INITIAL ENVIRONMENTAL EXAMINATION
for
The Construction and Operation
of
A Motorcycle Factory
by
Aung Kan Bo Motorcycle Industrial Co., Ltd
at
Kanbai and Yey-kyi-pauk Village Tracts, Amarapura Township, Mandalay Region
(Second Revised)

(Myanmar Environment Sustainable Conservation)

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ACRONYMS AND ABBREVIATION

ADB	Asian Development Bank
ASEAN	Association of South-East Asian Nations
BAT	Best Available Technology
BOD	Biochemical Oxygen Demand
CGM	Complaints and Grievances Mechanism
CHS	Community Health and Safety
CITIES	Convention on International Trade in Endangered Species of Wild Fauna & Flora
COD	Chemical Oxygen Demand
CSR	Corporate Social Responsibility
dBA	Decibel A- weighting
ECD	Environmental Conservation Department
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EITI	Extractive Industry Transparency Initiative
EMP	Environmental Management Plan
EPS	Environmental Performance Standards
ERP	Environmental Response Procedures
EU	European Union
FD	Forest Department
FGD	Focal Group Discussion
GDP	Gross Domestic Products
GHGs	Green House Gases (Glass House Gases)
HVAC	Heating, Ventilation, Air Conditioning and Cooling
ID	Identity Card
IEE	Initial Environmental Examination
IFC	International Finance Corporation
ILO	International Labour Organization
ISO	International Standard Organization
IUCN	International Union for Conservation of Nature and Natural Resources
KII	Key Informant Interview
L&FS	Life and Fire Safety

MESC	Myanmar Environment Sustainable Conservation
MIC	Myanmar Investment Commission
MOECAF	Ministry of Environmental Conservation and Forestry
MONREC	Ministry of Natural Resources and Environmental Conservation
MP	Monitoring Plan
NCEA	National Commissions of Environmental Affairs
NECC	National Environmental Conservation Committee
NECCCCC	National Environmental Conservation and Climate Change Central Committee
NEQ	National Environmental Quality
NGO	Non-Government Organization
NO_2	Nitrogen Dioxide
OHS	Occupational Health and Safety
PEB	Payment for Ecosystem Benefits
PES	Payment for Ecosystem Services
PM	Particulate Matter
$PM_{2.5-10}$	Particulate Matter between 2.5-10 microns
PPE	Personnel Protection Equipment
RSPM	Respiratory Suspended Particulate Matter
4Rs	Reduce, reuse, recover and recycle
SIA	Social Impact Assessment
SO_2	Sulphur Dioxide
SPM	Suspended Particulate Matter
SS	Secondary Source
STD	Sexually Transmitted Diseases
TDS	Total Dissolved Solids
TSS	Total Suspended Solid
TSPM	Total Suspended Particulate Matter
WHO	World Health Organization
YCDC	Yangon City Development Committee

အကျဉ်းချုပ်အစီရင်ခံစာ

ဤပြင်ဆင်ရေးသားသော ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာသည် Aung Kan Bo Motorcycle Industrial ကုမ္ပဏီလီမိတက်မှ မော်တော်ဆိုင်ကယ်စက်ရုံ (တပ်ဆင်ခြင်း၊ ဖြန့်ဖြူးရောင်းချခြင်း) တည်ဆောက်ခြင်းနှင့် စီမံကိန်းလည်ပတ်ခြင်းအတွက် အဆိုပြုတင်ပြသော စီမံကိန်းဖြစ်သည်။

Aung Kan Bo Motorcycle Industrial ကုမ္ပဏီလီမိတက်သည် တရုတ်နိုင်ငံမှ Kenbo မူလဆက်စပ်ပစ္စည်းများကို တင်သွင်း၍ Chongqing Yinxiang Motorcycle Group ကုမ္ပဏီလီမိတက်၏ မြန်မာနိုင်ငံ တစ်ဦးတည်းကိုယ်စားလှယ်အဖြစ်လုပ်ဆောင်ရာ ၂၀၀၀ ခုနှစ်ကတည်းကဖြစ်သည်။ ၂၀၁၀ ခုနှစ် ကတည်းက Aung Kan Bo ကို မြန်မာနိုင်ငံ၏ Kenbo ဆိုင်ကယ် မူပိုင်ကိုယ်စားလှယ်အဖြစ် သတ်မှတ်ထားပါသည်။ Aung Kan Bo Trading ကုမ္ပဏီလီမိတက်သည် Kenbo ဆက်စပ်ပစ္စည်းများနှင့် မော်တော်ဆိုင်ကယ်များ ဖြန့်ချီရေးကို တည်ထောင်၍ မန္တလေးတွင် အရောင်းစင်တာများနှင့် တဖြည်းဖြည်းတိုး၍ မြန်မာပြည်တပြည်လုံးတွင် အရောင်းစင်တာများ ဖွင့်လှစ်ခဲ့ပါသည်။

Aung Kan Bo Trading ကုမ္ပဏီလီမိတက်သည် တရုတ်နိုင်ငံ၏ မော်တော်ဆိုင်ကယ် အမျိုးမျိုး ပြည်တွင်းနှင့် နိုင်ငံခြားဈေးကွက်များသို့ အကြီးဆုံးဖြန့်ဖြူးရောင်းချနေသော Chongqing Yinxiang Motorcycle Group ကုမ္ပဏီလီမိတက်နဲ့ပူးပေါင်း၍ Aung Kan Bo Motorcycle Industrial ကုမ္ပဏီလီမိတက် အဖြစ်အမည်ပေးလုပ်ဆောင်ခဲ့ပါသည်။

အဆိုပြုစီမံကိန်းကို လုပ်ဆောင်ရန်အတွက် IEE တင်သွင်းခြင်းသည် မဖြစ်မနေ လုပ်ဆောင်ရမည် ဆိုကတည်းက ဤအဆိုပြုစီမံကိန်းအတွက် အစီရင်ခံစာကို လေးစားလိုက်နာစွာ တင်ပြခဲ့ပါသည်။

<u>အဆိုပြုတင်ပြသော စီမံကိန်းအကြောင်းအရာ အကျဉ်းချုပ်</u>

အဆိုပြုတင်ပြသော စီမံကိန်းသည် ကန်ဘဲ့နှင့် ရေကြည်ပေါက်ကျေးရွာအုပ်စု၊ အမရပူရမြို့နယ်၊ မန္တလေးတိုင်းဒေသကြီးတွင် တည်ရှိပါသည်။

စီမံကိန်းသည် (ကန်ဘဲ့ကျေးရွာအုပ်စုတွင် အကွက်အမှတ် ၆၂၅၊ ရေကြည်ပေါက် ကျေးရွာအုပ်စု အကွက်အမှတ် ၆၂၆) ၂ ကွက်ဖြစ်၍ စုစုပေါင်း ဧရိယာမှာ ၁၆.၄၂ ဧက (၆၆၅၂၄ m^2) ဖြစ်သည်။ မြေငှားရမ်းမှုမှာ နှစ် (၅၀) ဖြစ်၍ မြေဧရိယာ (၁၆.၄၂ ဧက) အတွက် တစ်နှစ်ငှားရမ်းမှုနှုန်းမှာ အမေရိကန် ဒေါ်လာ ၃၅၀,၀၀၀ ဖြစ်သည်။

စီမံကိန်း၏ အဓိကအဆောက်အဦမှာ စက်ရုံ (၁)၊ စက်ရုံ (၂)၊ ရုံးခန်းနှင့် အိပ်ဆောင် အဆောက်အဦများ ဖြစ်သည်။

ခန့်မှန်းဘတ်ဂျက်မှာ အမေရိကန်ဒေါ်လာ ၂၁,၀၀၀,၀၀၀ ဖြစ်သည်။

အဆိုပြုတင်ပြသော စီမံကိန်းသည် အစိုးရလျှပ်စစ်မီးရရှိ၍ နှစ်စဉ်လျှပ်စစ်လိုအပ်ချက်မှာ ၆၀၀,၀၀၀ ယူနစ်ဖြစ်သည်။

ရေကိုမြေအောက်ရေမှရယူသုံးစွဲ၍ နှစ်စဉ်ရေလိုအပ်ချက်မှာ ၆,၆၄၈,၄၇၅ ဂါလံဖြစ်သည်။

နှစ်စဉ်လောင်စာဆီလိုအပ်ချက်မှာ ဒီဇယ် ၁၅,၀၀၀ ဂါလံနှင့် ဓါတ်ဆီ ၁၅,၀၀၀ ဂါလံဖြစ်သည်။

ကုန်ကြမ်းပစ္စည်းများဖြစ်သော မော်တော်ဆိုင်ကယ် အစိတ်အပိုင်းများကို တရုတ်ပြည် (Chongqing Yinxiang Motorcycle Group ကုမ္ပဏီလီမိတက်) မှ တင်သွင်းပါသည်။

မော်တော်ဆိုင်ကယ်အမျိုးအစား (၆)မျိုး ထုတ်လုပ်မည်ဖြစ်ပြီး စီမံကိန်းလည်ပတ်ခြင်းတွင် ပထမနှစ်မှ ၁၀ နှစ် ၂၉၇,၀၀၀ စီးဖြစ်သည်။ ၁၁ နှစ်မြောက်မှ နောက်ပိုင်းတွင် ထုတ်လုပ်မှုမှာ ၄၉၅,၀၀၀ စီးဖြစ်သည်။

စီမံကိန်းအဆိုပြုတင်ပြသူသည် မော်တော်ဆိုင်ကယ်ထုတ်လုပ်ခြင်းကို အဆင့်မြင့် နည်းပညာများဖြင့် လုပ်ဆောင်မည်ဖြစ်၍ တက်နိုင်သမျှ လူသားအလုပ်သမား လျော့ချပါမည်။

တက်နိုင်သမျှ အလိုအလျောက်စနစ်ဖြင့် လုပ်ဆောင်မည်ဖြစ်ပြီး လူဖြင့်တပ်ဆင်ခြင်းအစား စက်ဖြင့် တပ်ဆင်မည်။ အလိုအလျောက်ဆေးဖြန်းစနစ်ကိုလည်း လုပ်ဆောင်မည်ဖြစ်သည်။

ပထမနှစ်တွင် ပြည်တွင်း ဂန်ထမ်း ၆၇၁ ဦးနှင့် နိုင်ငံခြားသား ပညာရှင် ၄၈ ဦးခန့်အပ်မည်။ ၆ နှစ်မှ ၂၀ နှစ်ထိ ပြည်တွင်းဂန်ထမ်း ၉၃၇ ဦးနှင့် နိုင်ငံခြားသားပညာရှင် ၁၄ ဦးခန့်အပ်မည် ဖြစ်သည်။

အဆိုပြုတင်ပြသော စီမံကိန်းအတွက် ကနဦးပတ်ဂန်းကျင် ဆန်းစစ်ခြင်း (IEE) ရေးသားရန် စီမံကိန်းအဆိုပြုတင်ပြသူ Aung Kan Bo Motorcycle Industrial ကုမ္ပဏီလီမိတက် နှင့် အတိုင်ပင်ခံ အဖွဲ့အစည်း မြန်မာ့ပတ်ဂန်းကျင်ရေရှည်တည်တံ့ရန် ထိန်းသိမ်းရေး ကုမ္ပဏီလီမိတက် (MESC) တို့ သဘောတူ စာချုပ်ချုပ်ဆိုထားပါသည်။

IEE လုပ်ဆောင်ချက် အကျဉ်းချုပ်

ဤ IEE အစီရင်ခံစာသည် စီမံကိန်းသက်တမ်း (၄) ခုစလုံးဖြစ်သော အကြိုတည်ဆောက်ရေး ကာလ၊ တည်ဆောက်ရေးကာလ၊ စီမံကိန်းလည်ပတ်ရေးကာလနှင့် စီမံကိန်းပိတ်သိမ်းခြင်း/ပြန်လည် ရှင်သန်ခြင်းကာလ တို့အတွက် ပါဂင်ပါသည်။

MESC မှလုပ်ဆောင်ချက်များမှာ IEE လုပ်ငန်းအတွက် ပထမလုပ်ငန်းစဉ်အနေဖြင့် မြန်မာ့ရင်းနှီးမြှုပ်နှံမှုကော်မရှင် (MIC) သို့ တင်သွင်းသော ဤစီမံကိန်း၏ အဆိုပြုတင်ပြလွှာအား အသေးစိတ်လေ့လာမှုများ ပါဂင်ပါသည်။ လုပ်ဆောင်ချက်များတွင် အဆိုပြုတင်ပြသော စီမံကိန်းနေရာ အတွက် ဇရိယာ၏ ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဂပိုင်းဆိုင်ရာ၊ လူမှု-စီးပွားရေးဆိုင်ရာ၊ ယဉ်ကျေးမှုနှင့် မျက်စိပဒေသာ ဖြစ်သောရှုခင်းရှုကွက်ဆိုင်ရာ၊ ပတ်ဂန်းကျင်၏အသေးစိတ်အကြောင်းအရာ တို့ကို ကွင်းဆင်းလေ့လာမှုများ ပါဂင်ပါသည်။

ဖြစ်နိုင်ခြေရှိသော သို့မဟုတ် အမှန်တကယ်သက်ရောက်မှုများ (ထင်ရှားသော နှင့် မထင်ရှားသော၊ ကောင်းကျိုးနှင့် ဆိုးကျိုး) တို့ကို အမျိုးအစားခွဲ၍ ဆန်းစစ်တင်ပြထားပါသည်။ ဆန်းစစ်အကဲဖြတ်ခြင်းတွင် တက်နိုင်သမျှ ဘေးအန္တရာယ်ရှိ ဆန်းစစ်အကဲဖြတ်ခြင်းလည်း ပါဝင်ပါသည်။

သက်ရောက်မှုတခုစီတိုင်းအတွက် ဖြေလျော့နိုင်မည့်နည်းလမ်းများကို အနှစ်ချုပ်အဖြစ် အကျဉ်းချုပ် ဖော်ပြထားပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် (EMP) နှင့်အတူတကွ စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း (MP) နှင့် သူတို့၏ လုပ်ဆောင်ချက်များကို ဖော်ပြထားပါသည်။

လူထုတွေ့ဆုံဆွေးနွေးပွဲတခုကို ကျင်းပ၍ ရလာဒ်များကို အသေးစိတ် အတော်အသင့် ဖော်ပြထား ပါသည်။

ဤ IEE အစီရင်ခံစာကို သဘာဝသယံဇာတနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန (MONREC) အောက်ရှိ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာန (ECD) မှချမှတ်ထားသော လမ်းညွှန်ချက်များ၊ လုပ်ထုံးလုပ်နည်းများနှင့် ပုံစံအားလုံးအတိုင်း ပြင်ဆင်ရေးသားထားပါသည်။

စီမံကိန်းအား အခြားဆောင်ရွက်နိုင်သော နည်းလမ်းများ

အဆိုပြုတင်ပြသော စီမံကိန်းလုပ်ဆောင်ခြင်းအတွက် အခြားဆောင်ရွက်နိုင်သော နည်းလမ်း အစီအစဉ်သည် ကျယ်ပြန့်ပါသည်။ ဤအရာသည် အခြားဆောင်ရွက်နိုင်သော နည်းလမ်း အစီအစဉ် ရှိလျှင်တောင်မှ စီမံကိန်းသည် ချောမွေ့ပါသည်။ အဓိကအရေးကြီးသည့်အရာသည် အကောင်းဆုံး အခြားဆောင်ရွက်နိုင်သော နည်းလမ်းတစ်ခုဖြစ်ရမည်။

<u>တည်နေရာ/စီမံကိန်းနေရာအားအခြားဆောင်ရွက်နိုင်သောနည်းလမ်း</u>

မြေနေရာအတင်းအဓမ္မရယူခြင်း၊ အင်အားသုံးပြောင်းရွှေ့ခိုင်းခြင်းနှင့် ပြန်လည်နေရာချထားခြင်း ကဲ့သို့ ပြဿနာမရှိပေ။

စီမံကိန်းအဆိုပြုတင်ပြသူသည် ဒေါ်လာသန်းပေါင်းများစွာ ရင်းနှီးမြှုပ်နှံထားပြီးဖြစ်သောကြောင့် စီမံကိန်းနေရာအား အခြားနည်းဆောင်ရွက်ရန် ထည့်သွင်းမစဉ်းစားတော့ပေ။

<u>နည်းစနစ် သို့မဟုတ် နည်းပညာအခြားဆောင်ရွက်နိုင်သောနည်းလမ်း</u>

စီမံကိန်းအဆိုပြုတင်ပြသူသည် အကောင်းဆုံးနှင့် အသင့်တော်ဆုံးနည်းပညာကို ရွေးချယ်ထား၍ လူအားထက် စက်အား၊ အလိုအလျောက်စနစ်ကို အသုံးပြုပါမည်။

အထောက်အပံ့အခြားဆောင်ရွက်နိုင်သောနည်းလမ်း

ရေအသုံးပြုမှုမှာ မပြောပလောက်ပေ။ ထို့ကြောင့် ရေအတွက် အခြားဆောင်ရွက်နိုင်သော နည်းလမ်း မလိုအပ်ပေ။

လျှပ်စစ်စွမ်းအင်အနေဖြင့် မီးပြတ်တောက်သည့်အချိန်အတွက် အရန် မီးစက်ထားရှိပါမည်။

လုပ်ဆောင်ချက်များ အခြားဆောင်ရွက်နိုင်သောနည်းလမ်း

ရှေးရိုးအတိုင်းနှင့် လူအင်အားဖြင့် လုပ်ဆောင်ခြင်းထက် စက်နှင့် အလိုအလျောက် လုပ်ဆောင်ခြင်းကို ပိုမိုနှစ်သက်ပါသည်။ ယခင်ထက်ပိုမိုလုပ်ဆောင်နိုင်၍ ပိုမိုထုတ်လုပ်နိုင်ပါသည်။

ဘာစီမံကိန်းမျှမလုပ်လျှင် ဘာမျှမဖြစ်

ဤအခြားဆောင်ရွက်နိုင်သောနည်းလမ်းသည် တိုင်းပြည်၏ သယ်ယူပို့ဆောင်ရေး ကဏ္ဍနှင့် စက်မှုဆိုင်ရာ ကဏ္ဍတို့ မဖွံ့ဖြိုးနိုင်ပေ။ ဤအခြားဆောင်ရွက်နိုင်သောနည်းလမ်းကို မနှစ်သက်ပေ။ ကုမ္ပဏီသည် ဤအခြားဆောင်ရွက်နိုင်သောနည်းလမ်းကို ထည့်သွင်းစဉ်းစားခြင်းမပြု၍ စီမံကိန်းကို ဆက်လက်လုပ်ဆောင်မည် ဖြစ်သည်။

ပတ်ဝန်းကျင်အခြေအနေ

ရုပ်ပိုင်းဆိုင်ရာ

ဇရိယာသည် မြန်မာနိုင်ငံ ခြောက်သွေ့ဇုန်၏ တစိတ်တပိုင်း ခြောက်သွေ့သော ဂေဟဗေဒ ဖြစ်သည်။ စီမံကိန်းနေရာနှင့် ပတ်ဝန်းကျင်ဇရိယာသည် သစ်တောမရှိသော နိမ့်သည့် မြေပြန့်ဖြစ်၍ ကွင်းနှင့် ယာများသာ ရှိပါသည်။ ရာသီဥတုသည် မိုးနည်းသော ခြောက်သွေ့ဇုန် ရာသီဥတုဖြစ်သည်။

အနီးနားတွင် ရေအရင်းအမြစ်မရှိသော်လည်း မိုင်ဂက်အကွားအဂေးတွင် ဒုဌဂတီ မြစ်ရှိပါသည်။

အခြေခံကျောက်သည် Miocene မှ Holocene epoch's နှင့်ဆက်သော အနည်အနှစ်ဖြစ်သော ဇရာဂတီ Group ဖြစ်သည်။

ရေအရည်အသွေး

အဂီစီရေနမူနာကို ရန်ကုန်ရှိ ISO Tech ခါတ်ခွဲခန်းတွင် စစ်ဆေး၍ ရလာဒ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်။

စဉ်	ပါရာမီတာ	စီမံကိန်းနေရာတွင် ရှိသော ရလာဒ်	NEQ လမ်းညွှန်ချက်တန်းဖိုးများ/WHO လမ်းညွှန်ချက်တန်းဖိုးများ
၁။	pH	7.7	6.5 – 8.5
၂။	Turbidity	2 NTU	5 NTU
၃။	Conductivity	590 micro S/cm	-
၄။	Chemical Oxygen Demand, COD	32 mg/l	250 mg/l
၅။	Biochemical Oxygen Demand, BOD (5 days at 20ºC)	4 mg/l	50 mg/l
၆။	Suspended solids	3 mg/l	500 mg/l
၇။	Dissolved solids	419 mg/l	1000 mg/l
၈။	Total hardness ($CaCO_3$)	230 mg/l	500 mg/l
၉။	Calcium hardness ($CaCO_3$)	154 mg/l	-
၁၀။	Total alkalinity	332 mg/l	-
၁၁။	Sulphate (as SO_4)	40 mg/l	200 mg/l
၁၂။	Chloride (as Cl)	8 mg/l	250 mg/l
၁၃။	Carbonate ($CaCO_3$)	Nil	-
၁၄။	Bicarbonate (HCO_3)	332 mg/l	-
၁၅။	Phosphate	Nil	-
၁၆။	Nitrate ($N.NO_3$)	0.3 mg/l	50 mg/l

တန်ဖိုးများမှာ NEQEG လမ်းညွှန်ချက်တန်ဖိုးအောက် ရှိပါသည်။

မှတ်ချက်-စက်ရုံလည်ပတ်သောအခါ စက်မှုဆိုင်ရာ စွန့်ထုတ်ရည် ထွက်ရှိမည်ဖြစ်၍ အဆိုပါစွန့်ထုတ်ရည်ကို တိုင်းတာ၍ ပုံမှန် ခြောက်လတစ်ကြိမ် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း အစီရင်ခံစာတွင် တင်ပြပါမည်။

လေအရည်အသွေး

စဉ်	ပါရာမီတာ	ယူနစ်	စီမံကိန်းနေရာရှိ တန်ဖိုး	NEQEG လမ်းညွှန်ချက်တန်ဖိုးများ/WHO လမ်းညွှန်ချက်တန်ဖိုးများ
၁။	PM_{10}	$\mu g/m^3$	15.2	50
၂။	$PM_{2.5}$	$\mu g/m^3$	9.1	25
၃။	SO_2	$\mu g/m^3$	185	20
၄။	NO_2	$\mu g/m^3$	125	200
၅။	CO	$\mu g/m^3$	82	30000
၆။	O_3	$\mu g/m^3$	76	100
၇။	VOC	$\mu g/m^3$	0.12	400
၈။	HC	ppm	1867	-
၉။	CH_4	ppm	1701	-

SO_2 မှလွဲ၍ ကျန်တန်ဖိုးအားလုံး NEQEG လမ်းညွှန်ချက် တန်ဖိုးထက်နည်းပါသည်။

ဆူညံသံ

ဆူညံသံများမှာ နေ့ဘက်တွင် ၅၈ dBA နှင့် ညဘက်တွင် ၃၆ dBA အသီးသီးဖြစ်၍ NEQEG လမ်းညွှန်ချက် တန်ဖိုးထက်နည်းပါသည်။

ဇီဝပိုင်းဆိုင်ရာ

သစ်တောမရှိ၍ ကွင်းနှင့် ခြောက်သွေ့သော ယာများသာရှိသောကြောင့် အပင် ဇီဝမျိုးစုံမျိုးကွဲသည် နိမ့်၍ ၁၇ မျိုးသာမှတ်တမ်းတင်နိုင်ခဲ့ပါသည်။ ၎က်သည်လည်း အတော်အသင့် ဇီဝမျိုးစုံမျိုးကွဲနိမ့်၍ ၄၆ မျိုးသာတွေ့ရပါသည်။ ထို့အပြင် ကုန်းနေရေနေတွားသွားသတ္တဝါ ၆ မျိုးနှင့် ငါး ၂၂ မျိုး မှတ်တမ်းတင်နိုင်ခဲ့ပါသည်။

လူမှု-စီးပွားရေးဆိုင်ရာ

ကန်ဘဲ့ကျေးရွာ၊ အမရပူရမြို့နယ်သည် အရှေ့တောင်ဘက် မိုင်၁၀၀ခန့်တွင် တည်ရှိပါသည်။ ကန်ဘဲ့ကျေးရွာအုပ်စုတွင် လူဦးရေ ၈၂၇ ဦး (ကျား ၄၄၄၊ မ ၃၈၃)၊ အိမ်ခြေ ၁၉၀ နှင့် အိမ်ထောင်စု ၂၀၆ စုဖြစ်၍ အားလုံးမှာ ဗမာ၊ ဗုဒ္ဓဘာသာများဖြစ်ကြသည်။

ကျန်းမာရေးအဆင့်မှာ နိမ့်၍ ကျေးရွာတွင် ဆေးပေးခန်းမရှိပေ။ အနီးဆုံးဆေးရုံမှာ အမပူရမြို့ ၄ မိုင်အကွာတွင်ဖြစ်ပါသည်။

လူဦးရေ၏ ၃၀ ရာခိုင်နှုန်းမှာ စပါး၊ နှမ်းနှင့် ပဲတို့ စိုက်ပျိုးသော လယ်သမားများဖြစ်ကြသည်။ ၃၀ ရာခိုင်နှုန်းမှာ ယက်ကန်းလုပ်ငန်း (အသေးစားအိမ်တွင်းစက်မှုလုပ်ငန်း)နှင့် ၃၀ ရာခိုင်နှုန်းမှာ စက်ရုံအလုပ်ရုံလုပ်ပါသည်။ ကျေးရွာသူ၊ သား (၁၀) ဦးမှာ ဆရာ၊ ဆရာမများဖြစ်၍ (၆) ဦးမှာ စစ်သားနှင့် ရဲသားဖြစ်ကြပါသည်။

ကျေးရွာသည် စစ်ကိုင်း၊ မန္တလေးနှင့် ရန်ကုန်တို့မှ ကားနှင့် ရထားတို့ဖြင့် အလွယ်တကူ သွားလာနိုင်ပါသည်။

ကျေးရွာသည် ၁၀၀ ရာခိုင်နှုန်း လျှပ်စစ်ရရှိပါသည်။

မူလတန်းကျောင်း တစ်ကျောင်းရှိ၍ ကျောင်းသား၊ သူ (၉၃) ဦးရှိ၍ ဆရာ၊ ဆရာမ (၅) ဦးရှိပါသည်။

ကျေးရွာတွင် ဘုန်းကြီး (၁၄) ပါးရှိသော ဘုန်းကြီးကျောင်း (၂) ကျောင်းရှိပါသည်။

ဇရိယ၏အနောက်ဘက်တွင် နာမည်ကြီးဘုရားဖြစ်သော (၃) မိုင်ဝေးသော ရွှေကြက်ယက် ဘုရားနှင့် (၄) မိုင်ဝေးသော ကျောက်စိမ်းဘုရားတို့ ရှိပါသည်။

ဗုဒ္ဓဘာသာများဖြစ်သော်လည်း ကျေးရွာသူ၊ သားအများစုမှာ နတ်ကိုးကွယ်ကြပါသည်။

သက်ရောက်မှုနှင့် ဖြေလျော့နိုင်မည့်နည်းလမ်းများ

<u>အကြိုတည်ဆောက်ရေးကာလအတွင်းတွင်</u>

၁။ ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှုများမှာ အစွန်းရောက်သူနှင့် တက်ကြွလှုပ်ရှားသူများကြောင့် စီမံကိန်းကို လိုလားသူနှင့် စီမံကိန်းကို မလိုလားသူဟူ၍ အုပ်စု (၂) စုကွဲခြင်း

၂။ မြေစျေးအဆမတန်တက်ခြင်း

သို့ပေမယ့် ဤစီမံကိန်းသည် ထိုကဲ့သို့ ဆိုးကျိုးသက်ရောက်မှု မတွေ့ရပေ။ မြေနေရာ အတင်းအဓမ္မရယူခြင်း၊ အင်အားသုံးပြောင်းရွှေ့ခိုင်းခြင်းနှင့် ပြန်လည်နေရာချထားခြင်း ကဲ့သို့ ပြဿနာ မရှိပေ။

သစ်တောမရှိသောကြောင့် ဇီဝမျိုးစုံမျိုးကွဲအပေါ် သက်ရောက်မှု မရှိပေ။ စီမံကိန်းကြောင့် ဘာသာရေးအဆောက်အအုံ (ဘုရား၊ ဘုန်းကြီးကျောင်း) သို့မဟုတ် သမိုင်းဆိုင်ရာ၊ ရှေးဟောင်း အဆောက်အအုံ သို့မဟုတ် ခရီးသွားများကို ဆွဲဆောင်နိုင်သော လှပသော နေရာများကို ထိခိုက်မှုမရှိပေ။

တည်ဆောက်ရေးကာလအတွင်းတွင်

၁။ ရွှေ့ပြောင်းခြင်းနှင့် ပြင်ဆင်ခြင်းကြောင့် သက်ရောက်မှု

၂။ ဖြစ်နိုင်ခြေရှိသော အများသုံး သို့မဟုတ် ကိုယ်ပိုင်အသုံးဝင်ခြင်းများ နောက်ယှက်မိခြင်း

၃။ ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင်တွင်

၄။ အရေးပေါ်နှင့် ကျန်းမာရေးဝန်ဆောင်မှုများ အပေါ် သက်ရောက်မှု

၅။ လေအရည်အသွေး (ဖုန်မှုန့်၊ မီးခိုး၊ ဂတ်ထုတ်လွှတ်မှု) အပေါ် သက်ရောက်မှု

၆။ ဆူညံသံနှင့် တုန်ခါမှုကြောင့် သက်ရောက်မှု

၇။ ဖြစ်နိုင်ခြေရှိသော မြေဆီလွှာအပေါ် သက်ရောက်မှု

၈။ ဖြစ်နိုင်ခြေရှိသော ရေအပေါ် သက်ရောက်မှု

၉။ စွန့်ပစ်ပစ္စည်းများ(အစိုင်အခဲနှင့် အရည်) ကြောင့် သက်ရောက်မှု

၁၀။ ဇီဝမျိုးစုံမျိုးကွဲအပေါ် သက်ရောက်မှု

၁၁။ ဖြစ်နိုင်ခြေရှိသော လူမှုရေးရာ သက်ရောက်မှု

၁၂။ ဖြစ်နိုင်ခြေရှိသော လုံခြုံရေးပြဿနာ

စီမံကိန်းလည်ပတ်ခြင်းကာလအတွင်းတွင်

၁။ ဖြစ်နိုင်ခြေရှိသော မျက်စိပဒေသာဖြစ်သော ရှုခင်းရှုကွက်အပေါ် သက်ရောက်မှု

၂။ ဖြစ်နိုင်ခြေရှိသော ယဉ်ကျေးပိတ်ဆို့မှုပြဿနာ

၃။ ဖြစ်နိုင်ခြေရှိသော လေအရည်အသွေးအပေါ် သက်ရောက်မှု (ဖုန်မှုန့်၊ မီးခိုး၊ ထုတ်လွှတ်မှု)

၄။ ဆူညံသံနှင့် တုန်ခါမှု

၅။ ဖြစ်နိုင်ခြေရှိသော ပါဝါထောက်ပံ့မှု ကြောင့် အစိုးရ လျှပ်စစ်မီးအပေါ် သက်ရောက်မှု

၆။ ဖြစ်နိုင်ခြေရှိသော ရေအပေါ် သက်ရောက်မှု

၇။ စွန့်ပစ်ပစ္စည်းများကြောင့် သက်ရောက်မှု (အရည်နှင့် အစိုင်အခဲ)

၈။ လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး

၉။ ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင် မတော်တဆမှု

၁၀။ ဖြစ်နိုင်ခြေရှိသော အရေးပေါ်နှင့် ကျန်းမာရေးဝန်ဆောင်မှုများ မရှိခြင်းကြောင့် သက်ရောက်မှု

၁၁။ ဖြစ်နိုင်ခြေရှိသော လုံခြုံရေးပြဿနာ

၁၂။ ပြည်သူလူထုသဘောထားအမြင်ကြောင့် သက်ရောက်မှု

လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး၊ လုပ်ငန်းခွင်မတော်တဆမှုနှင့် လူမှုရေးပြဿနာ များသည် ခန့်မှန်းရ ခက်ခဲသော်လည်း ကျန်သက်ရောက်မှု အားလုံး အနည်း သို့ အများ ဖြေလျော့သို့မဟုတ် တားဆီးနိုင်ပါသည်။

<u>စီမံကိန်းပိတ်သိမ်းခြင်းကာလအတွင်းတွင်</u>

၁။ လုပ်ငန်းခွင်မတော်တဆမှု

၂။ ဖြစ်နိုင်ခြေရှိသော ကြွင်းကျန်သက်ရောက်မှုများ

သက်ရောက်မှု တစ်ခုစီတိုင်းအတွက် မတူညီသော ဖြေလျော့နိုင်မည့် နည်းလမ်းအမျိုးမျိုးကို အခန်း (၈၊ ၈.၃.၂) တွင် အသေးစိတ်ဖော်ပြထား၍ နောက်ထပ အခန်း (၉၊ ၉.၄) တွင်ဖော်ပြထားပါသည်။

အဓိကသက်ရောက်မှုအတွက် ဥပမာအချို့နှင့် စီမံကိန်းလည်ပတ်ခြင်းကာလအတွက် ဖြေလျော့နိုင်မည့် နည်းလမ်းအနှစ်ချုပ်ကို အောက်တွင်ဖော်ပြထားပါသည်။

၁။ လေအရည်အသွေးအပေါ် သက်ရောက်မှု၊ ဖုန်မှုန့်၊ မီးခိုးနှင့် ဂတ်ထုတ်လွှတ်မှု

ဖြေလျော့နိုင်မည့်နည်းလမ်း (အနှစ်ချုပ်)

- ဖြစ်နိုင်ခြေရှိသော ထုတ်လွှတ်မှုသည် မပြောပလောက်ပေ။ မော်တော်ဆိုင်ကယ်အစိတ်အပိုင်း တပ်ဆင်ခြင်းသည် မီးခိုးမထွက်ရှိပေ။ မီးခိုးခေါင်းတိုင်မလိုအပ်ပေ။
- စီမံကိန်းလည်ပတ်ခြင်းကာလ ရေရှည်အတွက် လေအရည်အသွေး စီမံခန့်ခွဲမှုအစီအစဉ်ရေးဆွဲထားခြင်း
- လိုအပ်သော နည်းဥပဒေများ၊ စည်းမျဉ်းများအားလုံးကို လိုက်နာခြင်း၊ အမျိုးသားပတ်ဝန်းကျင် အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်တန်ဖိုးများကို လိုက်နာခြင်း
- ဖုန်ထလျှင် လုံလောက်စွာ ရေဖြန်းခြင်း
- ဖုန်ထွက်ရှိမှုနည်းပါးစေရန် ယာဉ်၏အမြန်နှုန်းကို လျော့ချခြင်း
- ဖုန်ဖမ်းခြင်းအတွက် အပင်များစိုက်ပျိုးခြင်း

- မီးခိုးနှင့် ထုတ်လွှတ်မှုအတွက် အကျိုးသက်ရောက်သော ဖြေလျော့နိုင်မည့်နည်းလမ်းများနှင့် စီမံခန့်ခွဲမှုများကို အစီအစဉ်ရေးဆွဲခြင်း
- ဟင်းလင်းပွင့်တွင် အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများ မီးရှို့ခြင်းမှ ရှောင်ရှားခြင်း
- ယာဉ်များနှင့် စက်ကိရိယာများကို ပုံမှန်ပြုပြင်ခြင်းနှင့် ထိန်းသိမ်းခြင်း
- ယာဉ်များနှင့် စက်ယန္တရားများ၏ အင်ဂျင်များကို ပုံမှန်စစ်ဆေးခြင်း
- မီးခိုးထွက်နည်း၍ လောင်စာဆီအသုံးပြုမှုနည်းသော ယာဉ်များနှင့် စက်ယန္တရားများကို အသုံးပြုခြင်း
- မလိုအပ်သော မီးခိုးထွက်ရှိမှုနည်းစေရန် လောင်စာဆီကို ထိန်းသိမ်းသုံးစွဲခြင်း
- အစိမ်းရောင်ဖုန်ဖန်တီးခြင်း၊ မီးခိုးထဲမှ CO_2 စုပ်ယူရန် အပင်များစိုက်ပျိုးခြင်း
- အထူးသဖြင့် ဂရိန်ဇရိယာနှင့် ဆေးသုတ်သည့် ဇရိယာတွင်အလုပ်လုပ်သော ဂန်ထမ်းများအား လုံလောက်သော PPE ထောက်ပံ့ပေးခြင်း၊

စက်ရုံဂန်းအတွင်းလေအရည်အသွေးစီမံခန့်ခွဲခြင်းအတွက်

- တက်နိုင်သမျှ သဘာဂလေနှင့် လေဂင်လေထွက်ကောင်းမွန်စေရန် စီစဉ်ခြင်း
- ကောင်းမွန်သော လေဂင်လေထွက်စနစ်ပါဂင်သော ဘေးအန္တရာယ်ကင်းရှင်းသော လုပ်ထုံးလုပ်နည်းကို လိုက်နာခြင်း
- ဖြစ်နိုင်လျှင် စက်ရုံ၏တစ်နေရာတွင် "ဆေးလိပ်သောက်သည့်နေရာ" သတ်မှတ်ထားခြင်း
- အလုပ်ခွင်နေရာကို သန့်ရှင်းစင်ကြယ်စွာထားရှိခြင်း

၂။ ဆူညံသံနှင့် တုန်ခါမှုကြောင့် သက်ရောက်မှု

ဖြေလျော့နိုင်မည့်နည်းလမ်းများ (အနှစ်ချုပ်)

- ဆူညံသံနှင့် တုန်ခါမှုကို အကျိုးသက်ရောက်စွာ စီမံခန့်ခွဲခြင်း
- လိုအပ်သော ဥပဒေ၊ စည်းမျဉ်းများကို လိုက်နာခြင်း
- ဆူညံသံနှင့် တုန်ခါမှုအတွက် အမျိုးသားပတ်ဂန်းကျင်ဆိုင်ရာ (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် တန်ဖိုးကို လိုက်နာခြင်း
- ယာဉ်ရွှေ့လျားမှုကို ကန့်သတ်ခြင်း

- ဆူညံသံထွက်ရှိမှုနည်းသော စက်ယန္တရားနှင့် ယာဉ်များကို ရွေးချယ်အသုံးပြုရန် စီစဉ်ခြင်း
- ဆူညံသံထွက်ရှိမှုနည်းစေရန် silencer၊ muffler များတပ်ဆင်ခြင်း
- ဆူညံသံကိုတားဆီးရန်နှင့် ဆူညံသံထွက်ရှိမှုနည်းစေရန် ယာဉ်နှင့် စက်ယန္တရားများကို ပုံမှန်ပြုပြင်ထိန်းသိမ်းခြင်း
- ဆူညံသံထွက်ရှိမှုနည်းစေရန် စက်ယန္တရားအပေါင်းနှင့် ယာဉ်အပေါင်းများကို သေချာပြုပြင်၍ အသုံးပြုခြင်း
- စက်ရုံပတ်ပတ်လည်တွင် အစိမ်းရောင်အတန်းပြုလုပ်ခြင်း၊ အသံများကိုစုပ်ယူစေရန် အပင်များစိုက်ပျိုးခြင်း
- ယာဉ်သွားလာမှုများကြောင့် တုန်ခါမှုကို လျော့ချစေရန် တက်နိုင်သမျှ လမ်းမျက်နှာပြင်ကို ချောမွေ့စေခြင်း
- စက်ယန္တရားနှင့် စက်ကိရိယာများအတွက် တုန်ခါမှုလျော့ချစေရန် သင့်တော်သော အောက်ခံဒီဇိုင်းကို ဖန်တီးခြင်း
- လိုအပ်လျှင် တုန်ခါမှုစုပ်ယူသော စက်တပ်ဆင်ခြင်း
- ဆူညံသံထွက်ရှိသော နေရာတွင် အချိန်ကြာမြင့်စွာ လုပ်ရသော ဝန်ထမ်းများကို လုံလောက်သော PPE ထောက်ပံ့ပေးခြင်း

၃။ ဖြစ်နိုင်ခြေရှိသော ရေအပေါ် သက်ရောက်မှု

ဖြေလျော့နိုင်မည့်နည်းလမ်းများ (အနှစ်ချုပ်)

- စက်မှုဆိုင်ရာရည်ရွယ်ချက် (တပ်ဆင်ခြင်းအတွက် ရေမလိုအပ်ပေ) အတွက် ရေအသုံးမပြုပေ။ လူသုံးအတွက်သာ အဓိကအသုံးပြုခြင်း
- ရေထိန်းသိမ်းခြင်းအတွက် စီမံခြင်း
- ရေသုံးစွဲမှုအား ဘောင်အတွင်း (၆,၆၄၈,၄၇၅ ဂါလံ/နှစ်) တွင် ဝင်စေခြင်း
- ရေသုံးစွဲမှုကို နေ့စဉ်၊ အပတ်စဉ်နှင့် လစဉ် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း
- ရေလိုအပ်ချက်ကို ရာသီဥတုအားလုံးအတွက် စဉ်ဆက်မပြတ်ရရှိစေခြင်းနှင့် အိမ်နီးချင်းများကို အကျိုးသက်ရောက်မှု မရှိစေခြင်း
- သန့်ရှင်း၊ ချက်ပြုတ်၊ စက်ယန္တရားနှင့် ယာဉ်များ ထိန်းသိမ်းဆေးကြော၊ အပင်များအတွက် နှင့် ဝန်ထမ်းသုံးစွဲမှုများအတွက် ရေသုံးစွဲမှုလျော့ချစေခြင်းနှင့် ထိန်းသိမ်းခြင်း

- ဖြစ်နိုင်လျှင် ရေကိုပြန်လည်သုံးစွဲခြင်း၊ ပြန်လည်သုံးစွဲသည့်ရေကို ဖုန်ဖြန်းခြင်းနှင့် အပင်များ ရေလောင်းခြင်းတွင် အသုံးပြုခြင်း

- ရေစိမ့်ထွက်မှုမရှိစေခြင်း

- အမိုးမှ မိုးရေများအတွက် ကန်တည်ဆောက်ခြင်း၊ အဆိုပါမိုးရေသည် စက်ယန္တရားနှင့် ယာဉ်များ ဆေးကြောရာတွင် အသုံးပြုနိုင်ခြင်း၊ ဖုန်ထရာတွင် ရေဖြန်းခြင်း၊ အပင်ရေလောင်းခြင်းနှင့် မီးဘေးအန္တရာယ်အတွက် တို့အသုံးပြုခြင်း

- ရေသုံးစွဲမှု လျော့ချစေရန် ရေနည်းနည်းသာ လောင်းရသော အပင်များကို ရွေးချယ်စိုက်ပျိုးခြင်း

- ရေသုံးသည့် စက်ကိရိယာများတွင် ရေကို ခွေတာသော စနစ်တပ်ဆင်အသုံးပြုခြင်း

- ရေအရည်အသွေးကို တစ်နှစ်နှစ်ခါ စစ်ဆေးခြင်း (ပညာရှင်များငှားရမ်း၍)

၃။ လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး

ဖြေလျော့နိုင်မည့်နည်းလမ်းများ (အနှစ်ချုပ်)

- ဝန်ထမ်းများအတွက် ဘေးအန္တရာယ်ကင်းရှင်းသော အလုပ်ခွင် စီမံပေးခြင်းနှင့် ပြီးပြည့်စုံသော အစီအစဉ်ရေးဆွဲခြင်း

- အလုပ်ခွင်ဘေးအန္တရာယ်ကင်းရှင်းစေရန် တက်နိုင်သမျှ လူအားထက် စက်အားကိုပိုမိုသုံးစွဲခြင်းဖြင့် ဘေးအန္တရာယ်ကင်းရှင်းသော ပတ်ဝန်းကျင်ဖန်တီးပေးခြင်း၊ စက်အားသည် ထုတ်လုပ်မှုကို တိုးမြှင့်နိုင်၍ မတော်တဆမှုလျော့နည်းစေခြင်း၊ ဥပမာအနေဖြင့် ဝါရိန်ဆော်ခြင်းနှင့် အလိုအလျောက် ဆေးဖြန်းခြင်းသည် ထုတ်လုပ်မှုကို တိုးမြှင့်နိုင်၍ ဝန်ထမ်းများအပေါ် သက်ရောက်မှု လျော့ချစေနိုင်ပါသည်။ (ကုမ္ပဏီသည် ဤအရာကို လုပ်ဆောင်မည်ဖြစ်သည်)

- ကောင်းမွန်သော အလုပ်လုပ်သော အလေ့အထ၊ ကောင်းမွန်သော အင်ဂျင်နီယာအလေ့အထ၊ ကောင်းမွန်သော ဘေးအန္တရာယ်ကင်းရှင်းသော အလေ့အထနှင့် ကောင်းမွန်သည့် သန့်ရှင်းသော အလေ့အထအားလုံးကို ဝန်ထမ်းများ၏ စိတ်ထဲတွင် စွဲထင်စေရန် ဝန်ထမ်းများကို ပညာပေးခြင်းနှင့် သင်တန်းပေးခြင်း

- စက်ကိရိယာကိုင်တွယ်ခြင်းနှင့် လည်ပတ်ခြင်း၊ ခါတုဗေဒပစ္စည်းများကို ကိုင်တွယ်ခြင်းတို့ကို ဝန်ထမ်းများအား ကျွမ်းကျင်မှုအတွက် သင်တန်းပေးခြင်း

- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာအသိပညာနှင့် လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်တို့ကို ပညာပေးခြင်းနှင့် သင်တန်းပေးခြင်း

- ကျန်းမာရေးနှင့် သန့်ရှင်းမှုသင်တန်းများ ထောက်ပံ့ပေးခြင်း

တပ်ဆင်လိုင်းတွင် အလုပ်အခြေအနေကို စီမံခန့်ခွဲခြင်းအတွက်

- စက်ယန္တရား၊ စက်ကိရိယာတို့ကို ပုံမှန်ထိန်းသိမ်းခြင်းနှင့် ပြုပြင်ခြင်း (ပုံမှန်စစ်ဆေးခြင်း)
- ဝန်ထမ်းများကို လုံလောက်သော PPE ထောက်ပံ့ပေးခြင်း

ဝန်ထမ်းများအား ရုပ်ပိုင်းဆိုင်ရာသက်ရောက်မှုများမှ ဖြေလျော့စေခြင်း

- တပ်ဆင်လိုင်းတွင် ဝန်ထမ်းများကို အဖွဲ့ဖွဲ့ပေးခြင်း
- အလုပ်နေရာကို ဒီဇိုင်းပြန်ပြောင်းခြင်း၊ အလုပ်ချိန်ကို ပြန်လည်ချိန်ညှိခြင်း၊ အလုပ်ချိန်ကို အလှည့်ကျစီစဉ်ခြင်း

၄။ ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင်မတော်တဆမှုများ

ဖြေလျော့နိုင်မည့်နည်းလမ်းများ (အနှစ်ချုပ်)

- ဘေးအန္တရာယ်ကင်းရှင်းသော နေရာဖန်တီးပေးခြင်း၊ မတော်တဆမှု လုံဝမရှိစေရေး လုပ်ဆောင်ခြင်း
- လူအားထက် စက်အားကို တက်နိုင်သမျှ တိုးမြှင့်လုပ်ဆောင်ခြင်း၊ အလိုအလျောက်စနစ်ဖြင့် လုပ်ဆောင်ခြင်းသည် ဝန်ထမ်းများအပေါ် သက်ရောက်မှုကို လျော့ချစေနိုင်ခြင်း
- အခန်း (၆၊ ၆.၃.၉) တွင်ဖော်ပြထားသော အလုပ်ခွင်မတော်တဆမှုများကို လေ့လာ၍ မတော်တဆမှု လုံဝမဖြစ်စေရအတွက် ပြီးပြည့်စုံသော အစီအစဉ်ရေးဆွဲခြင်း
- အခန်း (၆.၃.၉) တွင် ဖော်ပြထားသော ပုံမှန်မတော်တဆမှုများကို သတိထား၍ တစ်ခုစီအတွက် တားဆီးခြင်း၊ ကာကွယ်ခြင်းနှင့် ဖြေလျော့နိုင်မည့်နည်းလမ်းများကို လုပ်ဆောင်ခြင်း
- ဓါတုဗေဒပစ္စည်းများသည် ဘေးအန္တရာယ်ရှိပစ္စည်းများဖြစ်သောကြောင့် ဝန်ထမ်းများကို ကာကွယ်စေရန် PPE ထောက်ပံ့ခြင်း၊ ကိုင်တွယ်နည်းများကို ပညာပေးခြင်း

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP)

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) သည် စီမံကိန်းတစ်ခုလုပ်ဆောင်ခြင်းကြောင့် ဇရိယာ၏ ပတ်ဝန်းကျင်အရည်အသွေးများ မပျက်စီးစေရန်အတွက် အဓိကဖြစ်သည်။ EMP သည် ပတ်ဝန်းကျင်ပြဿနာများဖြစ်သော ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝပိုင်းဆိုင်ရာ၊ လူမှု-စီးပွားရေးဆိုင်ရာ၊ ယဉ်ကျေးမှုနှင့် မျက်စိပဒေသာဖြစ်သော ပြဿနာများ ပါဝင်ပါသည်။ EMP သည် စီစဉ်မှု၊ ဖွံ့ဖြိုးမှု၊ လုပ်ဆောင်မှု၊ စောင့်ကြပ်ကြည့်ရှုနှင့် တုန့်ပြန်မှုတို့မှ စနစ်တကျချဉ်းကပ်သော ရေရှည်စနစ်တစ်ခုဖြစ်သည်။ EMP တွင် စီမံကိန်း၏ အရည်အသွေးအတွက် စီမံခန့်ခွဲမှုပါဝင်သည်။

EMP တွင် ပတ်ဝန်းကျင်နှင့်လိုက်ထွေညီထွေဖြစ်စေသော မော်တော်ဆိုင်ကယ်စက်ရုံတစ်ရုံသည် ပတ်ဝန်းကျင်နှင့် လိုက်လျောညီထွေဖြစ်စေသော စက်ယန္တရား၊ စက်ကိရိယာနှင့် မီးခိုး၊ ဆူညံသံထွက်ရှိမှုနည်းသော၊ လောင်စာဆီနှင့် စွမ်းအင်လုံလောက်သော ယာဉ်များတို့၏ စီစဉ်မှုနှင့် ဒီဇိုင်းပါဝင်သည်။ ရေထိန်းသိမ်းသုံးစွဲခြင်းနှင့် တက်နိုင်သမျှ စွန့်ပစ်ရေ ပြန်လည်အသုံးပြုခြင်းတို့လည်း ပါဝင်သည်။

EMP သည် စီမံကိန်းသက်တမ်းတခုလုံး၏ ကောင်းကျိုးဆိုးကျိုးများ၏ ဖြေလျော့နိုင်မည့် နည်းလမ်းအတွက် မရှိမဖြစ်ဖြစ်သည်။ EMP သည်အကောင်းဆုံးနည်းပညာနှင့် အကောင်းဆုံး ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအလေ့အကျင့်များဖြစ်သော လက်တွေ့ဆန်မှုနှင့် ကုန်ကျစရိတ် သက်သာစေပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP)အတွက် ဘာတ်ကျတ်

အကျိုးသက်ရောက်သော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) နှင့် စောင့်ကြပ်ကြည့်ရှုမှုလေ့လာခြင်းအစီအစဉ် (MP) လုပ်ဆောင်ရန် ကုမ္ပဏီမှ ရန်ပုံငွေတစ်ခု ထားရှိပါသည် (ထို့အပြင် CSR လုပ်ဆောင်ခြင်းအတွက် သီးခြားရန်ပုံငွေ)။ စီမံကိန်းဘတ်ဂျတ်၏ ၀.၅ ရာခိုင်နှုန်း (အမေရိကန်ဒေါ်လာ ၁၀၅,၀၀၀) ကို ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ရန်ပုံငွေအဖြစ် ထားရှိပါသည်။

အောက်ပါအစီအစဉ်များသည် အောင်မြင်သော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) အတွက် ဖြစ်သည်။

- စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းအစီအစဉ်
- အစီရင်ခံတင်ပြခြင်း အစီအစဉ်
- စွမ်းဆောင်ရည်မြှင့် သင်တန်း အစီအစဉ်
- အရေးပေါ် အစီအစဉ်

ကုမ္ပဏီသည် အစီအစဉ် (၄) ခုအတွက် EMP ရန်ပုံငွေကို အောက်ပါအတိုင်း ခွဲဝေထားပါသည်။

- စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းအစီအစဉ်အတွက် ရန်ပုံငွေ၏ ၃၅ ရာခိုင်နှုန်း (အမေရိကန်ဒေါ်လာ ၃၆,၇၅၀)
- အစီရင်ခံတင်ပြခြင်း အစီအစဉ်အတွက် ရန်ပုံငွေ၏ ၁၀ ရာခိုင်နှုန်း (အမေရိကန်ဒေါ်လာ ၁၀,၅၀၀)
- စွမ်းဆောင်ရည်မြှင့် သင်တန်း အစီအစဉ်အတွက် ရန်ပုံငွေ၏ ၂၀ ရာခိုင်နှုန်း (အမေရိကန်ဒေါ်လာ ၂၁,၀၀၀)
- အရေးပေါ် အစီအစဉ် အတွက် ရန်ပုံငွေ၏ ၃၀ ရာခိုင်နှုန်း (အမေရိကန်ဒေါ်လာ ၃၁,၅၀၀)
- အထွေထွေအသုံးစရိတ်အတွက် ရန်ပုံငွေ၏ ၅ ရာခိုင်နှုန်း (အမေရိကန်ဒေါ်လာ ၅,၂၅၀)

EMP အဖွဲ့

အကျိုးသက်ရောက်သော EMP ဆောင်ရွက်ရန်အတွက် EMP အဖွဲ့တစ်ဖွဲ့ကို ဖွဲ့စည်းထားပါသည်။ အဆိုပါ EMP အဖွဲ့ဝင်များမှာ မန်နေဂျာသည် EMP အဖွဲ့ခေါင်းဆောင်နှင့် အခြားလေးယောက်မှာ အင်ဂျင်နီယာ၊ ပညာရှင်နှင့် ဝန်ထမ်းများ ပါဝင်ပါသည်။ ဤ EMP အဖွဲ့သည် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း ကော်မတီလည်းဖြစ်သည်။ ဤစောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း ကော်မတီတွင် ဒေသခံ (၂) ဦး ထပ်ထည့်မည်ဖြစ်သည်။

စဉ်	အမည်	ရာထူး	တာဝန်
၁။	ဦးမြင့်လှိုင်	မန်နေဂျာ	EMP အဖွဲ့ခေါင်းဆောင်
၂။	ဒေါ်မျိုးမျိုး	ပညာရှင်	EMP အဖွဲ့ဝင်
၃။	ဒေါ်ထွေးထွေးရီ	ပညာရှင်	EMP အဖွဲ့ဝင်
၄။	ဦးကိုကိုဦး	ပညာရှင်	EMP အဖွဲ့ဝင်
၅။	ဦးသက်နိုင်	ပညာရှင်	EMP အဖွဲ့ဝင်
၆။	ဦးသန်းလွင်	ကျေးရွာအုပ်ချုပ်ရေးမှူး	EMP အဖွဲ့ဝင်
၇။	ဦးဇော်ထွန်းမျိုး	ကျေးရွာသား	EMP အဖွဲ့ဝင်

EMP အဖွဲ့ခေါင်းဆောင်နှင့် အဖွဲ့ဝင်များသည် ဖြေလျော့နိုင်မည့် နည်းလမ်းများနှင့် စောင့်ကြပ်ကြည့်ရှုလေ့လာ ခြင်းအစီအစဉ် တို့အတွက် တာဝန်ရှိပါသည်။

စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း

စောင့်ကြပ်ကြည့်ရှုလေ့လာ ခြင်းသည် ကဏ္ဍ (၁၆) ခု(မိုးလေဝသ စောင့်ကြပ်ကြည့်ရှုလေ့လာ ခြင်း၊ လေ၊ ရေ၊ မြေအရည်အသွေး စောင့်ကြပ်ကြည့်ရှုလေ့လာ ခြင်း အပါအဝင် ကဏ္ဍ (၁၆) ခုပါဝင်သည်။

လက်တွေ့ဆန်သော ရည်ရွယ်ချက်အတွက် ရုပ်ပိုင်းဆိုင်ရာ ပါရာမီတာများနှင့် အခြားတို့ကို စီမံကိန်းလည်ပတ်ခြင်းကာလနှင့် စီမံကိန်းပိတ်သိမ်းခြင်းကာလအတွင်းတွင် ပုံမှန် ခြောက်လတစ်ကြိမ် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းကို လုပ်ဆောင်ပါမည်။

(အကြိုတည်ဆောက်ရေးကာလနှင့် တည်ဆောက်ရေးကာလတို့သည် ကုန်ဆုံးပြီးဖြစ်ပါသည်)။

စီမံကိန်းလည်ပတ်ခြင်းကာလအတွက် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းအစီအစဉ်၏ အနှစ်ချုပ် (ဇယားဖြင့်)

လက်တွေ့ချဉ်းကပ်မှု

စဉ်	အစိတ်အပိုင်း	စောင့်ကြပ်ကြည့်ရှုလေ့လာရမည့် ပါရာမီတာများ	စောင့်ကြပ်ကြည့်ရှုလေ့လာရမည့်နေရာ	အကြိမ်အရေအတွက်	တာဝန်ရှိပုဂ္ဂိုလ်	ကုန်ကျစရိတ် (တစ်ကြိမ်)
၁။	လေအရည်အသွေး	- လေအရည်အသွေးအတွက် ပါရာမီတာအားလုံးကို စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းနှင့် NEQEGလမ်းညွှန်ချက် ကုဒ်အမှတ် ၁.၁ မှ တန်ဖိုးနှင့်အတူ နှိုင်းယှဉ်ခြင်း	21°51'23.53"N, 96° 2'37.80"E	- ခြောက်လတစ်ကြိမ်	- ပညာရှင်ငှားရမ်း	- ကျပ် ၁,၇၀၀,၀၀၀
၂။	စွန့်ထုတ်မှု	- စွန့်ထုတ်ခြင်းအတွက် ပါရာမီတာအားလုံးကို စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း နှင့် NEQEG လမ်းညွှန်ချက် ကုဒ်အမှတ် ၂.၆.၄ မှ တန်ဖိုးနှင့် အတူ နှိုင်းယှဉ်ခြင်း	21°51'23.52"N, 96° 2'40.23"E	- ခြောက်လတစ်ကြိမ်	- ပညာရှင်ငှားရမ်း	- ကျပ် ၈၀၀,၀၀၀
၃။	ဆူညံသံနှင့် တုန်ခါမှု	- ဆူညံသံအတွက် ပါရာမီတာအားလုံးကို စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း နှင့် NEQEG လမ်းညွှန်ချက် ကုဒ်အမှတ် ၁.၃ မှ တန်ဖိုးနှင့် အတူ နှိုင်းယှဉ်ခြင်း - PPE ဝတ်ခြင်းကို စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း	- 21°51'23.53"N, 96° 2'37.80"E - At work place near noisy machine 21°51'25.84"N, 96° 2'38.71"E	- ခြောက်လတစ်ကြိမ် - အချိန်နှင့်အမျှ	- ပညာရှင်ငှားရမ်း - EMP အဖွဲ့ဝင်	- ကျပ် ၇၀,၀၀၀ - အခမဲ့

၄။	အစိုင်အခဲစွန့်ပစ်ပစ္စည်း	- ပါကင်ပစ္စည်းများကို စုဆောင်းခြင်းနှင့် စွန့်ပစ်ခြင်းအား စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း - ထွက်ရှိလာသော အမှိုက်များကို စုဆောင်းခြင်းနှင့် စွန့်ပစ်ခြင်းအား စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း	21°51'30.61"N , 96° 2'35.38"E - စက်ရုံဝန်းအတွင်း	- နေ့စဉ် - အပတ်စဉ်	- EMP အဖွဲ့ဝင် - EMP အဖွဲ့ဝင်	- အခမဲ့ - အခမဲ့
၅။	စွန့်ပစ်ရေ	- လူသုံးစွန့်ပစ်ရေအား စီမံခန့်ခွဲမှုကို စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း	21°51'25.01"N, 96° 2'40.84"E	- နေ့စဉ်	- EMP အဖွဲ့ဝင်	- အခမဲ့

စီမံကိန်းပိတ်သိမ်းခြင်းကာလအတွက် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းအစီအစဉ်၏ အနှစ်ချုပ် (ဇယားဖြင့်)

စဉ်	အစိတ်အပိုင်း	စောင့်ကြပ်ကြည့်ရှုလေ့လာရမည့် ပါရာမီတာများ	စောင့်ကြပ်ကြည့်ရှု လေ့လာရမည့်နေရာ	အကြိမ်အရေအတွက်	တာဝန်ရှိပုဂ္ဂိုလ်	မှတ်ချက်
၁။	စီမံကိန်းပိတ်သိမ်းခြင်းနှင့်ပြန်လည်ရှင်းသန်ခြင်း	- ကြွင်းကျန်သက်ရောက်မှုများကို ဖယ်ရှားခြင်းအပါအဝင် စီမံကိန်းပိတ်သိမ်းခြင်းကို စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း	- စက်ရုံဝန်းအတွင်း	- အပတ်စဉ်	- EMP အဖွဲ့ဝင်	- အခမဲ့
		- ပြန်လည်ရှင်းသန်ခြင်းလုပ်ငန်းစဉ်အတွက် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း	- စက်ရုံဝန်းအတွင်း	- လစဉ်	- EMP အဖွဲ့ဝင်	- အခမဲ့

မှတ်ချက်: ခြောက်လတစ်ကြိမ် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်း အစီရင်ခံစာအား သက်ဆိုင်ရာ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာနသို့ လေးစားလိုက်နာစွာ တင်ပြပါမည်။

လူထုတွေ့ဆုံဆွေးနွေးပွဲများ

ပထမလူထုတွေ့ဆုံဆွေးနွေးပွဲ

ပထမလူထုတွေ့ဆုံဆွေးနွေးပွဲကို ၂၇-၂-၂၀၁၇ တွင် ကျင်းပခဲ့၍ ဦးမြင့်ဆွေ (မန္တလေးတိုင်းဒေသကြီး လွှတ်တော်အမတ်)၊ ဦးဖေသက်ထွန်း (အမပူရမြို့နယ်အုပ်ချုပ်ရေးမှူး)၊ ကန်ဘဲ့နှင့် ရေကြည်ပေါက် ကျေးရွာအုပ်စုမှ ကျေးရွာအုပ်ချုပ်ရေးမှူးများ၊ Aung Kan Bo Motorcycle Industrial ကုမ္ပဏီလီမိတက်မှ တာဝန်ရှိသူများနှင့် ဒေသခံများအပါအဝင် (၃၅) ဦးတက်ရောက်ခဲ့ပါသည်။

ဦးဖေသက်ထွန်းမှ အဆိုပြုတင်ပြသော စီမံကိန်းနှင့်ပတ်သပ်သော အကြောင်းအရာများကို တင်ပြခဲ့ပါသည်။ ဒေသခံ (၃) ဦးမှ စီမံကိန်းအကြောင်းအရာကို မေးမြန်း၍ တစ်ဦးမှ ပြောင်းရွှေ့ခြင်း လုပ်ငန်း၏ ပြဿနာများကို ထောက်ပြခြင်းနှင့် အခြားတစ်ယောက်မှ ဖြစ်နိုင်ခြေရှိသော ကျူးကျော်ပြဿနာ (ဤဇရိယာတွင် ကုမ္ပဏီတစ်ခုတည်ဆောက်လျှင် ဖြစ်နေကျဖြစ်သည်) ကို မေးမြန်းခဲ့ပါသည်။

ဦးမြင့်ဆွေ (မန္တလေးတိုင်းဒေသကြီး လွှတ်တော်အမတ်) မှ မြေဆီလွှာတိုက်စားခြင်းနှင့် အနည်ကျခြင်းအတွက် အကြံပြုခဲ့ပါသည်။

ကုမ္ပဏီမှ တာဝန်ရှိသူမှ အဆိုပါပြဿနာများကို အကောင်းမွန်ဆုံး ဖြစ်စေရန် ကိုင်တွယ်ဖြေရှင်းပါမည်ဟု ပြန်လည်ဖြေကြားခဲ့ပါသည်။

မှတ်ချက် - တည်ဆောက်ရေးလုပ်ငန်းများကို မည်သည့်ပြဿနာမှ မဖြစ်ပဲ ချောမွေ့စွာ ပြီးဆုံးခဲ့ပါသည်။ စီမံကိန်းဇရိယာတွင် မည်သည့် ကျူးကျော်သူများမှ လာရောက်နေထိုင်ခြင်းမရှိပေ။ မြေဆီလွှာတိုက်စားခြင်းနှင့် အနည်ကျခြင်းလည်း မဖြစ်ခဲ့ပေ။

ဒုတိယအကြိမ်လူထုတွေ့ဆုံဆွေးနွေးပွဲ

ဒုတိယအကြိမ် လူထုတွေ့ဆုံဆွေးနွေးခြင်းကို ၂၂-၆-၂၀၁၇ (IEE ကွင်းဆင်းဆောင်ရွက်ချိန် အတွင်းတွင်) ပြုလုပ်ခဲ့ပါသည်။

အစည်းအဝေးကို ကန်ဘဲ့ကျေးရွာအုပ်ချုပ်ရေးမှူး၊ ကုမ္ပဏီမှ တာဝန်ရှိသူ၊ IEE ကွင်းဆင်းဆောင်ရွက်သည့်အဖွဲ့ဝင်များ၊ မီးရထားဦးစီးဌာနမှ အလုပ်သမား (၅)ဦးနှင့် ကန်ဘဲ့နှင့် ရေကြည်ပေါက် ကျေးရွာမှ ဒေသခံများ အားလုံး (၃၄) ဦးတက်ရောက်ခဲ့ပါသည်။

ကျေးရွာအုပ်ချုပ်ရေးမှူးနှင့် ကုမ္ပဏီမှ တာဝန်ရှိသူမှ စီမံကိန်းနှင့် သက်ဆိုင်သော အကြောင်းအရာများကို အတော်အသင့် အသေးစိတ် ရှင်းပြခဲ့ပါသည်။ IEE အဖွဲ့ခေါင်းဆောင်မှ ဒေသခံများအား IEE ကွင်းဆင်းဆောင်ရွက်ခြင်းလုပ်ငန်း အကြောင်းရှင်းပြခဲ့ပါသည်။

ဒေသခံတစ်ယောက်မှ မည်သည့်ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှုရှိမည်ကို မေးမြန်းခဲ့ပါသည်။ IEE အဖွဲ့ခေါင်းဆောင်မှ ၎င်းစက်ရုံသည် ကျောက်မီးသွေးမီးရှို့ သို့မဟုတ် လောင်စာဆီ မီးရှို့နှင့် မီးခိုး အမဲကြီးများ ထွက်သော စက်ရုံမဟုတ်ပေ။ ၎င်းသည် မော်တော်ဆိုင်ကယ်အစိတ်အပိုင်း တပ်ဆင်ခြင်း စက်ရုံဖြစ်၍ မီးခိုး၊ စက်မှုဆိုင်ရာ အစိုင်အခဲနှင့် အရည် စွန့်ပစ်ပစ္စည်းမထွက်ရှိပေ ဟုရှင်းပြခဲ့ပါသည်။

ဒေသခံတစ်ယောက်မှ လေ၊ ရေနှင့် မြေအရည်အသွေးတိုင်းတာသည်ကို ၀မ်းသာပါသည်ဟု ပြောကြားခဲ့ပါသည်။

ဒေသခံ (၂) ဦးမှ ဤဇရိယာတွင် အေ၀မ်းဘီစကစ်စက်ရုံမှ အနံ့ဆိုးများထွက်ကြောင်းနှင့် တရားမ၀င်လောင်စာဆီဆိုင် တည်ရှိခြင်းအကြောင်း ပြောကြားခဲ့ပါသည်။ သို့ပေမယ့် စီမံကိန်းအဆိုပြု တင်ပြသူသည် တရားဥပဒေနှင့် သက်ဆိုင်သည့်သူမဟုတ်၍ အဆိုပါအရာများကို မပြုလုပ်ပေးနိုင်ပါဟု ပြောကြားခဲ့ပါသည်။

ဒေသခံတစ်ဦးမှ ကျွန်တော်တို့ဒေသခံတွေအများစု အလုပ်အကိုင်ရနိုင်ပြီး အခြားတစ်ယောက်မှ ယခုလို စက်ရုံပေါ်ပေါက်လာသည်ကို ၀မ်းမြောက်ပါသည် ဟုပြောကြားခဲ့ပါသည်။

အဆိုပြုစီမံကိန်းအပေါ် ဒေသအမြင်ကိုခြုံကြည့်လျှင် ကောင်းမွန်သော အမြင်ရှိပါသည်။

နိဂုံးချုပ်

စီမံကိန်းအဆိုပြုတင်ပြသူမှ မော်တော်ဆိုင်ကယ်စက်ရုံ စီမံကိန်းလည်ပတ်ခြင်းသည် အောက်ပါ အချက်များကို ဖွံ့ဖြိုးစေပါသည်။

- မြင့်မားသော အရည်အသွေးနှင့် မြင့်မားသော အပြိုင်အဆိုင်မော်တော်ဆိုင်ကယ် ထုတ်လုပ်ခြင်း ကြောင့်တိုင်းပြည်၏ စက်မှုကဏ္ဍဖွံ့ဖြိုးတိုးတက်ခြင်း
- အထူးသဖြင့် သေးငယ်သော မြို့ဇရိယာအတွက် သယ်ယူပို့ဆောင်ရေး ကဏ္ဍဖွံ့ဖြိုးတိုးတက် ခြင်းနှင့် ကျေးလက်တောနယ်များတွင် နေ့တိုင်းသယ်ယူပို့ဆောင်ခြင်းအတွက် ဆိုင်ကယ်သည် မရှိမဖြစ်အရေးပါခြင်း
- မော်တော်ဆိုင်ကယ်များဖြင့် သွားလာခြင်းသည် ဒေသခံပြည်သူလူထုမှာ သယ်ယူပို့ဆောင်ရေး စရိတ် သက်သာသောကြောင့် ၀မ်းမြောက်ခြင်းနှင့်
- ဒေသခံပြည်သူများအတွက် အလုပ်အကိုင်ရရှိမှု တိုးမြှင့်လာခြင်း (စီမံကိန်းလည်ပတ်ခြင်း အစပိုင်းတွင် ၀န်ထမ်း ၇၀၀ ဦးနှင့် နောက်ပိုင်းတွင် ၀န်ထမ်း ၁၀၀၀ ဦး)

မည်သည့် ဖွံ့ဖြိုးသည့် စီမံကိန်းမဆို ဆိုးကျိုးသက်ရောက်မှုများကို မရှောင်လွှဲနိုင်ပေ။ မော်တော်ဆိုင်ကယ်စက်ရုံ တည်ဆောက်လျှင် ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝပိုင်းဆိုင်ရာ၊ ပတ်ဝန်းကျင်၏ လူမှု-စီးပွားရေးဆိုင်ရာများအပေါ် အနည်း သို့မဟုတ်အများ သက်ရောက်မှုရှိနိုင်ပါသည်။ သို့ပေမယ့် ဤဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှုများမှာ မပြောပလောက်ပေ။ ဤစက်ရုံသည် ကျောက်မီးသွေးမီးရှို့ သို့မဟုတ် လောင်စာဆီ မီးရှို့နှင့် မီးခိုးအမဲကြီးများ ထွက်သော စက်ရုံမဟုတ်ပေ။ စက်ရုံတွင် အဓိကလုပ်ဆောင်ချက်များမှာ မော်တော်ဆိုင်ကယ်အစိတ်အပိုင်းများ တပ်ဆင်ခြင်းဖြစ်သည်။ အမှန်တစ်ကယ်တွင် စက်ရုံကို မီးခိုးမဲ့၊ စွန့်ထုတ်မှုမဲ့၊ စွန့်ပစ်ပစ္စည်းမဲ့နှင့် အတော်အသင့် အသံတိတ်သော စက်ရုံဟု ခေါ်နိုင်ပါသည်။

IEE ကွင်းဆင်းဆောင်ရွက်ခြင်းနှင့် အစီရင်ခံစာတွင် စီမံကိန်း၏အခြေအနေ (၄) ခုစလုံး အတွင်းတွင် ဖြစ်ပေါ်နိုင်သော ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှုများပါဝင်ပါသည်။ အဆိုပါ ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှု အားလုံးအတွက် မတူညီသော ဖြေလျော့နိုင်မည့်နည်းလမ်းများကို ဖော်ပြထားပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ပတ်ဝန်းကျင်ကို ကာကွယ်ခြင်းနှင့် ထိန်းသိမ်းခြင်းဖြစ်သည်။

စီမံကိန်းအဆိုပြုတင်ပြသူသည် စီမံကိန်းအား ပြင်းထန်သော ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ သက်ရောက်မှုများ မရှိ၍ စီမံကိန်းကို လုပ်ဆောင်နိုင်မည် ဟု ယုံကြည်ပါသည်။

စီမံကိန်းအဆိုပြုတင်ပြသူသည် စီမံကိန်းလုပ်ဆောင်ခြင်းနှင့် ပတ်ဝန်းကျင်နှင့်သက်ဆိုင်သော ဥပဒေများ၊ နည်းဥပဒေများနှင့် စည်းမျဉ်းများကို လေးစားလိုက်နာပါမည်။

EXECUTIVE SUMMARY

This is the Amended Initial Environmental Examination (IEE) report of the proposed project for the construction and operation (manufacturing, assembling and marketing) of a motorcycle factory submitted by Aung Kan Bo Motorcycle Industrial Co., Ltd.

Aung Kan Bo Trading Co., Ltd has been doing business in Myanmar since 2000 as sole agent of Chongquing Yinxiang Motorcycle Group Co., Ltd in importation of Kenbo original accessories from main land China. Starting from 2010 Aung Kan Bo has been appointed as exclusive agent of Kenbo motorcycle in Myanmar as well. Aung Kan Bo Trading Co., Ltd has established Kenbo original accessories and motorcycles distribution networks, which centers in Mandalay and covers entire Myanmar market steadily.

Aung Kan Bo Trading Co., Ltd of Myanmar desires to form a Joint-Venture Company named as Aung Kan Bo Motorcycle Industrial Co., Ltd (under the Republic of the Union of Myanmar Company Act) in collaboration with Chongquing Yinxiang Motorcycle Group Co., Ltd, one of the biggest motorcycle manufacturers of China, marketing a variety of motorcycle models in both domestic and overseas markets.

Since the submission of IEE report is a statutory requirement for the implementation of the proposed project and the establishment of this proposed factory this report is duly submitted.

<u>The proposed project in brief</u>

The proposed project site is located in Kanbai and Yey-kyi-pauk Village Tracts, Amarapura Township, Mandalay Region.

The site comprises two plots (plot No. 625 in Kanbai Village Tract and plot No. 626 in Yey-kyi-pauk Village Tract and the combined area is 16.42 acres (66,524 m^2). The land lease is for 50 years and the rate is US$ 350,000 per year for the land area (16.42 acres).

The main components of the project site are: main factory (1), main factory (2), office building and dormitory building.

The estimated budget is US$ 21,000,000.

The proposed site has access to electricity and annual electricity requirement is 600,000 units.

Water will be sourced from ground water and the annual water requirement is 6,648,475 gallons.

The annual fuel requirements are, diesel 15,000 gallons and petroleum 15,000 gallons.

The raw materials are motorcycle parts/components to be imported from China (from Chongquing Yinxiang Motorcycle Group Co., Ltd).

Six brand models of motorcycles will be produced and the target production for the first year of Operation Phase to 10th year is 297,000 units. From the 11th year and onward the target is 495,000 units.

The project proponent will apply up to date technology for the production of motorcycles and maximize manual labour as practical as possible.

Automation system will be also applied as far as possible and instead of manual assembling and installation mechanical method will be applied; robotic welding and automated spray guns will be deployed.

In the first year 671 local staffs and 48 foreign technicians will be employed and from the 6th to 20th year there will be 937 local staffs and 14 foreign technicians.

The project proponent, Aung Kan Bo Motorcycle Industrial Co., Ltd has contracted the consultant firm, Myanmar Environment Sustainable Conservation (MESC) to prepare this Initial Environmental Examination (IEE) report including Environmental Management Plan (EMP) which is integral part of IEE, for the proposed project.

Summary of IEE activities undertaken

This IEE report covers all the life of the project that is four phases of the project, namely the Preconstruction Phase, the Construction Phase, the Operation Phase and the Decommissioning/Rehabilitation Phase.

The activities undertaken by MESC for IEE works first of all involves the details study of the proposal plan of this project submitted to Myanmar Investment Commission (MIC). The whole proposal is studied in meticulous detail. The activity also includes site survey for the proposed site encompassing the physical, biological, socio-economic, cultural and visual components of the area, that is, detail survey and description of the surrounding environment.

All the potential or real impacts (both significant and insignificant; both positive and negative) are anticipated, identified and assessed. The assessments also cover risk assessment, if any, as practical as possible.

Mitigation measures to be taken for each and every negative impact are briefly described in outline.

The Environmental Management Plan (EMP) together with Monitoring Plan (MP) and their implementations are described.

A public consultation meeting was held and the result is described in relative detail.

This IEE report is prepared and written according to the guidelines, procedures and, above all, the format prescribed by the Environmental Conservation Department (ECD) under the Ministry of Natural Resources and Environmental Conservation (MONREC).

The project alternatives

It is wise to have alternative plan for the implementation of proposed project. This can ensure the project to progress smoothing even if an alternative plan has to undertake. The most important thing is that the alternative must be a better alternative.

Alternative location/alternative site

There is no issue such as land grabbing land disputes, forced eviction and forced relocation.

The project proponent has already invested millions of dollars and therefore alternative site will not be considered.

Alternative method or technology

The project proponent has selected the Best Available Technology that maximizes mechanical laboure rather than manual labour; Automation system is applied.

Input or supply alternative

The use of water is negligible and therefore alternative source for water (such as rain water harvest) many not are necessary.

As regard electric energy a backup generators is installed for use during power outage.

Activities alternative

Mechanical and automation is preferred to manual labour and conventional way of doing Thing. The former is more efficient and more productive.

"No go alternative" or "No project alternative"

This alternative will not contribute to the development of the transportation sector and industrial sector of the nation. This alternative is not preferred. The company will not consider this alternative and proceed with the project.

The surrounding environment

The physical component

The area is typical of semi-arid ecosystem of the Dry Zone of Myanmar. The site and surrounding area is low land flat plain with no forest but only fields and farms. The climate is typical Dry Zone climate with little rain fall.

There is no water course and water body in the vicinity but Dote-hta-waddy River is half mile away.

The basic rock is of the Miocene to Holocene epoch's alluvial sediment, known as Ayeyarwaddy Group.

Water quality

Sample of tube well water is analysed at ISO Tech laboratory in Yangon and the results are as follow:

Sr. No	Parameters	Existing values at site	NEQ guideline values/WHO guideline values
1	pH	7.7	6.5 – 8.5
2	Turbidity	2 NTU	5 NTU
3	Conductivity	590 micro S/cm	
4	Chemical Oxygen Demand, COD	32 mg/l	250 mg/l
5	Biochemical Oxygen Demand, BOD (5 days at 20ºC)	4 mg/l	50 mg/l
6	Suspended solids	3 mg/l	500 mg/l
7	Dissolved solids	419 mg/l	1000 mg/l
8	Total hardness ($CaCO_3$)	230 mg/l	500 mg/l
9	Calcium hardness ($CaCO_3$)	154 mg/l	-
10	Total alkalinity	332 mg/l	
11	Sulphate (as SO_4)	40 mg/l	200 mg/l
12	Chloride (as Cl)	8 mg/l	250 mg/l
13	Carbonate ($CaCO_3$)	Nil	-
14	Bicarbonate (HCO_3)	332 mg/l	
15	Phosphate	Nil	
16	Nitrate ($N.NO_3$)	0.3 mg/l	50 mg/l

The values are all lower than the NEQEG guideline values prescribed by ECD.

Note – When the factory is in operation, and if industrial effluents are generated, effluent will be measured and reported in semi-annual monitoring report regularly.

Air quality

Sr. No	Parameters	Units	Existing values at site	NEQEG guideline values/WHO guideline values
1	PM_{10}	$\mu g/m^3$	15.2	50
2	$PM_{2.5}$	$\mu g/m^3$	9.1	25
3	SO_2	$\mu g/m^3$	185	20
4	NO_2	$\mu g/m^3$	125	200
5	CO	$\mu g/m^3$	82	30000
6	O_3	$\mu g/m^3$	76	100
7	VOC	$\mu g/m^3$	0.12	400
8	HC	ppm	1867	-
9	CH_4	ppm	1701	-

Except SO_2, all the values are lower than the NEQEG guideline values prescribed by ECD.

Noise level

Noise levels for day and night are 58 dBA and 36 dBA respectively and are lower than NEQEG guideline values for industrial area.

Biological components

As there is no forest but only fields and dry farm the flora biodiversity is low; only 17 species are recorded. The birds also has relatively low biodiversity; only 46 species. In addition only 6 species of herpetofauna (amphibians and reptiles) and 22 species of fish are recorded.

Socio-economic components

Kanbai village, Amarapura Township, is about ½ mile in the southeast. Kanbai village tract has a population of 827 (383 F, and 444 M); 190 houses and 206 households. All are Bamar and Buddhists.

Health status is low; the village has no clinic; the nearest hospital is at Amarapura Town, 4 miles away.

30% of households are farmers cultivating rice, sesame and pulses. 30% of households are involved in weaving (small cottage industry) and about 30% are working in state owned or private owned factories. 10 villagers are teachers while 6 are soldiers and policemen.

The village is easy access to Sagaing, Mandalay and Yangon etc. by motor road and railway.

The village is 100% electrified.

There is only on primary school with 93 school childrens and 5 teachers.

There are two Buddhist monasteries with 14 monks.

The two famous pagodas in the area are: Shwe Kyet Yet Pagoda and Jade Pagoda about 3 miles and 4 miles, respectively in the west.

Although, Buddhist, many villagers traditionally also work ship or propitiate the "Nat" spirits.

Impact and mitigation measures

During the Preconstruction Phase

1) The potential polarization of the locals into pro-project and anti-project groups due to the instigation by activists and radical or emotional environmentalists.

2) The hiking of land and property price.

However in this project context no such negative impacts are actually witnessed. There is no news of land grabbing, forced eviction and relocation heard or witnessed.

There is no negative impact on biological component as there is no forest to be impacted and habitat to be damaged. There is no religious monument (pagoda, monastery) or historical, archeological monument or site to be impacted and scenic spot or spot of aesthetic beauty of tourist attraction to be impacted by the project.

During the Construction Phase

1) Impact: mobilization and preparation action
2) Impact: potential interference with public or private utilities
3) Impact: potential accidents in the workplace
4) Impacts: emergency and health services
5) Impact on air quality (dust, smoke and gas emission)
6) Impacts: noise and vibration
7) Potential impact on soil
8) Potential impacts on water
9) Impact: waste (solid and liquid)
10) Impact on biodiversity
11) Potential social impacts
12) Potential security issues

During the Operation Phase

1) Potential visual impact; light at night
2) Potential traffic issue
3) Potential impact on air quality (dust, smoke, emission)
4) Noise and vibration
5) Potential negative impact of power supply on national demand and vice versa
6) Potential negative impact on water
7) Impact: waste (liquid and solids)
8) Occupational health and safety (OHS)
9) Potential Accident in work places
10) Potential lack of emergency and health (hospital) services
11) Potential social issues
12) Potential security issues
13) Impact: public perception

Except occupational health and safety accidents in workplace and social issues which are quite difficult to predict all other negative/potential negative impacts can be more or less mitigated or prevented in the first place.

During the Decommissioning Phase

1) Accident in work place

2) The potential residual impacts

Different option of mitigation measures to be taken for each and every impact/potential impact are described in technical details in Chapter 8, (8.3.2) and again in Chapter 9 (9.4).

Only some examples of key impacts and summary of mitigation measures to be taken for the Operation Phase are mentioned below:

1. Impacts on air quality: dust, smoke and gas emission

Mitigation measures (outline)

- Potential emission will be minor; assembling and installation of motorcycle parts do not generate emission; no smoke and no stack required.
- Draw up a plan and implement for air quality management for the long term Operation Phase.
- Try to meet all statutory requirements (rules, regulations); follow the NEQ guideline values prescribed by ECD, MOECAF (2015).
- Spray water adequately to suppress dust.
- Reduce the speed of vehile to reduce dust generation.
- Plant trees for trapping dust.
- Plan for effective mitigation and management of smoke and emission.
- Avoid open burning of solid waste.
- Use well-maintained and well-operated equipment and vehicles.
- Regularly check all the engines of vehicles and machinery.
- Use vehicles and machines that emit less smoke and use less fuel.
- Conserve fuel and prevent unnecessarily emission of gas (smokes).
- Plant trees and create green zone; trees will sequestrate CO_2 in the smoke.
- Provide adequate PPE such as face masks, nose and mouth covers to workers, especially those working in welding area and painting area.

For the management of air quality inside the factory:

- Plan for good ventilation and natural air flow as far as possible.
- Follow safety procedures including good ventilation.
- If possible, designate "smoking zone" in one part of the factory.
- Keep the workplaces clean.

2. Impact: noise and vibration

Mitigation measures (outline)

- Plan for effective management of noise and vibration.
- Try to meet all statutory requirements (law, regulation).
- Follow the NEQ guideline values for noise and vibration prescribed by ECD, MOECAF (2015).
- Restrict or limit vehicular movements.
- Plan for appropriate choice of machinery and vehicles (that emit low noise level); method of working, efficient material handling.
- Installation of noise abating devices eg- silencers, mufflers at air inlet and outlet of fan and compressor; place noisier sources far away in overall design.
- Well-operated and well-maintained vehicles and machinery generate lower noise level and prevent undesirable noise level.
- Modified old machinery, vehicles and equipment by incorporating minor design change for reducing noise level.
- Develop green belt (plant trees) around the mining/quarry site; trees abate noise and serve as noise sink (pollution sink).
- Create smooth road surface as far as possible to mitigate vibration due to vehicular movement.
- Create suitable foundation design for machinery and equipment (eg. compressor and pumps etc.) to mitigate vibration.
- If necessary install vibration absorbers or vibration abators.
- Position, enclose and isolate noisier machinery.
- Provide adequate PPE eg- ear muffs, ear protectors to workers exposed to long hours of high noise level; conduct regular noise monitoring to ensure that the levels are within noise exposure standard (not higher than 85-90 dBA)especially for generators and pumps.

3. Potential impacts on water

Mitigation measures (outline)

- There is little or no use of water for industrial purpose (assembling, installation do not need water); only mainly for domestic purpose.
- Plan and manage for the conservation of water.
- Ensure that the consumption of water be in the work frame stated earlier (6,648,475 gallons/year).
- Monitor the daily, weekly and monthly consumption of water.
- Ensure that the amount of water needed is sustainable for all seasons and also does not affect the neighbourhood.
- Conserve water, minimize the use of water in housekeeping, cooking, machinery and vehicle maintenance and washing, ground maintenance for greens and lawns, and personal uses by employees.
- If possible recycle water; recycled water can be used for dust suppression and watering lawns and plants.
- Apply appropriate plumbing, and ensure there is no leaking of water.
- Build water tanks and ponds and harvest rainwater from the eaves of the roofing; if that is rainwater can be used in washing of machinery and vehicles, suppression of feasible; dust, watering plants and for fire fighting etc.
- Select plants and grass species that need little water and design the landscape (garden) to reduce the use of water.
- Use water saving equipment including flush toilets, spray nozzles, urinals, faucets, low-flow shower heads, water spigots and pressure control values.
- Check the water quality at least twice a year (hire technicians to do this).

4. Occupational Health and Safety (OHS)

Mitigation measures (outline)

- Study the OHS mentioned earlier in **Chapter-6 (6.3.8)** and draw up a comprehensive plan and manage for the safety working condition for employees.
- Create a safety environment especially safety work place maximize mechanical labour and minimize manual labour as practical as possible. Mechanical labour increases productivity and efficiency and minimize accidents and risk. For instance the application of robotic welding machines and automated spray painting machines increase efficiency and productivity and reduce potential impact on workers. (The company is exactly doing this).

- Educate, train and supervise workers for good working practice, good engineering practice, good safety practice and also good house keeping practice so that all these good practiced are ingrained in their mind and become good habits.

- Especially educate, train and supervise them for skill; for handling of and operation of equipment; handling and application of chemical, especially harmful ones.

- Educate and train them on environmental awareness and occupational health hazards.

- Provide health and hygiene training (ensure all hygiene practices are followed, eg- WHO's)

For generalized management of work condition at assembly line:

- Keep all machinery, equipment well-maintained and well-operated (make regular check).

- Provide adequate Personal Protection Equipment (PPEs) eg- outfit, boots, helmet, gloves, face mask, Respiratory Protection Equipment (RPEs) goggles, face mask, ear muff, ear protectors etc, also tools such as sit-stand tools for workers who have to stand for long hours. (Wearing of safety outfit and PPEs is mandatory for workers).

To relieve workers doing monotonous and tedious work from stress and strain and psychological impact:

- Reorganize staff organization at the assembly line (eg- reorganize a team of maximum 10 workers for better cooperation).

- Redesign work station; make tool redesign, create adjustable fixtures, readjust work breaks, make job rotation etc. (This will increase Team Corporation and enhance productivity.)

5. Potential Accidents in workplaces

Mitigation measures (outline)

- Carefully plan and create a safety workplace; try to achieve zero accident.

- Maximize mechanical labour and minimize manual labour as practical as possible. (The company is exactly doing this: instead of manual welding robot welding machines are deployed; this minimizes accident and impact on workers and greatly increases efficiency and productivity. Spray painting is done by automatic spray guns, this also minimize impact on workers. Automation is applied as far as possible to reduce accident at work place and increase production).

- Study the accidents in workplaces mentioned earlier in **Chapter 6 (6.3.9)** and draw up a comprehensive plan and manage for a zero accident work environment.

- Beware of all the common accidents and common injuries mentioned earlier **(6.3.9)** that used to happen (as well as potential accidents and injuries) and implement a prevention, protection and mitigation measures for each.

- Unknown to many workers certain materials (eg- foam made of polyurethane) and chemicals are toxic or hazardous. Educate them and provide adequate PPEs and other protection or prevention measures for them. Use alternative materials for environmentally safety purpose (eg- use synthetic leather for seat rather than real leather; it is safer).

Environmental Management Plan (EMP)

Environmental Management Plan (EMP) is the key to ensure that the environmental quality of the area does not deteriorate due to the implementation of a project. EMP involves the management of the overall environmental issue including the physical, biological, socio-economic, cultural and visual issues. EMP is a long term systematic approach from planning, development, implementation, monitoring and feedback. EMP also involves management for quality of the project.

The overall EMP includes planning and design of an environmentally friendly Motorcycle Factory that fully utilized eco-friendly machinery, equipment and vehicles that emit less smoke, lower noise level, and those that are fuel and energy efficient; and also the conservation of water and recycling of waste as far as possible.

The EMP is an essential tool for ensuring that mitigation of the negative impacts and enhancement of the positive impacts is undertaken effectively throughout the life of the project. An EMP should ensure the best available technologies (BATs) and best environmental management practices are pragmatically, efficiently and cost-effectively implemented.

Budget for EMP

In order to effectively execute EMP and MP the company has set up a fund for the implementation of EMP and MP (in addition to a separate fund for the implementation of CSR). 0.5 percent of the project budget (US$. 105,000) is set aside for EMP fund which will cover the initial costs and the recurring expenses for the effective implementation of EMP and MP.

The following programmes are integral parts for the successful execution of EMP:

- Monitoring Programme
- Reporting Programme
- Capacity building and training programme
- Emergency Programme

The company will, therefore, alloted the EMP fund for the 4 programmes as follow:

- 35% of the fund (U$ 36,750) for the implementation of monitoring programme
- 10% of the fund (U$ 10,500) for reporting works
- 20% of the fund (Ks 21,000) for capacity building and training
- 30% of the fund (Ks 31,500) for emergency programme (tentative allotment) (This will include the hiring of trainers and purchase of PPE)
- 5% of the fund (Ks 5,250) for miscellaneous expenses

EMP cell

For the effective implementation of EMP first of all a small and dedicated nucleus organization, the EMP cell, will be organized and formed. The EMP cell members include the manager, who is the EMP cell leader and four dedicated engineers, technicians and staffs. This EMP cell will be also the monitoring commettee. Two locals will be also added to this monitoring committee.

Sr No.	Name	Destination	Responsibility
1.	U Myint Hlaing	Manager	EMP cell leader
2.	Daw Myo Myo	Technician	Cell member
3.	Daw Htwe Htwe Yee	Technician	Cell member
4.	U Ko Ko Oo	Technician	Cell member
5.	U Thet Naing	Technician	Cell member
6.	U Than Lwin	Village administrator	Cell member
7.	U Zaw Tun Myo	Villager	Cell member

The EMP cell leader and cell members are responsible for execution of EMP, mitigation and monitoring programme.

Monitoring

The overall monitoring cover 16 aspects (from monitoring weather to monitoring air, water, soil quality to monitoring the effectiveness of implementation of EMP (or compliance monitoring).

For pragmatic purpose the monitoring of physical parameters and others will be regularly undertaken during the Operation Phase and Decommissioning Phase, every six months (semi-annually).

(Preconstruction Phase and Construction Phase are already completed).

Summary of monitoring programme for Operation Phase (tabulated form)

The pragmatic approach

Sr. No.	Components	Parameters to be monitored	Monitoring point/spot	Frequency	Responsible persons	Costs (once off cost)
1.	Air quality	- monitor all the parameters for air quality for comparison with NEQEG emission guideline values prescribed by ECD Code no.1.1	21°51'23.53"N, 96° 2'37.80"E	- Every six months	- Hired technicians	- Ks 1,700,000
2.	Effluent	- monitor all the parameters for effluent for comparison with NEQEG effluent guideline values prescribed by ECD Code no. 2.6.4	21°51'23.52"N, 96° 2'40.23"E	- Every six months	- Hired technicians	- Ks 80,000
3.	Noise and vibration	- monitor the noise level for comparison with the NEQEG noise level values prescribed by ECD Code no. 1.3. - monitor the wearing of PPE	- 21°51'23.53"N, 96° 2'37.80"E - At work place near noisy machine 21°51'25.84"N, 96° 2'38.71"E	- Quarterly - From time to time	- Hired technicians - EMP cell members	- Ks 70,000 - Free of charge
4.	Solid waste	- monitor the packing materials collection and disposal - monitor trash/garbage generated, collection and disposal	21°51'30.61"N , 96° 2'35.38"E - Inside the compound	- Daily - Weekly	- EMP cell members - EMP cell members	- Free of charge - Free of charge
5.	Waste water	- monitor the management of domestic waste water	21°51'25.01"N, 96° 2'40.84"E	- Daily	- EMP cell members	- Free of charge

Summary of monitoring programme for Decommissioning Phase (tabulated form)

Sr. No.	Components	Parameters to be monitored	Monitoring place/spot	Frequency	Responsible persons	Remarks
1.	Decommissioning and Rehabilitation	- monitor the Decommissioning process including the removal of all residuals, if any - monitor rehabilitation process	- Inside the compound - Inside the compound	- Weekly - Monthly	- EMP cell members - EMP cell members	- Free of charge - Free of charge

Note: The semi-annual monitoring report will be duly submitted to the relevant authority, the ECD in a timely manner.

Public consultation meetings

First public consultation meeting

The first public consultation meeting was held on 27-2-2017 and attended by 35 persons including U Pe Thet Htun, Amarapura Township Administrator; U Myint Swe, Hluttaw member of Mandalay Region Hluttaw, village administrators of Kanbai and Yey-kyi-pauk village tract, responsible officers of Aung Kan Bo Motorcycle Industrial Co., Ltd and the local people.

U Pe Thet Htun delivered an address regarding the people project. Three locals ask question about the project and one raised concern about the issue of mobilization works while another raise the question of potential squatter issue (which happen in this area when a company is established).

U Myint Swe, member of Mandalay Region Hluttaw advised to prevent erosion and siltation.

The responsible officer replied that the company will do its best to tackle such issues if arise.

Note – the construction work has completed smoothly without any issue. There are no squatters elsewhere coming and residing in the project area; there is no issue of erosion and siltation.

Second public consultation meeting

The second public consultation meeting was held on 22-6-2017 (during IEE survey).

The meeting was attended by 34 persons, including village administrator of Kanbai village, responsible officer of the company, the IEE survey team members, 5 employees from the Railway Department and locals from Kanbai and Yay-kyi-Pauk villages.

The village administrator delivered an address; the responsible officer of the company explained in relative details about the project and the leader of IEE team explained to the locals how the IEE survey works will be conducted.

One local want to know about any potential impact and the IEE team leader explained that is not a factory that burn coal or fuel oil and emit billows of dark smoke. It is only on motorcycle parts assembling and installation factory that generate no smoke, no industrial solid and liquid wastes.

One local said that he is glad to know that the testing of air, water, soil quality.

Two locals complained about the bad odour emitting from the A1 biscuit factory in this area and the existence of illegal fuel oil shop. But the project proponent is not a law enforcement body and could not do anything; complaint should be made to the local authority.

One local said that many of our local people could be employed and another one said that he welcomed the emergence of the factory.

The overall perception of the local community on this proposed factory is positive and favourable.

Conclusion

The operations of the Motorcycle Factory by the project proponent will surely contribute to:

- The development of industrial sector by producing high quality and highly competitive motorcycle in the nation.
- The development of transportation sector especially for the small town area and rural area where motorcycle are essential for everyday transportation for the rural area people.
- To enable the local people to enjoy low cost transportation by motorcycles and
- To contribute to increase employment for the local people (provision of about 700 jobs in early Operation Phase to up to 1000 in later phase).

One can never expect a development project to be devoid of negative impacts. Whenever and where ever a developmental project like is motorcycle factory project is implemented there can be a more or less potential impact on the physical, biological and socio-economic component of the surrounding environment. However, it this context the potential impacts will be negligible. This is not a factory that burn coal or fuel oil and generates dark smoke from its stack. The main activities in the factory will be assembling and installation of motorcycle parts. Indeed the factory can be termed a smoke less factory, an effluent less factory, a waste less factory and a relatively silent factory.

To befit an IEE survey and report all the potential negative impact during the four phases of the project are envisaged, identified and assessed. Different options of mitigation measures to be put in place for all potential impacts are prescribed. Environmental Management Plan to enhance the protection and conservation of the surrounding environment will be executed.

The project proponent really believes that the project can be implemented successfully without any significant adverse environmental and social impacts.

The project proponent will do its utmost to comply with all the laws, rules and regulation regarding environment and the implementation of the project.

1. PROJECT DESCRIPTION

1.1 Project background, objectives and description

1.1.1 Background

Aung Kan Bo Trading Co., Ltd has been doing business in Myanmar since 2000 as sole agent of Chongquing Yinxiang Motorcycle Group Co., Ltd in importation of Kenbo original accessories from main land China. Starting from 2010 Aung Kan Bo has been appointed as exclusive agent of Kenbo motorcycle in Myanmar as well. Aung Kan Bo Trading Co., Ltd has established Kenbo original accessories and motorcycles distribution networks, which centers in Mandalay and covers entire Myanmar market steadily.

Aung Kan Bo Trading Co., Ltd of Myanmar desires to form a Joint-Venture Company named as Aung Kan Bo Motorcycle Industrial Co., Ltd (under the Republic of the Union of Myanmar Company Act) in collaboration with Chongquing Yinxiang Motorcycle Group Co., Ltd, one of the biggest motorcycle manufacturers of China, marketing a variety of motorcycle models in both domestic and overseas markets.

1.1.2 Project objectives

The main objectives are:

- To continuously strive to produce locally made motorcycle and accessories.
- To produce markettable brand name, special high quality and highly competitive motorcycles.
- To enable consumers in Myanmar to enjoy low cost transportation of motorcycles that have high level quality.
- To contribute to the increase employment (provision of 700-1000 jobs).
- To contribute to the development in transportation sector and industrial sector.
- To comply with laws, rules and regulations and do environmental friendly business and implement technology transfer to Myanmar young people.

1.2 Description of the project

Tittle of the project	:	The project for the construction and operation of a motorcycle factory and marketing of motorcycles, tricycles and related accessories.
Proposed by	:	Aung Kan Bo Motorcycle Industrial Co., Ltd (a JV company)
Address (Office)	:	No. (156) corner of Twin Thin Tike Wun U Tun Nyo St. & Bayinnaung st., Ward (64), Industrial zone (3), Shwe Pyi Thar Township, Yangon Region.

Telephone	:	+95-1-618142, 618811, +95-9-43120999, +95-9-43121999
Fax	:	+95-1-618812
Email	:	aungkanbo@gmail.com
Location of project site	:	Plot No. 625 (A) and 626 Kanbai and Yey-kyi-pauk Village Tract, on road to Sagaing from Myitnge between 1/7 mile post and 2/0 mile post; Amarapura Township, Mandalay Region.
Telephone	:	+95-9-450000115, +95-9-453333116, +95-9-453333117, +95-9-453333118, +95-9-453333112
E-mail	:	enquiry@aungkanbomotorcycle.industrial.com
GPS position of site	:	N. Lat.21° 51' 22.2" and E. Long.96° 02' 42.0"
Elevation	:	69 m asl

The area and size

The site is situated on the motor road between Sagaing City and Myitnge Town. It is on the northern side of the road between 1/7 mile post and 2/0 mile post.

The Yangon-Mandalay Highway which generally runs in a south-west to north-east direction in this area is in the north of the site.

The site is 2.04 miles west of Myitnge Town and 3.86 mile east of the Ayeyarwaddy River. The Dote-hta-waddy River which meanders in generally east to west in direction and drains into the Ayeyarwaddy River is half mile southeast of the site.

About 2 miles in the north is the Taung-tha-man Lake and just north-west of the lake in Amarapura Town. The site is 6.20 miles south of downtown Mandalay City and 420 miles north of Yangon City.

The total area of the project site is 16.42 acres. The site consists of two portions. The eastern portion, known as Plot No. 625-A is inside the juridistion of Kanbai Village. The western portion known as Plot No. 626 is inside the juridistion of Yey-kyi-pauk village Tract. The whole area is under the juridistion of Amarapura Township.

The site is vacant plot on the flat terrain and surrounded in the west, north and east by farm land.

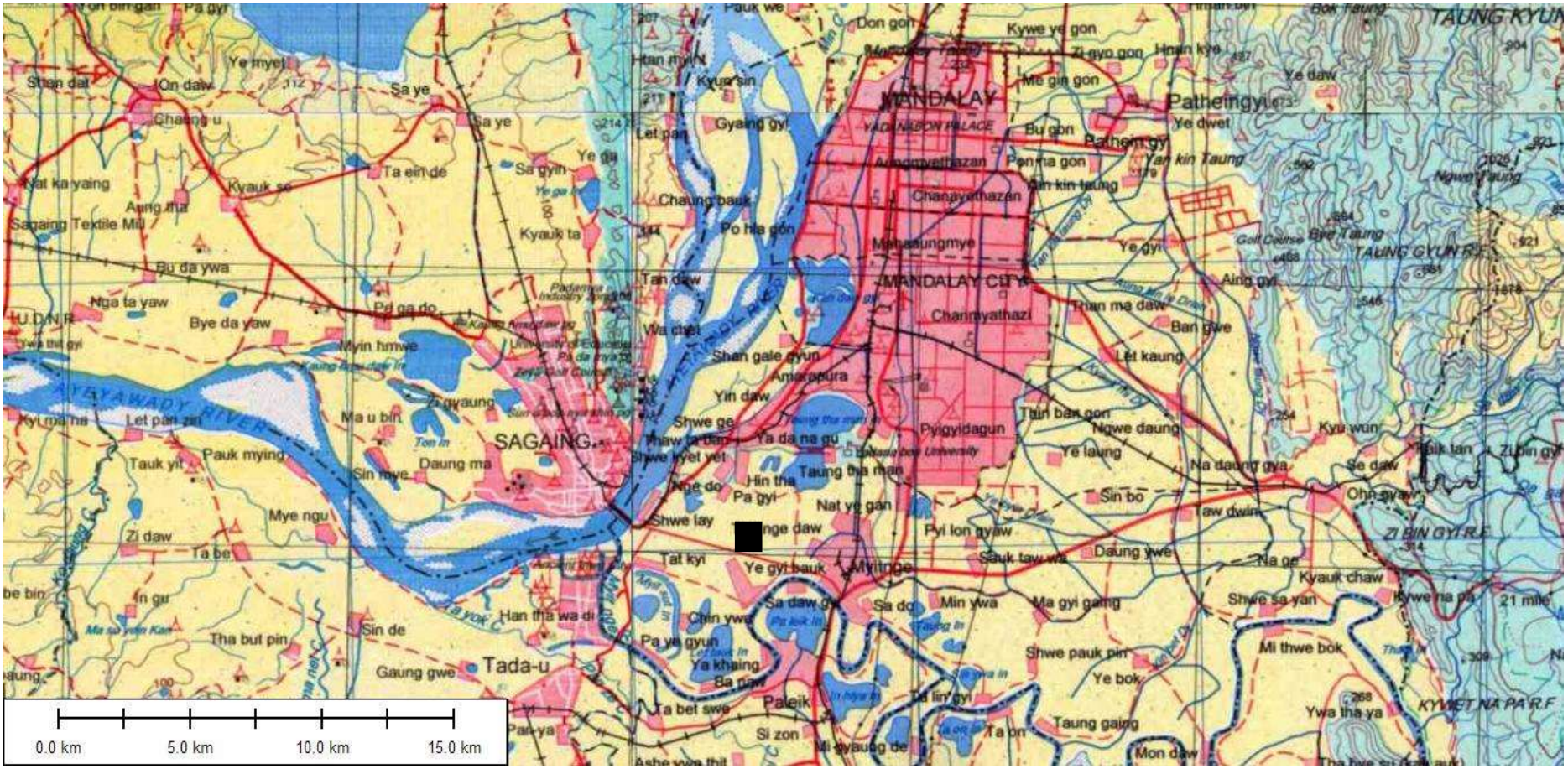


Figure-1: Map of part of Mandalay Region showing project areas (in black rectangle)

Figure-2: Satellite image of project area and environs

Figure-3: project site

Figure-4: Office and Seat Factory

Layout plan

As mentioned earlier the proposed site consists of two plots of lands, Plot No. 625 (A) and 626. The site is on the northern side of the Sagaing Myitnge Road which runs generally from west to east. The site is irregular in shape and surrounded in the west, east and north by farm land (dry farm land).

The north western portion of the site will be the green zone, where trees that provide shade, and flowering plant will be planted and green lawn will be created. Aesthetic landscaping will be also implemented infront of the office building and also along the southern periphery of the site. A green belt or green line will be created around the border of the site.

The layout plan of the project site is shown below:

Figure – 5: Satellite image showing overall layout plan of the projec site

Figure – 6: Satellite image showing green zone (green color)

Figure – 7: Green zone at the factory compound

Figure – 8: Raw Material Warehouse

The main component of the site includes:

(1) The main factory, dimesion 550' x 208' (Raw material warehouse is inside the main factory) of the south east the corner.
(2) Office and Seat Factory dimesion 200' x 180' (which is east of the main factory)

West of the main factory are, from north to south:

- Fire safety water tank
- Toilet
- Changeover room (1)/ Air compressor
- Generator Room (1)
- Transformer (EEC)

In the east are, from north to south:

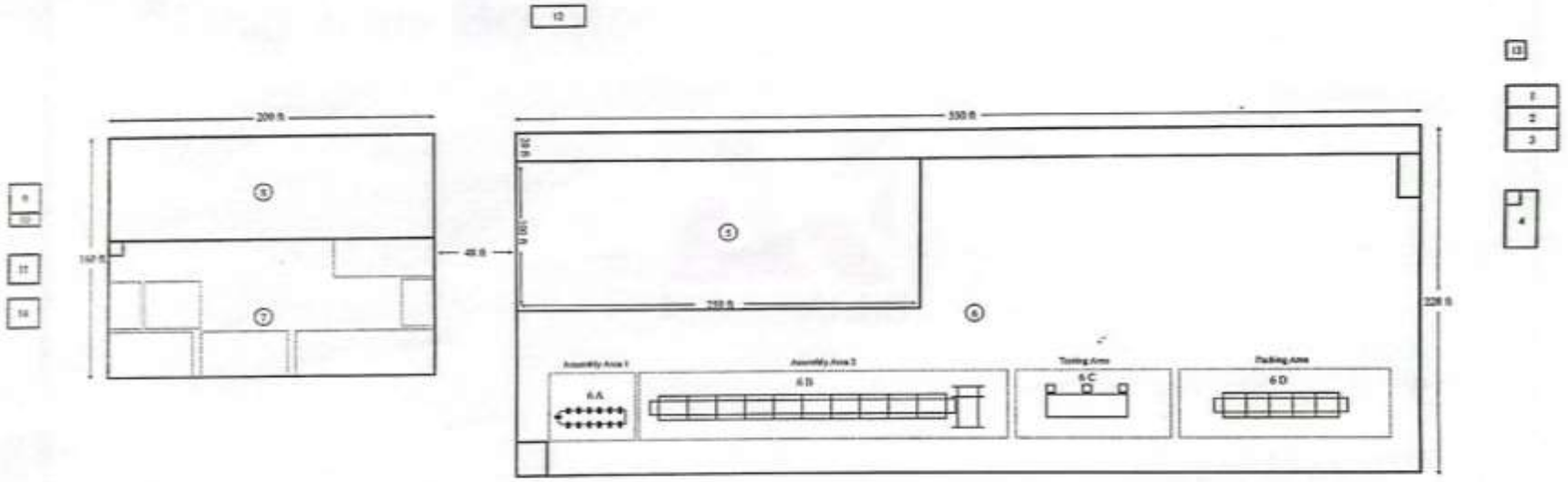
- Transformer room
- Changeover room (2)
- Generator Room (2) and water tank

In the north is chemical store while in the south is security gate.

SHEET – 01

Aung Kan Bo Motorcycle Industrial Co., Ltd.

SKD Factory Layout Plan



1.Generator Room 1
2.Change Over Room/ Air Compressor
3.Toilets
4.Firesafety Water Tank
5.Raw Material Warehouse
6.Main Factory
7.Seat Factory
8.Offices
9.Transformer Room
10.Changer Over Room (no.2)
11.Water Tank
12.Security
13.Transformer (E.E.C)
14.Generator Room 2

Figure - 9: Layout plan drawing showing floor plan of the factory and associated building

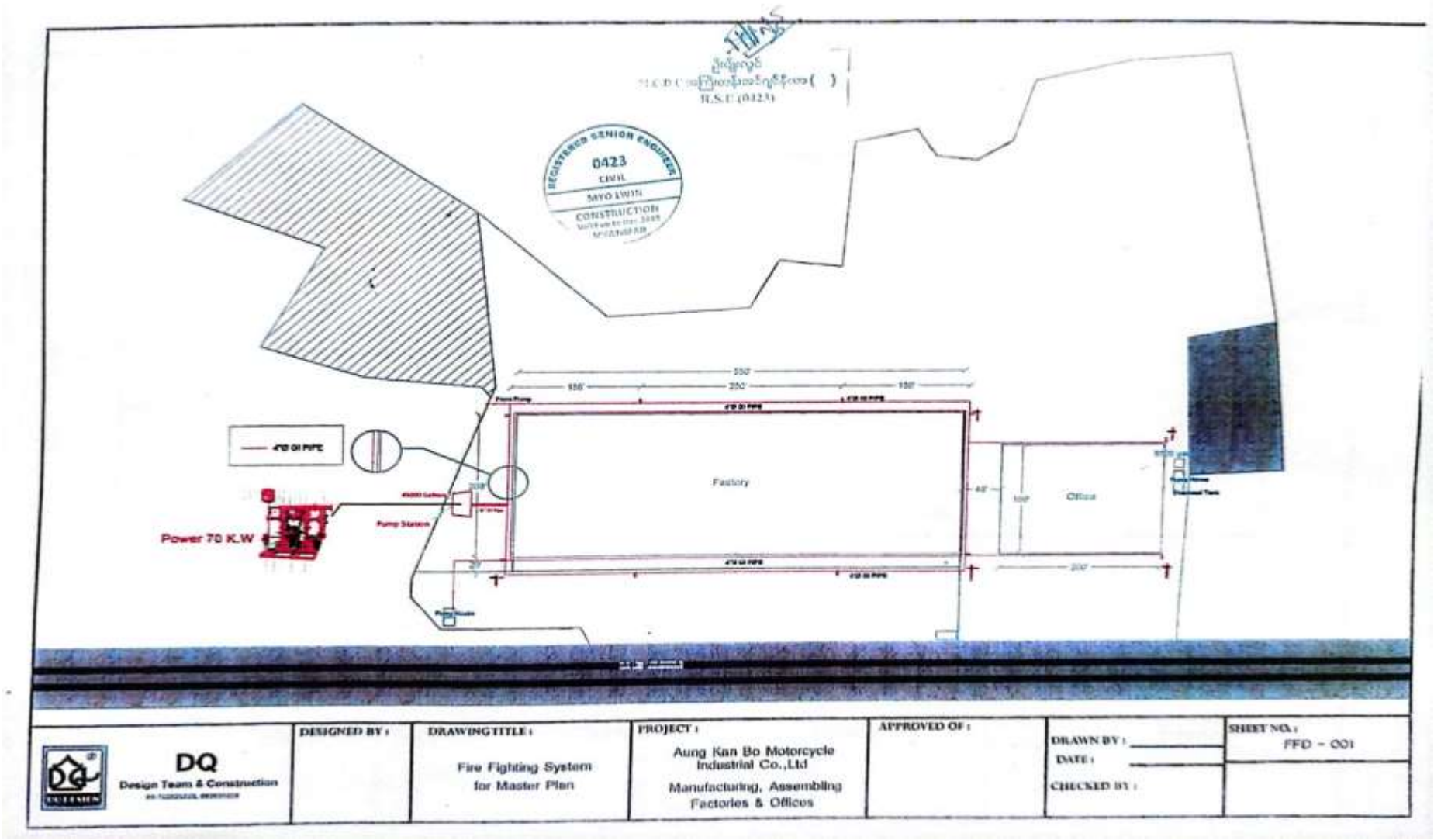


Figure – 10: Layout plan drawing showing the whole project site area

Machinery and equipments

"Brand New" machinery and equipment will be imported from China:

- Assembling machinery : 25 items will be imported
- Painting machinery : 11 items will be imported
- Set production machinery : 32 items will be imported
- Welding machinery : 15 items will be imported
- Transformer : one 33/11 KV 5 MVA set and accessories

(**See ANNEX**)

Vehicles and heavy machinery

"Brand New" vehicles and heavy machinery will be imported from China. These include:

- 9 mini buses (3 sizes) for ferry
- 25 trucks and 5 trailers for out door carrier
- 30 forklifts (3 kinds) for indoor carrier

(See **ANNEX** for materials to be imported and locally purchased).

Estimated budget : U$ 21,000,000

The investment type will include cash, machinery and equipment, transportation vehicles, construction materials, furniture and equipment, initial raw etc totalling U$ 21,000,000.

Production target : Quality motorcycles and related accessories will be produced (6 brands and models) **(See ANNEX)**

: 297,000 motorcycles in the first year

: From the 11th year on the annual production target is 495,000.

Actual Production : 60,000 motorcycles (3 years)

Materials requirement

(Only machinery and equipment, parts and accessories for manufacturing task) They are as follow:

- 25 items to be imported for assembling machinery
- 11 items to be imported for painting machinery
- 32 items to be imported for seat production machinery
- 15 items to be imported for welding machinery

All the required materials including machinery and equipment and large variety of motorcycles parts and components will be imported from China through the border town, Muse.

The company has 20 Foton heavy trucks and these will be deployed for transportation.

As regards the finished producted (manufacturing motorcycles) these same Foton trucks will be deployed for transportation to Mandalay Sale Center and Yangon Sale Center.

(**See also ANNEX** for other materials for construction, for transportation, for office equipment etc.)

Chemicals requirement : Emulsion epoxy paints, varnishes, thinner etc. for construction work (buildings); Construction Phase already completed.

As for spray painting motorcycle very small quantity of paints are required (not for spray painting a motorcycle but only for minor spray painting if there are scratches occurring during transportation of motorcycle parts from abroad).

The monthly requirements are:

: **:** Bossini paint : 1 lit (two 0.5 lit tins)

: ATM paint : 1 lit (two 0.5 lit tins)

Annual water requirement : 6,648,475 gallons (mostly for domestic uses for 700 plus employees and for greening work etc; industrial uses: negligible) sourced from tube well.

Annual fuel requirement : Diesel 15,000 gallons

: Petroleum 15,000 gallons

: Fuel oil will be procured from Mandalay City; fuel oil will be delivered by the fuel merchant's fuel bowser truck to the factory. There will be 2 fuel tanks (capacity 5000 gallons each) for diesel and petroleum.

Annual electricity requirement : 600,000 units (one 23/11KV 5MVA transformer will be installed). The factory has access to gridline electricity.

Staff organization : Year 1--- 671 locals, 48 foreigner technicians

From year 6 to year 20--- 937 locals and 14 foreigner technicians (yearly increase for local staff but yearly decrease for foreigner technicians)

The working hours : 8 hours/day

48 hours/week (or 3 shifts per 24 hours day)

(**See ANNEX** for staff organization)

Power supply and general distribution system

As already mentioned earlier electricity will be sourced from the national gridline and estimated annual electricity requirement is 600,000 units.

A substation will be duly constructed and a 33/11KV 5MVA transformer will be installed. Backup system will be applied and in case of power outage the operation of the factory will continue smoothly.

To ensure the power supply reliability of the first level load the cables shall be connected to both the substation and the 5 MVA generator and these will have automatic switching system.

Power distribution system will give priority to the two main factories when the manufacturing and production works are undertaken this will be designated as first level load. Power will be also distributed to the office building and the dormitory, kitchen and toilets etc. (second level load). The distribution system will also include lighting, weak current system, water pumping etc. Good quality electrical equipment and gears and materials will be used. Power saving equipment and materials and electricity-saving lamps, bulbs etc will be used as practical as possible.

Aung Kan Bo Motorcycle Industrial Co., Ltd will hire efficient electrical engineers/ electricians for the sustainable utilization of electricity for the manufacturing and production of motorcycles.

Figure-11: Existing electricity substation

Water supply system

There is no public water system and also no substantial surface water available nearby. Water will be sourced from ground water at a depth of 80-100 feet.

As mentioned earlier the annual water requirement is 6,648,475 gallons. Industrial use of water will be relatively small; motorcycle parts assembling need little water. However the domestic uses, kitchen, bath, toilet etc by almost 700 employees will be substantial. Water has to be also used for landscaping works and washing machinery and vehicles.

Water may be also needed for fire fighting. Domestic and firefighting water will be kept separate to prevent contamination of the domestic water supply by the stagnant water in the fire fighting system (a separate 4 x 3000 gallons water tanks for firefighting).

Water will be conserved as practical as possible. Attempt will be made to harvest rainwater (the site being in the Dry Zone Area of Myanmar).

Used water will not be recycled. This technology is not available yet or not pragmatic yet. The use of recycled effluent for watering lawn and plants shall be considered in the near future.

Since there is virtually no industrial waste water a special waste water treatment system is not necessary. However domestic waste water shall be treated before discharge (there is no public sewage system). The treatment will be simple chemical treatment--the application of chlorine, widely practiced world wide.

Firefighting system

Due to the nature of work the fire risk inside a motorcycle factory is quite substantial. The rule of the thumb to manage a fire is to provide fire suppression materials to extinguish the flame. Water is the only effective and affordable fire suppression agent.

Aung Kan Bo Motorcycle Industrial Co., Ltd has already drawn up a comprehensive plan together with drawings for fire prevention and firefighting in case of outbreak of fire. As mentioned earlier 4 x 3000 gallons tank will be built for storage of firefighting water. Extinguishers will be placed at appropriate locations and automatic fire alarm system will be installed. Employees will be educated and trained for awareness of fire risk, fire prevention and firefighting. Mock drills will be organized to test their emergency response and emergency work etc (**See ANNEX**).

Traditional and conventional firefighting materials which can be applied manually such as buckets of sand and water, bamboo poles furnished with hooks or panel (bamboo) will be assembled at one spot inside the compound.

On the other hand modern technology like sensitive heat detectors and smoke detectors will be applied. The use of Auto fire Ball which can automatically explode and extinguish fire shall be considered for the near future.

1.3 Implementation schedules in brief and general work plan

Implementation schedule (Tentative)

1. Preconstruction Phase - 1 year (2017 – 2018)
2. Construction Phase - 2 years (2018 – 2020)
3. Operation Phase - 50 years (2020 – 2070)
4. Decommissioning Phase - 1 year (2070 – 2071)

Actual schedule

- Construction works - completed in early 2019
- Test running of the factory - Nov.2019
- Full operation - April, 2020

General work plan for the whole life of the project

(a) During the Preconstruction Phase of the project (1 year)

The main work plan includes procument of all the materials and equipment for the construction and operation of the factory. Only environmentally friendly materials, machinery and equipment will be used.

The work plan during this pahse also involves all paper works such as obtaining permits, license and approval from the authorities concerned. The paper works are bureaucratic in nature and take a lot of time.

The work plan during this phase will not be elaborated.

(b) During the Construction Phase of the project (2 years)

Work plan for the construction of the factories and complex including office building and dormitory, and all works during the hectic Construction Phase.

The work plan during this phase will not be elaborated.

(c) During the Operation Phase of the project (50 years)

This is the most important phase of the project.

The overall plan is to carry out the operation in phases, 5 consecutive phases. U$ 21,000,000 is intended for the first phase of production period.

After the first phase more investment will continue to run the other 4 phases of the project.

- Second phase: extension of the project; main tasks: cutting and pressing for frame and moulding for covers.

- Third phase: manufacturing of bottom forks and lighting.
- Fourth phase: manufacturing of wheel-assy and muffler-assy.
- Fifth phase: manufacturing of sockets and wirings

(d) During the Decommissioning/Rehabilitation Phase

- Since this phase will arrive 50 plus years later the work plan and process will be very briefly mentioned.
- The decommissioning task includes the isolation and shut down of the factory, dismantling and demolition of the buildings and structures.
- Building materials that are still usuable will be put for sale; those that are not will be disposed off at an approved landfill.
- Machinery and equipment have to be dismantled; some will be put up for sale while some will simply become scrap iron and go to the smelting mill.
- A decommissioning contractor and party will be hired to do the decommissioning works. The site has to be systemtically cleared and tidied up. Soil, if contaminated has to be removed and restored or rehabilititated to its original soil profile condition as far as possible.
- The site can be put up for sale or redeployed for other purposes.

1.3.1 Work process: description of the first phase of Operation Phase

All the machinery, equipment and vehicle will be imported from China. Virtually all the parts and components (raw materials) required will be procured or acquired from China. These are shown in **ANNEX**.

Aung Kan Bo Motorcycle Industrial Co., Ltd will manufacture and produce 297,000 motorcycles and related accessories in Year I. The production will increase annually and by Year 11 and on ward the target is 495,000 motorcycles in related accessories per year.

Six brands and models will be produced, namely, KENBO/Shwe Sin 110, model CMF 110; KENBO/Shwe Sin 125, model CEM sport; CANDA 110, model 110; CANDA 125, model FA 125, KENBO CBR 150, model CBR 150 and KENBO CK 200, model CK 200.

The four main tasks in the manufacturing and production inside the two factories are:

- Assembling
- Cover painting
- Seat production and
- Frame welding

Assembling

One of the main tasks is assembling. Motorcycle parts/component imported from China are assembled and installed both manually and mechanically, at the assembly line. Machinery for assembly lines is listed in Annex, Exhibit IIa.

Cover painting (spray painting)

Another main task is cover painting; painting will be done by means of spraying. 60 spray guns (China made) will be deployed. Machinery for cover painting are listed in Annex, Exhibit IIa. Painting will be only minor painting; not for all motorcycles; only for scratches.

Seat production

Another main task is manufacturing of seat. The component of a seat includes; foam, cloth and leather. Foaming machine, cutting machine and sewing machine, among others, will be deployed. These are listed in Annex, Exhibit IIa.

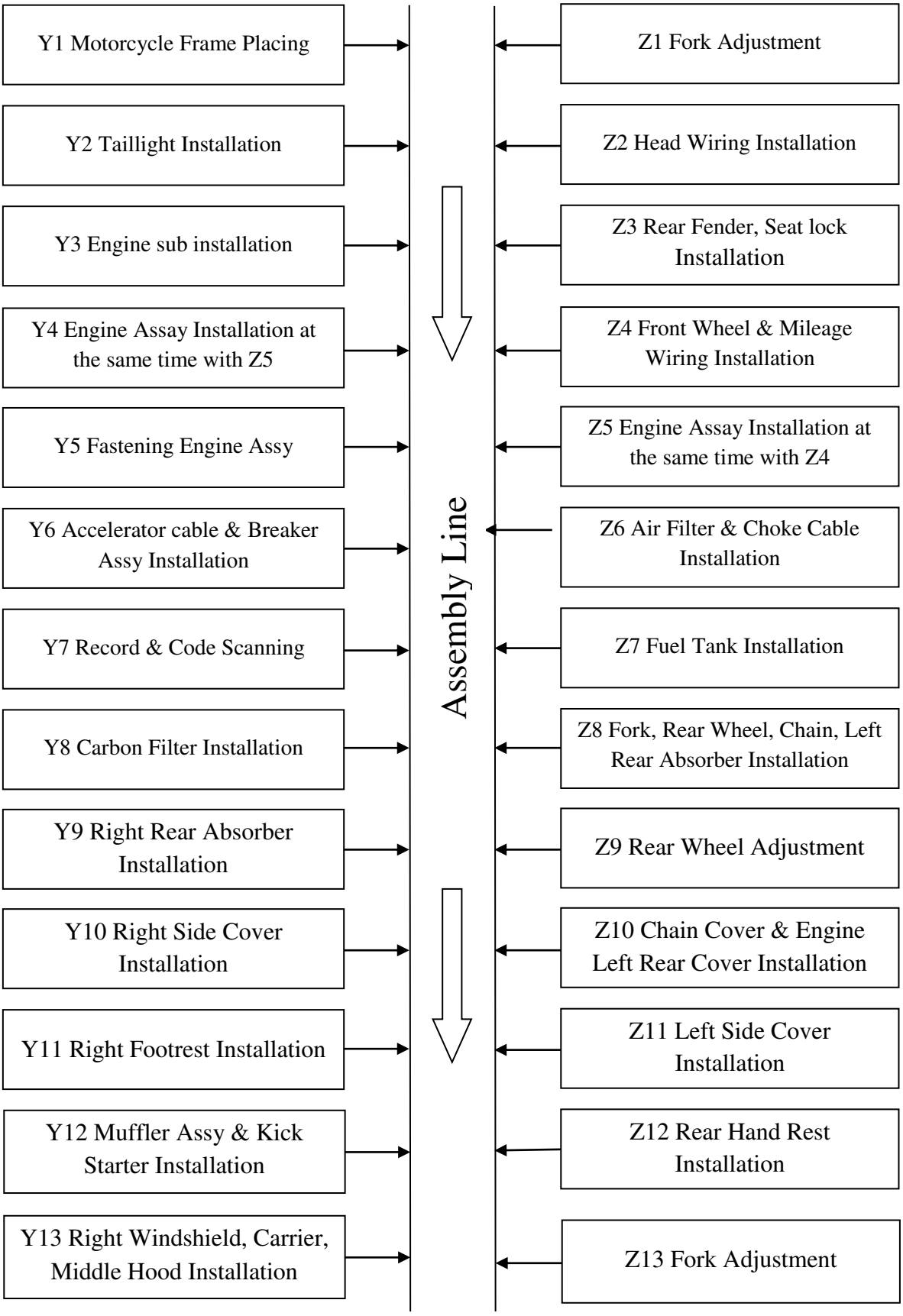
Frame welding

Another main task is welding, 8 welding robots (robotic welding machines) Model FO-V6/FDTPDSJN-3L08, among others, will be deployed. These are listed in Annex, Exhibit IIa.

Induction trainings are organized and provided for all workers for the safety handling and operation of machinery and equipments and for spray painting and welding.

For a motorcycle to materialize a series of steps have to be undertaken along the assembly line (At least 15 steps on the left side and 16 steps on the rightside of the assembly line. 15 steps have to be taken for cover painting; at least 16 steps for seat production and 6 steps for frame work process).

The work process flow charts are depicted as follows.



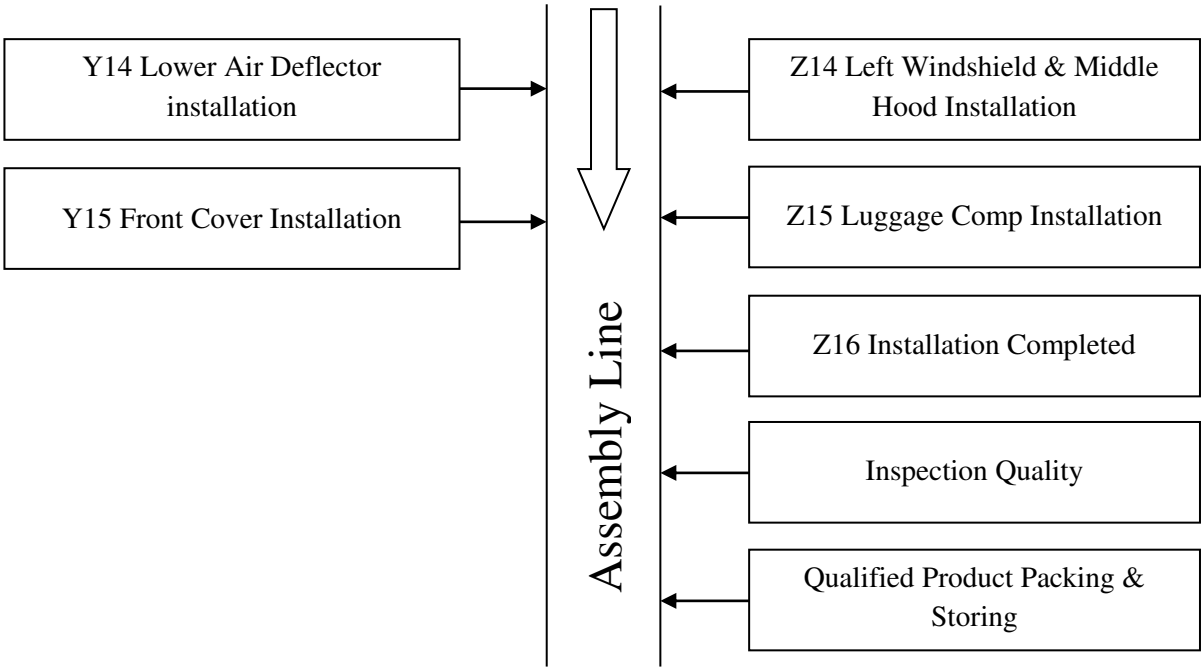


Figure-12: Assembling work process flow chart

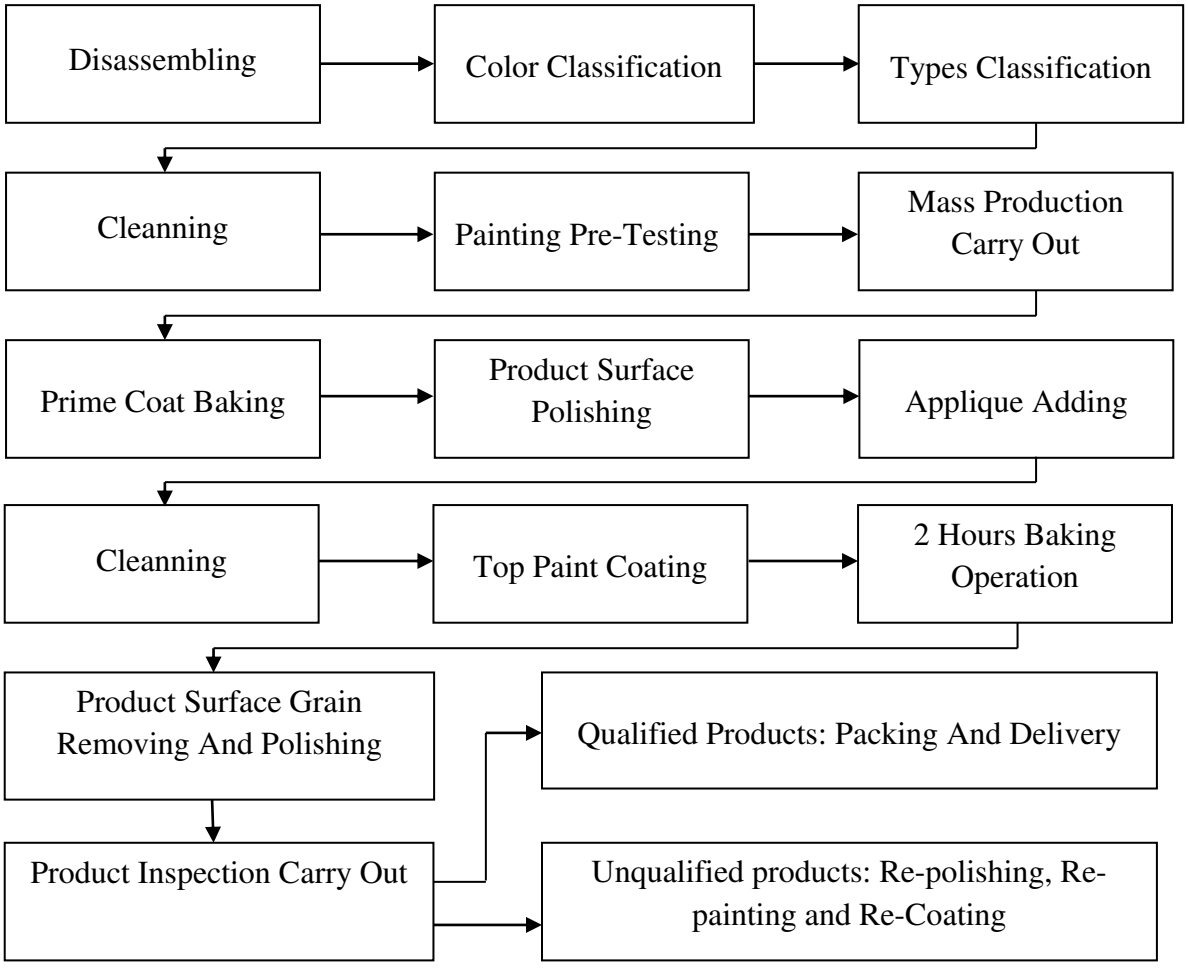


Figure-13: Cover painting work process flow chart

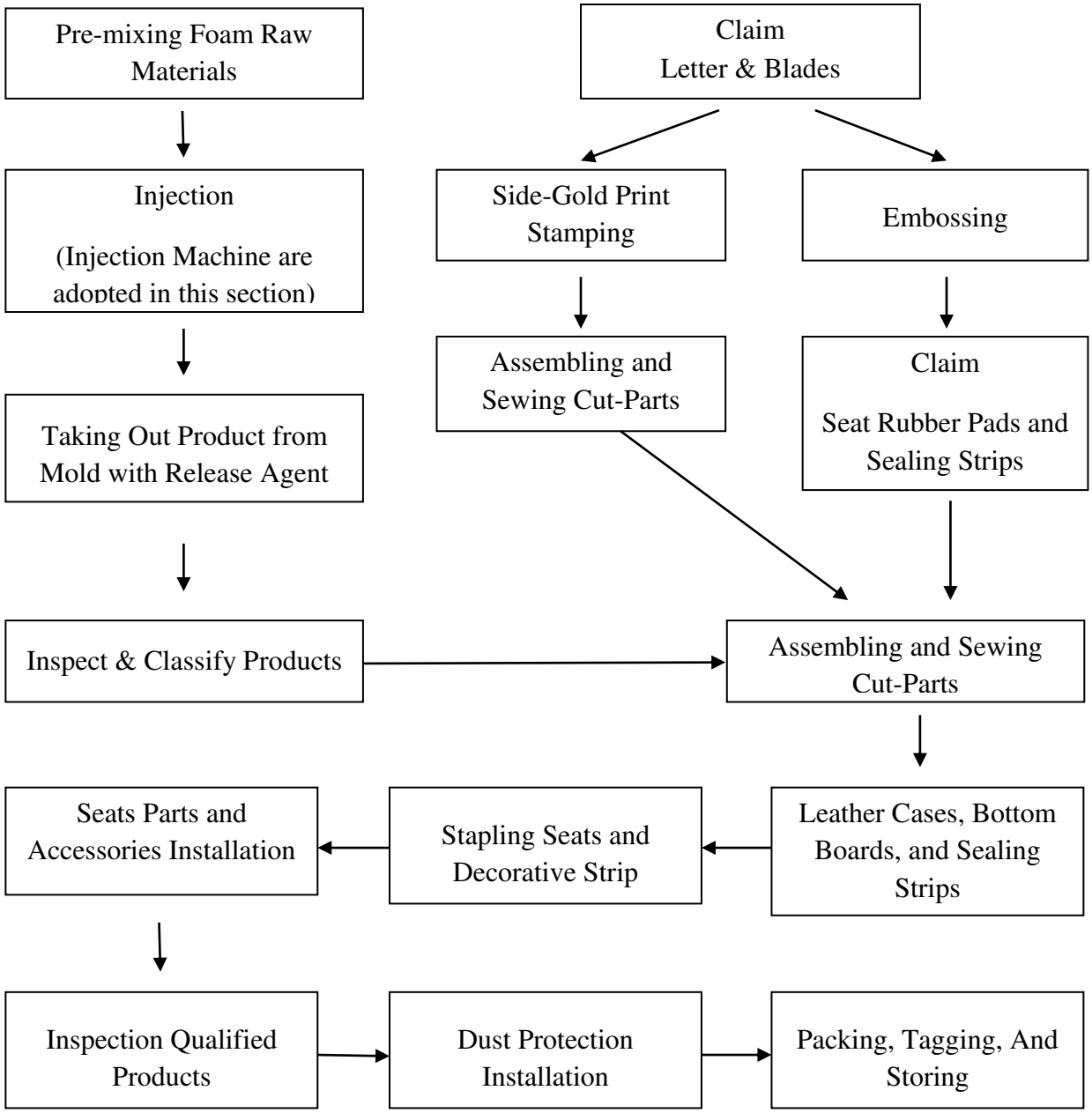


Figure-14: Seat production work process flow chart

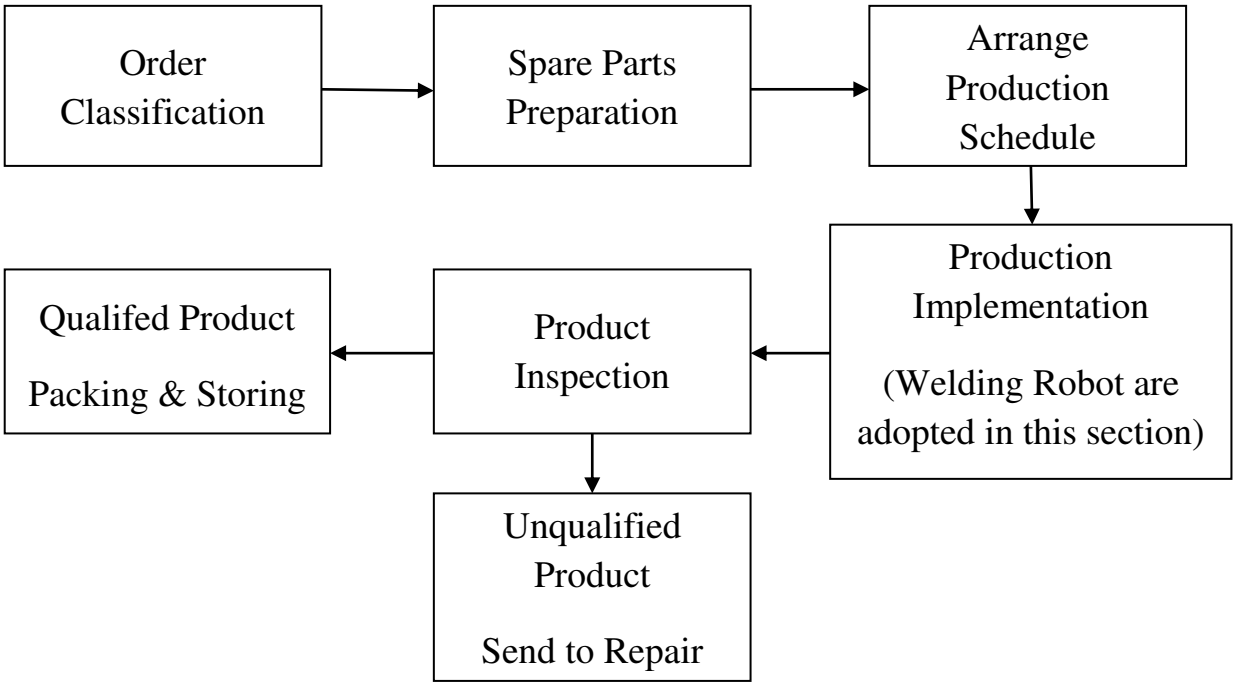


Figure-15: Frame work process flow chart Part 1

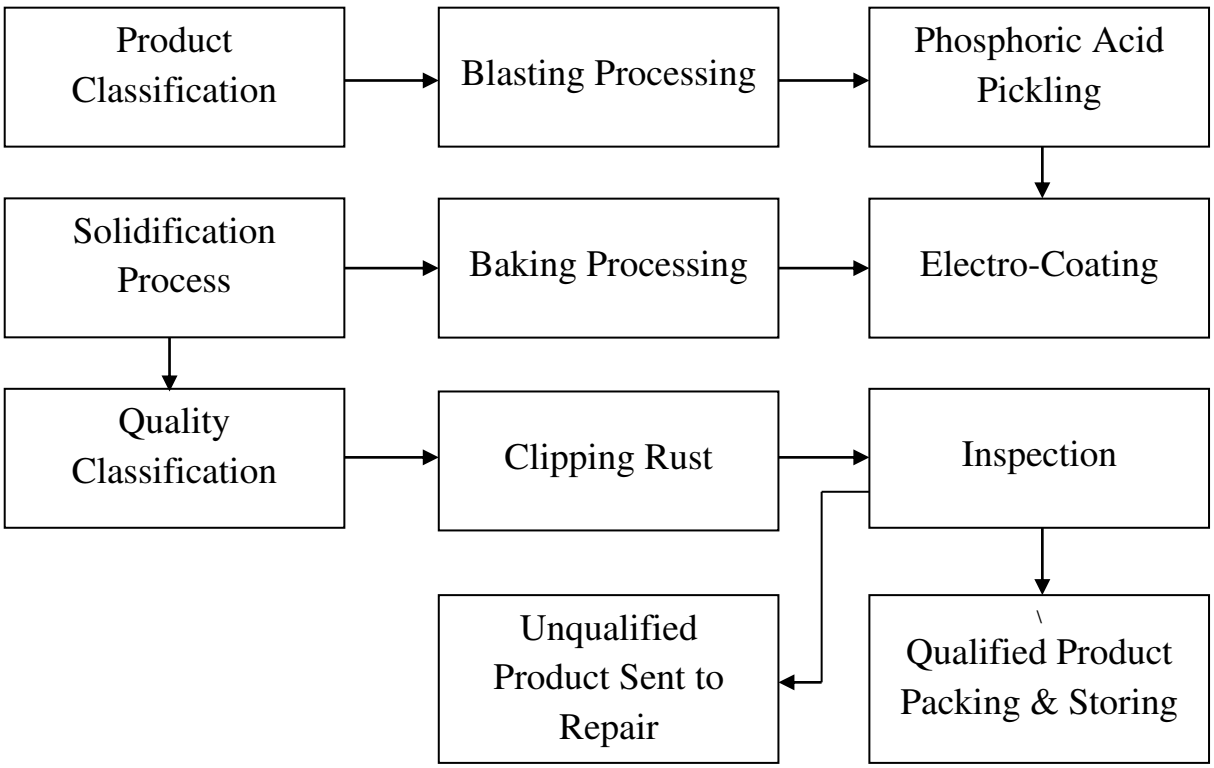


Figure-16: Frame work process flow chart Part 2

All the above-mentioned activities will be undertaken and production will go on during this first phase. Then the extension of the project and phases 2, 3, 4 and 5 will continue.

1.4 Commitment made by Aung Kan Bo Motorcycle Industrial Co., Ltd

(a) First of all the project proponent declares that the information in the report is, to the best of its knowledge, true, accurate and complete.

(b) The EIA report has been prepared in strict compliance with applicable laws, rules, regulations, guidelines and procedures.

(c) The project proponent will at all times comply fully with the commitments, mitigation measures, and plans in the EIA Report. (Re: EIA Procedure; Notification No.616/2015; Section 62, a-c).

(d) The project proponent is committed to have no serve adverse impact as far as possible after the completion of the project.

1.5 Project alternative

Sometimes it is necessary to have Plan A, B, C etc (alternative plan) for the implementation of a proposed project. This can ensure the project to progress smoothly and successfully even if a change in plan has to be undertaken. The alternative plan can be in form of alternative site for the project or alternative method or technology for the operation of the project.

The most important thing is that the alternative must be a better alternative. If the alternative is not a better one if will not be considered.

In the case of selection of project site if the original Plan A site is not appropriate the Plan B should be duly selected. For instance if Plan A site has the following issues:

i) it is inside a protected area or wildlife sanctuary or bird sanctuary

ii) it is too close to big lake or reservoir that serves as water drinking source for a community

iii) it is inside or too close to historical cultural and religious monuments or sites including archaeological ones

iv) it is inside or too close to agricultural land or animal farms

v) it is prone to natural disasters-earth quake, floods, violent storm, landslide etc. and

vi) the issue of land disputes or land grabbing.

All these above-mentioned issues, particularly the last one, can provoke loud public outcry or mass protest and can eventually lead to political instability of the region. In such a case there is no other choice but to discard Plan A and select Plan B for the long term benefit of the project. In this context we see no necessary alternative or better alternative for switching

from Plan A to Plan B. In this context we, the IEE team saw no better alternative. There was/is no major public outcry or mass protest and it seems the company is in a certain degree of harmony with local community.

The IEE team has witnessed or heard nothing of land grabbing, forced eviction and forced relocation.

The company has already invested millions of dollars and therefore this alternative site is not considered.

As regards alternative method or technology the IEE team suggests the selection of latest technology or Best Available Technology (BAT). Mechanical labour is preferred to manual labour; it is more efficient and productive.

Regarding demand for raw materials (motorcycle parts) alternative this will not be considered. The most feasible way is to import motorcycle parts from China from Chongquing Yinxiang Motorcycle Group Co., Ltd.

Regarding input or supply alternative the IEE team suggested the harvesting and use of rainwater as far as possible for the conservation of water resource. Rain water could be used for watering plants, suppressing dust, washing machinery and vehicles and other domestic uses. This may not be necessary as industrial use of water is negligible. As an alternative for electric energy a backup generator is installed for use during power outage.

Regarding activities alternative the company shall encourage the employees to use public bus system or ferry system rather than own car or motorcycle to reduce carbon emission, to conserve fuel and to mitigate traffic congestion.

Mechanical labour is maximizing to enhance efficiency and production manual labour is minimizing as far as possible. Therefore mechanical labour and automation is preferred to manual labour and conventional way of doing things. Mechanical labour is more efficient and more productive.

Finally there is the "no go alternative" or "do nothing alternative". This would only mean that the transportation sector of the nation will remain undeveloped due to shortage of motorcycles which provide cheap and effective transportation for the grass root people. This cannot contribute any thing to the development of the transportation sector and industrial sector of the nation. This plot of land (the site) will remain unproductive land. The plot of land has so far benefit very little to the locals. The locals will remain poor and their will be little or no employment opportunities for them if there is no major investment in the area. When this unproductive plot of land is transformed into a motorcycle factory compound the benefits greatly outweigh the existing little or no benefit generated from this plot of land.

The company will not consider this alternative and proceed with the project.

2. IDENTIFICATION OF PROJECT PROPONENT

2.1 Brief background

Aung Kan Bo Motorcycle Industrial Co., Ltd is a Joint Venture Company formed in collaboration between Aung Kan Bo Trading Co., Ltd and Chongquing Yinxiang Motorcycle Group Co., Ltd in 2016 (Under Myanmar Company Act).

Aung Kan Bo Trading Co., Ltd has been doing business in Myanmar since 2000 as sole agent of Chongquing Yinxiang Motorcycle Group Co., Ltd in importation of Kenbo original accessories from China. Starting from 2010 the company has been appointed as exculsive agent of Kenbo motorcycle in Myanmar as well. The company has established its distribution networks, with headquarter in Mandalay, in many parts of Myanmar.

The parent company, Chongquing Yinxiang Motorcycle Group Co., Ltd is one of the biggest motorcycle manufacturers of China. The company was founded in 1997. In 2016 the company has moved to Yinxiang City. The company has established many sub-sidiaries abroad, such as in Vietnam and certain African countries. The company has passed ISO 9001 (2000) and ISO 14001 verification and has also passed national 3C verification, the American EPA verification and was awarded EEC certification.

The company desires to make foreign investment in the Republic of the Union of Myanmar with an investment mounting to U$ 21,000,000.

2.2 Objectives

The main objectives are:

- To continuously strive to produce locally made motorcycle and accessories.
- To produce market table brand name, special high quality and highly competitive motorcycles.
- To enable consumers in Myanmar to enjoy low cost transportation of motorcycles that have high level quality.
- To contribute to the increase employment (provision of 700-1000 jobs).
- To contribute to the development in transportation sector and industrial sector.
- To comply with laws, rules and regulations and do environmental friendly business and implement technology transfer to Myanmar young people.

About the project proponent, Aung Kan Bo Motorcycle Industrial Co., Ltd

As already mentioned earlier Aung Kan Bo Motorcycle Industrial Co., Ltd is a Joint Venture (JV) company between Aung Kan Bo Trading Co., Ltd and Chongquing Yinxiang Motorcycle Group Co., Ltd of China.

Tittle of the project	:	The project for the construction and operation of a motorcycle factory and marketing of motorcycles and related accessories.
Name of project proponent	:	Aung Kan Bo Motorcycle Industrial Co., Ltd (a JV company)
Address (Head office)	:	No. (156) corner of Twin Thin Tike Wun U Tun Nyo St. & Bayintnaung St., Ward (64), Industrial zone (3), Shwe Pyi Thar Township, Yangon Region.
Telephone	:	+95-1-618142, 618811, +95-9-43120999, +95-9-43121999
Fax	:	+95-1-618812
Email	:	aungkanbo@gmail.com
Location of project site	:	Plot No. 625 (A) and 626 Kanbai and Yey-kyi-pauk Village Tract, on road to Sagaing from Myitnge between 1/7 mile post and 2/0 mile post; Amarapura Township, Mandalay Region.
Telephone	:	+95-9-450000115, +95-9-453333116, +95-9-453333117, +95-9-453333118, +95-9-453333112
E-mail	:	enquiry@aungkanbomotorcycle.industrial.com
Contact Person	:	U Myint Hlaing
Telephone	:	959 789194767
E-mail	:	kaprilucix@hotmail.com
GPS position of site	:	N. Lat.21° 51' 22.2" and E. Long.96° 02' 42.0"
Elevation	:	69 m asl

Aung Kan Bo Motorcycle Industrial Co., Ltd (a JV company)

Sr. No	Name, Address and occupation of subsribur	Nationality & National Registration Card No.	Address	Other Business Occupation	Number of shares taken & Assigned Position
1.	Aung Kan Bo Trading Co., Ltd, Myanmar Represented By: Daw Nan Shwe Han	Company Reg No. 1306 Myanmar 13/Tha Na Na (N) 031395	No.(38), Between Waitharli Pagoda St & Myawadi Min Gyi St, 69th St, (ka) Quarter, Pyigyitagon Tsp, Mandalay Region, Myanmar	Merchant	50% Managing Director
2.	Chongquing Yinxiang Motorcycle Group Co., Ltd Represented By: Mr. Zhang Ping	Company Reg 9150011730500837XU Chinese P.P.No. E60849532	Beiqi Yinxiang Industrial Park, Caiyuan Village, Tuchang Town, Hechuan District, Chongqing, China	Merchant	50% Director

Aung Kan Bo Trading Co., Ltd is represented by Daw Nan Shwe Han while Chongquing Yinxiang Motorcycle Group Co., Ltd is represented by Mr. Zhang Ping.

The two companies that formed the JV Company agree to the percentage shares as follow:

Aung Kan Bo Trading Co., Ltd - 50%

Chongquing Yinxiang Motorcycle Group Co., Ltd - 50%

The authorized capital is U$ 50,000,000, divided into 500,000 shares of U$ 100.

3. IDENTIFICATION OF IEE EXPERTS

The IEE experts are from the consultant firm, Myanmar Environment Sustainable Conservation (MESC) Co., Ltd.

About the consultant firm, Myanmar Environment Sustainable Conservation Co., Ltd (MESC)

MESC is a consultant firm officially registered in 2014 as a limited company (a consultant/service company) at the Ministry of National Planning and Economic Development. Document: YaKa-8(Ga) 001/2014(004720), dated: 6th June, 2014. Registration No. 830/2014-2015, (20-5-2014).

The firm has yet to be registered at the Environmental Conservation Department, MONREC, waiting for detail instructions from environment authority.

Contact Address : Room No. (B -5), Building No.67/69, Parami Road, 16 Ward, Hlaing Township, Yangon Region

Contact person : Myint Kyaw Thura

95 9 420105071

Contact number : 95 9 73044903

E-mail : myanmar.esc@gmail.com

Members of MESC who are IEE/EIA appraisers, or IEE/EIA practitioners or who are involved in this IEE/EIA project are as follows:-

Name	Nationality & National Registration Card No.	Registration/ license No. by ECD	Designation
U Myint Kyaw Thura M.Sc (Zoology)	Myanmar 12/Da Ga Ta (N)028349	0006	Managing Director, Biodiversity Specialist (Fauna), EIA practitioner and EIA Appraiser
U Saw Han Shein B.Sc (Botany) M.Sc (Marine Biology)	Myanmar 10/Ma La Ma(N)008173	0007	Retired Professor, EIA Practitioner and Appraiser
U Tin Tun Aung B.Sc (Engineering)	Myanmar 12/U Ka Ma (N)172111	0009	Engineer and EIA practitioner

Daw Khin Nhwe Naing M.Sc (Botany)	Myanmar 9/Pa Kha Ka (N)001252	00010	Biodiversity Specialist (Flora), Environment Researcher
U Than Soe Oo M.Sc (Forestry)	Myanmar 9/Ma Na Ma (N) 050808	00011	EIA practitioner
U Oakka Kyaw Thu B.Sc (Geology)	Myanmar 7/Ya Ta Ya (N) 090371	00012	Geologist
Daw Thin Thin Yee B.Sc (Chemistry)	Myanmar 12/Tha Ga Ka (N)039292	00013	Chemical Environment Researcher, Computer Programmer

- U Myint Kyaw Thura is involved in fauna study, EIA practitioning and appraising and writing of report, in part.
- U Saw Han Shein is involved in EIA practitioning appraising and report writing (chief report writer).
- U Tin Tun Aung is involved in the EIA practitioning and aspects of the report and provision of information, data and facts and writing part of the report.
- Daw Khin Nhwe Naing is involved in flora study and writing report, in part.
- U Than Soe Oo is involved in EIA practitioning and part of the report writing especially on the socio-economic aspect,
- U Oakka Kyaw Thu is involved in the geological and geographical aspects by conduction desktop survey and gathering of secondary information on local geology.
- Daw Thin Thin Yee is involved in the physical aspects, especially ambient air, water quality, noise and vibration and soil etc and compilation of data on the physical components; including secondary information on weather.

Actually members of MESC always work together wholly as a tight-knit group in writing of each and every EMP/IEE/EIA report.

In preparation and writing the report MESC group works in a well-coordinated manner with a close-knit mentality. Serious discussions and deliberations are the norm of the day. Internationally accepted methodology and practice are applied such as desktop survey; site visiting and conduction visual inspections and investigations of physical, biological, socio-economic, cultural and visual components; collection and documentation of primary and secondary data and information; interviews through structured questionnaires, and holding public consultation meeting to ensure transparency and to assess public opinions, views etc. Experts Judgment or Experts Consensus or Ad hoc method is applied.
MESC has also part time members working as free lances.

The firm is not in a position to employ all its part time members on a permanent basis.

These are botanists, zoologists, ornithologists, ecologists, aquatic ecologists, social scientists, engineers, geologists, medical officers, adn legal exparts working with this firm.

For the physical and chemical environmental studies MESC has to hire experts, say for example, from the Health Department and from registered laboratory in Yangon. Since portable test kits are sometime not reliable, experts from the Health Department have to be hired for the analysis of air quality. Experts from a registered laboratory were hired for the analysis of water (or samples have to be sent to the laboratory).

Members of MESC have quite a lot of experiences with IEE, EIA and SIA works.

So far, starting from 2014 MESC has been involved in IEE, EIA, SIA and EMP projects: such as limestone minings/quarries; gold and copper minings; tin and tungsten minings; manganese dioxide mining; coal minings; cement factories; Iron and steel factory; hotel and housing projects; fuel storage tank farms; fuel storage and distribution terminal; cigarette factory, paper factory, electronic parts factory, ear-phone factory, motor cycle and spare parts factory, motor parts assembly and car production transmission line, sugar factories, production of concrete utility poles aquaculture project, fiber cement boards, amusement parks, eco-resort, zip lining recreation factories complex, housing complex, shopping centre, soft drinks and bottled water factory, etc. The consultant firm is also involved in specific taxonomic and ecological study of herpetofauna, specific biodiversity and ecological survey of forest and parts etc. projects. Some members have also participated in Road construction (air quality) project, rubber plantation, Herpetological survey in association with foreign experts, etc.

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 1803 Date

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the organization under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၅၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို အဖွဲ့အစည်းအား ထုတ်ပေးလိုက်သည်။)

(a)	Name of Organization (အဖွဲ့အစည်းအမည်)	Myanmar Environment Sustainable Conservation-MESC
(b)	Name of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏ အမည်)	U Myint Kyaw Thura
(c)	Citizenship of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏ နိုင်ငံသား)	Myanmar
(d)	Identity Card /Passport Numberof the representative person in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏ မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်)	12/ Da Ga Ta (N) 028349
(e)	Address of organization (ဆက်သွယ်ရန်လိပ်စာ)	Room No. B-5, Building No.72, Marlar Myaing 6th street, 16 Ward, Hlaing Township, Yangon. myanmar.esc@gmail.com , 09 73044903
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Organization
(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 (၀၁-၀၄-၂၀၁၈) ရက်နေ့မှ (၃၁.၃.၂၀၁၉) ရက်နေ့အထိ တစ်နှစ်သက်တမ်း တိုးမြှင့်သည်။
13.4.2018
For Director General
(Soe Naing, Director)
Environmental Conservation Department

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

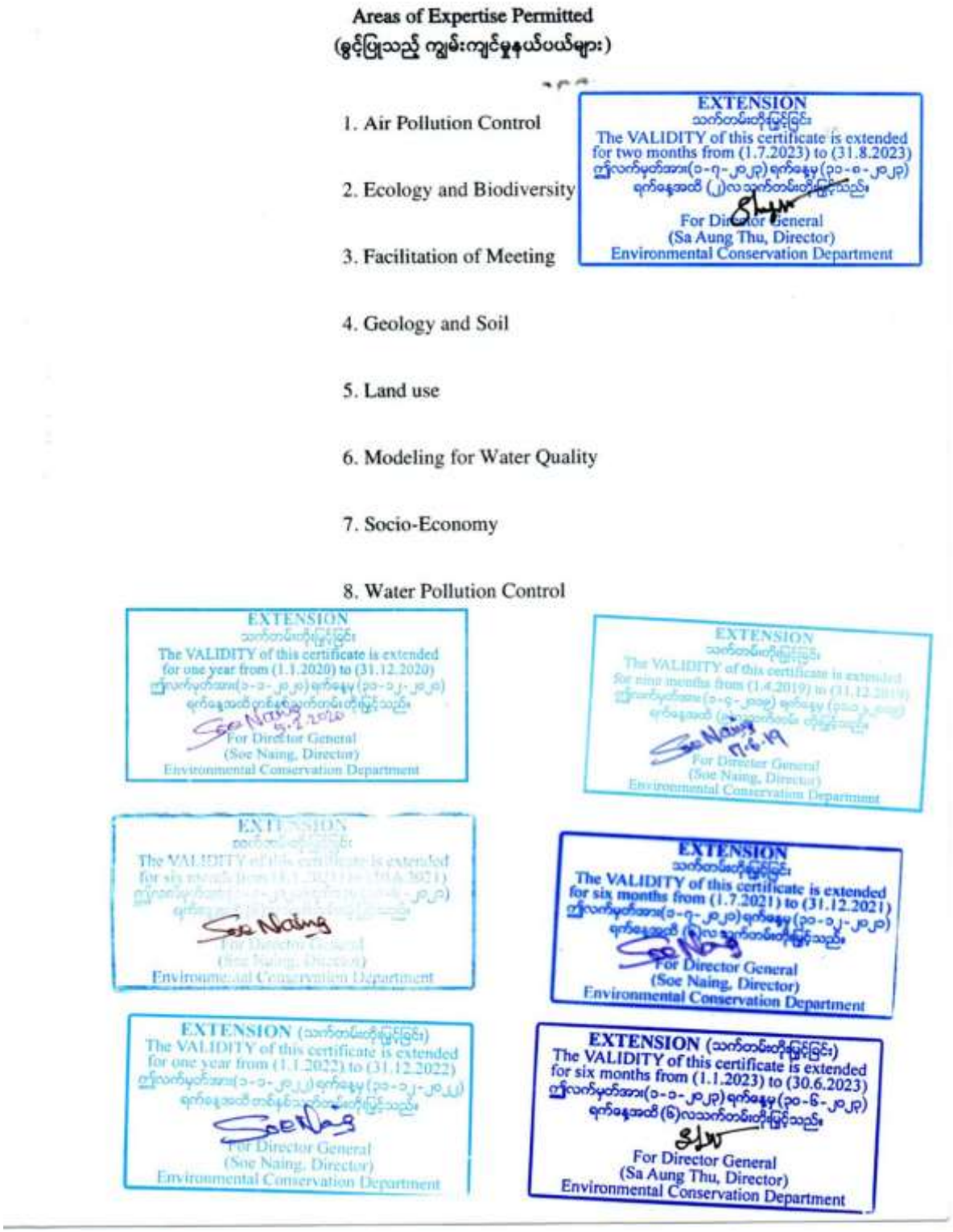


Figure – 17: Certificate of consultant firm

4. DESCRIPTION OF APPLICABLE LAWS

Aung Kan Bo Motorcycle Industrial Co., Ltd shall not only comply with the relevant law but also abide by other related laws. The company shall also follow the regulations, requirements and guidelines prescribed by the Environmental Conservation Department (ECD) of the Ministry of Natural Resources and Environmental Conservation (MONREC).

4.1 Applicable laws

Aung Kan Bo Motorcycle Industrial Co., Ltd shall comply with the following laws:

1. Environmental Conservation Law, 2012
2. Environmental Conservation Rules, 2014
3. Environmental Impact Assessment Procedure, 2015
4. Environmental Quality (Emission) Guidelines, 2015
5. Foreign Investment Law, 2012
6. The Private Industrial Enterprise Law, 1990
7. The Factories Acts, 1974
8. The Labour Organization Law, 2011
9. Minimum Wages Law, 2013
10. The Myanmar Insurance Law,1993
11. The Myanmar Fire Brigade Law, 2015
12. The Myanmar Investment Law, 2016
13. Myanmar Investment Rules, 2017
14. The Social Security Law, 2012
15. Workmen's Compensation Act, 1923
16. The Conservation of Water Resources and Rivers Law, 2006
17. The Conservation of Water Resources and Rivers Rules, 2013
18. Prevention of Hazard from Chemical and related Substances Law, 2013
19. The Export and Import Law, 2012
20. The Occupational Health and Safety Law, 2019
21. The Payment of Wages Act, 2016

22. The Leaves and Holiday Rules, 2018

23. The Social Security Rules, 2014

24. The Labour Organization Rules, 2012

25. The Settlement of Labour Disputes Law, 2012

26. The Related Laws Enacted by Mandalay Region Hluttaw and Rules Issued by Bago Region Government

Aung Kan Bo Motorcycle Industrial Co., Ltd cannot be in a position to read and study all the above mentioned laws, acts and rules as they cover very wide ranging spectrum. The company has hired a legal expert to deal with all these laws and to advice the company whenever and whenever deem necessary.

However excerpts from some relevant laws will be reproduced here.

The hired legal expert will help the company with details of the sections of law and rule regarding environmental affairs. And the company will comply with all these law, rules and regulations. The company on its part will also use its common sense and simple logics not to pollute the air, water and land and not to negatively impact the local community in doing the business. Employees will be educated and trained effectively for environmental awareness and for maintenance of environmental performance during the entire life of the project.

The company very well realizes that "Protection of the environment is an obligation of every citizen of Myanmar as per the Myanmar Constitution (2008) Chapter VIII (390)".

Article 390 of Chapter-8 of Myanmar Constitution, 2008 states that "Every citizen has the obligation to assist the Union for the protection of the environment."

Article (42) of Myanmar Constitution, 2008, states that "The Union shall protect and conserve natural environment".

Article 390. Every citizen has the obligation to assist the Union in carrying out the following matter:

(b) Environmental conservation

However, some of the main points excerpted from a few relevant laws are reproduced here.

Sr. No.	Laws and Regulations	Relevant Articles	Commitments
1	The Environmental Conservation Law, 2012	Section-7 (o):	Project Proponent has to compensate: for damages if the project will cause injuries to environment under the sub-section (o) of section-7 Managing to cause the polluter to compensate for environmental impact, cause to contribute fund by the organizations which obtain benefit from the natural environmental service system, cause to contribute a part of the benefit from the businesses which explore, trade and use the natural resources in environmental conservation works;
		Section-14:	Project Proponent has to comply with the followings: A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards.
		Section-15:	Project Proponent has to comply with the followings: The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods.
		Section-16:	Project Proponent has to comply with the followings: A person or organization operating business in the industrial estate or business in the special economic zone or category of business stipulated by the Ministry: (a) is responsible to carry out by contributing the stipulated cash or king in the relevant combined scheme for the environmental conservation including the management and treatment of waste;

			(b) shall contribute the stipulated users charges or management fees for the environmental conservation according to the relevant industrial estate, special economic zone and business organization; (c) shall comply with the directives issued for environmental conservation according to the relevant industrial estate, special economic zone or business.
		Section-25:	Project Proponent has to comply with the term set up by the ministry: The Ministry may, if it is found that holder of the prior permission fails to comply with any of the terms and conditions relating to environmental conservation contained in the prior permission, pass any of the following administrative penalties: (a) causing to comply with in accord with the terms and conditions after warning, causing to sign the bond; (b) causing to comply with in accord with the terms and conditions after paying a fine.
2	The Environmental Conservation Rules, 2014	Rules 51:	Project Proponent has to carry out: The Ministry shall assign duty to the Department (ECD) for enabling to adopt and carry out the environmental impacts assessment system.
		Rules 53:	Project Proponent has to carry out: The Ministry may cause the categories of proposed project, business, service or activity which are not included in the categories stipulated under section 52 to conduct an initial environmental examination so as to enable to scrutinize whether or not environmental impact assessment study is necessary to conduct for such projects.

		Rules 56:	Project Proponent has to carry out: The person who carries out any project, business or activity shall arrange and carry out for conducting the EIA for any project, business or activity by qualified third person or organization accepted by the ministry (MONREC)
		Rules 69:	Project Proponent commits to comply with this rules: (a) Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants and hazardous waste or hazardous materials stipulated by the notification under the law and any of these rules at any lace which may affect the public directly or indirectly. (b) Any person shall not carry out the action which can be damaged to natural environment which is changing due to ecosystem and such system, except the permission of the relevant Ministry in order to the interest of the people. The rules also set out further details on the requirement to conduct EIA and prepare EMP on the basic of EIA.
3	Environmental Impact Assessment Procedure, 2015	Section -102:	Project Proponent has to comply with: The project Proponent shall bear full legal and financial responsibility for: (a) All of the Project Proponent's actions and omissions and those of its contractors, subcontractors, officers, employees, agents, representatives, and consultants employed, hired, or authorized by the Project acting (b) PAPs until they have achieved socio-economic stability at a level not lower than that in effect prior to the commencement of the Project, and shall support programs for livelihood restoration and resettlement in consultation with the PAPs, related government agencies, and organizations and other concerned persons for all Adverse Impacts.

		Section-103:	Project Proponent has to comply with: The project proponent shall fully implement the EMP, all project commitments, and conditions and is liable to ensure that all contractors and subcontractors of the project comply fully with all applicable laws, the rules, this procedure, the EMP, project commitments and condition when providing services to the project.
		Section-104:	Project Proponent has to comply with: The project proponent shall be responsible for and shall fully and effectively implement, all requirements set forth in ECC, applicable laws, the rules, this procedure and standards.
		Section-105:	Project Proponent has to comply with: The project proponent shall timely notify and identify in writing to the ministry, providing detailed information as the proposed project's potential adverse impacts.
		Section-106:	Project Proponent has to comply with: The project proponent shall, during all phase of the project (Preconstruction, Construction, Operation, Decommissioning, Closure and Post-closure) engage in continuous, proactive and comprehensive self-monitoring of the project and activities related thereto, all adverse impacts, and compliance with applicable laws, the rules, this procedure, standards, the ECC and the EMP.
		Section-107:	Project Proponent has to comply with: The project proponent shall notify and identify in writing to the ministry any breaches of its obligations or other performance failures or violations of the ECC and the EMP as soon as reasonably possible and in any event, in respect of any breach which would have a serious impact or where the urgent attention or the ministry is or may be required, within not later than twenty-four (24) hours, and in all cases within seven (7) days the project proponent becoming aware of such accidents.

		Section-108:	Project Proponent has to comply with: The project proponent shall submit monitoring reports to the ministry not less frequently than every six (6) months, as provided in a schedule in the EMP, or periodically as prescribed by the ministry.
		Section-109:	Project Proponent has to comply with: The monitoring reports shall include: a) Documentation of compliance with all conditions b) Progress made to date on implementation of the EMP against the submitted implementation schedule c) Difficulties encountered in implementing EMP and recommendations for remedying those difficulties and steps proposed to prevent or avoid similar future difficulties d) Number and type of non-compliance with the EMP and proposed remedial measures and timelines for completion of remediation e) Accidents or incidents relating to the occupational and community health and safety, and the environment, and f) Monitoring data of environmental parameters and conditions as committed in the EMP or otherwise required.
		Section-110:	Project Proponent has to comply with: Within ten(10) days of completing a monitoring report as contemplated in Article 108 and Article 109 in accordance with the EMP schedule, the Project Proponent shall make such report (except as relate to National Security concerns) publicly available on the Project's website, at public meeting places (e.g libraries, community halls) and at the Project offices. Any organization or person may request a digital copy of a monitoring report and the Project shall, with ten (10) days of receiving such request, submit a digital copy via email or as may otherwise be agreed upon with the requestor.

		Section-113:	Project Proponent has to comply with: For purpose of monitoring and inspection, the Project Proponent: (a) Shall grant to the Ministry and/or its representatives, at any time during normal working hours, access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed; and (b) From time to time as and when the Ministry may reasonably require, shall grant the Ministry access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed.
		Section-115:	Project Proponent has to comply with: In the event of an emergency, or where, in the opinion of the Ministry, there is or may exist a violation or risk of violation of the compliance by the Project with all applicable environmental and social requirements, the Project shall grant full and immediate access to the Ministry at any time as may be required by the Ministry.
		Section-117:	Project Proponent has to comply with: The Project Proponent shall further ensure that the Ministry's rights of access hereunder shall extend to access by the Ministry to the Project's contractors and information storage, and persons.
4	National Environmental Quality (Emission) Guideline, 2015		Project Proponent has to comply with: All the guidelines that are of relevance for this project are shown under a separate section of this report.
5	Foreign Investment Law, 2012	Section-17:	Project Proponent has to comply with the followings: The duties of investor are as follows:- (a) To abide by the existing law of the Republic of the Union of Myanmar. (b) To form the company and do business as per the existing law.

			(c) To follow the law rules, procedures, notification, order, directive and condition of the permit. (d) To utilize the land rented or granted by the commission as per designated conditions and the condition of the contract. (e) To sublet mortgage, transfer share and transfer of business to the other individual, during the term of business, for the invested activities, the land and buildings allowed by the approval, with the approval of the commission. (f) Not to change the significant topography and the formation of the land permitted to utilize without the approval of commission. (g) To report to the commission at once when the mineral resources or antique material or treasure trove not permitted in the contract on and the underground of the land permitted to utilize, if permitted by the commission work may continue on the said land, otherwise move to a substituted land that may request by the investor. (h) To perform not to affect environmental pollution and spoilage as per existing law in connection with the investment activities. (i) If all share of foreign investment company is transferred to citizen or a foreigner outright, the prior permit shall be taken from the commission and the approval permit is returned only then the share transfer shall be registered as per existing law. (j) If some share of foreign investment company is transferred to citizen or a foreigner outright, the prior permit shall be taken from the commission and the approval permit is returned only then the share transfer shall be registered as per existing law.

			(k) To transfer the high-tech competency technology functioned by him to the concerning works department or organization systematically as per the provision of the contract.
		Section-18:	Project Proponent has to comply with: The right of investor is as follow- (i) To exercise the right of selling, exchanging or transferring otherwise as per existing law with the approval of commission. (ii) If the investor is a foreign company shall have right to sell its all shares / part of shares to foreigner/citizen or another foreign company / local company. (iii) To expand the primary investment activities with the approval of commission. (iv) To reassess, revise and submit to the commission to get the entitled right fully as per existing law. (v) To put up the application to the commission to get the lawful entitled benefits or for the settlement of grievances. (vi) In respect to permission given for a foreign investment project, the investor shall have right to submit to the Commission regarding invention of advance technology for production of quality products, enhanced production, reduction of environmental effect in the surrounding area for more benefit to accrue. (vii) For benefits of the whole country if foreign investment is to make in the areas difficult in excess, the Commission shall permit more exemption and relief as stated under Chapter (12).
6	The Myanmar Private Industry Enterprise Law, 1990	Section -4:	Project Proponent has to comply with: (a) Any person desirous of conducting any private industrial enterprise; (b) Any person conducting any private industrial enterprise on the day this Law is enacted; by using any type of power which is three horsepower and above or manpower of ten wage-earning workers and above shall register under this Law.

		Section -13:	Project Proponent has to comply with: The duties of the entrepreneur are as follows:- (a) Shall pay the registration fees, fees for the renewal of registration and other payable duties and taxes prescribed by the Directorate; (b) Shall abide by the terms and conditions of the registration certificate; (c) Shall conduct the enterprise by opening an account with the relevant bank in the name of its registered enterprise; (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; (h) Shall also abide by the existing laws.
		Section-26	Project Proponent has to comply with: No one shall conduct a private industrial enterprise contained in section ~ without obtaining registration under this Law.
		Section-27	Project Proponent has to comply with: An entrepreneur: (a) In distributing and selling the goods he has produced shall not sell without a trade mark; (b) Shall not violate any provision of section 13; (c) Shall not fail to comply with any order or decision passed by the Minister and the Director General.

7	The Factories Acts, 1951 (Amended, 1974)		Project Proponent has to comply with: Purpose: to ensure the health, safety, welfare, fair working time the clean environment for the employees working inside a factory. This law focuses on all stipulation for the employer (project owner). The project owner should abide by nearly all sections in this Act. The project owner has to abide by all provisions for healthy, safety, welfare, working-hours and other needs. The project owner shall ask its legal expert to study this Act in details for his advice. This Act also contains the provision for chemicals management and storage. The chemicals use in the manufacturing of motorcycle, paints, thinners, varnishes etc, may not require permits. Since iron smelting will not be involved permit for "hot work" may not be also necessary. This factory Acts requires all factories to have proper pollution control measures such as air pollution, sewage and waste water treatment system and solid waste management system.
8	The Labour Organization Law, 2011		Project Proponent has to comply with: Objectives: - The law permits the exercise of the freedom of association and the formation of independent trade unions. - Everybody has the right to join or resign from a labour organization. (Act. 3, a) - Basic labour organizations shall be formed with a minimum of 30 workers in the relevant trade or activity. If less than 30 workers, it may form jointly with any other trade of the same nature. (Art. 4, a)

		Section-18:	Project Proponent has to comply with: The labour organizations have the right to demand the relevant employer to re-appoint a worker if such worker is dismissed by the employer and if there is cause to believe that the reason of such dismissal were based on labour organization membership or activities, or were not in conformity with the labour law
		Section-19:	Project Proponent has to comply with: The labour organizations have the right to send representation to the Conciliation Body in settling the dispute between the employer and the worker. Similarly, they have the right send representatives to the Conciliation Tribunal formed with the representatives from the various levels of labour organization.
		Section-20:	Project Proponent has to comply with: In discussing with the Government the employer and the complaining workers in respect of workers' right or interests contained in the labour laws, the representative of the labour organization also have the right to participate and discuss.
		Section-21:	Project Proponent has to comply with: The labour organizations have the right to participate in solving the collective bargains of the workers in accord with the labour laws.
		Section-22:	Project Proponent has to comply with: The labour organizations shall carry out peacefully in carrying out holding meetings, going on strike and carrying out other collective activities in accord with the procedure, regulations, by-law and any directives prescribed by the relevant labour Federation ship.

9	The Minimum Wage Law, 2013		Project Proponent has to pay: The law sets a minimum wage to meet the essential needs of workers and their families and for the purpose of increasing the capacity of the workers. Employers must: - Pay a national minimum wage, currently set at Ks 4800/day, to employees (Art. 2, a), including for part time and hourly work (Art. 14, e). - Provide salaried workers one day's paid leave per week. (Art. 14, f) - Provide both men and women minimum wage without discrimination. (Art. 14, b) In addition to the very briefly above-mentioned laws and rules the company will comply with all laws, rules and regulation related to cement business. The company will comply with, in particular, the NEQ guideline prescribed by ECD. The company shall also comply with all the statutory requirement set up by the concerning ministries. The legal experts hired by the company will study all the above-mentioned law and rules and advice the company whenever and wherever deems necessary.
		Section-12:	Project Proponent has to comply with: The employer: (a) Shall not pay wage to the worker less than the minimum wage stipulated under this Law; (b) May pay more than the minimum wage stipulated under this Law; (c) Shall not have the right to deduct any other wage except the wage for which it has the right to deduct as stipulated in the notification issued under this Law;

			(d) Shall pay the minimum wage to the workers working in the commercial, production and service business in cash. Moreover, if the specific benefits, interests or opportunities are to be paid, it may be paid in cash or partly in cash and partly in property, with prevailing regional price, jointly according to the desire of the worker; (e) In paying minimum wage to the workers working in the agricultural and livestock business, some cash and some property at prevailing regional price may be paid jointly according to local custom or desire of the majority of workers or collective agreement. Such payment shall be for any personal use and benefit of the worker and his family and the value shall also be considerable and fair.
		Section-13:	Project Proponent has to comply with : The employer: (a) Shall inform the workers the rates of minimum wage relating to the business among the rates of minimum wage stipulated under this Law and advertise it at the workplace to enable to be seen by the relevant workers; (b) Shall prepare and maintain the lists, schedules, documents and wages of the workers correctly; (c) Shall report the lists, schedules and documents prepared and maintained under sub- Section (b) to the relevant department in accord with the stipulations; (d) Shall accept the inspection when summoned by the inspection officer. Moreover, he shall produce the said lists and documents upon asking to submit;

			(e) Shall allow the entry and inspection of the inspection officer to the commercial, production and service businesses, agricultural and livestock breeding workplaces and give necessary assistances; (f) If the workers cannot work due to sickness, shall give them holiday for medical treatment in accord with the stipulations; (g) If the funeral matter of the member of the family of worker or his parent occurs, shall give holiday without deducting from the minimum wage, in accord with the stipulations.
		Section-18:	Project Proponent has to comply with: The inspection officer: (a) Has the right to enter and inspect the relevant commercial, production and service workplaces, agricultural and livestock breeding workplaces and inspect whether or not they comply with and carry out in accord with the rules, notifications, orders, directives and procedures under this Law, whether or not the lists, schedules and documents, wages relating to the workers are prepared correctly, and whether or not such lists, schedules and documents are reported to the Department in accord with the stipulations; (b) May summon, inspect the relevant persons under the assignment of duty by the Department, asking and copying for the relevant lists, schedules and documents. (c) If there are outside workers at employer, has the right to inspect information relating to such outside workers, their names and addresses and the right to ask for and copy their lists and documents and lists relating to minimum wage;

			(d) In carrying out under sub- section (a), (b) and (c) relating to inspection, if required by the employer to produce the document, shall show the civil service identify card issued by the relevant department; (e) Report to the Department in accord with the stipulations relating to the finding under sub- sections (a), (b) and (c), and documents and papers called for.
10	The Myanmar Insurance Law, 1993		Project Proponent has to comply with: Purpose: The project can cause the damages to the environment and injuries to public. Therefore, the project owner shall take out insurance for the factory and for fire insurance. This law focuses on the following matters: - Under Section-6: the project owner has to isure the insurance to compensate for general damage as the project can probably cause the damages to the environment and injury to the public. - Under Section-15: of the project owner uses the owned vehicles he or she has to insure the insurance for injured person.
		Section-16:	Project Proponent has to comply with: An entrepreneur or 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 effect compulsory General Liability Insurance with the Myanmar Insurance.
11	The Myanamr Fire Brigade Law, 2015		Project Proponent has to comply with: No person shall fail to abide by the directives in respect of fire precaution and prevention issued under section -16 by the Township Fire Service Department.

		Section-25:	The owner or manager of the factory, workshop, bus terminal, airport, port, hotel, motel, lodgings, condominium, market, department, organization or business exposed to fire hazard shall, in accord with the directive of the Department of Fire Services: (a) not fail to form the Reserve Fire Brigade; (b) not fail to provide fire safety equipment.
12	The Myanmar Investment Law, 2016		Project Proponent has to pay: The Myanmar Investment Law and Rules cover all investment in Myanmar and clearly states that the country is to attract "responsible investment business which do not cause harm to the natural environment and the society for the benefit of the Union and its citizens.
		Section-50:	Project Proponent has to pay: (a) An investor who obtains permit or endorsement under this Law has the right tobtain a long-term lease of land or building from the owner if it is private land or building, or from the relevant government departments or government organizations if it is land managed by the Government, or land or building owned by the Union in accordance with the stipulations in order to do investment. Citizen investors may invest in their own land or building in accordance with the relevant laws. (b) Foreign investor may lease land or building either from the government or government organizations or from owners of private land or building from commencing on the date of receipt of the permit or endorsement of the Commission up to an initial period of (50) year in accordance with the stipulation.

			(c) After the expiry of the term of the right to use land or building or the period of right to lease of land or building permitted under subsection (b), a consecutive period of (10) year and a further consecutive period of (10) year extension to such period of lease of land or building may be obtained with the approval of the Commission. (d) The investor shall register the land lease contract at the Office of Registry of Deeds in accordance with the Registration Act. (e) The Government may grant more favorable terms and conditions for the lease of land and the use of land by Myanmar citizen investors. (f) The Commission shall obtain the approval of the Pyidaungsu Hluttaw through the Government, when granting an extension to investors for the rights to lease land or building and the rights to use the land or building in this Law, in less-developed and remote region for the purpose of the development around the Union.
		Section-51:	Project Proponent has to comply with: The investor: (a) May appoint any citizen who is a qualified person as senior manager, technical and operational expert, and advisor in his investment within the union in accordance with the law. (b) The investor shall appoint them to replace, after providing for capacity building programs in order to be able to appoint citizens to different level positions of management, technical and operational experts and advisors, (c) shall appoint only citizens for works which does not require skill

			(d) shall appoint skilled citizen and foreign workers, technicians, and staff by signing an employment contract between employer and employee in accordance with the labor laws and rules; (e) shall ensure to obtain the entitlements and rights in the labor laws and rules, including minimum wages and salary, leave, holiday, overtime fee, damages, compensation of the workman, social welfare, and other insurance relating to workers in stipulating the rights and duties of employers and employees and occupational terms and conditions in the employment contract; (f) shall settle disputes arising among employers, among workers, between employers and workers, and technicians or staff in the investment in accordance with the applicable laws.
		Section-65	Project Proponent has to comply with: (a) shall respect and comply with the customs, traditions and traditional culture of the ethnic groups in the Union; (b) shall establish and register a company or sole proprietorship or legal entities or branches of such entities under the laws in order to invest; (c) shall abide by the terms and conditions, stipulations of special licenses, permits, and business operation certificates issued to them, including the rules, notifications, orders, and directives and procedures issued by this Law and the applicable laws, terms and conditions of contract and tax obligations; (d) shall carry out in accordance with the stipulations of the relevant department if it is, by the nature of business or by other need, required to obtain any license or permit from the relevant Union Ministries, government departments and government organizations, or to carry out registration;

			(e) shall immediately 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 above and under the land on which the investor is entitled to lease or use and not included in the original contracts. If the Commission allows, the investor shall continue to carry out the investment in such land, and if not allowed, the investor shall transfer and carry out, by obtaining the permission, at the substituted place which is selected and submitted by him; (f) Shall not make any significant alternation of topography or elevation of the land on which he is entitled to lease or to use, without the approval of the commission. (g) Shall 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; (i) Shall close and discontinue the investment only after payment of compensation to employees in accordance with applicable laws for any breach of employment contracts, closure of investment, sale and transfer of investment, discontinuation of investment, or reduction of workforce; (j) Shall pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directives and so forth during the period of suspension of investment for a credible reason; (k) Shall pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease and death due to the work;

			(l) Shall 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; (m) Shall respect and comply with the labor laws; (o) Shall 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. (p) Shall allow the Commission to inspect in any places, when the Commission informs the prior notice to inspect the investment; (q) Shall 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.
		Section-66:	Project Proponent has to comply with: Subject to the assessment under section 65 (q), the Commission may administer the investments to carry out necessary, including to conduct or suspend.
		Section-73:	Project Proponent has to comply with: The investor shall insure the types of insurance stipulated in the provision of the rules at any insurance enterprise which is entitled to carry out insurance businesses within the Union.

13	The Myanmar Investment Rules, 2017	Rules-190	Project Proponent has to carry out: An Investor to whom section 65(q) of the Law applies shall Submit confirmation of its compliance with the applicable requirements of the Environmental Conservation Law, rules and environmental impact assessment procedures to undertake, obtain and implement an initial environmental examination, assessment, certificate and management plan as those requirements are met. The approval of the Commission for continuation of the Investment shall base on its compliance.
		Rules-202:	Project Proponent has to comply with: The Investor must comply with the conditions of the Permit and other applicable laws when making an Investment.
		Rules-203:	Project Proponent has to comply with: The investor shall fully assist the negotiating processes with the relevant government departments and government organizations for the affected persons due to investment plans.
		Rules-206:	Project Proponent has to comply with : If the Investor is desirous to appoint a foreigner as senior management, technician expert or consultant according to section 51(a) of the law, it shall submit such foreigner's passport, expertise evidence or degree and profile to the Commission Office for approval.
		Rules-212:	Project Proponent has to carry out: Every Investor that holds the Permit or Tax Incentives must have taken out the relevant insurance out of the following types of insurance at any insurance business that holds the license in the Union based on the nature of the business:

			(a) Property and Business Interruption Insurance; (b) Engineering Insurance; (c) Professional Liability Insurance; (d) Professional Accident Insurance; (e) Marine Insurance; and (f) Workmen Compensation Insurance.
14	Social Security Law, 2012		Project Proponent has to comply with: Objectives: To provide for: - A health and social care insurance system; a family assistance insurance system; invalidity benefit; superannuation benefit and survivor's benefit insurance system and unemployment benefit system. - Both employers and workers must pay into a social security fund. (Act. 2, (c) and (e)) - Companies with five or more employees in the extractive industries (among others) are required to pay social security. (Art. 11)
		Section-11:	Project Proponent has to comply with: (a) The following establishments shall be applied with the provisions for compulsory registration for social security system and benefits contained in this Law if they employ minimum number of workers and above determined by the Ministry of Labour in co-ordination with the Social Security Board: (i) 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; (ii) Government departments, Government organizations and regional administrative organizations doing business;

			(iii) development organizations; (iv) financial organizations, (v) companies, associations, organizations and their subordinate departments and branch offices doing business; (vi) shops, commercial establishments, public entertaining establishments; (vii) 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; (viii) construction works carried out for a period of one year and above under employment agreement; (ix) works carried out with foreign investment or citizen investment or joint ventured businesses; (x) works relating to mining and gemstone contained in any existing law; (xi) works relating to petroleum and natural gas contained in any existing law; (xii) ports and out-ports contained in any existing law; (xiii) works and organizations carried out with freight handling workers; (xiv) Ministry of Labour and its subordinate departments and organizations; (xv) establishments determined by the Ministry of Labour 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

		Section-15:	Project Proponent has to set up the fund: a) The following funds are included in the Social Security Fund: (i) health and social care fund; (ii) family assistance fund; (iii) invalidity benefit, superannuation pension benefit, and survivors' benefit fund; (iv) unemployment benefit fund; (v) other social security fund for social security system of compulsory registration and contribution specified by the Ministry of Labour, in co-ordination with the Social Security Board, according to clause (2) of subsection (e) of section 13; (vi) other social security fund specified as to which contribution may be paid after voluntary according to clause (2) of sub-section (e) of section 13; (vii) fund for Social Security Housing Plan; b) The employers and workers of establishments shall pay contributions to the funds contained in clauses (1), (3),(4) and (5) of sub-section (a) after effecting compulsory registration.
		Section-18:	Project Proponent has to pay: (b) The employer shall deduct contributions to be paid by worker from his remuneration and pay to the social security fund together with contribution to be paid by him. The employer shall also bear the expenses for such contribution.

		Section-48:	Project Proponent has to pay: (b) The employers may effect insurance by registering voluntarily for insurance of the workers who are not applied to provisions of compulsory registration for employment injury benefit insurance system, by paying stipulated contribution to employment injury benefit insurance fund;
		Section-75	Project Proponent has to comply with: The employer of establishments applied by this Law: (a) shall prepare and keep the following records and lists correctly and submit to the relevant township social security office in accord with the stipulations: i) records and lists of workers' daily attendance; ii) records of appointing new worker, employing worker by changing of work, suspension from work, dismissal from work and resignation from work; iii) records of promotion and paying remuneration ; iv) records and lists of employers, managers, and administrators; and records of changes of them; (b) shall inform the relevant township social security office if the following matters arise: i) change in number of workers and address of establishment; ii) change of employer, change of business, suspension from work, and termination of work; iii) employment injury, employment death, and occupational diseases; (c) shall produce work records and lists on requirement of inspection team or official assigned duty under this Law by the Social Security Head Office and various Regional Social Security Offices.

15	The Workmen's Compensation Act, 1923		Project Proponent has to comply with: It was/is an Act to provide for the payment by certain classes of employers to their workmen of compensation for injury by accidents. This law was amended in 2005 by chairman of the State Peace and Development Council. Since the rate in kyats for compensation during the 1920s are no longer applicable (workable) the rate for compensation are increased. The rate shall be according to the Notification by the existing Ministry of Labour. eg. fine which may extend to "Ks 100" is substituted by "Ks 10,000". <u>Section-13:</u> Compensation shall be paid in line with the provision of the said law.
16	The Conservation of Water Resources and Rivers Law, 2006		Project Proponent has to comply with this law: Objectives - To conserve and protect water resources and rivers for use by the public and to protect - To protect environmental impacts on water environment. Mining/quarry in or near water course - Anyone wanting to do the activity for commercial purpose near the water course must seek permission from the Directorate of Water Resource and Improvement of River System, Ministry of Transport (Art. 13) - Prohibits discording engine oil, chemical or poisonous materials which may effect the environment (Art. 11)
		Section-8:	Project Proponent has to comply with: No person shall: (a) Carry out any act or channel shifting with the aim to ruin the water resources and river and creeks.

		Section-11:	Project Proponent has to comply with: No person shall: (a) 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.
		Section-19:	Project Proponent has to comply with: No one shall dispose of any substance into the river, creek that may cause damage to water way or change of water course from the bank or vessel which is plying, vessel which has berthed, anchored, stranded or sunk
		Section-21:	Project Proponent has to apply for permission: (b) drill well or pond or dig earth without the permission of the Directorate.
		Section-22:	Project Proponent has to comply with: No one shall, without the permission of the Directorate, pile sand, shingle and other heavy materials for business purpose on the bank area and water front area.
		Section-24:	Project Proponent has to comply with: No one shall: (b) violate the conditions prescribed by the Directorate so as not to cause water pollution and change of watercourse in rivers and creeks.
		Section-30:	Project Proponent has to comply with this approval: Any government department and organization or any person desirous of constructing drainage, utilizing river water intake, constructing bridged spanning rivers, connecting underground pipe, connecting underground

			electric cables, connecting underground telecom cable or digging in river or creeks, bank boundary and water front boundary, under the requirement of work, shall in order not to adversely affect the water resources and river and creeks, carry out only after obtaining the approval of the Ministry of Transport.
17	The Conservation of Water Resources and Rivers Rule, 2013	Section-8:	Project Proponent commits to: Chapter-3, Protection of water pollution and conservation of environment No one: (a) must not pollute the river water by dumping hazardous substance into the water (b) must not dump plastic bags, any plastic materials or nylon ropes into the water (c) must not construct latrine by the river side to prevent water pollution by human wastes (d) must not dump any human wastes, fuel oils, chemical toxic wastes into the water (e) all activities should be executed according to international standards
		Section-9:	Project Proponent commits to: Any one who has committed such an offence must pay for this to the Directorate
		Section-53:	Project Proponent commits to: Chapter-11, Construction of buildings/structures on the river bank premise Any one who want to construct any buildings or structures near the river must obtain permit from the relevant Ministry and Directorate.

18	Prevention of Hazard from Chemical and Related Substances Law, 2013	Section-15:	Project Proponent has to comply with: A person who has obtained a licence, before starting the respective chemical and related substances business:- (a) Shall be inspected for the safety and the power of resistance of the machinery and equipments by the respective Supervisory Board and Board of Inspection; (b) Shall be attended the person who serve in the work to the respective foreign trainings or the training and the expert trainings on prevention of hazard from the chemical and related substances opened by the government department and the government organizations.
		Section-16:	Project Proponent has to comply with: A person who has obtained a license:- (b) Shall perform to abide strictly the instructions for being safety in using the chemical and related substances by himself and also the persons who serve the work; (c) Shall keep the required safety equipment enough in the chemical and related substances businesses, furthermore shall grant the personal protection equipment and dresses free of charge to the working persons; (d) Shall make the course of training and study and instruction if necessary to the working persons for using the occupational safety equipment, the personal protection equipment and the dresses systematically in the chemical and related substances business; (e) Shall be inspected by the respective Supervisory Board and Board of Inspection in respect of whether or not the hazard may impact on the Human Being and Animals' health and the environment;

			(f) Shall make medical checkup the working persons who will work in the chemical and related substances business and shall permit to serve in that work after obtaining the recommendation that his health is suitable for that work. This medical checkup records shall be kept systematically; (g) Shall send the copy of informative letter of the permission to the respective Department of Township Administration, if the hazardous chemical or related substances are permitted to store; (h) Shall acquire in advance the guidance and agreement of the respective Department of Fire Brigade, if the business that is worried to fire hazard is operated by using the fire hazard substances or the explosive substances; (i) Shall transport only the permitted amount of the chemical and related substances in accordance with the prescriptive stipulations, if they are transported in local; (j) Shall take the permission from the Central Supervisory Board if the chemical and related substance is altered and transferred from one place to any other place which contained in the license;
		Section-17:	Project Proponent has to comply with: A person who has obtained a license, shall put the insurance in accordance with prescriptive stipulations to be able to pay the compensation, if the impact and damage is occurred on the Human Being and Animals or the environment in respect of the chemical and related substances businesses.
		Section-22	Project Proponent has to comply with: A person who has obtained the registration certificated shall abide the regulations consisted in the registration certificate furthermore shall also abide the order and instructions issued occasionally by the Central Supervisory Board.

		Section-27	Project Proponent has to comply with: A person who has obtained the license to be complied the following matters to control and decrease the hazard of the chemical and related substances:- (a) Classifying the hazard level to protect in advance the hazard according to the properties of the chemical and related substances; (b) Expressing the Material Safety Data Sheet and Pictogram; (c) Providing the safety equipment, the personal protection equipment to protect and decrease the accident and attending to the training to be used systematically; (d) Performing in accordance with the stipulations in respect of transporting, possessing, storing, using, discharging the chemical and related substances;
19	The Export Import Law, 2012	Section-6:	Project Proponent has to comply with: Without obtaining license, no person shall export or import the specific goods which is to obtain permission
		Section-7:	Project Proponent has to comply with: A person who obtain any license shall not violet the conditions contained in the license.
20	The Occupational Safety and Health Law, 2019	Section-12:	Project Proponent has to comply with: The Employer shall, in accordance with the stipulations of the Ministry: (a) appoint the Person In-charge for Occupational Safety and Health to closely supervise safety and health of Workers in line with the type of Industry/Business; and (b) form the respective Occupational Safety and Health Committee in line with the type of Industry/Business comprising equal number of Employer and Worker representatives to become safe and healthy

			Workplace on condition that the number of Workers in his/her Industry/Business exceeds the number determined by the Ministry for that purpose. The Occupational Safety and Health of female Workers shall be considered according to the nature of Industry/Business whten forming such Occupational Safety and Health Committee.
		Section-14:	Project Proponent has to comply with: Persons In-charge for Occupational Safety and Health shall comply with this Law and rules, orders, directives and procedures made under this Law to make the Workplace to be a safe Workplace that is good for health.
		Section-16:	Project Proponent has to comply with: Inspection Officers shall enter the Workplaces to which this Law applies and inspect Occupational Safety and Health conditions and direct Employers for their compliance and report the findings to the Chief Inspection Officer.
		Section-17:	Project Proponent has to comply with: Inspection Officers have the powers to perform the following for Occupational Safety and Health in accordance with their codes of conduct:- (a) the power to enter, inspect and inquire at any Workplaces related to this Law at any time by showing the Inspection Officer's identity without warrant; (b) the power to look at, make copies of and seize as evidence as required documents and records in connection with Workplaces and Processes; (c) the power to take photos and record videos in connection with Workplaces and Processes that may be harmful to Occupational Safety and Health; (d) the power to assess and measure and take records of the extent of impairment and duration caused to the environment of the Workplace due to loudness, light, heat, coldness, particles, gas and Hazardous Materials, and obtain the assistance of the expert in the relevant field of study if required;

			(e) the power to inquire of any person in the Workplace during working hours with the assistance of the Recognised Doctor to check any conditions that put or are likely to put Workers in contact with Occupational Disease; and (f) the power to require responsible persons at clinics or hospitals to deliver, with the stipulated security grade, medical treatment records of the Worker who is under treatment or information relating to death due to Occupational Accident or Occupational Disease, or autopsy results asked by the Department in the stipulated form.
		Section-18:	Project Proponent has to comply with: Inspection Officers shall, with the approval of the Chief Inspection Officer, order the Employer to temporarily close a whole or part of the Workplace, and notify the relevant Departments if required, if they believe that an Occupational Accident, Occupational Disease, Hazardous Eventor Major and Serious Occupational Accident occurs or is likely to occur because: (a) it is not appropriate to continue doing the Industry/Business due to dangerous Workplace condition, or unsafe operation carried by Workers, or existence of Hazardous Materials and Hazardous Machines, or layout and function of Workplace, part of the machine or equipment; (b) it is not appropriate to continue doing the Industry/Business due to breach or incompliance with any of the provisions of this Law; (c) it deems that Workers in the Workplace are in danger due to acts, omissions, negligence or carelessness; or (d) it needs to evacuate Workers from hazards because an Occupational Accident or accident is about to occur.

		Section-26:	Project Proponent has to comply with: The Employer shall be responsible to: - (a) arrange as required to assess the risks of Workplace, Process and machines and materials used thereat; (b) arrange as required to assess the likelihood of occurrence of hazards at the Workplace and to the environment; (c) arrange to have Workers medical checked-up by the Recognized Doctor in accordance with stipulations whether they suffer from any Occupational Disease; (d) arrange to improve the Workplace until it is safe and good for health based on the findings as per sub-sections (a), (b) and (c) (e) provide Workers with sufficient number of personal protective clothing, materials and facilities prescribed and approved by the Department on free of charge basis and cause Workers to wear them while working; (f) prescribe precautionary plans and plans for emergency; (g) provide a clinic, appoint the Registered Doctors and nurses and provide medicines and supporting equipment for any Industry/Business where the number of Workers is not less than the number determined by the Ministry; (h) make necessary arrangements for managers, Workers and members of the Occupational Safety and Health Committee including (Employer) himself/herself to attend Occupational Safety and Health training courses stipulated by the Ministry in accordance with their departments or types of work; (i) make necessary arrangements to enable immediate reporting to the Person In-charge for Occupational Safety and Health or manager in case where a Worker suffers an Occupational Accident or his/her life or health is likely to be in danger;

			(j) arrange to prevent any persons in the Workplace from Occupational Safety and Health risks occurred due to materials, machines or wastes used in the Workplace or Process; (k) immediately stop the Process, evacuate Workers and conduct necessary rescue plans if any Occupational Accident is about to occur. If possible, Workers will be relocated to another appropriate safe Workplaces; (l) display Occupational Safety and Health instructions, danger signs, notices, posters and signage for directions in accordance with stipulations; (m) arrange to be complied with precautions when entering restricted hazardous Workplaces; (n) arrange to disseminate Occupational Safety and Health manuals and guidelines issued by the relevant Ministries for knowledge, technology, information and skills not only to Workers but also to related persons or raise their awareness or knowledge thereof; (o) lay down the fire safety plan, perform fire drilling and train Workers to use fire extinguishers systematically; (p) allow the Chief Inspection Officer and Inspection Officers to enter Workplaces, inquire, request documents and information or seize exhibits; (q) cause Workers to work only for the specified working hours if they have to work in Hazardous Industry/Business and Workplace; and (r) Incur the expenses for Occupational Safety and Health matters.
		Section-27:	Project Proponent has to comply with: No Employer shall dismiss or demote a Worker: - (a) during any period before a medical certificate is issued by the Registered Doctor for occupational injury or by the Recognized Doctor for contact with Occupational Disease;

			(b) because the said Worker has addressed a complaint for hazardous or health detrimental condition; (c) because the said Worker has conducted the responsibilities of Occupational Safety and Health Committee; or (d) because the said Worker has refused to work in any condition where an Occupational Accident or Occupational Disease is about to occur.
		Section-34:	Project Proponent has to comply with: The Employer is responsible to undertake the following in accordance with the stipulations: - (a) informing the Department in case of an Occupational Accident, Hazardous Event or Major and Serious Occupational Accident; (b) if a Worker is in contact with a stipulated Occupational Disease or contaminated or likely to be contaminated due to materials or Process used, sending a report to the Department together with a medical report prepared by the Recognized Doctor.
		Section-36:	Project Proponent has to comply with: (a) Inspection Officers must perform inspection as required if any Occupational Accident, Hazardous Event, Occupational Disease or Occupational Contamination breaks out. (b) No one shall, without consent of the Chief Inspection Officer, remove, conceal, add or change a whole or part of the materials, machines, equipment, layout, documents or signs relating to the occurrence of an Occupational Accident, Hazardous Event, Occupational Disease or Occupational Contamination.

21	The Payment of Wages Act, 2016	Chapter VII Prohibitions Section-22	Project Proponent has to comply with: No employer shall violate any provision contained in Sections 4,5,8,9 and 11.
		Section-23	Project Proponent has to comply with: Whoever shall not violate any prohibition contained in the rules, notifications and orders issued under this Law.
		Section-24	Project Proponent has to comply with: Any employer who violates any prohibition provided in Section 22 shall, on conviction, be punished with imprisonment for a term not more than three months or with a fine at least two million Kyats or with both and shall be ordered to pay wages obtainable of workers.
		Section-25	Project Proponent has to comply with: Any employer is guilty under Section 24 shall, on conviction, after a prior conviction for the same offence, be punished with imprisonment for a term up to six months or with a fine at least fifty hundred thousand Kyats.
		Section-26	Project Proponent has to comply with: Whoever violates any prohibition provided in Section 23 shall, on conviction, be punished with fine from a minimum of one hundred thousand Kyats to a maximum of five hundred thousand Kyats.
		Section-27	Project Proponent has to comply with: Whoever complains falsely the payment of wages or deduction of wages with the intention to harm a worker or an employer, on conviction, shall be punished with imprisonment for a term not more than three months or with a fine not more than five hundred thousand Kyats or with both.

22	The Leaves and Holiday Rules, 2018	Rules -50	Project Proponent has to comply with: The employer… (a) …must provide the worker casual leave, medical leave and maternity leave with respective wages or salary. Moreover, must allow the worker earned leave with respective average wages or average salary. If the employer normally pays the cost of living then the cost of living must also be included. (b) …must provide the worker with earned leave starting from the day of entitlement within 12 months, with respective average wages or with average salary, and also must advance the entitled wage prior to the worker taking leave.
23	The Social Security Rules, 2014	Rules -45	Project Proponent has to comply with: The employer of the establishments contained in sub-rule (a) of rule 44, to register his worker; and the person, contained in sub rule(b) of rule 44, who is desirous to register voluntarily shall carry out as follows: (a) initially, he shall accept medical examination of the doctor of the social security clinic; (b) according to the medical examination of the doctor of the social security clinic, if the insured person is found that he is likely to be incapable to do the appointed work or suffering from the chronic disease, he shall be referred to the Social Security Hospital or relevant department of health to enable to diagnose the disease; (c) the cost for diagnosis of disease shall be borne by the employer if it is for a worker of a establishment contained in sub-rule(a) of rule 44; or b the insured person himself if it is for the person who effect insurance voluntarily as contained in subrule (b) of rule 44.

		Rules - 54	Project Proponent has to comply with: (a) The employer shall, In order to give medical care to the insured persons, to give social security benefits in accord with the Law to the insured person and the survived dependents after his death, to defray the costs of other matters in accord with the Law and to defray the costs of administration, pay the contributions of the employers and workers monthly to the relevant township social security offices or to the bank accounts opened by the township social security offices;
		Rules - 56	Project Proponent has to comply with: The employer: (a) shall contribute the rates of contribution stipulated to pay under sub rule (a) of rule 55 commencing from the date of coming into force of the Law; (b) shall contribute the contributions, relating to the rates of contributions stipulated to pay under subrules (b), (c) and (d) of rule 55, commencing from the date determined by the Ministry, by notification, in coordination with the Social Security Board and with the approval of the Union Government .
		Rules - 61	Project Proponent has to comply with: The employer: (a) shall not take into calculation of the cash benefits such as sickness benefit, maternity benefit, temporary disability benefit, permanent disability benefit, unemployment benefit as the wages and income so as to determine the contribution; (b) shall not take into calculation of the money paid by the employer to the insured person under any existing law or employment agreement for the period contained in sub-rule(a) as the wages and income so as to determine the contribution; (c) shall not take into calculation of the service reward monies, annual reward monies, aids paid for religious and social festivals and lay-off damages as the wages or income for determining the contribution.

		Rules - 64	Project Proponent has to comply with: The employer: (a) shall pay the contribution for the insured person if he works at least for a day in the calendar month for wages; (b) shall pay the contribution which shall be paid by the insured person according to the rates stipulated in rule 55 and based upon his wages or income per month after deducting the contribution which shall be paid, from his wages and income, together with the contributions which shall be paid by him under rules 55 and 58, to the accounts of the Township Social Security Office or the bank account opened by the Township Security Office monthly not later than 15 days after the end of the relevant month;
24	The Labour Organization Rules, 2012	Rules - 30	Project Proponent has to comply with: The employer may form the employer organizations in parallel in accord with law.
		Rules – 31	Project Proponent has to comply with: (a) in forming so, in addition to the expression of employer contained in the law, it involves the agricultural business carried out at paddy field, farmland, land where the perennial tree is grown, ripe palm, garden land, land where the vegetables or flowers is grown, orchard land, alluvial land of over ten acres, the person who hires above two workers for the whole calendar year in livestock breeding business, agricultural and livestock breeding joint business of above specification; (b) in forming and registration of the employer organizations, the provisions contained in these rules shall apply accordingly.

		Rules – 39	Project Proponent has to comply with: The labour organization shall, in auditing its list of strength, list of property owned by the organization and accounts, it shall be audited by the person or body comprising persons which has the right to audit and obtained the recognized certificate.
		Rules – 42	Project Proponent has to comply with: The labour organization desirous to go on strike with the permission of the relevant Labour Federation shall inform the **Notice in advance to going on strike Form (14)** to relevant employer and relevant conciliation body, at least 14 days in advance before the day of strike for the public utility service and at least 3 days in advance before the day of strike for the service which is not included in the public utility service.
25	The Settlement of Labour Dispute Law, 2012	Section-38:	Project Proponent has to comply with: No employer shall fail to negotiate and coordinate in respect of the complaint with the prescribed period without sufficient cause
		Section-39:	Project Proponent has to comply with: No employer shall alter the condition of service relating to workers concerned in such dispute at the consecutive period before commencing the dispute within the period under the investigation of the dispute before the Arbitration Body or Tribunal, to affect the interest of such workers immediately.
		Section-40:	Project Proponent has to comply with: No party shall proceed to lock-out or strike without accepting negotiation, conciliation and arbitration by Arbitration Body in accord with this law in respect of a dispute.

		Section-43:	Project Proponent has to comply with: No person shall fail to abide by or carry out any condition contained in agreement concluded before the Conciliation Body in respect of individual dispute or collectivedispute.
		Section-51	Project Proponent has to comply with: If an employer in the course of settlement of dispute commits any action omission without sufficient case, which by causing reduction in production resulting so as to reduce the workers' benefits shall be liable to pay full compensation in the amount determined by the Arbitration Body or Tribunal. Such money shall be recovered as the arrear of land revenue.
26	The Related Laws Enacted by Mandalay Region Hluttaw and Rules Issued by Mandalay Region Government		Project Proponent will comply with this law (not available at hand yet)

Commitment

Aung Kan Bo Motorcycle Industrial Co., Ltd will comply with the above- mentioned laws, rules, regulation, particularly, the relevant section/subsection excerpted and reproduced above.

Daw Nan Shwe Han

Managing Director

Aung Kan Bo Motorcycle Industrial Co., Ltd.

Commitment made by the project proponent

(a) First of all the project proponent declares that the information in the report is, to the best of its knowledge, true, accurate and complete.

(b) The IEE report has been prepared in strict compliance with applicable laws, rules, regulations, guidelines and procedures.

(c) The project proponent will at all times comply fully with the commitments, mitigation measures, and plans in the IEE Report.

Daw Nan Shwe Han

Managing Director

Aung Kan Bo Motorcycle Industrial Co., Ltd.

Commitment made by the consultant firm, MESC

The consultant firm, Myanmar Environment Sustainable Conservation (MESC) declares that the information submitted in this IEE report is, to the best of its knowledge, true and accurate up to the date of submitting of this report.

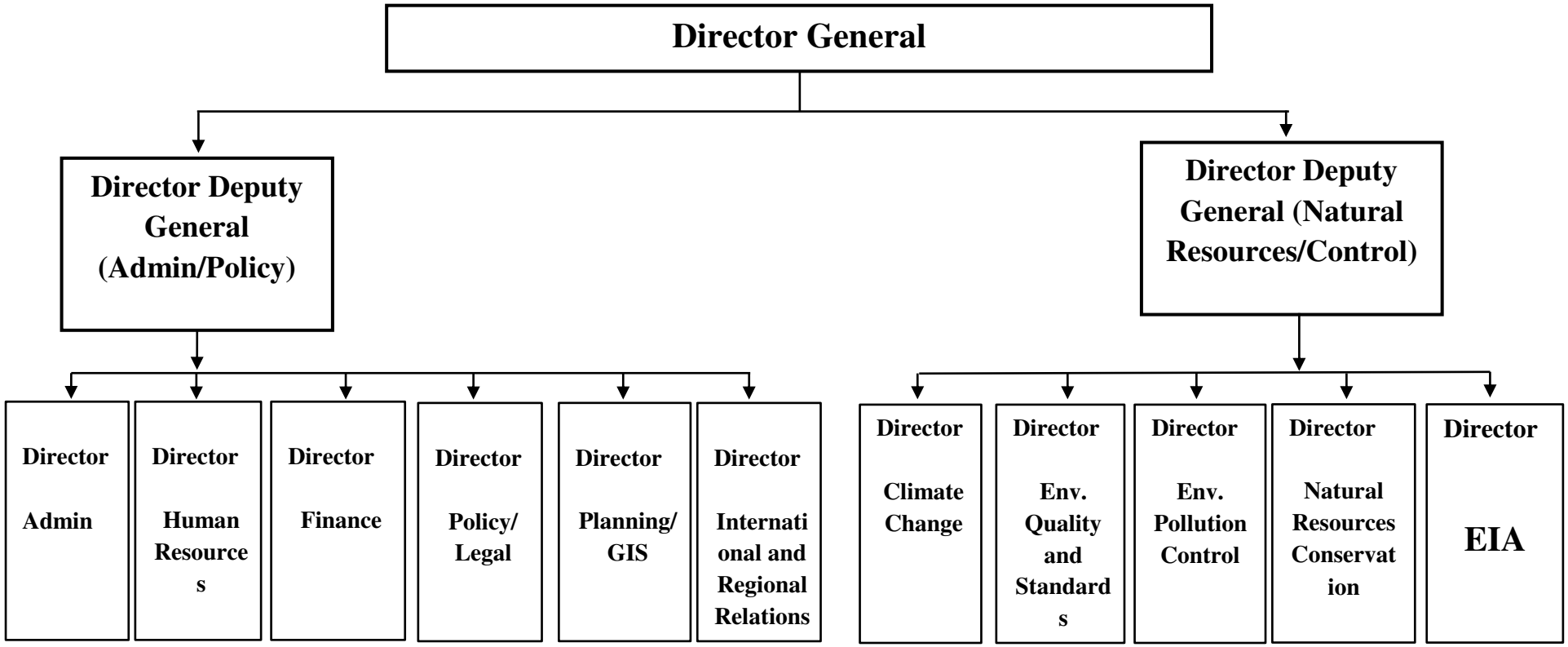
The report has been prescribed by MESC with utmost effort with all reasonable skills, care and deligence within the term of contract with the client (Jewellery Lucky Production Co., Ltd). Recommendations are based on the experiences of its members applying internationally accepted practices, using professional judgments and based on the available information.

Above all, the preparation of this report strictly followed the environmental regulation and guidelines set up, and particularly the format for EMP laid down, by the Environmental Conservation Department (ECD) of the Ministry of Natural Resources and Environmental Conservation (MONREC). (Environmental Impact Assessment Procedure. Notification Number.616/2015, 29-12-2015)

U Myint Kyaw Thura,
Managing Director
Myanmar Environment Sustainable Conservation
(MESC)

4.2 Institutional organization of ECD

ECD is a major department under MONREC and is headed by a director general. Under the Director General are one Deputy Director General and 4 Directors at the directorate. ECD is the focal and coordinating agency for the overall environmental management of the country. It is also directly responsible for all the management of IEE, EIA, EMP etc. activities taking places all over the country.



These four departments are each headed by a director.

The main tasks of ECD include:

- implementing environmental conservation policy
- designing and implementing monitoring programmes
- prescribing environmental quality standards and,
- conducting activities relating to waste management and conducting environmental impacts assessments

Recently various Environmental Conservation Departments at States and Regional levels under the Directorate were established in all the 14 States and Regions of the nation. This will surely greatly enhance the conservation of the environment and especially the management of the environment of the country.

4.3 Standards for Environmental and Social Sustainability

The ethic code for 21th century big business is not to make profit at the expense of the environment and the local community.

The big company should not focus only on economically viable venture but also on functionally sound and ecologically viable as well as socially sustainable venture.

Corporate Social Responsibility (CSR)

CSR has become mandatory in most developed countries. It has also become mandatory for big companies doing business in developing countries. In fact it has become an official policy of many big companies worldwide.

A big company that is doing business in an area must commit itself to environmental and social sustainability. The motto is "**do not harm the environment and the people**".

The company must take the responsibility for community development as far as possible. A certain amount of budget or 3 percent of the net profit has to be allocated for CSR activities, it is learnt.

Many view CSR as a form of compensation for the environmental and socio-economic components impacted. The main objective of CSR is more than mitigation and compensation; but also for the economic and social development of the community impacted by the project. The compensation for land or property lost or damaged due to project, the construction of school, and clinic, the improvement for infrastructure and the provision of alternative livelihoods, donations, charities etc. are parts of CSR activities. The CSR activities must be meaningful and effective, not a mere formality. So far, the company has spent Ks 482,424,340 for CSR programme and donates (see Annex, Pg.250).

The main essence of CSR is taking the responsibility for the community development. And the main principles of CSR are:

- not to destroy the environment
- not to infringe on human rights
- not to get involve in child labour or forced labour, and
- not to get involve in bribery and corruption in league with corrupt officials or authorities when doing business.

Payment for Ecosystem Service (PES)

Ecosystems, large or small, have been providing their services to mankind from time immemorial. In this era of environmental awareness the ethic of 21th century big business is not to take the service of ecosystem for granted. Every service provided by an ecosystem must not be considered as free of charge but must be paid for.

The ecosystem services could be categorized into (7) parts:

1) Ecosystem service in the form of harvested goods."Harvested goods" can be in the form of living resources (food, timber, fish etc.) or in the form of non-living resources (oil, gas, minerals, coal etc.)
2) Ecosystem service in the form of aesthetic beauty. For example, scenic spot of tourist attraction which is a source of that generates income for the local or the country
3) Ecosystem service in the form of provision of drinking water, for instance, lakeecosystem, river ecosystem, reservoir
4) Ecosystem service in the form of purification of water, for instance, wetland ecosystem; conservation of water and soil, for instance, watershed ecosystem
5) Ecosystem service in the form of provision of sanctuary for birds and wildlife animals of interest for the people; for example, birds sanctuary, wildlife park, national park
6) Ecosystem service in the form of generation of O_2 from plants; for instance, forest, jungle ecosystem, aquatic plant ecosystem and,
7) Ecosystem service in the form of sequestration of CO_2 and stabilization of climate by plants; for instance, forest, jungle ecosystem, aquatic plant ecosystem.

When a small ecosystem such as a forest or jungle is to be impacted by a project the company must take the responsibility of restoring the ecosystem (forest). The easy and pragmatic way is planting trees at the affected area and carrying out the reforestation task. This is tantamount to payment for ecosystem service (PES), or in other word, payment for the ecosystem service provided by the biological (biotic) component of the ecosystem (that is the forest). In the same way the conservation and maintenance of a drinking water reservoir is tantamount to payment for ecosystem service (PES) provided by an abiotic (non living) component of the ecosystem (that is the reservoir).

4.4 International Finance Corporation (IFC), Policy on Environmental and Social Sustainability (2012)

There are eight performance standards for a big company to do business in a new area.

I) Assessment and Management of Environmental and Social Risks and Impacts

- identify and evaluate environmental and social risks and impacts of the project
- adopt mitigation measures to avoid, or if avoidance is not possible, minimize or mitigate the impact; compensate for the impacts on people and on the environment
- promote improved environmental and social performance through the effective use of management system
- ensure that grievances from the effected people are responded and managed appropriately
- promote and provide means for adequate engagement with the community throughout the project period

II) Labour and Working Conditions

- promote the fair treatment, non-discrimination and equal opportunity of workers
- establish, maintain and improve the worker-management relationship
- promote compliance with national employment and labour laws
- promote safe and healthy working conditions and the health of workers
- avoid the use of forced labour and child labour

III) Resource Efficiency and Pollution Prevention

- avoid or minimize adverse impacts or human health and the environment by avoiding or minimizing pollution from project activities
- promote more sustainable use of resources, including energy and water
- reduce project-related GHG emissions

IV) Community Health, Safety and Security

- avoid adverse impact on the health and safety of the community during the project life
- ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the community

V) Land Acquisition and Involuntary Resettlement

- avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs
- avoid forced eviction
- avoid, or where avoidance is not possible, minimize social and economic impacts from land acquisition or restriction on land use by
  (i) providing compensation for loss of assets at replacement cost (value of asset plus transaction costs), and
  (ii) ensure that resettlement activities are implemented with appropriate disclosure of information, consultation and the informed participation of those effected
- improve or restore, the livelihoods and standards of living of displaced persons

VI) Biodiversity Conservation and Sustainable Management of living Natural Resources

- protect and conserve biodiversity
- maintain the benefits from ecosystem services
- promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities

VII) Ethnic Peoples

- ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of ethnic peoples
- avoid adverse impacts of project on ethnic people, or when avoidance is not possible, minimize and/or compensate for such impacts
- promote sustainable development benefits and opportunities for ethnic people in a culturally appropriate manner
- establish and maintain an ongoing relationship with these people throughout the project period
- respect and preserve the culture, knowledge and practices of ethnic peoples

VIII) Cultural Heritage

- protect cultural heritage from the adverse impacts of project activities and support its preservation
- promote the equitable sharing of benefits from the use of cultural heritage

4.5 International Standards and guidelines

Aung Kan Bo Motorcycle Industrial Co., Ltd shall follow the following international standards and guidelines as practical as possible.

1) ANSI. American National Standard Institute.
2) Building and Civil Engineering works. www.iso.org>iso>catalogue.tc.browse
3) Fundamental principles of Occupational Health and Safety (OHS), ILO. www.ilo.org.publication>wams.097550
4) Guidelines for structural engineering. https://www.bca.gov.sg>other>PSI-PE
5) IBC International Building Code
6) IFC construction and Infrastructure guideline. www.ifc.org>wps>wcm>connect>M
7) IFC. 2009. International Fire code. https://law.resources.org>pub>code
8) ILO. Standard on occupational safety and health (OSH). ilo.org.global>standards
9) ISO. ISO-Standard. ICS 91. Construction materials and building. www.iso.org>iso>catalogue-ics-browse
10) ISO. 13232-3.2005. Motorcycles- tests and analysis procedure for research. https://www.iso.org>standard.
11) ISO.org. Motorcycle and mopads. http://www.iso.org>ics43.140.
12) ISO/PAS. 19695:2015. Motorcycles-functional safety. ISO.org. https://www.iso.org>standard.
13) ISO/TC 22. Road vehicles. ISO-org. https://www.iso.org>catalogne.
14) Motorcycle industry in China. Wikipedia. https://en.m.wikipedia.org>wiki.Motor.
15) NFPA. National Fire Protection Association.
16) Standard motorcycle. www.zapmata. ws/standard motorcycle.
17) Safety and environmental-Honda of the UK manufacturing. https://www.hondamanufacturingcouk.
18) Health and safety in manufacturing sector. HSE. www.hse.gov.uk>manufacturing.
19) Promoting safe motorcycle use (Health & Safety at work). https://www.healthandsafetyatwork.com>
20) The standard for emission of motorcycle in China-UNECE Wiki. https://wiki-unece.org>attachment

4.6 Statutory requirement by Environmental Conservation Department (ECD), National Environmental Quality (NEQ) Guidelines

4.6.1 Air quality

Aung Kan Bo Motorcycle Industrial Co., Ltd shall follow the general guidelines values for air emission (NEQ guidelines) as prescribed by the Environmental Conservation Department (from Notification No.615/2015, December 2015, by ECD, then under the Ministry of Environmental Conservation and Forestry (MOECAF), now MONREC.

Parameter	Averaging Period	Guideline Value μg/m^3
Nitrogen dioxide	1-year 1-hour	40 200
Ozone	8-hour daily maximum	100
Particulate matter PM_{10}[a]	1-year 24-hour	20 50
Particulate matter $PM_{2.5}$[b]	1-year 24-hour	12 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

4.6.2 Water quality

Aung Kan Bo Motorcycle Industrial Co., Ltd shall follow the general guidelines values for waste water and others, NEQ Guidelines (Notification No.615/2015, December 2015, by ECD, MOECAF).

(Waste water, storm water runoff, effluent and sanitary discharges (general application))

Parameter	Unit	Guideline value
5 day biochemical oxygen demand	mg/l	50
Ammonia	mg/l	10
Arsenic	mg/l	0.1
Cadmium	mg/l	0.1
Chemical oxygen demand	mg/l	250
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 metals (total)	mg/l	10
Iron	mg/l	3.5
Lead	mg/l	0.1
Mercury	mg/l	0.01
Nickel	mg/l	0.5
Oil and grease	mg/l	10
pH	S.U.[a]	6-9
Phenols	mg/l	0.5
Selenium	mg/l	0.1
Silver	mg/l	0.5
Sulphide	mg/l	1
Temperature increase	ºC	<3[b]
Total coliform bacteria	100 ml	400
Total phosphorus	mg/l	2
Total nitrogen	mg/l	10
Total suspended solids	mg/l	50
Zinc	mg/l	2

IFC emission and effluent guidelines

Sr. No	Pollutants	Units	Guideline value
1.	Total suspended solid (TSS)	mg/l	50
2.	pH	SU	6-9
3.	COD	mg/l	150
4.	BOD	mg/l	50
5.	Oil and grease	mg/l	10
6.	Arsenic	mg/l	0.1
7.	Cadmium	mg/l	0.05
8.	Chromium (VI)	mg/l	0.1
9.	Copper	mg/l	0.3

10.	Cyanide	mg/l	1.0
11.	Cyanide free	mg/l	0.1
12.	Cyanide WAD	mg/l	0.5
13.	Iron (total)	mg/l	2.0
14.	Lead	mg/l	0.2
15.	Mercury	mg/l	0.002
16.	Nickel	mg/l	0.5
17.	Phenols	mg/l	0.5
18.	Zinc	mg/l	0.5
19.	Temperature	°C	< degree defferential

4.6.3 Noise level

The general guideline for noise, NEQ Guideline (from Notification No.615/2015, December 2015, by MOECAF)

Receptor	**One Hour LAeq(dBA)[a]**	
	Daytime 07:00 - 22:00 (10:00 - 22:00 for public holidays)	**Nighttime 22:00 - 07:00 (22:00 - 10:00 for public holidays)**
Residential, institutional, educational	55	45
Industrial, commercial	70	70

[a] Equivalent continuous sound level in decibels

Note: Noise leve at work place must not exceed 85-90dBA. (Provide PPE, ear muff, ear protection for workers exposed to high noise level for long period. The ideal level not interfere with health is 45 dBA.As the hotelis in a quiet area noise is not an issue.)

4.6.4 Odour

NEQEG Standard Guideline for odorant unit is between 5 and 10.

5. DESCRIPTION OF THE SURROUNDING ENVIRONMENT

The area is typical of Semi-arid ecosystem of the Dry Zone of Myanmar. The original forest was Dry Forest. But the forests were cleared since a century or so ago for human settlement and for cultivation of crops. Rudimentary trees of typical Dry Forest such as *Acacia catachu* and *A. leucopholea* still exist here and there but never as a woodland or small forest. The cultivated toddy palm, *Borassus flabellifer* is also typical and conspicuous tree of the area.

The site and surrounding is low land flat plain. The site is now a vacant plot and earth is heaped up to raise the level a little. The adjacent area is dry farm lands known as "Kaing".

This is the first study on the general physical, biological socio-economic, cultural and visual component of the surrounding environment. All the data are primary data, except the meteorological data (temperature, rainfall, humidity, etc) which are are secondary data obtained from the Meteorological Department, Yangon for Amarapura Town.

With the exception of data on fish obtained from local fishermen, all the data on biodiversity, flora and fauna, are primary data.

The IEE field study encompasses the physical component of the environment, namely, climate temperature, rainfall, humidity, wind speed, topography, basic geology, water and ambient air. The data on biological component of the environment include flora, fauna (aves, mammals, reptiles, fish) and ecology.

The data on socio-economic component includes: basic demography, religion, ethnicity, health, education, local economy, land uses etc.

Cultural and visual components, though not significant in this area, are also briefly mentioned.

Study limit within 1 mile radius Kanbai village is within the 1 mile radiu. A portion of Myitnge River is inside the 1 mile radius area.

LEGEND

Project Site ***Study Limit Area (1 mile)***

Figure-18: Satellite image showing study limit area

5.1 Physical component of the surrounding environment

5.1.1 Climate

The climate of the country as a whole is tropical monsoon climate with a hot dry season (premonsoon), a rainy season (monsoon) and a cool season (postmonsoon). But the climate of this region is typical Dry Zone climate with high temperature of up to 39.9ºC in dry hot season.

The hot dry season (summer) is from March to June; the rainy season (monsoon season) from the middle of June to end of September while the cool season (winter) starts from November to February.

Table (1, 2 and 3.) shows the monthly maximum, minimum mean temperature, relative humidity and wind speed for the year 2016 and 2022. Data were secondary ones obtained from the Meteorological and Hydrology Department, Yangon for Amarapura Town (As there is no meteorological department at Amarapura the data are for Mandalay City).

Table-1: Monthly maximum and minimum temperature (ºC) of Manadalay during 2016-2022

Monthly maximum temperature												
Max	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2016	29.0	33.0	37.0	38.4	36.9	34.9	33.9	33.0	33.5	32.8	30.5	30.3
2017	30.3	33.4	35.1	36.0	37.0	35.2	33.8	34.0	33.5	32.6	32.0	28.4
2018	27.9	32.6	36.3	37.3	36.1	33.4	35.1	33.7	34.7	31.6	31.8	29.3
2019	28.8	33.2	35.7	38.4	39.9	36.7	35.4	34.5	34.4	34.7	33.1	29.7
2020	29.0	32.6	37.2	38.0	38.9	36.9	36.6	34.6	36.1	35.2	32.0	30.8
2021	31.3	31.2	38.2	36.2	38.9	37.1	35.6	34.5	34.0	34.7	32.3	30.4
2022	29.7	31.8	37.1	37.4	35.0	35.9	36.8	35.1	35.9	35.0	33.8	32.0

Monthly minimum temperature												
Min	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2016	17.1	20.7	22.6	22.9	25.1	27.6	26.1	26.5	25.9	25.6	21.9	18.5
2017	16.3	19.6	18.2	22.3	24.7	26.4	26.4	26.0	25.7	24.9	22.3	17.2
2018	15.8	18.6	21.4	24.2	25.8	26.0	27.2	26.0	26.0	23.6	19.8	17.6
2019	14.8	17.7	21.1	24.0	28.0	27.5	27.2	26.5	26.4	24.4	22.2	16.0
2020	15.1	16.5	21.7	25.0	27.2	27.3	27.4	26.8	27.1	26.1	20.4	16.4
2021	16.4	21.4	25.1	27.8	26.9	27.5	26.7	26.1	25.4	25.3	22.0	17.3
2022	15.9	14.6	23.4	25.0	25.4	26.9	26.9	26.4	26.7	25.2	20.9	18.7

During the 2016-2022 years, the month May, 2019 had recorded the highest temperature (39.9ºC) while February 2012 had the lowest temperature record (14.6 ºC).

Table-2: Monthly humidity (%) of Mandalay during 2016-2022

Humidity (%)												
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2016	65.2	52.4	44.2	50.5	63.7	66.3	69.3	76.6	75.6	75.7	74.6	70.1
2017	60.6	49.0	47.3	57.0	63.7	66.3	71.1	72.5	77.5	77.1	70.9	71.5
2018	66.4	50.4	44.2	52.4	62.3	72.7	65.7	72.5	71.2	80.7	67.1	69.8
2019	65.8	51.6	45.0	42.3	54.0	62.3	62.7	72.5	71.3	70.7	69.6	62.1
2020	61.9	46.1	36.6	41.1	52.2	60.0	59.2	67.4	64.4	68.0	71.2	63.0
2021	58.6	40.4	37.4	48.8	55.7	57.5	65.1	70.5	75.0	71.4	70.5	65.2
2022	61.2	44.7	45.7	56.4	67.8	62.6	64.7	68.5	67.4	69.0	60.5	61.0

The mean monthly humidity (%) for last year (2018) revealed that the highest value, 80.7, was recorded in October while the lowest, 36.6, was recorded in March, 2020.

Table-3: Monthly wind speed (Km/h) of Mandalay during 2016-2022

Wind speed (Km/h)												
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2016	0.7	2.0	1.2	2.2	3.5	3.9	6.3	2.8	2.0	1.2	0.9	1.0
2017	1.8	2.4	2.4	4.6	3.5	7.8	6.7	5.6	3.4	2.4	1.0	1.0
2018	1.7	2.3	3.0	2.5	3.6	6.1	6.6	4.2	3.3	1.6	1.4	1.2
2019	1.0	1.6	2.0	2.0	3.5	4.9	8.2	3.0	2.6	1.5	1.1	0.9
2020	1.4	2.0	2.6	2.7	4.0	5.4	6.1	4.8	3.7	1.7	1.3	1.0
2021	1.3	2.1	2.4	4.0	3.5	7.2	5.9	4.5	1.9	2.1	1.3	1.4
2022	1.3	2.2	3.5	4.3	4.6	7.6	3.9	3.4	3.4	2.0	1.8	1.3

The highest wind speed (7.8 Km/h) was recorded while the lowest was recorded (0.7 Km/h).

5.1.2 Topography

The area is a flat low land plain; there are no mountains, hills and valleys in this wide flat low land plain.

The proposed project site and close vicinity is a vacant plot where all small vegetation (grass) are removed and heaping of new earth is done to raise the level a little.

There is no water courses, rivers, stream, lake, water body in the area (the Dote-hta-waddy River is half mile away in the south).

5.1.3 Basic geology

The area is in the middle region of Burma Central Basin (Inner Myanmar tertiary Basin). It is within the Mid-Ayeyarwaddy Lowland. The basic rock is of the Miocene to the Holocene epochs alluvial sediment, also known as Ayeyarwaddy Group.

Soil

The area is also in the Luvisols major soil zone of Myanmar (FAO soil classification system). The soil on the whole is typical alluvial soil.

According to the soil data by UNO consultant Geo Technical Engineering Group, May, 2017, the upper layer is mosly lateritic soil while the main deeper layer is alluvial deposit.

The alluvial deposits consists of clay, silty clay, clayey silt, fine sand, coarse sand and clean gravel as well as certain organic matters. The chemical composition includes alumina, iron-oxide, lime, magnesium, carbonate, potash, phosphate, nitrogens and humus.

5.1.4 Water (surface and ground water)

There is no surface water in the area (no rivulets, streams, lakes etc).

Ground water

The locals of the area rely on the ground water. The water table is at a depth of 80-100 feet it is learned. Water for consumption is sourced from this ground water; there are many tube wells in the villages. This ground water sample is collected for analysis at ISO Tech laboratory in Yangon and the result are as in the following table.

Table-4: Ground water quality from survey area

Sr. No	Parameters	Existing values at site	NEQ guideline values/WHO guideline values
1	pH	7.7	6.5 – 8.5
2	Turbidity	2 NTU	5 NTU
3	Conductivity	590 micro S/cm	
4	Chemical Oxygen Demand, COD	32 mg/l	250 mg/l
5	Biochemical Oxygen Demand, BOD (5 days at 20ºC)	4 mg/l	50 mg/l
6	Suspended solids	3 mg/l	500 mg/l
7	Dissolved solids	419 mg/l	1000 mg/l
8	Total hardness ($CaCO_3$)	230 mg/l	500 mg/l
9	Calcium hardness ($CaCO_3$)	154 mg/l	-
10	Total alkalinity	332 mg/l	
11	Sulphate (as SO_4)	40 mg/l	200 mg/l
12	Chloride (as Cl)	8 mg/l	250 mg/l
13	Carbonate ($CaCO_3$)	Nil	-
14	Bicarbonate (HCO_3)	332 mg/l	
15	Phosphate	Nil	
16	Nitrate ($N.NO_3$)	0.3 mg/l	50 mg/l

All the values are generally lower than the National Environmental Quality (NEQ) values prescribed by ECD and the WHO guideline values (See also **ANNEX**).

Note – When the factory is in operation and if any industrial effluent is generated this will be measured and monitored on semi-annual basis and reported. (Actually motorcycle parts' assembling does not generate effluent as no water is used in assembling and installation works).

- In addition the surface river water of Duttawady River will be sample and analysed on a semi-annual basis and will be reported in the semi-annual monitoring report.

5.1.5 Ambient air quality

Sampling Site

One sample site was chosen for the ambient Air Quality Monitoring at project site, Amarapura Township, Mandalay Region.

Sampling period

Air quality sampling was done for 24 hrs on 20th to 21th, June 2017, at sampling site.

Parameters

Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$) and Sulphur dioxide (SO_2) are measured in 24 hours average. Nitrogen dioxide (NO_2), Carbon Monoxide (CO), Volatile Organic Compound (VOCs), Hydrocarbon (HC), and Methane (CH_4) are measured in 1 hour average and Ozone (O_3) is measured in 8 hours average.

Frequency

The report covers the observations for the baseline data obtained in one cross-sectional survey.

Method

Ambient air sampling was conducted at above mentioned site. Sampling period was based on 24-hour measurement level of $PM_{2.5}$ and PM_{10} using EPAS air sampler and other gases are also measured by auto sensors of the EPAS haz-scanner.

Particulate Matter (PM_{10}) concentration

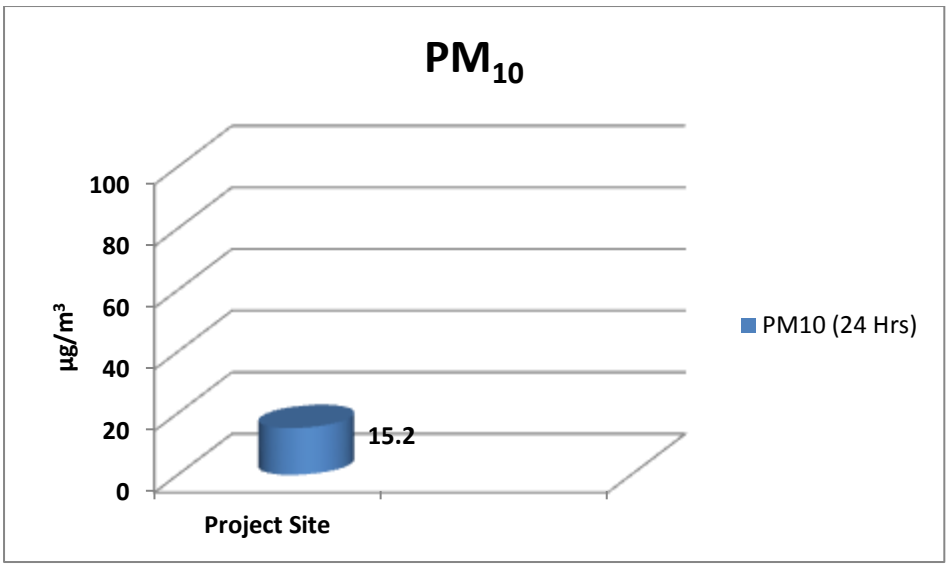


Figure-19: Particulate Matter (PM_{10}) at project site

The result of Particulate Matter (PM_{10}) at project site was 15.2µg/m^3 and this level was lower than NEQ and WHO guideline value (50µg/m^3).

Particulate Matter ($PM_{2.5}$) concentration

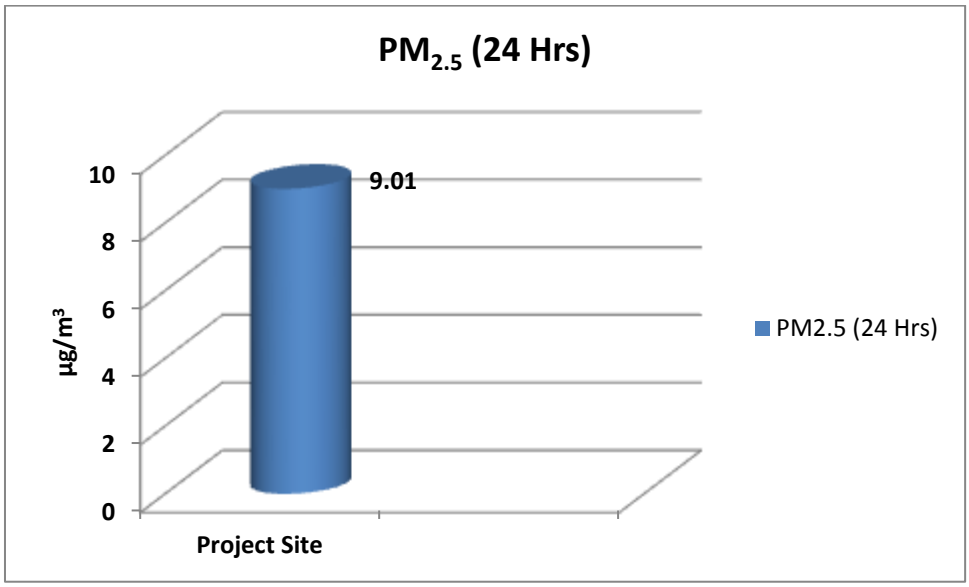


Figure-20: Particulate Matter ($PM_{2.5}$) concentration at project site

The result of Particulate Matter ($PM_{2.5}$) from project site was 9.1µg/m^3. This level of Particulate Matter ($PM_{2.5}$) was lower than NEQ and WHO guideline value (25µg/m^3).

Sulphur Dioxide (SO_2) concentration

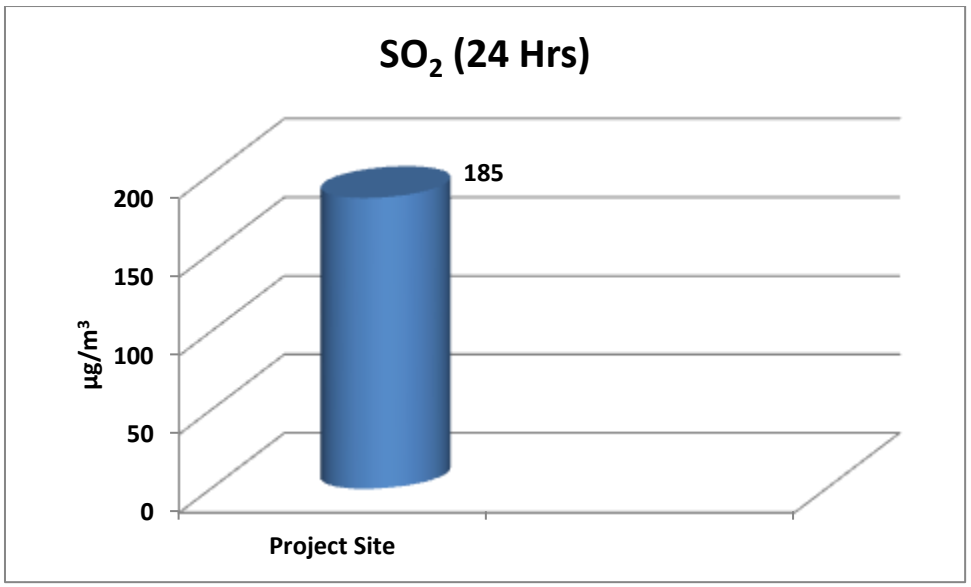


Figure-21: Sulphur Dioxide (SO_2) concentration at project site

Sulphur Dioxide (SO_2) concentration at project site was 185µg/m^3. This result was higher than NEQ and WHO guideline value (20µg/m^3).

Nitrogen Dioxide (NO_2) concentration

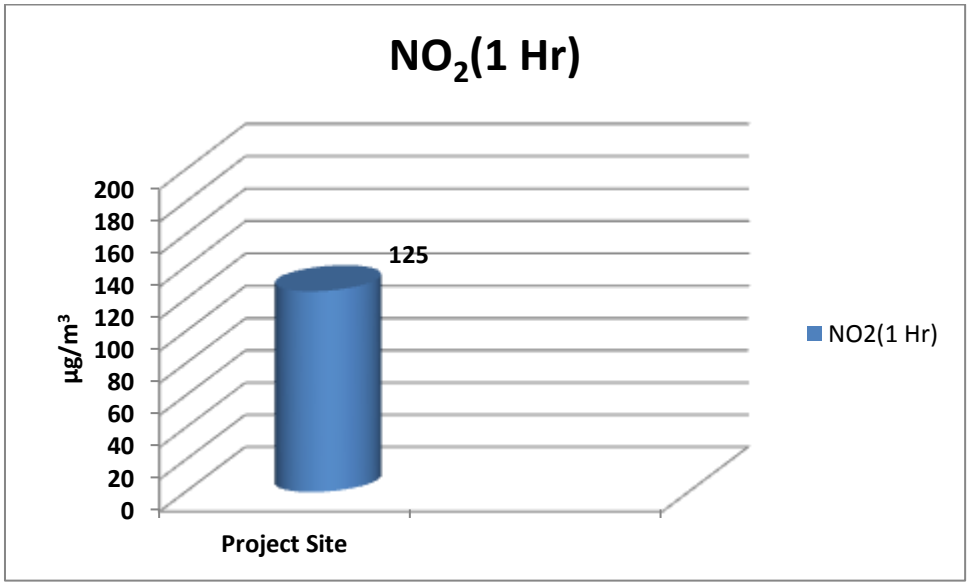


Figure-22: Nitrogen Dioxide (NO_2) concentration for 1 hr mean at project site

The result of Nitrogen Dioxide (NO_2) concentration obtained from project site was 125µg/m^3 for 1 hr mean. This result was lower than NEQ and WHO guideline value (200µg/m^3).

Carbon Monoxide (CO) concentration

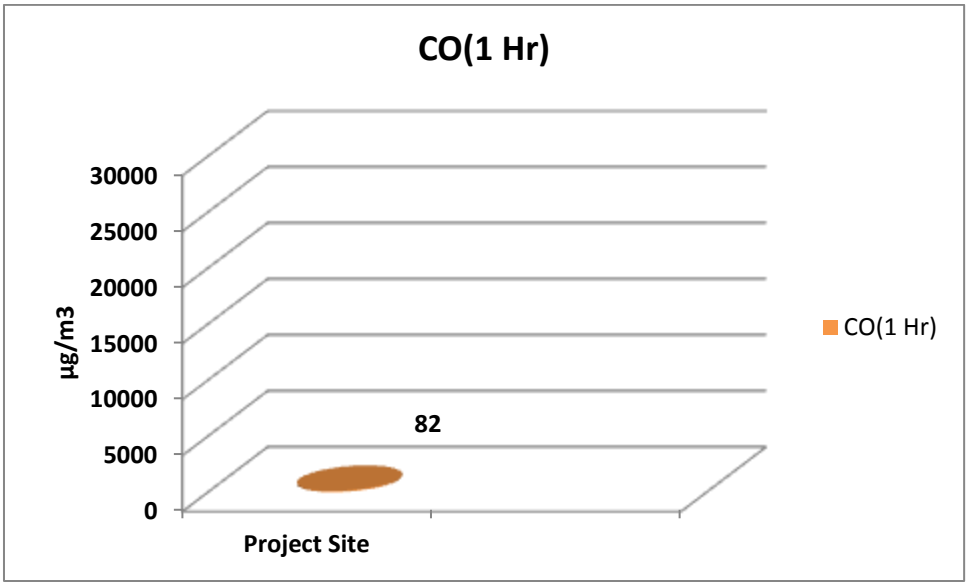


Figure-23: Carbon Monoxide (CO) concentration at project site

The result of Carbon Monoxide (CO) concentration for 1 hr obtained from project site was 82µg/m^3. This result was lower than WHO guideline value (30000µg/m^3).

Ozone (O_3) concentration

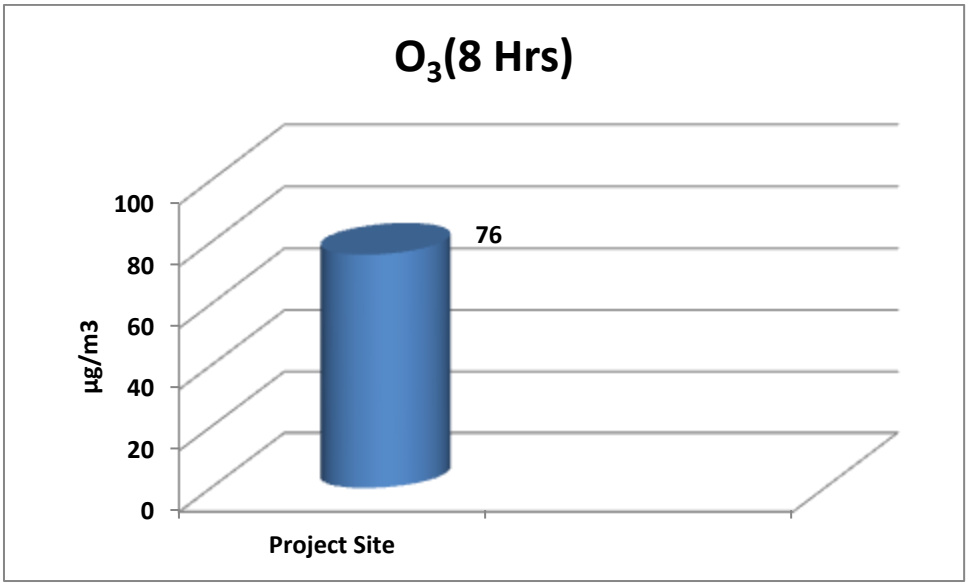


Figure-24: Ozone (O_3) concentration at project site

The result of Ozone (**O_3**) concentrations for 8 hrs obtained from project site was 76µg/m^3. This result was lower than NEQ and WHO guideline value (100µg/m^3).

Total Volatile Organic Compounds (TVOCs)

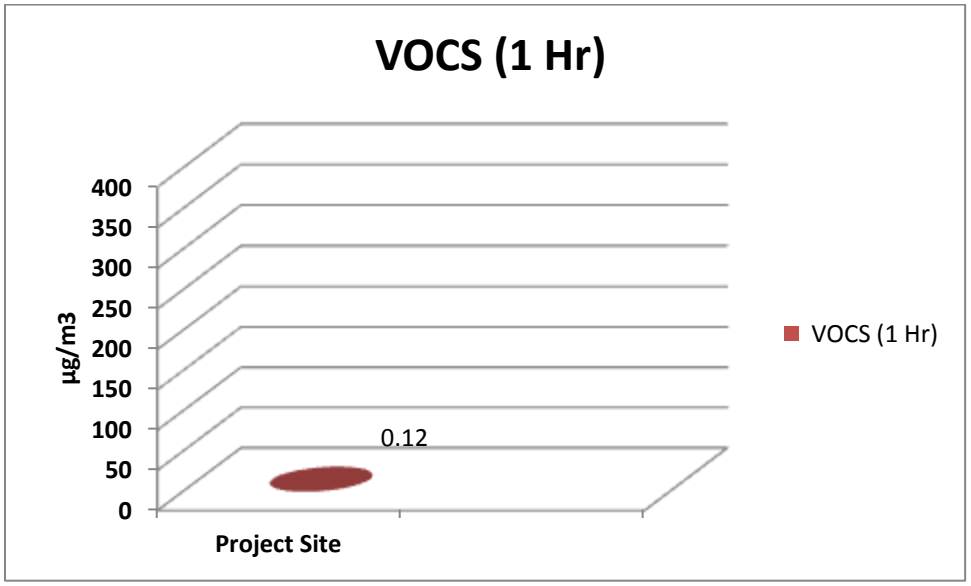


Figure-25: Volatile Organic Compounds (VOCs) concentration at project site

The result of volatile organic compound (VOC) concentration obtained from project site was 0.12µg/m^3. This result was lower than WHO guideline values (400µg/m^3).

Hydro Carbon (HC) concentration

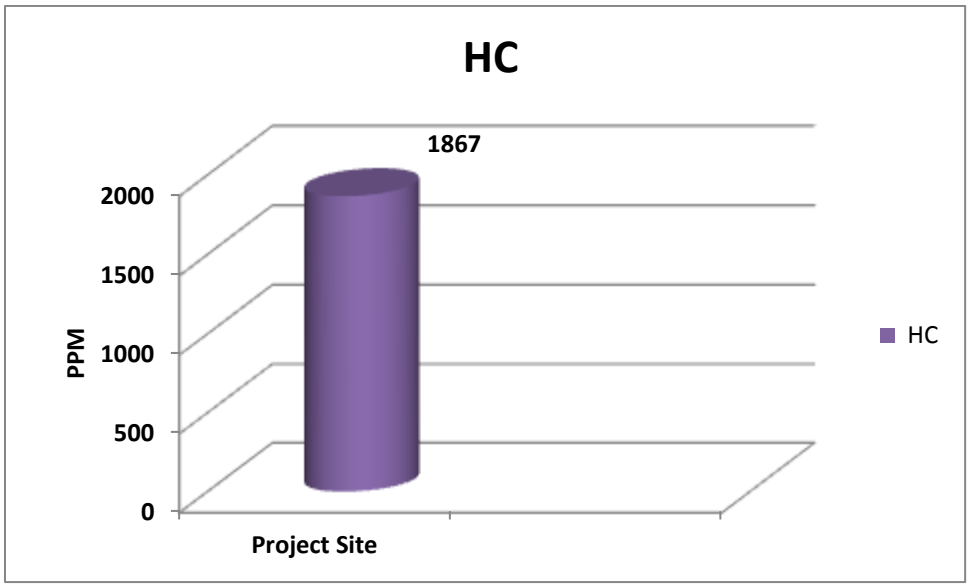


Figure-26: Hydro Carbon (HC) concentration at project site

The result of Hydrocarbon (HC) concentrations obtained from project site was 1867ppm.

Methane (CH_4) concentration

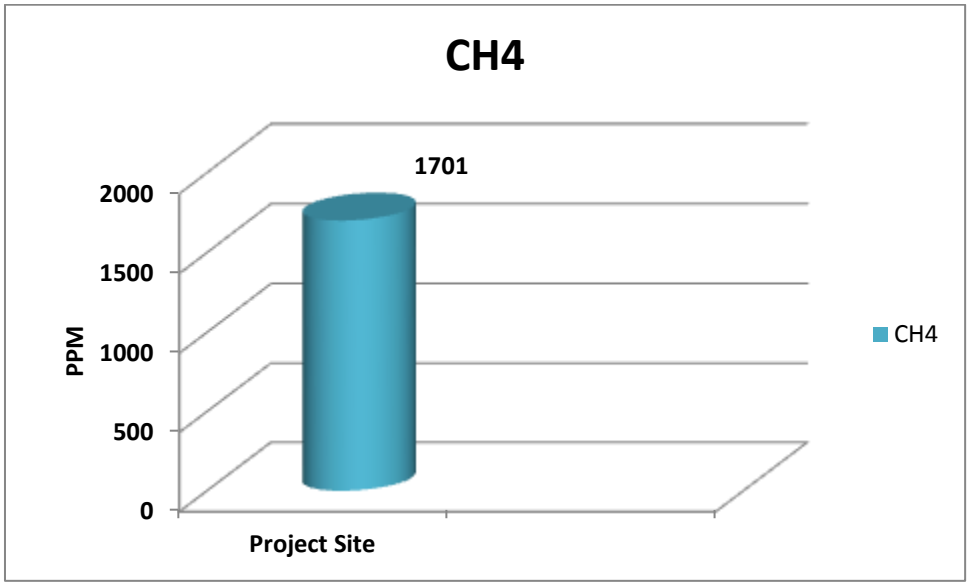


Figure-27: Methane (CH_4) concentration at project site

The result of Methane (CH_4) concentrations obtained from project site was 1701ppm.

Sound Level Parameters

The Equivalent Continuous Sound Level (L_{eq}) and Maximum Sound Pressure Level (L_{max}) are measured at one site of the project area.

Frequency

The report covers the observations for the baseline data obtained in one cross-sectional survey.

Method

The sound level monitoring was performed in accordance with standard procedures adopted by American Conference of Governmental Industrial Hygienist (ACGIH) which is authoritatively and currently used in Myanmar.

Table-5: Quality of Ambient noise by sample sites

Site Name / Time and Date to start	L_{eq} in dBA			L_{max} in dBA		
	Day	Night	Total	Day	Night	Total
Project site (20.6.2017) 18:27 Hrs to (21.6.2017) 18:27 Hrs	60	37	58	42	26	36

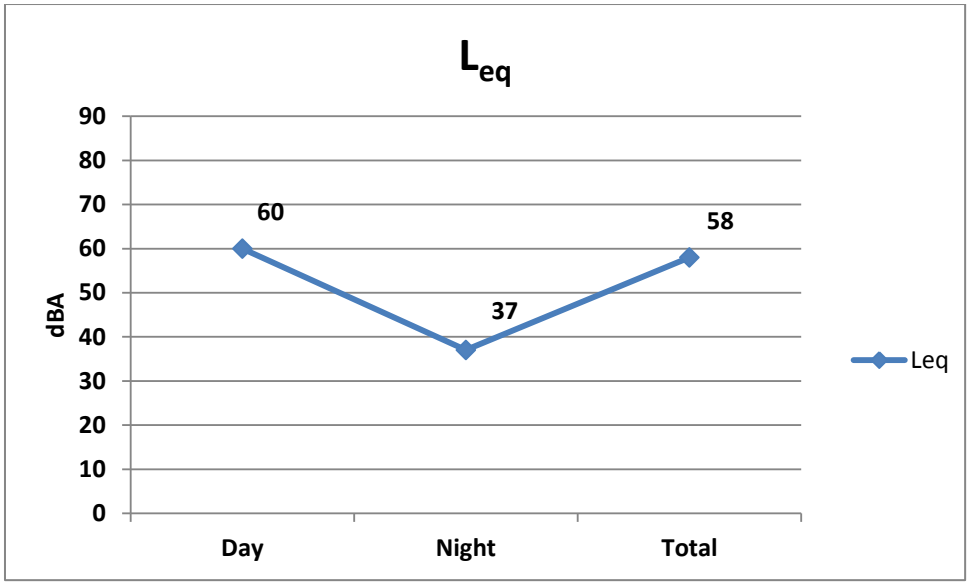


Figure-28: Equivalent continuous sound level (L_{eq}) in day, night and total at project site

Equivalent continuous sound level (L_{eq}), the constant noise level that would result in the same total sound intensity being produced over a given period, in day was 60dBA; night was 37dBA and total was dBA58.

Maximum sound pressure level (L_{max}) in day, night and total

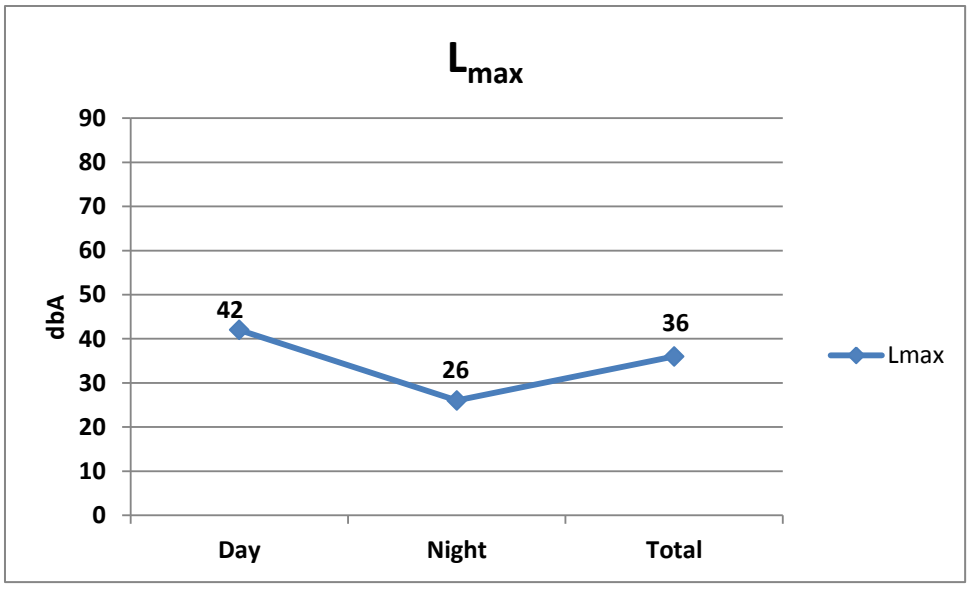


Figure-29: Maximum sound pressure level (L_{max}) in day, night and total at project site

Maximum sound pressure level (L_{max}), square root of mean of the square of the measurement values (RMS) in day was 42dBA; night was 26dBA and total was 36dBA.

Figure-30: Satellite image showing spots where air quality and noise level are measured and water sample are taking

5.2 Biological components of the surrounding environment

There are little biological components to be studied as the whole area is virtually low land plain or low land dry farmlands. Certain typical dry zone trees can be seen in the distance.

Forest

There is no forest in the area and vicinity. With the exception of a few semi-arid trees, shrubs and grass the area is almost totally devoid of trees.

5.2.1 Flora species (artificial or cultivated flora)

A few species of trees, shrubs, herbs and grass found are identified and recorded. The trees in the following list are actually from surrounding area, not inside or close to the project area.

Table-6: List of plant species found

No.	Scientific Name	Common Name	Family Name
1	*Acacia catachu*	Sharr	Mimosaceae
2	*A. leucopholea*	Hta-naung	Mimosaceae
3	*Achyranthes aspera* Lin	Nauk-poe	Amaranthaceae
4	*Azadirachta india* Jus.	Ta-mar	Meliaceae
5	*Borassus flabellifer* Lin.	Htan	Arecaceae
6	*Cassia argustifolia* Lin	Pway-kaing	Caesalpiniaceae
7	*Cynodon dactylum* L. Pen.	Myay-zar	Poaceae
8	*Echinochloa colona* L.	Bei-sar	Poaceae
9	*Eleusine indica* L. Gaevin	Hsin-ngo myet	Poaceae
10	*Eupatorium odoratum* L.	Bee-zart	Asteraceae
11	*Euphorbia hypericiflia* Lin.	Hseik-no	Euphorbiaceae
12	*E. hirta* Lin.	Kwe-hlay	Euphorbiaceae
13	*Leucaena leucocephala* Dewit	Baw-za-kaing	Mimosaceae
14	*Mimosa pudica* L.	Hti-ka-yone	Mimosaceae
15	*Prosopia juliflora*	Hti-ka-yone-nwe	Mimosaceae
16	*Tectona hamitoniana*	Da-hart	Verbenaceae
17	*Ziziphus indica*	Taw-zee	Rhamnaceae

None of the species are in the IUCN Red list (2016). As the area is devoid of forest there will be no impact on the flora due to operation of the motorcycle factory.

5.2.2 Fauna

5.2.2.1 Avian fauna (birds)

The data are primary data collected during the survey trip. The birds found are actually from surrounding area. One endemic bird species, White-throated Babbler was found. That species is very common in Mandalay Region. However doves are quite common in this area.

Table-7: List of bird species found

Sr. No	Common New Name	Scientific name
	ARDEIDAE: ARIDEINAE: Herons & egrets	
1	Indian Pond-Heron	*Ardeola grayii*
2	Great Egret	*Ardea alba*
3	Little Egret	*Egretta garzetta*
	PHALACROCORACIDAE: Cormorants	
4	Little Cormorant	*Phalacrorax niger*
	FALCONIDAE: FALCONINAE: Falcons	
5	Common Kestrel	*Falco tinnunculus*
	FALCONIDAE: ACCIPITRINAE: Hawks, eagles & allies	
6	Black Kite	*Milvus migrans*
	COLUMBIDAE: COLUMBINAE: Typical pigeons & doves	
7	Rock Pigeon	*Columba livia*
8	Spotted Dove	*Streptopelia chinensis*
	PSITTACIDAE: PSITTACINAE: Parrots & parakeets	
9	Rose-ringed Parakeet	*Psittacula krameri*
	APODIAE: APODINAE: Typical swifts	
10	Germain's Swiftlet	*Aerodramus germani*
11	Asian Palm-Swift	*Cypsiurus balas*
	CORACIIDAE: Rollers	
12	Indian Roller	*Coracias benghalensis*
	ALCEDINIDAE: HELCYONINAE: Larger kingfishers	
13	White-throated Kingfisher	*Halcyon smyrnensis*
	ALCEDINIDAE: ALCEDININAE: Smaller kingfisher	
14	Common Kingfisher	*Alcedo atthis*
	MEROPIDAE: Bee-eaters	
15	Little Green Bee-eater	*Merops orientalis*
	ARTAMIDAE: Woodswallows	
16	Ashy Woodswallow	*Artamus fuscus*
	AEGITHINIDAE: Ioras	
17	Common Iora	*Aegithina tiphia*
	DICRURIDAE: Drongos	
18	Black Drongo	*Dicrurus macrocercus*
	CORVIDAE: Crows	
19	House Crow	*Corvus splendens*
20	Eastern Jungle Crow	*Corvus levaillantii*
	LANIDAE: Shrikes	
21	Brown Shrike	*Lanius cristatus*
	PLOCEIDAE: Weavers & allies	
22	Baya Weaver	*Ploceus philippinus*
	ESTRILDIDAE: LONCHURINAE: Java Sparrow, munias,	
23	White-rumped Munia	*Lonchura striata*
24	Scaly-breasted Munia	*Lonchura punctulata*
	PASSERIDAE: Sparrows & allies	
25	House Sparrow	*Passer domesticus*

26	Plain-backed Sparrow	*Passer flaveolus*
27	Eurasian Tree-Sparrow	*Passer montanus*
	MOTACILLIDAE: Wagtails & pipits	
28	Paddyfied Pipit	*Anthus rufulus*
29	White Wagtail	*Motacilla alba*
	STURNIDAE: STURNINAE: Mynas, starlings & allies	
30	Jungle Myna	*Acridotheres fuscus*
31	Common Myna	*Acridotheres tristis*
32	Vinous-breasted Myna	*Acridotheres burmannicus*
	MUSCICAPIDAE: SAXICOLINAE: Shortwings, robins, redstarts,	
33	Eastern Stonechat	*Saxicola maurus*
34	Pied Bushchat	*Saxicola caprata*
	MUSCICAPIDAE: MUSCICAPINAE: Old World flycatchers & allies	
35	Taiga Flycatcher	*Ficedula albicilla*
36	Oriental Magpie-Robin	*Copsychus saularis*
	PYCNONOTIDAE: Bulbuls	
37	Streak-eared Bulbul	*Pycnonotus blanfordi*
38	Red-whiskered Bulbul	*Pycnonotus jocosus*
39	Red-vented Bulbul	*Pycnonotus cafer*
	HIRUNDINIDAE: HIRUNDININAE: Martins, swallows & allies	
40	Sand-Martin	*Riparia sp*
41	Barn Swallow	*Hirundo rustica*
	PHYLLOSCOPIDAE: *Seicercus & Phylloscopus* warblers	
42	Greenish Warbler	*Phylloscopus trochiloides*
42	Yellow-browed Warbler	*Phylloscopus inornatus*
43	Dusky Warbler	*Phylloscopus fuscatus*
	TIMALIIDAE: Babblers	
44	Yellow-eyed Babbler	*Chrysomma sinense*
45	White-throated Babbler	*Turdoides gularis*
	ACROCEPHALIDAE: *Acrocephalus* warblers & allies	
46	Oriental Reed-Warbler	*Acrocrphalus orientalis*

None of these bird species are in the IUCN Red list (2016). The spotted dove, *streptopelia chinensis* is quite common and is valued for its meat. Some villagers hunt or trap this dove species. As the dove feeds mainly on crops such as rice it can survive well in this environment.

Taung-tha-man Lake which acts as temporary sanctuary for certain water birds is about 2 miles away in the north. There can be no impact on this lake due to the operation of the factory.

5.2.2.2 Mammals

There are no wild mammals to be impacted by the project. Only one or two species of rats, *Rattus rattus* and *Rattus norvigecus* can live in this area as there is plenty of found for them: rice and pulses from the fields and farms. These hardy and ubiquitous small mammals can survive in almost under every situation.

5.2.2.3 Herpetofauna

In this semi-arid ecosystem herpetofauna are almost non-existent. Only 6 species of amphabians and reptiles are found.

Table-8: List of herpetofauna found and recorded

No.	Family Name	Scientific Name	Common Name
1	Bufonidae	*Duttaphyrnus melanostictus*	Common Toad
2	Dicroglossidae	*Fejervarya limnocharis*	Paddy Frog
3	Agamidae	*Calotes veriscolor*	Garden Fence Lizard
4		*Calotes mystaceus*	Blue Forest Lizard
5	Gekkonidae	*Hemidactylus brookii*	Brook's House Gecko
6	Colubridae	*Xenochrophis piscator*	Chequered Keelback Water Snake

There can be no impact on the herpetofauna of the area due to the operation of the factory.

5.2.2.4 Aquatic organisms

The Dote-hta-waddy River is half mile in the south. Although there is no major fishery in this region some local people eke out a living as fisherman. Fish on whole are quite rare nowadays.

The follow is the list of fish found in Dote-hta-waddy River (secondary data gathered from local fisherman).

No.	Scientific Name	Local Name	Family Name
1	*Amblyharynagodon mola*	Nga-bei-phyu	Cyprinidiae
2	*Anabas testudineus*	Nga-byay-ma	Anabantidiae
3	*Anguilla bicolor*	Nga-lin-ban	Anguilidiae
4	*Channa gaucha*	Nga-yant-gaung-toe	Channidiae
5	*C. striata*	Nga-yant	Channidiae
6	*Cirrhina morigala*	Nga-gyin	Cyprinidiae
7	*Clarius batrachus*	Nga-ku	Claridiae
8	*Crossochilus latia*	Nga-loo	Cyprinidiae
9	*Heteropneustus fossilis*	Nga-gyee	Heterapneutidiae
10	*Labeo rohita*	Nga-myit-chinn	Cyprinidiae
11	*L. nandina*	Nga-net-pyar	Cyprinidiae
12	*Lapidocephalichirys guntea*	Nga-tha-lei-doe	Cobitidiae
13	*Macrognathus* sp.	Mway-na-gar	Mastacembalidiae
14	*Mastacembelus armatus*	Nga-mway-doe	Mastacembalidiae
15	*Mystus cavasius*	Nga-zin-yaing	Bagridiae
16	*Notopterus notopterus*	Nga-pei	Notopteridiae
17	*Ompok rato*	Nga-nu-thann	Siluridiae
18	*Oreochromis mozambica*	Tee-larr-pi-yar	Cichlidiae
19	*Punticus stigma*	Nga-kone-ma	Cyprinidiae
20	*P. chola*	Nga-kone-ma	Cyprinidiae
21	*Silona childreni*	Nga-myinn	Siluridiae
22	*Wallago attu*	Nga-bat	Siluridiae

All are typical of freshwater river fish. None are in the IUCN Red list (2016).

Since the river is half mile away there can be no impact on this river due to the operation of the factory. The domestic waste water generated from the dormitory, kitchen, toilet and bath rooms will end up in the septic tank after general treatment.

5.3 Socio-economic components of the surrounding environment

Kanbai village is the nearest village to the proposed site and is about half mile away in the south east. This village is incorporated into the study area of 16sq.miles. Another village, Yey-kyi-pauk, is about 1 mile away in the south. Both villages are big ones, each with the status of village tract. Both are in the Amarapura Township. Kanbai is closer to the Sagaing-Myitnge Road which runs in a generally west to east direction. The village has easy access to Sagain, Amarapura, Mandalay and Yangon.

Existing and planned use of the territory

As mentioned earlier the area is low land flat terrain of dry farms or kaing. In the adjacent north are various small plots of farmlands owned by various villagers. None of the plots are bigger than 5 acres.

The past and existing land use pattern remains the same since a century or so ago. It is learned that there is no plan for agricultural or industrial or urban development for the area at the local, regional and national level. The emergence of the factory will change the land use pattern to a certain extent.

Since hundreds of locals will be employed at the factory the socio-economic structure of the area can be altered to a certain extents too.

Basic demography

Population **:** Kanbai village tract has a pollution of 827 (383 females, 444 males). There are 190 houses and 206 households.

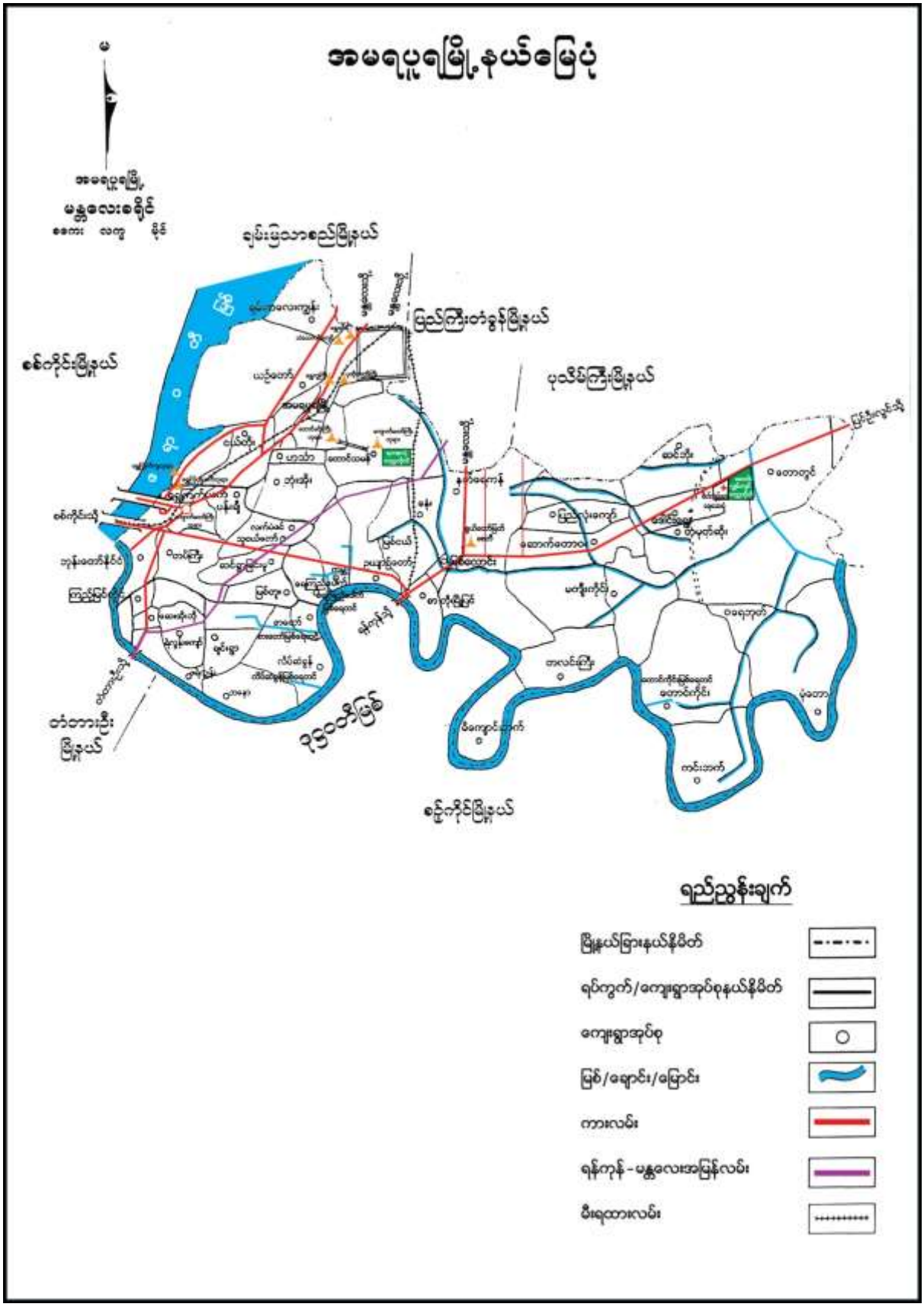


Figure-31: Map of Amarapura Township

Figure-32: Map of Kanbai village

Figure-33: Kanbai Village Administrator Office

Religion **:** 100% Buddhist

Health status

Relatively low (typical of a rural village). The village clinic has not materialized yet; Aung Kan Bo Company has donated, so far, Ks 10,000,000 for the establishment of the village clinic. 100% of the households has toilets or pit latrines. At the moment sick or injured villagers are admitted to Amarapura Hospital or Mandalay Hospital.

(c) ဒေသတွင်းအများဆုံးဖြစ်တတ်သောရောဂါများ

စဉ်	မြို့နယ်/မြို့	ရောဂါအမျိုးအစား									
		ငှက်ဖျား		ဝမ်းလျှောဝမ်းလျှော		တီဘီ		ဝမ်းကိုက်		အသည်းရောင်	
		ဖြစ်	သေ	ဖြစ်	သေ	ဖြစ်	သေ	ဖြစ်	သေ	ဖြစ်	သေ
၁	အမရပူရမြို့ငယ်	၃	-	၁၄၅၀	-	၁၉၃	၁	၃၄၂	-	၆	-
၂	ဖြစ်ငယ်မြို့	-	-	၃၇	-	၆	-	၂၇	-	-	-
မြို့နယ်ချုပ်		၃	-	၁၄၈၇	-	၁၉၉	-	၃၆၉	-	၆	-

Local economy

The land is wide flat low land with mainly alluvial soil which is relatively fertile. Rice, seasame and pulses are cultivated; 30% of the locals are farmers; 30% are involved in weaving, a small cottage industry of the area; about 30% work in private or state own factories eg- one textile factory, one A1 biscuit/confectionary factory and various mechanical weaving looms. Many also have their own manual or mechanical looms mainly weaving male and female longyis. 10 villagers are teachers while 6 are soldiers and policemen; a few are fishermen.

The nearby larger village, Yey-kyi-pauk with much bigger population of 2407 has a large cottage industry, weaving. 80% of the villagers are involved in weaving with hundreds of looms (both mechanical and manual); only 20% of the villagers are farmers.

Figure-34: Rice farming

Figure-35: Mechanical loom

Public infrastructure and access to public services, communication

The village has easy access to Sagaing, Myitnge, Mandalay, and Yangon etc. There are buses plying between Sagaing and Myitnge and between Mandalay and Yangon and also to many parts of the country. Yangon-Mandalay Railway line is about 1½ miles in the east and so the villagers can also travel by train.

Figure-36: Sagaing-Myitnge road (project site is on the left)

Electricity

The village has access to electricity.

Water source

The water for the village is sourced from ground water at a depth of 80-100 feet (there is no surface water: stream, lake etc to be sourced). As the area is in the semi-arid Dry Zone Region water can be an issue during the dry months-March-early June.

Other public facilities

There is no post office and no clinic. The nearest township hospital is in Amarapura Town, about 4 miles away in the north. Villagers can go to the larger General Hospital in Mandalay City for any private hospitals there.

Educational facilities

There is one Primary School with 93 school children and 5 teachers.

Figure-37: Primary School of Kanbai village

Religious facilities

There are two Buddhist monasteries with a total of 14 monks.

Figure-38: Kanbai Ywar Oo monastery

5.4 Cultural components of the surrounding environment

100% of the population is Bamar Buddhists. Two famous pagodas, Shwe Kyet Yet Pagoda and Jade Pagoda are about 3 miles and 4 miles, respectively in the north-west. The villagers used to go to the annual pagodas festivals.

However many still practice the old tradition of worshipping or rather propitiating the nat spirits, while the main faith is Buddhism. This old traition and belief had been existing in the region even before the arrival of Buddhism in the region about 1000 years ago during the reign of the great King Anaw-ra-hta.

There is no known annual or seasonal festival for nat spirits in this area (the largest annual nats festival in Myanmar is celebrated at Mount Popa which is about 60 miles in the south west. People from the whole country used to go to that festival).

No significant negative impact on the village or on the socio-economic life of the locals are anticipated due to the operation of the factory.

Figure-39: Jade Pagoda

5.5 Visual components of the surrounding environment

As the area is a wide flat low land with no hill or mountain there is no outstanding lankmark. There is also no scenic spot of tourist attraction. The two pagodas mentioned earlier cannot be seen from the proposed site. Actually there is no visual component to be impacted by the project.

6. IDENTIFICATION AND ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACTS

In the real world one can never expect a developmental project to be devoid of impacts. Impacts can be either negative or positive (eg. socio-economic aspects). Impacts can be real impact or potential impacts. As regards socio-economic impact it can be two-ways: the project can impact the community; on the the other hand the community can impact the project (eg. outcry, protest). Certain impacts can be cumulative in nature; eg. the result of successive impacts happening for a long time or the combination of two or more impacts at the same time.

As an environment consists of five main components, the impacts can be physical (materialistic) or mental (spinitualistic) in nature. Based on the 5 main components the impacts can be:

- Impacts on the physical components of the ecosystem (physical)
- Impacts on the physical components (abiotic component) of the ecosystem (physical).
- Impacts on the biological components (biotic component) of the ecosystem (physical).
- Impacts on the socio-economic components of the ecosystem (physical and mental).
- Impacts on the cultural components of the ecosystem (physical and mental).
- Impacts on the visual components of the ecosystem (physical).

While negative impacts must be mitigated or minimized positive impacts should be optimized or maximized as pratical as possible.

In this chapter negatives impacts/potential negative impacts, both significant and insignificant are predicted, anticipated, identified and assessed.

At the end of the Construction and Operation Phase these negatives impacts are assessed and categorized on the basis of nature, extent, duration, intensity, level, significance, frequency and probability (in tabulated form).

6.1 Potential negative impact during the Pre-construction Phase (Planning Phase)

6.1.1 Polarization of the locals into pro-project and anti-project groups due to instigation by activists and radical environmentalists

Activists and radical environmentalists have usually anti-big business, anti-corporate and anti-development mind sets. They can instigate or agitate the local people thus polarizing the locals into anti-project and pro-project groups. This can lead to public outcry and political instability of the region.

6.1.2 The hiking of the price of land and property

Even rumours of the project can lead to the hiking of land and property. But this phenomenon is quite common in Myanmar.

6.2 Negative/ potential negative impacts during the Construction Phase

6.2.1 Impact: mobilization action and preparation action

Mobilization action, preparation action and transportation action in early phase and later phase of construction can cause nuisance to the public or road users.

The rapid mobilization of large volume of building materials, timber, bricks, cement, sand, gravel, iron materials, etc. can overspill inside or outside the site and on the road side. These can cause nuisance and also hinder the smooth and easy movement of people in the area and also vehicles and motorcycles.

6.2.2 Impact: interference with other private or public utilities

The construction activities may interfere or even damage public as well as private utilities such as electric cable line and poles, telephone line and poles, water pipe system etc, or drainage system. There can be certain temporary impacts on public amenities eg- electric cable lines and posts, telephone line and poles, drainage system and other communication system due to temporary removal of these public amenities during the preparation works for construction. These will have to be restored later.

The temporary dislocation of civic amenities like water supply, drainage, sewage, electricity, telephone connection can cause inconvenience, nuisance or disturbance to the public. Or there can be an increase demand for limited local infrastructure such as road, water supply system and electricity etc.

6.2.3 Impact: common accident in work places

Accidents can occur from time to time during construction work either to construction workers or neighbours if they are close to construction site. This can also happen to passers-by near the construction site.

The slipshodness of the construction workers and the falling of bits and pieces of construction materials or tools from above can cause minor or major injury to other workers or passers-by.

Certain accidents can be fatal.

The 10 most common construction site accidents worldwide are:

- fall from heights (scalfolding); slip and fall; electrocution; falling debris, materials and objects; getting caught-in between objects and materials; fire and explosion; over exertion; machinery accidents; getting hit by a vehicle; and trench (for wiring and pipes) collapses.

6.2.4 Impact: emergency and health (hospital) service

The lack of emergency and health service can be a constraint regarding provision of health care for workers in potential emergency. However if an accident that effect many people occurs the available health service at the Mandalay Regional Hospital should be adequate. The hospital has the status of a great Regional Hospital and can cope with unfortunate major accident.

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. (Earthquake is not taken in consideration. It is a case of the fall of sky, as a Burmese saying goes which means all have to suffer if the sky falls, so why bother?)

6.2.5 Impact on air quality

(i) Nature of impact: dust

Dust is one of the main issues during the Construction Phase. Wind speed and direction plays an important role in the impact. The clearing of land and earth work such as digging, excavation and refilling of earth greatly generate dust. The loading and unloading of building materials such as sand, cement bags, gravel, lime powder and the stockpiling of these materials also generate dust.

Vehicular movements, the operation of certain equipment and machinery such as engines and pumps as well as the batching of cement (the mixing of cement with sand, gravel, lime powder and water) also emit a lot of dust.

Nuisance and health impacts are associated with increased level of dust.

Construction works are always associated with dust but temporary.

(ii) Nature of impact: smoke and fugitive emission

Smoke generated during the Construction Phase is low. The sources of emissions are from vehicles and some machines used during construction work such as engines and pumps.

Smoke can have impact on health if the level is high. The emission of Green House Gases (GHG) can eventually leads to global climate change.

6.2.6 Impact: noise and vibration

Noise is generated from construction work in many ways. Cement mixing machine doing cement batching produces loud noise; engines and pumps also generate noises. Carpentry works that involve noisy saws and planes, drilling machine and hammer also generate relatively loud noises.

Movements of vehicles, loading and unloading of materials etc. also produce noise. Concrete roads also generate more noise than tarred roads.

The National Environmental Quality guideline value for noise level, as prescribed by ECD, is 55 dBA during daytime, 45 dBA during night time. The internationally accepted noise level in the work place must not exceed 85 dBA.

Prolonged exposure to the noise level above 85 dBA can impair hearing and in servere case can become permanent impaired hearing (deaf). High noise level is, therefore, a major health impact. Noise generally causes nuisance and disturbance to the community.

Vibration is generated from machinery or mechanical operation during construction work and also from heavy trucks on road. Vibration is usually associated with loud noise; it can damage machines and equipments and also, to some extent, damage buildings or structures.

Construction works are always associated with noise and vibration but temporary.

6.2.7 Potential impact on soil

During the Construction Phase there can be potential and real impact on soil due to ground clearing, excavation work, digging and moving of large quantity of earth. There can be potential destruction of soil profile by mixing of top soil and sub-soil.

Erosion and siltation can be quite a serious issue during rainy season, if not well-managed. These can have impact on the drainage system and can also cause ground water contamination. There can be movement of sediment and pollutants into water courses.

Fuel oil or chemical spills can contaminate the soil and eventually ground water if not well-managed.

There can be also domestic sewage which can percolate into ground water, especially from temporary latrines for construction workers.

6.2.8 Potential impact on water

As public water system is not available the factory will rely on the ground water, it is learnt. The demand for water during the Construction Phase is quite high. Relatively large quantity of water has to be used in mason work or concrete work such as the batching of cement and other works. The daily suppression of dust by water spray also needs quite a lot of water. The domestic consumption by the workers especially for sanitation purpose can also have certain impact on the water.

The sudden extraction of large quantity of water from the tube-well can lower the water level of underground water and can temporanity impact the avaitability of water resources for neighbouring tube-wells, if any.

There is no water course or water body nearby and so there will be no impact on surface water.

6.2.9 Impact of waste (solid and liquid)

Waste water may not be an issue during the Construction Phase as virtually all the water used is for construction purpose only.

Solid waste generated during the Construction Phase will be large quantity of debris in the form of bits and pieces of building materials; iron materials, timber, soft wood, bamboo used as scaffolds, left over brick, sand, gravel and so on.

Many of the leftover materials are unused or surplus materials because even well-experienced planning and design engineers may not be able to estimate the exact quantity of building materials to be used. There will always be unused or surplus timber, irons bars, cememt, brick etc, not to mention nails and other small iron items. Unless systematically resold, reused, recycled and systematically disposed off these materials can pose a great impact on the area. There can be other litters inside the factory compound as a result of construction work.

6.2.10 Potential impact on biodiversity

There will be little or no impact on natural biodiversity as the area is vacant plots and in the adjacent are farm lands. However there can be a very few trees or bush in the area. The impact is negligible.

However there are a number of big trees which are artificial vegetation, that is, fruit trees or shade trees. A few trees can be roosting places for common birds such as crows, sparrows and myna or habitat for insects.

The impact will be negligible.

6.2.11 Potential social impact, ill social behavoiur

This impact can be a two-way impact. The project which attracts a large number of construction workers can have an impact on the workers. On the other hand, these workers can have an impact on the project.

During the Construction Phase there is the potential of the occurrence of undesirable social issues such as quarrels, disputes, brawls among the workers themselves or with the locals youths; theft, misappropriation of materials and money, vandalism, unethical sexual practices or sexual offensive and so on. All these have potential to hinder the progress of construction works.

6.2.12 Potential security issue

The Construction Phase is the period when it is usually difficult to maintain security. The working atmosphere is rather fluid and dynamic in nature. The in (entering the jobs) and out (quitting the jobs) of workers tend to happen almost all the time. This is the period when cases of thefts, misappropriations and vandalisms happen most.

Unlike the permanent employees during the Operation Phase who are well-disciplined, the temporary workers during the Construction Phase are usually quite difficult to discipline. The building contractor usually has no chance to hand pick them but to select them in haste due to the nature of construction work.

There is always the potential security issue for the proposed project. If left unchecked the construction workers can pose a potential for security issue.

Some of the local and neighbours may also pose a security issue.

6.2.13 Positive (beneficial) impacts during the Construction Phase

The positive or beneficial impacts during the Construction Phase are in socio-economic aspects. The economic benefits to the region are expected to be substantial.

The proposed project will invigorate and boost the local economy and will bring economic benefits to people who are involve in extraction/production and sale of building materials of all sorts, both raw materials and manufactured goods.

Contractors of raw materials such as sand, gravel and bricks get the chance for doing lucrative and brisk business in providing these raw materials for sales. The extraction or production of these raw materials will also provide jobs for many locals.

Timber merchants and merchants of soft wood and bamboo (for scaffolding) as well as merchants of certain construction material locally available can promote their sales. At the same time more jobs for the locals can be provide by these merchants; small business men and small sub-contractors will be also benefited by the production, extraction and sale of these building merchandize.

The proposed project will provide jobs for about 100 construction workers for two years. This is quite a substantial contribution to provision of jobs for young people and unemployed people, partially solving unemployment problem when unemployment is high in the country. Many unskilled workers will have the chance to become skilled workers during the period of two years.

Benefit will accrue to the country as a result of the project, that is, a direct investment inflow of US$ 21,000,000. Follow up benefit such as income tax and other forms of taxes will go into the national coffers.

Aung Kan Bo Motorcycle Industrial Co., Ltd should bear in mind that while negative impacts should be mitigated or minimized positive impacts should be promoted or enhanced.

6.3 Negative/potential negative impacts during the Operation Phase

6.3.1 Visual impact; light at night

After Construction Phase the two factories and complex will stand up prominently in the area. Strictly speaking from an environmentalist's point of view the large complex building is not in harmony with its surrounding and therefore, has certain visual impact on the original scenery of the area.

If the colour of the building is too bright it can have offensive effect on the viewer. A colour that is soothing to the eyes should be selected.

As noise is considered a pollution bright light at night is also considered a pollution that is, sight pollution. Children living in highly illuminated cities no longer have the chance to enjoy looking at the twinkling stars high up in the sky at night. Some environmentalists view this as an infringement on the basic human right of the children.

Conditions are usually dim at night in this area prior to the establishment of factory and complex. So the neighbours and local community can have the so-called lighting offensive at night. The bright light on the facade of the factory compound can have potential to increase the visual impact at night. Very bright white light at night has the potential to attract hundreds of insects from the vicinity and kill them.

6.3.2 Potential traffic issue

As the 4-storeyed dormitory will provide accommodation for the staffs the company has no plan for ferrying its employees. Therefore the impact on traffic will be negligible.

However, as the factory complex is facing the Sagaing-Myitnge Road there can have certain traffic issues. The Sagaing-Myitnge Road is a busy road with relatively high traffic. The road users are mostly mortorcyclists and cyclists but also many motorists. There can be issue when vehicles, motor bikes or bikes are leaving or entering Sagaing-Myitnge Road at the intersection of factory entrance and Sagaing-Myitnge Road.

6.3.3 Impact on air quality: dust, smoke, gases emission

The generation of dust, smoke and the emission of gases have been already addressed in the Construction Phase.

Dust, smoke and fugitive emission will also occur during the Operation Phase, but to a much lesser extent.

Dust can be generated outside the factory due to vehicular movements; smoke can be generated due to operation of vehicles, machinery and equipment such as engines and pumps.

In this Operation Phase the factory authority should be more concerned with the air quality inside the factory. It is the quality of air inside the building, if polluted, can have potential effect on the health and performances of the employees. Good indoor air quality is essential for asthma and allergic preventions and also prevention of head aches and nausea.

The potential emission from welding and spray painting include Hazardous Air Pollution (HAP) or Toxic Air Pollution (TAP) e.g. hydrogen chloride, benzene, toluene, dioxin, mercury, cadmium, chromium, CO_2, NO, NO_2, CO, O_3 etc.

HAP/TAP can cause eye, throat, nose irritation, dizziness nausea, even cancer and birth defect.

The impact on workers can be minor because these activities are undertaken mechanically e.g. deployment of robotic welding machines and spray painting machine. (Automation system applied in the work place minimizes impact).

Potential air emission in the factory compound (that is outside the factories) will be mainly from vehicules, generator and pump etc. CO, NO_2, SO_x, oxides, hydrocarbon and Particulate Matter (PM_1, 2.5, 10, 25) are products of combusition from vehicles and generators, pumps etc.

As regards air quality inside the factory this will be addressed in "Occupational Health and Safety" and "Accidents at workplace" later.

The factory whose works will mainly involve assembling, painting, welding is more like a "smoke less" factory will have almost zero air pollution impact on the surrounding environment. The minor impact will be within the factory's foot print.

6.3.4 Noise and vibration

Noise inside the factory compound (that is outside the two factories) will be mainly from the vehicular movement and also from machines, generator and pumps. During power outage generator has to be operated, generating loud noise.

Noise inside the two factory buildings will be generated from the assembling zone, welding zone, painting zone etc but on the whole the noise level will be low.

Vibration is generated from the above-mentioned vehicular movement and operation of machinery, generator, pump etc and vibration, if high, can damage certain machinery but not the building and structure.

The potential impact of noise on the employees will be described latter in "Occupational Safety and Health" and Accidents at work place" later.

Low noise level generated from the factory will have little or no impact on the surrounding environment.

6.3.5 Impact of factory on gridline power supply and vice versa (potential impact of energy consumption)

During the Operation Phase the big factory consumes large amount of electric energy. The operation of a big factory can have an impact on the main girdline electricity to a certain extent.

On the other hand the power outage due to defect in electricity or natural disaster or load-shedding can have a negative impact on the factory, especially if the duration of power outage is long, substantaial quantity of diesel fuel will have to be used for the backup generator. This will have a negative economic impact on the factory business. Power load-shedding is commonly practiced by electricity authority whenever there is case of power over load somewhere else. This is probably the easiest and pragmatic way of regulating power supply. Most power outages happening in Myanmar are not due to natural disasters, but due to load-shedding by the electricity authority.

The lack of adequate power supply is still a bottleneck for the development of the nation, especially the infrastructural and industrial developments.

Aung Kan Bo Motorcycle Industrial Co., Ltd should adhere to its work frame, 600,000 units/year. Energy should be conserved.

6.3.6 Impact on water

Impact can be on the quality (contamination, pollution) and on the quantity (reduction, lowering of water table) of water resource.

The potential spillage of fuel oil and chemicals can contaminate the soil and if not managed properly will percolate and contaminate the ground water.

Motorcycle parts assembling and installation need little or no water.

The company needs little water for industrial uses but the domestic uses by about 700 employees will be substantial. Excessive use of ground water can reduce the water volume in the aquifer and lowering of the water table level.

Water should be conserved and the company should adhere to its work frame, 6,648,475 gallons/year.

6.3.7 Impact: waste (solid wastes and liquid wastes)

(a) Industrial wastes

Industrial solid wastes

Unlike during the Construction Phase where large quantity of debris, construction tailings and refuse are generated the debris waste generated during the Operation Phase will be negligible. Motorcycle parts assembling and installation generates virtually no industrial solid waste.

(A parts and components are simply imported from China and assemble here).

There will be virtually no debris or tailings from the assembly line since manufactured parts and components are assembled.

Debris, scrap and refuse can be generated from the welding zone and seat production zone but only in very quantity (less than 1 waste bin per day).

Packing materials (woods, plastic, card board etc.) can be generated from time to time when packings are opened, but not daily or weekly, but only from time to time.

Industrial liquid waste

No water is used in assembling and installing motorcycle parts.

Since little or no water is used for industrial purpose industrial waste water will be non-existent or very negligible.

(b) Domestic wastes

Domestic solid wastes

Solid waste from the office and dormitory will includes used papers, used toners, cardboard items, plastic items, packing waste trash etc and organic waste from kitchen and messing room. Certain quantity of solid waste such as fallen leaves, debris, weeded or mowed grass and weed will be generated outside the factory (inside the compound).

There will be 700 employees and the quantity of domestic solid wastes is substantial. It is estimated that 35 kg/day (based from domestic solid wastes generating formula 0.5 kg/capital/day).

Two types of waste bins (for recyclable and non-recyclable) are set up to tackle the problem.

Domestic liquid waste

There will be 700 employees and therefore used water and washed water from bathing, washing, laundry, from kitchen and messing etc. are generated in relatively large quantity.

It is estimated that the quantity of domestic waste water (brown water) generated per day is about 49000 lit (10700 gallons) (based from formula for waste water/per person/per day).

Occasional washing of machinery and vehicles, dust suppression spraying and watering plants also used water but do not generated waste water; all are dried up.

The waste water (brown water) is actually used water/washed water (not industrial waste water) and occasionally chlorinated and simply flows down the drain and end up in the North West (a small swamp). No specific waste water treatment done for the time being. The black water (from toilet) ends up in septic tanks).

Management and mitigation measures for solid wastes and liquid wastes are described later in Chapter 9, 9.4.3 (7). Management and mitigation measures will be taken by EMP cell members and selected workers.

Solid waste as well as liquild waste will be disposed at the north western part of the project area. (There is a shallow dry lake there; the coordinates are: 21°51'30.67"N, 96° 2'35.06"E.)

However domestic waste water (bathing, toilet flushing, laundry, kitchen and messing uses etc) will be substantial as there will be 700 employees living inside the compound. Maintenance and washing of machinery and vehicles will also use water occassionally. Liquid waste in the form of used fuel oil hydrocarbons, paints, thinner etc can be also substantial in such a big factory. Used paints, solvent paints etc and used batteries are considered hazardous or dangerous wastes.

Waste should be well-managed and reduced, reused, recycled, and recovered as practical as possible.

Figure-40: Landfill at factory compound

6.3.8 Occupational health and safety (OHS)

Six serious safety hazards in the workplace of a factory are:

- Chemical hazards (eg. a variety of paints, varnish, hinner etc. inhalation and dermal contacts).
- Falls, slip, trips (due to spillage of oil on the floor; uneven floor).
- Heavy machinery (eg. forklift due to carelessness or lack of good training).
- Fire (eg. from engine, welding equipment, electrical equipment).
- Confined space (eg. depletion of O_2).
- Non-employees (people who should not be there in the first place).

As regards occupational health hazards most of the industrial diseases are caused by dust, chemicals and fumes. Common industrial diseases are: Occupational asthma, occupational detmatitis, industrial deafness, asbestos related illness, hand-arm vibration syndrome, latex allergies and legion naires disease.

Working in an assembly line normally seems to be safe but when working for long hours over along period unexpected occupational hazards and accidents can occurs. Shared dining, shared hygiene facilities and crowded condition can contribute to spreading of diseases. Monotonous nature of work at assembly line can leads to psychological disorder eg-outbreak of hysteria.

Regarding occupational health hazards in an assembly line, workers who are working standing up for long hours can suffer from stress and strain, sore feet, swelling of legs, general muscular fatigue, lower back pain etc.

Assembly line workers can be exposed to dangers, exhaustion and overuse injuries which can be termed minors, such as:

- Repetitive strain injuries (doing the same movement over and over can wear out bones, ligaments, cartilages, nervous system, muscles).
- Assembly line workers can be exposed to the threat of machinery; working repetitive work for long hours can leads to carelessness and slackness of attention resulting in accidents.
- Assembly line workers can be exposed to inhalation and contact with harmful or toxic chemicals including certain paints, varnish, thinner etc. and also from TAP/HAP from welding fumes, and from spray painting.

The manufacturing of motorcycle seats, according to pure or emotional environmentalists, is also a risky business. Foam which is polyurethere is made from the chemical desisocyanates, the chemical that can cause asthama. The making of leather for seat involves the use of many chemicals which are harmful eg- cyanide and arsenic, formaldehyde, coal-tar etc. There are incidences of workers who died from cancer caused by exposure to toxic chemicals used to process and dye leather. Synthetic leather is much safer.

The Occupational Health and Safety (OHS) impact can be two-way. OHS can impact the staffs/employees while the impacted staffs/employees (in the form of sickleaves and staff-turnovers) can have negative impact on the project (eg. decline in productivity).

6.3.9 Impacts: accidents in workplace

In this project context, accidents in workplace can be categorized into 3 types, namely, accident in assembly line zone, accidents in spray painting zone, and accidents in welding zone.

<u>Accidents in assembly line zone</u>

Machinery in a assembly line can easily cause bodily harm if proper protocols are not followed. Common types of injuries are:

- Loss of limbs in machinery accidents
- Fractures and shattered bones
- Blows to the head from falling objects
- Repetitive uses injuries -- at least suffer from stress and strain
- Exposure to hazardous materials eg- chemicals, inhalation of solvents, fibers of asbestos
- Slips, trips and falls (rarely happen in assembly line)

Accidents in spray painting zone

Unlike the accidents in assembly line those that happen in spray painting zone are not serious in the short term and can be rather termed not risky. However long term exposure to such risks can be as serious or even more serious.

Common injuries or risks are:

- Irritation contact dermatitis, burn to the skin and eyes, vomiting and diarrhea, irritation for nose, throat and lungs that can lead to lung cancer, headache, dizziness, nausea, fatigue, eyes ailments, asthma, allergy and the most serious is "painter syndrome". Painter syndrone means the prolonged inhalation of paints and solvents resulting in brain damage, damage to reproductive system and kidney or liver damage.

Note: All paints and accessories, eg- colour paints, primer, hardener, metallic paint, acrylic paint, and thinner etc are not harmful but when inhale for long period can be harmful.

There will be 22 spray booths and 60 spray guns.

Accidents in welding zone

Electric shock is the most serious risk for a welder. Fire and explosion accidently resulting for welding activities is also serious. The prolonged inhalation of fumes and gases from welding activities also can have serious health impact on the welder.

The heat in both the flame and arc and the ultra-violet radiation from the arc produces gases such as CO, CO_2, oxides of nitrogen, ozone, fluran etc. Prolonged inhalation will be harmful. PPEs are necessary.

A welder has sometime to work with hot metal in difficult environment.

Many injuries happen simply due to insufficient PPEs for the welder.

In this project context manual welding is minimized and mechanical welding is maximized to reduce accidents and impact.

Robotic welding accidents

Deploying robots in a factory is safer and more productive. Robots have high performance standards and can deliver high quality (high precision) products.

The company will deploy 8 robots and 48 CO_2 gas shielded welding machines.

Robots are now widely used in industrialized countries not only in welding but also in a variety of material handling, loading, unloading and a variety of assembly line works.

However there are certain cases of workers accidently killed by robots due to malfunction of machinery and incompetence or carelessness of workers working near a robots (especially in car manufacturing but not in motorcycle parts assembling).

"The accidents in workplace impact" can be serious eg- loss of life and limbs and impeding the operation of the factory especially production.

6.3.10 Impacts: lack of emergency and health (hospital) services

When workers are working at a workplace for many years accidents and emergencies can occur from time to time. The lack of emergency and contingency plan, emergency response and appropriate health service (mainly first aids) can be a constraint regarding provision of health care for employees in potential emergency. Unfortunately if an accident that effect many people occur the available health service at the Amarapura Township Hospital cannot tackle such a serious problem. The Mandalay Regional Hospital should be considered. The condition may be worse if there is no emergency plan or contingency to mitigate the impact. Major accidents such as fire outbreak, violent storm, flood and earthquake shall be considered and plan shall be made for emergency response.

Fire can be a potential major accident due to human error or lack of effective management. Violent storm can be ruled out as the area is away from sea. Flood cannot be ruled as Taung-tha-man Lake is in the north just a few miles away. (Major earthquake is not taken into serious consideration. It is a case of the sky fall, as a Burmese saying goes, which mean if the sky falls everyone will have to suffer; so why bother!)

Emergency and contingency plan can be made in advance and the impact can be avoided or at least mitigated.

6.3.11 Potential social impacts

The potential social impacts during the Construction Phase have been already mentioned. Social issues such as quarrels; disputes; brawls among workers themselves or with the locals; theft; misappropiation, vandalism unethical sexual practices or sexual offensive, spread of sexually transmitted disease (STD), HIV etc. All these have the potential to hinder or jeopardize the progress of the production work.

Unlike the construction workers during the Construction Phase employees during the long Operation Phase are well-selected, trained and disciplined. So the social impacts may not be so serious. However, there can always be social illness and illed-social behaviour among certain employees.

6.3.12 Potential security issue

Poential security issues were already mentioned in the Construction Phase. But these were mostly in the form of theft and vandalism.

The issue during the Operation Phase can be mostly in the form of theft and vandalism. There is always the potential issue of theft when many locals are living below the proverty line.

Vandalism and sabotage cannot be ruled out given the fact that many people have anti-rich and anti-big business mind set or class antagonistic mind set. So far there is no precedent of terrorists attacking or destroying a factory. A factory can be a soft target for terrorists; security should be tight or effective.

6.3.13 Impact: public perception

Good public perception can contributes to the success of a project but bad public perception can hinder the progress of a project.

The emergence of a big factory in the neighbourhood can have desirable as well as undesirable consequence on the community. There is no doubt that there will be abrupt change in social structure of the community.

It is quite difficult to gauge public conception. Activists can make the locals to have a negative perception on the company. Ill-disciplined and rowdy workers can leads to negative perception of the company by the locals.

Many locals may have high hope and expectation for employment. But later they may become disillusioned if their hope of employment is not realized to full extent as a manufacturing company can never employ each and every local who wants a job.

On the other hand many locals are used to care free and easy going way of life. Many are not interested in permanent blue collar job where one has to go and work routinely at the work place every day.

Good relation with the locals will have positive impact on the project while the impact will be negative if the relation is bad.

6.3.14 Positive (beneficial) impacts during the Operation Phase

The potential positive impacts during the Construction Phase had been already mentioned.

The positive impacts during the Operation Phase are long term positive socio-economic impacts.

The most significant positive impact that can be easily seen is job creation. 937 workers will be employed permanently. This is a not so small benefit for the country, and a very big benefit for the region, especially in this time of high unemployement. It is a well-known fact that many of our youths have to go abroad for jobs and have to work in unfavourable work places and working conditions.

The proposed salaries for the 671 employees in the first year range from 117,368 kyats (the lowest blue collar job) to 3,603,176 kyats (the highest white collar job) are quite reasonable.

These employees can enjoy certain social benefits such as; free ferry, free lodging and overtime wages. There will be a worker welfare tea shop and food shop with reduced price for the workers. There will be recreation facility for them and they will have the rights to enjoy their leisure time. A special room will be provided for the sick and injured workers for rest, and treatment will be given to them at a welfare clinic.

There can be employment opportunities from vacant posts from time to time or extra jobs when the factory operation progreses well and when there is a probable expansion of factory business in the near future. The door is still open for this. There can also emerge part time jobs or jobs associated with the operation of the factory.

The benefit that will accrue to the nation as result of the direct investment inflow of US$ 21,000,000 has been already mentioned. This will contribute in one way, or another, to the GDP of the nation, to a certain extent. The follow up economic benefit to the country in the form of income tax, duties and revenues from the factory (including those from the workers) will also contribute to the economy of the nation in one way or another.

6.4 Potential negative impacts during the Decommissioning phase

Because this phase will begin 50 plus years later this will be dealt not in detail but only in general.

The main task during this phase will be:

- The isolation and shut down of the factory
- The decommissioning work involves demolition and dismantling works for building and structure
- Dismantling of machinery
- Materials that are still useable shall be reused or put up for sale; those that are not useable will be disposed off at appropriate dump site
- Contaminated soil and water, if any, will be removed and disposed off; tidying up the compound.

A contractor and party will be hired for this job.

6.4.1 Impact: accidents at work place

This is the same as the potential accident during the Construction Phase. Good engineering practice and good safety practices are necessary not only for the construction works, but also for the decommissioning works. Accidents tend to occur more during the decommissioning works them during the construction works.

6.4.2 Potential residuals impact

After the very long Operation Phase the soil (and ground water probably) can be contaminated. This has to be remediated. The structure of the soil has to be restored to its original condition.

6.5 Criteria for negative/potential negative

Impact in the form of nature, extent, duration, level, frequency, intensity, significance and probability are depicted in the following tabulated form.

Table-9: Criteria for impacts during the Construction Phase

Sr. No	Nature of impacts	Extent	Duration	Level of impact	Frequency	Intensity	Significance	Probability	Remarks
1.	Mobilization and preparation actions	Foot print	Short term	Level-2	R	L	IS	P	
2.	Interference with public or private utilities	Foot print & beyond	Short term	Level-2	S	L	IS	HP	
3.	Potential accidents in work place	Foot print	Short term	Level-3	SR	L	IS	IP	
4.	Emergency and health services	Foot print	Short term	Level-2	R	L	IS	IP	
5.	Impacts on air: dust, smoke, emission	Foot print	Short term	Level-2	OI	L	IS	P	intermittant
6.	Impacts: noise and vibration	Foot print	Short term	Level-2	S	L	IS	P	Intermittent above
7	Potential impacts on soil	Foot print	Short term	Level-1	S	L	IS	P	
8.	Potential impacts on water	Foot print	Short term	Level-1	R	L	IS	IP	
9.	Impacts of waste (solids and liquids)	Foot print	Short term	Level-1	R	LM	IS-Sg	P	
10.	Potential impact on biodiversity	Foot print	Short term	Level-1	R	L	IS	VIP	
11.	Political social impact	Foot print & beyond	Short term	Level-1	R	L	IS-Sg	VIP	
12.	Potential security issues	Foot print	Short term	Level-1	R	L	IS	VIP	

Table-10: Criteria for impacts during the Operation Phase

Sr. No	Nature of impacts	Extent	Duration	Level of impact	Frequency	Intensity	Significance	Probability	Remarks
1.	Visual impacts: light at night	Foot print & beyond	Long term	Level-1	OI	L	IS	D	
2.	Potential traffic issue	Foot print & beyond	Long term	Level-1	OI	L	IS	P	
3.	Impacts on air quality: dust, smoke and gas emission	Foot print	Long term	Level-1	OI	L	IS	D	
4.	Impact: noise and vibration	Foot print	Long term	Level-1	OI	L	IS	P	
5.	Impacts on gridline power supply and vice versa	Foot print & beyond	Long term	Level-1	OI	L	IS	VIP	
6.	Potential impacts on water	Foot print	Long term	Level-1	OI	L	IS	P	
7	Impacts: waste (solids and liquids)	Foot print	Long term	Level-1	OI	L	IS	D	
8.	Occupational health and safety	Foot print	Short term	Level-1	R	L	IS-Sg	P	
9.	Accident in work place	Foot print	Short term	Level-1	R	L-M	IS-Sg	P	
10.	Emergency and health services	Foot print	Short term	Level-1	R	L-M	IS-Sg	VIP	
11.	Political social impacts	Foot print & beyond	Short term	Level-2	R	L	IS-Sg	VIP	
12.	Potential security issues	Foot print	Long term	Level-1	R	L	IS	P	
13.	Public perception	Foot print & beyond	Long term	Level-1	R	L	IS	VIP	

***Explanation**

Level of impacts

Level 1 = Very low

Level 2 = Low (can have impact on biodiversity and environment to certain extent)

Level 3 = Medium

Level 4 = High (short duration)

Level 5 = Very high (long duration)

Frequency of impacts

F = Frequently

O = Often

OI = Often (isolated case)

S = Seldom

R = Rarely

Intensity

VH = Very high

H = High

M = Medium

L = Low

Probability

VIP = Very improbable

IP = Improbable

P = Probable

HP = Highly probable

D = Definite

Significance

IS = In-significance

IS-Sg = In-significance to significance

Sg = Significance

7. RESULTS OF PUBLIC CONSULTATION

Public consultation is an integral part of EIA/IEE and EMP. Involving the public participation in the EIA/IEE/EMP work is fundamental to increasing the understanding and acceptance of the project.

Public consultation and participation shall be started at early as possible in the preparation of EMP. And it has to be a continuous process, especially during the Operation Phase, carry out from time to time.

7.1 Purposes of the consultation during the preparation of the EIA/IEE/EMP report

- to enlighten the locals/stakeholders about the project
- to increase the understanding and acceptance of the project
- to give the locals/stakeholders the opportunity to present their views, opinions, perception of the project, express their concerns, complaints, grievances etc
- to identify impacts and issues that are not immediately obvious to project proponent and the IEE team
- to access social assistance and community development needs for the locals/stakeholders
- to gain community consent and to interact with the people to further strengthen existing cordial relationship
- to tap local knowledge and to negotiate for mutually beneficial future that is sustainable and locally relevant

Requirements for public consultations:

- public consultation should be conducted in the early phase of project
- must ensure the direct involvement of the locals/stakeholders
- must ensure that all locals/stakeholders who are interested will have the chance to fully participate, especially the vulnerable and marginalized group,
- it should be a continuous process --- throughout the entire phase of the project, especially during the long Operation Phase, and
- there must be an action plan or response programme such as complaints and grievances mechanism (CGM) to tackle any issue.

7.2 Methodology and approach

Standard methodology applied here includes:

(i) **Consensus building:** First of all a pre-sensitizing visits to the local authority (Village/Ward Administrator and party, elders) and briefing on the proposed project was carried out, and ask for their approval and assistant for holding the public consultation.

(ii) **Transect walk:** site visit (visit to the village/ward) and conduct visual inspection.

(iii) **Actual public consultation meeting:** mainly involves disclosure of the proposed project and giving complete and accurate information; consultation mainly in the form of two-way conversation --- listening and talking; waiting for their response; further discussion.

(iv) **Interviews and discussions:**

- in the form of KII/SS, (Key Informant Interview/Secondary Source) for the gathering of secondary baseline socio-economical data and community profile with the aid of programmedquestionnaires
- in the form of FGD (Focal Group Discussion); interview with few selected people (authority, knowledgeable persons) especially for ranking the pressing need of the locals for prioritizing the needs for community assistance and implementation of CSR.

7.3 Summary of consultation activities

a) Previous consultation meeting before IEE survey

Date : 27-2 -2017

Time : 13:00 hrs

Venue : Dammaryone (Religious Hall) of Ywa Oo Kyaung Monastery

Attendance : 35 persons

(All heads of the households of Kanbai village were invited verbally; but invitation cards not used).

Figure-41: Inspection of the site during the previous meeting

The meeting was attended by U Pe Thet Htun, Amarapura Township Administrator and U Myint Swe, Hluttaw member (parliamentarian) of Mandalay Region Hluttaw, village Administrators of Kanbai and Yey-kyi-pauk Village Tracts, responsible officer of Aung Kan Bo Motorcycle Industrial Co., Ltd and locals.

Topic

About the construction, and operation of the motorcycle factory and the marketing of motorcycle and accessories and to know the views, opinions and perceptions of the locals.

Minutes of meeting

First U Pe Thet Htun: Amarapura Township Administrator, explained how the company has proposed for the construction and operation of a motorcycle factory in this area and the subsequent marketing of motorcycles and accessories. And so let us discuss:

1) Whether there can be any impacts.
2) To employ locals who are qualified for the jobs.
3) What are the views and opinious of the villagers.
4) If the site is suitable or not.

Responsible officer of Aung Kan Bo Motorcycle Industrial Co., Ltd:

The company is going to build a factory and produce Kenbo Motorcycles and parts. This will be done according to the existing laws and rules. There will be 600-800 employees. Technicians from China will be hired. At the moment the ground in cleared and the level is raised. There can be only very little impact on the environment. As the main task will be assembling works there there will be no smoke and the only waste generated will be certain plastic substances. Noise generation will be minimized and odour will be mitigated by applying modern technology. The proposal will be submitted to the Environmental Conservation Department (ECD). At the movement we are waiting for the approval from the Mandalay Regional government.

Village Administrator of Kanbai Village Tract:

I want to know if there can be any air pollution, and any effect on agriculture. There should be management plan for odour and waste water.

One local: When doing the preporation work for the site the piling of earth to raise the ground level should be done not to disturb the locals. And the mobilization works should not cause any nuisance to the locals.

The responsible officer: This will be taken into serious consideration when doing the preparation work.

U Tin Htut, one local: The period for the construction and post construction should be mentioned.

One local: After Construction Phase and during the early Operation Phase there must be no squatters and the company should manage this matter.Ths issue is happening in many parts of the country.

The responsible officer: I will duly do that.

U Myint Maung, a village elder: As regards the acquisition of land by the company there arise no issue between the company and the land owners and every thing goes smoothly. This factory will bring benefit to the locals. I therefore, support the project.

U Myint Swe, member of Mandalay Region Hlutaw: There should be no erosion and siltation and impact on the drainage system.

The responsible officer: We will heed to this matter and do our utmost not to impact the drainage system.

The construction of the factory has completed smoothly without any serious impact or issue. The factory is already in operation. There are no squatters from elsewhere coming and residing near the factory compound.

b) Public consultation meeting attended by members of IEE team

Date : 22- 6 -2017

Time : 16 : 30 – 17 : 30 hrs

Venue : Dammaryone (Religious Hall) of Kanbai village

Attendance : 34 persons

The meeting was attended by U Than Lwin, Village Administrator of Kanbai Village Tract, U Khin Zaw, responsible officer of Aung Kan Bo Motorcycle Industrial Co., Ltd, U Myint Kyaw Thura, team leader of IEE survey, 5 employees of the Railways Department, one clerk of the Village Administrator Officer and interested villagers from both Kanbai and Yay-kyi-pauk Village Tracts.

Topics

About the establishment of the motorcycle factory and the view, opinions and perception express by the locals.

U Than Lwin, Village Administrator, Kanbai Village Tract: Addressed the audience.

U Khin Zaw, responsible officer of Aung Kan Bo Manufacturing Co., Ltd: Explained to the locals about the project in relative details.

U Myint Kyaw Thura: Leader of MESC, IEE team explained to the locals about the IEE survey to be undertaken.

U Myo Tint, a local: I want to know what the negative impacts are when a factory is built. The factory should not have an impact on the health of the community. I do not know in detail about a factory.

U Myint Kyaw Thura: The motorcycle factory shall not have any significant impact as it will involves mainly assembling works; no smoke and industrial waste water to be generated. Spray painting and welding work, can have certain insignificant impacts. As the work progress there can be certain social impacts such as disputes, quarrels, brawls since it involves hundreds of workers. There can be certain impact such as trash if not well-managed.

U Maung Thwin: The company has already held a public consultation meeting earlier. I am pleased to see that the Environmental Consultation Group has come to test the ambient air and water. The testing of air and water was never done before in this area. This is good for us.

U Nay Lin: Bad odour arises from A1 biscuit/confectionary factory. Certain locals are practicing electric shock fishing. I would like to inform the Environmental Group about these.

U Myint Kyaw Thura (MESC): As we are not law enforcement people we cannot do that. Our trip is just to conduct IEE survey for this company's project. However we will write this matter in our report.

U Nyein Chan Oo (from Yey-kyi-pauk village): As a villager from Yey-kyi-pauk I welcome the factory project. I believe the company will not pollute the environment.

Responsible officer of the company: The environmental consultation firm will do all the details survey as far as environmental affairs are concerned. We will build and operation in an environmentally sound manner. As our company has acquired the plot of land here we are actually now the locals here as you are. Upholding the good neighbourhood spirit we will never polute the area. In addition to foreign technicians 600 workers will be employed and first priority will go to the locals here.

U Zaw Htun Myo, a local: I am not against the project. I suggest that our local people should be employed according to their quality or age eg- old people can be employed as security guards.

U Ohn Myint, a local: There are illegal fuel oil shops near the village. They are buying land for illegal storage of fuel oil. The fuel oil is usually transferred to big trucks for transportation elsewhere. This is dangerous and so will you please write something about this.

U Myint Kyaw Thura (MESC): We cannot take any action as we are not members of the law enforcement body. We will write something about this in the report.

U Ni Ko, a local: I cannot say much as the project has not started yet. Please just do your best for the materialization of the factory. I welcome the emergence of the factory.

U Myint Kyaw Thura (MESC): So you do not have any thing against this project.

All locals: Yes. We have nothing againt the project.

Figure-42: Key Informant Interview (KII)

Figure-43: Focal Group Discussion (FGD)

Figure-44: Public consultation

Result of public consultation meeting

Three issues are raised during the meeting.

1. Bad odour emits from A1 biscuit/confessionary factory.
2. Certain locals are practicing electric shock fishing.
3. There are illegal fuel oil shops near the village

The project proponent and consultant firm are not in a position to tackle these 3 issues. It is the duty of the village administrator and law enforcement body to take action.

The local has now realized very well that the main works are assembling works and the factory is virtually a smoke less factory. Assembly works need no water or very little water and so there can be no substancial generation of industrial waste water (except domestic waste water).

The factory can provide 600 plus jobs to Myanmar nationals and most of them will be the locals. As time goes on more will be employed, probably up to 1000.

Many locals are familiar with the job in a factory. Many locals are now already working in neighbouring textile, factories (private as well as state owned), a big biscuit canfectionary factory and many weaving mills/looms. They have already realized the advantages of a salaried worker with a steady and long term income. And many of them realize that unless there is a big investment by a big company in a rural area there is very little chance for the locals to escape from the vicious cycle of unemployment and poverty.

So the overall perception of the locals on this motorcycle factory project is positive and favourable.

The company shall not be complecent with the present situation but shall try its best to build cordial relationship with locals based on mutual benefits.

Note – By the time this IEE report (Amended Report) is submitted the factory is already producing, 60,000 motorcycles (3 years motorcycle and 600 locals are already employed.

7.4 Information disclosure

The public consultation held at the Dammaryone Hall of Kanbai village on 22-6-2017 with villagers of Kanbai and Yey-kyi-pauk village tracts was made public. The information was released and the news appeared, in brief, in the daily newspaper, The Voice Daily on 27-6-2017 (**See ANNEX**).

When the IEE report is approved part of the report will be launched at the Facebook website of MESC: www.myanmarenvironmentsustainableconservation.com .

CSR programme

The company has, so far, spent Ks 472,424,340 for implementation of CSR activities in the form of donation, charity and community assistance (See **ANNEX**). In addition the company has donated Ks 10,000,000 for the establishment of Kanbai village clinic, which is not materialized yet.

The company commits to raise a fund from 3% of its net profit. Actually CSR programme was already started before any profit was realized.

7.5 Recommendation for future consultation

As mentioned earlier public consultation must be a continuous process throughout the project period, from the Pre-construction Phase, through the Construction Phase to the Operation Phase. One more public consultation meeting should be held during the Construction Phase. As regards the long Operation Phase (50 plus years) there shall be regular public consultations annually or bi-annually depending on the situation, or from time to time whenever there is a need for public consultation. This is very important for maintaining the long term cordial relationship with the locals and hence the long term benefit for the factory business.

Grievances Redress Mechanism (GRM)

The Complaints and Grievances Mechanism (CGM) or Grievances Redress Mechanism (GRM) programme will be implemented throughout the entire project period. It will be practical and applicable and effective. The public relation officer and EMP cell leader will always give special attention to CGM.

Application of GRM

The addresses and phone numbers of the factory as well as the company head office are made public and are provided at the village administrator office the two local EMP cell members will be part of the mechanism.

The company will apply the following lot book sheet for GRM programme.

1. Name of complainant (person/organization) ----------
2. Date of receipt ----------
3. Summary of complaint/grievance ----------
4. Date of action taken ----------
5. Action taken by who ----------
6. If action is not required give the reason why ----------
7. Grievance resolved/settled (Yes/No) ----------
8. Any post GRM contact (Yes/No) ----------
9. Any follow up issue or action (Yes/No) ----------
10. Need a legal expert (Yes/No) ----------

The company will keep a separate file for each complaint, where details of the complaint/grievance, how the grievance is assessed, and how it is resolved and settled (or not) will be duly recorded.

The complainant can be lodged verbally or in written statement.

The liaison officer (public relation officer) appointed by the company will be the focal point of GRM. He and his assistance will fill the GRM forms and keep the records. He will them submitted the GRM records to the company/factory authority to tackle the issue. The authority will do its utmost to tackle the issue at the local level so that the issue need not be solved at the Township or District counts or higher courts. Any grievance will be solved in a friendly and cordial way.

Note – so far there is no complaint brought up by the locals.

Future public consultation shall also involve the implementation of affordable CSR and community assistance and development pledged by the company (project proponent).

8. ENVIRONMENTAL PROTECTION MEASURES

The first thing the project proponent shall bear in mind is not to harm the environment. As mentioned earlier the duty of every citizen is to assist the Union for the protection of the environment.

8.1 Five components of the environment to be protected

(a) Protect the physical component of the environment

- Do not pollute the air (eg- dust, smoke, gases emission).
- Do not pollute the water (eg- surface water, ground water, also do not impact water courses, wate bodies, natural water flow etc).
- Do not pollute the land (eg- soil contamination, also do not impact the soil such as soil profile destruction, erosion, siltation, alteration of landscape etc).

(b) Protect the biological component of the environment

- Not to impact the biodiversity eg- flora and fauna, both terrestrial and aquatic; also do not cause habitat destruction, loss, fragmentation and disturbance also do not cause habitat destruction, loss, fragmentation and disturbance.

(c) Protect the socio-economic component of the environment

- Not to harm the social life and economic life of the people (a wide spectrum of socio-economic components).

(d) Protect the cultural component of the environment

- Not to impact or harm the cultural, religious, histrorical and archeolobgical sub-component etc.

(e) Protect the visual component of the environment

- Not to impact or harm the visual component eg- aesthetics, natural landscape, landmarks, religious and historial monuments, natural harmony etc and not impair the vision.

8.2 Environmental protection measures alias mitigation measures

During normal situation (that is without any project) it is quite realistic to protect the environment quite easily.

But one can never expect a project to be devoid of impacts on the environment. Therefore to protect the environment while conducting a project literally means to protect the environment from negative impacts. Theoretically a negative impact can be:

- avoide or minimized or eradicated
- prevented or mitigated

Therefore the first thing to be considered for the impact is avoidance. It avoidance is not possible prevention should be considered. Then if prevestion is not possible the last resort is mitigation.

In the real world the large majority of impacts (both significant and insignificant) cannot be avoided or prevented. So the last resort, mitigation has to be undertaken.

(Theoretically if an impact can be mitigated it can be further minimized or even eradicated. Such things can rarely happen in the real world. So mitigation is usually the last resort and the last step.)

When implementing a project the pragmatic way of protecting the environment is to implement mitigation. The impact has to be predicated, anticipated, identified and assessed first. Then mitigation measures have to be duly taken.

Often a mitigation measure also encompasses or is associated with prevention measures, control measures, correction measures remediation measures, and alleviation measures. These have to be considered together for the protection of the environment.

8.3 Mitigation and associated measures to be taken during the project life

Mitigation and associated measures should be taken during all phases of the project life. All the impacts (significant and non-significant) already mentioned in **Chapter-6** have to be considered.

These will be summarized and depicted in tabulated forms.

8.3.1 Mitigation and associated measures to be taken during the Preconstruction Phase

Table-11: Proposed mitigation measures to be taken, in tabulated form, during Preconstruction Phase

Sr. No	Negative impacts (significant and insignificant)	Mitigation/prevention/protection/ control/corrective/remediation/alleviation measures
1.	Potential polarization of the local community into anti and pro-project group	- early public meeting and consultation - prioritize hiring locals over hiring personnel from beyond
2.	Potential hiking of land and property	- early public meeting and consultation - staffs should not get involve themselves in speculative business

8.3.2 Mitigation and associated measures to be taken during the Construction Phase

(Aung Kan Bo Motorcycle Industrial Co., Ltd shall take all these mitigation measures)

Table-12: Proposed mitigation measures to be taken during the Construction Phase (in tabulated form)

Sr. No	Negative impacts (significant and insignificant)	Mitigation/prevention/protection/ control/corrective/remediation/alleviation measures
1.	Mobilization action and storage of building materials	- carefully plan for mobilization, storage and preparation works - have logistic plan for heavy trucks loaded with building materials - systematically store or pile up all the building materials within the premise - ensure that the wall or fence is reliable and can effectively prevent theft - prevent the spilling over of the building materials outside the hotel premise or on nearby roads, Sagain-Myitnge Road - temporary parking of heavy trucks, should be made inside the compound
2.	Potential interference with public or private utilities	- careful design and planning - identify telephone poles, electric poles, water pipe etc that will have to bemporary removed, if any, - inform the authority concerned in advance and seek their assistance - remove, relocate and restructure the services of these utilities prior to actual commencement of construction work
3.	Potential accidents in the work places	- plan and manage for zero accident - set up "Safety First" sign boards at places where workers can see easily - create safety condition for all workers; create accidents free environment - educate, train and supervise construction workers for good working practice, good engineering practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind - try to meet all statutory requirement for safety construction (rules, regulation, labour Act) - provide adequate Personal Protection Equipment (PPE) where necessary - keep first aid kits well-stocked with medicine and drugs - accidents or near-missed to be duly reported - prohibit the drinking of alcohol during working hours; ban the use of narcotics among workers

		- plan and manage for effective emergency response - cover the whole structure during the Construction Phase with nylon lace or netting to prevent accidental falling of debris and tools etc (acommon engineering practice implement in construction work)
4.	Impact: emergency and health services	- plan and manage for zero accidents at work place - create safety condition for work places (Construction Phase) - educate and train workers for good working practice, good engineering practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind - prevent and avoid accidents and try to achieve zero accident at work places - educate and train them for health education and hygiene - train a few workers in First Aid Training - keep first aid kit well-stocked with medicines and drugs comprising anti-malaria, anticholera, anti-toxicant and anti-poisonfor harmful insect and snake bites - draw up a plan for emergency; carefully plan effective emergency contingency response and procedures - train some workers for firefighting - provision of firefighting equipments and tools; provision of first aid kits and adequate medicines - provide adequate PPEs - apply safe and effective procedures for storage of fuel and chemical - display warning signs - accidents, or near-missed to be duly reported - display addresses/phone numbers of Fire Brigade, Ambulance Service, Hospital, Police Station so that everyone can see easily - take out insurance for the factory and also fire insurance - educate workers for safety awareness and also awareness of health and hygiene
5.	Impacts on air: dust and smoke	- draw up a plan for air quality management to meet statutory requirement (rules, regulations, Municipal Act, NEQ guideline values prescribed by ECD) - plan in the Pre-construction Phase for the procurement of equipment, vehicles that emit less smoke (to be certified for emission compliance) - keep equipment and vehicles well-maintained - use fuel with low emission rate - avoid open burning of debris - spray water for suppression of dust

		- restrict vehicular movement; maintain road clear of mud and dirt - limit open stockpile of earth, sand etc - minimize drop height during loading and unloading of earth, sand or lime - provide PPE to workers who are exposed to smoke or dust for long period - the local community should be able to file complaints regarding dust and smoke
6.	Impacts: noise and vibration	- plan in the Pre-construction Phase for procurement of equipment, and vehicles that emit lower noise level - plan for noise management, to meet statutory requirement (rules, regulations, NEQ guideline values prescribed by ECD) - install silencers and mufflers - switch off or throttle down equipment during idle period - avoid construction work at night - schedule high noise activity only during day time hours - provide PPE to workers exposed to prolonged high noise level - manage vibration of machine, equipment and vehicle - if possible install vibration absorbers - design for stable foundation, even for temporary purpose - limit the speed of vehicles - the local community should be able to file complaints regarding noise and vibration
7.	Potential impacts on soil	- draw up a plan for management of soil - try to avoid potential destruction of soil profile - separate top soil (for later creation of green belt) from sub-soil (for construction work-earth filling etc.) - draw up a plan for prevention and mitigation of contamination of soil - manage to meet statutory requirement (rules, regulations, Municipal Act) - prevent spill of fuel oil and chemicals; clean up spill with absorbent promptly (do not wash down with water) - properly instruct workers with respect to handling of fuel and chemical and cleanup of spills - bund fuel or chemical depot to prevent spreading of spill - display warning signs; identify high risk spill area (generator, fuel tank) - implement soil conservation techniques to prevent soil erosion (during rainy season) - Prevent wash water from carrying earth and materials into drainage system

		- resurface and stabilize the exposed ground surface after earth work - the ground should not be laid bare for long period during the rainy season - dispose all waste materials (from construction work and from domestic use) at approved land fill - train workers for good house keeping; do not litter - the local community should be able to file complaints if their lands are impacted
8.	Potential impacts on water	- plan and manage for the conservation of water - also plan and manage to prevent the pollution of surface and ground water - do not use water more than necessary during the Construction Phase - if possible recycle water; it can be used for dust suppression or for watering plants - discipline workers for the conservation of water; - harvest rain water where possible (during the rainy season) - monitor the daily use of water for construction - avoid the spillage of fuel oil which will contaminate the soil and eventually ground water; - if there is spillage clean up spill with absorbent promptly (do not wash down with water) - properly train workers with respect to handling of fuel oil and clean up of accidental spill - adequately maintain vehicles and machinery to prevent spillage resulting to ground water contamination - bund fuel depot to prevent spreading of fuel oil - display warning signs; identify high spill areas (generator, fuel tank etc) - avoid disposing of waste (solids and liquids) into water body, if any, nearby - plan for management of temporary latrines, if any, for construction workers to prevent the eventual contamination of ground water; spread soil or ash into the latrines from time to time; back-fill the latrine when the construction works are completed - the local community should be able to file complaint, if there is any impact on their drinking water
9.	Impact: waste disposal (solids and liquids)	- plan for the management of waste - manage to meet statutory requirement (rules, regulations, Muncipal Act) - draw up a plan for management of solid waste - manage to meet a statutory requirement, (rules, regulations, Municipal Acts)

		- avoid open burning of debris - clear the ground regularly; ensure dumping at approved landfill - educate workers for good house keeping; do not litter - plan for reuse and disposal of construction tailings and left overs - at the end of Construction Phase put up construction spoils, left over materials for sale - hire a contractor and party for tidying up the site after Construction Phase - the local community should be able to file complaints if regarding waste disposal - **Note**: There will be virtually no waste water during the Construction Phase. All required water will be used up during mason works or concrete works etc. Temporary pit latrines rather than toilets will be provided for construction workers.
10.	Potential impact on biodiversity	The impact, if any, will be negligible or zero as the site is in an urban setting. There are no big trees (artificial vegetation) inside the site. - manage for the maintenence of big trees (fruit trees and shade trees) if any, in the vicinity - if possible, keep all these trees intact - do not clear small plants or grass more than necessary for construction work
11.	Potential social impacts: ill-social behaviours	- draw up a plan for management of social illness and anti-social behaviour - educate and train workers on discipline and code of conduct - try to build good relation with the locals - conduct public consultation so that the locals will have a positive perception on the project - educate the workers for appropriate behavior when dealing with locals; to respect their culture and tradition - apply punitive measures such as suspension of the wrong doer - strictly prohibit the drinking of alcohol during working hours; ban the use of narcotics and stimulants - deal with workers on a fair and square basis - avoid unhealthy relationship with workers; they should not be over worked and underpaid - maintain the good relation between the company and the locals

12.	Potential security issues	- draw up a security management plan - effective walling of the compound - all accesses must be controlled - set up security gates; deploy adequate guards or watchmen - do not let the workers (mostly construction workers) enter the neighbouring ward without preauthorization; do not let workers mingle freely with locals - store building materials under lock and key as far as possible - ask the building contractor to discipline his workers - apply punitive measures, such as suspension or termination of employment if necessary

8.3.3 Mitigation and associated measures to be taken during the Operation Phase (in tabulated form)

(Aung Kan Bo Motorcycle Industrial Co., Ltd shall take all these mitigation measures.)

Table-13: Proposed mitigation measures to be taken during the Operation Phase (in tabulated form)

Sr. No	Negative impacts (significant and insignificant)	Mitigation/prevention/protection/ control/corrective/remediation/alleviation measures
1.	Visual impacts, light at night	- plan and manage the factory which is focused on visual appeal - paint the building with eye-pleasing colours; variation of colours may necessary - avoid bright offensive colour, eg bright red colour or dark and gloomy colour - create green lawn and carry out small landscaping in available space; plant beautiful trees & flowers trees in all available space to enhance the esthetic beauty of the factory - maintain the beauty and splendour of the factory for the long run. Repaint and refurbish the facade and other exterior parts regularly. - do not use too glittering or brilliant light at night that can be offensive to the eyes or displease the eyes; sparkling and running lights are not necessary for the factory; use appropriate lightings which are pleasing to the eyes - avoid excessive use of light; with the exception of facade or entrance the other lights inside the compound should be for only security reason - keep the lamps (bulbs) at the lamp posts at a slanting position rather than directing out ward

		- the lights out side the building (those inside the compound) should be yellow light (white light attracts more insects at night and kills them; if so many insects aggregate at night turn off the light for a while)
2.	Potential traffic issue	As the factory has no plan for the provision of ferry since all workers will be accommodated in the dormitory the traffic issue is negligigle. For the staffs who use car or motor bikes: - draw up a traffic management plan - schedule the logistics; avoid rush hours - educate drivers, staffs (motorists and motorcyclists) for defensive driving; drive at reduced speed - set up signage at the entrance of the factory and Sagaing-Myitnge Road - avoid overloading of truck, or any vehicles - regular maintenance of cars and motor bikes - local community should be able to file complaints regarding traffic issue
3.	Impacts on air quality: dust, smoke and gas emission	- draw up a plan and implement for air quality management for the long term Operation Phase - try to meet all statutory requirements (rules, regulations); follow the NEQ guideline values prescribed by ECD, MOECAF (2015) - spray water adequately to suppress dust - reduce the speed of vehile to reduce dust generation - plant trees for trapping dust - plan for effective mitigation and management of smoke and emission - avoid open burning of solid waste - use well-maintained and well-operated equipment and vehicles - regularly check all the engines of vehicles and machinery - use vehicles and machines that emit less smoke and use less fuel - conserve fuel and prevent unnecessarily emission of gas (smokes) - plant trees and create green zone; trees will sequestrate CO_2 in the smoke; also create green lawn (the company has so far, planted a total of 732 plants (shade trees, fruit trees, wind breakers, flowering plants, ornamental plant, See Annex). - provide adequate PPE such as face masks, nose and mouth covers to workers - the local community should be able to file complaints regarding dust and smoke

		For the management of air quality inside the factory: - plan for good ventilation and natural air flow as far as possible - follow safety procedures including good ventilation - avoid the use of "air fresher" (not good for health; only good ventilation is necessary) - if possible, designate "smoking zone"in one part of the factory - use exhaust ventilation with pressure control - avoid chemical products with repugnant odour
4.	Impacts: noise and vibration	- plan for effective management of noise and vibration - try to meet all statutory requirements (law, regulation) - follow the NEQ guideline values for noise and vibration prescribed by ECD, MOECAF (2015) - restrict or limit vehicular movements - plan for appropriate choice of machinery and vehicles (that emit low noise level); method of working, efficient material handling - installation of noise abating devices eg- silencers, mufflers at air inlet and outlet of fan and compressor; place noisier sources far away in overall design (noise generator is installed in the generator room, which is a separate building). - well-operated and well-maintained vehicles and machinery generate lower noise level and prevent undesirable noise level - modified old machinery, vehicles and equipment by incorporating minor design change for reducing noise level - develop green belt (plant trees) around the factory; trees abate noise and serve as noise sink (pollution sink) - create smooth road surface as far as possible to mitigate vibration due to vehicular movement - create suitable foundation design for machinery and equipment (eg. grinder, compressor and pumps etc.) to mitigate vibration - if necessary install vibration absorbers or vibration abators - provide adequate PPE eg- ear muffs, ear protectors to workers exposed to long hours of high noise level; conduct regular noise monitoring to ensure that the levels are within noise exposure standard (not higher than 85-90 dBA) especially for generators and pumps - local community should be able to file complaints regarding noise and vibration

		For the management of noise level inside the factory: - fit mufflers or silencers on all noisy machines and equipment inside the factory - position, enclose and isolate noisier equipment - minimize sound level inside the factory as far as possible - provision of PPE for workers where necessary
5.	Impacts on gridline power supply and vice versa	- consider for application of environmentally sound idea and technology when sourcing for electricity - aquire conservation of energy knowledge in the planning and design phase of the factory - plan and manage for the conservation of electricity energy - design the building to take advantage of sunlight and air flow - opitimize building orientation for sunlight; allowing sun-light to penetrate building to provide light to illuminate interiors - ensure that the consumption of electricity be in the work frame as stated earlier (600,000 units/years) - monitor electricity consumption weekly - use electrical equipment, devices that are energy efficient, particularly use energy efficient equipment associated with heating, vestilation, air conditioning and cooling (HVAC) - install renewable energy system eg-solar water heating system; solar panels (photovoltaic cells), if possible - use high efficiency light bulbs, lamps, tubes etc - use day light as much as possible - use day light control (adjust interior lighting by incoming day light so that there is no need to switch on the light during day time) - ensure that the backup generator is operational immediately after power outage or use automatic backup system
6.	Potential impacts on water	- plan and manage for the conservation of water - ensure that the consumption of water be in the workframe stated earlier (6,648,475 gallons/year) - monitor the daily, weekly and monthly consumption of water - ensure that the amount of water needed is sustainable for all seasons and also does not effect the neighbourhood - conserve water, minimize the use of water in house keeping, cooking machinery and vehicle maintenance and washing, ground maintenance for greens and lawns, and personal uses by employees - if possible recycle water; recycled water can be used for dust suppression and watering lawns and plants - apply appropriate plumbing, and ensure there is no leaking of water

		- build water tanks and ponds and harvest rain water from the eaves of the roofing; rainwater can be used in washing of machinery and vehicles, suppression of dust, watering plants and for fire fighting etc - select plants and grass species that need less water and design the landscape (garden) to reduce the use of water - use water saving equipment including flush toilets, spray nozzles, urinals, faucets, low-flow shower heads, water spigots and pressure control values - check the water quality at least twice a year (hire technicians to do this) - supply workers with potable water for drinking purpose eg- mineral or purified water bottles; provide bulk drinking water bottles for employees; safe potable water is also necessary for food preparation
7.	Impacts: waste (liquid and solids)	- plan and implement the management of wastes **For liquid wastes** - to manage waste water, first reduce and minimize the use of water where possible - control the use of chemicals (use biodegradable products) - if possible, also use refrigerators that are Chlorofluro Carbon (CFC) free; also select refrigerators with low global warming products (GWP) - treat all the waste water before discharge into the sewage system (the readily available chemical water treatment is chlorine at 5 mg/l or Monochloramine at 3 mg/l which are effective and cheap) - comply with the NEQ guideline values (for effluent) prescribed by ECD - manage the factory efflument to a level that is consistent with the conventional treatment and discharge of sanitary waste water **For solid waste in general:** - plan and implement the management of solid wastes - dispose the solid wastes outside the hotel at an approved landfill or dumping site - avoid open burining of debris or trash outside the hotel **For solid waste inside the factory:** - when buying things for use, buy in bulk quantity wherever possible (to reduce packing waste) - use refillable bulk dispenser, (eg- toiletries) rather than individually pocked products - buy products with minimal product packing (because all packing materials become waste)

		- avoid the use of polystyrene foam for beds - use glass, porcelain or at least durable plastics instead of disposable plastic items (eg- straws, cups, spoons etc) - implement organic-waste compositing of some wastes from the kitchen for organic fertilizer to apply in lawn, and green - segregate wastes into categories; waste that can be recycled and that has to be disposed off, using two different waste bins - dispose waste only after all waste prevention and possible recycling strategies have been explored - dispose wastes only at approved landfill - always avoid open burning of solid waste; use incinerator and ensure for the complete combustion of waste leaving only ash powder
8.	Occupational health and safety	- plan and manage for the safety working condition for employees - educate, train and supervise workers for good working practice, good engineering practice and good safety practice; prevent and avoid accidents at all costs - educate and train workers also for health education and hygiene - use non-toxic and hypoallergenic cleaning products - limit skin exposure through the use of gloves and other PPEs as far as possible - educate, train and supervise them on environmental awareness and occupational health hazards; awereness especially for workers in house keeping section - educate and train employee in handling and application of pesticides, rodenticides and insect repellents eg-avoid skin contact and inhalation - provide health and hygiene training that include proper sanitation practices, regular waste collection and good house keeping practice - contamination of soil and ground water due to spill of fuel oil, chemical, pesticides etc must be avoided as far as possible - also ensure all hygyienic practices are followed (according to WHO, FAO) to avoid exposure of others - use only pesticides, rodenticides, insect repellent that are manufactured under license and registered and approved by the authority - never buy pesticides or other risky chemicals in bulk and store them; buy just only necessary quantity for one or two applications - all employees must pass a medical examination prior to employment - have a plan for Emergency Response Procedures (ERP)

9.	Accidents in the work places	- plan and manage for zero accident - set up "Safety First" sign boards at places where workers can see easily - create safety condition for all workers; create accidents free environment - educate, train and supervise workers for good working practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind - try to meet all statutory requirement for safety in factory (rules, regulation, labour Act) - provide adequate Personal Protection Equipment (PPE) where necessary - keep first aid kits well-stocked with medicine and drugs - accidents or near-missed to be duly reported - prohibit the drinking of alcohol during working hours; ban the use of narcotics among workers - plan and manage for effective emergency response
10.	Impact: emergency and health services	- plan and manage for zero accidents at work places - create safety condition for work places (Operation Phase) - educate and train workers for good working practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind - prevent and avoid accidents and try to achieve zero accident at work places - educate and train them for health education and hygiene - train a few workers in First Aid Training - keep first aid kit well-stocked with medicines and drugs comprising anti-malaria, anticholera, anti-toxicant and anti-poison for harmful insect and snake bites - draw up a plan for emergency; carefully plan effective emergency contingency response and procedures - train some workers for firefighting - provision of firefighting equipments and tools; provision of first aid kits and adequate medicines - organize mock drills for firefighting and first aid programme regularly; keep the pond always full with water at the ready - provide adequate PPEs - give priority to installation of lightning rods and arresters to avoid or prevent lightning strikes - apply safe and effective procedures for storage of fuel and chemical

		- display warning signs - accidents, or near-missed to be duly reported - display addresses/phone numbers of Fire Brigade, Ambulance Service, Hospital, Police Station so that everyone can see easily - take out insurance for the factory and also fire insurance - educate workers for safety awareness and also awareness of health and hygiene - provide proper sanitation facility, eg- bath rooms, toilets etc.
11.	Potential social issues	- plan and manage for potential social issues including social illness and antisocial behaviours - prevent sexual harassment or sexual offensive by unruly male workers on women employees - discipline employees for social conduct - take disciplinary actions for wrong doer - prevent and manage disputes, quarrels, brawls among workers and also between workers and locals - educate workers for dealing with the locals; to respect their tradition and custom
12.	Potential security issue	- plan and manage for factory security - do not let the factory beome a soft target for terrorists - implement strict security as far as possible - deploy adequate security staffs; security guards at gate; at office building and also at dormitory - if possible install security/watching towers - perform security check on each and every one entering and leaving the factory - in addition to worker suits issue Identity Cards for all employees for easy identification - keep all important materials secured and safe.; eg.under lock and key as far as possible
13.	Public perception	- draw up plan for maintaining positive perception of the locals - plan and manage for building more good relation with the local community - appoint a public relation officer (liaison officer) to deal with the locals - maintain the ongoing good relation with the neighbours - implement CSR activities and other social assistant programme - prioritize the hiring of locals over hiring personnel from beyond; promote employment of women - prioritize purchasing locally produced food and materials

		- uphold the culture and tradition of the area - educate employees on appropriate behaviours in the neighbourhood pertaining to local culture and etiquettes - implement an appropriate complaint and grievance (if any) procedures with feedback mechanism; keep a log book for all complaints or grievances - heed to the views and opinions of the neighbours - communicate the availability of job opportunities to the locals from time to time if there is any vacancy in job

8.3.4 Mitigation and associated measures to be taken during the Decommissoining Phase

Table-14: Proposed mitigation measures to be taken during the Decommissoining Phase (in tabulated form)

Sr. No	Negative impacts (significant and insignificant)	Mitigation/prevention/protection/ control/corrective/remediation/alleviation measures
1.	Impact on the aesthetics of the landscape	- manage for effective decommissioning of the site - hire a decommissioning contractor and party to do the work - dispose material that are no longer usable; redeploy or put up for sale those that are usuable - restore the ground and soil profile
2.	Potential residuals impact	- clear and remove all residual eg- chemicals - remove all soil contaminated by the fuel oil - test the soil for the last time to ensure that no contaminants remain - test the ground water for the last time for contamination - restore the plot and soil to its original condition - vegetate or rehabilitate the plot

9. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Environmental Management Plan (EMP) is the key to ensure that the environmental quality of the area does not deteriorate due to the implementation of a project. EMP involves the management of the overall environmental issue including the physical, biological, socio-economic, cultural and visual issues. EMP is a long term systematic approach from planning, development, implementation, monitoring and feedback. EMP also involves management for quality of the project.

The overall EMP includes planning and design of an environmentally friendly Motorcycle Factory that fully utilized eco-friendly machinery, equipment and vehicles that emit less smoke, lower noise level, and those that are fuel and energy efficient; and also the conservation of water and recycling of water and waste as far as possible. EMP covers so many aspects of the project it is difficult to consider all the aspects of EMP.

The EMP is an essential tool for ensuring that mitigation of the negative impacts and enhancement of the positive impacts is undertaken effectively throughout the life of the project. An EMP should ensure the best available technologies (BATs) and best environmental management practices are pragmatically, efficiently and cost-effectively implemented.

9.1 Executive sumary

The executive summary has been already described earlier. This will not be repeated here.

9.2 Project description

The description of the project has been already described in detail earlier in **Chapter-1**. This will not be repeated here.

9.3 Health policy and commitment, legal requirement and institutional arrangement

9.3.1 Health policy

The health policy of the Nation is "Health for All".

The policy guidelines for health service provision and development have been provided in the constitution. **Article-28** of the constitution of the Repullic of Union of Myanmar (2008) States that:

The Union shall:

- earnestly strive to improve education and health of the people

Article 367:

Every citizen shall, in accord with the health policy laid down by the Union, have the right to health care.

National Health Policy (1993)

The National Health Policy was developed with the guidance of the National Health Committee in 1993.

The National Health Policy has placed "Health for All" goal as a prime objective. There are 15 main points regarding the National Health Policy (1993). The first main point No.1 is:

- to raise the level of health of the country and promote the physical and mental well-being of the prople with the objective of achieving "Health for All"

The main point, No.9 concerns environment which states:

- to intensity and expand environmental health activities including prevention and control of air and water pollution

Health Legislation

Certain portion of health legislation also addresses environmental sanitation and communicable disease prevention, as far as environmental affair is concerned. That includes the control of disposal of human and other wastes, concerns for water purity and hygiene of housing and food sanitation.

Certain health legislation that are relating in one way or another, to environmental affairs are:

- The Public Health Law (1972)

  Which includes environmental sanitation and cleanliness of food, among others

- Prevention and control or communicable Diseases Law (1995) (Revised 2011)

  This law describes measures to be taken in relation to environmental sanitation, among others.

- The control of smoking and consumption of Tobacco Product Law (2006)

  This law describes the creation of tobacco smoke free environment, among other. This is of relevant at the work place and project site where many employees are working.

Health Development Plan and Myanmar Health Vision 2030

This long term plan has been drawn up to meet any future health challenge. This plan has 9 main objectives and one of them is:

- to develop a health system in keeping with the changing political, socio-economic and environmental situations

9.3.1.1 National Environmental Health Agenda

Environmental Health is actually one of the intergral parts of Environmental Protection and Conservation aspect. EIA, IEE and EMP works normally encompass the physical, biological, socio-economic, cultural and visual components of the surrounding environment. The third component, that is, socio-eocnomic, includes public health component, (mortality and morbidity, diseases, accident and injuries etc.).

The Occupational and Environmental Health Division under the Department of Public Health is the focal point agency concerning Occupational and Environmental Health aspects.

This Department (Division) is involved in:

- environmental monitoring eg- air quality, water quality
- work place assessment eg- air quality, waste and water quality, heat stress, light, noise level

Health Impacts Assessment (HIA) and Social Impacts Assessment (SIA) are actually important parts of environmental protection and conservation works.

9.3.1.2 Environmental, Health and Safety (EHS)

The International Finance Corporation (IFC), a division of World Bank, has prescribed EHS general guidelines for general industrial practices. It provides guidance to users on EHS issues in doing their business.

The applicability of the EHS guideline shall be tailored to the hazards/risks or impacts identified as the result of EIA.

The IFC's EHS General Guidelines encompass Environmental, Occupational Health and Safety (OHS) and Community, Health and Safety (CHS).

Environmental

This main section includes:

a) air emission and ambient air quality
b) energy conservation
c) waste water and ambient water quality
d) water conservation
e) hazardous materials management
f) waste management
g) noise management and
h) contaminated land management

a) Air emission and ambient air quality

The guideline describes how to avoid or mitigate the impacts on human health, safety and on the environment from emission.

b) Energy conservation

The guideline provides information about common techniques for energy conservation. For instance, in the operation of environmentally friendly equipment, machinery, vehicles, motors, pumps, fans etc. and the operation of Heating, Ventilation and Air Conditioning (HVAC) systems.

c) Waste water and ambient water quality

The guideline provides management of waste water (industrial, domestic, ulitity, sanitary waste waters) and management of ambient water quality. It provides common techniques for waste water treatment and for the application of reduce, reuse, recover and recycle principle.

d) Water conservation

The guideline provides the techniques for continuous reduction in water consumption and water management, water monitoring, reduce, reuse and recycle of water, if possible, and also rain water harvest and storm water harvest and uses.

e) Hazardous materials management

The guideline provides guidance for any project that use, store, and handle any quantity of hazardous materials (Hazmets). Hazmets is defined as materials that represent a risk to human health, property or the environment due to their physical and chemicals characteristics eg- explosives, compressed gases, flammable gases, liquids and solids, oxidizing substances; toxic, radioactive and corrosive substances.

f) Waste management

The guideline is applicable for any project that generate, store or handle any quantity of wastes. Waste management covers waste prevention, waste storage; waste reduction, reuse, recover and recycle; waste transportation and disposal.

g) Noise management

The guideline is for the management of noise level when it exceeds the guideline values for day and night and for certain situations. The measures include the selection of eco-friendly machinery, equipment and vehicles; installation of silencers, mufflers, casing of equipment, installation of acoustic barriers, provision of PPEs etc.

h) Contaminated land management

Land is considered contaminated when it contains hazardous materials or oil concentration above naturally occurring level. The guideline provides the management of contaminated land/soil which includes prevention, mitigation, soil management especially risk assessment and management including the removal of contaminated soil.

Occupational Health and Safety (OHS)

The Occupational Health and Safety guideline by IFC encompasses:

- general facility design and operation
- physical hazards
- chemical hazards
- biological hazards
- radiological hazards
- Personal Protective Equipment (PPE)
- special hazard environments
- communication, training and monitoring

Community Health and Safety (CHS)

The Community Health and Safety guideline by IFC encompasses:

- water quality and availability
- structural safety of project infrastructure
- life and fire safety L&FS
- traffic safety
- transport of hazardous materials and disease prevention
- emergency preparedness and response

9.3.1.3 Occupational Health and Safety (OHS) by ILO

OHS is defined by International Labour Organization (ILO) as:

- The science of the anticipation, recognition, evaluation and control of hazards arising in or from the work place that could impair the health and well-being of workers taking into account the possible impact on the surrounding communities and the general environment.

Some core principles of OHS

- All workers have rights and employers must ensure that:
  - work should take place is a safe and health working environment;
  - condition of work should be consistent with worker's well-being and human dignity;

- Occupational safety and health policy must be established
- Social partners (employers and employees) and other stakeholders must be consulted
- OHS programmes and policies must aim at both prevention and protection
- Continuous improvement of OHS must be promoted
- Health promotion is a certral element of OHS practices
- Compensation, rehabilitation and curative services must be made available to workers who suffer occupational injuries, accidents and work related diseases
- Education and training are vital components of safe, healthy working environment
- OHS policy must be enforced

Workers' rights, employers' responsibilities and governments' duties

Workers' rights

The protection of life and health at work place is a fundamental workers' right. Workers have a duty to take care of their own safety as well as safety of anyone who might be affected by what they do or fail to do. They have the right to get education and training concerning their work. They have the right to stop work in the case of imminent danger to safety or health.

Employers' responsibilities

It is the responsibility of the employers to ensure that the working environment is safe and healthy; they must prevent and protect workers from occupational risks.

Training is one of the most important tasks to be undertaken by employers. Workers need to know how to do their job as well as how to protect their lives and health and those of their co-workers while working.

Employers must be prepared for dealing with accidents and emergencies and that will include providing first-aid facilities and training. Employers should made adequate arrangements for compensation of work-related injuries and diseases as well as for rehabilitation for effected workers.

Governments' duties

The Government is responsible for drawing up OHS policies and making sure that they are implemented. Policies will be reflected in legislation and legislation must be enforced.

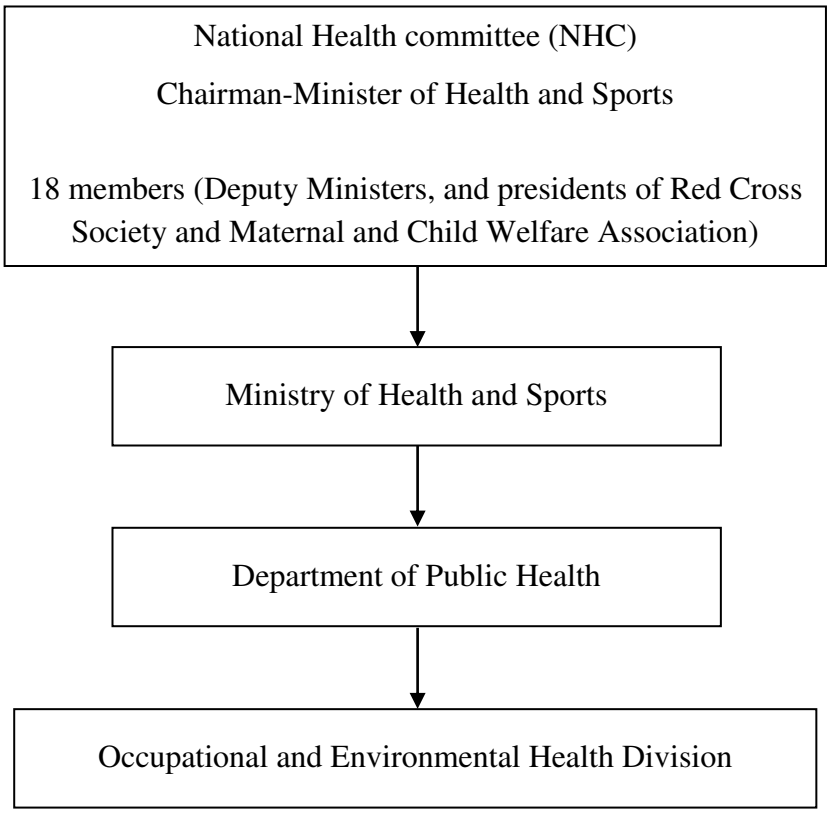
OHS issues should be also addressed by means of collective agreements reached between the employees and employers.

9.3.2 Commitments

The Commitments for doing environmental sound business and for implementing CSR programs has already mentioned earlier in **Chapter-1**. This will not be repeated here.

9.3.3 Institutional Arrangement

Institutional Arrangement (organization)



The National Health committee (NHC) is an umbrella organization comprising 18 members from 9 ministries and one member of Nay Pyi Taw Council, and president of Red Cross Society and Maternal and Child Welfare Association.

The Chairman of NHC is the Uinon Minister of Health and Sports while the Vice Chairman is the Union Minister of Labour. 9 deputy ministers under 9 ministries and a member of Nay Pyi Taw Council, the president of Red Cross Society, and the presidents of Maternal and Child Welfare Association are also members of NHC.

The Deputy Minister of Health and Sports is the secretaries while the Director General of Department of Health Planning, is the Joint secretary.

The Occupational and Environmental Health Division under the Department of Public Health is the focal agency involves in environmental and health affairs.

The occupational and Environmental Health Division is involved in implementing Environmental Health Programme in the country.

At the moment it is involved in:

- Environmental monitoring: on air quality and water quality
- Medical monitoring: health assessment on workers (periodic medical examination, performing physical examination, chest X-ray, biomarker survey on workers)
- Work place assessment: eg- on air quality, waste (solid) and waste water, heat stress and light, noise level, soil quality, water sanitation and hygiene etc. in certain factories.
- Assessment of environmental health probably relted to climate change and general health impact assessment.

9.4 Summary of impacts and mitagtion measures

The negative/potential negative impacts (both significant and insignificant) as well as positive impacts identified during the Preconstruction Phase, Construction Phase, Operation Phase and Decommissioning Phase are already described in **Chapter-6**. In this Chapter the mitigation measures for each and every negative impacts is all briefly described in outlines.

9.4.1 During the Preconstruction Phase

1) Impact: polarization of local into pro-project and anti-project groups due to instigation by activists and radical environmentalists.

Mitigation measure (outline)

- Early public meeting and consultation; transparency.
- Prioritize employing locals over personnal from beyond.

2) Impact: potential hiking of land and property

Mitigation measures (outline)

- Early public meeting and consultation.
- Staffs should not get involve them selves in speculative business.

9.4.2 During the Construction Phase

1) Impact: mobilization and preparation actions

Mitigation measures (outline)

- Carefully plan for mobilization, storage and preparation works.
- Have logistic plan for heavy trucks loaded with building materials.
- Systematically store or pile up all the building materials within the premise.

- Ensure that the wall or fence is reliable and can effectively prevent theft.
- Prevent the spilling over of the building materials outside the factory premise or on nearby roads, viz. Sagaing-Myitnge Road.
- Temporary parking of heavy trucks, should be made inside the compound.

2) Impact: potential interference with public or private utilities

Mitigation measures (outline)

- Careful design and planning.
- Identify telephone poles, electric poles, water pipe etc that will have to bemporary removed, if any.
- Inform the authority concerned in advance and seek their assistance.
- Remove, relocate and restructure the services of these utilities prior to actual commencement of construction work.

3) Impact: potential accidents in the work place

Mitigation measures (outline)

- Plan and manage for zero accident.
- Set up "Safety First" sign boards at places where workers can see easily.
- Create safety condition for all workers; create accidents free environment.
- Educate, train and supervise construction workers for good working practice, good engineering practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind.
- Try to meet all statutory requirement for safety construction (rules, regulation, labour Act).
- Provide adequate Personal Protection Equipment (PPE) where necessary.
- Keep first aid kits well-stocked with medicine and drugs.
- Accidents or near-missed to be duly reported.
- Prohibit the drinking of alcohol during working hours; ban the use of narcotics among workers.
- Plan and manage for effective emergency response.
- Cover the whole structure during the Construction Phase with nylon lace or netting to prevent accidental falling of debris and tools etc (a common engineering practice implement in construction work).

4) Impact: emergency and health service

Mitigation measures (outline)

- Plan and manage for zero accidents at work place.
- Create safety condition for work places (Construction Phase).
- Educate and train workers for good working practice, good engineering practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind.
- Prevent and avoid accidents and try to achieve zero accident at work places.
- Educate and train them for health education and hygiene.
- Train a few workers in First Aid Training.
- Keep first aid kit well-stocked with medicines and drugs comprising anti-malaria, anticholera, anti-toxicant and anti-poisonfor harmful insect and snake bites.
- Draw up a plan for emergency; carefully plan effective emergency contingency response and procedures.
- Train some workers for firefighting.
- Provision of firefighting equipments and tools; provision of first aid kits and adequate medicines.
- Organize mock drills for firefighting and first aid programme regularly; keep the pond always full with water at the ready.
- Provide adequate PPEs.
- Give priority to installation of lightning rods and arresters to avoid or prevent lightning strikes.
- Apply safe and effective procedures for storage of fuel and chemical.
- Display warning signs.
- Accidents, or near-missed to be duly reported.
- Display addresses/phone numbers of Fire Brigade, Ambulance Service, Hospital, Police Station so that everyone can see easily.
- Take out insurance for the factory and also fire insurance.
- Educate workers for safety awareness and also awareness of health and hygiene.
- Provide proper sanitation facility, eg- bath rooms, latrines

5) Impacts on air: dust, smoke and gas emission

Mitigation measures (outline)

- Plan for the management of dust and smoke (management of overall rural air quality).
- Try to meet NEQ (emission) guideline values prescribed by ECD.
- Always avoid open burning of debris.
- Spray water for suppression of dust.
- Restrict vehicular movements; maintain road clear of dirt.
- Stop earth work for a while when strong wind is blowing; also stop loading and unloading of earth.
- Limit open stockpile of earth and sand.
- Minimize drop height when loading and unloading of sand and earth.
- Plant fast growing trees around the site to trap dust; create green zone, and green lawn. The company has so far, a total of 732 plants including shade trees and fruit trees which can also act as wind breaker, dust trap, noise abator and CO_2 sequestrator, and O_2 producer.
- Plan in the Pre-construction Phase for the procurement of equipment and vehicles that are eco-friendly and emit less smoke (to be certified for emission compliance).
- Keep equipment and vehicles well-operated and well-maintained for reducing smoke emission.
- Use fuel with low emission rate eg-fuel with low sulphur content, if that is possible.
- Provide Personnel Protection Equipment (PPEs), eg- face masks, nose and mouth covers to workers exposed to long hours of dust and smoke; enforce and make it mandatory.
- Regular cleaning of construction site.
- Covering of bulk material during transportation.
- Local community should be able to file complaint regarding dust and smoke.

6) Impacts: noise and vibration

Mitigation measures (outline)

- Plan for the management of noise and vibration.
- Try to meet NEQ guideline for noise level prescribed by ECD.
- Plan in the Pre-construction Phase for procurement of equipment, and vehicles that are eco-friendly and emit lower noise level (to be certified for noise and vibration compliance).

- Restrict noise to working hours only; no construction work at night.
- Routine maintenance of equipment and vehicles.
- Install silencers or noise abators on machinery that generate high level of noise.
- Avoid many equipment operating at the same time.
- Switch off or throttle down equipment during idle periods.
- Schedule high noise activity only at certain peviod during day time hours.
- Limit the speed of vehicular movements to reduce noise and vibration.
- Install barrier fence, if possible
- Keep equipment and vehicles well-operated and well-maintained for reducing noise level and vibration.
- Manage vibration of machinery and vehicle; if possible install vibration absorbers or vibration insulators.
- Plan for suitable foundation design for some machinery to mitigate vibration.
- Plan fast growing trees around the site to absorb noise.
- Provide PPE, eg- ear muffs, ear protectors to workers exposed to long hours of high noise level.
- Community should be able to file complaint regarding noise.

7) Impact: potential impacts on soil

Mitigation measures (outline)

- Plan for the management and conservation of soil.
- Avoid unnecessary destruction of soil profile during the construction work.
- Separate top soil (for later creation of green belt) from sub-soil (for construction work, eg-earth filling etc.).
- Store top soil removed on higher ground outside the normal flood level; remove excavated top soil from all areas where physical disturbances (wind, water) of the surface occur.
- Implement soil conservation technique to prevent soil erosion and siltation (during the rainy season).
- Effectively use top soil for rehabilitation that is, planting of trees.
- Prevent wash water from carrying earth and materials into drainage system causing siltation.

- Resurface and stabilize the exposed ground surface after earth work of the Construction Phase.
- The ground should not be laid bare for long period during the rainy season.
- Soil compacted by heavy machinery and heavy vehicles shall be raked and restore to original condition.
- Avoid or prevent fuel oil spill on soil; should spilling occurs clean up immediately (do not wash down with water but use absorbent or saw dust for removal of fuel oil spill).
- Properly train workers with respect to handling of fuel and cleanup of spills.
- Display warning signs; identify high risk spill area.
- Adequately maintain machinery and vehicles to prevent oil leaks resulting to soil contamination.
- Bund the fuel depot to prevent oil from spreading; use dip trays to protect soil from fuel oil spill.
- Solid waste and liquid waste should be disposed of at a designated site.
- Educate and train workers for good house keeping practice; do not litter, do not pollute the area.
- Bund fuel or chemical depot to prevent spreading of spill; proper collection and storage of used oil, lubricants.

8) Potential impacts on water

Mitigation measures (outline)

- Plan and manage for the conservation of water.
- Also plan and manage to prevent the pollution of surface and ground water.
- Do not use water more than necessary during the Construction Phase.
- If possible recycle water; it can be used for dust suppression or for watering plants.
- Discipline workers for the conservation of water.
- Harvest rain water where possible (during the rainy season).
- Develop water treatment facility eg- sedimentary sand tank to remove soil from waste water.
- Monitor the daily use of water for construction.
- Avoid the spillage of fuel oil which will contaminate the soil and eventually ground water.

- If there is spillage clean up spill with absorbent promptly (do not wash down with water).
- Properly train workers with respect to handling of fuel oil and clean up of accidental spill.
- Adequately maintain vehicles and machinery to prevent spillage resulting to ground water contamination.
- Bund fuel depot to prevent spreading of fuel oil.
- Display warming signs; identify high spill areas (generator, fuel tank etc).
- Avoid disposing of waste (solids and liquids) into water body, if any, nearby.
- Plan for management of temporary latrines, if any, for construction workers to prevent the eventual contamination of ground water; spread soil or ash into the latrines from time to time; back-fill the latrine when the construction works are completed.
- The local community should be able to file complaint, if there is any impact on their drinking water.

9) Impact: waste (solids and liquids)

Mitigation measures (outline)

- Plan for the management of waste
- Manage to meet statutory requirement (rules, regulations, Muncipal Act)
- Draw up a plan for management of solid waste
- Manage to meet a statutory requirement, (rules, regulations, Municipal Acts)
- Avoid open burning of debris
- Clear the ground regularly; ensure dumping at approved landfill
- Educate workers for good house keeping; do not litter
- Plan for reuse and disposal of construction tailings and left overs
- At the end of Construction Phase put up construction spoils, left over materials for sale
- Hire a contractor and party for tidying up the site after Construction Phase
- The local community should be able to file complaints if regarding waste disposal

Note: There will be virtually no waste water during the Construction Phase. All required water will be used up during mason works or concrete works etc. Temporary pit latrines rather than toilets will be provided for construction workers.

10) Potential impact on biodiversity

Mitigation measures (outline)

The impact, if any, will be negligible or zero as the site is a vacant plot and the surrounding areas are farm lands. However there are a very few trees and bush in the area.

- Manage for the maintenence of flora, if any.
- If possible, keep all original trees in the vicinity intact.
- Do not clear small plants or grass more than necessary for construction work.
- Plant trees, flowering and ornamental plants and grass wherever and whenever it is possible to do so.

11) Potential social impacts: ill-social behaviour

Mitigation measures (outline)

- Plan to avoid or minimize the potential negative impacts on the socio-economic life of the locals as well as the company employees.
- Try to build and maintain good relation with the locals.
- Conduct public consultation from time to time so that the locals will have a positive perception of the project.
- Educate the workers for appropriate behaviour when dealing with locals; to respect their culture and tradition.
- Draw up a plan for management of misbehaviour and social illness.
- Keep separate housing (dormitory) for male and female workers.
- Provide proper training on work place regulation and code of conduct.
- Provide adequate welfare programme for wokers.
- Educate workers to be good workers, dutiful and well-disciplined.
- Educate and train them for good working practice and good safety practice until the habit is ingrained in their minds.
- Deal with workers on a fair and square basis.
- Apply punitive measures, eg-suspension of the wrong doer.
- Strictly prohibit the drinking of alcohol during working hours and total ban on the use of narcotics.
- Provide sanitation for workers eg- latrine, bath, small septic tank and adjoined soak pit for treatment of waste water

12) Potential security issues

Mitigation measures (outline)

- Draw up a security management plan.
- Effective walling of the compound.
- All accesses must be controlled.
- Set up security gates; deploy adequate guards or watchmen.
- Do not let the workers (mostly construction workers) enter the neighbouring ward without preauthorization; do not let workers mingle freely with locals.
- Store building materials under lock and key as far as possible
- Ask the building contractor to discipline his workers.
- Apply punitive measures, such as suspension or termination of employment if necessary.

9.4.3 During the Operation Phase

1) Impact: visual impacts, light at night

Mitigation measures (outline)

- Plan and manage the factory which is focused on visual appeal.
- Paint the building with eye-pleasing colours; variation of colours may necessary.
- Avoid bright offensive colour, eg bright red colour or dark and gloomy colour.
- Create green lawn and carry out small landscaping in available space; plant beautiful trees and flowers trees in all available space to enhance the esthetic beauty of the factory.
- Maintain the impressiveness of the factory.
- Do not use too glittering or brilliant light at night that can be offensive to the eyes or displease the eyes; use appropriate lightings which are pleasing to the eyes.
- Avoid excessive use of light; with the exception of façade or entrance the other lights inside the compound should be for only security reason.
- Keep the lamps (bulbs) at the lamp posts at a slanting position rather than directing out ward.
- The lights out side the building (those inside the compound) should be yellow light (white light attracts more insects at night and kills them; if so many insects aggregate at night turn off the light for a while).

2) Potential traffic issue

Mitigation measures (outline)

As housing will be provided for employees there will be little activities for ferrying employees.

- Draw up a traffic management plan.
- Schedule the logistics; avoid rush hours;
- Provide adequate parking lots; forbid parking cars on roadside.
- Set up signage or traffic signs at the entrance of the factory or suitable places.
- Educate drivers, staffs (motorists and motorcyclists) for defensive driving; drive at reduced speed.
- Avoid overloading of truck, or any vehicles.
- Cover transportation vehicles with sheets to avoid dropping materials.
- Regular maintenance of cars and motor bikes.
- Local community should be able to file complaints regarding traffic issue.

3) Impacts on air quality: dust, smoke and gas emission

Mitigation measures (outline)

- Potential emission will be minor; assembling and installation of motorcycle parts do not generate emission; no smoke and no stack required.
- Draw up a plan and implement for air quality management for the long term Operation Phase.
- Try to meet all statutory requirements (rules, regulations); follow the NEQ guideline values prescribed by ECD, MOECAF (2015).
- Spray water adequately to suppress dust.
- Reduce the speed of vehile to reduce dust generation.
- Plant trees for trapping dust.
- Plan for effective mitigation and management of smoke and emission.
- Avoid open burning of solid waste.
- Use well-maintained and well-operated equipment and vehicles.
- Regularly check all the engines of vehicles and machinery.

- Use vehicles and machines that emit less smoke and use less fuel.
- Conserve fuel and prevent unnecessarily emission of gas (smokes).
- Plant trees and create green zone; trees will sequestrate CO_2 in the smoke.
- Provide adequate PPE such as face masks, nose and mouth covers to workers, especially those working in welding, especially those working in welding, especially those working in welding, especially those working in welding, especially those working in welding area and painting area.

For the management of air quality inside the factory:

- Plan for good ventilation and natural air flow as far as possible.
- Follow safety procedures including good ventilation.
- If possible, designate "smoking zone"in one part of the factory.
- Keep the workplaces clean.

4) Impact: noise and vibration

Mitigation measures (outline)

- Plan for effective management of noise and vibration.
- Try to meet all statutory requirements (law, regulation).
- Follow the NEQ guideline values for noise and vibration prescribed by ECD, MOECAF (2015).
- Restrict or limit vehicular movements.
- Plan for appropriate choice of machinery and vehicles (that emit low noise level); method of working, efficient material handling.
- Installation of noise abating devices eg- silencers, mufflers at air inlet and outlet of fan and compressor; place noisier sources far away in overall design.
- Well-operated and well-maintained vehicles and machinery generate lower noise level and prevent undesirable noise level.
- Modified old machinery, vehicles and equipment by incorporating minor design change for reducing noise level.
- Develop green belt (plant trees) around the mining/quarry site; trees abate noise and serve as noise sink (pollution sink).
- Create smooth road surface as far as possible to mitigate vibration due to vehicular movement.

- Create suitable foundation design for machinery and equipment (eg. compressor and pumps etc.) to mitigate vibration.
- If necessary install vibration absorbers or vibration abators.
- Position, enclose and isolate noisier machinery.
- Provide adequate PPE eg- ear muffs, ear protectors to workers exposed to long hours of high noise level; conduct regular noisemonitoring to ensure that the levels are within noise exposure standard (not higher than 85-90 dBA)especially for generators and pumps.

5) Impact of the factory on gridline power supply and vice versa

Mitigation measures (outline)

- Consider for application of environmentally sound idea and technology when sourcing for electricity.
- Aquire conservation of energy knowledge in the planning and design phase of the factory.
- Plan and manage for the conservation of electricity energy.
- Design the building to take advantage of sunlight and air flow.
- Opitimize building orientation for sunlight; allowing sun-light to penetrate building to provide light to illuminate interiors.
- Ensure that the consumption of electricity be in the work frame as stated earlier (600,000 units/year).
- Monitor electricity consumption weekly.
- Use electrical equipment, devices that are energy efficient, particularly use energy efficient equipment associated with heating, vestilation, air conditioning and cooling (HVAC).
- Install renewable energy system eg-solar water heating system; solar panels (photovoltaic cells), if possible.
- Use high efficiency light bulbs, lamps, tubes etc.
- Use day light as mush as possible.
- Use day light control (adjust interior lighting by incoming day light so that there is no need to switch on the light during day time).
- Ensure that the backup generator is operational immediately after power outage or use automatic backup system.

6) Potential impacts on water

Mitigation measures (outline)

- There is little or no use of water for industrial purpose (assembling, installation do not need water) only mainly for domestic purpose.
- Plan and manage for the conservation of water.
- Ensure that the consumption of water be in the workframe stated earlier (6,648,475 gallons/year).
- Monitor the daily, weekly and monthly consumption of water.
- Ensure that the amount of water needed is sustainable for all seasons and also does not affect the neighbourhood.
- Conserve water, minimize the use of water in house keeping, cooking, machinery and vehicle maintenance and washing, ground maintenance for greens and lawns, and personal uses by employees.
- If possible recycle water; recycled water can be used for dust suppression and watering lawns and plants.
- Apply appropriate plumbing, and ensure there is no leaking of water.
- Build water tanks and ponds and harvest rainwater from the eaves of the roofing; if that is feasible; rainwater can be used in washing of machinery and vehicles, suppression of dust, watering plants and for fire fighting etc.
- Select plants and grass species that need little water and design the landscape (garden) to reduce the use of water.
- Use water saving equipment including flush toilets, spray nozzles, urinals, faucets, low-flow shower heads, water spigots and pressure control values.
- Check the water quality at least twice a year (hire technicians to do this).

7) Impacts: waste (solids and liquids)

Mitigation measures (outline)

- Plan and implement the management of wastes.

For solid waste in general:

- Assembling and installation of motorcycle parts generate virtually no industrial solid waste; only domestic wastes are generated from 700 workers.
- Plan and implement the management of solid wastes.
- Dispose the solid wastes outside the factory at an approved landfill or dumping site (in the North West).
- Avoid open burning of debris or trash outside the factory.

For solid waste in the office, dormitory and kitchen:

- When buying things for use, buy in bulk quantity wherever possible (to reduce packing waste).
- Use refillable bulk dispenser, (eg- toiletries) rather than individually pocked products.
- Buy products with minimal product packing (because all packing materials become waste).
- Implement organic-waste compositing of some wastes from the kitchen for organic fertilizer to apply in lawn, and green.
- Segregate wastes into categories; waste that can be recycled and that has to be disposed off, using two different waste bins.
- Dispose waste only after all waste prevention and possible recycling strategies have been explored.
- Dispose wastes only at approved landfill (in the North West).
- Always avoid open burning of solid waste; if possible, use incinerator and ensure for the complete combustion of waste leaving only ash powder.

For liquid wastes

- The assembling and installation of motorcycle parts need little or no water; therefore, there is no industrial liquid wastes (effluents). There will be only domestic liquid wastes (effluent) from the 700 workers.
- To manage waste water, first reduce and minimize the use of water where possible.
- Control the use of chemicals (use biodegradable products).
- If possible, avoid the use of clearing chemicals that contain in excess of toxic chemicals.
- If possible, also use refrigerators that are Chlorofluro Carbon (CFC) free; also select refrigerators with low global warmingproducts (GWP).
- Treat all the waste water before discharge into the sewage system (the readily available chemical water treatment is chlorine at 5 mg/l or Monochloramine at 3 mg/l which are effective and cheap). Mild chlorination is done from time to time but no specific waste water treatment is done for the time being.
- Comply with the NEQ guideline values (for effluent) prescribed by ECD.
- Manage the factory effluent to a level that is consistent with the conventional treatment and discharge of sanitary waste water.
- Waste water (brown water) flows into the drainage system and ends up at the North West (a small swamp); most evaporate along the way due to high temperature. Black water (sanitary waste water from toilets) end up in septic tanks.

8) Occupational Health and Safety (OHS)

Mitigation measures (outline)

- Study the OHS mentioned earlier in **Chapter-6 (6.3.8)** and draw up a comprehensive plan and manage for the safety working condition for employees.

- Create a safety environment especially safety work place maximize mechanical labour and minimize manual labour as practical as possible. Mechanical labour increase productivity and efficiency and minimize accidents and risk. For instance the application of robotic welding machines and automated spray painting machines increase efficiency and productivity potential impact on workers. (The company is exactly doing this).

- Educate, train and supervise workers for good working practice, good engineering practice, good safety practice and also good house keeping practice so that all these good practiced are ingrained in their mind and become good habits.

- Especially educate, train and supervise them for skill; for handling of and operation of equipment; handling and application of chemical, especially harmful ones.

- Educate and train them on environmental awareness and occupational health hazards.

- Provide health and hygiene training (ensure all hygiene practices are followed, eg- WHO's)

For generalized management of work condition at assembly line:

- Keep all machinery, equipment well-maintained and well-operated (make regular check).

- Provide adequate Personal Protection Equipments (PPEs) eg- outfit, boots, helmet, gloves, face mask, Respiratory Protection Equipment (RPEs) goggles, face mask, ear muff, ear protectors etc, also tools such as sit-stand tools for workers who have to stand for long hours. (Wearing of safety outfit and PPEs is mandatary for workers).

To relieve workers doing monotonous and tedious work from stress and strain and psychological impact:

- Reorganize staff organization at the assembly line (eg- reorganize a team of maximum 10 workers for better cooperation).

- Redesign work station; make tool redesign, create adjustable fixtures, readajust work breaks, make job rotation etc. (This will increase Team Corporation and enhance productivity.)

9) Potential accidents in workplaces

Mitigation measures (outline)

- Carefully plan and create a safety workplace; try to achieve zero accident.
- Maximize mechanical labour and minimize manual labour as practical as possible. (The company is exactly doing this instead of manual welding robot welding machines are deployed; this minimize accident and impact on workers and greatly increase efficiency and productivity. Spray painting is done by automatic spray guns, this also minimize impact on workers. Automation is applied as far as possible to reduce accident at work place and increase production).
- Study the accidents in workplaces mentioned earlier in **Chapter 6 (6.3.9)** and draw up a comprehensive plan and manage for a zero accident work environment.
- Beware of all the common accidents and common injuries mentioned earlier **(6.3.9)** that used to happen (as well as potential accidents and injuries) and implement a prevention, protection and mitigation measures for each.
- Unknown to many workers certain materials (eg- foam made of polyurethere) and chemicals are toxic or hazardous. Educate them and provide adequate PPEs and other protection or prevention measures for them. Use alternative materials for environmentally safety purpose (eg- use synthetic leather for seat rather than real leather).

10) Impact: lack of emergency and health (hospital) services

Mitigation measures (outline)

- Careful plan for emergency preparedness, emergency procedure, contingency plan, rescue operation plan and lifesaving.
- Organize and provide first aid training for some workers.
- Also organize and provide fire prevention and firefighting training.
- Provide adequate First Aid Kit well-stocked with adequate medicine.
- Provide adequate Fire extinguishers, and other firefighting equipment and devices; keep water tanks always full for firefighting. (There are 38, and 30 fire extinguisher at Factory 1 and 2, respectively; and also 20 at office building).
- For emergency response organize mock drills and rehearsals from time to time. Also organize mock drills and rehearsal not only for fire but also for natural disaster such as earthquake and violent storms.
- Clearing mark fire exist or evacuation/emergency route.

- Phone numbers and address of Red Cross Society, Ambulance service, Fire Brigade, Police station, Amarapura hospital and Mandalay hospital, must be displayed so that everyone can easily see.
- Deploy a car for all time emergency.
- Take out insurance for the company; and also take out fire insurance.
- Create safety work condition in work places.
- Try to achieve zero accident at work place.
- Train workers for good working practice, good safety practice and good house keeping practice.
- Also educate them for good health practices and hygiene.
- For sick or injured workers prompt First Aid treatment is given and then immediately admitted to the nearest Amarapura Township Hospital or Mandalay Regional Hospital.

11) Potential social impacts

Mitigation measures (outline)

- Plan to avoid or minimize the potential negative impacts on the socio-economic life of the locals as well as the company employees.
- Try to build and maintain good relation with the locals.
- Conduct public consultation from time to time so that the locals will have a positive perception of the project.
- Educate the workers for appropriate behaviour when dealing with locals; to respect their culture and tradition.
- Draw up a plan for management of misbehaviour and social illness.
- Keep separate housing (dormitory) for male and female workers.
- Provide proper training on work place regulation and code of conduct.
- Provide adequate welfare programme for wokers.
- Educate workers to be good workers, dutiful and well-disciplined.
- Educate and train them for good working practice and good safety practice until the habit is ingrained in their minds.
- Deal with workers on a fair and square basis.
- Apply punitive measures, eg-suspension of the wrong doer.

- Strictly prohibit the drinking of alcohol during working hours and total ban on the use of narcotics.
- Discipline workers for good housing practices.
- Provide sanitation for workers eg- latrine, bath, small septic tank and adjoined soak pit for treatment of waste water (Operation Phase only)
- Community should be able to file complaint regarding noise, dust, smoke or other grievances.
- The authority and employees of the company should not get involve in land and property speculation activities, if any.
- The authority of the company should consider and plan for more CSR actions during the Operation Phase.

12) Potential security issues

Mitigation measures (outline)

- Draw up a security management plan.
- Campaign against social evil to ensure security and order.
- Undertake effective walling of the factory (compound).
- Effectively control all accesses; set up security gates, deploy adequate guards.
- Do not let the workers enter the neighbouring village without preauthorization.
- Do not let workers mingle freely with locals.
- Store certain valuable materials under lock and key as far as possible.
- Apply punitive measures, such as suspension or termination of employment, if necessary.
- Provide ID cards for all workers for easy identification.
- Also provide uniforms for all workers.

13) Impact: public perception

Mitigation measures (outline)

- Draw up plan for maintaining positive perception of the locals.
- Campaign against social evil to ensure security and order.
- Conduct public consultation meeting from time to time.
- Provision of clear and objective information on the project.

- Plan and manage for building more good relation with the local community.
- Appoint a public relation officer (liaison officer) to deal with the locals.
- Maintain the ongoing good relation with the neighbours.
- Implement CSR activities and other social assistant programme.
- Prioritize the hiring of locals over hiring personnel from beyond; promote employment of women.
- Always prioritize local employment.
- Prioritize purchase of local products, foods.
- Provide reasonable wages and salaries.
- Uphold the culture and tradition of the area.
- Educate employees on appropriate behaviours in the neighbourhood pertaining to local culture and etiquettes.
- Implement an appropriate complaint and grievance (if any) procedures with feedback mechanism; keep a log book for all complaints or grievances.
- Heed to the views and opinions of the neighbours.
- Communicate the availability of job opportunities to the locals from time to time if there is any vacancy in job.

9.4.4 During the Decommissioning Phase

1) Impact: accident at work place

Mitigation measures (outline)

- Plan and manage for safe and effective decommissioning work.
- Hire decommissioning contractor for the demolition of buildings and structures and dismantling of equipment; and also tidying up the site.
- Dispose those that are no longer usuable at an approved land fill.
- Machinery and equipment that are obsolete must be made into iron scrap and sent to smelting mill.
- Remove all soil contaminated by oil spill and dispose off at an approvedland fill or dump site.
- Put up for sale or reuse certain equipment that are still usable.
- Level the ground; plant trees and commence rehabilitation work and restore the site to its original condition more than 50 years ago.

2) Potential residual impacts

Mitigation measures (outline)

- Plan and manage for effective removal and clearing of all residuals.
- Test the soil for any contamination by fuel oils or hydrocarbons; hrie technicians (no chemicals is used throughout the Operation Phase)
- Also test the water in the vicinity for pollutants; hire technicians.
- Remove soils contaminated by fuel oils and chemical-; dispose at an approved land fill.
- Ensure that all contaminates are removed; conduct final chemical testing.
- Also removeall other residuals, if any, resulting from 3 plus decades of activities.
- Test the air, water and soil for the last time to ensure that none are contaminated; no trace of pollution left.
- Restore the soil to its natural condition as far as possible and commence rehabilitation task; continue the work until a green zone is created (or) put up the plot for sale (or) redeploy the plot for any business.

9.5 Overall budget for implementation of Environmental Management Plan (EMP)

This will be described in **Chapter-10** of this IEE report.

9.6 Management and monitoring sub-plans for each identified impact (in tabulated form)

Management and monitoring sub-plans for each and every identified impact (significant and insignificant) during the three phases of the project (Preconstruction Phase omitted) are described in tabulated.

Table-15: During the Construction Phase

Sr. No.	Impact	Management and Monitoring sub-plan (MMSP)	Frequency of monitoring	Responsible person
1.	Mobilization action and storage of building materials	- Plan and implement the systematic mobilization and storage and preparetion works for construction. - Monitor the management process and result.	- Weekly	- EMP cell members
2.	Potential interference with public or private utilities	- Careful design and planning; manage so that the all the construction activites do not interfere witn public or private propesting. - Monitor the preparation and construction works.	- Weekly	- EMP cell members

3.	Potential accident in the work place	- Plan and manage for zero accident; create safety condition for all workers, educate, train workers for good working practices. - Monitor the management work for safety condition for all workers.	- Weekly	- EMP cell members
4.	Impact: emergency and health service	- Plan and manage for zero accident at work place. - Plan and implement capacity building for emergency response. - Monitor the management process and results.	- Weekly	- EMP cell members
5.	Impacts on air: dust, smoke, gases emission	- Plan and implement air quality management to meet NEQ guide lines values prescribed by ECD. - Plan and implement in the first place for procurement of environmentally machine, equipment. - Monitor the management process and result	- Daily	- EMP cell members
6.	Impact: noise and vibration	- Plan and implement for the procurement of environmentally friendly equipment and machinery. - Plan and manage for noise level to meet statutory requirement eg- NEQ guideline by ECD. - Monitor the management work and result.	- Daily	- EMP cell members
7.	Potential impact on soil	- Plan and manage for the conservation of soil as practical as possible. - Monitor the conservation of soil.	- Weekly	- EMP cell members
8.	Potential impact on water	- Plan and manage for prevention of water pollution and conservation of water. - Monitor the management process.	- Weekly	- EMP cell members
9.	Impact: waste disposal (solids and liquids)	- Plan and manage the waste. - Monitor the management activites.	- Weekly	- EMP cell members
10.	Potential impact on biodiversity	- Plan and manage for the protection of natural biodiversity, if any, and artificial biodiversity. - Monitor management activities.	- Monthly	- EMP cell members

11.	Potential social impact: ill social behaviour	- Plan and manage for social illness and anti-social behaviour; educate and train workers on dricipline and code of conduct. - Monitor management process and result.	- Monthly	- EMP cell members
12.	Potential security issue	- Plan and manage for security. - Monitor the management activities	- Weekly	- EMP cell members

Table-16: During the Operation Phase

Sr. No.	Impact	Management and Monitoring sub-plan (MMSP)	Frequency of monitoring	Responsible person
1.	Visual impact and light at night	- Plan and manage for the aesthetics of the facility and surroundings and manage the lighting at night. - Monitor the management process.	- Monthly	- EMP cell members
2.	Potential traffic issue	- Plan and manage for traffic, especially at Sagain-Myitnge Road. - Monitor the management work.	- Weekly	- EMP cell members
3.	Impact on air: dust, smoke and gases emission	- Plan and implement for air quality management for the long term Operation Phase; plan to meet NEQ standard guideline by ECD. - Monitor management activities.	- Daily	- EMP cell members
4.	Impacts: noise and vibration	- Plan and implement effective management of noise and vibration; plan to meet NEQ standard guideline by ECD. - Monitor the management work.	- Daily	- EMP cell members
5.	Impact on gridline power supply and vice versa	- Plan and manage for conservation of energy, ensure that the electricity consumption is with the work frame units/year. - Monitor the management process and result	- Weekly	- EMP cell members
6.	Potential impact on water	- Plan and management for the conservation of water; ensure that the consumption is within the work frame gallons/year. - Monitor the management process and result.	- Weekly	- EMP cell members

7.	Impact: waste (solids and liquids)	- Plan and implement the management of waste. - Monitor the management activation	- Weekly	- EMP cell members
8.	Occupational health and safety	- Plan and manage for the safety working condition for employees; educate, train and supervise them for good working and good safety practices. - Monitor the effectiveness of management.	- Monthly	- EMP cell members
9.	Accidents in workplaces	- Plan and manage for zero accident in workplaces. - Monitor the effectiveness of management.	- Daily	- EMP cell members
10.	Emergency and health (hospital) services	- Plan and manage for emergency response. - Monitor the effectiveness of the management.	- Monthly	- EMP cell members
11.	Potential social issue	- Plan and manage for potential social issues especially social illness and antisocial behaviour. - Monitor the effectiveness of management works.	- Monthly	- EMP cell members
12.	Poential security issue	- Plan and manage for security of the site. - Monitor the effectiveness of management works	- Weekly	- EMP cell members
13.	Public perception	- Plan and manage for maintain positive public perception. - Monitor the effectiveness of management.	- From time to time	- EMP cell members

Table-17: During the Decommissioning Phase

Sr. No.	Impact	Management and Monitoring sub-plan (MMSP)	Frequency of monitoring	Responsible person
1.	Dismantling, demolishing and clearing impact	- Plan and manage for effective decommissioning work with zero accident. - Monitor the activities.	- Daily	- EMP cell members
2.	Residual impact	- Plan and manage for effective decommmssioning work with no residuals left. - Monitor the activities.	- Daily	- EMP cell members

9.6.1 Generalized overall management plan for the project

In addition to implementing each and every sub-plan for management relating to each and every impact the company shall also implement the following overall generalized EMP.

1) EMP for application of environmentally sound idea and technology
2) EMP for procurement of ecologically friendly equipment and machinery
3) EMP for air pollution management
4) EMP for water pollution management
5) EMP for land pollution management
6) EMP for biodiversity protection and conservation
7) EMP for good working practices and good safety practices
8) EMP for conservation of water, fuel and electricity
9) EMP for rehabilitation after completion of project
10) EMP for maintenance of high Environmental Performance Standards (EPS)

These 10 points are simply enumerated in this report.

In addition to implementing each and every sub-plan for monitoring relating to each and every impact the company shall also implement the following overall generalized monitoring plan.

9.6.2 Generalized overall monitoring plan

1) Monitor weather -daily
2) Monitor the consumption of water -monthly
3) Monitor the consumption of fuel - monthly
4) Monitor the consumption of electricity - monthly
5) Monitor the quality of air (SO_2, NO_2, PM and others) semi-annually (hired technician)
6) Monitor the quality of water – semi-annually (hired technician)
7) Monitor noise level – semi-annually (hired technician)

8) Monitor the soil condition – semi-annually (hired technician)

9) Monitor the procurement of all material other than fuel oils – monthly (through vouchers, expenses etc.)

10) Monitor the operation of machinery equipment and vehicle - monthly (through log books)

11) Monitor the conducts of workers – from time to time

12) Monitor the effectiveness of capacity building – from time to time

13) Monitor the effectiveness of emergency procedures, eg- drills, rehearsals – every drill

14) Monitor the performance of security staffs – from time to time

15) Monitor the effectiveness of implementation of mitigation measures (compliance monitoring) – from time to time

16) Monitor the effectiveness of the implementation of EMP (compliance monitoring) – every three months

All mmonitoring works will be carried out by members of EMP cells. However there are four exceptions, namely, the monitors of air quality, noise level, water quality and soil which need sophisticated equipment and chemicals will be carried out by hired technicians from the Health Department or YCDC.

9.6.3 Regular monitoring plan (Specific monitoring)

For pragmatic purpose the monitoring of physical and chemical parameters and others will be undertaken semi-annually (every six months) after the IEE report is approved and the monitoring repot will be duly submitted to the relevant authority; the ECD.

Table – 18: Summary of monitoring programme for Construction Phase in tabulated form (the pragmatic approach)

Sr. No.	Components	Parameters to be monitored	Monitoring point/spot	Frequency	Responsible persons	Cost (once off cost)
1.	Air environment/ air emission	- monitor ambient air - monitor all the parameter for emission shown in the NEQ emission guideline values prescribed by ECD	21°51'23.53"N, 96° 2'37.80"E	Once during construction phase	Hired technicians	Ks 1,700,000
2.	Noise and vibration	- monitor the noise level for comparison with the NEQEG noise level values prescribed by ECD	21°51'23.53"N, 96° 2'37.80"E 21°51'25.84"N, 96° 2'38.71"E	Once during construction phase	Hired technicians	Ks 70,000
3.	Water environment/ effluent	- monitor all the parameters for the effluent shown in the NEQ effluent level values prescribed by ECD for construction phase	21°51'23.52"N, 96° 2'40.23"E	Once during construction phase	Hired technicians	Ks 80,000
4.	Contamination of soil and ground water	- monitor spillage of fuel oil, grease, chemical, etc, if any	21°51'24.42"N, 96° 2'43.60"E	Weekly	EMP cell members	Free of charges

5.	Erosion and siltation	- monitor earth work and drainage system	21°51'25.52"N, 96° 2'34.23"E	Weekly (especially during rainy season)	EMP cell members	Free of charges
6.	Solid waste (construction failing, debris)	- monitor type, amount generated reused, recycled, and disposed of	21°51'30.61"N , 96° 2'35.38"E	Weekly	EMP cell members	Free of charges
7.	Plan for prevention of fire outbreak	- monitor the plan and the readiness for prevention of fire - monitor the stock piling of building materials that can easily catch fire	21°51'25.07"N, 96° 2'35.68"E	Weekly	EMP cell members	Free of charges

Table – 19: Summary of monitoring programme for Operation Phase (tabulated form)

The pragmatic approach

Sr. No.	Components	Parameters to be monitored	Monitoring point/spot	Frequency	Responsible persons	Costs (once off cost)
1.	Air quality	- monitor all the parameters for air quality for comparison with NEQEG emission guideline values prescribed by ECD Code no.1.1	21°51'23.53"N, 96° 2'37.80"E	- Every six months	- Hired technicians	- Ks 1,700,000
2.	Effluent	- monitor all the parameters for effluent for comparison with NEQEG effluent guideline values prescribed by ECD Code no. 2.6.4	21°51'23.52"N, 96° 2'40.23"E	- Every six months	- Hired technicians	- Ks 80,000
3.	Noise and vibration	- monitor the noise level for comparison with the NEQEG noise level values	- 21°51'23.53"N, 96° 2'37.80"E	- Quarterly	- Hired technicians	- Ks 70,000

		prescribed by ECD Code no. 1.3. - monitor the wearing of PPE	- At work place near noisy machine 21°51'25.84"N, 96° 2'38.71"E	- From time to time	- EMP cell members	- Free of charge
4.	Solid waste	- monitor the packing materials collection and disposal - monitor trash/garbage generated, collection and disposal	21°51'30.61"N , 96° 2'35.38"E - Inside the compound	- Daily - Weekly	- EMP cell members - EMP cell members	- Free of charge - Free of charge
5.	Waste water	- monitor the management of domestic waste water	21°51'25.01"N, 96° 2'40.84"E	- Daily	- EMP cell members	- Free of charge

Table – 20: Summary of monitoring programme for Decommissioning Phase (tabulated form)

Sr. No.	Components	Parameters to be monitored	Monitoring point/spot	Frequency	Responsible persons	Remarks
1.	Decommissioning and Rehabilitation	- monitor the Decommissioning process including the removal of all residuals, if any - monitor rehabilitation process	- Inside the compound - Inside the compound	- Weekly - Monthly	- EMP cell members - EMP cell members	- Free of charge - Free of charge

Note: There will be specific regular monitoring on physical components, namely, air, water, soil quality on a semi-annually basis throughout the whole long Operation Phase, as instructed by the environmental authority, the ECD. Technicians will be hired for this task and the semi-annual report will be duly submitted to ECD.

9.7 Content for each sub-plan (management plan and monitoring plan)

The contents for the each sub-plan during the Construction, Operation and Decommissioning Phases are shown in tabulated form.

Table-21: Contents for each sub-plan (management plan and monitoring plan) during the Construction Phase

Sr. No.	Management and Monitoring Sub-Plan (MMSP)	Contents
1.	MMSP for mitigation of the impact on mobilization and preporation works for Construction Phase	- carefully plan for mobilization, storage and preparation works - have logistic plan for heavy trucks loaded with building materials - systematically store or pile up all the building materials within the premise - ensure that the wall or fence is reliable and can effectively prevent theft - prevent the spilling over of the building materials outside the factory premise or on nearby roads, eg- sagaing-Myitnge Road - monitor all the activities regularly - Re: mitigation measures in **9.4**
2.	MMSP for mitigation for impact of interference with private/public utilities	- careful design and planning - identify telephone poles, electric poles, water pipe etc that will have to bemporary removed, if any, - inform the authority concerned in advance and seek their assistance - remove, relocate and restructure the services of these utilities prior to actual commencement of construction work - monitor all the activities regularly - Re: mitigation measures in **9.4**
3.	MMSP for protection and control for accidents in work place	- plan and manage for zero accident - set up "Safety First" sign boards at places where workers can see easily - create safety condition for all workers; create accidents free environment - educate, train and supervise construction workers for good working practice, good engineering practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind - try to meet all statutory requirement for safety construction (rules, regulation, labour Act) - provide adequate Personal Protection Equipment (PPE) where necessary - keep first aid kits well-stocked with medicine and drugs - monitor all the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
4.	MMSP for management of emergency and health services	- plan and manage for zero accidents at work place - create safety condition for work places (Construction Phase) - educate and train workers for good working practice, good engineering practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind

		- prevent and avoid accidents and try to achieve zero accident at work places - educate and train them for health education and hygiene - train a few workers in First Aid Training, some for fire fighting - keep first aid kit well-stocked with medicines and drugs comprising anti-malaria, anticholera, anti-toxicant and anti-poisonfor harmful insect and snake bites - draw up a plan for emergency; carefully plan effective emergency contingency response and procedures - provide adequate PPEs, equipment, first aid kit - organize mock drills for firefighting and first aid programme regularly; keep the pond always full with water at the ready - take out insurance for the factory and also fire insurance - monitor all the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
5.	MMSP for mitigation of impact on air environment (dust, smoke etc)	- manage dust and smoke - heed to NEQ guideline of ECD - avoid open burning of debris - suppress dust with water spray - restrict vehicular movements, reduce the speed - stop earth work or loading and unloading of earth, sand when strong wind is blowing - limit open stockpiles of earth, sand line powder - minimize drop height when loading and unloading earth and other loose materials - plant fast growing trees to trap dust - procure equipment and vehicles that are eco-friendly - keep equipment and vehicle well-maintained and well-operated - use fuel with low sulphur content - provide adequate PPEs - heed to complaint of the local concerning dust and smoke - monitor all the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
6.	MMSP for mitigation of noise and vibration impacts	- manage noise and vibration - heed to NEQ guideline of ECD - procure eco-friendly equipment and vehicles - restrict noise to working hours only (no work at night) - install silencers on certain machinery - switch off or throttle down equipment during idle hours - limit/restrict the movement and speed of vehicles - keep equipment and vehicles well maintained and well-operated - manage vibration (of machinery, vehicles); provide suitable foundation - plant fast growing trees to absorb noise - provide PPEs - heed to the complaint of the local regarding noise - monitor all the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**

7.	MMSP for mitigation of impacts on soil	- manage the soil - avoid unnecessary destruction of soil profile - separate top soil from sub-soil (separate stockpiles); top soil for revegetation; sub-soil for construction - keep stockpiles from physical disturbance (wind, water) - prevent soil erosion and siltation - for stabilization of stockpiles plant grass (or let them grow) on the stockpiles - prevent wash water from carrying earth and materials into drainage system - after construction work resurface and stabilize exposed ground - do not keep the ground bare for long period during wet season - rake and restore soil compacted by vehicles or machinery - avoid fuel oil spill on soil; remove the spill immediately; do not wash down with water but use absorbent - train workers for handling of fuel and cleanup of spills - display warning sign at fuel depot - monitor all the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
8.	MMSP for mitigation of impacts on water	- plan and manage for the conservation of water - also plan and manage to prevent the pollution of surface and ground water - if possible recycle water; it can be used for dust suppression or for watering plants - harvest rain water where possible (during the rainy season) - avoid the spillage of fuel oil which will contaminate the soil and eventually ground water; - if there is spillage clean up spill with absorbent promptly (do not wash down with water) - adequately maintain vehicles and machinery to prevent spillage resulting to ground water contamination - bund fuel depot to prevent spreading of fuel oil - plan for management of temporary latrines, if any, for construction workers to prevent the eventual contamination of ground water; spread soil or ash into the latrines from time to time; back-fill the latrine when the construction works are completed - monitor all the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
9.	MMSP for the management of wastes (solids and liquids)	- plan for the management of waste - manage to meet statutory requirement (rules, regulations, Muncipal Act) - avoid open burning of debris - clear the ground regularly; ensure dumping at approved landfill - educate workers for goodhousekeeping; do not litter - plan for reuse and disposal of construction tailings and left overs - at the end of Construction Phase put up construction spoils, left over materials for sale

		- hire a contractor and party for tidying up the site after Construction Phase - monitor all the managements work and its effectiveness regularly - Re: mitigation measures in **9.4**
10.	MMSP for the protection of biodiversity, if any	- plan for protection of biodiversity, if any - keep big trees in the vicinity, if any, contact as far as possible - restrict the clearing of vegetation including bush and grass; do not clear vegetation more than necessary for construction work - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
11.	MMSP for management of social impacts	- avoid the potential negative impacts on the socio-economic life of the locals - maintain good relation with the locals - conduct public consultations from time to time; heed to their opinions - educate workers for appropriate behaviours when dealing with locals - manage misbehaviour and social illness of workers - apply punitive actions for wrong doer - prohibit the drinking of alcohol during working hours; ban the use of narcoties - heed to the voice of the locals - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
12.	MMSP for management of potential security	- manage the security of site - wall or fence the site - control all accesses; set up gates and deploy security guards - do not let workers enter the neighbouring village without pre-authorization; - do not let them mingle freely with locals (Construction Phase only) - keep certain materials under lock and key - ask the building contractor to discipline his workers (construction phase only) - take punitive actions for wrong doer - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**

Table-22: Contents for each sub-plan (management plan and monitoring plan) during the Operation Phase

Sr. No.	Management and Monitoring Sub-Plan (MMSP)	Contents
1.	MMSP for management of visual impact and light at night	- plan and manage for the factory which is focused on visual appeal - Paint the building with eye-pleasing clours - create green areas (trees, lawns) as far as possible - avoid excessive use of light; light only for security reason - use yellow light to save insects - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**

2.	MMSP for management of traffic	- plan and manage traffic - schedule the logistic of vehicles - set up sinage at the intersection of main road and access road - keep a log book for each vehicle - educate the drivers (trucks) for defensive driving, and at reduced speed - do not overload the truck; comply with road regulations - try to achieve zero accident - avoid spill of coal, overburden etc. during transportation - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
3.	MMSP for mitigation on air environment (dust and smoke)	- manage dust and smoke - heed to NEQ guideline by ECD - avoid open burning of debris - spray water for dust suppression - restrict vehicular movements, maintain road clear of dirt - plant fast growing trees to trap dust - procure equipment and vehicles that emit less smoke - keep equipment and vehicle well-maintained and well-operated - use low sulphur fuel oil - provide adequate PPEs - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
4.	MMSP for mitigation of noise and vibration	- manage noise and vibration - heed to NEQ guideline by ECD - procure equipment and vehicles that emit lower noise level - restrict noise to working hours - install silencers on certain machinery - plan for effective management of noise and vibration - try to meet all statutory requirements (law, regulation) - follow the NEQ guideline values for noise and vibration prescribed by ECD, MOECAF (2015) - restrict or limit vehicular movements - plan for appropriate choice of machinery and vehicles (that emit low noise level); method of working, efficient material handling - installation of noise abating devices eg- silencers, mufflers at air inlet and outlet of fan and compressor; place noisier sources far away in overall design - well-operated and well-maintained vehicles and machinery generate lower noise level and prevent undesirable noise level - modified old machinery, vehicles and equipment by incorporating minor design change for reducing noise level - develop green belt (plant trees) around the factory; trees abate noise and serve as noise sink (pollution sink) - create smooth road surface as far as possible to mitigate vibration due to vehicular movement - create suitable foundation design for machinery and equipment (eg. compressor and pumps etc.) to mitigate vibration - if necessary install vibration absorbers or vibration abators

		- provide adequate PPE eg- ear muffs, ear protectors to workers exposed to long hours of high noise level; conduct regular noise monitoring to ensure that the levels are within noise exposure standard (not higher than 85-90 dBA)especially for generators and pumps - local community should be able to file complaints regarding noise and vibration - Re: mitigation measures in **9.4**
5.	MMSP for mitigation of impacts on gridline power supply and vice versa	- consider for application of environmentally sound idea and technology when sourcing for electricity - plan and manage for the conservation of electricity energy - ensure that the consumption of electricity be in the work frame as stated earlier (600,000 units/years) - use electrical equipment, devices that are energy efficient, particularly use energy efficient equipment associated with heating, vestilation, air conditioning and cooling (HVAC) - install renewable energy system eg-solar water heating system; solar panels (photovoltaic cells), wind turbines, if possible - ensure that the backup generator is operational immediately after power outage or use automatic backup system - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
6.	MMSP for mitigation of impacts on water	- plan and manage for the conservation of water - ensure that the consumption of water be in the workframe stated earlier (6,648,475 gallons/year) - monitor the daily, weekly and monthly consumption of water - if possible recycle water; recycled water can be used for dust suppression and watering lawns and plants - apply appropriate plumbing, and ensure there is no leaking of water - build water tanks and ponds and can harvest rainwater from the eaves of the roofing; rainwater can be used in washing of machinery and vehicles, suppression of dust, watering plants and for fire fighting etc - select plants and grass species and design the landscape (garden) to reduce the use of water - check the water quality at least twice a year (hire technicians to do this) - prevent the pollution of surface water body, if any - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
7.	MMSP for management of waste (solids and liquids)	- manage the solid and liquid waste - heed to NEQ guideline by ECD - train workers in the handling of wastes - follow the 4 Rs principles, reduce, reuse, recycle, recover - separate solid waste at least into 2 categories, recyclable and non-recyclable - dispose solid waste at approved landfill; no disposal outside - avoid open burning of solid waste; train workers for good housekeeping practice

		- treat waste water or recycle, if possible - dispose wastes (solid, liquid) only after all waste preventive and recycling strategies have been undertaken - reduce the use of water - wash vehicles and machinery only in designated area - separate waste water from storm water (during rain) - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
8.	MMSP for the management of occupational health and safety	- plan and meange for the safety working condition for employees - educate, train and supervise workers for good working practice and good safety practice; prevent and avoid accidents at all costs - educate and train workers also for health education and hygiene - use non-toxic and hypoallergenic cleaning products - limit skin exposure through the use of gloves and other PPEs as far as possible - educate, train and supervise them on environmental awareness and occupational health hazards; awereness especially for workers in house keeping - provide health and hygiene training that include proper sanitation practices, regular waste collection and good house keeping practice - also ensure all hygyienic practicesare followed (according to WHO, FAO) to avoid exposure of others - all employees must pass a medical examination prior to employment - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
9.	MMSP for prevention of accidents in work place	- plan and manage for zero accident - set up "Safety First" sign boards at places where workers can see easily - create safety condition for all workers; create accidents free environment - educate, train and supervise construction workers for good working practice, good safety practice and good house keeping practice so that these good practices will be ingrained in each and every worker's mind - try to meet all statutory requirement for safety construction (rules, regulation, labour Act) - provide adequate Personal Protection Equipment (PPE) where necessary - keep first aid kits well-stocked with medicine and drugs - monitor all the actions taken and their effectiveness regularly - study all the common accidents in a factory mentioned earlier and apply appropriate measures - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**

10.	MMSP for management of emergency and health services	- have a comprehensive plan for emergency procedures - provide first aid training - provide fire prevention and fighting training - provide adequate first aid facility and firefighting facility - organize mock drills and rehearsals for emergency response - display phone number and address of Fire Brigade, Red Cross Society, Police Station, Amarapura Town and Mandalay City Hospitals etc - implement plan to prevent, detect and combat outbreak of fire - take out insurance for the factory; also for fire insurance - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
11.	MMSP for management of social issues	- prevent or minimize negative impact on socio-economic life of the local - build and maintain good relation with locals - hold public consultation from time to time - educate the workers for etiquette, and respect the custom and traditionof the locals - manage misbehaviours and social illness of workers - provide welfare programme - educate and discipline workers - deal with workers on a fair and square basis - take punitive action to wrong doer - prohibit the drinking of alcohol during working hours; ban the use of narcotics - provide adequate sanitation eg-toilet, baths etc - heed to the voice of the locals - plan and implement CSR as practical as possible - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
12.	MMSP for management of security issue	- manage security of the site - effective fencing/walling of the site - control all accesses; set up security gates; deploys guards - do not let workers mingle freely with locals - do not let the workers enter the neighbouring village without pre-authorization; - put certain materials under lock and key - apply punitive measures to wrong doer - provide ID cards for all for easy idenfication - provide uniform for all - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
13.	MMSP for enhancing public perception	- implement CSR plan and others social assistant programmes - prioritize hiring of locals - uphold the culture and tradition of the area - educate workers for etiquette and for good relation with locals - heed to the voices of the local - implement an appropriate complaints and grievance procedures; keep all log books for complaints grievance - appoint a public relation officer for dealing with the local - if there are job vacancies notify the locals - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**

Table-23: Contents for each sub-plan (management plan and monitoring plan) during the Decommissioning Phase

Sr. No.	Management and Monitoring Sub-Plan (MMSP)	Contents
1.	MMSP for prevention of accident in work place	- manage for effective decommissioning of site - hire decommissioning contractor to do the work - dispose materials that are no longer useable redeploy or put up for sale those that are useable - restore the ground and soil profile - manage for zero accident - create full safety condition - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**
2.	MMSP for management of residual impacts	- clear and remove all residuals - remove all soil contaminated by fuel oil - test the soil; ensure that no contaminant remain - also test the water in the vicinity for possible pollutants - restore the soil to its natural condition as practical as possible - monitor the actions taken and their effectiveness regularly - Re: mitigation measures in **9.4**

10. PERSON, ORGANIZATION AND BUDGET NEEDED FOR IMPLEMENTATION OF EMP

10.1 EMP objectives and concepts

EMP is the key to ensure that the environmental quality of the area does not deteriorate due to the operation of the hotel. EMP involves the management of the overall environmental issue including biological, socio-economic, cultural and visual issues. EMP is a long term systematic approach from planning, development, implementation, monitoring and feedback EMP also involves management for quality of the project.

The overall EMP includes planning and design of an environmental friendly factory that fully utilized sunlight and has good ventilation; the procurement of eco-friendly machinery, equipment and vehicles that emit less smoke, lower noise level, and those that are fuel and energy efficient; and also the conservation of water and recycling of water and waste as far as possible. EMP covers so many aspects of the project it is difficult to consider all the aspects of EMP.

Monitoring Plan (MP) is an integral part of EMP and the objectives of EMP and MP are:

- to control the work environment of the factory, during the short Construction Phase and Operation Phase of the project
- to minimize the negative impacts and enhance the positive impacts
- to ensure compliance with relevant rules, regulations and statutory requirements
- to demonstrate and enhance sound environmental performances in doing factory business
- to ensure social acceptability of the project by neighboursand
- to encourage highest performance for individual employee of the factory

Mitigation and EMP are different side of the same coin and mitigation measures are an integral part of EMP. So each and every EMP will be based on potential negative impacts and subsequent mitigation measures.

When formulating EMP each and every negative/potential negative impact as well as all mitigation measures has to be considered together.

In this proposed project context there will be a pair of sub-plan (sub-EMP and sub-MP) for each and every negative/potential negative impact.

10.2 Personnels, organization and budget needed for implementation of EMP

10.2.1 EMP cell

For the effective implementation of EMP first of all a small and dedicated nucleus organization, the EMP cell, will be organized and formed. The EMP cell members include the manager, who is the EMP cell leader and four dedicated engineers, technicians and staffs. This EMP cell will be also the monitoring commettee. Two locals will be also added to this monitoring committee.

The monitoring works will cover the Construction Phase, Operation Phase and Decommissioning Phase of the project life. The EMP cell leader (monitoring committee leader) and members are responsible for execution of the EMP and monitoring programme.

They shall be specially trained for doing this. As for monitoring specific parameters eg- air quality, water quality and soil, technicians or experts from Yangon shall be hired to do the analysis works.

It might be too demanding for 5 staffs to effectively carry out the EMP task. Therefore additional staffs have to be deployed as alternate cell members to carry on the EMP works smoothly.

It is not pragmatic for the EMP members, especially the five employees, of the company to get involve solely in EMP and MP activities because their main task is mining (production work) while EMP and MP activities are actually supplementary works. The company shall not be in a position to set aside 5 well-paid employees just to engage in EMP or MP work alone; it will other wise result in under-staffed situation for the project. Therefore the EMP cell leader and members have also to get involve in the routine production work as far as possible.

Sr no.	Name	Destination	Responsibility
1.	U Myint Hlaing	Manager	EMP cell leader
2.	Daw Myo Myo	Technician	Cell member
3.	Daw Htwe Htwe Yee	Technician	Cell member
4.	U Ko Ko Oo	Technician	Cell member
5.	U Thet Naing	Technician	Cell member
6.	U Than Lwin	Village administrator	Cell member
7.	U Zaw Tun Myo	Villager	Cell member

U Myint Hlaing will be the leader of the organization, EMP cell. Daw Myo Myo will be Environmental Protection Officer. His duty is to familiarize all workers/employees with impacts/potential impacts and the subsequent mitigation measures to be taken for each and every impact. He shall also educate employees for environmental awareness and execution of environmental friendly practices --- eg. minimize the use of water, fuel, electricity.

Daw Htwe Htwe Yee will be Safety Officer. He is responsible for creation of safety working place and environment. He is also responsible for educating, training and supervising workers for all aspects of good working practice, good safety practices and good health and hygiene practices eg. safety handling, operation and maintenance of machinery, equipment, vehicles, lifts etc; the safety handling and application of chemicals etc.

Most of all EMP cells will be also involved in all monitoring activities.

The two villagers are simply to watch the EMP activities to ensure transparency in EMP activities.

A few more staffs will be added to this list, where necessary. No contractor will be hired for execution of EMP as such a contractor and/or organization for undertaking EMP works does not exist, yet in Myanmar. May be the near future contractor specializing in EMP services can be hired for this purpose, such as developed nations. Expert/technicians will be have to hired from time to time (quarterly, bi-annually, annually) for testing air, water and soil quality and other related parameters. Noise and vibration can be measured by staffs of the factory, trained for this purpose.

10.2.2 Budget for implementation of EMP

Since EMP involves the management of all environmental issues there have to be adequate budget for the implementation of EMP.

This budget will be only for the implementation of EMP but it will cover the procurement of certain devices, and equipment for uses in monitoring and certain materials for uses in emergency aspects eg- PPEs first aid facility medicines etc.

In order to effectively execute EMP and MP the company has set up a fund for the implementation of EMP and MP (in addition to a separate fund for the implementation of CSR). 0.5 percent of the project budget (US$. 105,000) is set aside for EMP fund which will cover the initial costs and the recurring expenses for the effective implementation of EMP and MP.

The following programmes are integral parts for the successful execution of EMP:

- Monitoring Programme
- Reporting Programme
- Capacity building and training programme
- Emergency Programme

The company will, therefore, alloted the EMP fund for the 4 programmes as follow:

- 35% of the fund (U$ 36,750) for the implementation of mitigation and monitoring programme (This will include the purchase of certain device, and instrument, equipment)
- 10% of the fund (U$ 10,500) for reporting works (This will include the purchase of stationary)
- 20% of the fund (Ks 21,000) for capacity building and training (This will include the hiring of trainers and purchase of teaching or educational materials)
- 30% of the fund (Ks 31,500) for emergency programme (tentative allotment) (This will include the hiring of trainers and purchase of PPE)
- 5% of the fund (Ks 5,250) for miscellaneous expenses

For monitoring programme sometimes experts or technicians, have to be hired eg- to monitor the quality of air, water and soil. The normal and regular monitoring such as visual inspection will be undertaken by EMP cell members.

Experts or competent trainers have to be also hired for capacity building programme. All kinds of materials such as teaching aids and educational materials have to be procured.

As regards emergency programme trainers from the fire Brigade, Red Cross Society and ambulance and emergency unit will have to be hired.

All the required PPE, first aid facility and medicines have to be procured.

As EMP cell members are salaried employees of the company there is no need to hire them, and additional salary for them is not necessary.

But for the two villagers who will be members of EMP cells there need to be an arrangement made for them in the form of honorarium or fees.

The above-mentioned budget and the allomen are for the costs and expenses for the long Operation Phase only.

The fund cannot cover the whole life of the project of 50 plus years. The fund can be considered as seed money; as time goes on more money will have to be added to the fund.

The funds for reporting programme and capacity building and training can be fixed to a great extent. But the fund for emergency programme cannot be fixed due to the unpredictable nature of emergency programme. Unfortunately if major accidents happen more fund will have to be raised and reallocated for emergency programme (Emergency, health, safety are parts of EMP).

The fund for monitoring programme may not be also fixed for the long run. Depending on the finding of internal and external environmental audits and also based on the degree of achievement against the environmental objectives the monitoring programe has to be changed or modified. If more monitoring works have to be carried out then the funding will have to be increased.

In the near future when EMP and MP and their implementation have become mandatory the cost such as setting up even a small laboratory (which can have dual purposes for quality control lab and environmental lab for monitoring of air, water, soil etc) will be really costly and procuring of equipment and devices and chemicals etc can be expensive. The company shall consider this before hand.

In the near future there shall be management review of EMP.

This should be reviewed on an annual basis. The review will include:

- finding of internal and external environmental audits
- achievement against the environmental objectives and targets
- environmental objectives and targets for the coming year
- stakeholders concerns and other informations, and
- aspects and impacts in relevant to the up coming operation and environmental policy

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ANNEX

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
စီမံကိန်းနှင့်ဘဏ္ဍာရေးဝန်ကြီးဌာန

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ် (ယာယီ)

အမှတ် ၆အက်ဖ်စီ...../ ၂၀၁၆-၂၀၁၇(မတလ)

မြန်မာနိုင်ငံ ကုမ္ပဏီများ အက်ဥပဒေအရ ..အောင်ကံဘိုလ် မော်တော်ဆိုင်ကယ်.....
အင်ဒက်စထရီရယ်(လ)ကုမ္ပဏီလီမိတက်အား ပေးရန်တာဝန် ကန့်သတ်ထားသော လီမိတက်
ကုမ္ပဏီအဖြစ် ၂၀၁၆...ခုနှစ်၊ ...ဒီဇင်ဘာ...လ၊ ..၂၇.ရက်နေ့တွင် ယာယီမှတ်ပုံတင်ခွင့်
ပြုလိုက်သည်။

ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား)
(နယ်နိုင်း၊ညွှန်ကြားရေးမှူး)
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

THE GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF PLANNING AND FINANCE

CERTIFICATE OF INCORPORATION (TEMPORARY)

NO. .....6FC..... of 2016-2017(MDY)

I hereby certify that AUNG KAN BO MOTORCYCLE INDUSTRIAL COMPANY LIMITED .....is this day incorporated under the Myanmar Companies Act and that the company is Limited.

Temporarily given under my hand at Mandalay this TWENTY-SEVENTH day of DECEMBER, TWO THOUSAND AND SIXTEEN.

For Director General
(Nwe Ni Oo- Director)
Directorate of Investment and Company Administration

ဤကုမ္ပဏီမှတ်ပုံတင် လက်မှတ်(ယာယီ)သည် မှတ်ပုံတင်ရက်စွဲ (၂၇-၁၂-၂၀၁၆) မှ (၂၆-၆-၂၀၁၇)ရက်နေ့အထိ (၆)လ သက်တမ်း အတွက်သာ ဖြစ်သည်။ ယာယီသက်တမ်း မကုန်ဆုံးမီ အပြည်တမ်း မှတ်ပုံတင် လက်မှတ် (မူရင်း)နှင့် လဲလှယ်ရမည် ဖြစ်ပါသည်။

ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား)
(နှစ်နှိုင်း ညွှန်ကြားရေးမှူး)

ISSUED DATE 27 DEC 2016

မြေစာရင်းပုံစံ – ၁၀၅ 2014 - 0356380

မှန်ကန်ကြောင်း သက်သေခံ / သက်သေမဲ့ သော လက်ရှိမြေပုံတွင် ယခုနှစ်အသုံးပြုသော ဦးပိုင်မြေပုံ

K 300

K 1000

တိုင်းဒေသကြီး/ ပြည်နယ်	မကွေး
ခရိုင်	[illegible]
မြို့နယ်/ မြို့နယ်ခွဲ	[illegible]
ရပ်ကွက်/ ကျေးရွာအုပ်စု	[illegible]
ကွင်း/ အကွက်အမှတ်နှင့်အမည်	[illegible]
ဦးပိုင်အမှတ်/ မြေကွက်အမှတ်	၃၂၃ + ၁၅၀/၁ + ၁၅၀/၄

လျှောက်ထားသောဧရိယာ - ၅.၁၉ ဧက

ဦးပိုင်အမှတ်	အခွန်စည်းကြပ်ခံရသူ/ ပိုင်ရှင်/ ဂရန်ရှင်/ အငှားချရှင် အမည်	ပိုင်ဆိုင်ခွင့်	မြေမျိုးနှင့်အတန်း	ဧရိယာ (ဧက)	မှတ်ချက်
၃၂၃	[illegible]	-	[illegible]	၂.၄၀	[illegible]
၁၅၀/၁	[illegible]	-	-	၂.၆၇	[illegible]
၁၅၀/၄	[illegible]	-	-	၀.၁၂	[illegible]
					[illegible]
				၅.၁၉	[illegible]

ရေးကူးပေးသည့်အကြောင်းအရာ	[illegible]

(အထက်ဖော်ပြပါအကြောင်းအရာအတွက်သာ အသုံးပြုခွင့်ရှိသည်။)

လျှောက်ထားသူအမည် - [illegible]

လျှောက်လွှာတင်သည့်နေ့စွဲ - [illegible]

လျှောက်ထားသူသို့ ထုတ်ပေးသည့်နေ့စွဲ - [illegible]

ယခုအထက်တွင် ဖြည့်သောမြေပုံမှာ မှန်ကန်သေချာပါ ရေးကူးထားသော (၂၀၁၅-၂၀၁၆) ခုနှစ် အတွက် [illegible]

မြေပုံဖြစ်ကြောင်း သက်သေခံလက်မှတ် ရေးထိုးပါသည်။

အမှုတွဲထိန်း/မြေတိုင်းစာရေးလက်မှတ် [illegible]

နေ့စွဲ

တိုက်ဆိုင်စစ်ဆေးပြီး မှန်ကန်ပါသည်။

လက်ထောက်ဦးစီးမှူးလက်မှတ် - [illegible]

2014 - 0356379

Myanmar Environment Sustainable Conservation Co., Ltd Page 228

Aung Kan Bo Motorcycle Industrial Co., Ltd.
Kwin No.625 (A) & 626 Kanbai & Yekyi Pauk Village Track, Road to Sagaing from Myitnge between 1/7-mile post and 2/0 mile post, Amarapura Township, Mandalay Region, Myanmar.
Tel: +95-9-453333115, +95-9-453333116, +95-9-453333117, +95-9-453333118, +95-9-453333112 Email: enquiry@aungkanbomotorcycleindustrial.com

Commitment made by Aung Kan Bo Industrial Co., Ltd for implementation of Corporate Social Responsibility (CSR)

We, Aung Kan Bo Motorcycle Industrial Co., Ltd., hereby Pledge to spend 3% of our yearly net profit to adopt a capacity building building policy for our employees with a view to enhancing Myanmar's development.

1. The 15% of the total CSR amount will be used in Education Sector.
2. The 15% of the total CSR amount will be used in Health Care Plans.
3. The 15% of the total CSR amount will be used in Working Skill Development Plans.
4. The 25% of the total CSR amount will be used in Environment Welfare Programme.
5. The 30% of the total CSR amount will be used in Other Donations near environs.

   (See the detail plans on the attachment.)

Yours Sincerely,

Daw Nan Shwe Han

Managing Director

Aung Kan Bo Motorcycle Industrial Co., Ltd.

Corporate Social Responsibility (CSR) Detail Plans

We, Aung Kan Bo Motorcycle Industrial Co., Ltd., hereby undertake that we shall spend 3% of our yearly profit to adopt a capacity building policy for our employees with a view to enhancing Myanmar's development. The detail programmes are as follows.

1. Education Sector

   The 15% of the total CSR amount will be used for providing the staff members and their family members of our company. In which, the best performers in working procedures and well skillful in social status are also chosen yearly and give the rememberance medals and other provisions. Some secessary equipment (such as the requirements for attending the interested classes, used in school program, etc).

2. Health Care Plans

   The 15% of the total CSR amount will be used for Health Care Plan for our employees and their family members. We will take the medical check for each staff regularly in two months. Furthermore, we will arrange the emergency medical care center for continuums health care. Then, we will ever contact to hear public hospitals and private hospitals for necessary whatever, whenever and wherever.

3. Working Skill Development Plans

   The 15% of the total CSR amount will be used for developing programme of our staff members (such as Practical Job Training step by step level, Language trainings, foreign trainings, computer trainings, marketing training, etc).

4. Environmental Welfare Program

   We will use the 25% of the total CSR amount for using the environmental Welfare Program (such as relaxation park for employees, construction of the relevant roads, enough relaxation housing, etc). Then, we will provide for necessary provisions for all company's family members.

5. Donations Program

   The 30% of the total CSR amount will be used for other donations (such as providing the required equipments for near environs, having construction of the school buildings and roads, digging the well if necessary, etc).

Commitment made by Aung Kan Bo Industrial Co., Ltd for Fire Prevention and Fire Fighting

We, Aung Kan Bo Motorcycle Industrial Co., Ltd., hereby undertake to make all necessary arrangement for prevention of fire hazard with a fire preparation plan.

The purpose of the fire preparation plan of the company is to protect the lives of people and properties of the company in the event of an emergency case. The fire preparation plan will include measures involving management teams as well as employees, as the joint commitment of all who form part of the company's business is vital for the success of any emergency preparation plan.

We will take the following measures to ensure readiness in the event a fire or other emergency takes place with the vicinity of the company's premises.

1. Implementation of standard measures in reporting fires and other Emergencies when the need arises.
2. Preparation of an evacuation policy and procedures.
3. Preparation of escape procedures and the assignment of escape routes, (floor plans, workplace maps, refuge areas to be marked).
4. Contact details of authorities and stakeholders in charge of dealing with each emergencies to be distributed and made available in all factories and office buildings.
5. Setting out procedures to suspend factory operations that are critical to its operation (where possible).
6. In-depth training for all on the operation of fire extinguishers.
7. Refresher training sessions where equipment is replaced, modified, etc.
8. Assignment of rescue and medical duties in case of emergency.
9. Assignment of an assembly location including setting out procedures to account for all employees once evacuation becomes necessary.
10. Provision of alert and alarming systems that will be perceived by in all factories and office buildings (Including disabled personnel guests).
11. Appointment of designated coordinators to supervise evacuations wherever necessary.

12. Implementation of periodic drills and training sessions for coordination and other responsible personnel.
13. Posting of evacuation routes and exits in prominent locations throughout the premises.
14. Arrangements to be made with local ambulances and other modes of transport where necessary in times of emergency.
15. General training for all employees including:
    a. Individual roles and responsibilities;
    b. Threats, hazards, and protective actions;
    c. Notifications, warnings and communications procedures;
    d. Emergency response procedures;
    e. Location and use of common emergency equipment and
    f. Emergency shutdown procedures.

Though one can never be sufficiently prepared for times of emergencies, we believe above will form a good foundation in our ambition to operate fully functional, safe and hospitable environment for our employees. We will endeavor to continuously improve and enhance our measures to ensure the safety and welfare of our people and our business.

(See the detail plans for fire protection diagrams for all factories and office buildings in followings.)

Yours Sincerely,

Daw Nan Shwe Han

Managing Director

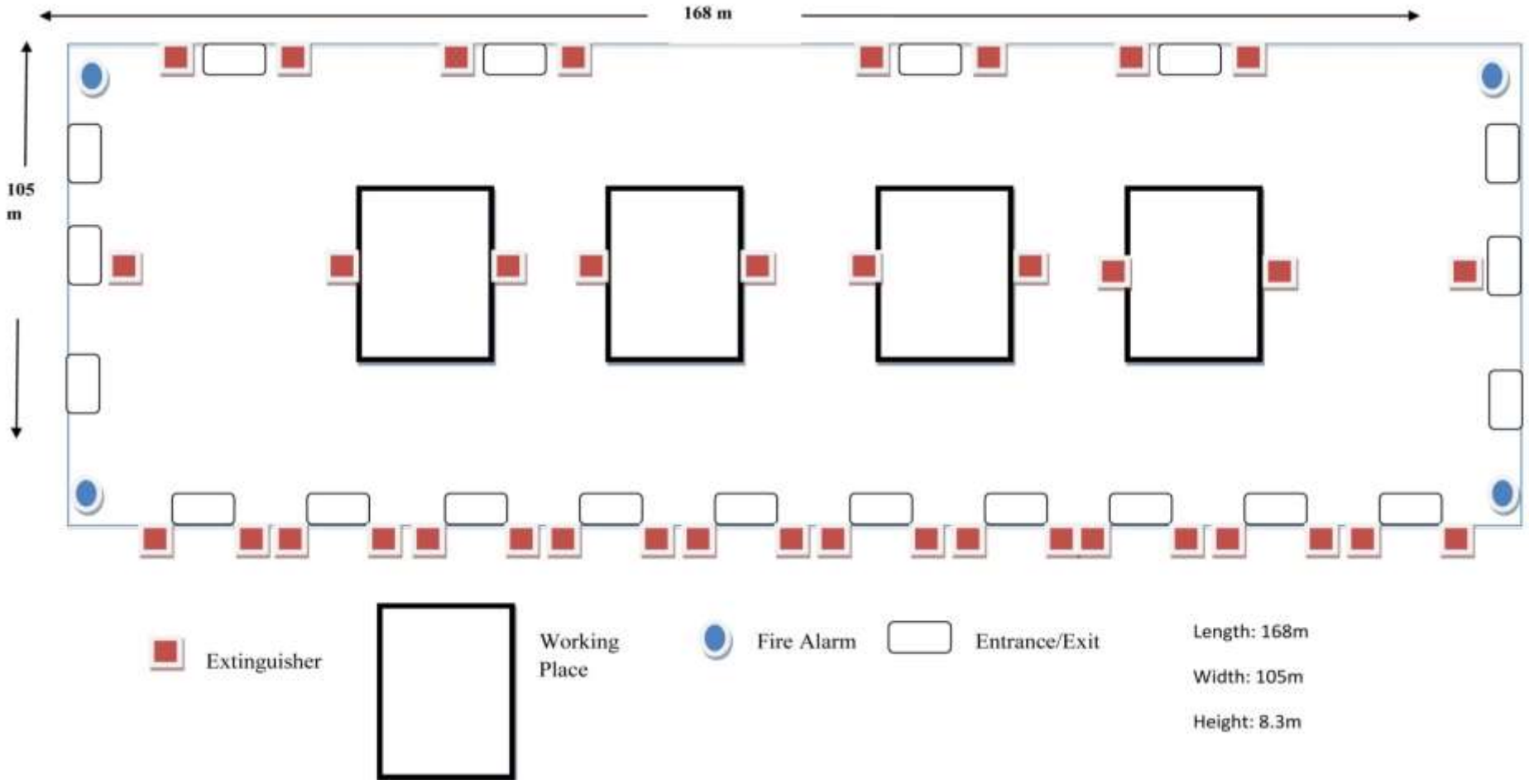
Aung Kan Bo Motorcycle Industrial Co., Ltd.

How to Establish the Prevention of Fire Hazard Plan

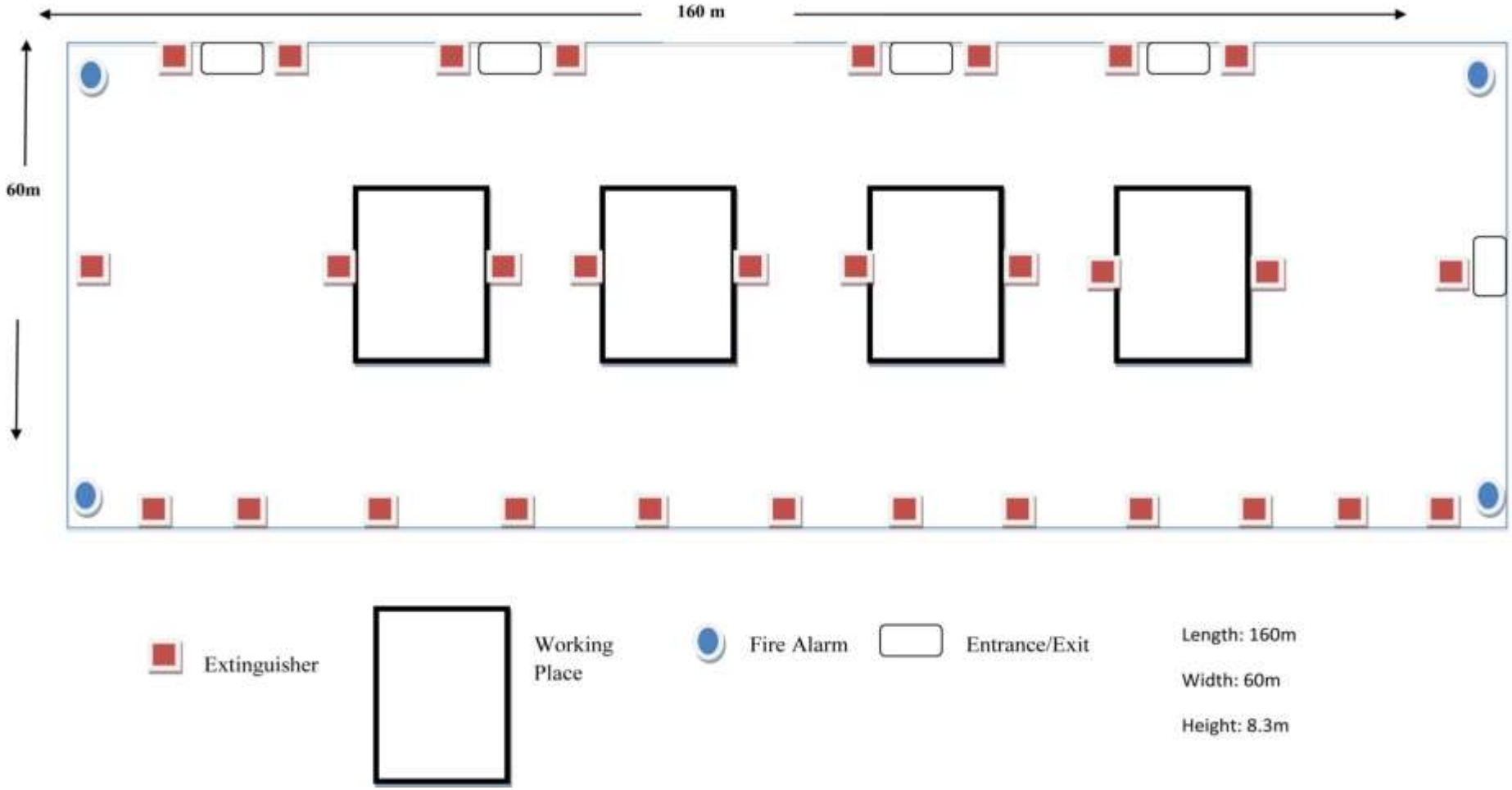
We, Aung Kan Bo Motorcycle Industrial Co., Ltd., hereby undertake to make all necessary arrangements for prevention of fire hazard with a fire preparation plans.

We will construct the four 3,000 gallons water tanks near all factories and office buildings. We will always fill out the full of water every day and will take care for fire in order to safe lives and our properties. Extinguishers are also fitted to get easy handle and will be set up in indoors and outdoors. Fire alarm systems will be set up also and trains the all staff under the guidelines of the fire protection department of the townships nearby our factories. In all factories and buildings, the automatic fire alarm system will be set up. The set up plans under the guidelines of the Fire Protection Department can be seen on attachments.

Water tanks	3000 gallons for one tank on back
Extinguishers	Total 38 numbers An Automatic Fire alarm system for the whole factory

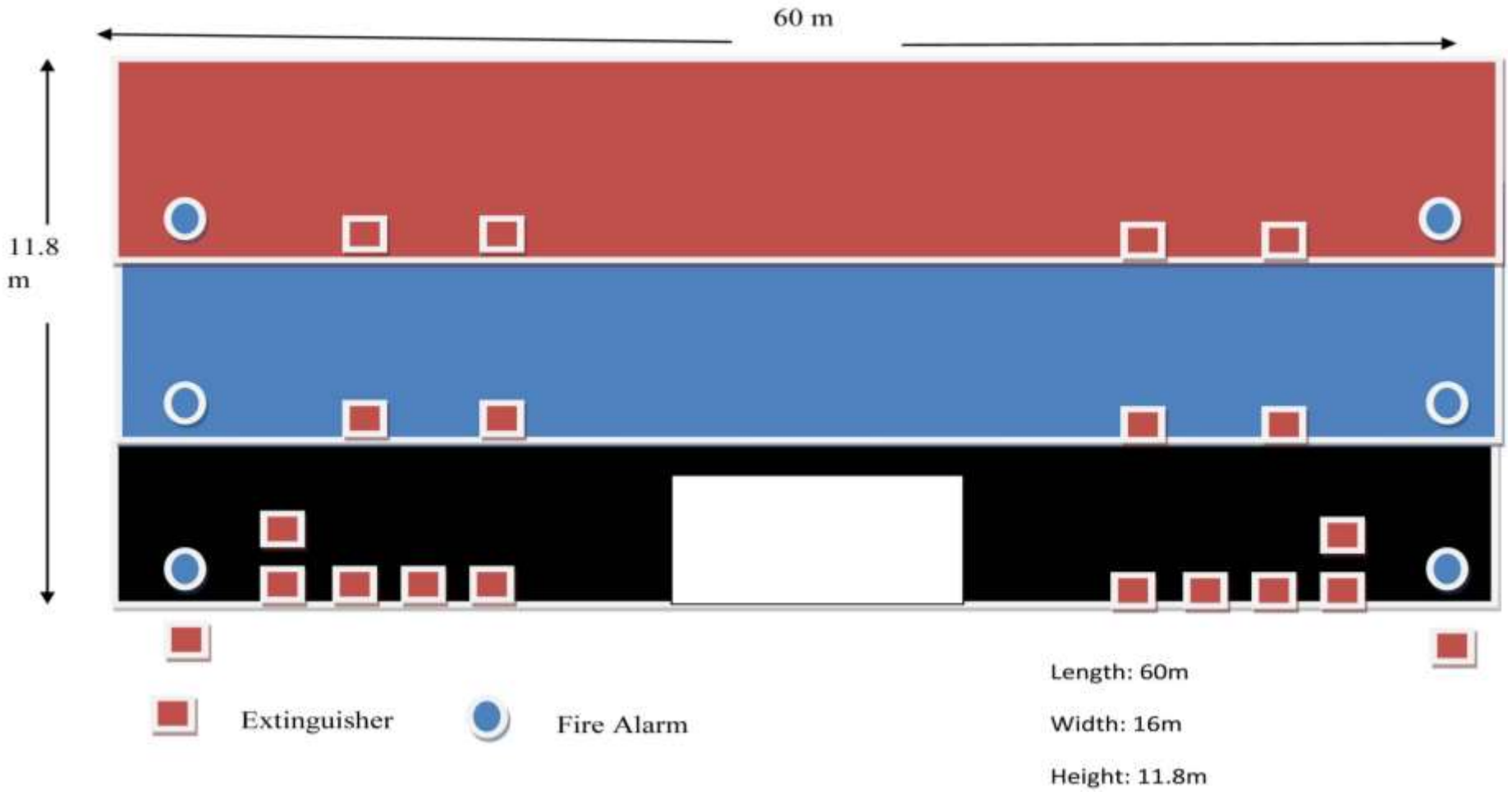


Water tanks	3000 gallons for one tank on back
Extinguishers	Total 30 numbers An Automatic Fire alarm system for the whole factory



Water tanks	3000 gallons for one tank on back/front
Extinguishers	Total 20 numbers An Automatic Fire alarm system will be also set up

p



CMF-110

CEM Sport-125

Dream-110

FA-125

Six brand models

Capital investment

Exhibit I

Sr. No.	Particular	Aung Kan Bo Trading Co., Ltd (50%)		Chongquing Yinxiang Motorcycle Group Co., Ltd (50%)	Total
		Equivalent Kyat	USD	USD	USD
1	2	3	4	5	6
	Investment Type	**1,311,633,600**	**1,093,328**	**1,510,060**	**2,603,088**
1.	**Cash**	1,311,633,600	1,093,328	1,510,060	
2.	**Machinery and Equipment**	**-**	**-**	**4,407,771**	**4,407,771**
	(to be imported)	-	-	4,407,771	
3.	**Transportation Vehicles**	**-**	**-**	**1,090,718**	**1,090,718**
	(to be imported)	-	-	1,090,718	
4.	**Construction Material**	**1,539,247,200**	**1,282,706**	**2,591,451**	**3,874,157**
	(Local Purchase)	1,539,247,200	1,282,706	-	
	(to be imported)	-	-	2,591,451	
5.	**Furniture & Equipment**	**221,199,200**	**184,266**	-	**184,266**
	(Local Purchase)	120,939,600	100,738	-	
	(to be imported)	100,179,600	83,483	-	
6.	**Initial Raw**	**9,528,000,000**	**7,940,000**	**900,000**	**8,840,000**
	(to be imported)	9,096,000,000	7,580,000	900,000	
	(Local Purchase)	432,000,000	360,000	-	
	Total	**12,600,000,000**	**10,500,000**	**10,500,000**	**21,000,000**

1 USD = 1200 Kyats

"Brand New" Machineries & Equipment (to be imported from China)

Exhibit IIa

Sr. No		Particular	Model	Unit	Unit Price (USD)	Qty	Total Cost (USD)	Total Cost (USD)
1		**Assembing Machineries**						533,484.59
	1	Workbench		Nos	203.89	12	2,446.68	
	2	Sub-assembly line (20 meter/line)		Set	15,683.53	3	47,050.59	
	3	Frame hydraulic press	YTD41-3	Nos	10,194.29	4	40,777.16	
	4	Air storage servoir $3m^3$	$3m^3$	Set	392.09	4	1,568.36	
	5	Baling line (25 meter/line)		Set	18,820.23	3	56,460.69	
	6	Lasher engraving machine	JH20W	Nos	7,057.59	4	28,230.36	
	7	Electric block	QK3A-1.5136	Nos	1,882.02	4	7,528.08	
	8	Steering column hydraulic press	YZ41-32	Nos	2,038.86	4	8,155.44	
	9	Air compressor SA60A	SA60A	Nos	1,568.35	2	3,136.70	
	10	Air compressor SA120A	SA120A	Nos	29,798.70	2	59,597.40	
	11	Refrigeration dryer $20m^3$	$20m^3$	Nos	4,705.06	2	9,410.12	
	12	Refrigeration dryer $10m^3$	$10m^3$	Nos	1,568.35	2	3,136.70	
	13	Motorcycle testing line	4 station	Set	34,503.76	1	34,503.76	
	14	Motorcycle testing line	1 station	Set	25,093.64	1	25,093.64	
	15	4 in 1 automatic packing machine	DBA-250	Nos	17,251.88	4	69,007.52	
	16	Fuel tank		Nos	470.51	4	1,882.04	
	17	Assembly line (60m/line)		Set	31,368.06	3	94,101.18	
	18	Tyre changer with pump & pressure gauge	ZT40-2	Nos	3,920.88	4	15,683.52	
	19	Analog power	36V	Nos	24.36	15	365.40	
	20	Pneumatic gun	WD-208A	Nos	83.75	250	20,937.50	
	21	Air riveters	WD-225	Nos	53.29	5	266.45	
	22	Air tube 3.5m	3.5M	Nos	1.83	160	292.80	
	23	Torque wrench	NB-50G/15-50N.m	Nos	2.44	50	122.00	
	24	Torque wrench	NB-100G/20-100N.m	Nos	83.75	30	2,512.50	
	25	Toolbar		Nos	6.09	200	1,218.00	
2		**Painting Machineries**						1,845,630.13
	1	Spray both		Nos	12,485.92	22	274,690.24	
	2	Oven		Nos	13,856.32	26	360,264.32	
	3	Air supply system machine		Set	25,428.63	3	76,285.89	
	4	Electronic control system machine		Set	19,794.74	3	59,384.22	
	5	Compartment		Set	42,634.83	1	42,634.83	
	6	Bench		Nos	41,112.16	1	41,112.16	
	7	Water reuse system machine		Set	18,272.07	1	18,272.07	
	8	Spray gun		Nos	152.27	60	9,136.20	
	9	Circling trolley		Nos	152.26	800	121,808.00	
	10	Peripheral oven		Nos	15.23	1300	19,799.00	

"Brand New" Machineries & Equipment (to be imported from China)

Exhibit IIa

Sr. No		Particular	Model	Unit	Unit Price (USD)	Qty	Total Cost (USD)	Total Cost (USD)
	11	Coating line		Set	82,2234.20	1	822,243.20	
3		**Seat Production Machineries**						527,173.93
	1	Cloth cutter machine	YJ-D108A	Set	228.40	3	685.20	
	2	Cutter machine	CZD-4	Set	287.79	5	1,438.95	
	3	Cutting compound machine	4800mm*1800mm*740	Set	304.53	3	913.59	
	4	8KW double-head high frequency thermal machine	8KW/high frequency	Set	4,568.02	3	13,704.06	
	5	Goods shelves	3100*750*1500	Nos	152.27	6	913.62	
	6	Sewing machine	LS 0302 CX	Nos	399.70	10	3,997.00	
	7	Leather case rack	3100*750*1500	Nos	152.27	10	1,522.70	
	8	Cuboard	Metal, H1760*L860*B 360mm	Nos	76.14	10	761.40	
	9	Board table	800*750*500	Pcs	30.45	10	304.50	
	10	Engineering table	1200*1000	Pcs	152.27	10	1,522.70	
	11	Bottom plate holding trolley	1500*900*1900	Nos	152.27	120	18,272.40	
	12	Cushion rack	3100*750*1500	Nos	152.27	4	609.08	
	13	Foaming machine	27KW/YZWL	Set	59,384.23	2	118,768.46	
	14	High pressure foaming powder			52,680.67	2	105,361.34	
	15	Rotary line	41.5KW/YZWL	Set	38,066.81	2	76,133.62	
	16	Mould rack	1000*600*1350	Set	1,522.68	20	30,453.60	
	17	Foam building machine	2KW/YZWL	Set	7,050.74	3	21,152.22	
	18	Agitating device	8.5KW/whithe material mixer	Set	3,197.61	3	9,592.83	
	19	Foam trolley	1500*900*1900	Nos	152.27	100	15,227.00	
	20	15kg electronic weight scale	JM-B/15kg	Nos	76.13	5	380.65	
	21	Seat assembling line (15 mater/line)	15M	Set	14,465.39	2	28,930.78	
	22	Oven	800*600*1200	Nos	2,588.54	15	38,828.10	
	23	Engineering table (testing, packing)	1200*700*800	Nos	152.27	5	761.35	
	24	Stapler	N851	Nos	45.68	25	1,142.00	
	25	Pneumatic screwdriver gun	R65LB	Nos	45.69	10	456.90	
	26	Air tube	OR:10/IR:8	Nos	0.15	600	90.00	
	27	Air tube joint		Set	1.52	50	76.00	
	28	Banding machine	A-72L/Auto	Nos	3,349.88	2	6,699.76	
	29	Multimeter		Set	10,658.71	2	21,317.42	
	30	Elasticity tester	HTY-460	Set	3,045.35	2	6,090.70	
	31	Ball-fall detecting drive	Diameter: 110 Pipe, L:1500, 2000/1 each 3kg shot	Set	30.46	10	304.60	
	32	Cutting foam fixture		Set	76.14	10	761.40	

"Brand New" Machineries & Equipment (to be imported from China)

Exhibit IIa

Sr. No		Particular	Model	Unit	Unit Price (USD)	Qty	Total Cost (USD)	Total Cost (USD)
4		**Welding Machineries**						911,167.35
	1	Welding robord	FO-V6/FDTPDSJN-3L08	Nos	27,408.10	8	219,264.80	
	2	CO_2 gas shielded welding machine	KR-II 350	Nos	1,218.14	48	58,470.72	
	3	Shot blasting machine	1600-2400-2000Kg	Nos	16,749.40	1	16,749.40	
	4	Shop welding machine	75kw	Nos	6,090.69	5	16,749.40	
	5	Seam welder	160	Nos	12,181.38	1	12,181.38	
	6	Welding streamline	Advanced machineries	Set	22,840.09	4	91,360.36	
	7	Painting production-line assembly equipment	Advanced machineries	Set	167,494.00	1	167,494.00	
	8	Air compressor	$5m^3$		12,181.38	1	12,181.38	
	9	C02 & Argon gas tank	20T	Nos	114,200.44	1	114,200.44	
	10	Welding trocks, testing tool, equipments		Nos	27,408.11	6	164,448.66	
	11	Specialist tool making machine		Nos	6,090.69	4	24,362.76	
	12	Polishing machine		Nos	45.68	100	4,568.00	
	13	Porch and accessories		Set	24.36	50	1,218.00	
	14	Personal protective equipment		Set	0.70	2000	1,400.00	
	15	Pneumatic tapping gun		Nos	68.52	50	3,426.00	
5		**Transformer**						590,315.00
	1	33/11KV5MVA		Set	472,635.00	1	472,635.00	
	2	33KV O.H Line for 3 mile		Set	107,139.00	1	107,139.00	
	3	33/11KV5MVA Switch Bay					10,541.00	
		Total						**4,407,771.00**

"Brand New" Transportation Venhicles (to be imported from China)

Exhibit IIb

Sr. No		Particular	Model	Unit	Unit Price (USD)	Qty	Total Cost (USD)	Total Cost (USD)
1		**Transportation**						1,090,718.00
		Ferry						
	1	15 Seats Foton Mini Bus	Foton		15,500	3	46,500.00	
	2	21 Seats Foton Mini Bus	Foton		30,151	3	90,453.00	
	3	30 Seats Foton Mini Bus	Foton		39,600	3	118,800.00	
		Outdoor Carrier						
	4	8 x 4 Truck (Full Body)	Chenglong		36,537	5	182,685.00	
	5	6 x 4 Trailer Head	Chenglong		33,493	5	167,465.00	
	6	40 feet Trailer	Chenglong		12,625	5	63,125.00	
	7	14 feet Foton Truck	Foton		11,000	20	220,000.00	
		Indoor Carrier						
	8	Hydraulic Forklift	XGMA		267	10	2,670.00	
	9	Battery Forklift (4.5m)	XGMA		7,426	15	111,390.00	
	10	3 tons Battery Forklift	XGMA		17,526	5	87,630.00	
		Total					**1,090,718.00**	**1,090,718.00**

Remark: Transportation Vehicles mentioned above are all industrial Vehicles & Tax will be paid under the requirement

Construction Materials (To be imported)

Exhibit IIIb

Sr. No	Particular	Specification	Unit	Qty	Unit Price (USD)	Sum Price (USD)	Remarks
1	Anchor bolt	M33	Set	132	11.72	1,547.04	Q235B
2	Anchor bolt	M24	Set	968	8.59	8,315.12	
3	Anchor bolt	M30	Set	480.00	11.72	5,625.60	
4	Angle brace	L50x4.0 Angle iron	T	11.54	570.31	6,581.37	Q345B
5	Angle iron	L40x4.0 Angle iron	T	15.65	570.31	8,925.35	Q345B
6	Bar	25x2.0 steel pipe	Set	798	3.91	3,120.18	Q235B
7	Canopy beam		T	3.04	570.31	1,733.74	Q345B
8	Canopy purlin	Z180x70x20x2.0/2.5	T	8.93	703.13	6,278.95	
9	Column bracing	22	T	4.37	570.31	2,492.25	Q345B
10	Consume materials, oxygen		T	565.85	70.31	39,784.91	
11	Consume materials, oxygen		T	507.07	78.13	39,617.38	
12	Daylighting panels	1.2mm thick 475 type, FRP	m2	841.50	16.41	13,809.02	
13	Daylighting panels	1.2mm thick 830 type, FRP	m2	1510.00	16.41	24,779.10	
14	Decking sheets	10mm thick YX65-254-762 type	m2	6325.3	18.75	118,599.38	
15	Door	M5000X4700	m2	564	101.56	57,279.84	
16	Downpipe	150PVC	m2	918	10.16	9,326.88	
17	Edge form	1.0mm thick plate	m2	1099.58	7.81	8,587.72	
18	Flange bolt	M22	Set	384	7.03	2,699.52	
19	Flashing Plate	0.426mm thick color plate	m2	10102.00	5.47	55,257.94	
20	Frame Column	350X350X12X12	T	47.24	570.31	26,941.44	Q235B
21	Frame Column	350X350X14X14	T	10.72	664.06	7,118.72	Q345B
22	Frame Column	400X400X12X12	T	58.51	664.06	38,854.15	Q345B
23	Frame Column	400X400X14X14	T	12.30	664.06	8,167.94	Q345B
24	Frame beam	500X200X8X14	T	5.15	664.06	3,419.91	Q345B
25	Frame beam	H300X200X6X10	T	34.8	570.31	19,846.78	Q345B
26	Frame beam	H350X200X6X10	T	29.68	570.31	16,926.80	Q345B
27	Frame beam	H350X210X8X10	T	28.89	570.31	16,476.25	Q235B
28	Frame beam	H350X250X8X12	T	0.45	570.31	256.64	Q345B
29	Frame beam	H400X220X8X12	T	75.83	570.31	43,246.61	Q235B
30	Frame beam	H400X250X8X12	T	52.27	570.31	29,810.10	Q235B
31	Frame beam	H450X220X8X12	T	19.43	570.31	11,081.12	Q235B
32	Frame beam	H500X220X8X12	T	30.59	570.31	17,445.78	Q345B
33	Frame beam	H500X250X10X12	T	10.5	570.31	5,988.26	Q235B
34	Frame beam	H500X250X8X14	T	1.49	570.31	849.76	Q345B
35	Frame beam	H550X250X10X14	T	39.16	570.31	22,333.34	Q235B
36	Frame beam	HN248X12X5X8	T	5.29	570.31	3,016.94	Q345B
37	Frame beam	HN250X125X6X9	T	14.88	703.13	10,462.57	Q235B
38	Glass wool	50mm thick 12 K glass wool	m2	23568.76	3.13	73,770.22	
39	Gutter	1.0mm thickness stainless	m2	824	39.09	32,185.44	
40	Header stud	0.526mm thick 830 type, curve shape	Set	25301	1.02	25,807.02	

Construction Materials (To be imported)

Exhibit IIIb

Sr. No	Particular	Specification	Unit	Qty	Unit Price (USD)	Sum Price (USD)	Remarks
41	High strength both	M24(10.9)	Set	369	2.34	926.64	
42	High strength both	M20(10.9)	Set	11206	1.88	21,067.28	
43	Lateral bracing	22	T	6.38	570.31	3,63858	Q345B
44	Linking Beam	127x3.5	T	41.7	570.31	23,781.92	Q345B
45	Material wastage	3.50%	T	19.13	570.31	10,910.03	Q345B
46	Material wastage	3.5%	T	17.14	546.88	9,373.52	Q235B
47	Metal Sheet-Canopy	0.526mm thick 830 type	m2	1296.00	7.81	10,121.76	
48	Metal Sheet-Wall	0.426mm thick 830 type	m2	10333.54	7.81	80,704.95	
49	Metal Sheet-rooffing	0.526mm thick 475 type	m2	23568.76	9.38	221,074.97	
50	Metal Sheet-Rooffing	0.526mm thick 830 type, curve shape	m2	3001.6	9.38	28,155.01	
51	Monitor	HW200x200	T	35.47	570.31	20,228.90	Q345B
52	Oblique rod	12 Rround stell	Set	798	3.13	2,497.74	Q235B
53	Ordinary bolt	M12 (C)	Set	67878	0.47	31,902.66	
54	Ordinary bolt	M20 (C)	Set	2868	0.78	2,237.04	
55	Painting		T	1072.92	101.56	108,965.76	
56	Parapet column	20a	T	5.31	570.31	3,028.35	Q345B
57	Production of steel structure		T	567.73	210.94	119,756.97	
58	Production of steel structure		T	507.07	257.81	130,727.72	
59	Resistant Column	H350x250x6x10	T	17.64	570.31	10,060.27	Q345B
60	Roofing purlin	Z180x70x20x2.0/2.5	T	170.88	703.13	120,150.85	Q235B
61	Sand-blasting remove rust	sa2.5	T	1072.92	54.69	58,677.99	
62	Self-threading pin	Waterproof function	Set	243308	0.08	19,464.64	
63	Spiral Staricase	350X200X8X10	T	2.50	1,171.88	2,929.70	
64	Straight Stair	20a%	T	4.08	703.13	2,868.77	Q345B
65	Straight Stair	20a%	T	4.08	1,171.88	4,781.27	Q245B
66	Subsidiary material cost	Welding wire, flux, etc	m2	46877.26	0.78	36,564.26	
67	The door frame	20a	T	9.29	570.31	5,298.18	Q345B
68	The main Frame GJ-1	Welding h-	T	398.42	570.31	227,222.91	Q345B
69	The straight rod	12 Rround stell	Set	6448	2.34	15,088.32	Q235B
70	Wall purlin	C200x70x20x2.5/2.2	T	50.83	703.13	35,740.10	Q235B
71	Window	Aluminum alloy fixed window	m2	1075.5	62.50	67,218.75	
72	Window	Aluminum alloy fixed window	m2	919	54.69	50,260.11	
73	DB 10mm		Ton	283.66	500.00	141,827.50	5% wastage
74	DB 12mm		Ton	159.31	500.00	79,656.89	5% wastage
75	DB 16mm		Ton	50.67	500.00	25,333.40	5% wastage
76	DB 18mm		Ton	17.10	500.00	8,551.00	5% wastage
77	DB 20mm		Ton	41.73	500.00	20,866.00	5% wastage
78	DB 25mm		Ton	2.85	500.00	1,423.21	5% wastage
	Total					**295,1451.00**	

Construction Materials (Local Purchase)

Exhibit IIIc

Sr. No	Particular	Unit	Qty	Unit Price (USD)	(USD)	Remarks
1	5 Ply wood 8' x 4'	Sheet	1,249.50	22.00	27,488.95	
2	Aggregate	Sud	527.48	50.00	26,374.15	
3	Binding wire	Cwt	105.24	42.00	4,420.27	
4	Brick	Nos	544,772.00	0.10	54,477.20	
5	Cement	Bag	18,890.76	5.00	94,454.00	
6	Concrete by A.G Grade 30	Cu.m	3,235.12	75.00	242,634.30	5% wastage
7	Concrete column's cap	Nos	583.00	2.56	1,494.94	5% wastage
8	Cutter dish	Nos	45.00	42.74	1,923.08	
9	Fuel	Gal	32.99	3.50	115.45	
10	Grade 25 AG	Cu.m	7,161.78	80.00	572,942.40	5% wastage
11	Grade 30 AG	Cu.m	109.24	85.00	9,285.40	5% wastage
12	Gravel	Sud	2,910.81	25.00	72,770.21	
13	J wood	Ton	22.68	550.00	12,473.64	2 times reused
14	Nail	Viss	746.38	1.36	1,015.08	
15	R/S aggregate	Sud	33.35	50.00	1,667.28	
16	RB 6.5mm	Ton	3.15	560.00	1,761.48	
17	RB 8mm	Ton	30.90	560.00	17,304.48	5% wastage
18	Roller and compactor (10 Tons)	Duty	50.00	248.72	12,436.00	
19	Sand	Sud	4,111.43	12.00	49,337.15	
20	Timber	Tons	82.99	550.00	45,645.39	
21	Timber Scantling	Tons	4.30	550.00	2,365.28	3 times used
22	Backhole and Dozer (21 Tons)	Duty	35.00	384.62	13,461.45	
23	Asphat	Viss	156.43	3.89	608.33	5% wastage
24	For Control Room				16,250.00	
	Total				**1,282,706.00**	

Office Equipment, Furniture & Others (To be imported)

Exhibit IVa

Sr. No	Description	Qty	Unit Price (USD)	Amount (USD)
	Pallet Racking			
1	Enframe UR 90 x 5100mmH (16.73 feet) x 900mmD (2.95 feet) x 2300mm W(7.55feet) c/w complete set	432	75	32,464.80
2	BoxBeam N90 x 50 x 1.6thk x 2300mmL c/w L locking Pin	2496	18	43,829.76
3	Frame Spacer 90 x 300mmL c/w complete Sets	945	2	2,249.10
	Accessories			
4	Std. Shim Plate 1.5mm w/o Powder coating	1000	0	420.00
5	Floor Fixing 3/8" x 12mm	2000	0	600.00
(+)	Add: Estimated Freight Charges (2 x 40 ft GP containers, subject to final loading)			3,850.00
(+)	Add: Estimate Freight Insurance			70.00
	Total			**83,483.66**

Office Equipment, Furniture & Others (Local Purchase)

Exhibit IVb

Sr. No	Description	Unit	Qty	USD
	Office Equipment & furniture			
1	ADSL Line	Nos	6	3,696
2	Aircon (Chigo or Sponde)	Pcs	30	13,500
3	Aluminium & Mirror Door	Nos	6	624
4	Aluminium Ladder	Nos	6	732
5	Cabinet	Nos	25	3,272
6	Camera	Nos	3	549
7	Carpet	yards	840	2,738
8	CCTV system	Sets	5	15,196
9	Chair	Nos	150	4,292
10	Computer	Nos	30	15,000
11	Curtain	yards	8	1,022
12	Emergency Light	Pcs	40	660
13	Fan	Nos	100	1,530
14	Fax Phone	Nos	1	251
15	Finger Print System	Sets	3	1,000
16	Floor Scale (3*3)	Nos	1	867
17	Glacier 208 Freezer	Nos	1	212
18	Gold Star Washing Machine	Nos	2	286
19	Hose Reel	Pcs	2	382
20	Hot Water Machine	Nos	5	573
21	Inverter	Pcs	5	375
22	Kettle	Pcs	10	150
23	Lawnmover	Nos	5	612
24	Leeco Fire Safe	Nos	4	820
25	Panasonic Vacuum Dust Filter	Sets	3	366
26	Phone/PABX system	Sets	1	5,022
27	Pillow, Pillow Case, Bed Sheet, Metress, Blanck, etc.			5,000
28	Printer	Nos	10	1,090
29	Projector Set	Nos	3	650
30	Refrigerator	Nos	4	1,200
31	Rice Cooker	Nos	5	1,250
32	Scanner	Pcs	2	150
33	Sharp AR5516 Copier	Pcs	2	2,478
34	Sofa Settee	Sets	4	2,500
35	Steel Shelf	Pcs	10	1,100
36	Table	Nos	40	4,541
37	Trolley	Pcs	2	220
38	TV, EVD, DVD, Sound Box, Speaker	Sets	3	1,100
39	Water Cooler	Sets	10	2,200
40	Water Heater	Pcs	10	1,667
41	Water Tank	Nos	10	1,200
42	White Board	Pcs	15	160
43	Wooden Pallet	Pcs	50	550
	Total			**100,783**

Plants List

စဉ်	အပင်အမည်	အရေအတွက်
၁	ထီပေါက်ပင်	30
၂	တောင်မရိုး	30
၃	ထိုင်ဝမ်ဗန်ဒါ	50
၄	ဇကရာဇ်	40
၅	သရက်	80
၆	သပြေ	80
၇	အုန်းမွှေး	30
၈	ပိတောက်	40
၉	တရုတ်ပိတောက်	30
၁၀	ဟင်းငုတ်	20
၁၁	ပန်းအို	20
၁၂	သုံးရာသီ	30
၁၃	ဖြူပြာမာယာ	20
၁၄	သနပ်ခါး	30
၁၅	တောထန်း	30
၁၆	ကိုရမ်ဂျီး	20
၁၇	ရွှက်လှ	32
၁၈	ဒန့်သလွန်	30
၁၉	ငဝါ	40
၂၀	ခရေ	50

Provide adequate Personal Protection Equipments (PPEs)

CSR activities

The company has so far implemented CSR programme not only for this area but also other regions, and also made donation to 3 ministries and Police Force.

Sr. No.	Date	Rcipients	Cash and Kinds	Amount (Ks)
1.	2011 2013 2015 2016	Ministries of Transportation, Health & Sports, Home Affairs, Police Force	10 Kenbo Motorcycles; 202 tents	144,700,000
2.	2012 2015	Refugees	Kachin 2012- Ks 8,000,000 Rakhine 2012- Ks 10,170,700 plus kinds	18,070,700
3.	2015 2016	Flood victims	2015- Ks 227,953,640 2016- Ks 29,600,000	257,553,640
4.	2016	Fire victims	Nant sam - Ks 10,000,000 Town	10,000,000
5.	2016	Storm victims	Mandalay - Ks 40,000,000	40,000,000
6.	2011 2015	Construction of school	2010- Ks 1,800,000 2015- Ks 300,000	2,100,000
Total				**472,424,340**

Analysis of water quality from survey area

ISO TECH LABORATORY

TRACE CERTIFIED

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-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0617 467

WATER QUALITY TEST RESULTS FORM

Client	MESC
Nature of Water	Tube Well Water
Location	Amarapura Township
Date and Time of collection	22.6.2017
Date and Time of arrival at Laboratory	23.6.2017
Date and Time of commencing examination	24.6.2017
Date and Time of completing	29.6.2017

Results of Water Analysis			WHO Drinking Water Guideline (Geneva - 1993)
pH	7.7		6.5 - 8.5
Colour (True)		TCU	15 TCU
Turbidity	2	NTU	5 NTU
Conductivity	590	micro S/cm	
Total Hardness	230	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	154	mg/l as $CaCO_3$	
Magnesium Hardness		mg/l as $CaCO_3$	
Total Alkalinity	332	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity		mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	Nil	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	332	mg/l as $CaCO_3$	
Iron		mg/l	0.3 mg/l
Chloride (as CL)	8	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO_4)	40	mg/l	200 mg/l
Total Solids		mg/l	1500 mg/l
Suspended Solids	3	mg/l	
Dissolved Solids	419	mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate	Nil	mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity		ppt	

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

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

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

(a division of WEG Co.,Ltd.)
No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
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W0617 467

WATER QUALITY TEST RESULTS FORM

Client	MESC
Nature of Water	Tube Well Water
Location	Amarapura Township
Date and Time of collection	22.6.2017
Date and Time of arrival at Laboratory	23.6.2017
Date and Time of commencing examination	24.6.2017
Date and Time of completing	29.6.2017

Results of Water Analysis — **WHO Drinking Water Guideline (Geneva - 1993)**

Temperature (°C)		°C	
Fluoride (F)		mg/l	1.5 mg/l
Lead (as Pb)		mg/l	0.01 mg/l
Arsenic (As)		mg/l	0.01 mg/l
Nitrate ($N.NO_3$)	0.3	mg/l	50 mg/l
Chlorine (Residual)		mg/l	
Ammonia (NH_3)		mg/l	
Ammonium (NH_4)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)	32	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	4	mg/l	
Cyanide (CN)		mg/l	0.07 mg/l
Zinc (Zn)		mg/l	3 mg/l
Copper (Cu)		mg/l	2 mg/l
Silica (Si)		mg/l	

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

Tested by
Signature:
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Signature:
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ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာ ရေးဆွဲမည်

မန်ကုန်၊ ဇွန် ၂၆

မန္တလေးတိုင်းဒေသကြီးတွင် မော်တော်ဆိုင်ကယ်နှင့် ဆိုင်ကယ်အပိုပစ္စည်း ထုတ်လုပ်တပ်ဆင်ခြင်းစီမံကိန်း ဆောင်ရွက်ရန်ရေးဆွဲမည့် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(IEE) အစီရင်ခံစာကို ရေးဆွဲမည်ဖြစ်ကြောင်း Myanmar Environment Sustainable Conservation Co.,Ltd.(MESC)မှ အုပ်ချုပ်မှုဒါရိုက်တာဦးမြင့်ကျော်သူရက ပြောကြားသည်။

အဆိုပါစီမံကိန်းသည် စစ်ကိုင်း-မြစ်ငယ်ဖြတ်လမ်း ဘေးတစ်ဖက်တစ်ချက်၊ ကျောက်စိမ်းဘုရားမှ ၁ ဒသမ ၈ မိုင်ခန့်အကွာ၊ ရန်ကုန်- မန္တလေး အမြန်လမ်းမကြီးမှ ၁ ဒသမ ၁ မိုင်အကွာတွင်တည်ရှိပြီး Aung Kan Bo Motorcycle Industrial Co.,Ltd. က ရင်းနှီးမြှုပ်နှံငွေ အမေရိကန်ဒေါ်လာ ၂၁ သန်းဖြင့် အကောင်အထည်ဖော်ဆောင်ရွက်မည်ဖြစ်သည်။

ယင်းစီမံကိန်းအတွက် စီမံကိန်းဧရိယာတွင် လေထုညစ်ညမ်းမှုကိုတိုင်းတာခြင်းနှင့် အဝီစိရေကိုယူဆောင်၍ ရန်ကုန်တွင် ဓာတ်ခွဲစမ်းသပ်မည်ဖြစ်ကြောင်း ဦးမြင့်ကျော်သူရက ပြောဆိုသည်။

အဆိုပါအစီရင်ခံစာ ရေးဆွဲရန်အတွက် လူထုတွေ့ဆုံပွဲကို ဇွန်လ ၂၂ နေ့က ပြုလုပ်ခဲ့ရာ စီမံကိန်းကို ကန့်ကွက်ခြင်းမရှိသော်လည်း အနီးဝန်းကျင်မှ ဒေသခံများကို ဝန်ထမ်းအဖြစ် ခန့်အပ်စေလိုကြောင်း ကျေးရွာဒေသခံများက ပြောကြားခဲ့ပြီး ကုမ္ပဏီအနေနှင့်လည်း စီမံကိန်းလည်ပတ်စဉ်ကာလ ပထမနှစ်တွင် အလုပ်သမား ၆၀၀ ကျော်ကို စတင်ခန့်အပ်မည်ဖြစ်ကြောင်း ၎င်းက ရှင်းပြသည်။■ E-03

The Voice Daily (27-6-2017)

ကျေးရွာအမည်-ဘားမွန်+ရေကြည်ပေါ် နေ့စွဲ-၁၁.၆.၂၀၁၇

အစည်းအဝေးတက်ရောက်သူများစာရင်း

စဉ်	အမည်	လက်မှတ်	မှတ်ချက်
၁။	ဦးတင်အောင်		
၂။	" ဝင်းမြင့်		
၃။	" ကျော်တင့်		
၄။	" ကိုကိုအောင်		
၅။	" နေလင်း		
၆။	" အောင်ဆန်း		
၇။	" အောင်သိန်း		
၈။	" အေးလွင် (ကျေးရွာအုပ်ချုပ်ရေးမှူး)		
၉။	" ကျော်ထွန်းမင်း		
၁၀။	" ဖြိုးမြင့်		
၁၁။	" မောင်မွန့်		
၁၂။	" သိန်းလှ		
၁၃။	" မှူးဖြိုး		
၁၄။	" မြသိန်း		
၁၅။	" လှမြင့်		

ကျေးရွာအမည်- [illegible] နေ့စွဲ- ၂၂.၆.၂၀၁၇

အစည်းအဝေးတက်ရောက်သူများစာရင်း

စဉ်	အမည်	လက်မှတ်	မှတ်ချက်
၁၆၊	ဦး ကျော် ထွန်း		
၁၇၊	" ဦး ညွှန့် [illegible]		
၁၈၊	ဒေါ် [illegible] မာ ဝင်း		
၁၉၊	ဦး ခင် မောင် ဌေး		
၂၀၊	ဒေါ် ကြည် ကြည် [illegible]		
၂၁၊	ဦး ဝင်း သိန်း		
၂၂.	" မောင် သိန်း		
၂၃၊	" [illegible] ချမ်း မြ		
၂၄၊	" မောင် ဖေ ဌေး		
၂၅၊	" ကျော် ဝင်း သိန်း		
၂၆	" [illegible]		
၂၇	" ဦး [illegible]		
၂၈၊	" ဦး ဝင်း		
၂၉၊	" စိုး မောင်		
၃၀၊	ဒေါ် [illegible]		

ကျေးရွာအမည်- [illegible] နေ့စွဲ- [illegible]

အစည်းအဝေးတက်ရောက်သူများစာရင်း

စဉ်	အမည်	လက်မှတ်	မှတ်ချက်
၁။	[illegible]		
၂။	[illegible]		
၃။	[illegible]		
၄။	[illegible]		

Lists of attendees

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