	Impact on social/cultural norms values and rituals	- Awareness development and quality improvement of social services	No extra cost
	Impact on gender	- Ensure the equal daily wages of women and men workers	No extra cost
	Possible impact on existing facility and resources such as health, education resources, drinking water resources etc	- Coordinate with local authorities and agencies working in the area - maximizing the employment of local labours; - discouraging the labours from outside to bring their dependencies to the project site; and - encourage the local traders to start their business in the project area	No extra cost
	Accessibility of people and domestic animal across public road due to building construction	- Improve the existing foot trail of the area - Provide public drainage crossing structures in necessary places for the accessibility of people	400,000
	Possible displacement of households due to intake	- Compensation to loss or damage of private properties	No extra cost

	Impacts on occupational health, safety and sanitation	- Restriction in access to construction sites to the public by fencing and using guards. In order to prevent gathering and crowding of local people near the construction sites, guided tours shall be provided
		  - whenever required to inform the people about the construction activities,
		  - informing local people time to time about potentially dangerous areas and activities,
		  - provision of adequate training to all construction workers,
		  - provision warning signs near to the potentially dangerous areas
		  - provision of protective clothing such as helmets, boots, gloves and mask to construction
			200,000

Domain	Impacts	Benefit Augmentation/Adverse Impact, and Mitigation Measures	Mitigation Cost
		workers, supervisors and visitors, - Operation of machinery and other heavy equipment by authorized personnel only. Construction of adequate temporary support structures to avoid rock falls or landslides during construction, - provision of adequate lighting and at all construction sites, - provision of emergency equipment such as first-aid kits, flash lights, fire extinguishers, audible warning - devices such as a siren, water rescue equipment, emergency vehicle and phone on site at all times with workers well informed about the proper use of such equipments, - provision of a health care facility managed by qualified doctors, nurses and other personnel on site and also strengthen the existing health post at the site, - having an emergency response contingency plan and make sure all are aware of it, and - implementation of the "Occupational Health and Safety Act" of their respective countries and act accordingly to it at the construction site	
	Social security and other related issues	- Follow established rules and regulations for work safety and health, especially with respect to those activities that bear on community life and resources - Explore the possibilities to engage a local experienced NGO/CBO/Local club to assist community awareness program that depicts all aspects to facilitate smooth work progress and addresses potential sources of grievances and social conflicts. - Both contractor and representatives from the community and Municipality/ government - Security institutions should regularly coordinate for control of any kind of social security related issues like theft, quarrel, conflict other problems.	200,000
Cultural and Physical Issues	Disturbance and change in landscape, land-use, drainage etc. due to disposal of material obtained from excavation for construction of intake, factory building structures and conveyance/distribution structures and excavation of borrow pit	- Avoid dumping spoil in the river & make proper embankment - Minimizing cutting of unstable slopes - Toe protection for unstable slopes - Re-vegetation of cleared areas with indigenous species - Proper drainage management - Surplus spoil will be used to fill eroded gullies, quarries and depressed areas etc. - After the disposal, the site will be provided with proper drainage, vegetation and adequate protection against erosion.	500,000
	Possibility of air and noise quality degradation due to construction activities (movement of vehicle, use of machines equipments etc.) of intake canal and factory building structures	- Water sprinkling on dry dust surfaces - Proper maintenance of all vehicles - Closed areas for batching facilities - Minimize the use of heavy vehicles, drilling machines, vibrator, in order to maintain the level of noise pollution less than 65 dB at a time. - Ear mufflers should be provided to labours operating with high dB construction equipments, and - All equipment and machinery will be maintained to manufacturer's specifications to minimize unnecessary noise emission. - Use of face mask by the workers to minimize air pollution due to dust generation	400,000
	construction labor and work force in camps	- Provide drinking water and sanitation facilities to workers - Discourage haphazard disposal of solid waste	100,000
	Impact on groundwater	- All the lubricants and oil should be collected and recycled or disposed off site in appropriate	No extra cost

Domain	Impacts	Benefit Augmentation/Adverse Impact, and Mitigation Measures	Mitigation Cost
		manner by not causing environmental degradation - Contaminated runoff from storage areas shall be captured in ditches or ponds with an oil trap as the outlet	
	Pollution of river due to construction workers	- Avoid dumping spoil in the river Drinking water and temporary pit latrines will be established at sites - To control open defecation and pollution of water bodies by work force. - Workforce will be instructed not to throw solid waste including hazardous waste in rivers	No extra cost
	Provision of fuel for workers	- Provide alternative source of energy for cooking and lighting purpose	500,000
	Water use right sharing between existing Hlaing Thar Yar command area and the proposed command area	- Consultation with local people and water users' committee. - Proportionate sharing of water as per the command area of each canal	No extra cost
	Impacts on cultural, religious and archeological sites if any	- Requesting people to use another Ngwe Pin Lae Pagoda nearby	No extra cost
	Other issues if any	- Various public utilities such as drinking water supply system, irrigation canal, trail; bus stand etc. along the road alignment will be repaired and enhanced to provide better services to its users.	200,000
Chemical Environment	Change in water quality and soil quality due to use of oil, chemicals etc.	- All the lubricants and oil should be collected and recycled or disposed off site in appropriate manner by not causing environmental degradation - Contaminated runoff from storage areas shall be captured in ditches or ponds with an oil trap as the outlet	No extra cost
Biological Environment	Possible impact on aquatic lives and its habitat in Hlaing River	- The workers should be restricted from fishing	No extra cost
This expenses hav been used during construction phase. And construction phase has been successfully passed over.			3,600.000
Operation Stage			
Socio-Economic Environment	Garment production and use of chemical for washing and printing process	- Promote improved chemical handling practices. - Change in using method of chemical substances - Production due to market accessibility.	No extra cost
	Employment opportunity to local people	- Involvement of women, dalit and ethnic minority poor people and providing life skill training for income generation activities and - skill development Improvement of manufacturing services	No extra cost
	Increase in income and living standard from socioeconomic benefits derived from increase in garment manufacturing products due to assured year-round facility	- Encroachment on public land for expansion of agriculture land to be controlled; - Cropping intensity to be increased by propagating practices of crop selection, crop combination, use of new inputs and technologies, and management of agricultural land; - Support to the District Agriculture Office for propagating ideas with regard to development of planned agriculture.	No extra cost
	Impact on agro-based local economy	- Providing support to local entrepreneurs, promotion of cooperatives and linkage with bank and other financial institutions for setting up business enterprises	No extra cost
	Enhancement of technical skill	- Skill enhancement training in construction activities, soft engineering structures, and bioengineering works - Additional knowledge in waste management, material handling, and general application of environmental, health and social precautionary measures. - Local people involved in the project will find easier to find jobs in similar nature of projects as	No extra cost

Domain	Impacts	Benefit Augmentation/Adverse Impact, and Mitigation Measures	Mitigation Cost
		a skilled labor	
	Other enhancement issues	- Various public utilities such as trail, etc. along the public drainage alignment will be repaired and enhanced to provide better services to its users.	No extra cost
	Appreciation of Land Value	- Promotion of land development activities and land use planning/zoning in market centres and urbanized areas	No extra cost
Adverse Impacts			
	Population pressure and impact due to new settlement along the Ngwe Pin Lae Industrial Zone	- Regulate settlement growth with proper planning/zoning along Garment Factories - Initiate by engaging local NGO/CBOs, community awareness and assistance programs to prevent undesired land-take and canal side squatter development. - Put in place appropriate mechanisms for grievance resolution to settle disputes between new squatters and local communities.	No extra cost
	Impact on road safety measures	- Enforcement of road safety measures as speed limit and erecting road signs along the road.	100,000
Cultural and Physical Environment	Changes in social behavior	- facilitation awareness raising programmes to the communities about negative social behavior like gambling, excess use of alcohol	No extra cost
	Impact on water resources and water sharing	- Give due consideration in spoil disposals to avoid secondary impacts on soils and aquatic systems - Do not wash vehicle, or dispose cement slurry, other hazardous substances etc. in water bodies	No extra cost
	Cross drainage and water logging/flooding	- Cross drainage and water logging/flooding - Provide adequate and appropriate numbers of drainage structures in order to have minimum interference with and impact on natural drainage - pattern of the area, - Avoid surface water discharge into risky locations, - Do not divert water away from natural water course unless it is absolutely necessary - Avoid blockage or diversion of natural and public drainage due to operation process	1,000,000
	Impact due to air pollution	- Ensure proper maintenance status of vehicles, generator and boiler with respect to emissions - All the equipment and machinery such as Generator and Boiler shall be fitted with air pollution control devices that are operating correctly	100,000
	Impact on cultural and religious activities if any	- No mitigation measure is recommended	No extra cost
	Other issues if any	- No mitigation measure is recommended	No extra cost
Chemical Environment	Change in water quality and soil quality due to use of chemical and detergent for washing operation and other chemicals for ETP.	- Hazardous materials shall not be stored near surface waters - Hazardous materials should be stored only on impervious floor with drainage and collection sump so as to retain leak and spills - Contaminated and worn plastic sheeting shall be packed into drums and disposed off site;	No extra cost
Biological Environment	Not Expect in impact	- No mitigation measure is recommended	No extra cost
Enhancement Issues	Maintenance and enhancement of publicvutilities (i.e., trail etc.)	- Renovation and repairing will be made with public access road to factory	500,000
Total Annual Benefit Augmentation/Mitigation Cost			1,700,000

6.3.2 Operation Phase - Environmental Management and Mitigation plan

Table 37: Environmental Management and Mitigation Plan, Time scale and budget allocation for the Operational Phases

Source	Impacts	Mitigation Measure and Monitoring	Location and Frequency	Responsible Party	Budget allocation
Air pollution					- **2,800,000 Kyats**
- Combustion emission from the vehicles and generators - Burning firewood as a complimentary fuel source for boiler	- Air pollution - Particulate matter (PM) dispersion - Flying ash dispersal - SOx, NOx, VOCs emission - Fugitive dust dispersion - CO, black carbon	- Ensure particulate matter collection efficiencies of wet scrubber's up to 90 percent or greater; - Regular maintenance on wetscrubber and dust cyclone system - Monitoring on regular maintenance of the boilers and related equipment; and Installation of emission reduction systems on the boiler - Annual stack emission testing for SOx, NOx, and PM - Quarterly checking on emission monitoring and reporting to environmental auditing section as a reference	Regularly at pollution Sources	- Emission control manager - Power supply manger - Monitoring and control manager - Environmental auditors - Local	- Design cost Installation cost - Maintenance cost - Monitoring cost
Noise & Vibration	- Daily noise level - Hearing loss and health impact	- Provision of Personal Protective Equipment (PPE) to crew who work very near to the generator and boilers operation - Briefing and training to raise awareness on the importance and usefulness of PPE for human health	Monthly Frequent Surprise Check At factory compound	- Boiler operator - Operators and crew of Generator	- Installation cost - Management cost - Maintenance cost - Monitoring cost - Auditing cost
Odor	- Used chemical and detergent and disposal	- Provision of proper treating methods like bio decomposition by adding microorganism like EM, chemical utilization and ventilation or air drying for offensive odor from waste water - Use wet scrubbers to remove odors with a high affinity to water in the processes	Weekly Frequent Surprise Check At factory compound	- Project proponent, - Waste treatment manager, HR manager, contractors, collector	- Monitoring cost - PPE cost - Treatment cost – -
Water contamination	-	-		-	- **1,660,000 Kyats**
Excessive water consumption	- Increased underground water abstraction from tube wells - Water contamination - Water pollution/ Effluent - discharge without treatment - Water chemical changes inside and outside of the project - Sewage disposal	- Systematic water management system and waste water treatment system with appropriate treatment procedure, and an emergency response program. - Scheduled preventive maintenance programs on the treatment design - Preserving alternative water sources to avoid over pumping river water from public transportation way - Reduce water use and spills - Preventing overflow of watering devices and using calibrated, well-maintained self-watering devices - Install pressure gage at the discharge point	Monthly In all place where utilizing water	- Waste water treatment plant manager - Maintenance engineers - Sanitary or facilities manager - Emergency plan/safety responsible manager - Water and waste water auditing manager - Local authorities to check on compliance on commitment of developer	- Management cost - Maintenance cost - Monitoring cost Emergency - response cost -
Thermal/ heat pollution	- Boiler discharge hot water without cooling tower or recycle system - Boiler fuel burning area - Generators	- Ensure settlement/cooling time and buffer space of boiler discharge which temperature should not be greater than 3˚C of ambient water. - Provide heat resistant PPE and clothes - Alternative/shift working system	Daily Especially Boiler, and generator	- Boiler operator, Maintenance managers and crew	- Monitoring cost - Maintenance cost - PPE cost
- Liquid waste discharge	- Leakage from final tanks of ETP - Odor emission	- Proper management on ETP Process	- Regular monitoring on volume to be stored and available space for some duration	- management operators - Transportation manager	- Management cost - Maintenance cost - Monitoring cost

Source	Impacts	Mitigation Measure and Monitoring	Location and Frequency	Responsible Party	Budget allocation
			- Monthly checking on strength and capacity of storage tanks		
- **Soil degradation**	-	-	-	-	- **200,000 kyats**
- Sedimentation process of waste water in the sedimentation tank,	- Soil contamination to ground water pollution and health risk - Contamination and pollution by very large volume of waste	- Boiler ash will be captured from flue gas using wet scrubbers in a multi cyclone system and recycled to farms for soil improvement - Install proper treatment measures, methods and equipment to prevent percolation into the soil and ground water	- Frequent check on the capacity of ash collection and deposited ash to proper storage area - Annual testing on heavy metal content of sediment in the storage area	- Smoke stack and web scrubber, boiler operator - supervisors - Internal auditors	- Design cost Installation cost Operation cost - Management cost - Maintenance cost - Monitoring cost -
Management plan for Pollution condition, and social environment		-	-	-	**8,750,000 Kyats**
Chemical contamination disposition					250,000 Kyats
- Chemical transportation, Storage, Handling and processing - Chemical waste - Expiration of chemicals - Chemical contamination, Spill, leakage - Health impact	- Poor management - Handling spill or leakage - Accidental spillage - Exposure	- Chemicals containers should not be allowed to leach into the environment, either directly from sheds or during any storage activity - Whenever possible, chemicals containers and boxes are cleaned and removed from the site on the same day - Raw materials and finished goods storage facilities are constructed to prevent contamination into surface water and ground water - Use of concrete floors, use of roof gutters and covering chemicals storages areas with a fixed roof - Settle out heavy metal and chemicals so that wastes meet appropriate limits before discharge into the Public Drainage located in front of the factory. It is not discharged into Hlaing River - Prevention of accidental spillage of oil or chemical, solid matters, contaminants, debris and other pollutants. - Training to improve awareness on environmental protection and sustainable development - Provision of mechanical and submersible pumps to remove any potential spills from the bunds. - Undertake proper design buildings and storage areas to - control storm-water and subsequent chemical corrosive effects - Potential pollutants of any kind and in any form shall be kept, stored and used by properly trained personal - The chemical and diesel storage facilities are located away from any water sources and have facilities for accidental spillage control measures. - Careful handling and managing on all chemicals	- Monthly monitoring for proper labelling of containers and storage areas as well as prohibition of storage of incompatible waste - Frequent checking on chemicals handling and	- chemical manager - Storage manager - Chemical Transportation and handling crew	- Management cost
- Oil and grease spill and leakage	- Oil tanks and storage area, vehicles, mechanical waste, fire, equipment failure -	- Provide oil trapping equipment - Prompt cleaning of oil and fuel spills	- Quarterly checking on vehicles	- Fuel storage and handling managers	- Maintenance cost -

Source	Impacts	Mitigation Measure and Monitoring	Location and Frequency	Responsible Party	Budget allocation
- **Social Environment**	-	-		-	- 8,500,000 Kyats
- Traffic accident - Boiler operation - Chemical processing - Lack of training and knowledge, unskillful/ unqualified workers, without PPE	- Occupational Health and Safety impact - Work place accidents Work place injury - Inhaling/breathing - Noise related hearing loss and long-term health impact	- Providing awareness training of traffic rules and regulations to all mill staffs and communities. - Provide capacity building training for specific work nature - Provision of traffic signal and sign boards along the cane transportation road. - **Provision of personal protection equipment (PPE) to workers to prevent health impact** - Provide transparent occupational health and safety manual and information to all levels of workers - Readiness and easy access to emergency of first aid kit and trained person - Provision of insurance for some specific work titles - Stringent compliance on labour law and workers' right - Support 24 hr clinical health care services for workers and their family member	Records of annual public seminars conduct Records of the loans provided through CSR program	- SDI's Logistic Team - SDI HSE Team	- Up to - 500,000 kyats/ yr - Up to 30% of the CSR fund and allocated according to the union laws (300,000 kyats) Up to 10,000 Kyats per permanent employee and other related PPE such as goggle, safety shoes, google hand gloves, mask and others is total 5,000,000
- Social conflict	- Domestic labour, immigrant labour, - Crime - Sexual harassment - Gender discrimination	- Control by Company Rules and Reguation, by labor laws, - Security Management	- Monthly checking on information - Periodical monitoring on registration - Frequent check on compliance of rules and regulation	- Project proponent, HR manager, Worker manager, Local government authorities,	- HR management/ training cost - Monitoring cost - Information release cost - 1,000,000 Kyats
- Social services - Demand on shelter, electricity, food supply, road access, health support and administration	- electricity, food, water, public transportation, public services, health services, social and administration	- Provision of easy access and right to healthcare services for all SDI staff and workers - Ensure, electricity, transportation, administration and public services for mill operators, crews/staff and daily workers - Provision of secure health care management for workers and residents	Regular Factory Border and compound	- Project - Proponent, HR manager, Housing manager	- Monitoring cost – - 500,000 kyats
- Increased labour demand	- Domestic labour, immigrant labour, professional, skillful, daily workers	- Priority employment opportunities - will be given to residents who meet the factory's relevant qualification requirements for various positions in the company - Training/ workshop and - Following the rules of local labour institution	Frequent on potential labor demand Near by community	- Project proponent, HR manager, Local labour and youth institution, local administrative unit	- Internship program No Extra cost
- Compliance with Labour Laws	- Gender discrimination, working hours, leave, insurance, severance, employment termination, willfully quit and retirement	- Ensure gender specific housing and family housing separately - Prescribe kind of leave and insurance system - Provision and recognition on overtime fee and vacation based on optimum working hours - Ensure severance pay for employment termination or fire by employer without devastation on the company's reputation - Ensure the right of workers to organize for the dispute of workers - Follow the disciplines of Labour Organization	Quarterly	- Project proponent, HR Manager, Labour organization, Local administrative authority	- Monitoring Cost

Source	Impacts	Mitigation Measure and Monitoring	Location and Frequency	Responsible Party	Budget allocation
- Living and livelihood	- Job opportunity, Nature of work and intensive labour requirement, unskilfulness and required qualification/education for employment opportunity	- Preparing plan and providing for potential dormintory, food, transportation, public services, health services, social services and administration requirements for - Provide training to local employee for developing domestic skilled abour sources - Prioritize local labour force in project workforce selection so as to reduce housing and other related requirements.	Monthly	- Project proponent, HR Manager, Labour organization, Local administrative authority	- Monitoring Cost - HR management cost - Training cost – - 700,000 kyats
- Traffic - Daily use vehicles Congestion Accident Conflict - Violation traffic rules and regulations	- Local transportation vehicles - transportation trucks - Motorcycles	- Use alternative ways like farm roads to shipment, or avoiding crowded roads for shuttle bus and deliver trucks to reduce distance and fuel used in transportation - Provide awareness training of traffic rules and regulation to mill staffs and communities - Use only registered and licenced vehicles with experienced drivers to prevent traffic/road accident and its related responsibility on the public - Provision of traffic signal and sign boards along the main cane transportation road to the factory - Water spraying on the unpaved road portions for cane transportation that is very closed to the communities' housing and school areas especially in the hot and dry season to prevent dust dispersion and health impact	Monthly / Frequent check Near by areas	- Project proponent, - Vehicle manager, Operators	- Monitoring cost - Training cost - Road treatment cost - Registration cost - 300,000 kyats
- Disaster risk	- Risk	Mainstreaming/(adding together) disaster risk management and emergency response plans in the design and system for constructing of garment factory related buildings, waste water treatment plant and process for each production factory facilities	Annular Check	- Factory Manager	- Monitoring cost - 500,000 kyats

6.3.3 Post closure Phase - Environmental Management and Mitigation plan

Table 38: Environmental Management and Monitoring Plan, Time scale and Budget Allocation for the Decommissioning phase

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans	Responsible Party/ Implementing Administrator	Budget Allocation
On site demolition (Physical impact)					
- Soil erosion, sedimentation, contamination and pollution	- Excavation to remove; Pipe lines, channel, ash/ water collection tanks, waste water discharge drainage - Solid waste disposal sites - Chemical storage and processing area - Demolition all waste water tank - Out of order equipment, electrical wastes and various kinds of batteries	- Systematic excavation with effective machines along the prescribed drawing line for all connected channel and pipelines - Recycle some parts of the pipeline and solid waste - Ensure all waste water are properly disposed or withdrawn to the suitable places before demolition - Undertake proper cleaning on solid waste disposal site - Careful withdrawing with proper management on all garment factory related facilities to prevent contamination	- request checking on the excavation work and contractors for their compliance on prescribed commitments - Weekly inspection on the demolition process plan - Quarterly inspect on the rehabilitation plan and implementation process	- Contractors - Local authority	- Management cost - Demolition cost - Monitoring cost – mmks 1,000,000
- Solid waste	- Site stabilization works, - Dismantling of equipment and machinery, - Site clean-up activities, - Solid waste disposal sites - Un-moveable material and equipment - Failure machines and spare parts	- Hire experienced waste manager and ensure pre- removal before abandoning the project site - Reuse some building materials to other suitable construction sites - Recycle or repair to utilize in a suitable industry	Weekly monitoring on the compliance of contractors or responsible one during post closure phase	- Proponent, Contractors, - Operator - Local authority - Local environmental manager	- Monitoring cost - Management cost - mmk 1,000,000
- Water/ hydrological change, contamination and quality degradation	- After abandonment and demolition process - Cessation of abstraction and active flow management - Contamination of surface and ground water from effluent and hazardous substances left after abandoned garment factory. - Residue from waste water treatment and storage area	- Systematic removal of project equipment (pump, valve, pipe, ditch, canal) - Recycle for usable equipment - Ensure clean water source for all used water and waste water storage and discharge areas after completely stopping the factory' s operation - Ensure proper waste removal before starting the demolition process	- Monthly checking on the water flow shut down, removal of engine and related equipment during the demolition process - Monitoring on the removal of water related equipment and quality of surface water source during demolition phase - Documenting water flow and quality record	- Local authority - Local - environmental manager - Institution	- Management cost - Monitoring cost – mmk 500,000
- Air Pollution	- Heavy vehicles - Dust development from demolition processes - Demolition of the garment factory and related buildings - Demolition 3 major chimneys	- Control utilization of emission efficient vehicles - Ensure to hire contractors who use efficient vehicles - Select contractors with safe and sound demolition equipment and experiences and	- Regular monitoring on demolition process - Surprise check on the compliance of contractors - Weekly checking on vehicles and their regular maintenance	- Proponent - Contractor - Local authority - Local institution	- Monitoring cost – mmk 200,000

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans	Responsible Party/ Implementing Administrator	Budget Allocation
		practices			
- Traffic congestion and accident	- Vehicles for withdrawing equipment, machines, tools and furniture	- Dust suspension if needed - Provision of signal and sign boards for road safety, working area safety and public awareness raising - Using efficient vehicle and machines	- Daily monitoring for dust development and control measure during demolition period - Checking compliance on traffic rules	- Major Proponent - Local authority	- Withdrawing cost - Monitoring cost – Mmk 200,000
- Noise and Vibration	- Machines and equipment remove, withdraw and transport - Buildings demolition	- Doing demolition process during day time - Using effective and efficient demolition machines and equipment so as to safe and decrease noise and vibration	- Weekly checking on the compliance of demolition contractors - Frequent check on the use of PPE by crews and site supervisors	- Project proponent - HR manager - Health supervisor - Contractors	- Monitoring cost - PPE cost – - Mmk 500,000
On site demolition (Chemical and biological impact)					
- Contamination of surface and ground water from liquid waste and hazardous substances left after washing, printing operation	- Wastewater collection tanks - Waste water discharged Tanks - Solid waste disposal sites - Chemical storage area - Demolition all WW and ash-collection trays - Out of order equipment, electric bulbs and various kinds of batteries	- Treating with chemicals, - biological and possible measures before closure for post closure clean condition - Providing bioremediation programs for long term treatment (e.g., microorganism, growing locally adapted species or chemical absorbable plant species) - Proper eradication on all waste water collection tanks and ponds before closure and during decommissioning phase - Ensure no more residual impact on the surrounding soil, water and communities - Pre-treatment to inactivate some contaminated water especially for waste water sediments	- Monthly checking on the remediation measures - Monitoring on the contractors for their obligation and compliance - Checking the whole operation by local concern institution and authority - Quarterly check on the possible residue impact and proponent's treatment	- Project - proponent, - Contractors, - Local concerned institution, - Local authority, - Environmental auditors	- Treatment cost - Monitoring cost - mmk 3,000,000
- Residue/chemical Contamination on soil surface and subsurface	- Waste water sedimentation area - accumulation at WW tanks - Solid and liquid waste runoff, storm surge, - flooding, earthquake, natural disaster - Residue from Chemicals storage area	- Providing phytoremediation measures with some plant species which can absorb heavy metal from the soil - Hire experienced chemical experts for chemical remediation measures storage tanks - Ensure proper management and emergency plan before completely abandon the project site	- Regular monitoring on the progress of remediation measure - Weekly checking on chemical treatment and progress - Monitoring until the cleanliness or real recovery of the infected area	- Project proponent - Treatment contractors - Operator	- Treatment cost - Monitoring cost – - Mmk 1,000,000
Stopped operation to closure (Social impact)					
- Livelihood - decreased or no income	- Livelihood change - Jobless conditions	- Providing vocational training or job transfer to related industries - Offering other job opportunities - Supporting in education programs	- Monitoring on the social welfare of the garment factory's crew and their families - Frequent checking on the resident's livelihood perceptive	- Project proponent - HR manager	- As per labor contracts
- Solid waste, Odor, dust dispersal, diseases	- Residue from withdrawing and demolition garment factoy - Demolition of buildings,	- All unused structures and materials are to be reused/recycled as far as possible - Use of integrated solid waste	- Environmental monitoring or any appropriate remediation measures shall be prepared and submitted prior to the complete termination of	- Project proponent - Contractors - Managers	- Management cost - Monitoring cost – - mmk 200,000

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans	Responsible Party/ Implementing Administrator	Budget Allocation
	withdrawing equipment, Storage house, Worker accommodations - Domestic and sewage waste - building demolition waste - Remediation of contaminated ground,	- All foundation requires to be removed and recycled, reused and disposed of at a licensed disposal site - Where recycling/ reused is not possible, the materials should be taken to permitted waste disposal site - Provision and ensure cover transportation for odor and dust emitted wastes - Deliver information ahead to the community for the demolition plan	the project. - Monthly checking on the progress of demolition process and communities' concern	- Local social institutions, - Health services - Local authority	
- Hazardous materials exposure	- Batteries, fuel, oil, paint, chemicals disposal sites and its residual actions, failure electric fluorescence lamps, damaged engines,	- Select skillful operators for withdrawing and demolition process for specific buildings - Ensure safe and efficient demolition operators for taking responsibility - Hire well qualified or registered contractors for handling hazardous waste and site clearance - Provide pre-treatment or proper collection methods for safety and not to leave long term residual impact - Showing proper signals or boards on the hazardous waste disposing sites to prevent subsequent problem to animals and human health	- Frequent check on the use of PPE by crews and site supervisors - Quarterly monitoring on the progress of phytoremediation programs and plantation sites - Frequent check on the signal and signed board on the proper place and time	- Project proponent - HR manager - Health supervisor - Contractors	- Monitoring cost – - Mmk 200,000

6.3.3 Environmental Monitoring Parameters, Frequency, Responsibilities and Annual Estimated Cost

Discharge source	Phase	Parameter	Monitoring frequency/ Equipment	Proposed monitoring locations	Responsibility	Estimated cost/year mmk
Air pollution	Operation	PM_{10}, $PM_{2.5}$, SO_2, NO_2, Ozone, Ammonia, Carbon disulfide, clorine, formaldehyde, H_2S, VOC	Annual minimum one time or ECD's instruction, by third party legal consultant with their efficient monitoring equipment	Last monitoring location 16°55'47.85''N 96°03'-33.11'E) near boiler, where there is to be compared with previous condition continuously	to assign registered third party monitoring agency	2,800,000
Noise	Operation	Noise level in dB (A)	Monthly by Extech sound level meter by third party monitoring or sound meter software in application on mobile phone	1. At work places, Machines & equipment Areas 2. Last monitoring locations, where there are to be compared with previous condition continuously	to assign registered third party monitoring agency or assigned responsibe person	800,000
Solid Waste	Operation	Flux, paint residue, welding fluctuation when necessary	Daily Daily To be updated daily	1. Generation of used drum, bags and their dispatch to approved vendors 2. Generation of waste oils and their treatment 3. Generation, h andling, storage, transportation and disposal of solid and aqueous waste	Company together with monitoring team	200,000
Water Quality	Operation	pH, Chloride, sulfate, iron, maganese, color, Hardness, turbidity, total dissolved solids,total solid,	Daily by own mini lab of SDI, and minimum twice annually by third party agency	1. In tube wells (16°55'48.36"N - 96° 3'34.80"E)	Daily check by chemical department and minimum twice by thire party agency	60,000
Water pollution/ wastewater	Operation	5 days BOD, Ammonia,Arsenic,Cadmium , COD, Chlorine, Chromium, Cu, Cyanide, Cyanide, Fluoride, Iron, Lead, Mercury, Nikel, Oil and grease, pH, Phenol, Selenium, Silver, Sulfide, Temperature increase, Total coliform bacteria, Total nitrogen, Total phosphorus, TSS, Zinc	Daily by own mini lab of SDI And minimum twice annually by third party agency	1. Inlet ETP plant (16°55'47.30"N - 96° 3'33.88"E) 2. At discharge or out let after treated (16°55'48.14"N - 96° 3'33.16"E)	Company together with monitoring team	1,600,000
Soil condition	Operation	Copper, Pb, Zn, Cd, Fe	Assigned third party agency	Last monitoring locations (where there are to be compared with previous condition continuously	Company together with monitoring team	120,000
Energy consumption	Operation	Electricity used from MEPE and diesel used from diesel generator and vehicle	Monthly by electrical bill, and monitoring at internal electical department	1. Monthly power consumption record book 2. Monthly diesel consumption book	Company through external consultants and internal audit	100,000
Green belt development	Operation	Fencing, watering, keeping watch	Weekly for three years	1. Around the green belt area	Company with the suggestion from ECD	50,000
Ground Water	Decommission	pH, Color, Turbidity, iron, Fluoride, lead, Arsenic, Zinc, copper	Twice per year up to one year	1. At ground water reservoir (tube well outlet)	Company thorough registered third-party monitoring agency	30,000
Surface Water	Decommission	pH, Color, Turbidity, iron, Fluoride, lead, Arsenic, Zinc, copper	Twice per year up to one year	1. At ground water reservoir (tube well outlet)	Company thorough registered third-party monitoring agency	30,000

The estimated cost for environmental monitoring program has been mentioned in above table, and it is just estimation. And if the budget is not enough for the monitoring program, it will be consumed as expenditure expense allocated by operation cost, could be decided by factory manager.

In this factory project, for the monitoring of effluent wastewater quality, all the parameters such as pH, Total Suspended solids (SS), BOD, COD, Total Nitrogen, Total Phosphorous and, oil and grease included in National Environmental Quality (effluent) guide lines 2.3.2.1 is the guide line and will be compared with it.

Also, for the monitoring of air emission, all the parameters included in National Environmental Quality (Emission) guide line 1.1 (general guide line) is the guide line and will be compared with it.

Table 39: Budget for Environmental Monitoring Plan during Operation Phase

Attribute	Parameters	Monitoring cost forone time (MMK)	Total Cost per Annum in MMK) x Frequency = Total cost)
Air	PM_{10}, PM $_{2.5}$, SO_2, NO_2, Ozone, Ammonia, Carbon disulfide, clorine, formaldehyde, Hydrogen Sulfide, Particulates, volatile organic compound	700,000 × 2 = 1,400,000	1,400,000 × 2 = 2,800,000
Noise	Equivalent noise level	200,000 × 2 = 400,000	400,000 × 2 = 800,000
Water	WHO's Guidelines for Drinking Water Quality (Geneva, 4th Edition, 2011)	30,000	30,000 × 2 = 60,000
Wastewater	5 days BOD, Ammonia, Arsenic, Cadmium, COD, Chlorine (total residual), Chromium (hexavalent), Chromium (total), Copper, Cyanide (free), Cyanide (total), Fluoride, Heavy metal (total), Iron, Lead, Mercury, Nikel, Oil and grease, pH, Phenol, Selenium, Silver, Sulfide, Temperature increase, Total coliform bacteria, Total nitrogen, Total phosphorus, Total suspended solids, Zinc	400,000 x 2 = 800,000	800000 x 2 = 1,600,000
		TOTAL	**5,260,000**
, Occupational Health and Safety			As per actual cost
Socio-Economic	The implementation status for CSR activities such as community support program		As per actual cost

An amount of approximately 5,260,00 MMK / annum will be spent for the compliance of monitoring plan each during operation phase of the proposed project, respectively.

CHAPTER 7 MANAGEMENT AND MONITORING SUB-PLANS FOR EACH IDENTIFIED IMPACT

The identified potential impacts for each project phase have been described in Chapter 5 (5.2 Identified Potential Major Impacts for each Project phase) of this Report. Planning and Construction phases has been successfully passed over for this garment factory project. In this section, it is going to emphasize and describe management and monitoring for each effect identified during operation and closure phases.

7.1 Management and Monitoring sub-plans for Operation Phase

Each of the sections of the factory operations reflects the impact on the environment, mitigation on its impact and monitoring of its impact which are shown below;

7.1.1 Sub management and monitoring plan for Ambient Air Quality

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Air pollution - Particulate matter (PM) dispersion - Flying ash dispersal - SOx, NOx, VOCs emission - Fugitive dust dispersion - CO, black carbon	- Combustion emission from the vehicles and generators - Burning firewood as a complimentary fuel source for boiler	- Ensure particulate matter collection efficiencies of wet scrubber's up to 90 percent or greater; - Regular maintenance on web scrubber and dust cyclone system - Gaseous emissions such as NOx and organics may also be absorbed to a significant extent in a wet scrubber. - Installation of effective web scrubber and dust cyclone system will reduce the PM10, PM2.5 and NOx concentration levels at the nearest receptors to acceptable levels below WHO standards	- Monitoring on regular maintenance of the boilers and related equipment; and Installation of emission reduction systems on the boiler - Annual stack emission testing for SOx, NOx, and PM - Quarterly checking on emission monitoring and reporting to environmental auditing section as a reference
- Dust dispersal	- Burning coal as a complimentary fuel source - Domestic cooking - Public transportation - Unpaved road for transportation -	- Watering for dust suppression is needed for disturbed areas during dry and windy conditions would minimize residual impacts from fugitive dust. - Reduce using wood source fuel to avoid deforestation - CO_2 gas from boiler chimney will be recycled in CO_2 compressors after passing through a cyclone system.	- Seasonal monitoring on dust dispersion issue and dust control measures - Monthly checking on fuel sources

7.1.2 Sub management and monitoring plan for Water Environment

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
1. Increased underground water abstraction from tube wells 2. Water contamination 3. Water pollution/ Effluent 4. discharge without treatment 5. Water chemical changes inside and outside of the project 6. Sewage disposal	- Excessive water consumption - Thermal/ heat pollution - Liquid waste discharge	- Systematic water management system and waste water treatment system with appropriate treatment procedure, and an emergency response program. - Scheduled preventive maintenance programs on the treatment design - Preserving alternative water sources to avoid over pumping river water from public transportation way - Reduce water use and spills - Preventing overflow of watering devices and using calibrated, well-maintained self-watering devices - Install pressure gage at the discharge point	- Monthly check and record on quantity inflow at pressure gauge of pumping station - Quarterly check on the available quantity and characteristics of intake water - Monthly monitoring on the quality(e.g. pH BOD, COD, EC, TSS, trace metal e.g. iron) of waste water before final discharge from WWT plant to public water source - Monthly check on documented records of water quality and submit reports to environmental audit department - Regular monitoring on the efficiency of devices,

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Boiler discharge hot water without cooling tower or recycle system - Boiler fuel burning area	- Thermal/ heat pollution	- Ensure settlement/cooling time and buffer space of boiler discharge which temperature should not be greater than 3˚C of ambient water. - Provide heat resistant PPE and clothes - Alternative/shift working system - Proper management on ETP Process	- Daily - Regular monitoring on the temperature of discharge water either from boiler or ash water compliance on retention period before final discharge - Frequent check on PPE and shift working system
- Leakage from final tanks of ETP - Odor emission	- Liquid waste discharge	- Proper management on ETP Process - Provision of proper treating methods like bio decomposition by adding microorganism like EM, chemical utilization and ventilation or air drying for offensive odor from waste water - Use wet scrubbers to remove odors with a high affinity to water in the processes	- Regular monitoring on volume to be stored and available space for some duration - Monthly checking on strength and capacity of storage tanks

7.1.3 Sub management and monitoring plan for Noise and vibration

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Daily noise level - Hearing loss and health impact	- Noise & Vibration from Operations, such as garment factory operation, generator, and boiler etc.	- Provision of Personal Protective Equipment (PPE) to crew who work very near to the generator and boilers operation - Briefing and training to raise awareness on the importance and usefulness of PPE for human health	- Monthly noise monitoring schedule is required for cane season. - Annual checking on buffer distance or noise resistant wall between the noise source and and equipment; - Installing silencers for major noise emitters - Erecting sound shields or wall structures; e.g., systematic buffer area with brick wall or tree planting corridor - Giving consideration to careful sequencing and scheduling times; - Combine noisy operations at the same time but avoid combination of vibration; - Personal protective gears for all staffs; provision of PPE (earplugs) to crew who work very near to generator and boilers operation. - Introducing and training to raise awareness on the importance and usefulness of PPE for human health and sustainable manners

7.1.3 Sub management and monitoring plan for Soil Quality / pollution and Land use

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Soil erosion - Sedimentation and siltation - Contamination and pollution by very large volume of waste generation and accumulation	- Ash-and wastewater discharge area - Sedimentation process of waste water in the ETP,	- Boiler ash will be captured from flue gas using wet scrubbers in a multi cyclone system and recycled to farms for soil improvement - Install proper treatment measures, methods and equipment to prevent percolation into the soil and ground water	- Inspection and laboratory analysis on wastewater after every six months throughout the operation period - Submit record of any waste related problem to environmental unit for auditing and future management plan.
Traffic issue			
- Fugitive dust Traffic accident Injury - Road sharing for daily cane transportation and public transportation	- Air pollution resulting from the use of old or poorly maintained vehicles - Accident and injury by poor road and signal	- Careful selection and the use of environmentally friendly and low emission vehicles; - Appropriate management of project traffic (e.g.	- Monitoring on the regular maintenance of garment factory related vehicles - Surprise check on the compliance vehicles on the traffic

	- Poor road condition	providing collective trips project staff members and dust suppression practices) - Systematic arrangement of delivery operation schedules and times; - Proper maintenance procedures and regular inspection schemes - Educating drivers and vehicle operators to maintain proper vehicle speed with over loading	rules - Monthly monitoring on the traffic accidents by garment factory related vehicles and control measure and recorded - Checking on documented record of traffic issue and educating training programmes

7.1.4 Sub-management and monitoring plan for Human Health by Chemical Contamination

- Poor management - Handling spill or leakage - Accidental spillage - Exposure	- Chemical transportation - Storage - Handling and processing - Chemical waste - Expiration of chemicals - Chemical contamination - Spill, leakage - Health impact	- Chemicals in containers should not be allowed to leach into the environment, either directly from sheds or during any storage prior to removal - Prohibition of incompatible chemicals store together - It is preferable for chemicals containers and boxes to be cleaned from the sheds and removed from the site on the same day - Buffer distances must be preserved between land disposal areas and sensitive features - Ensure to protect chemical, solid matters, contaminants, debris and other pollutants - Use concrete floors, roof gutters and cover for all chemicals processing and storages areas - Providing training to improve awareness on environmental, self-protection and sustainable development. - Ensure hazardous chemicals are appropriately labeled and inventoried in proper storage area - Prescribed label and signal on all chemical containers and ensure handling by qualified skillful workers only. - The chemical storage tank shall be located away from any water sources and should have facilities for accidental spillage control measures.	- Monthly monitoring for proper labelling of containers and storage areas as well as prohibition of storage of incompatible waste - Frequent checking on chemicals handling and - transport by skilled operators - Monitoring of training programmes and management systems for chemical storage - Monthly checking on utilization of PPE by operators - Quarterly check on adequacy and maintenance of chemical storage area and facilities - Surprise checks to ensure that no hazardous chemicals are stored in prohibited areas, and that where stored in permitted locations - Regular check on first aid kits for emergency cases, and the nominated contact person - Surprise check on the knowledge and awareness of project operational staff on the occupational health and safety policies and procedures
- Oil and grease spill and leakage	- Oil tanks and storage area, vehicles, mis-management, fire, equipment failure, poor maintenance	- Provide oil trapping equipment and timing maintenance practices for all vehicles - Prompt cleaning of oil and fuel spills. Proper disposal of rags and sand contaminated with oil. - Ensure warehouse walls, partitions, stairs and passages are of sound construction and prevent against collapse or fall with regular maintenance system - The chemical and diesel storage tank shall be located away from any water sources	- Regular monitoring on handling, storage and distribution process - Quarterly checking on vehicles

7.1.5 Sub Management and Monitoring Plan for Major by-products/Solid wastes discharge

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
1. Garment factory operational process solid waste 2. Packaging, scrap equipment, fabric cutting pieces, thread cutting pieces, paper	- Failure machines, and nature of garment manufacturing process - Reusable and recycle solid wastes	- Segregation of waste and dispose at proper area - Recycling or reusing some scrap, or fabric cutting pieces wastes - Schedule solid waste collection and disposal - Prohibit open dumping practices - Utilize effective sewing machines, and managing cutting design to decrease volume of waste discharge	- Monthly check on solid waste management schedules and discharge areas - Keep record on type of waste, volume and dispose methods - Quarterly check on site clearance and proper management practices
3. Domestic solid wastes disposal	- Domestic/ Household wastes - Household sewage	- Encourage waste segregation and schedule collection practices - Dispose at proper discharge area - Prohibit open dumping and burning practices - Provide clean and safe environmental condition with proper sewage management -	- Regular monitoring on segregation and collection practices - Monthly check on waste collection timing and disposal site - Surprise check on disposing activities - Monitoring for buffer distance and disposal sites

7.1.6 Sub – Management and Monitoring Plan for Hazardous Waste

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Hazardous waste/ materials accumulation - Hazardous chemical handling - Hazardous chemicals disposal	- Failure and used Batteries, fuel, oil, paint, - Chemicals tanks and containers - Chemical processing and handling - Fuel storage tanks leaking - Chemical storage drums failure/burst	- Use systematic handling and disposing methods on chemical wastes, empty chemical containers. - Provide proper collection methods and final disposition - Ensure proper buffer distance with drinking water sources and sensitive area - Provide training and educate crew and their family for awareness raising - Collection, recycle and systematic disposing - Ensure all chemicals used in washing and printing operation are labelled and safety data sheet are easily available. - Ensure qualified or skillful workers for hazardous waste management - Careful handling and managing on all chemicals and detail information of every natural and manmade accident	- Frequent checking on both handling and disposing operations - Frequent inspection on chemical solid, and liquid wastes disposal procedure and method to ensure for disposing at a disposal area before loading on waste truck - Liase with YCDC and follow their instruction for disposing chemical waste such as labeling, and handling. Require to provide necessary PPE for YCDC's trash crews - Regular monitoring for safe collection and disposing. - Keep record for all accidental events and training programs for future references

7.2 Sub Management and Monitoring Plan for Social Environment

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Job opportunities and stability for local community and factory workers	- Purchasing factory supplies	- Utilize a portion of CSR money to support factory employees through micro-financing. Collaborate with the non-profit and community-based organizations in the area for efficient delivery of the financing programs.	- Records of annual public seminars conducted. - Records of the loans provided through the CSR supported program.

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Improvement of local economy	- Purchasing factory supplies - Dependence on the local stores by factory workers, raw material suppliers and other stakeholders	- Identify local sources for the goods and services in demand and depend on the local businesses as much as possible. Moreover, promote practice of buying local products among the factory workers, raw material suppliers and other business partners. - Inform the local residents on the goods and services in demand not adequately available in this area. - Assist the interested local parties on venturing businesses to fulfill the project's goods and services in need. - Develop internship programs for job positions that do not require intensive skill training. Moreover, provide financial support to the local residents for short skill training courses such as equipment maintenance and repair, Microsoft office; etc.	- Annual records of announcements and brochures and meeting minutes. - The number of people advised to start new business partnerships. - Reports of annual monitoring of the businesses assisted by the partner - Annual list of current interns and the people that secured permanent positions through the internship program. - Annual list of people who received financial assistance for skill trainings.
- Traffic congestion	- Increase migration - Purchasing factory supplies - Improved local economy	- Develop a car-pooling system for the workforce commuting from nearby townships.	- The number of people serviced by the carpooling system.
- In-migration	- Hiring skilled and unskilled workers for the factory operations - New businesses to fulfill the increase demand of goods and services in the area	- Build capacity among the local residents to increase their competitiveness in job application and give priority consideration to the local residents in cases of title qualifications in job application.	- Records of capacity development trainings given to the local residents and migrant - Eligibility criteria for each of the CSR supported program. - Records of the benefactors of the CSR supported program.
- Increased social demand - Immigration of labor - settlement/ invasion of non- native into the local community - Social and cultural conflicts - Social conflict and crime by alcoholic beverages and drugs	- Competition for housing, electricity, food, water, public transportation, public services, health services, social and administration - Traffic–add pressure on local services - Local economy - In migrant/ mobile workers - Poor implementation on rules and regulations	- Ensure equal chances and opportunities to all contract employees for raw material collection. - Hiring local labour and providing accommodation near the project area can reduce traffic burden on the local services - Provide prior information of local and administrative disciplines to migrant and local workers. - Ensure rules and regulation for settlement of immigrants into the cultural heritage sites - Frequent checking on registration and administrative requirements to prevent conflict and crime. - Setting proper disciplines for specific work nature and gender. - Provision of prior information on rules and regulation concerning with belief and religion.	- Annual monitoring on health services and staffs - Frequent co-operation with local authority for labour requirement and security - Inspection on the worker registration at the local administration unit
- Increased labor demand - Labor competition between local and migrant	- Immigrant labor, poor or no chance for qualification to skillful, professional, - Daily wages workers	- Hiring local labor and providing accommodation near the project area can reduce traffic burden - Provide housing, transportation facility, health care services, social welfare and administration requirements - Upgrade with training for local residents to domestic skilled labour sources.	- Quarterly monitoring on employment contracts - Frequent check and contact with local youth/ labour institutions for internship and required labour force. - Annual checking on housing, accommodation and health care services - Regular monitoring on social welfare of Garment Factory's staff and workers

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
		- Proper care and management on social welfare, worker rights, insurance, compliance on labour law and educational support to all labour and their family.	
- Safety and security	- Factory operations - Surge of in-migrants, vehicle movement, crimes, conflicts and communicable diseases	- Develop environmental, health and safety, fire and emergency response and community safety protocols for operational phase to ensure safety and security in the work place as well as among the local communities. - Fully comply with both corporate and ILO policies and regulations regarding labor rights and safe workplace. Also comply with the regulations of the Labor Safety Law once it is enacted by the Union. - Provide occupational health and safety (OHS) training by experts to the existing employees. Moreover, capacity build the site supervisors to provide OHS trainings for the new hires. - Educate the local communities about traffic safety. Compensations should be made to the parties affected by the project activities covering all the healthcare related fees and the loss of money caused by the injury or disability. - Empower and strengthen the capacity of the local law enforcement to report and handle the increase in crimes in the area. Regularly consult with the local representatives and the law enforcement officials to provide solutions for the increase in crimes. Moreover, regularly inform the public on the activities taken by the project proponent to reduce crimes in the area. - Empower and strengthen the capacity of the local firefighting team to effectively handle fire outbreaks in the area. Moreover, ensure that fire hazards carefully isolated to hinder the spread of fire. - Consult with local administrative officials, public health officials, civil society organizations and the public especially the affected parties to provide solutions and compensations for any adverse effects on the communities related to the project activities. Clearly inform the public about the actions taken to protect the local communities. - Empower and strengthen the capacity of the local firefighting team to effectively handle fire outbreaks in the area. Moreover, ensure that fire hazards carefully isolated to hinder the spread of fire	- Copies of the protocols developed and updated annually. - Inclusion of the policies in the mill's HR policy. - Documentation of the training given to the current employees and schedule of the future trainings. - Number of annual traffic safety trainings provided. - Records of the compensations made. - Records of any monetary and in-kind contributions made to the local police force. - Records of financial support to provide capacity building trainings to the local police force. - Records of any monetary and in-kind contributions made to the local firefighting force. - Records of financial support to provide capacity building trainings to the local firefighting force. - Records of announcements of the public consultation meetings and the minutes of meeting for each consultation activity - Record of any monetary and in-kind contributions made to the local firefighting force. - Records of financial support to provide capacity building trainings to the local firefighting force.
- Occupational Health and Safety impact - Work place accidents Work place injury	- Traffic accident - Boiler operation	- Use alternative farm roads or setting safe speed limit	- Monthly monitoring on regular maintenance and safe speed limits

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
- Inhaling/breathing - Noise related hearing loss and long term health impact	- Chemical processing - Lack of training and knowledge, unskillful/ unqualified workers, without PPE	- Providing awareness training of traffic rules and regulations to all mill staffs and communities. - Provide capacity building training for specific work nature - Provision of traffic signal and sign boards along the road. - Provision of personal protection equipment (PPE) to workers to prevent health impact - Provide transparent occupational health and safety manual and information to all levels of workers - Readiness and easy access to emergency of first aid kit and trained person - Provision of insurance for some specific work titles - Stringent compliance on labour law and workers' right - Support 24 hr clinical health care services for workers and their family member	- Regular inspection on this factory related vehicles to ensure registered licenced vehicles with experienced drivers to protect traffic accident. - Frequent check both on compliance of workers for personal protection and traffic rules - Biannual monitoring on effectiveness of health and safety trainings - Biannual inspection on effectiveness of capacity building trainings - Quarterly check on HR administration for the compliance of labor law and workers' right - Keep record of past and present issues, event and solutions for future development Plan
- Communicable and non- communicable disease dispersal - Transmission of infectious diseases including HIV and AIDs	- Daily worker, migrant workers - Respiratory tract infections and skin rashes - Poor management in health and safety programme	- Provide proper sanitation for living and working conditions - Undertaking training and educational programs for self- protection and raising health awareness on communicable and non-communicable diseases - Annual medical check-up of project personal for some communicable diseases (HIV, AIDS, Hepatic B and C) and vector-borne (Malaria) diseases and provision of vaccine - Ensure proper vector control systems in its potential proliferation period and or drain out standing water - Educating project personal and area resident on risk, prevention, available treatment and providing health services	- Frequent or schedule training/ educating worker to avoid from transmitted diseases infection - Frequent monitoring about social welfare of the workers and factory staffs
Other	-	-	-
- Compliance on labour laws - Working hours Social welfare Worker right	- Working hours, leave, insurance, holidays - Gender discrimination - HR administration, insurance system	- Ensure for clear understanding of rules and regulation among the workers by encouraging mutual respect - Use of local labour as much as operation requirement	- Quarterly checking on the compliance with labour law
- Child labor	- Factory operations - Booming local businesses	- Fully comply with corporate policies in addition to the Union's regulations and policies on child labor. Moreover, make sure that all the business partners including the contracted farms fully respect both corporate and the Union's policies on child labor and practice no tolerance policy. - Collaborate with relevant government agencies and civil society organizations to promote awareness of child rights and protection among the local communities.	- Code of conduct training and brochures provided to all employees and business partners - Records of awareness raising programs provided to the local communities. - Birth certificates, government IDs and letter of clearance from the local administration office for each hired employee.

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
		- Make sure that all the current factory employees and future hires are above a certain age by keeping records of the birth certificates, government IDs or asking for age clearance from the local administration office.	
- Fire - Man error fire - Flash flood	- waste piles/ garbage room - Fuel storage area - Human errors - Heavy raining - On set of storm surge by occasional storm event of nearby Hlaing River	- Leaving proper buffer distance between fire potential materials like fuel storage tanks, chemicals and the communities - Readiness of fire response water sources, vehicles, equipment, qualified crew and emergency contact - Provide clear information among the staffs and crew for role, responsibility and communication systems for fire alarm, emergency level with signals and check points for evacuation actions. - Distributing contact lists at public access area including communication details - Provide training for upgrading capacity of fire fighters and emergency response persons - Practices and testing equipment in proper time interval. - Readiness of medical first aid kits and services for emergency concerns.	- Regular monitoring on fire potential wastes and their disposal site - Monthly check on emergency water sources for fire fighting - Quarterly inspection on fire fighter capacity building training, station and equipment - Surprise check on emergency response awareness and readiness of responsible leader and followers - Monitoring and keeping record of significant event of past and present for future development and protection plans

7.4 Environmental management plan and monitoring measure for the post closure phase

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
Water impact			
- Water quality changes inside and outside of the project - On site water contamination	- Withdrawing water abstraction equipment, engines, pipe line, drainage - Garment Factory's effluent and hazardous residues left after stopped operation and withdrawing equipment	- Declare official ceasing of water pumping for garment factory and removal of pumping station and equipment in a period. - Systematic withdrawal of hard project equipment (pump, valve, pipe, ditch) including storage tanks for the clearance after closure - Clean all equipment intended to be recycled Ensure proper waste removal or treating before starting the demolition process - Employ water quality status in compliance with national/WHO standards after demolition garment factory project for site rehabilitation references and required treatments	- Regular checking on the water flow shut down, removal of water pumps and related equipment during the demolition process - Monitoring on the removal of water related equipment during demolition phase - Monitoring and maintenance of surface and ground water quality status to base line condition - Documenting water flow and quality record in comparison with the national or IFC guide line standards
Soil impact			
- Erosion, siltation, Sedimentation - On site soil contamination - Hazardous residual - Hazardous substances left after garment factory and fertilizer facility shut down - Hazardous materials	- Residues from spill and leakage of storage tanks, collection area - Demolition of storage tanks, buildings and poor management - Site cleaning of waste water sedimentation, treatment area - Boiler Ash collecting area impact on soil and water - Waste water discharge tanks - Solid waste disposal sites - Chemical storage area - Demolition wastes - Out of order equipment, electric fluorescence bulbs, lamps and various kinds of batteries, oil and paint	- Hire qualified contractors for both withdrawing (furniture, machines and equipment) and for demolition of garment factory buildings - Avoid soil and water contamination by demolition process - Ensure clean soil condition with little or no residue for post closure condition - Select skillful operators for withdrawing and demolitiondemolition process for specific buildings like chemicals storage area and waste water tanks. - Ensure safe and efficient demolition operators for accountability. - Hire well qualified/registered contractors for handling hazardous waste and site clearance. - Providing pretreatments or proper collection methods for safety and no leaving residual impact for post closure phase of the project - Planting chemical absorbing plant species on the waste disposed area as a bio- remediation measure. - Showing proper signals or boards on the hazardous waste disposing sites to prevent subsequent problem to animals and human health. - Establish project site rehabilitation program with proper management practices and remediation measures	- Monthly checking on the remediation measures - Monitoring on the contractors for their obligation and compliance - Checking the whole operation by local concern institution and authority - Quarterly check on the possible residue impact and proponent's treatment - Monitoring on long term treatments or control measures on the documented most contaminated area and hazardous waste disposal area
Ambient air pollution			
- Fugitive dust and particulate matter emission - Combustion emission and black carbon, CO, NOx, SOx	- Demolition of garment factory and its related facilities - Factory buildings - Smoke stacks	- Spraying water ahead on the potential dust emitter or buildings earmarked for demolition - Regular maintenance and installation of emission efficacy equipment in operating vehicles	- Regular monitoring on air pollution potential demolition process - Surprise check on the compliance of contractors - Weekly checking on vehicles and their regular maintenance

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
	- Storage house/tanks - Vehicles for withdrawing equipment, machines, tools and furniture	- Ensure proper waste removal or treatment mechanism before starting the every demolition process	
Noise and vibration impact			
- Hearing lost - Physical and mental stress - Infrastructure vibration	- Demolition process on garment factory facilities, buildings, storage tanks, engines, and boilers.	- Doing demolition process during day time. - Using effective and efficient demolition machines and equipment so as to safe and decrease noise and vibration. - Inform nearby residents for demolition schedule - Prepare protection measure to avoid damage to nearby infrastructure and building	- Weekly checking on the compliance of demolition contractors - Frequent check on the use of PPE by crews and site supervisors - Monitoring on the public perspective on the demolitionprocess concerning with noise issues
Project site cleaning	for rehabilitation		
- Waste residue Contamination on soil surface and subsurface - Chemical contamination of surface and ground water	- Waste water sedimentation area - Heavy metal accumulation at ETP - Solid and liquid waste dumping sites - Runoff, storm surge, and flooding - Residue from Chemicals storagecontamination area, spill and leakage	- Hire qualified contractors for both withdrawing (furniture, machines equipment) and demolition process of garment factory buildings - Where recycling/ reused in not possible, the materials should be taken to permitted waste disposal site - Ensure and disclosure history and current level of water quality status to the public for the environmental awareness and future information	- Treating with chemicals, biological and possible measures before closure for post closure clean condition. - Providing bioremediation programs or any environmentally suitable treatment for long term treatment. - Proper eradication on all waste water collection tanks and ponds before closure and during decommissioning phase. - Ensure no more residual impact on the soil, water and communities. - Finding chemical experts to dilute chemical concentration of some heavy metal contaminated water especially for waste water pond sediments.
Socio economic and environmental health			
- Livelihood change	- Stop garment factory operation	- Provide prior information of decommissioning plan to garment factory related small scale industries or services centers. - Ensure for the social welfare of the workers before their work termination (eg.3 month ahead information, wages compensation, job opportunity and transfer to suitable job) - Care should be taken the demolition or decommissioning process in the project is less disturbing the surrounding communities.	- Monitoring on the social welfare of the factory's crew and their families - Monitoring on skill level of workers for employment in other jobs - Frequent checking on the resident's livelihood perception through an organized and institutionalized mechanism
- Job lost	- Garment factory and related process shut down	- Compensation for permanent job losses of workers, - The number of capacity building trainings provided. - Creating other job opportunity or transfer of workers to other related jobs with proper negotiation and mutual respect - Properly comply by labor law - Inclusion of the policies in the mill's HR policy. - Compensate the employees according to the laws in Myanmar.	- Frequent checking on social welfare of garment factory employees and crew - Monitoring on compensation for permanent job losses - Monitoring on compliance of labour law - Record keeping for the compensations plans and action undertaken.
- Decline of local economy - Small scale economic activities	- Stopping factory operations, unemployment of workers and decrease in commuters to the area	- Assist the local employee to explore alternative appropreciate job related with their skill - Assist the current employees financially to receive	- Regular monitoring on the alternative markets sources for the local employees.

Environmental and social impact	Key Impact Sources	Mitigation Measures and Management Actions	Monitoring Plans
		trainings and education to advance their career by using the remaining fund from the CSR program. - The human resources office should also assist the employees in seeking for jobs - Providing prior information for permanent shut down of garment factory project to local community	
- Occupational Health and safety - Safety and security - Traffic accident and injury	- Withdrawing machines and equipment - Demolition of the factory buildings - Surge of crimes due to unemployment - Accident, risky demolition process, poor equipment, lack of knowledge and exposure with hazardous chemical residues - Project withdrawing vehicles, equipment	- Use of well-trained workers with qualified supervisor to avoid risk and accidents - Provision of PPE equipment to crews - Providing prior insurance - Hire experienced and skilful contractors - Ensure to self-protection equipment and use of safe and effective machines in all demolition process - Ensure pre-submitting rules and compliance of the contractor before starting the demolition process - Develop environmental, health and safety, fire and emergency response and community safety protocols - Fully comply with both corporate and ILO policies and regulations regarding labor rights and safe workplace - Empower and strengthen the capacity of the local law enforcement to report and handle increase in crimes in the area. -	- Monthly monitoring on the agreement, obligation and - compliance of the contractors - Weekly check on the compliance of crews for PPE and safety measure - Regularly consult with the local representatives and the law enforcement officials to provide solutions for the increase in crimes. - Regularly inform the public on the activities taken by the project proponent to reduce crimes in the area. - Records of any monetary and in-kind contributions made to the local police force. - Records of financial support to provide capacity building trainings to the local police force.
- Disease dispersal - Microorganism level at wastewater discharge point - Chemical concentration level of nearby water resources - Bioaccumulation in aquatic ecosystem	- Abandon waste water treatment plant - Unused water tanks - Abandon standing water inside and outside of project - Heavy metals and nutrient pollutants in the discharge water - Rusty failure machines	- Ensure no standing waste or abandoned water in the project site for preventing insect vector dispersal - Giving proper treatment before abandonment of the project area so as to reduce bioaccumulation/ bio magnification in the aquatic species like fish. - Provide prior treatment to microorganism (e.g., E. coli and Salmonella) infection from the mobile septic tanks, sewage, solid and liquid waste of project area. - Educating crew and communities to protect communicable and non-communicable diseases and sanitation measures	- Regular checking on the site cleaning processes and treatment measures - Monitoring on site cleaning processes and keeping record for site references - Frequent inspection on site cleaning measures and site stabilization work for rehabilitation plan
- Solid wastes disposal	- Demolition scrap equipment, scrap metals, domestic wastes - Residue from withdrawing garment factory - Demolition wastes of buildings, withdrawing equipment, Storage house, Worker ccommodations - Domestic and sewage waste	- Solid waste has to be properly cleaned and cleared by the former owners/operators - Provide proper collecting methods for solid waste discharge and final destination - Recycle and reuse decommissioning solid waste for landfill sites or soil leveling - - Recycle or repair to utilize in a suitable industry	- Regular monitoring on solid waste disposal methods and final dumping - Frequent checking on waste collection and transportation to proper site - Monitoring on recycle and reusable wastes for energy and cost saving - Monitoring on wastes final disposal site to ensure that they are not disturbing the nearby communities and natural resources

7.5 Commitment for Environmental Management Plan Implementatin and Monitoring Plan

- **In collaboration with the Environmental and Social Implementation Team and the Project Management Team, environmental management plans will be implemented during project construction and operation.**
- **A risk management plan for the implementation of the Factory operation will also be prepared. In addition, the maintenance of equipment used should be monitored daily and monthly.**
- **Disaster management plans will also be prepared.**
- **According to Environmental Impact Assessment Procedures (2015)'s Chapter 9, Section 8, the Environmental Monitoring Report will be submitted to Ministry of Natural Resources and Environmental Conservation, by Project proponent (SDI Manufacturing Company Limited) for every six months, as it will be submitted as per prescribed, by ministry.**

CHAPTER 8 CONTENT OF EACH SUB - PLAN

8.1 Environmental Management Plan

Identified impacts for this project has been mentioned in above chapters and also Management and Monitoring Sub plans for each identified impact has been mentioned and these are being implemented at SDI Manufactory Garment Factory. These sub-plans are based on the following two parts of the Environmental Management Plan, which are:

1. Safety and Health Plan
2. Emergency Preparation

The above-mentioned guidelines will be planned at the proposed garment factory and these guidelines are educated to all of employee and employee from concerned department such as storage, housekeeping, maintenance department and production department are required possible knowledge relating to their work.

Preparation of environmental Management Plan (or) guidelines is required for formulation, implementation on monitoring of environmental measures during and after commissioning of this project. This plan will indicate the details as to how various measures have been or are proposed to be taken including cost components as may be required.

Cost of measures for environmental safeguards should be treated as an integral component of the project cost and environmental aspects should be taken into account at following various stages of the project for garment factory.

1. Concept validation : Preliminary environmental assessment.
2. Planning : Detailed studies of environmental impacts and design of safeguards.
3. Execution : Implementation of environmental safety measures.
4. Operation : Monitoring of effective of built-in safeguards.

The management plan should be necessarily based on consideration of resource conservation and pollution abatement, type of industry, size of production, raw material input and labor force. At the garment factory which has washing and printing operation, located inside industrial zone, most of the important impact control are as following;

1. Liquid effluents from washing process
2. Air pollution
3. Solid waste
4. Noise and Vibration
5. Occupational safety and Health
6. House-keeping
7. Human - Resources
8. Transport - System
9. Reuse, Recycle of waste products
10. Emergency Planning
11. Prevention, maintenance and operation of environmental control system
12. Environmental Management Cell

8.1.1 Construction Phase Environmental Management Plan (C.E.M.P)

For this project, the Construction Environmental Management Plan has been identified the steps and procedures that has also been implemented and minimizing the creation and impact of noise, vibration, dust and waste disposal resulting from the site preparation, groundwork and construction phases of the development and managed.

8.1.2 Operation Phase Environmental Management Plan (O.E.M.P)

The OEMP provides clear direction on the selection and implementation of appropriate environmental

control and monitoring techniques during the operational life of the ADVANCE WASTE TREATMENT and reflects the requirements of high standard environmental performance.

In order to ensure that the facility operates with the least environmental impact, the OEMP addresses a wide range of issues including:

- Materials inwards management;
- Product management
- Air quality - dust and odor;
- Water quality – storm water and leach ate;
- Water reuse;
- Noise and vibration;
- Traffic; and
- Hazardous materials management

The purpose of this OEMP is to ensure that appropriate environmental practices are followed during operation of the advanced waste treatment facility.

The environmental objectives of the OEMP and its supporting STANDARD OPERATION PROCEDUREs are to:

- Implement and maintain effective environmental management systems for the environmental aspects of advanced waste treatment activities;
- Document details of environmental protection infrastructure and controls and their operation so that they function effectively to provide protection for the natural environment; and
- Ensure compliance with relevant legislation, regulatory requirements.

8.1.3 Decommission Phase Environmental Management Plan

The decommissioning or post closure phase will come after the long operation phase which usually last for several decades depending on the availability of benefit and profit of the working condition both personal and social.

At the end of the long operation phase the relief of the land will change or the landscape will greatly alter, and that will depend on the duration and the magnitude of the operation. Damage machines or equipment' body, old parts of the machines, and materials etc. will remain greatly impacting the aesthetic natural beauty of the original landscape. The company can simply leave the site if it will be no longer use after operation. (This is known as abandonment phase and commonly practiced in some countries with abundant land area many years ago.) But in this era of environmental awareness such a practice is no longer allowed.

Even if the company wants to abandon its old site it still has the responsibility for carrying out decommissioning and rehabilitation of the abandoned site. Decommissioning plan is now the most important environmental requirement in this kind of projects.

Hire a contractor and party to do the clearing and tidying up of the site. Old buildings have to be brought down and machinery and equipment have to be dismantled; some can be reused or put up for sale. Materials that have to be disposed of must be disposed of at an approved landfill. The ground, if contaminated with oil spills or chemicals have to be removed and cleared.

The decommissioning work simply means the clearing and tidying up op the old site.

SDI Manufacturing gives commitment to comply and responsible for decommissioning and rehabilitation work guided by the Environmental Law (2012)

8.2 Health and Safety Plan

Safety and Health plan is the most important role of operational processes working with related equipment, machines, and materials for garment factory. In this factory, it is being used some machines which are sewing machines, cutting fabric machines, die cutting machines, bar tack machines, button hole machines, punching machines, washing machines, and related material, etc. since project start.

It is also important on safe using of boilers and effluent treatment plant (ETP) as they can be harm, and effect on occupational health and safety.

Some chemical substances have to be also considered in using at washing operation processing, boilers

operation, and processing of effluent treatment plant.

According to the considerations factors mentioned below; in this SDI manufacturing factory, Health and safety plan has been implemented since project started.

8.2.1 Hazards Occurrence

Identification of Potential Hazards

Safety measures

- May cause by machines, tools, or other equipment
- By explosives, combustible or inflammable substances.
- By electricity, heat or other energy.
- By inappropriate work methods in operating, maintaining, transporting, handling of heavy objects.
- In relation to performance of other work

Health measures

- Health disorders caused by raw material, gases, vapors, powder, dust , fumes, mist, oxygen lacking, pathogens, etc.
- By radiation, harmful rays, high temperatures, low temperatures, ultrasonic waves, noises, vibrations, abnormal atmospheric pressure, etc.
- By gases, liquid, remnants, etc. Discharged from work place
- By failure to maintain the proper standards of ventilation, lighting, illumination, thermal insulation damp-proofing, cleanliness, etc.
- Preliminary Hazard Assessment of Harmful Machines and Equipment
- May cause by use of harmful machines and equipment stipulated in th laws including crane, elevators and pressure container shall undergo inspections and confirmation for the inspections for design, performance, accomplishment and regular inspections.

Hazard Control

Working Environment Measurement and Improvement

- Measure and evaluate the working environment and establish and report the results and a plan for improvement of the working environment.
- Prioritize the conditions to be improved based on the resulted of measurement by Head of the relevant department.
- Voluntary efforts to improve the working environment in connection with the facilities which they are in charge of shall be made by employees.

Medical Examination

- Medical examination for employees on a regular basis and from time to time. An employee who is found or suspected to have health problems as the result of the medical examination to take the second medical examination and promptly notify the employee of the results.
- Appropriate measures such as change of the working place, Reassignment and transfer or shorter working hour if deemed to be necessary to maintain the health of the employees as the result of the medical examination.

Management of Employee with Health Problems

- Control any health disorder of employees, the person in charge of the safety and health shall watch the health of him or her from time to time and notify the health management department immediately upon detecting any health problems of an employee.
- Spray Insecticide, sterilize and fumigate the facilities and place subjected to sterilization as stipulated in the applicable laws and the heads of the relevant departments shall cooperate in doing so.

8.2.2 Personal Protection Plan

Protective clothing is the first defense, against sun burn, insect bites, thorns, bristles and even nettles. It is

essential that all clothing and equipment used on the job does not itself become a hazard to employee. Therefore, there are some simple rules which all workers must follow with regard to clothing and equipment to ensure that workers are properly protected.

With regard to the extremities (hands and feet), all employees should wear suitable safety shoes or boots. Gloves should be worn under most chemical handling conditions. The factory manager must decide exactly who is to wear hard hats but in any event.

Specialized requirements

Additional PPE or specialized PPE is often required. In some cases, specialized PPE requires specific training as well as regular maintenance and inspection. This may include:

- Safety Vests
- Face Shields
- Goggles
- Gloves
- Respiratory Protection
- Safety Harnesses
- Hearing Protection

8.2.3 Safety Awareness

The health and safety Awareness should be a straight forward statement of senior management's commitment to workplace safety and health. It should be broad enough to cover all aspects of the company's activities. There are no hard and fast rules about what to include in awareness. Create one that suits the company and views on health and safety. By experience, the employees have to be learned that any Safety Program will only be effective and sustainable if it contains a number of obviously essential features. There must be a Management commitment to Safety. It is not enough as a manager to be concerned with production, cost control, profitability and morale.

8.2.4 Safety Training

Health and safety training is the foundation of a successful health and safety program. Such training should give management, supervision, and workers an appreciation of their personal responsibilities for health and safety within the framework of the minimum standards outlined by legislation.

It is not, however, a question of training only new workers and apprentices. All levels of management, from the president to site supervisors, must be involved in health and safety training. In addition to the transfer of knowledge and skills, training promotes positive attitudes and a culture in which all parties within a firm collaborate to establish and maintain worksite health and safety. Management and supervision need training in such topics as health and safety program planning and accident investigation. Workers need training in specific health and safety topics such as PPE, ladders, scaffolding, equipment and work practices that protect both themselves and those around them. Training requirements that are common to most workers include:

- WHMIS (Workplace Hazardous Materials Information System)
- Fall Protection

8.2.5 Onsite Security and Safety Measures

On site Security and safety measures are the activities carried out by the Safety Officer and all the working crew members. The monthly safety report is an indicator of the safety performance done during the previous month, For example, they may include Monthly crew safety meetings.

- Daily toolbox meetings and weekly worksite Safety Meetings
- Safety Memos of an unsafe act, incident, near miss, accident
- Lost Time Injury and Medical Treatment Cases
- Crew medical boxes-check and refill schedule list
- Fire prevention procedure and drill
- All kinds of check lists for vehicles, equipment and machines used

8.2.6 Chemical Management Plan

In SDI Manufacturing Garment Factory, there are some chemical processes for Washing Section, Printing Section, and Effluent Treatment Section. Currently, there has not performed Dyeing process yet. It may be possible when available in future, and it is also depended on CMP Contracted by client. Each section has separate Chemical Management System, which are being performed.

Classification and characteristic of used chemical (toxicity, bio – degradation, potential for BOD, COD)

- Chemical storage, disposal system with records, log books
- Advise to have systematic team, duty and responsibility regarding with chemical management.
- To provide written SOP for Safe Handling of Chemical used in each section (from purchasing to disposal of chemicals)
- Preparation of chemical inventory systematically.
- Awareness of understanding the MSDS of used chemical in factory as per GHS (GHS labeling / marking). **MSDS for all chemical used in this factory have been mentioned Separately in APPENDIX**
- To improve protection of human health and environment during use, transport, handling, storage, disposal removal.
- Chemical use training for mix ratio, method, reaction impact
- Preparation of waste (hazardous, non- hazardous) record weekly, storage in place, removal system
- Code of conduct for purchasing of used chemicals in factory, supplier record with their specification (don't use restricted chemicals)
- Provision of firefighting, anti-explosion lamp, gas detectors relating to chemical hazards, suitable spill kit and PPE to workers, first aid boxes with appropriate medicals, eye wash, hand wash station near dyeing section, chemical storage, ETP-lab, appointing HSE manager and teams in factory, health care with checking by concerned doctor for fit –certificate, etc.
- Training for emergency response plan for explosion, chemical reaction etc.

Hazardous chemicals found within a washing and a ETP environment

- petroleum products
- caustic soda (sodium hydroxide)
- hydrochloric, phosphoric, sulphuric and sulphamic acids
- formaldehyde

Possible control measures for hazardous chemicals

The main risk associated with hazardous chemicals is the potential for exposure to site personnel and other persons. Exposure can occur by breathing in the chemical, through skin contact where a chemical is absorbed through the skin or ingestion when eating with contaminated hands.

Hazardous chemicals within washing operations have methods of risk reduction prescribed by a regulation which include:

- ensuring a safety data sheet is readily available to anyone likely to be exposed to the hazardous chemical
- a hazardous chemicals register containing a list of all hazardous chemical on site plus a current copy of a safety data sheet for each chemical is maintained
- labeling and storage comply with the appropriate standards and codes
- a risk assessment is completed and risks minimized for each hazardous chemical
- workers are aware of the control measures to be implemented
- appropriate PPE in accordance with the risk assessment is available and used as intended
- adequate training is provided in the use of the hazardous chemical and the recommended PPE
- monitoring or health surveillance is conducted if required
- Records are maintained for the specified time.

Safety Data Sheets provide important information on hazardous chemicals including:

- the ingredients of a product
- the health effects and first aid instructions
- precautions for use
- Safe handling and storage information.

Specific Control Measures

Specific control measures should be developed such as:

- isolating high risk areas with barriers and signage (e.g. under the effet stage while boiling)
- detailed and documented operating procedures
- training
- emergency response
- provision of, and training with, appropriate PPE
- provision of eye wash and safety shower facilities adjacent to the site but isolated from likely engulfment
- Access to safety data sheets and emergency procedures at the site.

Laboratory chemicals

Laboratory staff may have a more frequent exposure to a larger range of hazardous chemicals in smaller quantities. It is important to minimize the risk of exposure so as to reduce the possibility of acute and chronic health effects over the long term.

Handling, mixing and transferring hazardous chemicals such as Oxalic acid, Acetic acid [CH3-COOH], and Sodium hydrixide are some of the activities which are undertaken in factory mini laboratory. Users of chemicals should also be aware of any by products or chemical reactions which may take place which could create additional hazards during laboratory processes.

Possible control measures for laboratory chemicals

Specific control measures should be implemented for each separate activity involving a hazardous chemical in mill laboratories. The most appropriate control measures will depend on the particular circumstances of use and the hazardous chemical however typical control measures should include:

- detailed analytical procedures
- training in the standard procedures to be followed
- emergency response training and access to specialty first aid treatment
- provision of, and training with, the recommended personal protective equipment for each activity
- provision of eye wash and safety shower facilities adjacent to the site but isolated from likely engulfment
- easy access to safety data sheet, information and emergency procedures in the laboratory
- adequate labeling of all containers of hazardous chemicals
- use of automatic pipettes
- adequate ventilation
- a high standard of hygiene
- disposal systems for used personal protective equipment
- Separate laundering of laboratory coats, hand towels, etc.
- Use of fume cupboards that comply with AS/NZS 2243.8 Safety in laboratories – Fume cupboards.

Chemical Management training has been performed in SDI Manufacturing Garment Factory occasionally since factory operation start and minimum twice per year. Some records are mentioned in Appendix 11 of this report.

SMART Myanmar Chemical Management Organization funded by the European Union has inspected and assessment for Chemical Management Program of SMART Dragon International (SDI) Manufacturing Co., Ltd

in 16, 19, 21 of March 2018.

Chemical Assessment Report has been mentioned in appendix with separate Report as attachment of this EMP Report.

8.2.7 Waste Management Plan during operation at factory

Objectives of solid waste management

The objective of solid waste management in this factory is as follows;

a. The reduction of the amount of solid waste produced in this factory.
b. The salvage and recycling of as much waste material as possible.
c. The disposal of solid waste in ways which will not pollute the environment.
d. Sewage from septic tank
e. The disposal of solid waste in terms of operation taking the above factors into consideration

Responsibility and Action for solid waste management at factory

Property management group will be responsible for removing solid waste generated by occupants living in this building.

Their assigned duty for this group is checking the waste

- Waste collection truck leasing regularly
- Hygiene of designated waste are collected or contained by cleaning / spraying time in this area, pest management also.
- Maintenance of collector cute and disposal container monthly
- Providing instruction to occupants for awareness of waste management system and the identification of the type, volume and hazards material of all waste
- Maintain an awareness of all local and government waste disposal laws and regulation.
- Access for waste collector truck, discharge place for effluent after treatment should be under design code.
- Ensure appropriate ventilation, size of container complying with occupancy, odor control.

Figure 57: Waste storage area before disposed, and throwing by contractor to Hlaing Tharyar YCDC Landfill

Waste Management System

Such as plastic garbage cans, soft drink bottles, which comes from people's daily lives and municipal waste from industry (workshops, clinics, etc.) has to be disposed under the direction of systematic or otherwise, Garbage Collection systems as necessary, and in conjunction with waste disposal is to be carried out properly. Commercial waste materials for this factory such as piece of textile, yarn dust, cupboard after using, lubricant products waste has to be disposed to the place designated by the City Development Committee. **The use of diesel fuel to fall onto the land for storage reservoir for the systematic use (around 110% of the amount of space to accommodate reservoirs)**

Generation of waste from this factory has been shown in 3.5.1 Solid Waste Generation and waste disposal procedure, 3.5.2 Liquid waste Generation, and 3.5.3 Hazardous Waste Generation.

Solid waste has to be placed where products can be set according to the type of material in order to systematically collect.

Commercial and excess raw materials to be kept properly, to accommodate system control distribution.

Side products can be re-used systems of the following;

1. Re-selling to recycle contractor
2. follow the instructions of the City Council committee
3. The resulting smell of smoke and vapors can use technology to move.

According to this Waste Management Plan, SDI has been liaised with YCDC and waste has been disposed to the place designated by the City Development Committee and has been issued recommendation for this waste management system by YCDC

8.2.8 Wastewater Management Plan of SDI Factory

Wastewater from washing department is one that has complex characteristics and is considered a challenge for environmental engineers in terms of treatment as well as utilization. Before treatment and recycling, determination of physicochemical parameter is an important mechanism. Many different types of techniques are introduced and modified for the purpose, but depend upon the water quality parameters. The main aim of this study is to determine the physicochemical characteristics of waste water by the standard method and minimize the fresh water consumption in this factory by water pinch methodology.

Wastewater from washing department, if discharged without treatment, poses pollution problem in both aquatic and terrestrial ecosystems. Also, industrial wastewater when not treated completely produces unpleasant smell when released into the environment.

<u>Sources of Wastewater</u>

- Wastewater from this factory can be divided up into:
  - Sanitary waste water - those waters generated by restrooms, showers, food preparation areas, non-industrial processes
  - Wastewater from industrial processes from washing room
- All wastewater (generated from domestic use only) should be sent to public drain located beside of northern part of the factory. This factory has been used of Effluent Treatment Plant as washing operation of this factory
- Appropriate output wastewater includes physical, chemical and biological processes to reduce the environmental impact of wastewater.
- The factory should document the approach taken by the facility, monitor waste water and keep all records onsite
- The factory should ensure that it meets all permit and other legal requirements (content, heat, quality etc.)
- The industrial wastewater is characterized by its brown color, low pH, high temperature, high BOD, high COD, odor problem, total solids, and high percentage of dissolved organic and inorganic matter.

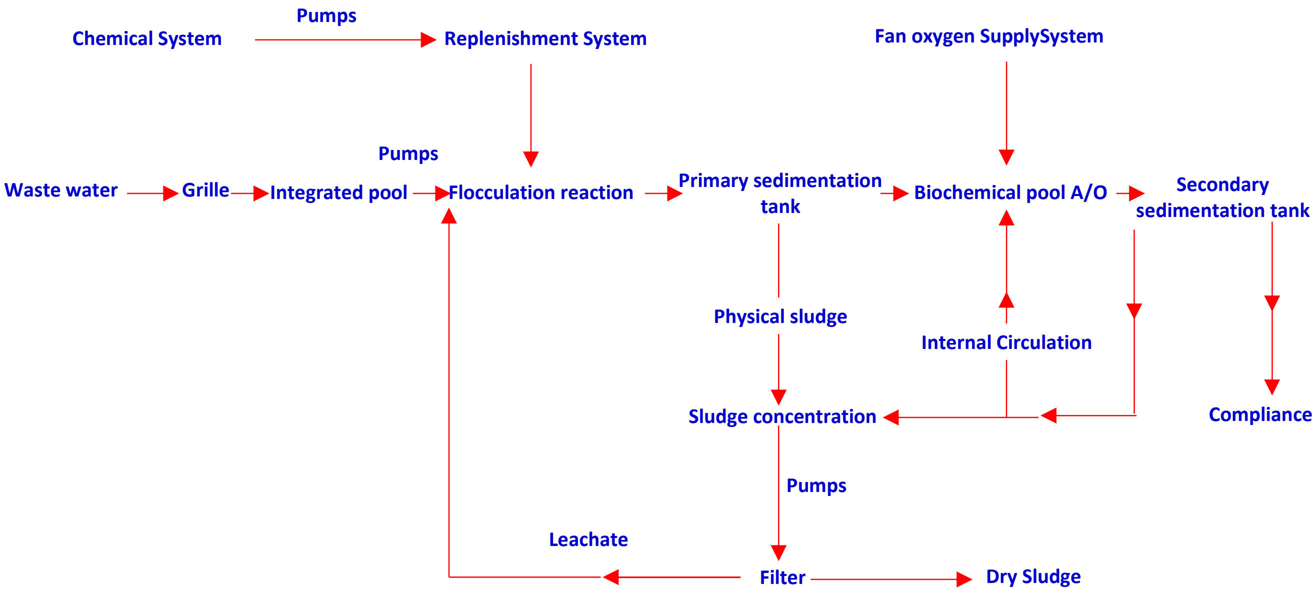
<u>Recycling Wastewater</u>

Cleaning water from Boiler ash

Cleaning water for boilers ash is used only once from a source. As using boilers are small capicity like only 30 - 30 gallons each, only refill or top up and small amount of water is disposed from boilers. No recycling wastewater at this factory.

Wastewater Treatment System

Effluent treatment system has been constructed in this factory since establishment and flow chart of sewage treatment process has been shown below figure;



Technical Plan for treatment of washing Wastewater

Design principle

1. Conscientiously implement the relevant laws, standards and regulations of the state, and adopt feasible plans according to the actual situation of the enterprise.
2. Under the premise of ensuring the effluent quality, the treatment process with low energy consumption, high efficiency and practical feasibility should be adopted.
3. The waste water treatment project is based on the principle of low investment, low operating cost and small area.
4. Advanced processing system, stable and reliable operation of equipment, simple maintenance and convenient operation.
5. The facility has more flexibility to adapt to the change of water quality and quantity.
6. To avoid the secondary pollution to the environment, we should take full account of the shock absorption, noise reduction and deodorization of the treatment system.

Design water quantity

The influent quantity of the project is $100m^3$ / d, the reserved production capacity is 10m ^{3}/ d, the total design influent quantity is 110 m^3 / d, according to the operation of 20 hours per day, the maximum average treatment water quantity is $5.5m^3/h$.
This project designed the influent water quality, and the effluent quality is as follows;

serial number	Pollutant species	influent water quality (mg/l)	the effluent quality (mg/l)
1	pH	5-7	6-9
2	TSS	420	50
3	COD	1000	150
4	BOD5	280	30
5	T	40˚C	37°C

Treatment process selection

There are some pollutants in the wastewater discharged in the production process of sweaters washing industry. The washing wastewater mainly includes the former washing wastewater, the back washing wastewater and the drying wastewater.
The wastewater contains surfactant, sodium tripolyphosphate, carboxymethyl cellulose, oil stain, dust particles and various microbes. The appearance of the wastewater is cloudy, the pH is 5.5 - 7.5, and the content of suspended solids is high. When phosphate enters the water body, it will cause eutrophication.

When the surfactant enters the water body, it will make the water vivid and the plants poisoned to death, and make some micro-pollutants in the water solubilized. Cleaning waste water is large, there is a small amount of foam, and the content of suspended solids is less COD is also smaller, more transparent. The quantity of waste water is small and the water quality is better than that of cleaning wastewater.

According to the actual situation of water quality, this project adopts flocculation precipitation separation + biochemical treatment + secondary precipitation treatment process to achieve the purpose of treatment.

Removal efficiency prediction

Process steps	COD	BOD	TSS	PH	WATER TEMP
Production wastewater	1000	280	420	5-6	40
Integrated regulating pool	1000	280	400	5-6	38
Flocculation sedimentation tank	650	230	120	7-8	35
A/O Biochemical pool	150	30	100	7-8	35
Secondary sedimentation tank	120	25	50	7-8	35

Technological process description

The production wastewater enters the grid tank through the pipeline, and the large particle suspension material is removed through the grid to enter the comprehensive regulating tank. The regulating pool mainly plays the role of balancing the water quality and water quantity, and then the pump is lifted into the flocculation reaction tank. Adding PAC and pam to realize the demulsification process of sewage, flocculation sludge was formed in the flocculation reactor, the sludge mixture was separated in the primary sedimentation tank, the organic colloids and fine suspended matter in the water were adsorbed and co-settled. The water-soluble organic matter enters the A / O biochemical tank with the supernatant self-flowing. In the A / O biochemical tank, the oxygen supply system of the fan provides oxygen, and the microorganisms in the water use the organic matter as food to decompose the organic matter, and at the same time, form a new ecological sludge. The aged sludge was separated with.

Structural Design parameters and supporting equipment

Grid pool

Structure : steel concrete

Size : LXBXH=1mX0.5mX05m

Ancillary equipment : grille 2 adopt semi-automatic lifting

Integrated wastewater regulating tank

Structure : reinforced concrete

Size : L x B x H=14.75m x 5m x 1.5m

Ancillary equipment : sewage lifting pump 2 units, with one spare type:

Flocculation reactor

Structure : Steel anti-corrosion treatment

Size : L x B x H=2.0m x 1.0m x 2.0m

Accessory equipment : 1 set of PH automatic control system, Chemical drug system 3 sets of V=0.5m3, Pharmaceutical lifting pumpJWM-120, Pneumatic diaphragm pump brand: reaction mixer 2 sets of BLD2-35-1.5 KW

Primary sedimentation tank

Structure : Steel anti-corrosion treatment

Size : L x B x H=3.0m x 2.5m x 3.5m

Ancillary equipment : 1 slabs
1 set of water distribution system,
1 set of effluent collection system,
PH callback automatic control system 1 set.

Biochemistry pool

Structure : Steel anti-corrosion treatment

Size : L x B x H=9m x 3m x 3.5m

Number: 1, internal partition

Ancillary equipment : 1 aeration system, 90 dissolved oxygen release units, 90underwater pipe networks Biofilm support 4 sets, galvanized anticorrosive, non-standard custom Biochemical filler80m3, PP Biochemical Fan 2 sets MFSR-65 N=3.0KW,

Secondary sedimentation tank

Structure : Steel anti-corrosion treatment

Size : L x B x H=3.0m x 2.5m x 3.5m
Ancillary equipment : 1slabs
1 set of water distribution system,
1 set of effluent collection system, Plate and frame press one XMY20 / 630 / UB N =1.5KW, Pneumatic sludge diaphragm pump 2units QBY3-40

List of structural parameters

serial number	Name of the structure.	Size	Number	Structure
1	Grid pool.	1m x 0.5m x 0.5m	One	
2	Integrated adjustment pool.	14.75m x 5m x 1.5m	One	Reinforced concrete
3	Flocculation reactor.	2.0m x 1.0m x 2.0m	One	Steel anti-corrosion treatment
4	Primary sedimentation tank.	3.0m x 2.5m x 3.5m	One	Steel anti-corrosion treatment
5	Biochemistry pool.	9m x 3.0m x 3.5m	One	Steel anti-corrosion treatment
6	Secondary sedimentation tank	3.0m x 2.5m x 3.5m	One	Steel anti-corrosion treatment

serial number	Name of the equipment	Model, parameter	Number
1	grilled / grating / grid gridgrid	coordinate	Two sets
2	Sewage lift pump	25ZW8-15 N=1.5KW	Two sets
3	Flocculating mixer	BLD2-35-1.5 KW	Two sets
4	Ph automatic control system.	1-14.A 动 IRfA 控 9	Two sets
5	Medicament allocation slot.	V=0.5 m^3	Three sets
6	Potion lift pump	JWM-120	Three sets
7	Triangular overflow plate	coordinate	One sets
8	Microporous aerator	FT-215	90 sets
9	Aeration pipe network	PVC	90sets
10	Biological filler	Ø200, PP	80cubic meterse
11	Packing bracket	anticorrosive treatment	4sets
12	Biochemical Fan	MFSR-65 N=3.0KW	Two sets
13	Triangular overflow plate	coordinate	One sets
14	Plate and frame press	XMY20 / 630 / UB	One sets
15	Sludge pump	QBY3-40	Two sets
16	Air compressor	V=0.45	One sets
17	Storage tanks	0.3m^3	One sets
18	Wires and cables	coordinate	One sets
19	Turbine butterfly valve		One sets
20	Gate valves		One sets
21	Flange piece		One sets
22	The welding elbow		One sets

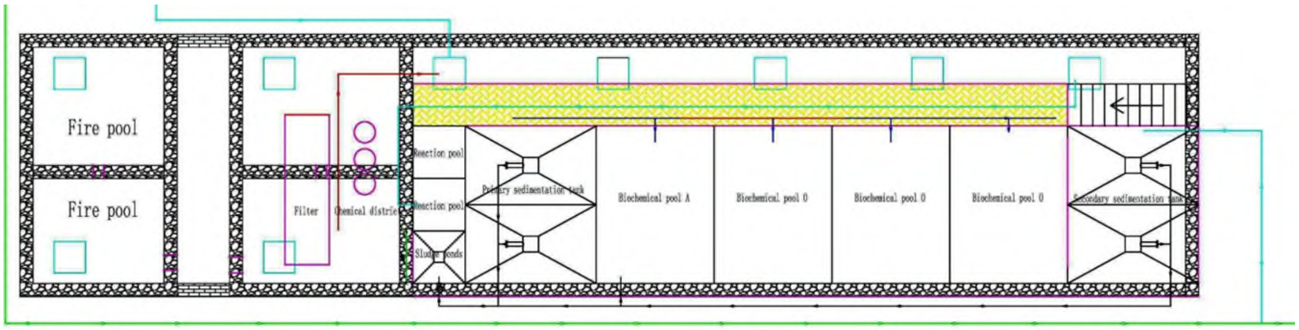


Figure 58: Wastewater treatment chart

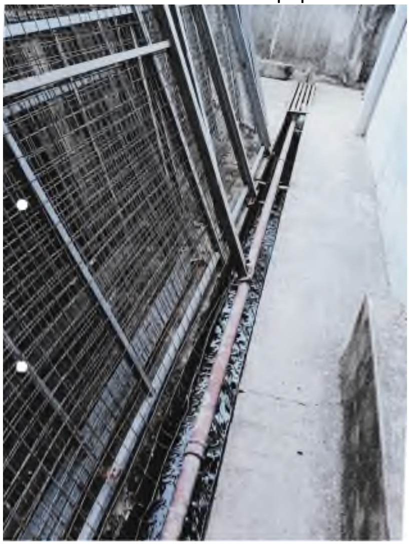
Dosing Equipment and layout

Wastewater Inlet

Wastewater treatment equipment

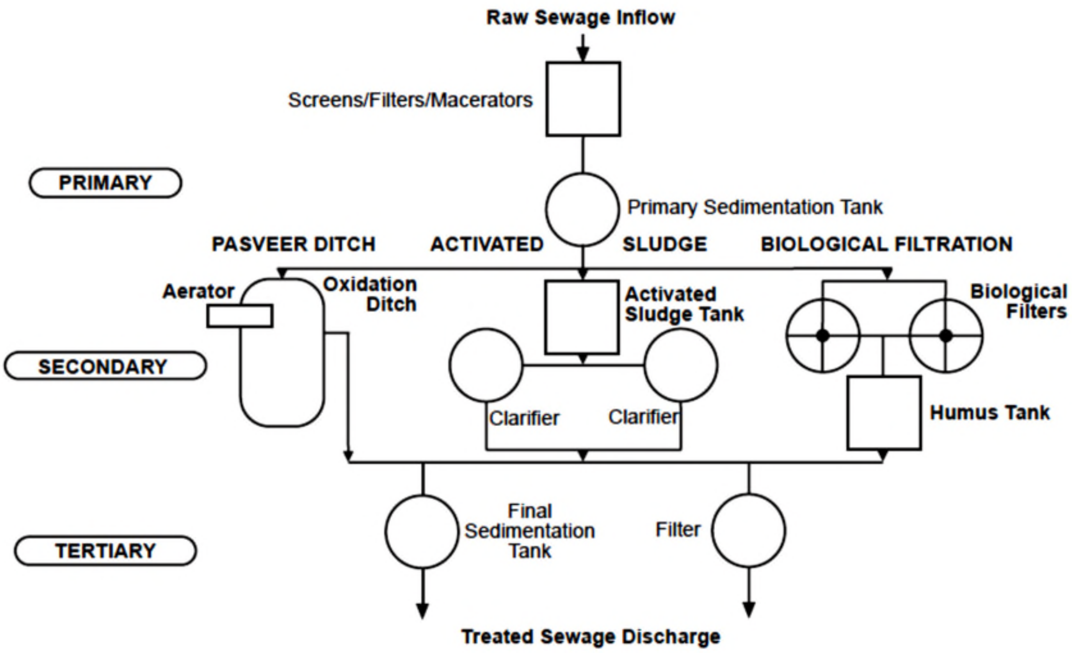
Treatment in progress

Sludge


Treated Wastewater out let

Typical Layout of Sewage Treatment System at factory

1. Collection ⇒ Equalization Sump in Septic Tank
2. Extended Aeration plant
   Secondary clarifier
3. Sludge drying beds
4. Clear water Sump (pressure sand filter / activated carbon filter)
5. Checking of overflow from septic tank



Treated sewage discharge has been disposed by liasing with YCDC according to the schedule (once every 6 month)

Storm Water Management

There are storm water drains in factory compound and connect to public drain with standard specification (length, width, height) in this drain, settlement area, sieve area in place to protect sedimentation and plastic and other debris. The storm water drains near the factory should be cleaned for free of pollution (metal, plastic bags, paper bag / box and solid waste etc.). Factory housekeeping groups always clean the drains inside the factory to stop all waste, spillage from entering the storm water drains outside or public drain.

In this factory, chemical store, fuel store, generator house, boiler house, waste yard is kept under the roof and stored on concrete bunded and floored areas.

Drainage and water line layout at this factory has been mentioned in Figure 50 of this report.

8.2.9 Boiler operation procedure and Management Plan (Explosion, Burning)

Boiler is a compressed container, its interior has high temperature and high-pressure steam during work, improper operation may damage the boiler, also has a certain hazard, the application life of a boiler is related with the operation manner, frequency, water quality and maintenance. Therefore, for the sake of safety and normal production, a boiler should exclusively take care by designated person, together with accurate operation and maintenance in time.

Before Boiler Turn On

Specific operation as follows

1. Before boiler turn on, should inspect whether the power source of the switch box is normal (380V or 220V), whether the working indication light is normal, whether on-off position is correct, whether the power cable has damages.
2. Inspect whether the water bucket has water, whether the water inlet on-off has been turn on, whether the water supply pipe has water.
3. Inspect whether the water level indication of the boiler is normal.
4. Inspect whether the water inlet and outlet valves of the water pump have turn on and in the correct position, should be in the ON position during work.
5. Inspect air inhale machine, blower damper open position (has already calibrated during testing of boiler, DO NOT adjust at discretion.) Whether the tightness of the belt of the air inhale machine is adequate, engine fluid should be about half seen through the window,

6. Inspect whether there is accumulated ash, (clean up if any) inside the boiler chamber, dust remover, and chimney bottom.
7. Inspect safety valve, must pull the on-off safety valve once a week, safety valve handle should be pulled upward, inspect whether the steam can be emitted smoothly; rewind crank when pulled, keep in mind the exhale outlet never points to any person or living things; inspect whether the valve is operative, (pressure should be well calibrated during boiler test) whether the pressure gauge indication is normal.
8. Turn on power source on-off and water pump on-off to automatic position, inspect whether the water pump, air inhale machine, blower turning direction and wind volume are correct, whether any abnormal noise,
9. Shut down boiler output main on-off, turn on water level bucket upper exhale valve, turn off waste emission valve, wait boiler water pump refill water until automatically stop, add timber and ignition begins.
10. Wait boiler heat up until the exhale valve emits steam, turn off this valve. From time to time inspect pressure gauge readings, when reach application requirement (usually set at 0.35 to 0.6Mpa) slowly turn on output main on-off, then firstly to pre-heat steam pipe (usually 1 to 2 minutes) listen to the gradual slow down noise of the steam flow in the pipe, slowly turn on the main outlet on-off to normal steam transmission position, now turn on the water drainage valve at the branch gas chamber, when there is only steam emission, turn the valve to small emission quantity of steam will be do.
11. With same slow manner, turn on the outlet valves at the branch gas chamber respectively.
12. Usually, a new boiler requires waste removal action every day at the first one month of application. During the combustion process of the boiler, steam gauge pressure gradually increase, slowly turn on the water drainage at the bottom of the boiler, allow 10 20 seconds drainage, then turn off the water drain. After a month of application, suggest best to remove the waste once a week, so as to decrease the blockage of the boiler's pipe.

(2) Boiler Shut Down

1. Each day 30 minutes before duty off, should notify boiler room stop work for refuel; during dismiss, observe the pressure gauge of the boiler is below 0.2Mpa so as to shut down the on-off, in case the pressure is above 0.2Mpa, boiler workers should not leave the boiler.
2. After duty off, the incompletely burnt timber and charcoal inside the boiler's chamber should ali be taken out and rinse to distinguish by water.
3. Open boiler water level bucket upper part exhale valve, or the branch gas chamber lower drainage valve to release the remaining steam in the boiler.
4. During the shutting down of the boiler, only need to turn off the inhale air machine and blower will do. The automatic water suction on-off must be in the state of ON operation

(3) Boiler Maintenance

1. Each week completely drain the water inside the boiler once. Specific operation as follow:
   - 1.1 Turn off power source
   - 1.2 Turn off the water inlet valve of the boiler, turn on the exhale valve at the upper part of the water level bucket/ turn on the waste emission valve wait until all the water inside the boiler has drain out, open the water inlet valve of the boiler, turn on power source, turn tne water pump electric source on-off to automatic position, turn off the waste emission valve of the boiler after water has got in for 1 — 2 minutes, wait the water level rising to the designated position, when the water pump automatically stop will do.
   - 1.3 Clean up water storage bucket.
2. Usually, a boiler should be maintained once after 3 — 4 months use, thereafter each season maintain once, specific base on the condition of application of the boiler.

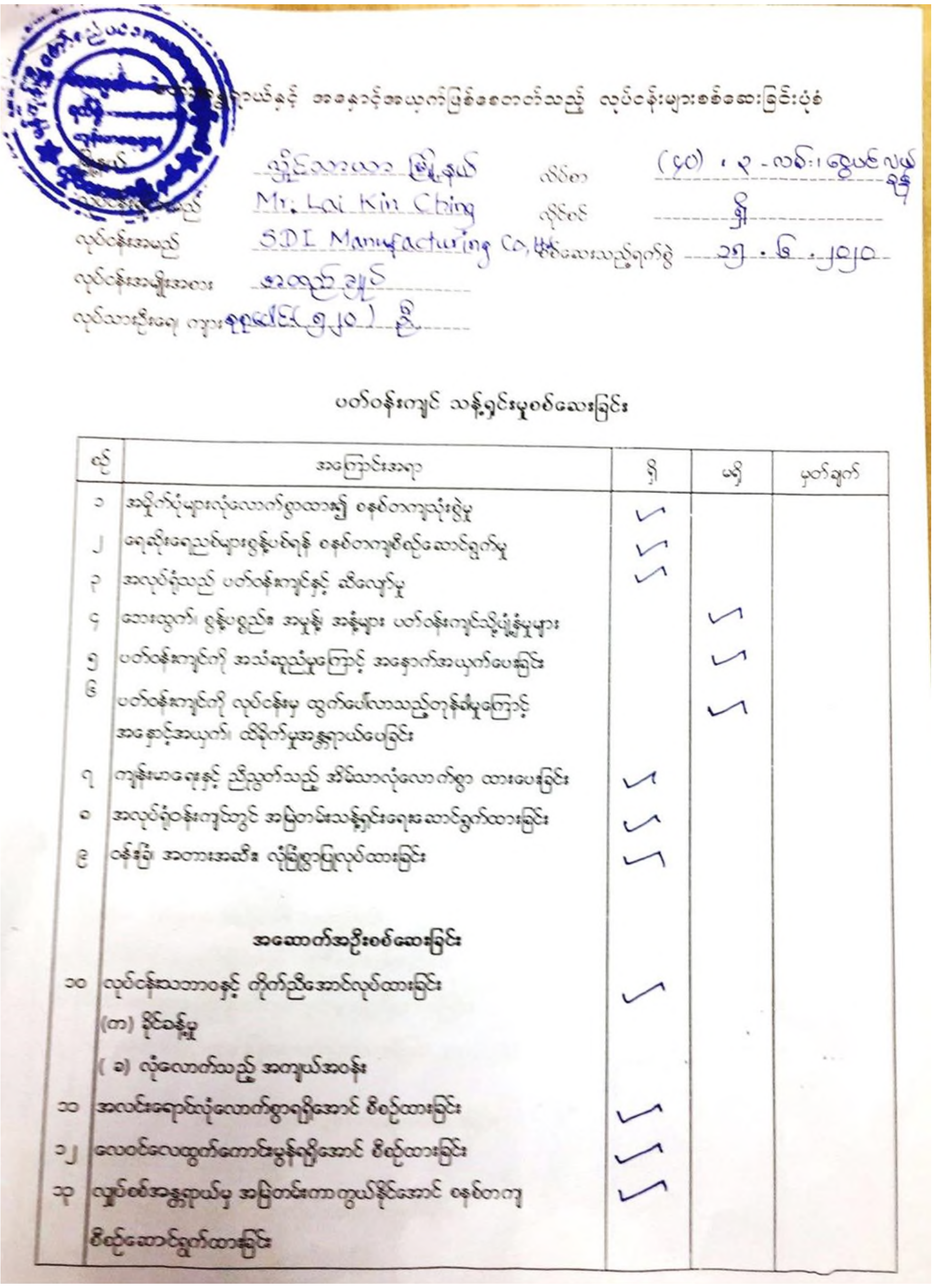
(4) Matters which should pay attention

1. Non-Professional person is forbidden to operate the boiler.

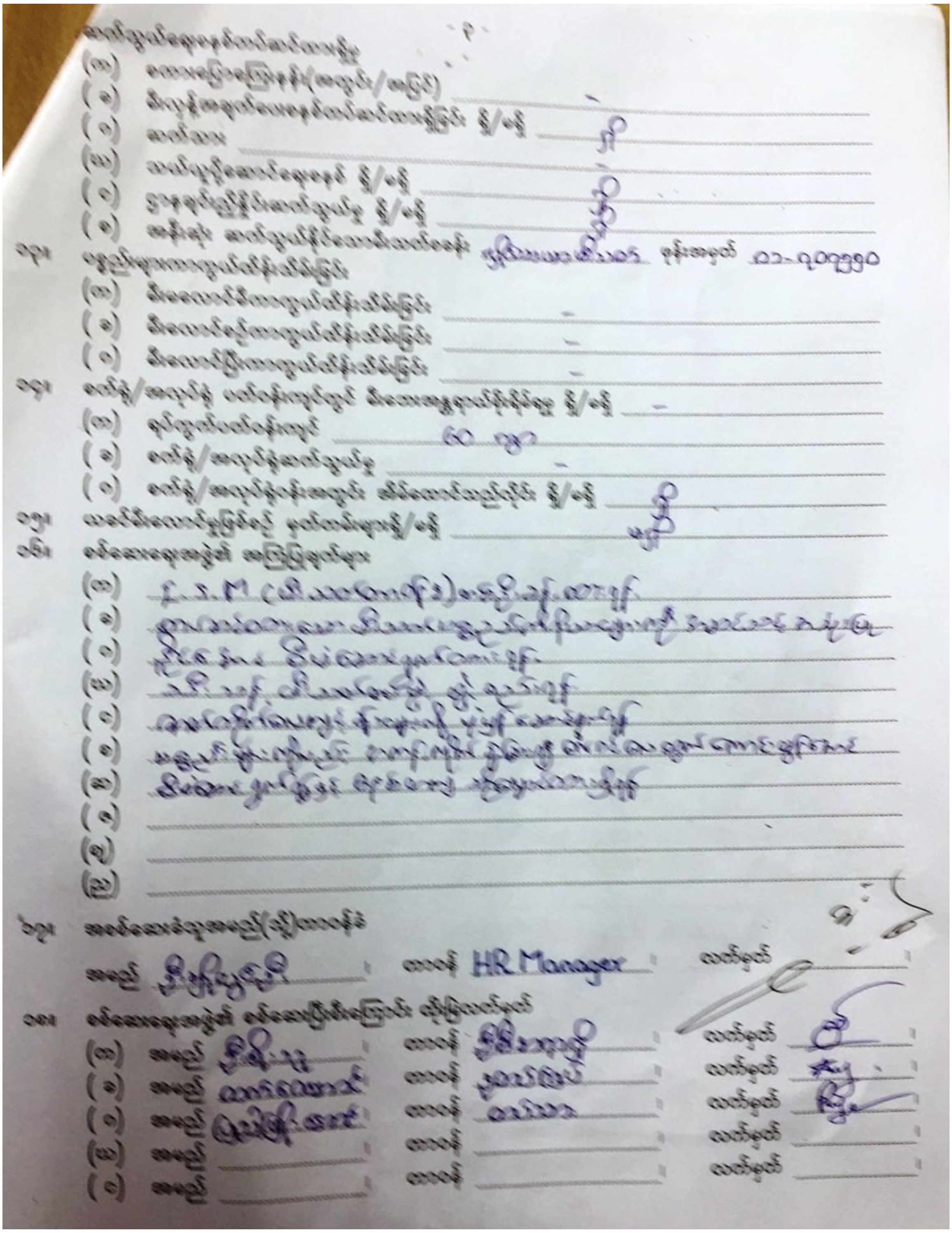
2. Water source and quality not good, such as turbid, grease or other impurities etc. should not infuse into the boiler.
3. Water storage bucket has no water or small quantity of water, should forbid turning on the boiler during water stoppage.
4. Boiler inner chamber temperature is very high, forbid to infuse water inside during shut down of boiler, in case of necessary to clean up with water, wait until the temperature inside the boiler's chamber drops to normal temperature
5. In the event appear water shortage inside the boiler, should immediately shut down the boiler, take out the remaining burnt timber and charcoal inside the boiler's chamber, turn off the power source and inspect the reason, forbid infuse of water into the boiler's chamber.

8.2.10 Inspection from YCDC

Yangon City Development Committee (YCDC) has inspected for SDI Manufacturing Garment Factory's Harmful and disruptive activities on 15.6.2020. Their check list has been mentioned in below figure;



စဉ်	အကြောင်းအရာ	ရှိ	မရှိ	မှတ်ချက်
၁၄	သောက်သုံးရေလုံလောက်စွာရရှိအောင်စီစဉ်ဆောင်ရွက်ခြင်း	✓		
၁၅	ကြမ်းခင်း၊ နံရံသည် လုပ်ငန်းသဘောဝနှင့်ကိုက်ညီပြီး သန့်ရှင်းရန် လွယ်ကူခြင်း	✓		
၁၆	အမိုး၊ အကာ၊ အခင်း၊ မျက်နှာကျက်လုပ်ငန်းနှင့် ဆီလျော်သည့် အမြင့်၊ အကျယ်၊ အဝိုင်းခိုင်ခန့်ခြင်း၊ သန့်ရှင်းခြင်း	✓		
၁၇	ဘေးအန္တရာယ် သတိပေးထားမြစ်စာတမ်းများ ရေးဆွဲချိတ်ဆွဲထားခြင်း	✓		
၁၈	အလုပ်ရုံများကို နှစ်စဉ်ဆေး၊ ထုံးသုတ်ထားခြင်း	✓		
၁၉	အရေးပေါ်ထွက်ပေါက်ထားရှိခြင်း	✓		
	လုပ်ငန်းသုံးပစ္စည်းကိရိယာများ စစ်ဆေးခြင်း			
၂၀	လုပ်ငန်းသုံးစက်ပစ္စည်းကိရိယာများကို အန္တရာယ်ကင်းရှင်းအောင် စနစ်တကျတပ်ဆင်ထားခြင်း	✓		
၂၁	လုပ်ငန်းသုံးပစ္စည်းများမှ ဘေးအန္တရာယ်ဖြစ်စေနိုင်မှုများကို ကာကွယ်ထိန်းသိမ်းပေးထားခြင်း (ဥပမာ– အကာ၊ အမိုး)	✓		
၂၂	လုပ်ငန်းသုံးပစ္စည်းများသန့်ရှင်းရေးဆောင်ရွက်ရန်အတွက် လွယ်ကူအောင်တပ်ဆင်အသုံးပြုထားခြင်း	✓		
၂၃	ဘေးအန္တရာယ်ဖြစ်စေသည့် ဓါတ်ငွေ့ ဓါတုဗေဒပစ္စည်းများ ဆေးဝါးပစ္စည်းများကို ဘေးအန္တရာယ်ကင်းအောင် ထိန်းသိမ်းထားခြင်း	✓		
၂၄	အလေးအပင်မရာတွင် သက်သာလွယ်ကူစေရန် စီစဉ်ပေးထားခြင်း (ဥပမာ – လှည်း၊ ဝန်ချီစက်၊ ထရောင်လီ)	✓		
၂၅	လုပ်ငန်းနှင့်မသက်ဆိုင်သည့် ပစ္စည်းများထားသိုခြင်း		✓	
၂၆	မီးဘေးအန္တရာယ်ကြိုတင်ကာကွယ်မှု ပစ္စည်းထားရှိခြင်း	✓		
၂၇	အရေးပေါ် ရှေးဦးသူနာပြုဆေးသေတ္တာထားရှိခြင်း	✓		
	အလုပ်သမား ကျန်းမာရေးစစ်ဆေးခြင်း			
၂၈	အလုပ်ချိန် သတ်မှတ်ထားခြင်း	✓		
၂၉	သတ်မှတ်အလုပ်ချိန်အတိုင်း လိုက်နာဆောင်ရွက်ခြင်း	✓		
၃၀	အလုပ်သမားများ လုံခြုံလုံခြုံရေးဝင်ထားခြင်း	✓		



8.3 Emergency Preparedness and Emergency Response Plan

Emergency Response Plan

The initial response to an incident is a critical step in the overall emergency response. Like all other industries and installation, knitted wears manufacturing facilities must have adequate measures against accidents to meet the emergency. The purpose of having an emergency response plan (ERP) is to;

- Assist personnel in determining the appropriate response to emergencies
- Provide personnel with established procedures and guidelines
- Notify the appropriate company emergency response team personnel and regulatory government agencies.
- Manage public and media relations
- Notify the next to kin of accident victims

- Promote inter departmental communications to ensure a "Company Wide" coordinated emergency response.
- Minimize the effects that disruptive events can have on company operations by reducing recovery times and costs
- Response to immediate requirement to safeguard the subtending environmental and community Generally, the initial response is guided by three priorities. Ranked in importance these priorities are;
    - People
    - Property
    - Environment

Table 40: Emergency Contact Phone Numbers

1.	Fire		
	Hlaing Thar Yar Township Fire station	Nyaung Tone Rd., Sanayma Bus Stop, Ward (7), Hlaing Thar Yar,	01 – 645017, 01 -70550
	Shwe Linban Fire Station	Kanaung Min Thar Gyi St., Shwe Linban Industrial Zone, Hlaing Thar Yar	09 – 420293713
	Shwe Pyi thar Township Fire Station	Bayint Naung Rd., Infront of Nawarat Market, Ward (7), Shwe Pyi Thar	01 – 3611014, 09 - 420185444
2.	Ambulance	249, 1st Flr, Thein Phyu Rd., Kan Daw Kalay (North) Ward, Mingalar Taung Nyunt	192
	Yangon General Hospital	Bogyoke Aung San Rd., Lanmadaw,	01-256-122, 256-131
	Red Cross Ambulance	42, Strand Rd., Red Cross Bldg., Botahtaung	01-295-133
	Central Women's Hospital	51/A, Baho Rd., Lanmadaw,	01-222-811,222-804
	Ahnine Mae Ka Yu Nar Shin (Hlaing Thar Yar)	Hlaing Yadanar St., Dhama Thukha Dhamar Yone, Ward (13),, Hlaing Thar Yar	09 - 5033115
3.	Police		199
	Traffic Police Station (Hlaing Thar Yar)	Nyaung Tone Rd., Ward (2),, Hlaing Thar Yar	01- 645029
	Hlaing Thar Yar Police Station	Nyaung Tone Rd., Ward (2),, Hlaing Thar Yar	01 – 645016
	No 6 Police Station (Shwe Lin Ban)	477, De Pe Yinn Wun Htauk U Myel St., Shwe Linban Industrial Zone,	09 - 772707805
4.	Hospital		
	Eyes, ear, nose, and throat Hospital	30, Nat Mauk Rd., Nat Mauk Ward, Tarmwe	01-549-171
	People Hospital (East Yangon)	Corner of 54th street, and, Merchant Rd	01-292-835, 292-836
	People Hospital (West Yangon)	Lower Kyeemyindaing Rd	01-222-860, 222-861
	Workers Hospital	Kyaikkasan Rd., Nat Mauk Ward, Tarmwe	01-550-455, 550-444
	North Okkalapa General Hospital	May Dharwi Rd, Yangon	01-699-424, 699-422
	Infectious Diseases Hospital	May Darwi Rd., Corner of Dhama Thukha St., Wai Bar Gi Ward (8),, North Okkalapa	01-272-497
	Children Hospital	2, Pyi Htaung Su Yeik Thar St., Corner of Baho Rd., Pyay (West) Ward, Dagon	01-222-807, 222-808
	Shwe Lin Ban Industrial Zone Hospital	Yaw Ah Twin Wun U Pho Hlaing St., Shwe Linban Industrial Zone, Hlaing Thar Yar	09 – 261728224
	Hlaing Thar Yar Township Hospital	123, Nyaung Tone Rd., Corner of Kyan Sit Thar St., Ward (6), Hlaing Thar Yar	01 – 645031, 01 – 9648162
	Shwe Lin Ban Industrial Zone Social Welfare Clinic	Bldg 6, 1st Flr, Shwe Lin Bann Housing, Ward (26), Hlaing Thar Yar	09 - 404465744
5.	Other		
	Ngwe Pin Lel Industrial Zone	86, 2nd St., Ngwe Pin Lae Industrial Zone, Hlaing Thar Yar	01 – 3613603, 09 - 421033138

8.3.1 Fire Fighting Arrangement

Fire Protection Plan

The following Fire Protection System has been developed at the garment factry since factory establishment.

- Hydrant system covering the entire plant including all important auxiliaries and buildings is proposed. The system will be complete with piping, valves instrumentation, hoses, nozzles and hydrants, valves etc.
- High velocity water spray system near storage tanks.
- Portable extinguisher such as pressurized water type, carbon dioxide type, and foam type has been located at strategic locations throughout the plant.

Figure 59: Firefighting Equipment and Fire water lines

The following pumps will be provided in the fire protection system.

- AC motor driven fir water pumps for hydrant, medium velocity water spray system and foam system
- Diesel Engine driven pup as stand by for the above.
- Jackey pump 1 no. (AX motor driven) for maintaining pressure.

The purpose of this Fire Prevention Plan is to eliminate the causes of fire, prevent loss of life and property by fire; it provides employees with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards.

It describes the fuel sources (hazardous or other materials) on site that could initiate or contribute both to the spread of a fire, as well as the building systems, such as fixed fire extinguishing systems and alarm systems, in place to control the ignition or spread of a fire.

This Fire Prevention Plan serves to reduce the risk of fires at your workplace in the following ways:

1. The FPP identifies materials that are potential fire hazards and their proper handling and storage procedures.
2. It distinguishes potential ignition sources and the proper control procedures of those materials.
3. The plan describes fire protection equipment and/or systems used to control fire hazards.
4. It identifies persons responsible for maintaining the equipment and systems installed to prevent

or control ignition of fires.

5. The FPP identifies persons responsible for the control and accumulation of flammable or combustible material.
6. It describes good housekeeping procedures necessary to insure the control of accumulated flammable and combustible waste material and residues to avoid a fire emergency.
7. The plan provides training to employees with regard to fire hazards to which they may be exposed.

Occupational Emergency Fire Fighting System at SDI Manufacturing Factory

1. Water Storage
   a. Tube Well
      I. 6" tube well — 4 No.
   b. Water Tank
      I. Ground tank — 3.8 m x 2 m x 1.5 m — capacity 11.4 m^3 (2,500 gallons)
      II. Overhead tank — 4 m x 2 m x 1.5 m — capacity 12 m^3 (2,600 gallons)
      III. Fire tank — 4.8 m x 7.8 m x 2.5 m — capacity 93.6 m^3 (20,000 gallons)
2. Firefighting system
   a. Hose reel system
      I. 1" hose reel cabinet (5-7 points per each level, total points – 65 points)
      II. Wet Riser System

      2.5" wet riser cabinet (landing valve) – 2 points per each level, total point - 22
3. Fire Extinguisher system
   a. Dry chemical powder type extinguisher
      i. 50 kg ABC powder — 150 No. s
      ii. 9 kg ABC powder — 200 No. s

b. Foam Type Extinguisher
   i. 50 L — 50 No. s
   ii. 9 L — 50 No. s

c. CO_2 type extinguisher
   i. 5 kg — 80 No. s

Figure 60: Firefighting Facility and fire drill at SDI manufacturing Factory

In this factory, there has been already developed Firefighting team and this team has been trained by Township Firefighting Department. They have led for every emergency situation, which happen in factory such as fire, flood, disaster etc.

Ø3" fire pumps and fire hoses are located at the most vulnerable boiler department. Also, sand dunes are stocked at here. Other departments have been planned to position firefighting equipment. Enough fire extinguishers have been positioned in the Fuel and lubricant storage area and also sand stockpile has been

placed at there.

Fire and emergency drill has been trained to employee twice bi- year practically. It has been instructed, and leading training by Township Firefighting Departement. This ERP training includes the topics of evacuation way, emergency exit, assemblying and muster point, First Aid care, and Embulance vehicles etc.

စက်ရုံ/အလုပ်ရုံ မီးဘေးကြိုတင်ကာကွယ်ရေး စစ်ဆေးချက်ပုံစံ

ပြည်သူပိုင်/စီးပွားထိန်းဝင်စက်ရုံ/အလုပ်ရုံများ ....

မြို့နယ် ... လှိုင်သာယာ

ပုဂ္ဂလိကပိုင် စက်ရုံ/အလုပ်ရုံများ SDI ကုမ္ပဏီလီမိတက်

စစ်ဆေးသည့်နေ့ ... [illegible]

စစ်ဆေးသည့်အချိန် ... [illegible]

စစ်ဆေးပြီးဆုံးချိန် ... [illegible]

စီမံခန့်ခွဲသူ [illegible] ၀၉-၄၅၁၉၆၀၇၆၅

စက်ရုံ/အလုပ်ရုံတည်နေရာ ငွေပင်လယ်စက်မှုဇုန် [illegible]

စကားပြောကြေးနန်းအမှတ် ၀၉-၄၅၁၉၆၀၇၆၅

စစ်ဆေးသည့်အဖွဲ့	အမည်	ရာထူး/အဆင့်	တာဝန်
၁။	[illegible]	[illegible]	[illegible]
၂။	[illegible]	[illegible]	[illegible]
၃။	[illegible]	[illegible]	
၄။			
၅။			

၁။ မီးဘေးကြိုတင်ကာကွယ်ရေးစီမံချက် ရေးဆွဲထားရှိခြင်း ရှိ/မရှိ (Fire Plan) ရှိ

(က) မီးသတ်တာဝန်ခံ အမည်/အဆင့် မရှိ

(ခ) မီးသတိပေးနိုးဆော်စာထားရှိခြင်း (Fire Notice) ရှိ/မရှိ ရှိ

(ဂ) ကြီးကြပ်စီမံခြင်း (Management) ရှိ

၂။ စီမံချက်အားအကောင်အထည်ဖော်လုပ်ဆောင်ခြင်း ရှိ/မရှိ ရှိ

(က) မီးသတ်လေ့ကျင့်ခန်းများ (ဇာတ်တိုက်လေ့ကျင့်ခြင်းများ)ပြုလုပ်ပြီး/မပြီး ပြီး

(ခ) အကြိုအခြေခံမီးသတ်သင်တန်းများ တက်ရောက်ပြီး/မပြီး မပြီး

၃။ အဆောက်အဦးဆောက်လုပ်ထားရှိခြင်း (Building Construction)

(က) အမျိုးအစား (Tyupes) steel structure [illegible]

(ခ) အသုံးပြုပုံ (Usages) steel structure [illegible]

(ဂ) ထွက်ပေါက်/ဝင်ပေါက်/အရေးပေါ်ထွက်ပေါက် (Emergency Exit) ရှိ

(ဃ) မီးအာမခံထားရှိခြင်း ရှိ/မရှိ ရှိ

(င) အကျယ်အဝန်းအတိုင်းအတာ (Lay-Outplan) [illegible]

(စ) မီးပြန့်ပွားမှု ကာကွယ်နိုင်ခြင်း ရှိ/မရှိ (Usages) မရှိ

(ဆ) မီးသတ်ကားအလွယ်တကူ ဝင်ထွက်နိုင်မှု ရှိ/မရှိ ရှိ

၄။ စက်ရုံ/အလုပ်ရုံတွင် လုပ်ကိုင်သည့်လုပ်ငန်း (Occupancy)

(က) လုပ်ငန်းသဘာဝ (နေ့ဆိုင်း/ညဆိုင်း) နေ့ဆိုင်း

(ခ) ထုတ်လုပ်ပုံ (Process) [illegible]

(ဂ) လုပ်သားဦးရေ (ကျား/မ) (Labours) [illegible]

(ဃ) ဝန်ထမ်းဦးရေ (ကျား/မ) (Servience) -

၅။ သိုလှောင်ရေးစနစ် (Storage System) -

(က) ကုန်ကြမ်းအမျိုးအစား/ပမာဏ [illegible]

(ခ) ကုန်ချောအမျိုးအစား/ပမာဏ [illegible]

(ဂ) ပေါက်ကွဲမီးလောင်နိုင်သော ပစ္စည်းနှင့် လောင်စာဆီ သိုလှောင်ခြင်း ရှိ/မရှိ ရှိ [illegible]

- ၂ -

(ဃ) လေဝင် လေထွက်စီမံထားခြင်း ရှိ/မရှိ (Ventilation) ရှိ

(င) အလေအလွင့် စွန့်ပစ်သည့်နေရာ ရှိ/မရှိ ရှိ

အသုံးပြုသည့်စက်အမျိုးအစား (Mechanical Power) –

(က) အရေအတွက် –

(ခ) မြင်းကောင်ရေအား –

(ဂ) ဗို့အား –

(ဃ) မော်တာအရေအတွက်(ကြီး/သေး) ကြီး (၂၅၀) + သေး (၂၀၀) = ၄၅၀ လုံး

(င) ဘေးအန္တရာယ်ကာကွယ်ထားရှိမှု ရှိ/မရှိ –

(စ) စက်ပစ္စည်း ထုတ်လုပ်သည့်နိုင်ငံ –

၇။ ဘွိုင်လာ အသုံးပြုခြင်း

(က) အရွယ်အစား ၁ တန် (၁) / ၄ တန် (၁)

(ခ) လောင်စာအမျိုးအစား ထင်း ဘွိုင်လာ

(ဂ) စစ်ဆေးခြင်းမှတ်တမ်းနှင့် နောက်ဆုံးစစ်ဆေးသည့်ရက်စွဲ –

၈။ လျှပ်စစ်သွယ်တန်းမှု

(က) သုံးစွဲဗို့အား(ပါဝါမီတာ ရှိ/မရှိ) 400 KVA

(ခ) ဝါယာကြိုးသွယ်တန်းမှု ကောင်း/မကောင်း ကောင်း

(ဂ) မီးခလုတ်တပ်ဆင်အသုံးပြုခြင်း စနစ်ကျနမှု ရှိ/မရှိ ရှိ

(ဃ) ယာယီမီးကြိုးသွယ်တန်းမှု ရှိ/မရှိ မရှိ

၉။ မီးသတ်ပစ္စည်းကိရိယာများ/မီးသတ်ဆေးဘူးများ ထားရှိမှု ရှိ/မရှိ ရှိ

(က) မီးသတ်စင်အရေအတွက် –

(ခ) မီးသတ်ဆေးဘူး အမျိုးအစား/အရေအတွက်/အလေးချိန် 25 kg (၃) ဘူး 3/4 kg

(ဂ) အရေးပေါ်မီးသတ်ပိုက် ရှိ

(ဃ) မီးသတ်ယာဉ်/စက်နှင့် အပေါ့စားမီးသတ်စက် ရှိ/မရှိ –

(၁) အရေအတွက် FSC ရယူပြီး ပုံစံ(၉) တပ်ဆင်ထားပြီး

(၂) အမျိုးအစား

(၃) ထုတ်လုပ်သည့်နိုင်ငံ

(၄) လက်ရှိအသင့်အသုံးပြုနိုင်သည့်အခြေအနေ ရှိ/မရှိ ရှိ ကောင်း/မကောင်း ကောင်း

၁၀။ ဝန်ထမ်းများ/လုပ်သားများ မီးငြိမ်းသတ်ရေးပစ္စည်းကိရိယာများ ကိုင်တွယ်အသုံးပြုနည်း နားလည်တတ်ကျွမ်းခြင်း ရှိ/မရှိ ရှိ

(က) လုံခြုံရေးဝန်ထမ်း ထားရှိခြင်း ရှိ/မရှိ ရှိ

(ခ) လုံခြုံရေးဝန်ထမ်း အင်အား (ကျား/မ) ၄/၁၃ ဦး

(ဂ) အခြားလုံခြုံရေးအဖွဲ့ရှိ/မရှိနှင့် ရှိလျှင် အမျိုးအစားနှင့်အင်အား –

၁၁။ မီးငြိမ်းသတ်ရေးအတွက် ရေရရှိအောင် စီမံဆောင်ရွက်ထားရှိခြင်း

(က) အဝီစိတွင်းရှိ/မရှိ ______ ။ (အရွယ်အစား(ပိုက်) ______ ၊ အနက် ______)

(ခ) ရေစင်ရှိ/မရှိ ______ ။ (အမြင့်ပေ ______ ၊ ဆန့်ဝင်ဂါလံ ______)

(ဂ) ရေတွင်းရှိ/မရှိ ______ ။ (အရွယ်အစား(အကျယ်) ______ ၊ အနက် ______)

(ဃ) အုတ်(သို့)သဘာဝရေကန် ရှိ/မရှိ ရှိ

အလျား ______ ၊ အနံ ______ ၊ အနက်/အမြင့် ______

ဆန့်ဝင်ရေဂါလံ 10000

မီးသတ်ယာဉ်ဖြင့် အသုံးပြု၍ ရ/မရ ရ

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ပြည်ထဲရေးဝန်ကြီးဌာန
မီးသတ်ဦးစီးဌာန

မီးဘေးလုံခြုံရေးစစ်ဆေးထောက်ခံချက်

အမှတ်စဉ်(၁၇၃၂)

ရက်စွဲ၊ ၂၀၁၈ခုနှစ်၊ ဇွန်လ ၇ ရက်

၁။ ရန်ကုန် တိုင်းဒေသကြီး/ပြည်နယ်၊ လှိုင်သာယာ မြို့နယ်၊ ငွေပင်လယ်စက်မှုဇုန် ရပ်ကွက်/ကျေးရွာ၊ လမ်း၊ အမှတ် (၄၀) ရှိပိုင်ရှင်ဦး/ဒေါ် SDI Manufaturing Co.,Ltd ၏ Steel Structure(၁)ထပ်(၃)လုံး+(၂)ထပ်(၁)လုံး(အထည်ချုပ်+သိုလှောင်ရုံ+လူနေအိမ်) အဆောက်အဦအတွက် ဤဌာနမှသတ်မှတ်ပေးထားသည့် မီးဘေးလုံခြုံရေးဆိုင်ရာပြဌာန်းချက်များအား(၃-၆-၂၀၁၈)ရက်နေ့တွင် ကွင်းဆင်းစစ်ဆေးသည့်အခါ ပြည့်စုံစွာဆောင်ရွက်ထားကြောင်းစစ်ဆေးတွေ့ရှိရသည်။

၂။ ဤထောက်ခံချက်သည် စစ်ဆေးသည့်နေ့မှစ၍ (၃)နှစ်အထိသာ အကျုံးဝင်သည်။

၃။ ထို့ပြင် မီးသတ်ဦးစီးဌာနမှ အခါအားလျော်စွာ ထပ်မံစစ်ဆေးချိန်တွင် မီးဘေးလုံခြုံရေးဆိုင်ရာပြဌာန်းချက်များကို လိုက်နာဆောင်ရွက်ခြင်းမရှိပါက ဤထောက်ခံချက်ကို ပြန်လည်ရုတ်သိမ်းသွားမည်ဖြစ်ပြီး အဆောက်အဦအားအသုံးပြုသူ(သို့မဟုတ်)ပိုင်ရှင်သည် မြန်မာနိုင်ငံမီးသတ်တပ်ဖွဲ့ ဥပဒေအရ အရေးယူခြင်းခံရမည်။

မှတ်ချက်။ ဤထောက်ခံချက်အား လွှဲပြောင်းသုံးစွဲခြင်းမပြုရ။ အဆောက်အဦအား မူလရည်ရွယ်ချက်မှ ပြောင်းလဲအသုံးပြုပါက ထောက်ခံချက်အသစ် ထပ်မံလျှောက်ထားရမည်။

ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား)
(ကျော်သူရ၊ ညွှန်ကြားရေးမှူး)

Figure 61: မီးဘေးလုံခြုံရေးစစ်ဆေးထောက်ခံချက်

8.3.3 Disaster Control Plan at Factory

A major emergency in a works is one, which has the potential to cause serious injury of less of life. It may cause extensive damage to property and serious disruption both inside and outside the works. It would normally require the assistance of emergency services to handle it effectively.

The disaster Management or Control Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals.

The Disaster Management Plan would reflect the probable consequential severity of undesired event due to deteriorating conditions or through knock on effects. Further the management should be able to demonstrate that their assessment of the consequences uses good supporting evidence and based on currently available and reliable information, incident data from internal and external sources and if necessary, the reports of outside agencies.

To tackle the consequences of a major emergency inside the building of immediate vicinity of the factory, a Disaster Management Plan has to be formulated and this planned emergency is called Disaster Management Plan. The objective of the industrial Disaster Management Plan is to make use of the combined resources of the outside services to achieve the following;

- Minimize damage to property and the environment.
- Effect the rescue and medical treatment of causalities.
- Provide for the needs of relatives.
- Provide authoritative information to news media.
- Secure the safe rehabilitation of affected areas.
- Safeguard of the people.
- Initially contain and then ultimately bring the situation under the control.
- Preserve subsequent records and equipment for subsequent enquiry about the cause and circumstances leading to emergency.

The overall objective of the emergency plan will be:

- To localize the emergency and, eliminate it: and
- To minimize the effects of the accident on people and property.

Elimination will require prompt action by operation and works emergency staff by using fire-fighting equipment, water sprays etc. Minimizing the effects may include rescue, first aid, evacuation, rehabilitation and giving information promptly to people living nearby.

The emergencies that could be envisaged in the plant are as follows:

- Pool fire scenario due to storage of chemicals
- Contamination of food/ water.
- Sabotage / social disorder.
- Structural failures.
- Slow isolated fires
- Natural calamities e.g., Earthquakes, etc.

8.3.4 Disaster and Emergency Relief Program at SDI Manufacturing Garment Factory

1. Purpose

Disaster Risk Reduction Information Reporting and Program

2. Valid fields

Production and Accommodation

3. Emergency Activities

Disaster Action; Other emergency measures except for chemical leaks

4. Emergency and environmental conditions and conditions

The worst and most dangerous conditions, except chemical leaks, are contained in these rules.

5. Designation of duty and Responsibilities

Table 41: Designation of duty and Responsibilities for Disaster and Emergency Relief Program

Sr.	Responsible Persons	Responsibilities	Annual Estimated Budget
1.	Worker	- Check the status of the disaster and inform fire personnel promptly. - Keep records all important points. - After the disaster protection team arrives, make contact with the fire brigade. - All work arrangements must be coordinated. (Fire, emergency relief procedures) - File emergency records and obtain documents and photos.	No extra cost
2.	Factory Manager	- The designated assembly area (Muster point) must be established. - The head of the survey must report back to the dutied inspector on the results of the population survey. - The Director's directive must be informed to the staff.	No extra cost
3.	Vice Factory manager	- Assist with departure instructions. The departing directive shall assist and perform its duties in the absence of the factory manager. - All department head can decide on the situation. - All employees are immediately suspended operation when receiving a notice of emergency leave. - Must be prompted and orderly to reach the secure assembly area from the designated exit. Staff should be instructed not to use the elevator. All exits are blocked or alternatively, only when unsafe must be used. - Visitors, contractors who are in this area must leave together at that time. - Immediately check on staff when arriving in the assembly area. - The director must report the population and determine the number of missing persons. - People who have escaped the disaster must be directed to stay in designated muster point. - Wait for instructions from the factory manager and respond to the staff. In the absence of him, the vice factory manager will be responsible.	No extra cost
4.	Building Inspector	- All employees (employees, guests, contractors, etc.) must leave from existing area - Toilets, the floor of the apartment, living Room, and locker rooms should be checked quickly and checked to see if any of them are there. - Do not lock the door when you leave - Visit the gathering area and report the results to the superintendent and wait for the next step in the emergency instructions.	
5.	Fire team	- Take the fire extinguisher from the nearest location and follow the instructions to the next step. - Follow the instructions of the emergency director. - If necessary, ask the fire department for assistance.	
6.	Emergency Rescue Team	- Patient carrier and emergency medicine boxes must be collected and assigned to the assembling area. - Before the rescue workers arrive, medical personnel should be given medical records and keep records of injured persons and their records. - If necessary, must call an emergency ambulance. - The Director of Disaster Assistance must be provided with the latest information. - The required information must be informed by radio transmitter. - Before leaving, the main door must be open.	
7.	Equipment Maintenance Staff	- Electricity and gas should be completely closed and the generator (including oxygen, hydrogen or nitrogen) should not be used and ready to use. - Go to the assembly area and wait for the next step.	
8.	Security personnel	- He should contact to the fire department or the police department if it is an emergency or a fire event, even during not office hours.	

Sr.	Responsible Persons	Responsibilities	Annual Estimated Budget
		- In case of a fire, not an office hour, necessary notification must be advertise through the entire factory's radio machine. - The main door must be open to allow access to fire emergency exits. Don't allow to enter other persons into the factory. Do not be afraid.	
	Emergency Plan	- If anyone finds a fire or explosion, do the following:	
9.	Any one	- Enable Nearby Emergency Alert - Contact to emergency phone number 191 Fire Department - If it is safe, when fire, kill fire with fire extinguisher nearby. - If is not, leave through nearest emergency exit. Then go to assembly point.	
Emergency Departure Plan			
10.		- All staff must rest. Must stop the machine and equipment, - Departmental heads must let their staff to leave through a designated exit. Do not use elevators. Guests and contractors must leave too. If the exit door is closed, must choose another route; Building inspector must check whether there is any people left or still at the place at this assignment or whether there is any clutter. - To depart to the designated gathering place; People in the toilet or locked room must not push one another. Don't take any belongings when leaving. - Every person in this area should be counted by the department manager. If there are lost, must inform to Director immediately. - Those who leave the area must meet in accordance with the Department's instructions and wait in the assembly area. Nobody must not return to the workplace until the Emergency Alert is withdraw by departmental manager. - The technicians must turn off the electricity and gas, then must go to the assembly area and wait. - Fire fighter must bring the firefighting equipment from nearby and then go to the assembly place. They must wait for further instructions. Emergency rescue workers must also bring up the medical bags and emergency medicines to assembly area.	
11.	The fire personnel	- need to keep in mind the following:	
12.		- Only put out the fire when it is safe during low fire. - Water cannot be poured over an electric motor because the water is heavier than oil, so no water should be poured on the familiar oil. Otherwise, the oil will continue to burn. - If there is an uncontrolled fire during the fire, prepare a safe exit for the exit. - When the fire is out of control, stop the fire and get out quickly. Do not lock the door. This will prevent the spread of fire and smoke. - Establishing a Disciplinary System - Guidance on emergency and hazard assessment and to provide annual emergency training; - Make changes to the emergency plan or change every two years.	
Environmental and Ecological Conservation Requirements			
13.		- To examine the impact of environmental conservation on emergencies - Where possible, environmental conservation measures must be taken; - If not implemented immediately, must need to ask the relevant Environmental Protection Organization. -	

The project proponent will allocate funds for disaster prevention programs according to the table above, and additional funding will be provided by the operating visit if funding is inadequate.

8.4 Integrated Health, safety, Environmental and Emergency and Social Plan

Health and safety plan and trainings

- The factory is dedicated to providing safe and sound working environment for its workers. All relevant safety equipment is provided. Quarterly regular training for safety equipment and rigid regular inspection is carried out the department supervisors for implementation of the plant's health and safety standards.
- All workers in the project are required to wear adequate personal protective equipment relevant to their jobs. Supervisors are trained to monitor health and safety of their crews in their department. Health and safety related information is also posted on the announcement board.
- Safety and health training for factory employees are also provided as internal training minimum once a year. When a new employee is recruited, he or she is instructed to read employee handbook to introduce with the nature of the job descriptions.
- All the operational equipment is properly covered and security alarms are installed everywhere of the factory. The safety rules have been also notified and posted at factory compound where employees can see them easily.

Community Health and Wellbeing

- Employees will undertake a fitness to work assessment and baseline medical assessment on joining;
- The health program will include medical examination and immunizations (if required) of employees and main contractors on a regular basis;
- Training will be provided to all staff, both national and expatriate, and will include awareness-raising-On health considerations, including sexually transmitted-diseases
- Health awareness training will be conducted at induction and then periodically throughout construction and operations;
- Health awareness materials will be provided in the appropriate language and disseminated through the meeting houses, Store front Information centers, and local schools;
- Medical facilities will be provided to all workers and their families at the site and there will be dedicated ambulance service for the project

Emergency Plan

- This factory has installed fire safety measures and system including firefighting trucks as instructed by the fire department.
- All emergency exits are visibly marked.
- Fire extinguishers are properly installed and regularly inspected and certified. In addition, drills are carried out to ensure the safe evacuation of the workers.
- The fire department also conducts regular inspection. The emergency number to contact the nearest fire department is posted visibly in several places throughout the factory. Fire escape routes are also posted throughout the factory.
- The factory stores sufficient amount of water for extinguishing fire. The plant assigns a number of staff to coordinates for emergency fire accident. In addition to regular inspection for fire prevention, smoking is prohibited in the project.
- In addition, the factory employs spill emergency plan to counter the accidental spill situation. The spill response procedures are explained and placed on walls near the fuel storages and vehicle parking in addition to training.
- In the event of an emergency, a yellow line is provided and marked for emergency evacuation. Emergency medical care is provided in every department and vehicles are provided for transportation to a nearby health clinic.

Social policy

Factory Management takes care of the welfare of its workers. Social and gender equality is exercised without a compromise in the project. Discrimination of any forms is forbidden and harsh penalty is promised. To guarantee the fair working environment, workers are allowed to organize labor unions and bring up issues to

the management. The workers pre offered attractive compensation in line with the regulatory requirements for any overtime work. Sick leave is granted with proper medical certificates and annual leave are given properly.

The project encourages every worker to speak up for any issue at the regular meetings. In addition, the plant rewards workers who propose innovative improvements to their work and the working environment.

As defined by the law, children under the age of 18 years are not welcome to work in the factory. The plant has been striking hard to shore up the number of working women and the number of women in the management levels. Work related injuries are fully treated by the project and handsome compensation will be provided depending on the severity of the injury. However, the plant's main aim is to prevent work related injuries. The plant also offers bonuses and awards based on merit. The factory believes in sharing some parts of its profits in a form of development to its employees and the communities nearby.

Impact of emergency and health (hospital) service

In a project site the lack of emergency and health service can have an impact on the operation of the project. If an accident that effect many people occurs the available service at Hlaing Thar Yar Township Hospital and Shwe Pyi Thar Township Hospital cannot solve such a serious problem, Yangon General Hospital should be taken into considerations. The condition may be worse if there is no emergency plan or contingency plan to mitigate the impact.

Natural disasters such as violent storms and great floods are ruled out for this area; there is no precedent of such a disaster within memory. But there can be potential for accidents at the work place, particularly at the garment factory site.

For the mitigation, careful planning of emergency procedures must be formulated and implemented. SDI Manufacturing has provided training at least two workers for first aid training while another three to five workers for firefighting.

Also has already provided adequate First Aid Kits, Fire extinguishers (cylinder) and water jet pumps. Most of all provide personnel protective equipment (PPE) to workers exposed to dust, smokes, heat, vibration etc.

SDI Manufacturing management always try to prevent or reduce incidence and severity of injuries during factory operation. It has been tried to respond immediately and adequately in case of a serious accident.

For emergency response, has been organized regular mock drills for first aid works and also drills for firefighting.

Already has displayed phone numbers and addresses of nearest Red Cross Society, Ambulance Service, Fire Brigade, Police Station, Hlaing Thar Yar and Shwe Pyi Thar Township Hospital, Yangon General Hospitals on the wall. So that every worker can see easily at significant places of the factory

Safety Warning Sign and Photogram

Safety signs have been categorised into 6 main types in order to apply a consistent design across similar functions. By understanding the types of signs and their purpose, you can determine what you need in your workplace and where to display them.

The first 2 types of safety signs have been classified Regulatory Signs in the Standard AS1319:1994 Safety Signs for the Occupational Environment. These signs contain instructions on what CAN'T be done or MUST be done:

1. Prohibition Signs – CAN'T DO

When you need to tell people that they can't do something, you'll need a Prohibition Sign – you know, the one with the universally recognisable red circle with a diagonal line through it. Keep people from entering private property with a NO ENTRY sign or signal that people aren't allowed to smoke in an area with a NO SMOKING sign.

2. Mandatory Signs – MUST DO

A Mandatory Sign is a must when you have an instruction that has to be followed. You'll recognise these by a white symbol or pictogram within a blue circle on a white background. If your workplace requires protective clothing or equipment, for instance, you'll have seen signs like: Foot Protection Must Be Worn In This Area or Hearing and Eye Protection Must Be Worn In This Area. You can also have just a word message with no image for Mandatory Signs, with the words in black on a white rectangular background.

The next 2 types of safety signs are classified Hazard Signs. These signs are about what could KILL or HURT you:

3. Danger Signs – KILL YOU

If you need to warn people about potentially life-threatening hazards or hazardous conditions, you need to use a Danger Sign. The familiar red oval inside a black rectangle with the word DANGER in bold, capital letters, alerts people to the threat. Common Danger Signs include HIGH VOLTAGE and DO NOT ENTER.

4. Warning Signs – HURT YOU

When the hazard or hazardous conditions aren't life-threatening, a Warning Sign lets you know you could still get hurt. These are easy to identify with their yellow background and black triangle around the hazard symbol. SLIPPERY WHEN WET is a commonly recognisable Warning Sign.

The last 2 types of safety signs are informative signs:

5. Emergency Information Signs – SAFETY FIRST

If something does go wrong, Emergency Information Signs help people to find the location of, or directions to, your emergency related facilities, like emergency exits, first aid or safety equipment. The green background with white writing and symbols is instantly identifiable for safety, with common signs like, FIRST AID KIT, or EMERGENCY PHONE.

6. Fire Signs – FIRE EQUIP

The bright red of Fire Signs makes them easy to spot around fire alarms and fire-fighting equipment. All text and imagery is white and stands out against the red background. Fire Signs are available to indicate the location of all your fire equipment, like fire extinguishers, fire blankets, fire hoses, and more.

In this factory, also warning signs and photograms have been already posted in the respective places such as chemical warehouse, and other operational areas which are shown below;

8.4.1 Forming Factory HSE and Emergence Response Management Organization

SDI Manufacturing Factory has been formed HSE Management Organization which has been shown below;

Factory HSE Management Organization with duty and responsibility

Sr.No	Name	Designation	Duty and Responsibility
1.	Mr.Lai Kin Ching	General Manager Factory Manager	Chairman Overall responsibility of Environmental Management of the project. Providing Resources for Environmental Management. Defining responsibility of key personnel. Review and authorize the EMP.
2.	U Cho Lwin Oo	HR Manager	Executive Officer Liaise and communicate with External Agencies, Neighboring sites, Regulatory Authorities, General public and interested parties including NGOs, Stakeholders and Community Groups regarding environmental requirements & issues. Obtain all environmental approvals necessary. Internal & External Communication. Ensure that environmental protection requirements are communicated to all project personnel (including contractors and sub- contractors). Ensure operational controls are in place and are effective. Maintenance of Legislation registers. Implement and promote .
3.	Financial Shipping Production Printing Department Administration	Department Heads	Executive Environment Policy & Monitor achievement of Environmental Objectives and targets. Responsible for Emergency Preparedness and response. Perform verification regarding implementation of environmental measures in accordance with the control measures identified in the EMP
4.	U Min Aung	Supervisor, Laundery	Member
5.	U Khin Maung Htwe	Electrician	Perform verification regarding implementation of environmental measures in accordance with the control measures identified in the EMP
6.	U Ye Htut Naing	Mechanic	
7.	Daw Wai New Oo	Nurse	
8.	Daw Khin Myo Min	Supervisor for all Dept;	
9.	U Thet Pyae Oo	Warehouse	
10.	Daw Yadanar Oo	QC	

This management team will lead to perform not only Factory HSE improvement implementation but also integrated implementation on environmental management plan (EMP) as well as for impact mitigation plan and environmental monitoring action plan during all operational phases. Implementation team will cooperate with formed Proposed structure of Environmental Management, Mitigation and Monitoring Organization (Shown below figure) including local communication to carry out implementation of Environmental Management Plan successfully.

SDI Manufacturing's Garment Factory Management has always been involved in environmental management planning and monitoring with the local community up to now. To establish the Environmental Management and Monitoring organization, Factory Management committee is coordinating with Ngwe Pin Lae industrial zone's authorities and organizations from Hlaing Thar Yar Township.

8.4.2 Proposed structure of Environmental Management, Mitigation and Monitoring Organization

Environmental Management, Mitigation and monitoring group for this factory will be structured mainly by 3 groups which are (1) the relevant government departments, (2) Project officials and representatives of Ngwe Pin Lae Industrial Zone and (3) Local representatives of the respective Ward deal with the elected will be formed.

Table 42: Proposed Environmental Management, Mitigation and Monitoring Organization

Sr.	Representative	Qtty
Government Department		
1*	General Administration Department of Hlaing Thar Yar Township	1
2*	Township Health Department	1
3*	YCDC of Township Municipal	1
4*	Townshp Fire Department	1
From Factory		
1	Factory Manager	1
2	HSE Manager	1
3	HR Department Manager	1
Local Representative***		
1*	Elected Elder from Local Community No.3 Main Road from Ah Lae Village tract	1
2**	Representative for Ngwe Pin Lae Industrial Zone	2

Responsibilities of Environmental Management, Mitigation and Monitoring Organization

The responsibility of Proposed Environmental Management, Mitigation and Monitoring Organization are as follows;

- To identify and resolve environmental issues and other functions that may arise during the operational phases;
- To implement water quality, air quality and noise impact monitoring programme during the operational phase;
- 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;
- To assess and interpret all environmental monitoring data to ascertain whether environmental control measures and practices are functioning in accordance to specifications;
- To manage and liaise with all stake holders (residents of the surrounding areas, local authorities, business operators etc.) concerning any environmental issues during the operational phases;
- To conduct formal and informal visits especially during the operational phases to assess adherence of the concerned parties to the mitigation measures as set out in the EMP report.

Periodical monitoring of the ambient air quality, emission, noise level in and around the factory area at least twice in a year or ECD's Instruction, water once 6 months in a year shall be undertaken as per MoNREC, ECD's forth coming norms by appointing external agencies necessary. The location and frequency of monitoring has been shown in 6.3.2 Operation Phase - Environmental Management and Mitigation plan and 6.3.3 Post closure Phase - Environmental Management and Mitigation plan.

8.5 Result of the Public Consultation

8.5.1 First Public Consultation Meeting 12th June 2020

According to EMP procedure, public consultation with stake holders is divided by 3 methods and conducted in this factory area.

a. Questionnaires with local people and nearby factory, to get their comments for factory operation
b. Public consultation meeting at factory after inviting the local from surrounding area and factory

Date - 12.6.2020
Place - Plot No. 40, Myay Taing Quarter No. 24, Ngwe Pin lei Industrial Zone, Hlaing Tharyar Township, Yangon Region, and Republic of the Union of Myanmar
Time - 10:00 AM to 11:30 AM

Meeting Agenda

Introduction

As the project is a Garment Manufacturing facility operated by the SDI Manufacturing Co., Ltd. Established of the Company facility commenced in 2013 and the factory became operational in 2014.

There has been performed a first-time public consultation meeting to study Attitude of local residents and employees regarding the operation of the factory.

SDI manufacturing Co., ltd has been operated Manufacturing and Producing garment product in Ngwe Pin Lae Industrial Zone.

To explain environmental impact by the project, and mitigation, workers health & occupational safety (HSE), and including the provisions set by the State Laws and Rules of the environmental case studies, Environmental Management Plan (EMP) meeting has been held at the meeting hall of the factory at 10:00 AM, on 12, June, 2020.

The discussion was led by AMK Asociate Aung Myat Kyaw.

Head of Office for Hlaing Thar Yar Township Municipal Department – U Kyaw Lwin Htay, U Pyae Phyo Aung (Executive) from Ngwe Pin Lae Industrial Zone, U Htun La from Information Organization, U Tin Htay of General Administration Department, Representatives from near by factory such as Lucky Fortune Garment factory, Universal Cool Store, Saung Oo Shwe Nay Garment factory, and supervisor from SDI manufacturing Garment Factory attended this meeting.

Human Resources Manager U Cho Lwin Oo attended this meeting, on behalf of Managing Director of SDI Manufacturing Company Limited Mr. Lai Kin Ching.

According to the meeting agenda the AMK and Association Team Leader U Aung Myat discussed although there has no prescribed environmental impact on the system and standards, since 2012 Environmental Laws and Rules has been enacted in Myanmar and according to laws and rules for international investment Laws & EIA and EMP etc has to be submitted to Environmental Conservation Department (ECD). Depends on the size of the project, MIC and ECD decided that the company or factory has right to submit EIA, IEE and EMP. For the example, the bridges project has to submit EIA, factory /Workshops for IEE, and if the garment, Shoe factory to need EMP. This Win and Win Veneer plant may require IEE by the mechanism would visit their group discussion. For EIA, IEE and EMP Report, ECD as defined topics, expressed Experienced Consultant.

The Consultant team has expressed as follows (3) and points (1) to check the environmental / (2) if you have a method to analyze / And (3) to eliminate all countries follow the path Said has been discussed.

U Aung Myat Kyaw continued talking that if many oil spill from oil or fuel tank more than over, it may impact on the environment so, it has to be set to spread the oil storage floor as concrete Floor, storing the resulting waste is properly maintained, cleaned,. Processing industry has to be operated by the experts and the result is one of the Emergency Case of factories to ensure safe emergency exit (Emergency Exit) will be put in the compound. Fire Fighting Fire Extinguisher (Fire Extinguisher) and need to keep Emergency Relief (First Aid) Required boxes, to keep enough medicine and clean.

In addition, in order to focus on the occupational safety and HSE encourage said, then he asked about the condition of plant (Packing material) of the waste deposing, and storage of lubricant oil and water storage tank.

U Aung Myat Kyaw explained that observing of the factory operation result; the flammable situation is designated so the factory management has to store the raw materials it maintains systematically. A position of manufacturing equipment as well as (Finished product) is to be cleared. And explained about proper storage of equipment such as Fire Extinguisher, Fire equipment which are needed to accommodate full Fire (Underground, and overhead Tank). Especially Drying Machine's heating system, a start heating in forming the smoke, so private space is required to accommodate a specific need to build up high chimneys. Not to make burning trash cleanup program for solid waste. And factory has to make discussion with municipal departments as negotiating processes should be done for waste management. In addition, need to build up public drains around the factory environment. According to the nature of the project accidents could possible to observe because of the lack of PPE practice.

Discussions

- U Kyaw Lwin Htay (Assistant Administrator), Hlaing Thar Yar Township Development Committee
  - **to develop Waste water treatment system in a wastewater treatment system**
  - **Do not discharge wastewater from a septic tank in a public drainage.**
  - **Take care to prevent disturbances by noise pollution to the surrounding environment**
- U Zin Min Naing – Ward Security Organization – Ale Ywar, Padauk Street
  - **Attention should be given to electrical hazards as priority**
  - **In case of an emergency, recommend in arranging to open and exit gates as soon as possible.**
- U Tin Htay – Ward General Administratin office
  - **To minimize environmental impact on the operation of the plant; Disciplined,**
  - **disciplined and responsible for the effects of sound, smell, and smell; Systematically disposing, after treatment of wastewater for health;**

- U Tin Ko – Saung Oo Shwe Nay Garment Factory
    - **Government organizations for environmental protection; we urge all parties to cooperate.**

The meeting had been finished at 11:00 AM in the morning successfully.

Remarks:

This company's factory will hold Public Consultation Meeting continuously during operation regularly as part of EIA investigation (EIA Procedure 61 (a))

Concerning above suggestions, SDI Manufacturing Factory Management Committee has taken action already and continue being implemented.

Figure 62: 1st Public Consultation Meeting (12.06.2020)

Meeting Attendees List and some of their Suggestions

SDI MANUFACTURING COMPANY LIMITED ADMINISTRA

SDI Manufacturing Co.,Ltd

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာဆွေးနွေးပွဲဖိတ်ကြားခြင်း

ကျွန်တော်များကုမ္ပဏီ (SDI) ၏စက်ရုံလည်ပတ်ခြင်းနှင့် ပတ်သက်၍ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ၊ထိန်းသိမ်းစောင့်ရှောက်ခြင်း လုပ်ငန်းများ (Environmental Management Plan) ရှင်းလင်းတင်ပြခြင်းအားဆွေးနွေးလိုပါ၍သက်ဆိုင်ရာအဖွဲ့ အစည်း ၊ SDI စက်ရုံပတ်ဝန်းကျင်ရှိစက်ရုံများမှသက်ဆိုင်ရာတာဝန်ရှိသူများ ၊ ဒေသခံပြည်သူလူထုများအားတက်ရောက်ပေးနိုင်ပါရန် လေးစားစွာဖိတ်ကြားအပ်ပါသည် ။

နေ့ စွဲ ၊ ၂၀၂၀ပြည့်နှစ် ဇွန်လ၁၂ ရက်

အချိန် ၊ နံနက် (၁၀း၃၀) နာရီမှ (၁၁း၃၀) နာရီ

နေရာ ၊ အမှတ်(၄၀)(၃)လမ်း ၊ ငွေပင်လယ်စက်မှုဇုန် ၊ လှိုင်သာယာမြို့ နယ်

လေးစားစွာဖြင့်

SDI Management Committee

အမှတ်စဉ်	တက်ရောက်သူအမည်	လိပ်စာ/ ဖုန်းနံပါတ်	လက်မှတ်
1	Lucky Fortune	အမှတ် ၃၆ / ၃ လမ်း / ငွေပင်လယ်စက်မှုဇုန် 09.69408 7751	[illegible]
2	Universal	[illegible]	[illegible]
3	ဦးကျော်လှိုင်ငွေ	[illegible] 09.977275229	[illegible]
4	[illegible]	[illegible] 09.450 114 338	[illegible]
5	[illegible]	ငွေပင်လယ်စက်မှုဇုန် [illegible]	[illegible]
6	ဦးတင်ကို	[illegible] ([illegible])	[illegible]
7	[illegible]	[illegible] / 09.254383849	[illegible]
8	ဦးတင်ငွေ	[illegible] / 09.787373223	[illegible]
9	[illegible]	[illegible] 09.762777467	[illegible]
10	[illegible]	All Super 1,2	[illegible]
11	[illegible]	Super	[illegible]
12	[illegible]	Super	[illegible]
13	[illegible]	Super	[illegible]
14	[illegible]	Super	[illegible]
15	[illegible]	Super	[illegible]
16	[illegible]	Super	[illegible]
17	[illegible]	All Super 9, 10, 11	[illegible]
18	သင်းအောင်	Super	[illegible]
19	[illegible]	Super	[illegible]
20	မင်းအောင်	Super	[illegible]
21	[illegible]	Super	[illegible]
22	[illegible]	Super	[illegible]
23	[illegible]	Super	[illegible]
24	[illegible]	All Super - Finishing	[illegible]
25	[illegible]	Super	[illegible]
26	[illegible]	Super	

အကြံပြုချက်များရှိပါက ရင်းနှီးပွင့်လင်းစွာရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ ၁၂-၆-၂၀၂၀

စဉ်	အကြံပြုလွှာ
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၃။	[illegible]
၄။	[illegible]
၅။	[illegible]

လက်မှတ် [signature]

အမည် [illegible]

ဆက်သွယ်ရန်လိပ်စာ [illegible]

ဖုန်း ၀၉-၉၇၇၂၇၅၂၂၉

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ရက်စွဲ 12.6.2022

စဉ်	အကြံပြုလွှာ
1	လျှပ်စစ် မီးနှင့် ပတ်သက်သော အရာများကို အမြဲ အရေးထား ပေးလိုပါတယ်။
2	အရေးပေါ် ကိစ္စများ ဖြစ်ခဲ့ပါက ဝင်/ထွက် အပေါက်များကို ဖြောင့်/ လွယ်ကူ ပေးစေလိုပါ။

လက်မှတ် [signature]

အမည် ဦး[illegible]

ဆက်သွယ်ရန်လိပ်စာ အလယ်ရွာ [illegible]

ဖုန်း 09 450 114 338

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ရက်စွဲ.....12/6/2020

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အမည် [illegible]

ဆက်သွယ်ရန်လိပ်စာ [illegible]

ဖုန်း 09 480064027

Results of public consultation Meetings and providing needs of the local community

As a result of the first public consultation meeting for the SDI Manufacturing Co., Ltd's garment factory, it can be said there is no seriously affect to local community by the project. And the anxiety of the local community is very low as it is located in Ngwe Pin Lae Industrial Zone, with very low quantity of residents and houses.

1. In accordance with local community's recommendations and requirements, company management will promise to avoid side effect, from garment manufacturing process and systematically take care on wastewater management.

2. Also, wastewater generation from washing process and sewage has not been discharged directly to public drainage without treatment by effluent treatment plant, since project started.
3. In order to Electrical Inspection Department instruction, to avoid from electrical hazard, electrical equipment and materials has been checked, according to schedule.
4. According to factory's evacuation plan, it has been already arranged in case of emergency, all door inside the factory is never closed, and plan to escape from natural hazards such as fire, floods and earthquake. **Evacuation Plan and emergency exits Sign Boards are shown at every visible place in the factory which has been mentioned in Appendix 1 to Appendix 8 of this report**.
5. For all pollution sources generated by garment manufacturing process, it has been planned and mitigated systematically which has been suggested by consultant for environmental concerns and avoid from annoying with local communities.
6. An addition, CSR activities will be a constant and consistent support for objective of regional development. The CSR functions will be implemented and use in various sectors for the local community

Commitment for the regional development projects and Socio-economic development Projects

According to the local development and social development programs (CSR) for SDI Manufacturing Co., Ltd, in the future, there will be a budget of at least 100 lakhs each year in the region (education, social and health), and additional funding will be made, according to company decisions.

The project proponent promises that the regional development and socio development project will be implemented continuously.

8.5.2 Grievance Redress Mechanism

The Project-level Grievance Redress Mechanism is currently being developed to manage the grievances and complaints received from the Affected Community and employees during the phase of operation.

Scope

This project-level GRM for Affected Communities will address following types of grievances:

- Health, safety, environmental & social (HSES);
- Accidental impacts associated with injury or death or damage claims;
- Misconduct of Project personnel;
- Insufficient employment opportunities; and
- Misleading or lack of information.

In addition to the above complaints/grievance's types, the GRM will accommodate the Affected Communities' inquiries and concerns.

Corruption cases and criminal acts, however, will not be addressed within this GRM, and shall be responded properly and separately by the Group Risk Management and Assurance unit.

The Grievance Redress Mechanism is only available for those residing or employing in the areas of immediate communities around the Project that will be directly affected by the Project development activities. The Affected Communities, who are identified as below, will be eligible to raise their grievances under this GRM.

Residents

1) Residents around SDI Manufacturing factory project (Ngwe Pin Lae Industrial Zone)

Grievance Redress Committee of the Factory

The GRM will be administered by the Grievance Redress Committee which will be formed as shown in the Figure below;

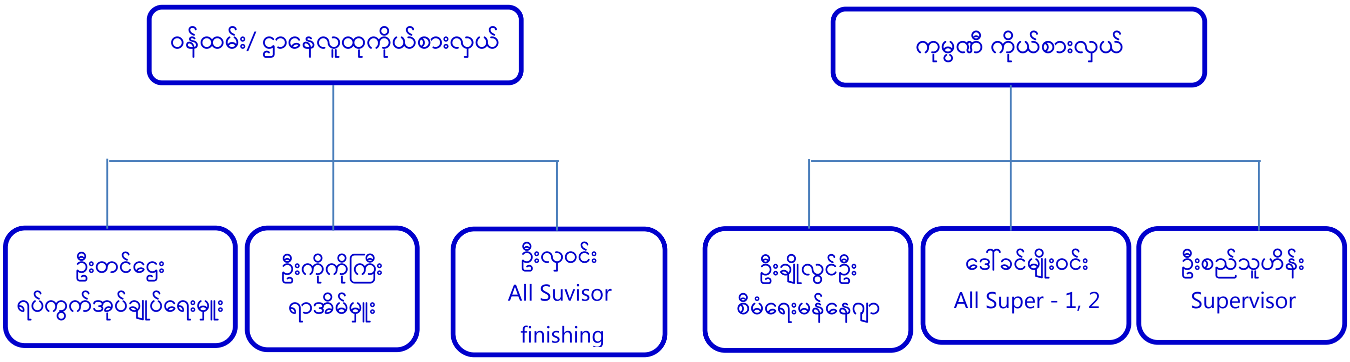

Figure 63: Grievance Redress Committee

Having been classified as Category B project by IFC which means the Project will have only a limited number of reversible E&S impacts that can be readily addressed through mitigation measures, the Company does not expect a large number of complicated grievances to be regularly received, and hence it will not employ full-time employees for grievance handling. Instead, the Company will elect suitable existing employees to take on grievance redress as a concurrent responsibility. The Contractor shall also nominate two of its employees to act as Community Relations Officers, and inform the Company of this nomination prior to the official appointment. It is crucial that nominees are selected based on their knowledge of the Project and understanding of the social and cultural environments of the communities.

Grievance Redress Procedure

- The Grievance Redress Committee will handle grievances as a step-by-step process as outlined, which encompasses four major steps: receiving, recording and registering; screening; investigating; and resolving and responding.
- The procedure is still under development, and it will be finalized after consulting with the Public.
- Under any circumstances, the Project will make sure that:
- the grievance is acknowledged within 48 hours from the time of receiving; and the resolution is made within one month, or the complainant is informed of the progress in case of taking longer

Suggestion Boxes

Grievances during business operations; Complaint reporting is publicly available and publicly available. Suggestion boxes have been positioning up in eight prominent locations where employees can easily see.

8.6 Commitment for Public Engagement

- **SDI Manufacturing Company Limited, the project proponent, will be responsible for implementing social and mitigation measures for potential environmental and social impact during the proposed factory implementation operation.**

CHAPTER 9 RECOMMENDATIONS AND CONCLUSIONS

9.1 Recommendations

It is recommended that all the workers at the factory be retained / employed under the EC written contracts and that their working hours, holiday entitlements comply strictly with the requirements of factory act and relative labor laws and guidance.

The factory management committee should establish and display the internal regulations, HSE plan of the company, the content of which should be as that stipulated in the legislation.

Human resources policies and procedure should be put in place and all workers should be trained and informed.

Management committee should arrange attendance of Health and safety training program for all of work force one time generally.

The following recommendation for SDI Manufacturing Garment Factory should be considered as a better practice for HSE plan.

Policy for the cleaner production, environmental management system should be developed and implemented and frame work legislation on cleaner production and EMS must be prepared and put into effect.

- Industry should construct functional environmental treatment plan and operate them regularly (ex: No water should be discharged without proper treatment.
- Specific service such as training, counseling, audits etc. should be provided for general environmental management, new and potential regulation, cleaner production approach including monitoring, migration, bench marking, and environmental performance indicator (emission standard from ECD).
- Adaption of waste minimization can provide a significant decrease of pollution amount as well as production cost.
- All workers need regular checkup of healthy by the company employed doctor. Some technicians need regular maintenance to machine according to manufacture instruction.
- Ensure to have sufficient fire prevent equipment and fire exist doors, emergency exist in each factory's warehouse.
- Need to check electrical equipment, outlets, wires, dust free clean electrical outlets regularly with their lifetime
- Confirm better and safer working environment for the workers
- Factory management group ensure the criteria of environment and work place safety standard (in house complying with government standard)
- Workers are the main part of a factory, at it cannot run in a single day without their contribution and work skill and workmanship. Therefore, first priority should be health and safety issue, work place environment should be comfortable for them, provision of social welfare to workers according to labor law (Myanmar labor organization social law)
- Awareness develops and capacity building and activities should be carried out for all workers and management group at factory in relation to the environmental issue of this factory, understanding of emission standards from ECD.
- Preparation of fire safety and emergency preparedness and regular check for these including lack of emergency exits and clear, lighted escape routes in production area, unclear or blocked exit pathway and excessive travel distance to exists, instruction written in local language, safety inspection for alarms, smoke detector, and emergency equipment.

9.2 Profit of the Project

This project will be developed as a commercial purpose and its consequent impact on environment has put greater emphasis on energy consumption and waste management from execution to operation of this project, systematic environmental management and monitoring plan should ensure that the adverse impact to the natural and social environment identified in this report are appropriately minimized.

SDI Manufacturing Company Limited fulfill the requirement and demand of Garment Products, it is realized the demand of development of the finished product to export quality.

SDI Manufacturing Company Limited is planning, studying and possibility to serve with reasonable rate, and extend civilian network and part of developing where the human resources and is out of their reach for submission to the Government.

Labor and working condition

Based on the finding of labor survey, their working hour is 48 hours during one week. There are about 500 workers in this factory during the operational phase. That's why management committee must understand the labor law relating to this industry and worker's health and safety, rights and payments, problems solving the disputes between employer and workers justly and right fully, quickly.

Environmental Management Plan Formulation

The formulation of environmental management and monitoring plan has been supplemented by the implementation of the mitigation measure, monitoring result and evaluating will suffice to reduce environmental and social impacts to be in acceptable levels, to become formal and practiced factory.

9.3 Conclusion

The factory location is in Hlaing Thar Yar Township Area. The part of Area is occupied by factories compound.

The primary conclusion of Study for this Environmental Management Plan report is presented as below;

- The project adverse impact on the air, noise, water and socio-economic environment will be prevented by the implementation of the proposed mitigation and management plans for operation of the factory proposed in this report.
- The safety and health of workers relating to this operation will be strictly under controlled by management committee of factory and need to provide personnel protective equipment and gear, awareness training.
- The environmental monitoring plan designed as part of this report is effectively bring to light impact and controlled by prevention method. This operation crew is not too much seemed to be medium sized operation only.
- **According to the Ministry of Natural Resources and Environmental Conservation (Former MOCAF Notification No. 616/2015, Environmental impact assessment procedures, Chapter 4, Article 63 (i) of EIA procedure (Dated December 29, 2015), as a part of scoping in Public Consultation Meetings may need to hold continuously before and during operation phase for the environmental and socio-environmental, as well as what local people's needs to perform best.**
- The methods described in the report to reduce the impact on the environment, workplace safety measures, to keep records of emissions, odors, sounds, and liquids, and to monitor the number of times will be carried out as promised.
- We intend to work together with all of factory workers with occupational and Disaster Safety health Equipment, fitness, Measures to maintain and manage for the environment, through the Joint Implementation Team Work already undertaken constant efforts Commitment to optimize Safety Culture continuously (Continuous Improvement) comply with the Top Management of the Guidelines implemented for decision has been present one underway.

LIST OF COMMITMENT

References in the report (Chapter)	Abbreviation of the pledge	Explanation of commitment
2.	Commitment about the EMP Report	- This Environmental Impact Assessment report will be prepared by the relevant project proponent in accordance with the Environmental Impact Assessment Plan, with experienced consultants acting as a third party.
3.	Commitment about the Project	- During the day, consumer waste, construction waste and hazardous waste, will be segregated, before disposing of performing waste treatment - The project will focus on air emissions; Noise and vibration; Relevant standards and regulations for the disposal of waste; we will follow the guidelines of NEQEG.
4.	Commitment for the complying of laws and regulations	- The project proponent is responsible for enforcing laws and regulations issued by local and relevant departments related to environmental protection. Rules and requirements; All obligations and responsibilities will be complied with. - Committed to ensure policies which are prescribed by SDI Manufacturing Company Limited will be followed strictly
5.	Commitment for Environmental Conservation by SDI Manufacturing Co., Ltd	- Regarding objects emitted into soil, water and air environment, SDI Manufacturing Co., Ltd will comply with National Environmental Quality (Effluent) Guidelines issued by Myanmar Environmental Conservation Department in 2015 and it is their committment
7.	Commitment for Environmental Management Plan Implementatin and Monitoring Plan	- In collaboration with the Environmental and Social Implementation Team and the Project Management Team, environmental management plans will be implemented during project construction and operation. - A risk management plan for the implementation of the Factory operation will also be prepared. In addition, the maintenance of equipment used should be monitored daily and monthly. - Disaster management plans will also be prepared. - According to Environmental Impact Assessment Procedures (2015)'s Chapter 9, Section 8, the Environmental Monitoring Report will be submitted to Ministry of Natural Resources and Environmental Conservation, by Project proponent (SDI Manufacturing Company Limited) for every six months, as it will be submitted as per prescribed, by ministry.
8.	Commitment for Public Engagement	- SDI Manufacturing Company Limited, the project proponent, will be responsible for implementing social and mitigation measures for potential environmental and social impact during the proposed factory implementation operation.

REFERENCES AND SOURCE OF INFORMATION

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- *Environmental Data Resources, Inc. (EDR). 2007. "Sanborn® Map Report, Inquiry Number 123," Month and day.*
- *MOI: Ministry of Industry, Myanmar. Industrial Wastewater Effluent Quality Standards, 1995.*
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- *APHA, AWWA, and WEF, 2005. Standard Methods for the Examination of Water and Wastewater, 21st ed. American Public Health Association, Washington, D.C, USA.*
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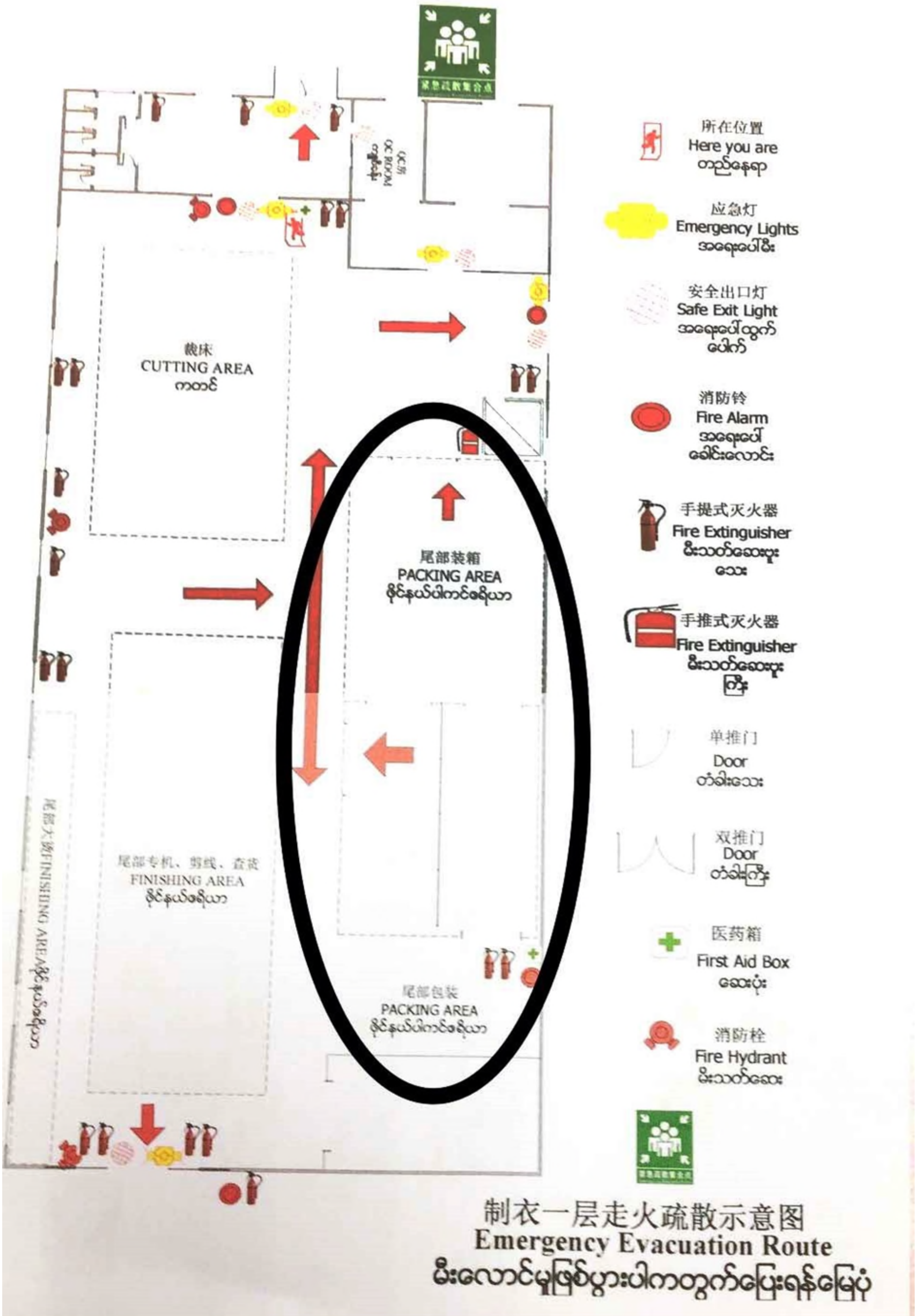
- *Myanmar Eleven Newspapers, (2014). "Water shortage feared as temperature soar".*
- *Myanmar Eleven Media, 24 April 2014, Yangon, Myanmar.*
- *The following documents and sources of information were utilized during the assessment:*
- *Myanmar Laws and legislation from www.burmalibrary.org, www.vertic.org/media/National legislation/Myanmar/*
- *Yangon Division Meteorology Reports 2011-2013 by Department of Meteorology (Myanmar)*
- *Environmental and Social Management Framework (ESMF) by Ministry of Communications and Information Technology (MCIT) November 29, 2013*
- *Myanmar Companies Act (1914)*

  A Myanmar investor wishing to carry on business in Myanmar through a limited company may register

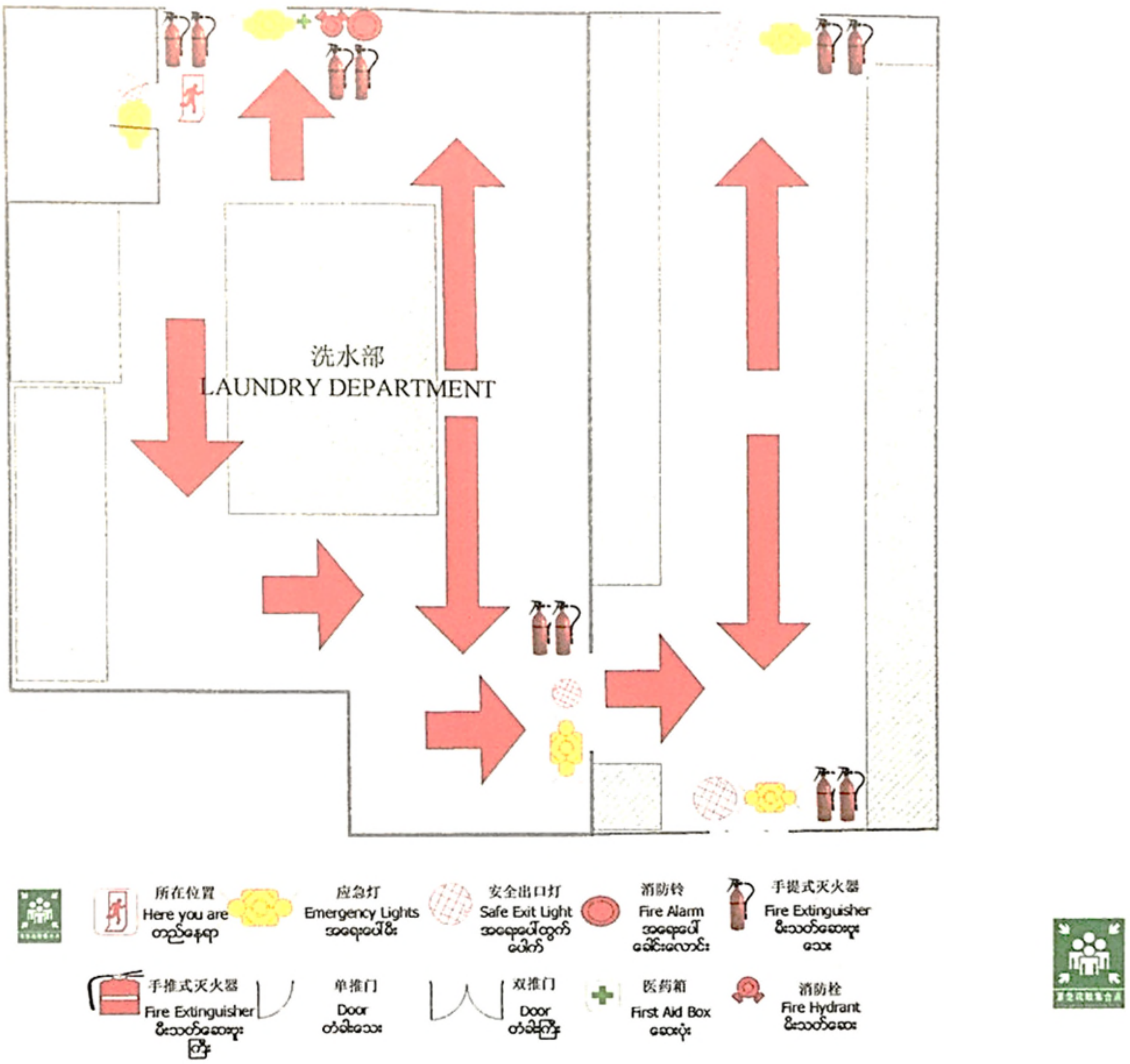
  Special Companies Act (1950) and be approved in accordance with the Foreign Investment Law.
- *Yangon Division Meteorology Reports 2011-2013 by Department of Meteorology (Myanmar)*
- *THE FIRE AND RESCUE FORCE ACT, 2007(NO.14 OF 2007), REGULATIONS (Made under section 32) THE FIRE AND RESCUE FORCE (SAFETY INSPECTIONS AND CERTIFICATES), AMENDMENT REGULATIONS,2012*
- *YCDC New Law*
- *Forest in Myanmar (ADB)*
- *Yangon Geology and Sagaing Fault in Yangon (Dr. Win Swe and Dr. Tun Naing)*
- *ရန်ကုန်တိုင်းဒေသကြီး၊ ရန်ကုန်မြောက်ပိုင်းခရိုင်၊ မြို့နယ်အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာန၊ လှိုင်သာယာမြို့နယ် ဒေသဆိုင်ရာ အချက်အလက်များ (၂၀၁၇ ခုနှစ် မတ်လ ၃၁ ရက်)*
- *The UN, (2012). "Milennium Development Goals Report". The United Nations, 2012. The World Bank, (2012). "What a Waste". The World Bank, March 2012.*

APPENDIX AND RELATED DATA

Appendix 1: Fire evacuation plan for Main Building –Packing Area



Appendix 2: Evacuation plan for Washing Department Area

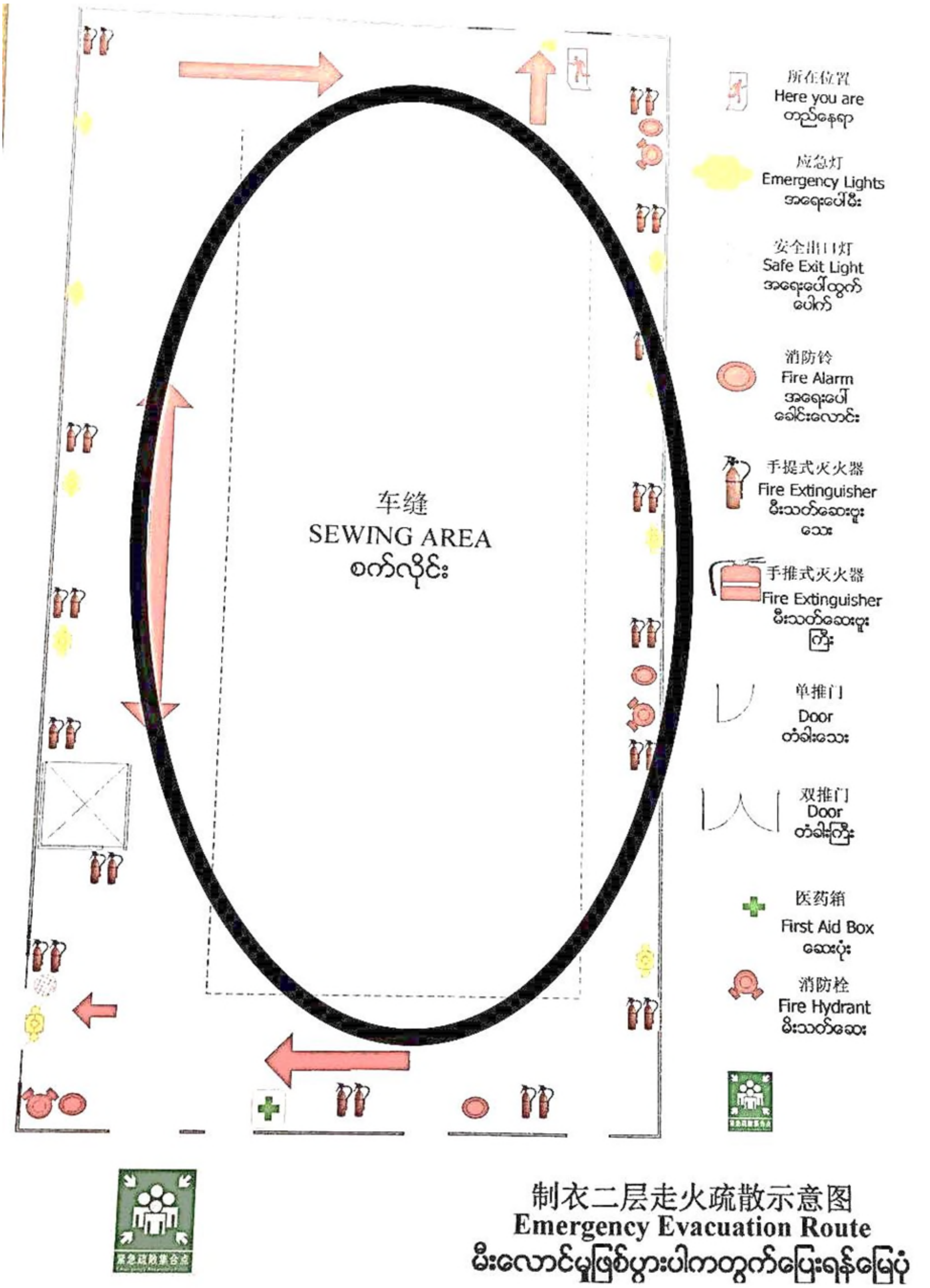


洗水部走火疏散示意图

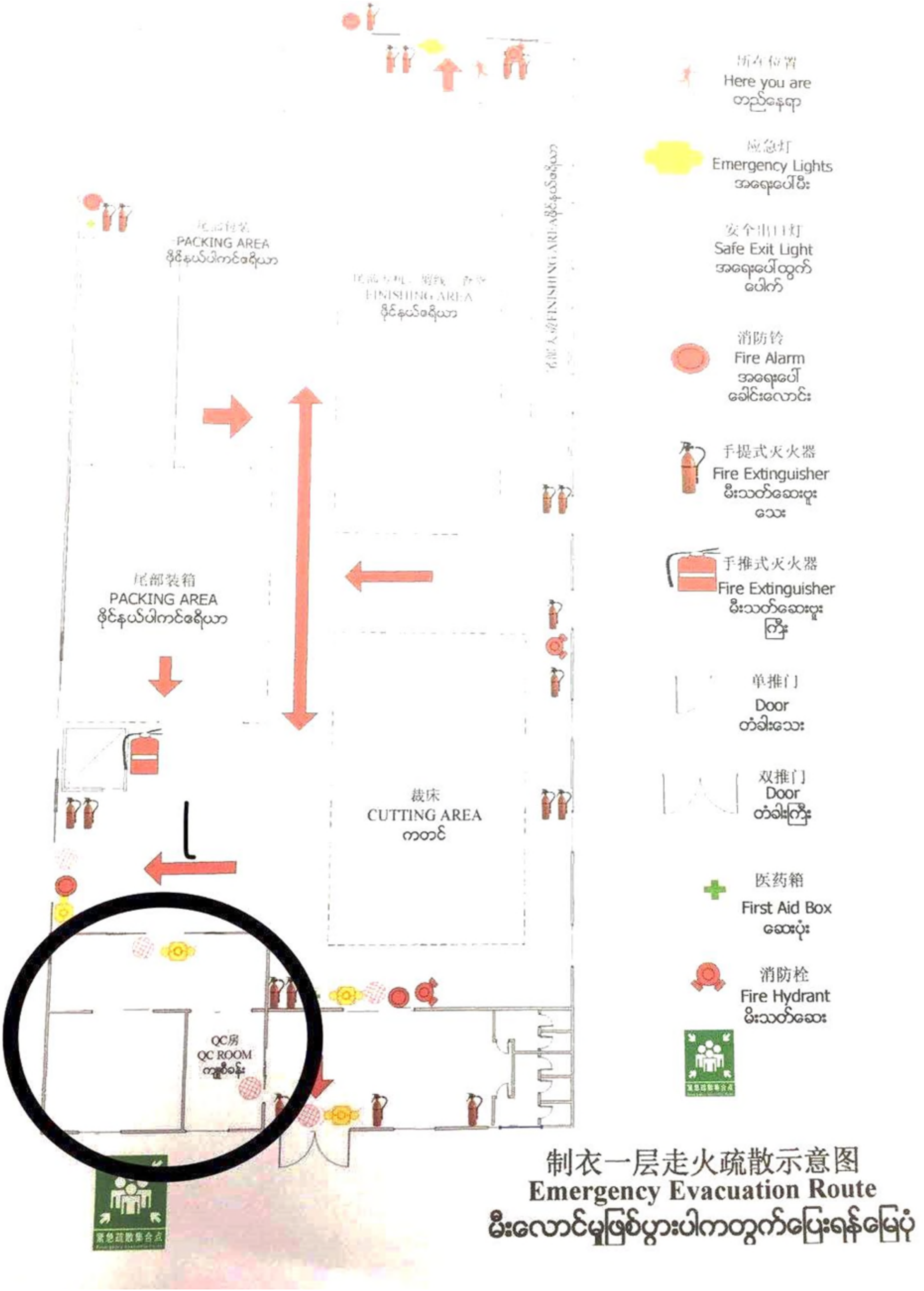
Emergency Evacuation Route

မီးလောင်မှုဖြစ်ပွားပါကထွက်ပြေးရန်မြေပုံ

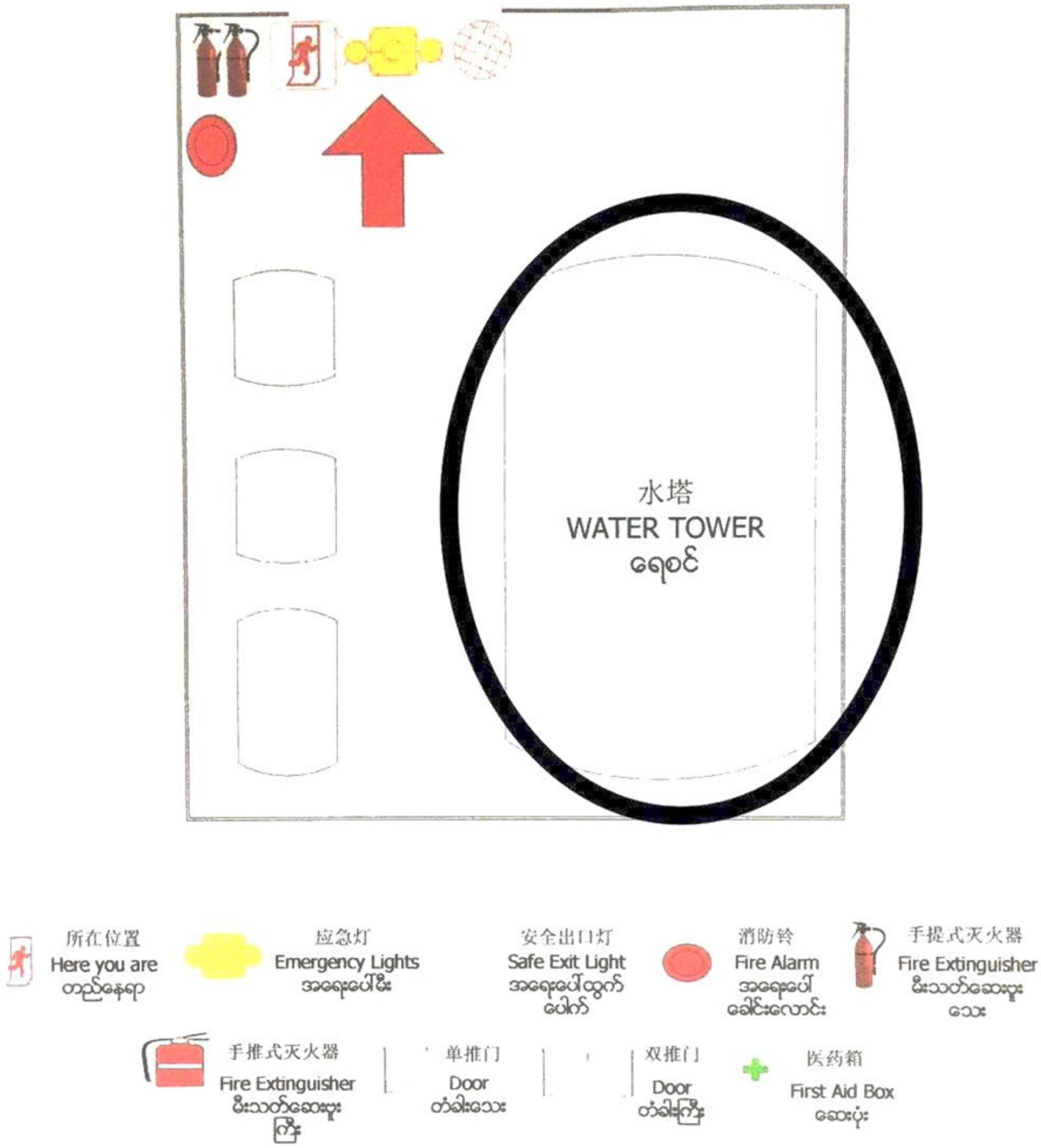
Appendix 3: Fire evacuation plan for Sewing Area



Appendix 4: *Evacuation plan for QC Department*

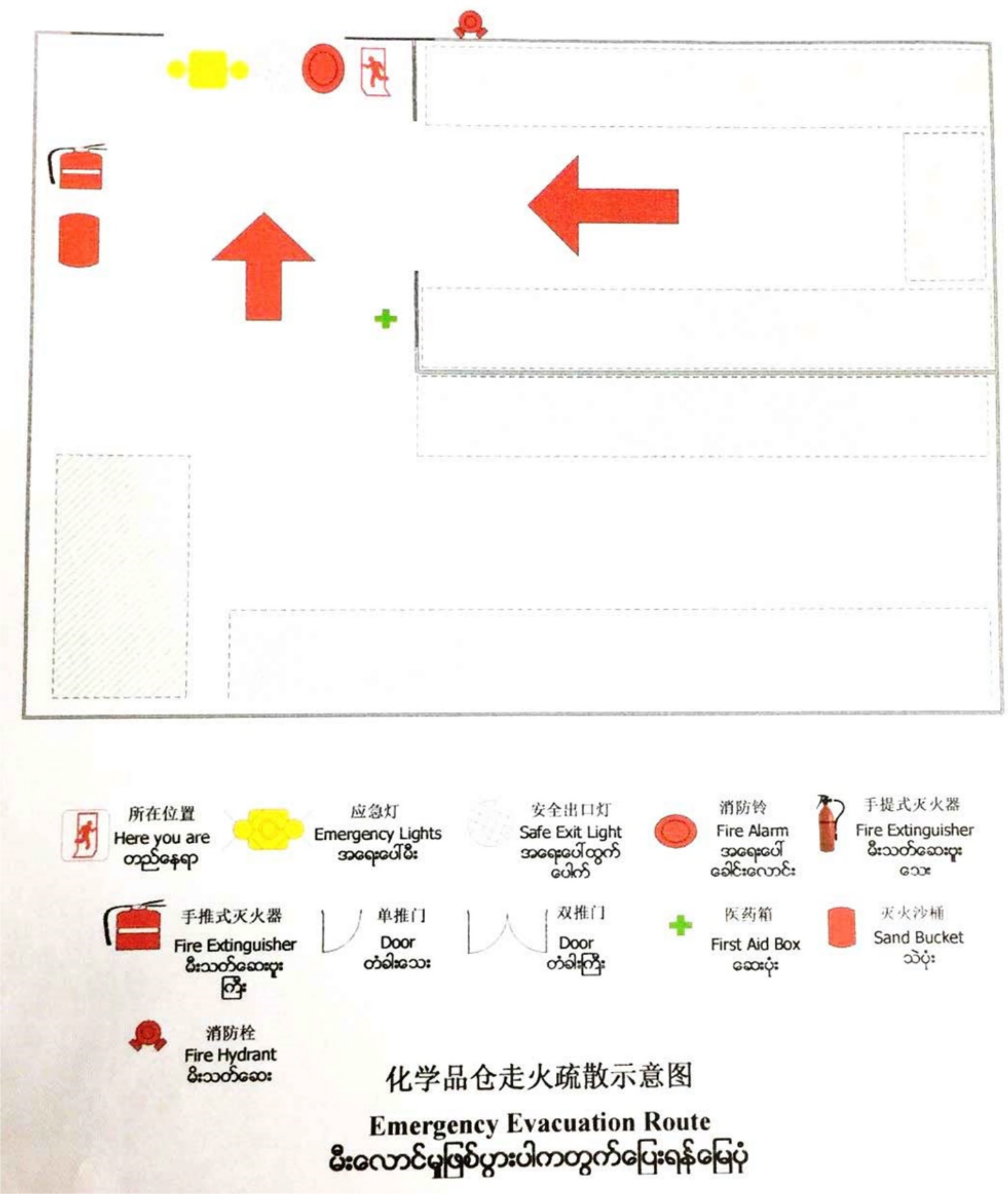


Appendix 5: *Evacuation plan for Water Tower Area*

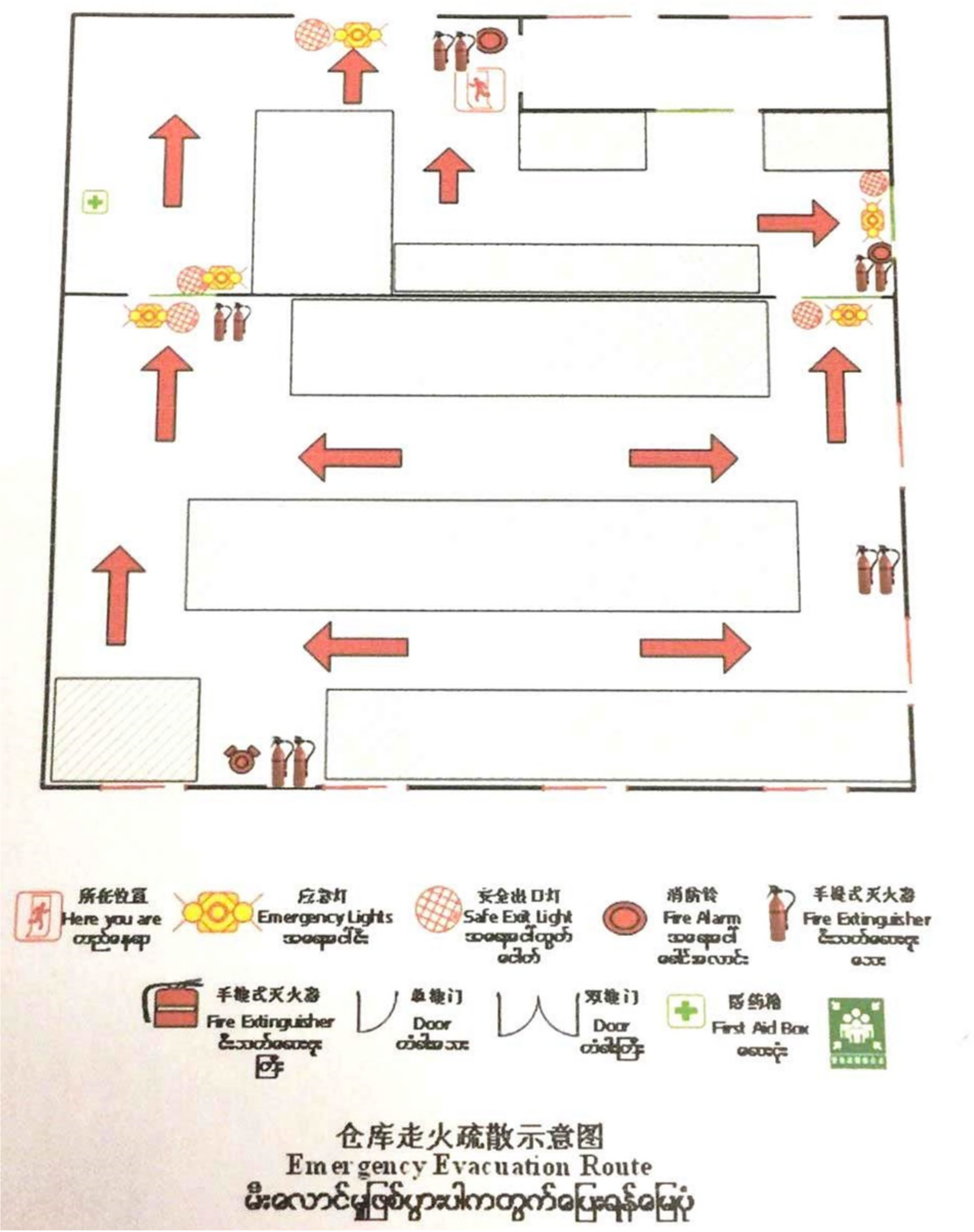


走火疏散示意图
Emergency Evacuation Route
မီးလောင်မှုဖြစ်ပွားပါကထွက်ပြေးရန်မြေပုံ

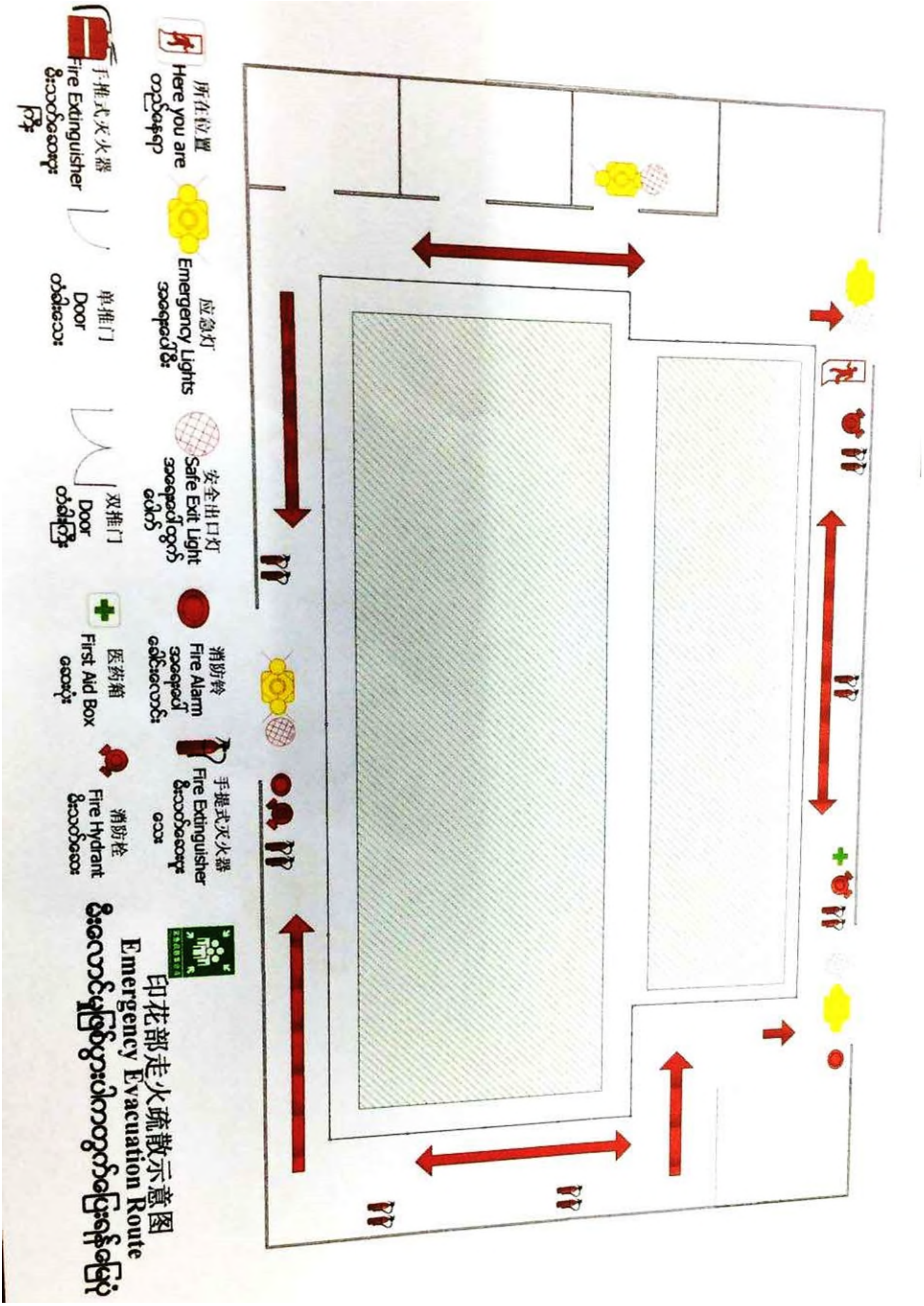
Appendix 6: Evacuation plan for Printing Store Area



Appendix 7: Evacuation plan for warehouse area



Appendix 8: Evacuation plan for Printing Department



Appendix 9: *စက်ရုံမြေကွက်နှင့်ဂိုဒေါင် အငှားစာချုပ်*

"မြေကွက်နှင့် ဂိုဒေါင် ငှားရမ်းခြင်းစာချုပ်"

ဤမြေကွက်နှင့် ဂိုဒေါင်ငှားရမ်းခြင်းစာချုပ်ကို ရန်ကုန်မြို့၌ ၂၀၁၈ ခုနှစ်၊ ဇွန်လ (   ) ရက်နေ့တွင် အောက်ဖော်ပြပါ အိမ်ရှင်နှင့် အိမ်ငှားတို့က ဖော်ပြပါ စည်းကမ်းချက်များဖြင့် သဘောတူချုပ်ဆိုကြပါသည်။

ဥပစာအငှားချထားသူ : : ဦးအောင်မြင့်
(အိမ်ရှင်)
နိုင်ငံသားကဒ်အမှတ် - ၁၃/ကမန(နိုင်)၀၆၅၄၅၉
အမှတ် (၆)၊ ပိတောက်လမ်း၊ အေးရိပ်မွန်အိမ်ရာ၊ လှိုင်မြို့နယ်၊ ရန်ကုန်မြို့

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(ဤစာချုပ်တွင် အထက်ဖော်ပြပါ ဥပစာအငှားချထားသူနှင့် ဥပစာအငှားယူသူဟု ခေါ်ဆိုရာ၌ အဆိုပါ ဥပစာအငှားချထားသူနှင့် ဥပစာအငှားယူသူတို့သာမက ၎င်းတို့၏ အမွေစားအမွေခံများ ကိုယ်စားလှယ်များ တာဝန်လွှဲအပ်ခြင်းခံရသူများပါ ပါဝင်ပါသည်။)

မြေကွက်နှင့်ဂိုဒေါင်အငှားချထားသူ (အိမ်ရှင်) က မိမိပိုင်ဆိုင်သည့် ရန်ကုန်တိုင်းဒေသကြီး၊ လှိုင်သာယာမြို့နယ်၊ ငွေပင်လယ်စက်မှုဇုန်၊ ၃-လမ်းနှင့် ၆-လမ်းထောင့်၊ အမှတ် (၄၀) ဟု ခေါ်တွင်သည့် အကျယ်အဝန်း (၂.၂) ဧကရှိ မြေကွက်နှင့် ယင်းမြေကွက်ပေါ်ရှိ (၁၀၀ ပေ × ၂၂၀ ပေ) ရှိ ဂိုဒေါင်၊ မီး (400 KVA)၊ ရေ၊ အိမ်သာ (၁၀) လုံး၊ တယ်လီဖုန်း (၁) လုံး အပါအဝင်တို့အား ဥပစာငှားရမ်းသူသို့ အောက်ပါစည်းကမ်းချက်များဖြင့် လူနေထိုင်ရန်အတွက် အငှားချထားရန် နှစ်ဦးနှစ်ဖက်သဘောတူကြပါသည်။

(၁) ဤစာချုပ်ဖြင့် မြေကွက်နှင့် ဂိုဒေါင် အငှားချထားသည့် ကာလမှာ (၁-၆-၂၀၁၈)ရက်နေ့မှ (၃၁-၅-၂၀၂၃)ရက်နေ့အထိ (၅-နှစ်)တိတိ ငှားရမ်းမည်ဖြစ်ပြီး ငှားရမ်းခငွေမှာ (၁) လလျှင် ငွေကျပ် ၈၆၄၀၀၀၀/- (ကျပ် ရှစ်ဆယ့်ခြောက်သိန်း လေးသောင်း တိတိ) နှုန်းထားဖြင့် ငှားရမ်းခြင်းဖြစ်၍ ငှားရမ်းခငွေကို အောက်ပါအတိုင်း ပေးချေမည်ဖြစ်ပါသည်။

(၂) ပထမနှစ် ငှားရမ်းကာလ(၁-၆-၂၀၁၈) မှ (၃၁-၅-၂၀၁၉) ရက်နေ့အထိ (၁-နှစ်) တိတိ ကာလအတွက် စုစုပေါင်းငှားရမ်းခ ငွေကျပ် ၁၀၃၆,၈၀၀၀၀/- (ကျပ် တစ်ထောင့် သုံးဆယ့်ခြောက်သိန်း ရှစ်သောင်း တိတိ) ကို ယခု ဤစာချုပ်ဖြင့် အငှားယူသူမှ ပေးချေရာ မြေကွက်နှင့် ဂိုဒေါင်အငှားချထားသူမှ လက်ခံရရှိကြောင်း ဝန်ခံပါသည်။

၂/သို့-

- ၄ -

(၁၆) ဤစာချုပ်ပါ အိမ်ငှားဘက်မှ လိုက်နာရမည့်စည်းကမ်းချက်တစ်ရပ်ရပ်ကို အိမ်ငှားဘက်မှ ဆောင်ရွက်ရန် ပျက်ကွက်ပါက ငှားရမ်းခြင်းအလိုအလျောက် ရပ်စဲပြီးဖြစ်သည်ဟု မှတ်ယူ၍ ငှားရမ်းထားသည့် ဥပစာကို အိမ်ရှင်လက်ဝယ်သို့ ပြန်လည်ပေးအပ်ရမည့်အပြင် အိမ်ရှင်တွင် ဆုံးရှုံးနစ်နာမှုရှိပါက ဆုံးရှုံးနစ်နာမှုကို တစ်လုံးတစ်ခဲတည်းပေးလျော်ရမည်ကို သိရှိပါကြောင်း အိမ်ငှားမှဝန်ခံပါသည်။

(၁၇) ငှားရမ်းထားသည့်မြေကွက်နှင့် ဂိုဒေါင်တွင် ယာယီသန်းခေါင်စာရင်း၊ သန်းခေါင်စာရင်းဖြင့်နေထိုင်ခြင်း လုံးဝခွင့်မပြုပါ။ ဧည့်စာရင်းဖြင့်သာနေထိုင်ခွင့်ပြုမည်ဖြစ်ပါသည်။

(၁၈) အိမ်ငှားသည် (၆-လ)တစ်ကြိမ် အိမ်ရှင်မှ ငှားရမ်းသည့်မြေကွက်နှင့် ဂိုဒေါင်အား လာရောက်ကြည့်ရှုခြင်းကို ခွင့်ပြုရမည်ဖြစ်ပါသည်။

ဤမြေကွက်နှင့် ဂိုဒေါင်ငှားရမ်းခြင်းစာချုပ်ပါ သဘောတူစည်းကမ်းချက်များအားလုံးကို အိမ်ရှင်နှင့် ငှားရမ်းသူတို့ အသီးသီးဖတ်ရှု၊ သိရှိ၊ နားလည်သဘောတူကြ၍ အောက်ပါအသိသက်သေများရှေ့မှောက်တွင် ဤစာချုပ်ကို (- ၆ - ၂၀၁၈)ရက်နေ့တွင် ချုပ်ဆိုကြပါသည်။

အသိသက်သေများ

၁။ ----------------------------
အမည် ----------------------------
မှတ်ပုံတင် ----------------------------
နေရပ် ----------------------------

၂။ ----------------------------
အမည် ----------------------------
မှတ်ပုံတင် ----------------------------
နေရပ် ----------------------------

ဦးအောင်မြင့်
မြေကွက်နှင့် ဂိုဒေါင်အငှားချထားသူ (အိမ်ရှင်)

MR. LAI KIN CHING
(Passport No. KJ 0334076)
မြေကွက်နှင့် ဂိုဒေါင်အငှားယူသူ (အိမ်ငှား)

Appendix 10: *ဝန်ထမ်းကြိုပို့မော်တော်ယာဉ် ငှားရမ်းမှုစာချုပ်*

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Plot No.40, Myay Taing Quarter No.24, Ngwe Pin Lei Industrial Zone, Hlaing Thar Yar Township, Yangon.

SDI MANUFACTURING COMPANY LIMITED ADMINISTRATION

ဝန်ထမ်းကြို / ပို့ မော်တော်ယာဉ်ငှားရမ်းခြင်းနှစ်ဦးသဘောတူကတိစာချုပ်

၁။ ဖယ်ရီကား(ကြို / ပို့) ယာဉ်စာချုပ်သက်တမ်းမှာ (၁. ၆ . ၂၀၂၀) မှ (၃ ၁.၁၂ . ၂၀၂၀)ထိဖြစ်ပါသည်။

၂။ ဖယ်ရီကား(ကြို / ပို့) ယာဉ် (၁၀)စီးဖြင့်စာချုပ်ချုပ်ဆိုပါသည် ။

၃။ ဖယ်ရီကားအရေအတွက်မှာစက်ရုံဝန်ထမ်းအင်အားပေါ် မူတည်ပြီး(အတိုး/အလျှော့)ရှိမည် ။

၄။ သတ်မှတ်အရေအတွက်တိုး/လျှော့ပါကစက်ရုံဖြင့်ညှိနှိုင်းဆောင်ရွက်နိုင်ပါသည် ။

၅။ စက်ရုံအချိန်ပြောင်းလဲခြင်းရှိနိုင်သဖြင့် စက်ရုံမှသတ်မှတ်ပေးထားသောအလုပ်ချိန်အတိုင်းကြို/ပို့ ပေးရမည်။

၆။ အချိန်ပိုလုပ်ကိုင်ရပါကကြိုတင်အကြောင်းကြားပေးမည် ။

၇။ ယခုစာချုပ်သည်ဖယ်ရီကြို/ပို့ ယာဉ်ငှားရမ်းခြင်းသာဖြစ်သဖြင့်အခြားစက်ရုံကိစ္စအတွက်ယာဉ်များငှားရမ်းခြင်းနှင့်(လုံး၀)မသက်ဆိုင်စေရပါ ။

၈။ ဖယ်ရီကြို/ပို့ ယာဉ်များသတ်မှတ်ချိန်ထက်နောက်ကျပါကသတ်မှတ်နှုန်းထားအတိုင်းဖြတ်တောက်သွားမည်ဖြစ်ပါသည် ။

၉။ စက်ရုံဖယ်ရီကားလစာကိုလစဉ်(၁၀) ရက်နေ့ တွင်ထုတ်ပေးသွားမည်ဖြစ်ပါသည် ။

၁၀။သတ်မှတ်ထားသောကားမှတ်တိုင်ထက်ကျော်လွန်/တိုးလာပါကစက်ရုံနှင့်ညှိနှိုင်းဆောင်ရွက်မည် ။

၁၁။အရက်သေစာသောက်စားထားခြင်း ၊ရှိုင်းပြစွာဆက်ဆံသောယာဉ်မောင်း/ယာဉ်နောက်လိုက်များအား စက်ရုံအနေဖြင့်ခွင့်ပြုမည် မဟုတ်ပါ ။ကားအင်ချုပ်မှချက်ခြင်းလဲလှယ်ပေးရမည် ။

၁၂။ စက်ရုံဝန်ထမ်းများမှကားမောင်းသူများ/ကားနောက်လိုက်များအားမထီမဲ့မြင်ရိုင်းပြစွာဆက်ဆံလာပါက ကားအင်ချုပ်မှစက်ရုံမန်နေဂျာထံသို့ အကြောင်းကြားရမည် ။

၁၃။ ဖယ်ရီကား၏ကားခေါင်းခန်းတွင်မိမိတို့ စက်ရုံ၏တာဝန်ပေးအပ်ထားသူများသာထိုင်ခွင့်ရှိသည် ၊အခြား

SDI MANUFACTURING CO., LTD

Plot No.40, Myay Taing Quarter No.24, Ngwe Pin Lei Industrial Zone, Hlaing Thar Yar Township, Yangon.

ဝန်ထမ်းမဟုတ်သူများအားခွင့်မပြုပါ။

၁၄။ ဖယ်ရီကားမောင်းနေစဉ်အတွင်းအကြောင်းအမျိုးမျိုးကြောင့်ထိခိုက်ဒဏ်ရာရရှိသူများရှိလာပါကဖယ်ရီကား အင်ချပ်မှအစ/အဆုံးတာဝန်ယူဖြေရှင်းပေးရမည် ။

၁၅။ လစာထုတ်သည့်ရက်တွင် (၁၅) မိနစ်ထပ်မံစောင့်ဆိုင်းပေးရမည် ။

၁၆။ ဖယ်ရီကားများအားလုံးသင့်တင့်ကောင်းမွန်သောနေအထားတွင်ရှိရမည် ။

၁၇။ စက်ရုံနှင့်စာချုပ်ချုပ်စဉ်အတွင်းမည်သည့်အခြေအနေမျိုးတွင်မဆိုမိမိတို့ စက်ရုံကိုသာဦးစားပေးရမည်။

၁၈။ ဖယ်ရီကားအဝင်/အထွက်နေရာချထားမှုအားစက်ရုံလုံခြုံရေးမှစီစဉ်ဆောင်ရွက် နေရာချထားပေးမည်ဖြစ်ပြီးစက်ရုံလွှတ်ချိန်များတွင်စက်ရုံလုံခြုံရေးခရာမှုတ်ပြီးမှသာအစဉ်လိုက်ထွက်ခွါရမည် ။

၁၉။ ဖယ်ရီကားများသတ်မှတ်ထားသောအချိန် / လမ်းကြောင်းများအတိုင်းကြို / ပို့ရန်ဖြစ်ပြီး ကြို / ပို့ ယာဉ်နှင့် စီးနင်းသူ ဝန်ထမ်းများသည် သတ်မှတ်ထားသောယာဉ်နှင့် သတ်မှတ်နေရာတွင် အတက်/အဆင်းပြုလုပ်ရမည် ။

၂၀။ သတ်မှတ်ထားသောဖယ်ရီလမ်းကြောင်းမှလွဲပြီးအခြားလမ်းကြောင်းများကို စက်ရုံဝန်ထမ်းနှင့်ယာဉ်မောင်း ပူးပေါင်းပို့ ဆောင်ခြင်းမရှိစေရ ၊ လမ်းကြောင်းလိုအပ်ပါကပြောင်းလဲမှု ရှိလာပါကအင်ချပ်မှ အကြောင်းကြားရမည် ။

၂၁။ ဖယ်ရီပို့ ဆောင်သည့်ယာဉ်မောင်းသည် စက်ရုံသို့ ရောက်ရှိပြီးစက်ရုံအတွင်းစက်ရုံစည်းကမ်းချက် များ အရမှတ်တမ်းတင်စစ်ဆေးခြင်း ၊ လက်မှတ်ရေးထိုးခြင်း ၊ စက်ရုံတွင်းရောက်ရှိချိန်တွင်စက်ရုံမှသတ်မှတ်ထားသည့်အတိုင်းနေထိုင်ရမည် ၊ တာဝန်ရှိသူ၏ခွင့်ပြုချက်မရရှိဘဲမည်သည့်နေရာမှမသွားရပါ ။

၂၂။ နေ့ စဉ်ကြို / ပို့ ယာဉ် ပျက်ကွက်မှုမရှိစေရေးနှင့် ယာဉ်စက်ပျက်ပါကအချိန်မှီအစားထိုး ကြို / ပို့ရေးအား ကားအင်ချပ်မှစီစဉ်ဆောင်ရွက်ရမည် ။

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၂၃။ ယာဉ် ငှားရမ်းခဈေးနှုန်းမှာလည်းခရီးလမ်းကြောင်းပေါ် မူတည်၍အမျိုးမျိုးခွဲခြားသတ်မှတ်ပြီးပူးတွဲပါ ဈေးနှုန်းများအတိုင်းကားအင်ချပ်သို့ ပေးချေရမည်ဖြစ်ပြီးယာဉ်ပိုင်ရှင်များမှ မိမိတို့ ၏ ယာဉ် ငှားရမ်း ခ အားစက်ရုံသို့ တင်ပြတောင်းခံခြင်းမပြုရပါ ။

၂၄။ ကြို / ပို့ ယာဉ်အသုံးပြုချိန်ကာလအတွင်း ဖြစ်ပေါ်ခဲ့သောကိစ္စအရပ်ရပ်ကိုဖြေရှင်းရာတွင်တည်ဆဲစည်းမျဉ်း စည်းကမ်းဥပဒေများနှင့်အညီယာဉ်စီစဉ်ပေးသူမှ စီစဉ် ဆောင်ရွက်ရမည် ၊ ထို့ပြင် အသုံးပြုမည့် ကြို / ပို့ ယာဉ်များ၏ ယာဉ်မောင်း ၊ ဓါတ်ဆီ / ဒီဇယ်ဆီ / စက်ဆီအစရှိသောကားနှင့်ပတ်သက်သည့် အခြေအနေ များအားလုံးသည်လည်း အန္တရာယ်ကင်းပြီးစိတ်ချစွာအသုံးပြုနိုင် သည့် အခြေအနေရှိနေစေရန်ယာဉ်စီစဉ် သူမှတာဝန်ယူဖြေရှင်းဆောင်ရွက်ရမည် ။

၂၅။အထက်ပါ စည်းကမ်းချက်များကိုသိရှိနားလည်သဘောတူကြောင်းလိုက်နာဆောင်ရွက်မည်ဖြစ်ကြောင်း ၊ အောက်ပါအသိသက်သေများရှေ့တွင်လက်မှတ်ရေးထိုးကြပါသည် -

ယာဉ်ငှားရမ်းသူ	ယာဉ်စီစဉ်ပေးသူ
ဦးချိုလွင်ဦး	ဦးကျော်ဝဏ္ဏ
SDI Manufacturing Co.,mLtd	၁၂ / လသယ(နိုင်)၀၆၅၁၉၂

SDI MANUFACTURING COMPANY LIMITED ADMINISTRATION

10/6/2020

အသိသက်သေများ

ဒေါ်အေးအေးခိုင်	ဝင်းထွဋ်ညို
၁၂ / အလန(နိုင်)၀၀၁၉၅၄	၁၂ / တကန (နိုင်) ၁၃၀၄၃၅

Appendix 11: *Chemical Management Training Record*

演习名单လေ့ကျင့်ဝင်ခန်းစာရင်း

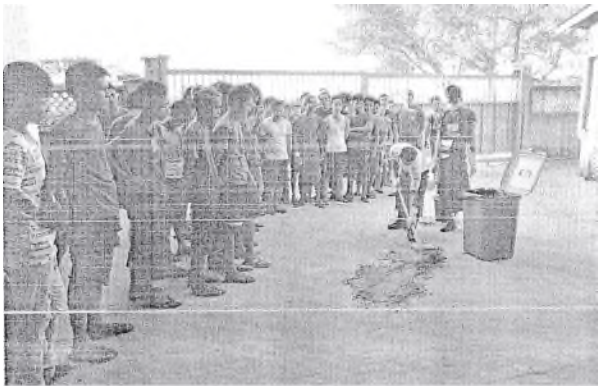
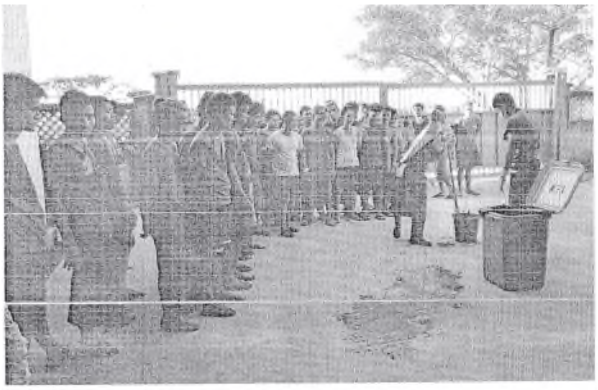
2019年11月29日

姓名နာမည Name	部门ဌာန Department	是否参加 是打"√"， 否打"X" ပါဝင်မလား: ဟုတ်ပါသည် "√" မဟုတ်ပါ "X"	姓名နာမည Name	部门ဌာန Department	是否参加 是打"√"， 否打"X" ပါဝင်မလား: ဟုတ်ပါသည် "√" မဟုတ်ပါ "X"
မောင်မင်းအောင်	Laundry Department	√	မောင်ရှိုင်းဝေထွန်း	Printing	√
ဝင်းနိုင်ဦး	Laundry Department	√	မောင်ဇင်မင်းထွန်း	Printing	√
မာလာဝင်း	Laundry Department	√	မလှိုင်သဲစု	Printing	√
ဦးမြင့်ဦး	Laundry Department	√	မောင်နေသူလှိုင်	Printing	√
မသန်းသန်းဝင်း	Laundry Department	√	ပိုင်ဇင်ဖြိုး	Printing	√
မောင်နေလစိုး	Laundry Department	√	မျိုးထက်	Printing	√
မနှင်းခိုင်ဦး	Laundry Department	√	သက်ဝေ	Printing	√
မောင်မျိုးဝင်း	Laundry Department	√	ကျော်ဌေး	Printing	√
မဝင်းဝင်းခိုင်	Laundry Department	√	မျိုးကို	Printing	√
မင်းဝေဖြိုး	Laundry Department	√	နိုင်ရဲလင်း	Printing	√
မင်းမင်းရှိန်း	Laundry Department	√	ချစ်လင်းကို	Printing	√
ဝေဖြိုးပိုင်	Laundry Department	√	လင်းထက်နိုင်	Printing	√
အောင်နိုင်ဝင်း	Laundry Department	√	လင်းထက်အောင်	Printing	√
လှမျိုးအောင်	Laundry Department	√	ကျော်မျိုးလွင်	Printing	√
စောထွန်း	Laundry Department	√	ထွန်းဇော်ဝင်း	Printing	√
ဖွဲကိုကိုဦး	Laundry Department	√	မောင်မြင့်ဆွေ	Printing	√
အောင်ကြည်ထွေး	Laundry Department	√	ပြည့်ဖြိုးအောင်	Printing	√
မြင့်ဇော်နိုင်	Laundry Department	√	မျိုးကိုကို	Printing	√
ရဲထက်နောင်	Laundry Department	√	ရဲထက်အောင်	Printing	√
သန်းထိုက်ဦး	Laundry Department	√	အောင်ကျော်ဆန်း	Printing	√
နွဲနွဲ့ဝင်း	Laundry Department	√	ဒီပါစိုး	Printing	√
တင်ကိုနိုင်	Laundry Department	√	မျိုးလှိုင်ဝင်း	Printing	√
တင်ကိုဦး	Printing	√	ထွန်းထွန်းစိုး	Printing	√
ဝင့်မှုံထက်	Printing	√	အောင်ပြည့်ဖြိုး	Printing	√
ကျော်ဇင်လင်း	Printing	√	ရန်နိုင်	Printing	√
နှင်းအိဖြူ	Printing	√	အောင်လွင်	Printing	√
ချောစုလှိုင်	Printing	√	မျိုးမင်းလတ်	Printing	√
[illegible]	Printing	√	[illegible]	Printing	√

名单လေ့ကျင့်ဝင်ခန်းစာရင်း

2019年11月29日

姓名နာမည် Name	部门ဌာန Department	是否参加 是打 "√"，否打 "X" ပါဝင်မလား ဟုတ်ပါသည် "√" မဟုတ်ပါ "X"	姓名နာမည် Name	部门ဌာန Department	是否参加 是打 "√"，否打 "X" ပါဝင်မလား ဟုတ်ပါသည် "√" မဟုတ်ပါ "X"
ာကျော်	Printing	√	နိုင်မင်းထွန်း	Printing	√
ဒ်နိုင်	Printing	√	နိုင်လင်းထက်	Printing	√
့နှင်း	Printing	√	ရဲဇော်နိုင်	Printing	√
င်ဇော်ဝေ	Printing	√	ထက်ဝေလင်း	Printing	√
ာင်အုံမောင်	Printing	√	ထွန်းမင်းဇော်	Printing	√
ာင်ကျော်သူအောင်	Printing	√	အောင်ဆန်းဦး	Printing	√
ာင်ရန်နိုင်စိုး	Printing	√	ဖြိုးမင်းသန့်	Printing	√
ဝ်ရဲဇော်	Printing	√	ဝေဇာမင်း	Printing	√
ာင်ကုလားကြီး	Printing	√	ဇောမောင်	Printing	√
ဒ်ဖြူ	Printing	√	တင်ဇာဝင်း	Printing	√
မာင်ကောင်းထက်ဇော	Printing	√	ဇေယျာလင်း	Printing	√
မောင်ရှိုင်းကိုကိုထက်	Printing	√	ခင်ခင်စိုး	Printing	√
မောင်ဆန်းဦးမောင်	Printing	√	စုစုဝေ	Printing	√

Appendix 12: Company Registration and TCR Certificates for AMK & Associate (Environmental Consulting) Limited

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

ဂျိုရီ အေ၊ အမ်၊ ကေ အင်န် အဆိုဆီယိတ် (အီး၊အိုင်၊အေ ကွန်ဆဲလ်တင်) လီမိတက်

JOEY A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED

Company Registration No. 104159052

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ

ဂျိုရီ အေ၊ အမ်၊ ကေ အင်န် အဆိုဆီယိတ် (အီး၊အိုင်၊အေ ကွန်ဆဲလ်တင်) လီမိတက်

အား ၂၀၁၆ ခုနှစ် ဇူလိုင်လ ၅ ရက်နေ့တွင်

အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ

အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that

JOEY A.M.K AND ASSOCIATES (E.I.A CONSULTING) LIMITED

was incorporated under the Myanmar Companies Act 1914 on 5 July 2016 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ

Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

Directorate of Investment and Company Administration

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 0000110　　　　Date 15.III 2017

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	U Aung Myat Kyaw
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်)	12/ Ka Ma Ta (Naing) 009480
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	18/ Bandarbin Street, Kyi Myin Daing Township, Yangon. joei0920@gmail.com , 09 5162169
(e)	Organization (အဖွဲ့အစည်း)	AMK and Associate EIA Consultant Group
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for one year from (1.4.2018) to (31.3.2019)
ဤလက်မှတ်အား (၁-၄-၂၀၁၈) ရက်နေ့မှ (၃၁-၃-၂၀၁၉) ရက်နေ့အထိ တစ်နှစ်သက်တမ်း တိုးမြှင့်သည်။
8.11.2018
For Director General
(Soe Naing, Director)
Environmental Conservation Department

15.3.2017

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Facilitation of Meeting
2. Risk Assessment and Hazard Management
3. Scio-Economy

EXTENSION
For Director General
(Soe Naing, Director)
Environmental Conservation Department

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 0065 Date [illegible]

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	Dr. Aung Lay Tin
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/နိုင်ငံကူးလက်မှတ် အမှတ်)	7/ Pa Kha Ta (N) 042418
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	No. 14 (B) YTU Campus, GyoKone, Insine Township, Yangon. aunglaytin@gmail.com , 09 975851368
(e)	Organization (အဖွဲ့အစည်း)	Associate Professor Mining Engineering Department Yangon Technological University
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 0000064 Date 01 JUN 2017

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	U Thaung Aye Lwin
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/နိုင်ငံကူးလက်မှတ် အမှတ်)	13/Ta Ka Na (N) 024532
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	18/Bandarbin Street, Kyi Myin Daing Township, Yangon. thaungayelwin@gmail.com , 0943157295
(e)	Organization (အဖွဲ့အစည်း)	AMK and Associate EIA Consultant Group
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for one year from (1.4.2018) to (31.3.2019)
ဤလက်မှတ်အား (၁-၄-၂၀၁၈) ရက်နေ့မှ (၃၁-၃-၂၀၁၉) ရက်နေ့အထိ တစ်နှစ်သက်တမ်း တိုးမြှင့်သည်။
8.11.2018
For Director General
(Soe Naing, Director)
Environmental Conservation Department

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Geology and Soil

EXTENSION
The VALIDITY of this certificate is extended

For Director General
(Soe Naing, Director)
Environmental Conservation Department

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 10109 Date 15 JUL 2017

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.
(ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	Daw Swe Zin Win
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်)	12/ Ka Ma Ya (Naing) 111448
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	18/ Bandarbin Street, Kyi Myin Daing Township, Yangon. swezinwin@gmail.com , 09 450004712
(e)	Organization (အဖွဲ့အစည်း)	AMK and Associate EIA Consultant Group
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအတောက်အထားလက်မှတ်)

No. 10063 Date [illegible]

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	U Wai Linn Kyaw
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/နိုင်ငံကူးလက်မှတ် အမှတ်)	12/Ba Ta Hta (N) 037136
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	18/ Bandarbin Street, Kyi Myin Daing Township, Yangon wailinnygn@gmail.com , 0943199913
(e)	Organization (အဖွဲ့အစည်း)	AMK and Associate EIA Consultant Group
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Geology and Soil

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 10066 Date 01 JUL 2017

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	U Thet Paing Oo
(b)	Citizenship (နိုင်ငံသား)	Myanmar
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(e)	Organization (အဖွဲ့အစည်း)	AMK and Associate EIA Consultant Group
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

Director General

Environmental Conservation Department

Ministry of Natural Resources and Environmental Conservation

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Geology and Soil