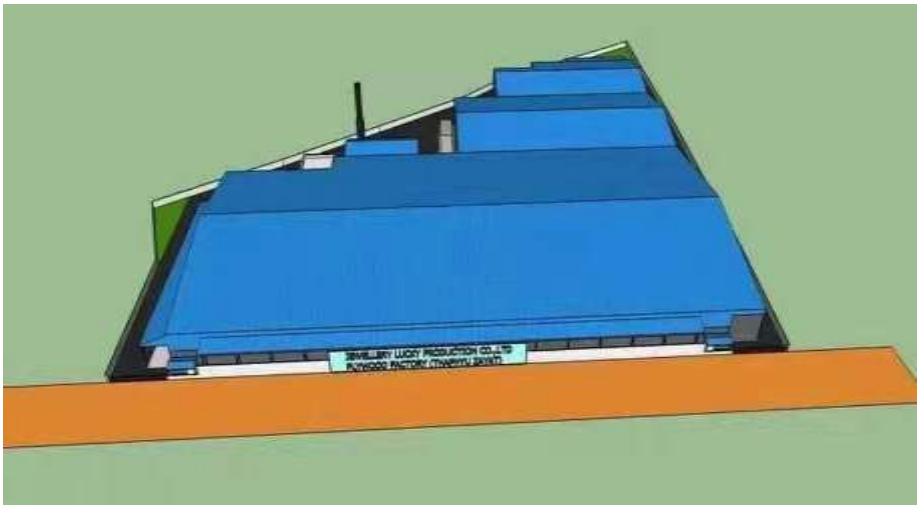
INITIAL ENVIRONMENTAL EXAMINATION
for
The Construction and Operation of Ply Wood Factory
at
Wah-kha-yu Village Tract Area, Thanbyuzayat Township, Mon State
by
Jewellery Lucky Production Co., Ltd



(Myanmar Environment Sustainable Conservation)

October, 2022

INITIAL ENVIRONMENTAL EXAMINATION
for
The Construction and Operation of Ply Wood Factory
at
Wah-kha-yu Village Tract Area, Thanbyuzayat Township, Mon State
by
Jewellery Lucky Production Co., Ltd

(Myanmar Environment Sustainable Conservation)

October, 2022

CONTENTS

List of figures

List of Tables

ACRONYMS AND ABBREVIATION

ASEAN	Association of South-East Asian Nations
BAT	Best Available Technology
BBM	Borax-Boric Acid Mixture
BOD	Biochemical Oxygen Demand
CCA	Chromated Copper Arsenate
CFC	Chlorofluro Carbon
CGM	Complaints and Grievances Mechanism
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 Industries Transparency Initiative
EMP	Environmental Management Plan
EPS	Environmental Performance Standards
ERD	Emergency Response Procedures
EU	European Union
FAO	Food and Agricultural Organization
FGD	Focal Group Discussion
GDP	Gross Domestic Products
GHGs	Green House Gases (Glass House Gases)
GWP	Global Warming Products
HVAC	Heating, Ventilation, Air Cooling
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

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
MTE	Myanmar Timber Enterprise
NCEA	National Commissions of Environmental Affairs
NECC	National Environmental Conservation Committee
NECCCCC	National Environmental Conservation Committee and Climate Change Central Committee
NEQ	National Environmental Quality
NGO	Non-Government Organization
NO_2	Nitrogen Dioxide
ODS	Ozone Depleting Substances
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
5Rs	Reduce, reuse, recover, recycle and redesign
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
WC	Water closet
WHO	World Health Organization
YCDC	Yangon City Development Committee

အကျဉ်းချုပ်အစီရင်ခံစာ

ဤကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာသည် ကံကောင်းခြင်းရတနာ ထုတ်လုပ်မှုလုပ်ငန်း ကုမ္ပဏီလီမိတက်မှ အထပ်သားစက်ရုံ တည်ဆောက်ခြင်းနှင့် စီမံကိန်းလည်ပတ်ခြင်းအတွက် အဆိုပြုတင်ပြခြင်းဖြစ်ပါသည်။

ကုမ္ပဏီသည် ၂၀၁၁-၁၁-၂၀၁၇ တွင်အစုရှယ်ယာများဖြင့် တရားဝင်မှတ်ပုံတင်ထားသော ကုမ္ပဏီတစ်ခုဖြစ်သည်။ ကုမ္ပဏီမှတ်ပုံတင်အမှတ်မှာ ၁၄၅၄၃၁၁၂ (ယခင်မှတ်ပုံတင်အမှတ်မှာ ၁၀၀၂/၂၀၀၇-၂၀၀၈) ဖြစ်သည်။

ကုမ္ပဏီသည် မြန်မာ့ရင်းနှီးမြှုပ်နှံမှုကော်မရှင် (MIC)မှ ၁၉-၁၁-၂၀၂၁ တွင် ခွင့်ပြုမိန့်ရရှိပြီးဖြစ်ပါသည်။

ကံကောင်းခြင်းရတနာ ထုတ်လုပ်မှုလုပ်ငန်း ကုမ္ပဏီလီမိတက်သည် တတိယ အဖွဲ့အစည်းဖြစ်သော Myanmar Environment Sustainable Conservation (MESC) ဖြင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် (EMP) ပါဝင်သော ဤ ကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာကို လုပ်ဆောင်ရန် သဘောတူညီခဲ့ပါသည်။ တတိယ အဖွဲ့အစည်းဖြစ်သော MESC ကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မွန်ပြည်နယ် မှ ကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာကို ဆောင်ရွက်ရန် အတည်ပြုထားပြီးဖြစ်ပါသည်။ (စာအမှတ် ၂/၆/၇ (၀၅)၊ (၁၆၅၇/၂၀၂၁)၊ ရက်စွဲ။ ၂၀၂၁၊ စက်တင်ဘာလ ၂၄) နောက်ဆက်တွဲတွင် ဖော်ပြထားပါသည်။

စီမံကိန်းအကြောင်းအရာ အကျဉ်းချုပ်

အဆိုပြုတင်ပြသော စီမံကိန်းသည် ကံကောင်းခြင်းရတနာ ထုတ်လုပ်မှုလုပ်ငန်း ကုမ္ပဏီလီမိတက်မှ အထပ်သား ထုတ်လုပ်ခြင်းလုပ်ငန်းအတွက်ဖြစ်သည်။

<u>တည်နေရာ</u>

စီမံကိန်းနေရာသည် ဦးပိုင်အမှတ် (၅၈/၁၁၈)၊ ဂါခရုအနောက်ကွင်း၊ ကွင်းအမှတ် (၉၂၁/က)၊ ဂါခရုကျေးရွာအုပ်စု၊ သံဖြူဇရပ်မြို့နယ်၊ မွန်ပြည်နယ်တွင် တည်ရှိပါသည်။ အထပ်သားစက်ရုံကို တည်ဆောက်ခြင်းနှင့် စီမံကိန်းလည်ပတ်ခြင်းလုပ်ဆောင်ပါမည်။ အထပ်သားစက်ရုံအတွက် ဧရိယာသည် ၃.၉၆ ဧက ဖြစ်ပြီး ဂန်ထမ်းအိမ်ရာကို စက်ရုံ၏ မြောက်ဘက် မီတာ ၃၀ အကွာတွင် ဧရိယာ ၃.၇၅ ဧက ပေါ်တွင် တည်ဆောက်မည်ဖြစ်သည်။

တည်ရှိပြီးဖြစ်သော သစ်ခွဲသားနှင့် သစ်ပါးလွှာစက်ရုံသည် ဦးပိုင်အမှတ် (၂/ဂ-၂)၊ ဂါခရုအနောက်ကွင်း၊ ကွင်းအမှတ် ၉၂၁/က၊ ဂါခရုကျေးရွာအုပ်စု၊ သံဖြူဇရပ်မြို့နယ်၊ မွန်ပြည်နယ်တွင် တည်ရှိပါသည်။ ဧရိယာမှာ ၃.၈၁ ဧကဖြစ်သည်။

စီမံကိန်းနေရာသည် ဂါခရုကျေးရွာ၏ အနောက်ဘက် ၁.၇၅ မိုင်အကွာနှင့် သံဖြူဇရပ်မြို့၏ အနောက်မြောက်ဘက် ၃ မိုင်အကွာတွင် တည်ရှိပါသည်။ ၄င်းသည် သံဖြူဇရပ်-ကျိုက်ခမီလမ်းမကြီး၏ မြောက်ဘက်တွင် တည်ရှိပါသည်။

အဆိုပြုတင်ပြသော အထပ်သားစက်ရုံ၏ ကိုဩဒိနိတ်များမှာ မြောက်လတ္တီတွဒ် ၁၅ ဒီဂရီ၊ ၅၉ မိနစ်၊ ၂၀.၈၉ စက္ကန့်နှင့် အရှေ့လောင်ဂျီတွဒ် ၉၇ ဒီဂရီ၊ ၄၁ မိနစ်၊ ၂၅.၈၂ စက္ကန့်တို့ဖြစ်ပါသည်။

<u>စီမံကိန်းသက်တမ်း</u>

အကြိုတည်ဆောက်ရေးကာလ	-	၁ နှစ်
တည်ဆောက်ရေးကာလ	-	၂ နှစ်
စီမံကိန်းလည်ပတ်ခြင်းကာလ	-	၃၀ နှစ်
စီမံကိန်းပိတ်သိမ်းခြင်းကာလ	-	၂ နှစ်

ခန့်မှန်းဘတ်ဂျက်မှာ ကျပ်သန်းပေါင်း ၁၃၃၅၀ ဖြစ်သည်။

<u>အခြေခံအဆောက်အဦနှင့် တပ်ဆင်ခြင်း</u>

အဆိုပြုတင်ပြသော အထပ်သားစက်ရုံသည် ကြီးမားသော အဆောက်အဦ (၄၅၀' x ၁၇၅' x ၂၅') တစ်ခုဖြစ်ပြီး အမိုးတစ်ခုတည်းအောက်တွင် အကန့် ၃ ကန်ပါရှိပါမည်။

စီမံကိန်းနေရာသည် မော်တော်လမ်းဖြစ်ပြီး အလွယ်တကူသွားလာနိုင်ပါသည်။ ကုမ္ပဏီမှ လမ်းဟောင်းကို ပြန်လည်ပြုပြင်မည်ဖြစ်ပါသည်။

စီမံကိန်းနေရာသည် အစိုးရလျှပ်စစ်မီးရရှိပါသည်။ ကုမ္ပဏီသည် ၁၅၀၀ ကေဗီအေ ထရန်စဖော်မာ တစ်ခုကိုတည်ဆောက်မည်ဖြစ်ပြီး လျှပ်စစ်သုံးစွဲမှုမှာ တစ်နှစ်လျှင် ၁,၂၃၇,၅၀၀ ယူနစ်ဖြစ်သည်။

ရေကို အနက်ပေ (၁၅၀) ရှိသော မြေအောက်ရေမှ ရယူသုံးစွဲမည်ဖြစ်ပြီး အဂိစိတွင်း ၂ တွင်းတူးဖော်ပါမည်။ ရေလိုအပ်ချက်မှာ တစ်နှစ်လျှင် ၇၂၀,၀၀၀ ဂါလံဖြစ်သည်။

လောင်စာဆီလိုအပ်ချက်မှာ အောက်ပါအတိုင်းဖြစ်သည်။

ဒီဇယ်	-	၅၁,၀၀၀ ဂါလံ/နှစ်
အင်ဂျင်ဝိုင်	-	၁,၂၀၀ ဂါလံ/နှစ်
ဟိုက်ဒရောလစ်	-	၁,၂၀၀ ဂါလံ/နှစ်
ဂီယာဝိုင်	-	၁၂၀ ဂါလံ/နှစ်

နည်းပညာ

စက်ပစ္စည်းနှင့် အော်တိုစနစ်များဖြစ်သည်။ လေးပေအရှည်ရှိသော ရာဘာသစ်သည် ကုန်ကြမ်းဖြစ်သည်။ အခြေခံနည်းပညာမှာ အခွံခွာစက်ကိုအသုံးပြု၍ အခွံခွာခြင်းစနစ်ဖြစ်သည်။ ဤနည်းဖြင့် ရာဘာသစ်ပါးလွှာရရှိလာသည်။

အဆိုပါ ရာဘာသစ်ပါးလွှာအား ကော်သုတ်၍ အအေးစက်နှင့်အပူစက် ဖိခြင်းနည်းစနစ်ဖြင့် အထပ်သားရရှိလာပါသည်။

ကုမ္ပဏီသည် အနောက်ဘက်တွင် သစ်ပါးလွှာစက်ရုံရှိပါသည်။ ဤစက်ရုံမှ ထွက်ရှိသော သစ်ပါးလွှာများကို အထပ်သားထုတ်လုပ်ခြင်းတွင် ကုန်ကြမ်းအဖြစ်သုံးစွဲပါမည်။ သစ်ပါးလွှာထုတ်လုပ်ခြင်းနည်းပညာကို ကုမ္ပဏီမှ ယခင်သီးခြား ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာတွင် ဖော်ပြပြီးဖြစ်ပါသည်။

ထုတ်လုပ်ခြင်းတွင် အဓိကအဆင့်များမှာ သစ်ပါးလွှာကို အခြောက်ခံခြင်း၊ သစ်ပါးလွှာများကို ကော်ကပ်ခြင်းနှင့် အထပ်သားပုံပြုလုပ်ခြင်း၊ အထပ်သားကိုဖိစက်ဖြင့်ဖိခြင်း၊ ချောမွေ့စေရန်ပြုလုပ်ခြင်း၊ ကော်ပတ်စားခြင်း၊ အထပ်သားကို ညီစေရန် ဖြတ်တောက်ခြင်းနှင့် နောက်ဆုံးထုတ်ကုန် ရရှိပါသည်။

ထုတ်လုပ်ခြင်း

ပထမနှစ်တွင် အထပ်သားထုတ်လုပ်မှု လျာထားချက်မှာ ၅၄,၆၀၀ CBM ဖြစ်သည်။ ထုတ်လုပ်မှုသည် တစ်နှစ်ထက်တစ်နှစ်တိုးမြှင့်သွားမည်ဖြစ်ပြီး ၆ နှစ်မြောက်တွင် ထုတ်လုပ်မှုလျာထားချက်မှာ ၅၇,၃၃၀ CBM ဖြစ်သည်။ အထပ်သားအချို့ကို ပြည်တွင်းတွင် ရောင်းချ၍ အချို့ကို ပြည်ပသို့ပို့ဆောင်မည်ဖြစ်သည်။

စက်ယန္တရား

အခြောက်ခံစက်၊ ကော်ကပ်စက်၊ ဖိစက်၊ အမှုန်ဖမ်းစက် (ဆိုင်ကလုန်း) စသည်တို့ဖြစ်သည်။ ယာဉ်ယန္တရား၊ အခြားစက်ယန္တရားနှင့် စက်ကိရိယာများကို ပြည်တွင်းတွင် ဝယ်ယူမည်။

ဓါတုပစ္စည်း

ပိုလီဗီနိုင်းအယ်ကော်ဟောလ်ပါဝင်သော ကော်၊ မယ်လမင်းအမှုန့်၊ ဆိုဒါ၊ ဖော်မလင်း အစရှိသည်တို့ဖြစ်သည်။

ဝန်ထမ်းအင်အား

တည်ဆောက်ရေးကာလအတွင်းတွင် ဝန်ထမ်း ၁၀၀ ဦးခန့်အပ်မည်ဖြစ်၍ စီမံကိန်းလည်ပတ်စဉ်ကာလအတွင်းတွင် နိုင်ငံခြားသား (၄) ဦးအပါအဝင် ဝန်ထမ်း ၅၅၆ ဦးခန့်အပ်မည်ဖြစ်သည်။

အလုပ်လုပ်ချိန်မှာ တစ်နေ့ ၈ နာရီဖြစ်သည်။ ပန်ထမ်းများအတွက် နေစရာအဆောင် ထောက်ပံ့ပေးပါမည်။

ထွက်ရှိမည့်စွန့်ပစ်ပစ္စည်းများမှာ မီးခိုး၊ စွန့်ထုတ်မှုနှင့် နှောက်ယှက်မှုများကို အခန်း (၁) တွင်အသေးစိတ်ဖော်ပြထားပါသည်။ တည်ဆောက်ရေးကာလတွင် အဓိကစွန့်ပစ်ပစ္စည်းမှာ တည်ဆောက်ရေးစွန်ပစ်ပစ္စည်းများဖြစ်ပြီး စီမံကိန်းလည်ပတ်စဉ်ကာလအတွင်းတွင် အဓိကစွန့်ပစ်ပစ္စည်းမှာ အထပ်သားထုတ်လုပ်ခြင်းမှ အနည်းငယ်သော အထပ်သားစွန့်ပစ်ပစ္စည်းများ ဖြစ်မည်။

<u>စီမံကိန်းအား အခြားဆောင်ရွက်နိုင်သော နည်းလမ်းများ</u>

အခန်း (၁)၏ နောက်ဆုံးအပိုင်းတွင် တည်ဆောက်ရေးကာလနှင့် စီမံကိန်းလည်ပတ်ခြင်းကာလအတွင်းတွင် ဖြစ်နိုင်ခြေရှိသော စီမံကိန်းအား အခြားဆောင်ရွက်နိုင်သော နည်းလမ်းများကို ထည့်သွင်းစဉ်းစား၍ အကျဉ်းချုပ်ဖော်ပြထားပါသည်။

စီမံကိန်းအဆိုပြုတင်ပြသူ

အခန်း (၂) သည် စီမံကိန်းအဆိုပြုတင်ပြသူ အကြောင်းဖြစ်သည်။ ကံကောင်းခြင်းရတနာ ထုတ်လုပ်မှု ကုမ္ပဏီလီမိတက်သည် ၂၀၀၇ ခုနှစ်၊ နိုဝင်ဘာလတွင် ရှယ်ယာများဖြင့် တရား၀င်မှတ်ပုံတင်ထားသော ကုမ္ပဏီတစ်ခုဖြစ်သည်။ (ကုမ္ပဏီမှတ်ပုံတင်အမှတ် ၁၄၅၄၂၁၁၂၊ ရင်းနှီးမြှုပ်နှံမှုနှင့် ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန၊ ရက်စွဲ။ ၂၀-၁၁-၂၀၀၇)။ (ယခင်ကုမ္ပဏီမှတ်ပုံတင်အမှတ်မှာ ၁၀၀၂/၂၀၀၇-၂၀၀၈ ဖြစ်သည်)

ကုမ္ပဏီသည် မြန်မာ့ရင်းနှီးမြှုပ်နှံမှုကော်မရှင် (MIC)မှ ၁၉-၁၁-၂၀၂၁ တွင် ခွင့်ပြုမိန့်ရရှိပြီး ဖြစ်ပါသည်။ (ခွင့်ပြုမိန့်အမှတ် ၂၂၇/၂၀၂၁၊ ရက်စွဲ ၁၉-၁၁-၂၀၂၁)

စီမံကိန်းအဆိုပြုတင်ပြသူ	:	ကံကောင်းခြင်းရတနာထုတ်လုပ်မှု ကုမ္ပဏီလီမိတက်
လိပ်စာ (ရုံးချုပ်)	:	အိုလံပစ်ဟိုတယ်၊ အမျိုးသားရေကူးကန်၀န်း၊ ဦးဂိစာရလမ်း၊ ဒဂုံမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး၊ မြန်မာ
ဖုန်း	:	၀၁ ၂၄၃၁၃၀၊ ၀၁ ၂၄၃၁၃၁၊ ၀၁ ၂၄၃၁၃၄၊ ၀၁ ၂၄၃၁၃၅၊ ၀၁၆၄၁၇၆၃-၇၊ ၀၁ ၆၄၇၆၅၀-၄
ဖက်စ်	:	၉၅-၁-၂၄၂၄၄၆
ဆက်သွယ်ရန်လူပုဂ္ဂိုလ်	:	ဦးနေလင်းထက်၊ အထွေထွေမန်နေဂျာ
ဖုန်း	:	၀၉ ၄၄၄၄၁၃၁၆၆

စီမံကိန်းတည်နေရာ : ဦးပိုင်အမှတ် (၂/ဂ-၂)၊ ၅၈/၁၁၈၊ အနောက်ဂါခရုကွင်း၊ ကွင်းအမှတ် ၉၂၁/က၊ ဂါခရုကျေးရွာအုပ်စု၊ သံဖြူဇရပ်မြို့နယ်၊ မော်လမြိုင်ခရိုင်၊ မွန်ပြည်နယ်

ကိုဩဒိနိတ် : မြောက်လတ္တီတွဒ် ၁၅ ဒီဂရီ၊ ၅၉ မိနစ်၊ ၂၀.၈၉ စက္ကန့်နှင့် အရှေ့လောင်ဂျီတွဒ် ၉၇ ဒီဂရီ၊ ၄၁ မိနစ်၊ ၂၅.၈၂ စက္ကန့်

အမြင့် : ၃၅ မီတာ ပင်လယ်ရေမျက်နှာပြင်အမြင့်

အမှုဆောင်ဒါရိုက်များမှာ-

ဦးကျော်စိန် @ ဝေချင် - အုပ်ချုပ်မှုဒါရိုက်တာ

ဦးတင်ညွန့် - ဒါရိုက်တာ

ဦးသောင်းထိုက်မင်း - ဒါရိုက်တာ

ဦးမင်းမျိုးသန်း - ဒါရိုက်တာ

ဦးကျော်ဝေ - ဒါရိုက်တာ

ဦးထွန်းဝေ - ဒါရိုက်တာ

ဒေါ်ခင်မြတ်မွန် - ဒါရိုက်တာ

ဒေါ်ဥမ္မာမြင့် - ဒါရိုက်တာ

ကုမ္ပဏီသည် ၁၀၀ ရာနိုင်နှုန်း မြန်မာနိုင်ငံသားပိုင် ဖြစ်သည်။

ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း ပညာရှင်များ (တတိယအဖွဲ့အစည်း၊ MESC)

မြန်မာ့ပတ်ဝန်းကျင် ရေရှည်တည်တံ့ရန်ထိန်းသိမ်းရေး ကုမ္ပဏီလီမိတက် (MESC)သည် အမျိုးသား စီမံကိန်းနှင့် စီးပွားရေးဖွံ့ဖြိုးတိုးတက်မှုဝန်ကြီးဌာနတွင် --- စာအမှတ်။ ရက-၈(ဂ)၀၀၁/၂၀၁၄ (၀၀၄ဂ၇၂၀)၊ ရက်စွဲ။ ၆-၆-၂၀၁၄၊ မှတ်ပုံတင်လက်မှတ်အမှတ် ၈၃၀/၂၀၁၄-၂၀၁၅ (၂၀-၅-၂၀၁၅)ဖြင့် ၂၀၁၄ ခုနှစ်၌ တရားဝင်မှတ်ပုံတင်ထားသော အဖွဲ့အစည်းတစ်ခု ဖြစ်သည်။ မှတ်ပုံတင်အမှတ်မှာ ၈၃၀/၂၀၁၄-၂၀၁၅၊ (၂၀-၅-၂၀၁၄)

တတိယအဖွဲ့အစည်းဖြစ်သော မြန်မာ့ပတ်ဝန်းကျင်ရေရှည်တည်တံ့ရန်ထိန်းသိမ်းရေး ကုမ္ပဏီလီမိတက် (MESC)၏ ကြားကာလအကြံပေးလုပ်ကိုင်သူ အထောက်အထားအမှတ်သည် ၀၀၀၃ ဖြစ်သည်။ (ရက်စွဲ။ ၁-၇-၂၀၁၇၊ ECD)

ဆက်သွယ်ရန်လိပ်စာ - အခန်း(၅-ခ)၊ တိုက်အမှတ်(၆၇/၆၉)၊ ပါရမီလမ်း၊ (၁၆)ရပ်ကွက်၊ လှိုင်မြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး

ဆက်သွယ်ရန် ပုဂ္ဂိုလ် - ဦးမြင့်ကျော်သူရ

ဖုန်း - +၉၅ ၉ ၄၂၀၁၅၀၇၁

ဆက်သွယ်ရန် ဖုန်းနံပါတ် - +၉၅ ၉ ၇၃၀၄၄၉၀၃

အီးမေးလ် - myanmar.esc@gmail.com

ဖေ့ဘုတ်ပေ့ဂ်ဆိုဒ် - www.myanmar environment sustainable conservation.com

ဤကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း စီမံကိန်းတွင်ပါဝင်သော MESC ၏ အဖွဲ့ဝင်များမှာ အောက်ပါအတိုင်း ဖြစ်သည် -

အမည်	နိုင်ငံသားနှင့် နိုင်ငံသား မှတ်ပုံတင် အမှတ်	ECD မှတ်ပုံတင် အမှတ်	ကျွမ်းကျင်ဘာသာရပ်
ဦးမြင့်ကျော်သူရ	မြန်မာ ၁၂/ ဒဂတ(နိုင်) ၀၂၈၃၄၉	၀၀၀၆	အုပ်ချုပ်မှုဒါရိုက်တာ၊ ဇီဝမျိုးစုံမျိုးကွဲပညာရှင်၊
ဦးစောဟန်ရှိန်	မြန်မာ ၁၀/ မလမ(နိုင်) ၀၀၈၁၇၃	၀၀၀၇	အငြိမ်းစားပါမောက္ခ၊ EIA ပညာရှင်
ဒေါက်တာ သီရိဒေဂီအောင်	မြန်မာ ၁၂/ ဒလန(နိုင်) ၀၂၉၄၃၃	၀၀၀၈	ဇီဝမျိုးစုံမျိုးကွဲပညာရှင်(ငှက်)
ဦးတင်ထွန်းအောင်	မြန်မာ ၁၂/ ဥတမ(နိုင်) ၁၇၂၁၁၁	၀၀၀၉	အင်ဂျင်နီယာ၊ EIA ပညာရှင်
ဒေါ်ခင်နွေနိုင်	မြန်မာ ၉/ ပခက(နိုင်) ၀၀၁၂၅၂	၀၀၀၁၀	ဇီဝမျိုးစုံမျိုးကွဲပညာရှင်(အပင်)၊ ပတ်ဝန်းကျင်သုတေသနလေ့လာရေးပညာရှင်

ဦးသန်းစိုးဦး	မြန်မာ ၉/ မနမ (နိုင်) ၀၅၀၈၀၈	၀၀၀၁၁	EIA ပညာရှင်
ဦးဥက္ကာကျော်သူ	မြန်မာ ၇/ ရတရ (နိုင်) ၀၉၀၃၇၇၁	၀၀၀၁၂	ဘူမိဗေဒပညာရှင်
ဒေါ်သင်းသင်းရီ	မြန်မာ ၁၂/ သဃက(နိုင်) ၀၃၉၂၉၂	၀၀၀၁၃	ဓါတုပတ်ဝန်းကျင်ဆိုင်ရာသုတေသနပညာရှင်၊ ကွန်ပျူတာ
ဒေါက်တာထင်သော်ကောင်း	မြန်မာ ၁၃/ဘအန	အလွတ်တမ်း	လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး
ဒေါ်နှင်းနုနုအောင်	မြန်မာ ၈/မကန(နိုင်) ၂၀၄၃၃၀	လျှောက်ထားဆဲ	ပတ်ဝန်းကျင်ဆိုင်ရာ အင်ဂျင်နီယာ

- ဦးမြင့်ကျော်သူရသည် သားရဲတိရစ္ဆာန်လေ့လာမှုတွင်ပါဝင်ပြီး အစီရင်ခံစာ တစ်စိတ်တစ်ပိုင်း ရေးသားခြင်းတွင် ပါဝင်ပါသည်။
- ဦးစောဟန်ရှိန်သည် အစီရင်ခံစာရေးသားခြင်းတွင် ပါဝင်လုပ်ဆောင်သည်။ (အဓိကအစီရင်ခံစာ ရေးသားသူ)
- ဒေါက်တာသီရိဒေဂီအောင်သည် ငှက်လေ့လာခြင်းနှင့် အစီရင်ခံစာ တစ်စိတ်တစ်ပိုင်း ရေးသားခြင်းတွင် ပါဝင်ပါသည်။
- ဦးတင်ထွန်းအောင်သည် သတင်းအချက်အလက် စုဆောင်းခြင်းနှင့် အစီရင်ခံစာ တစ်စိတ်တစ်ပိုင်း ရေးသားခြင်းတွင် ပါဝင်ပါသည်။
- ဒေါ်ခင်နွေနိုင်သည် အပင်လေ့လာမှုတွင် ပါဝင်၍ အစီရင်ခံစာ တစ်စိတ်တစ်ပိုင်းရေးသားခြင်းတွင် ပါဝင်ပါသည်။

- ဦးသန်းစိုးဦးသည် အထူးသဖြင့် လူမှုစီးပွားရေးအခန်းကဏ္ဍတွင် ပါဝင်၍ အစီရင်ခံစာ တစ်စိတ်တစ်ပိုင်းရေးသားခြင်းတွင် ပါဝင်ပါသည်။

- ဦးဥက္ကာကျော်သူသည် ဘူမိဗေဒနှင့်သက်ဆိုင်သော အခန်းကဏ္ဍတွင် သတင်းအချက်အလက် စုဆောင်းခြင်းကို လုပ်ဆောင်ပါသည်။

- ဒေါ်သင်းသင်းရီသည် ရုပ်ပိုင်းဆိုင်ရာ အထူးသဖြင့် ထိတွေ့လေ၊ ရေအရည်အသွေး၊ ဆူညံသံ၊ တုန်ခါမှုနှင့် မြေ အစရှိသည်တို့နှင့် ရုပ်ပိုင်းဆိုင်ရာ သတင်းအချက်အလက်များနှင့် မိုးလေဝသဆိုင်ရာ သတင်းအချက်အလက်များ စုဆောင်းခြင်းတွင် ပါဝင်လုပ်ဆောင်ပါသည်။

- ဒေါက်တာထင်သော်ကောင်းသည် ဆရာဝန်တစ်ယောက်ဖြစ်၍ MESC ၏ အချိန်ပိုင်း အဖွဲ့ဝင်ဖြစ်သည်။ ၄င်းသည် စီမံကိန်း၏ လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး အခန်းကဏ္ဍတွင် ပါဝင်ပါသည်။

- ဒေါ်နှင်းနုနုအောင်သည် စီမံကိန်း၏ စွန့်ပစ်ပစ္စည်း စီမံခန့်ခွဲမှုတွင် ပါဝင်လုပ်ဆောင်ပါသည်။ သူမသည် EIA/IEE/EMP လုပ်ငန်းများတွင်လည်း ပါဝင်လုပ်ဆောင်ပြီး အစီရင်ခံစာ ရေးသားခြင်းနှင့် ပတ်ဝန်းကျင်လုပ်ငန်းဆိုင်ရာ သုတေသနလုပ်ငန်းများတွင် လုပ်ဆောင်ပါသည်။

  အမှုန်တစ်ကယ်တွင် MESC အဖွဲ့ဝင်များသည် EMP/IEE/EIA အစီရင်ခံစာများကို ပူးပေါင်းပါဝင် ရေးသားပါသည်။

သက်ဆိုင်သော ဥပဒေများအသေးစိတ်

အခန်း (၄) သည် သက်ဆိုင်သော ဥပဒေများ၊ နည်းဥပဒေများ၊ စည်းမျဉ်းများ၊ စံချိန်စံညွှန်းများ၊ လမ်းညွှန်ချက်များ၊ စီမံကိန်းနှင့်သက်ဆိုင်သော ပတ်ဝန်းကျင်ဆိုင်ရာနှင့် လူမှုရေးရာဆိုင်ရာများနှင့် ပတ်သပ်ဆက်နွယ်သော မူဝါဒများကို ဖော်ပြထားပါသည်။

သက်ဆိုင်သောဥပဒေများနှင့် စည်းမျဉ်းများ:

သက်ဆိုင်သောဥပဒေများ၊ နည်းဥပဒေများနှင့် စည်းမျဉ်းများကို သက်ဆိုင်သော အခန်း၊ ပုဒ်မခွဲများကို ကောက်နုတ်၍ဖော်ပြထားပါသည်။

အဆိုပြုတင်ပြသော စီမံကိန်းနှင့်သက်ဆိုင်သည့် စံချိန်စံညွှန်းနှင့် လမ်းညွှန်ချက်များကို ဖော်ပြထားပါသည်။ ဤအရာများတွင် ထုတ်လွှတ်မှု၊ စွန့်ထုတ်မှု၊ ဆူညံသံ၊ တုန်ခါမှု၊ အနံ့တို့အတွက် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (NEQEG) တန်ဖိုးများလည်း ပါဝင်ပါသည်။

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ECD) မှ လေအရည်အသွေး/ထုတ်လွှတ်မှုလမ်းညွှန်ချက်

(သစ်သားပြားနှင့်သစ်အပိုင်းအစ အခြေခံထုတ်ကုန်ပစ္စည်းထုတ်လုပ်ခြင်း လုပ်ငန်းအတွက် ထုတ်လွှတ်အခိုးအငွေ့သတ်မှတ်ချက်များ)

ပါရာမီတာ	ယူနစ်	လမ်းညွှန်ချက်တန်ဖိုး
Condensable volatile organic compounds	mg/Nm^3 (as Carbon)	130
Formaldehyde	mg/Nm^3	20 (Wood dryers) 5 (Other sources)
Particulate matter PM_{10}	mg/Nm^3	20 (Medium density fiberboard) 20 (Wood dryers) 50 (Other sources)

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ECD) မှ ရေအရည်အသွေး/စွန့်ထုတ်မှုလမ်းညွှန်ချက်

(သစ်သားပြားနှင့်သစ်အပိုင်းအစ အခြေခံထုတ်ကုန်ပစ္စည်းထုတ်လုပ်ခြင်း လုပ်ငန်းအတွက် စွန့်ထုတ်အရည်သတ်မှတ်ချက်များ)

ပါရာမီတာ	ယူနစ်	လမ်းညွှန်ချက်တန်ဖိုး
5 day biochemical oxygen demand	mg/l	50
Chemical oxygen demand	mg/l	150
Formaldehyde	mg/l	10
pH	S.U.[a]	6-9
Temperature increase	^oC	<3[b]
Total suspended solids	mg/l	50

[a] = စံတိုင်းတာစနစ်

[b] = အနီးပတ်ဝန်းကျင်ရှိ ရေအရည်အသွေး၊ ရရှိသော ရေကို အသုံးပြုမှု၊ အလားလာရှိသော လက်ခံနေရာများ၊ တသားတည်းဖြစ်သော စွမ်းဆောင်ရည် အစသည်တို့ကို ထည့်သွင်းစဉ်းစား၍ သိပ်ပံနည်းကျ တည်ဆောက်ထားသည့် ရောနှောဇုန်၏ အစွန်းဘ၌ရှိသော အပူချိန်ဖြစ်သည်၊ ဇုန်ကို အဓိက အဓိပ္ပါယ်သတ်မှတ်ခြင်း မရှိသေးပါက စွန့်ပစ်သည့်အမှတ်မှ ၁၀၀ မီတာ အကွာအဝေးကို အသုံးပြုပါ။

ဆူညံသံ

အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (NEQEG) (အမိန့်ကြော်ငြာစာအမှတ် ၆၁၅/၂၀၁၅၊ ဒီဇင်ဘာ ၂၀၁၅)၏ ဆူညံသံအတွက် အထွေထွေ လမ်းညွှန်ချက်ကိုလိုက်နာပါမည်။

လက်ခံနေရာ	One Hour LAeq (dBA)[a]	
	နေ့အချိန် ၀၇:၀၀ - ၂၂:၀၀ (အများပြည်သူ ပိတ်ရက်များအတွက် ၁၀:၀၀ -၂၂:၀၀)	ညအချိန် ၂၂:၀၀ - ၀၇:၀၀ (အများပြည်သူ ပိတ်ရက်များအတွက် ၂၂:၀၀-၁၀:၀၀)
လူနေအိမ်၊ အဖွဲ့အစည်း၊ ပညာရေးနှင့်သက်ဆိုင်သော နေရာများ	၅၅	၄၅
စက်မှု၊ စီးပွားနေရာ	၇၀	၇၀

[a] ညီမျှပြီး အဆက်မပြတ်ဖြစ်နေသော အသံအဆင့် decibelsဖြင့်

ပတ်ဝန်းကျင်ဆိုင်ရာနှင့်လူမှုရေးဆိုင်ရာ မူဝါဒများ

ကံကောင်းခြင်းရတနာထုတ်လုပ်မှု ကုမ္ပဏီလီမိတက်သည် ၂၁ ရာစုစီးပွားရေး၏ ကျင့်ဝတ်ဖြစ်သော အမြတ်ကို ပတ်ဝန်းကျင်ဆိုင်ရာနှင့် လူမှုအဖွဲ့အစည်းများအတွက် သုံးစွဲရန် ကောင်းစွာနားလည်ပါသည်။ အဆိုပါ စီးပွားရေးသည် စီးပွားရေးချည်းသက်သက် အားစိုက်မှုမပြု၍ ပတ်ဝန်းကျင်နှင့်လိုက်လျောညီထွေဖြစ်စေရန်နှင့် စဉ်ဆက်မပြတ်သော စီးပွားရေးဖြစ်စေပါမည်။

ကနဦးမူဝါဒမှာ ရုပ်ပိုင်းဆိုင်ရာ၊ လူမှုပတ်ဝန်းကျင်ဆိုင်ရာနှင့် သက်ဆိုင်သော ဥပဒေများ၊ နည်းဥပဒေများ၊ စည်းမျဉ်းများကို လိုက်နာပါမည်။ ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအတွက် အဓိကတာဝန်ရှိသော ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ECD) မှချမှတ်ထားသော ဥပဒေများနှင့် စည်းမျဉ်းများအားလုံးကို လိုက်နာပါမည်။

ကုမ္ပဏီသည် အောက်ပါအချက်များကိုလိုက်နာပါမည်:

- စီမံကိန်းအား ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ တာဝန်ယူမှုများနှင့် ဥပဒေများနှင့် စည်းမျဉ်းများကို လိုက်နာဆောင်ရွက်ခြင်း
- ပတ်ဝန်းကျင်ဇရိယာတွင် ညစ်ညမ်းမှုကို တားဆီးခြင်း၊ ပတ်ဝန်းကျင်ကာကွယ်ခြင်းအတွက် စောင့်ကြပ်ကြည့်ရှုလေ့လာခြင်းနှင့် သင့်တော်သော နည်းလမ်းများကို လိုက်နာခြင်း

- အကျိုးသက်ရောက်သော ရေ၊ မြေ၊ လေ၊ ဆူညံသံနှင့် ဖုန်မှုန့်များညစ်ညမ်းမှုကို ဖြေလျော့ရန်နှင့် သင့်တော်သော နေရာတွင် စွန့်ပစ်ပစ္စည်း စွန့်ပစ်မှုများကို လုပ်ဆောင်နိုင်ရန် ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE) ဆောင်ရွက်ခြင်း
- တက်နိုင်သမျှ သဘာဝအရင်းအမြစ်နှင့် စွမ်းအင်များကို ထိန်းသိမ်းခြင်း
- ဝန်ထမ်းများနှင့် ဒေသအဖွဲ့အစည်းများအကြားတွင် ပတ်ဝန်းကျင်ဆိုင်ရာများကို ပညာပေးခြင်းနှင့် သင်တန်းများပေးခြင်း
- စီမံကိန်းလုပ်ဆောင်ခြင်းကြောင့် ထိခိုက်ပျက်စီးဆုံးရှုံးလျှင် လျော်ကြေးပေးဆောင်ခြင်း
- အကျိုးသက်ရောက်သော CSR အစီအစဉ်များ လုပ်ဆောင်ခြင်း
- အပြည်ပြည်ဆိုင်ရာ ဘဏ္ဍာရေးကော်ပိုရေးရှင်း၏ ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ စဉ်ဆက်မပြတ် မူဝါဒများကိုလည်း ဖော်ပြထားပါသည်။

<u>ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ECD) နှင့်သက်ဆိုင်သော အစိုးရကိုယ်စားလှယ်များ</u>

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ECD)သည် (MONREC အောက်ရှိ) ပတ်ဝန်းကျင်ဆိုင်ရာ ကာကွယ်ခြင်းအတွက် အဓိက တာဝန်ရှိသူဖြစ်သည်။ ၄င်းသည် တိုင်းပြည်၏ပတ်ဝန်းကျင်များအတွက် အရည်အချင်းပြည့်မီသော၊ စုပေါင်း၍အကျိုးရှိစေရန် ပူးပေါင်းဆောင်ရွက်သော အဖွဲ့ဖြစ်သည်။ ၄င်းသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် (EMP)၊ ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE)၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA)များစီမံခန့်ခွဲမှု အားလုံးကို တိုက်ရိုက်တာဝန်ရှိသူလည်း ဖြစ်ပါသည်။

ညွှန်ကြားရေးမှူးချုပ်တစ်ယောက် ဦးဆောင်၍ အဓိက အခန်းကဏ္ဍ (၁၁)ခုအား ညွှန်ကြားရေးမှူး တစ်ယောက်စီ ဦးဆောင်ပါသည်။ သဘာဝအရင်းအမြစ်ထိန်းသိမ်းခြင်းနှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် (EMP)၊ ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE)၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA)များလုပ်ဆောင်မှု အားလုံးကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ဌာနခွဲမှ တာဝန်ယူ ဆောင်ရွက်ပါသည်။

အနီးအနားပတ်ဝန်းကျင်နှင့် လူမှုရေးအခြေအနေအသေးစိတ်အချက်အလက်အကျဉ်းချုပ်

အခန်း (၅)သည် အနီးအနားပတ်ဝန်းကျင်နှင့် လူမှုရေးအခြေအနေအသေးစိတ်အချက်အလက် အကြောင်းဖြစ်သည်။

<u>ရုပ်ပိုင်းဆိုင်ရာ</u>

ရာသီဥတုသည် ယေဘုယျအားဖြင့် ပူပြင်းသော ကာလများတွင် အပူချိန် ၃၀°C ရှိသော ပူအိုက်စွတ်စိုသော မုတ်သုန်ရာသီဥတုဖြစ်သည်။ စိုစွတ်သောကာလများတွင် လစဉ်မိုးရေချိန်မှာ ၆၀လက်မထိ ရှိပါသည်။ (နှစ်စဉ်မိုးရေချိန်မှာ ၂၀၀ လက်မထိရှိပါသည်)

မြေမျက်နှာသွင်ပြင်အနေဖြင့် ဇရိယာတစ်ခုလုံးသည် ရာဘာစိုက်ခင်းများဖြင့် ဖုံးလွှမ်းနေသော ပြန့်ပြူးသော မြေနိမ့်ဒေသဖြစ်သည်။ ကြီးမားသော တောင်တန်း သို့မဟုတ် မြစ်မရှိပေ။ ဘူမိဗေဒပညာရှင်များအမြင်ဖြင့် အဆိုပါဇရိယာ၏ ကျောက်လွှာများသည် Triassic ကာလမှ ပင်လယ်ရေအောက် ထုံးကျောက်ဖြင့် Upper Carnoniferous နှင့် Permain overlain တို့ဖြစ်သည်။

အပေါ်ယံရေအနေဖြင့် သေးငယ်သော တောင်ဖလုချောင်းတစ်ခုရှိပါသည်။ မြေအောက်ရေမှာ အနက်ပေ ၁၅၀ ရှိပါသည်။ ရေအရည်အသွေးကို အခန်း (၅) တွင်ဖော်ပြထားပါသည်။

ထိတွေ့လေအရည်အသွေးကို အခန်း (၅) တွင်ဖော်ပြထားပါသည်။ စီမံကိန်းသည် တည်ဆောက်ရေးကာလတွင်သာ ရှိနေသေး၍ တန်ဖိုးများသည် အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်တန်ဖိုးများ အောက်တွင်ရှိပါသည်။

<u>ဇီဝပိုင်းဆိုင်ရာ</u>

ဇီဝပိုင်းဆိုင်ရာ ကွင်းဆင်းဆောင်ရွက်ခြင်းကို ၁၆ စတုရန်းမိုင်လေ့လာခဲ့ပါသည်။ ဇရိယာတစ်ခုလုံးသည် ရာဘာစိုက်ခင်းများဖြင့် ဖုံးလွှမ်းနေပါသည်။ (အချို့နေရာများတွင် စပါးခင်းအနည်းငယ်ရှိပါသည်)။ ဇီဝမျိုးစုံမျိုးကွဲအနေဖြင့် နိမ့်ပါသည်။ သစ်တောမရှိ၊ ရာဘာစိုက်ခင်းများသာ ရှိပါသည်။

<u>အပင်</u>

ရာဘာပင် ဖုံးလွှမ်းနေသော မြေမျက်နှာသွင်ပြင်ဖြစ်သည်။ အပင် မျိုးစိတ် (၅၀) ကို တွေ့ရှိခဲ့ပါသည်။ (အများစုသည် အပင်ငယ်များနှင့် စိုက်ပျိုးပင်များဖြစ်သည်)။ အပင်ကြီးများမှာ သရက်ပင်၊ ပိန္နဲပင်၊ ပိတောက်ပင်နှင့် ဗန်ဒါပင်တို့ဖြစ်ကြပြီး ကျန်ပင်များမှာ ချုံပင်၊ အပင်ပျော့နှင့် မြက်များဖြစ်ကြသည်။

<u>သားရဲတိရစ္ဆာန်</u>

ငှက်များမှာ ရာဘာစိုက်ခင်းများတွင် တွေ့ရှိမှုနည်းပါးပါသည်။ မျိုးစိတ် (၅)မျိုးသာ တွေ့ရှိခဲ့ပါသည်။ အများစုမှာ တွေ့နေကြမျိုးစိတ်များဖြစ်ပြီး ဥပမာ-စာကလေး၊ ဇရက်၊ ဘွတ်ဖင်နီ အစရှိသော ဖြစ်ကြသည်။

ကုန်းနေရေနေတွားသွားသတ္တဝါအနေဖြင့် (၁၅) မျိုး တွေ့ရှိခဲ့ပါသည်။ (ဖားပြုတ် ၁ မျိုး၊ ဖား ၅ မျိုး၊ ပုတ်သင် ၂ မျိုး၊ အိမ်မြောင် ၂ မျိုး၊ ကင်းလိပ်လျော ၂ မျိုးနှင့် မြွေ ၃ မျိုး)

ကြီးမားသော နို့တိုက်သတ္တဝါမတွေ့ရှိရပေ။ အဆိုပါဇရိယာတွင် ကြွက်သာလျှင် ရှိပါသည်။

<u>လူမှုစီးပွားရေး</u>

နှစ်မိုင်ပတ်လည်အတွင်းတွင် ပါဝင်သော ဝါခရူကျေးရွာနှင့် တောင်ဖလုကျေးရွာတို့၏ လူမှုစီးပွားရေးအကြောင်းကို ကွင်းဆင်းကောက်ယူခဲ့ပါသည်။ ဝါခရူကျေးရွာ၏ လူဦးရေမှာ ၇၁၆၃ ဦးနှင့်

တောင်ဖလုကျေးရွာ၏ လူဦးရေမှာ ၂၂၅၆ ဦးတို့ဖြစ်ကြပါသည်။ ကျေးရွာများတွင် အများစုမှာ မွန် (၉၀ ရာခိုင်နှုန်းနှင့်အထက်) များဖြစ်ကြပြီး ၁၀၀ ရာခိုင်နှုန်း ဗုဒ္ဓဘာသာများဖြစ်ကြပါသည်။

ကျေးရွာ ၂ ရွာ စလုံးသည် ကားဖြင့် အလွယ်တကူသွားလာနိုင်ပါသည်။ အများစုအလုပ်အကိုင်မှာ ရာဘာစိုက်သူများနှင့် လယ်သမားများဖြစ်ကြပါသည်။ ၂၅-၃၀ ရာခိုင်နှုန်းမှာ ထိုင်းတွင်သွားရောက် လုပ်ကိုင်ကြပြီး ၁၀ ရာခိုင်နှုန်းအောက်မှာ အစိုးရ ဝန်ထမ်းများဖြစ်ကြပါသည်။

စာတက်မြောက်နှုန်းအနေဖြင့် ၈၀-၉၀ ရာခိုင်နှုန်း ရှိ၍ မြင့်မားပါသည်။ ဂါခရူကျေးရွာတွင် အခြေခံအလယ်တန်းကျောင်းတစ်ကျောင်း၊ အခြေခံမူလတန်းလွန်တစ်ကျောင်း နှင့် အခြေခံမူလတန်းကျောင်း ၂ ကျောင်းရှိပါသည်။ တောင်ဖလုကျေးရွာတွင် အခြေခံမူလတန်းလွန် တစ်ကျောင်းရှိပါသည်။

ကျေးရွာနှစ်ရွာစလုံးတွင် ဆေးပေးခန်းတစ်ခန်းစီရှိပြီး သံဖြူဇရပ်မြို့နယ်ဆေးရုံကိုလည်း အလွယ်တကူသွားလာနိုင်ပါသည်။

ကျေးရွာသူ/သားများသည် နေထိုင်မှုသည် အတော်အသင့်ကောင်းမွန်ပါသည်။ အများစု၏အိမ်မှာ သွပ်မိုးဖြင့် တစ်ထပ်အုတ်အိမ် သို့မဟုတ် သွပ်မိုးဖြင့် သစ်အိမ်ဖြစ်ကြပါသည်။ ကြီးမားသောအိမ်အများစုမှာ ထိုင်းနိုင်ငံတွင် သွားရောက်လုပ်ကိုင်ကြပြီး ရရှိလာသော ပိုက်ဆံဖြင့် ဆောက်လုပ်ထားပါသည်။

<u>ယဉ်ကျေးမှုဆိုင်ရာ</u>

ရှေးဟောင်းယဉ်ကျေးမှုဆိုင်ရာအနေဖြင့် နှစ်မိုင်ဝေးကွာသော အရှေ့မြောက်ဘက်တွင် ပျက်စီးနေသော ရှေးဟောင်း ဂါခရူမြို့တည်ရှိပါသည်။ ၎င်းသည် ရှေးကျသော အောင်မြင်သော မွန်ဘုရင်များတည်ထောင်ခဲ့သော မြို့ဖြစ်သည်။

သမိုင်းဂင်အဆောက်အဦများဖြစ်သော အရှေ့တောင်ဘက် ၂.၂၀ မိုင်အကွာတွင် သံဖြူဇရပ်စစ်သချိုင်းနှင့် အရှေ့တောင်ဘက် ၄ မိုင်အကွာတွင် ဗြိတိသျှ တည်ဆောက်ခဲ့သော သေမင်းတမန်မီးရထားလမ်းပြတိုက် တို့ရှိပါသည်။ အဆိုပါ နှစ်ခုစလုံးသည် ခရီးသွားများကိုဆွဲဆောင်သော နေရာများဖြစ်ပါသည်။

အနောက်မြောက်ဘက် ၁၀ မိုင်အကွာတွင် ပြည်တွင်းပြည်ပခရီးသွားများ လာရောက်ကြ ပြီး ကျက်ကြားသော ကျိုက်ခမီရေလယ်ဘုရား ရှိပါသည်။

အနောက်ဘက် ၆ မိုင်အကွာတွင် အပန်းဖြေနေရာအဖြင့် စက်စဲကမ်းခြေရှိပါသည်။

အဆိုပါ ယဉ်ကျေးမှုဆိုင်ရာ၊ သမိုင်းဆိုင်ရာ၊ ဘာသာရေးဆိုင်ရာနှင့် အပန်းဖြေဆိုင်ရာများကို စီမံကိန်းကြောင့် သက်ရောက်မှုမရှိနိုင်ပေ။ အဆိုပါနေရာများသည် စီမံကိန်းနေရာနှင့် ဝေးကွာပါသည်။

ဖြစ်နိုင်ခြေရှိသော ပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများကို ဆန်းစစ်အကဲဖြတ်ခြင်း

အခန်း (၆) သည် ဖြစ်နိုင်ခြေရှိသော ပတ်ဝန်းကျင်ဆိုင်ရာ သက်ရောက်မှုများဖြစ်သော ဆိုးကျိုးနှင့် ကောင်းကျိုးများ ပါဝင်ပါသည်။

စီမံကိန်းအခြေအနေ ၄ ခုစလုံးအတွက် ဆိုးကျိုး/ဖြစ်နိုင်ခြေရှိသော ဆိုးကျိုးသက်ရောက်မှုများကို အသေးစိတ် ဆန်းစစ်အကဲဖြတ်ထားပါသည်။ ကောင်းကျိုးသက်ရောက်မှုများကိုလည်းဖော်ပြထားပါသည်။

အကြိုတည်ဆောက်ရေးကာလအတွင်းတွင် ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှု (၂)ချက်မှာ-

(က) လူပ်ရှားတက်ကြွသူများ၏ သွေးထိုးမှုကြောင့် ဒေသခံများ စီမံကိန်းကို ထောက်ခံသူနှင့် ကန့်ကွက်သူဟူ၍ အုပ်စု(၂)ခု ကွဲသွားနိုင်ခြင်း

(ခ) မြေစျေး ပစ္စည်းစျေး တက်သွားခြင်းတို့ ဖြစ်သည်။

ဤလူမှုရေးသက်ရောက်မှုများကို သေချာစီမံခန့်ခွဲမှုမပြုလုပ်လျှင် ထင်ရှားလာနိုင်သည်။ တည်ဆောက်ရေးကာလအတွင်းတွင် ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှု (၉)ချက် ကို အမျိုးအစားခွဲခြားနိုင်ပါသည်။ ထိုအရာများမှာ-

(က) ဖြစ်နိုင်ခြေရှိသော ဇီဝမျိုးစုံမျိုးကွဲအပေါ် သက်ရောက်မှု

(ခ) လေပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှု

(ဂ) ဆူညံသံနှင့် တုန်ခါမှုကြောင့်သက်ရောက်မှု

(ဃ) ရေပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှု

(င) မြေဆီလွှာအပေါ် သက်ရောက်မှု

(စ) စွန့်ပစ်ပစ္စည်းများကြောင့် သက်ရောက်မှု

(ဆ) ဖြစ်နိုင်ခြေရှိသော အလုပ်ခွင်တွင် မတော်တဆဖြစ်ခြင်း

(ဇ) ဖြစ်နိုင်ခြေရှိသော လူမှုရေးပြဿနာများနှင့်

(ဈ) ဖြစ်နိုင်ခြေရှိသော လုံခြုံရေးပြဿနာများတို့ ဖြစ်သည်။

ဖြစ်နိုင်ခြေရှိသော အစိုင်အခဲစွန့်ပစ်ပစ္စည်း သက်ရောက်မှုနှင့် ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင်မတော်တဆ ဖြစ်မှုများကို သေချာစီမံခန့်ခွဲမှုမပြုလုပ်နိုင်လျှင် ထင်ရှားလာနိုင်ပါသည်။ ဤသက်ရောက်မှုအားလုံးသည် ယာယီဖြစ်ပြီး တည်ဆောက်ကာလပြီးဆုံးလျှင် ရပ်တန့်သွားမည်ဖြစ်သည်။

တည်ဆောက်ရေးကာလအတွင်းတွင် ကောင်းကျိုးသက်ရောက်မှုများကို အောက်ပါအတိုင်း အကျဉ်းချုပ်ဖော်ပြထားပါသည်။

စီမံကိန်းသည် တည်ဆောက်ရေးကာလ ၂ နှစ်အတွင်းတွင် တည်ဆောက်ရေး ၀န်ထမ်း ၁၀၀ ဦး အလုပ်အကိုင်ရရှိပြီး ဒေသစီးပွားရေးတိုးမြှင့်ခြင်း၊ တည်ဆောက်ရေးကာလအတွင်းတွင် အလုပ်သမားများ သူတို့၏လုပ်ကိုင်ရည်တိုးတက်လာခြင်း၊ တည်ဆောက်ရေးပစ္စည်းများရောင်းချသူများ၊ သူတို့၏ ရောင်းအားများ တိုးမြှင့်လာခြင်းနှင့် ဒေသခံပြည်သူ/သားများအတွက် တိုက်ရိုက် သို့မဟုတ် သွယ်ဝိုက် အကျိုးကျေးဇူးရရှိစေပါသည်။

တိုင်းပြည်အနေဖြင့် ကျပ်သန်းပေါင်း ၁၃၃၅၅ ရင်းနှီးမြှုပ်နှံခြင်းကြောင့် တိုင်းပြည်၏ GDP တိုးတက်စေပါသည်။

စီမံကိန်းလည်ပတ်စဉ် ကာလအတွင်းတွင် ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှု (၁၂)ခုမှာ-

(က) လေပတ်၀န်းကျင်အပေါ် သက်ရောက်မှု

(ခ) ဆူညံသံနှင့်တုန်ခါမှုကြောင့် သက်ရောက်မှု

(ဂ) စွန့်ပစ်ပစ္စည်းများကြောင့် သက်ရောက်မှု (အစိုင်အခဲနှင့်အရည်)

(ဃ) ဖြစ်နိုင်ခြေရှိသော ဘေးအန္တရာယ်ရှိ ပစ္စည်းများကြောင့် သက်ရောက်မှု

(င) မြေဆီလွှာအပေါ် သက်ရောက်မှု

(စ) ရေပတ်၀န်းကျင်အပေါ် သက်ရောက်မှု

(ဆ) သက်ရှိအရင်းအမြစ်ဆုံးရှုံးခြင်း

(ဇ) လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး ပြဿနာ

(စျ) ဖြစ်နိုင်ခြေရှိသော ယာဉ်ကြောပိတ်ဆို့မှုအပေါ် သက်ရောက်မှု

(ည) ဖြစ်နိုင်ခြေရှိသော လူမှုရေးပြဿနာ

(ဋ) ဖြစ်နိုင်ခြေရှိသော လုံခြုံရေးပြဿနာနှင့်

(ဌ) လူထုသဘောထားအမြင် တို့ဖြစ်ကြပါသည်။

လေပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှု၊ အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများကြောင့် သက်ရောက်မှု၊ ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင် မတော်တဆဖြစ်မှုများသည် သေချာစီမံခန့်ခွဲမှု မပြုလုပ်လျှင် ထင်ရှားလာနိုင်ပါသည်။ သို့ပေမယ့် ဤအရာများသည် ဖြေလျော့နိုင်ပြီး စီမံခန့်ခွဲနိုင်ပါသည်။

စီမံကိန်းလည်ပတ်ခြင်းကာလအတွင်းတွင် ကောင်းကျိုးသက်ရောက်မှုများကို အောက်ပါအတိုင်းအကျဉ်းချုပ်ဖော်ပြထားပါသည်။

အမြဲတမ်းဝန်ထမ်း ၅၅၆ ဦးအလုပ်အကိုင်ရရှိခြင်း၊ လစာများမှာ ကျပ် ၁၅၀,၀၀၀ မှ ၅၀၀,၀၀၀ ဖြစ်ပြီး နှစ်အလိုက်တိုးမြှင့်ခြင်း၊ ဝန်ထမ်းများကို နေစရာအဆောင်ထောက်ပံ့ခြင်း၊ ရာဘာပင်ရောင်းချသူများလည်း ရောင်းချမှုတိုးမြှင့်လာခြင်းနှင့် ဒေသခံပြည်သူများ သူတို့၏ထုတ်ကုန်များကို ရောင်းချနိုင်ခြင်းတို့ အကျိုးကျေးဇူးရရှိစေပါသည်။

တိုင်းပြည်အနေဖြင့် ကျပ်သန်းပေါင်း ၁၃၃၅၀ ရင်းနှီးမြှုပ်နှံခြင်းကြောင့် အခွန်အခနှင့် ဝင်ငွေများတိုးတက်လာစေပါသည်။

စီမံကိန်းပိတ်သိမ်းချိန်အတွင်းတွင် ဖြစ်နိုင်ခြေရှိသော သက်ရောက်မှုများမှာ-

(က) ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင်မတော်တဆမှုများ

(ခ) ဖြစ်နိုင်ခြေရှိသော ကြွင်းကျန်သက်ရောက်မှုများ တို့ဖြစ်ကြပါသည်။

ဖြစ်နိုင်ခြေရှိသော လုပ်ငန်းခွင်မတော်တဆမှုများသည် အဆောက်အဦအဟောင်းများ ဖြိုချခြင်းကြောင့် ဖြစ်ပေါ်လာနိုင်ပါသည်။ အဆောက်အဦအသစ်ဆောက်လုပ်ခြင်းထက် အဟောင်းဖြိုဖျက်ခြင်းသည် ပိုအန္တရာယ်ရှိနိုင်ပါသည်။ သို့ပေမယ့် ဤသက်ရောက်မှု နှစ်ခုစလုံးကို ဖြေလျော့နိုင်ပြီး စီမံခန့်ခွဲနိုင်ပါသည်။

သက်ရောက်မှုတစ်ခုစီတိုင်းအတွက် အမျိုးမျိုးသောဖြေလျော့နိုင်မည့်နည်းလမ်းများကို ဖော်ပြထားပါသည်။ ဤအကြောင်းအရာများကို **အခန်း (၈၊ ၈.၂ နှင့် ၉၊ ၉.၃)** တွင် ဖော်ပြထားပါသည်။

လူထုတွေ့ဆုံဆွေးနွေးခြင်းနှင့် ပြည်သူလူထုပူးပေါင်းပါဝင်ခြင်းလုပ်ငန်းစဉ်၏ ရလာဒ်များ

အခန်း (၇) တွင် လူထုတွေ့ဆုံဆွေးနွေးခြင်းနှင့် ပြည်သူလူထုပူးပေါင်းပါဝင်ခြင်းလုပ်ငန်းစဉ်ကို အတော်အသင့် အသေးစိတ် ဖော်ပြထားပါသည်။

လူထုတွေ့ဆုံဆွေးနွေးခြင်းသည် ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE)၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA)နှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP)တို့ ၏ မရှိမဖြစ်အရေးပါသော အပိုင်းဖြစ်သည်။ ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE)၊

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA)နှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP)တို့တွင် လူထုတွေ့ဆုံဆွေးနွေးခြင်းသည် စီမံကိန်းကို နားလည်ခြင်းနှင့် လက်ခံခြင်းအတွက် အခြေခံဖြစ်သည်။

ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE) ကွင်းဆင်းဆောင်ရွက်ချိန်တွင် လူထုတွေ့ဆုံဆွေးနွေးခြင်းကို ၁၆-၁-၂၀၂၂ ၌ ကံကောင်းခြင်းရတနာထုတ်လုပ်မှု ကုမ္ပဏီအစည်းအဝေး ခန်းမတွင် ကျင်းပခဲ့ပါသည်။

ကိုဝစ်-၁၉ ကူးစက်ကပ်ရောဂါကြောင့် လူနည်းစုသာဖိတ်ကြားခဲ့ပါသည်။ ကျေးရွာနှစ်ရွာမှ အုပ်ချုပ်ရေးမှူးအပါအဝင် လူဦးရေ ၃၆ ဦးတက်ရောက်ခဲ့ပါသည်။

ကုမ္ပဏီနှင့် ဒေသအဖွဲ့အစည်းများသည် ကောင်းမွန်သည့် ဆက်ဆံရေးဖြင့် အစည်းအဝေးအား ချောချောမွေ့မွေ့အဆုံးသတ်သွားပါသည်။ ကုမ္ပဏီသည် လည်ပတ်လျက်ရှိသော သစ်ပါးလွှာစက်ရုံတွင် ဝန်ထမ်း ၅၄၀ အများစုမှာ ဒေသခံများဖြစ်အား ခန့်အပ်ထားပါသည်။ ယခုအဆိုပြုတင်ပြသော အထပ်သားစက်ရုံတွင် နောက်ထပ်ဝန်ထမ်း ၅၅၆ ဦးအလုပ်ရရှိမည်ဖြစ်သည်။

ပထမဦးစွာ ဦးကျော်မျိုးဟန် (မန်နေဂျာ)မှ "အစည်းအဝေးတက်ရောက်သူအားလုံးအား အဆိုပြုတင်ပြသော အထပ်သားစက်ရုံစီမံကိန်းအကြောင်းရှင်းပြခဲ့ပါသည်။ ထို့နောက် တတိယ အဖွဲ့အစည်းဖြစ်သော MESC မှ ဦးမြင့်ကျော်သူရမှ အစည်းအဝေးတက်ရောက်သူအားလုံးအား ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်ခြင်း (IEE) ကွင်းဆင်းဆောင်ရွက်ခြင်းအကြောင်းနှင့် အဆိုပါ အစီရင်ခံစာအား သက်ဆိုင်ရာတာဝန်ရှိသူထံသို့ တင်ပြမည်ဖြစ်ကြောင်း" ပြောကြားခဲ့ပါသည်။

ဦးမောင်ဟန် (တောင်ဖလုကျေးရွာအုပ်ချုပ်ရေးမှူး) မှ "အဆိုပါစီမံကိန်းသည် ဤဇရိယာ၏ ဖွံ့ဖြိုးမှုအတွက် အရေးကြီးသည့် အခန်းကဏ္ဍတွင် ပါဝင်ပါပြီး ကျွန်တော်တို့၏ ဒေသခံပြည်သူများ အလုပ်အကိုင်အများအပြားရရှိမည်ဖြစ်သည်။ လက်ရှိစီမံကိန်းလည်ပတ်နေသော သစ်ပါးလွှာစက်ရုံမှ စွန့်ပစ်လိုက်သည့် အညစ်အကြေးများမှ အနံ့ဆိုးများထွက်ရှိသည်ဟု တင်ပြလာမှုများလည်းရှိပါသည်။ ထို့ကြောင့် စီမံကိန်းမှ တာဝန်ရှိသူများအနေဖြင့် ကြည့်ရှုဆောင်ရွက်ပေးပါရန် တောင်းဆိုအပ်ပါသည်။ သို့သော် အဆိုပါစီမံကိန်းကို ကြိုဆိုပါသည်" ဟုပြောကြားခဲ့ပါသည်။

စက်ရုံမန်နေဂျာမှ "ကျွန်တော်တို့အနေဖြင့် အဆိုပါကိစ္စရပ်ကို ကုမ္ပဏီအကြီးအကဲများနှင့်တိုင်ပင်ပြီး အမြန်ဆုံး စီစဉ်ဆောင်ရွက်ပေးပါမည်။ ယခုကဲ့သို့ ပွင့်ပွင့်လင်းလင်းတင်ပြလာသည့်အတွက် ကျေးဇူးတင်ပါသည်။" ဟုပြန်လည်ဖြေကြားခဲ့ပါသည်။

ဦးအောင်နိုင် (ဝါခရူကျေးရွာ အုပ်ချုပ်ရေးမှူး) မှ "ယခုစီမံကိန်းသည် အလုပ်မရှိသည့် ဒေသခံများ အလုပ်အကိုင်ရရှိခြင်းနှင့် နေထိုင်စရာအဆောင်လိုင်းခန်းများပေးမည်ဖြစ်၍ ကျွန်တော်တို့အနေဖြင့် ကန့်ကွက်စရာမရှိပေ။" ဟုပြောကြားခဲ့ပါသည်။

ဒေါ်သီတာမွန် (ဒေသခံ) မှ "ယခုအခါ စီမံကိန်းအသစ်တည်ဆောက်မည် ဖြစ်သည့်အတွက် အလုပ်မရသေးသည့် သူများအတွက်လဲ အခွင့်အရေးများရရှိလာမည်ဖြစ်သောကြောင့် ပျော်ရွှင်မိပါသည်" ဟုပြောကြားခဲ့ပါသည်။

စက်ရုံမန်နေဂျာမှ

ကျွန်တော်တို့အနေဖြင့် ဝန်ထမ်းခေါ်သည့်အခါ ဒေသခံများကိုသာ သက်ဆိုင်ရာ လုပ်ငန်းအလိုက် ဦးစားပေးခေါ်သွားမည်" ဟုပြန်လည်ဖြေကြားခဲ့ပါသည်။

ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာဆန်းစစ်ခြင်း (IEE) ကွင်းဆင်းဆောင်ရွက်ချိန်တွင် ကျင်းပခဲ့သော ဤလူထုတွေ့ဆုံဆွေးနွေးပွဲအကြောင်းကို အခန်း (၇) တွင် အစည်းအဝေးမှတ်တမ်း၊ သဘောထားအမြင်များအကျဉ်းချုပ် တို့ကိုအသေးစိတ်ဖော်ပြထားပါသည်။ အဆိုပါအကြောင်းအရာများကို ဤအစီရင်ခံစာထဲတွင် ထည့်သွင်းဖော်ပြသွားပါမည်။

နောင်တွင်ပြုလုပ်မည့် လူထုတွေ့ဆုံဆွေးနွေးခြင်းအတွက် အကြံပြုချက်ကိုလည်း ဖော်ပြထားပါသည်။ နောက်ထပ်လူထုတွေ့ဆုံဆွေးနွေးပွဲများကိုလည်း လိုအပ်လျှင်လိုအပ်သလို အချိန်နှင့်အမျှ လုပ်ဆောင်သွားပါမည်။

ကုမ္ပဏီသည် သစ်ပါးလွှာစက်ရုံစီမံကိန်းအတွင်း၌ ၂၀၁၆ ခုနှစ်ကတည်းက CSR လုပ်ငန်းများကို လုပ်ဆောင်ခဲ့ပါသည်။ အဆိုပြုတင်ပြသော အထပ်သားစီမံကိန်းလုပ်ဆောင်ချိန်အတွင်းတွင်လည်း CSR လုပ်ငန်းများကို ဆက်လက်လုပ်ဆောင်သွားပါမည်။ စီမံကိန်းတစ်လျှောက်လုံးတွင် တိုင်ကြားနိုင်သည့်လုပ်ငန်းစဉ် (GRM) ကိုလည်း လုပ်ဆောင်သွားပါမည်။

ပတ်ဝန်းကျင်ဆိုင်ရာကာကွယ်မှုများ

အခန်း (၈)တွင် ပတ်ဝန်းကျင်ဆိုင်ရာ သက်ဆိုင်သည့် ကဏ္ဍငါးခုမှာ ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝပိုင်းဆိုင်ရာ၊ လူမှုစီးပွားရေးဆိုင်ရာ၊ ယဉ်ကျေးမှုဆိုင်ရာနှင့် မျက်စိပဒေသာဖြစ်သောရှုခင်းရှုကွက်များဆိုင်ရာ များကို ကာကွယ်ခြင်းဖြစ်သည်။

ဤအခန်းသည် စီမံကိန်းအခြေအနေလေးခုစလုံးဖြစ်သော အကြိုတည်ဆောက်ရေးကာလ၊ တည်ဆောက်ရေးကာလ၊ စီမံကိန်းလည်ပတ်ခြင်းကာလနှင့် စီမံကိန်းပိတ်သိမ်းခြင်းကာလ တို့အတွင်းတွင် ဖြစ်ပေါ်နိုင်သော သက်ရောက်မှုတစ်ခုစီတိုင်းအတွက် အမျိုးမျိုးသော ဖြေလျော့နိုင်မည့်နည်းလမ်းများကို ဖော်ပြထားခြင်းကြောင့် ကနဦးပတ်ဝန်းကျင်ဆိုင်ရာဆန်းစစ်ခြင်း (IEE)အစီရင်ခံစာ၏ အရေးကြီးသော အပိုင်းဖြစ်သည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP)

အခန်း(၉) တွင် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်(EMP) ဖြစ်သည်။ ဤအခန်းကဏ္ဍတွင် သီအိုရီအပိုင်းနှင့် လက်တွေ့လုပ်ဆောင်နိုင်သော အစီအစဉ်များကို ဖော်ပြထားပါသည်။

ကျန်းမာရေးနှင့်ဆိုင်သော မူဝါဒ၊ စီမံကိန်းအဆိုပြုတင်ပြသူ၏ ဝန်ခံကတိ၊ အမျိုးသားကျန်းမာရေးကော်မတီ၏ ဖွဲ့စည်းပုံမူဘောင်နှင့် ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန အောက်ရှိ လုပ်ငန်းခွင်နှင့်ပတ်ဝန်းကျင်ဆိုင်ရာ ကျန်းမာရေးဌာနခွဲ (OEHD) ၏အခန်းကဏ္ဍတို့ကို ရှင်းပြထားပါသည်။ ကံကောင်းခြင်းရတနာထုတ်လုပ်မှု ကုမ္ပဏီလီမိတက်၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ကိုအကောင်အထည်ဖော်ဆောင်ရွက်ရန် ဖွဲ့စည်းမှုမူဘောင်ကို ရုပ်ပုံကားချပ်ဖြင့် ဖော်ပြထားပါသည်။

သက်ရောက်မှုနှင့် ဖြေလျော့နိုင်မည့်နည်းလမ်းများကိုလည်း ထပ်မံပြီး အကျဉ်းချုပ် ဖော်ပြထားပါသည်။

အစီအစဉ်တစ်ခုစီ၏ ခေါင်းစဉ်တွင် ရည်ရွယ်ချက်၊ တရားရေးရာလိုအပ်ချက်၊ စီမံကိန်းဆောင်ရွက်မည့် အချိန်ဇယား၊ စီမံခန့်ခွဲမှုလုပ်ဆောင်ချက်နှင့် စောင့်ကြပ်ကြည့်ရှုမည့် အစီအစဉ်ကိုလည်း အကျဉ်းချုပ်ဖော်ပြထားပါသည်။

ဤအခန်း၏နောက်ဆုံးအပိုင်းတွင် စီမံကိန်းဘတ်ဂျက်နှင့် တာဝန်ဝတ္ထရားများကို အကျဉ်းချုပ် ဖော်ပြထားပါသည်။

ဤအခန်းသည် သီးသန့်ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP)မဟုတ်သည့်အတွက် ဖော်ပြထားပြီးဖြစ်သည့် အခန်း/အခန်းခွဲများကို ထပ်မံမဖော်ပြတော့ပေ။

<u>ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ဆောင်ရွက်ခြင်းအတွက် လူပုဂ္ဂိုလ်၊ အဖွဲ့အစည်းနှင့် လိုအပ်သော ဘတ်ဂျက်</u>

နောက်ဆုံးအခန်းဖြစ်သော (အခန်း ၁၀) သည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် ဆောင်ရွက်ခြင်းအတွက်အဖွဲ့အစည်း၊ တာဝန်ရှိပုဂ္ဂိုလ်များနှင့် လွှမ်းခြုံဘတ်ဂျက် အကြောင်းဖြစ်သည်။ အကျိုးသက်ရောက်သော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ဆောင်ရွက်ရန်အတွက် ပထမဦးဆုံး ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) အဖွဲ့ငယ်လေး ဖွဲ့စည်းပါမည်။

စက်ရုံ၏ အထွေထွေမန်နေဂျာသည် EMP အဖွဲ့ခေါင်းဆောင်ဖြစ်ပြီး၊ ဝန်ထမ်း (၄) ဦးနှင့် ရွာသား (၂) ဦးသည် EMP အဖွဲ့ဝင်များဖြစ်သည်။ (EMP အဖွဲ့ဝင်များကို ဇယားဖြင့် ဖော်ပြထားပါသည်)။ ဝန်ထမ်းအချို့ကို ဤတာဝန်အတွက် အထူးသင်တန်းပေးထားပါမည်။ (ဖွံ့ဖြိုးပြီးသော နိုင်ငံများတွင် EMP ကန်ထရိုက်တာများ ရှိသော်လည်း မြန်မာနိုင်ငံတွင် မရှိသေးပေ)။ ထို့ကြောင့် ဝန်ထမ်းများကို သင်တန်းပေးထားပါမည်။

ဤအခန်း၏ နောက်ဆုံးအပိုင်းသည် EMP ဆောင်ရွက်ရန်အတွက် ဘတ်ဂျတ်ကို စုစုပေါင်းဘတ်ဂျတ်၏ ၀.၅ ရာခိုင်နှုန်းဖြစ်သော ကျပ် ၆၆,၇၅၀,၀၀၀ အား EMP ရန်ပုံငွေ အဖြစ် ခွဲဝေသုံးစွဲပါမည်။ EMP ရန်ပုံငွေ အသေးစိတ် သုံးစွဲမှုမှာ အောက်ပါအတိုင်းဖြစ်ပါသည် -

- EMP အဖွဲ့ ဖွဲ့စည်းရန်အတွက် ကုန်ကျစရိတ် ၂ ရာခိုင်နှုန်း - (ကျပ် ၁,၃၃၅,၀၀၀)
- ဖြေလျော့နိုင်မည့် နည်းလမ်းများအတွက် ၂၅ ရာခိုင်နှုန်း - (ကျပ် ၁၆,၆၈၇,၅၀၀)
- စောင့်ကြပ်ကြည့်ရှု လေ့လာခြင်းအတွက် ၂၅ ရာခိုင်နှုန်း - (ကျပ် ၁၆,၆၈၇,၅၀၀)
- ပစ္စည်းကိရိယာ၀ယ်ယူမှုအတွက် ကုန်ကျစရိတ် ၂၀ ရာခိုင်နှုန်း - (ကျပ် ၁၃,၃၅၀,၀၀၀)
- စွမ်းဆောင်ရည်မြှင့် သင်တန်းများအတွက် ကုန်ကျစရိတ် ၇ ရာခိုင်နှုန်း - (ကျပ် ၄,၆၇၂,၅၀၀)
- အရေးပေါ် အစီအစဉ်အတွက် ကုန်ကျစရိတ် ၁၀ ရာခိုင်နှုန်း - (ကျပ် ၆,၆၇၅,၀၀၀)
- အစီရင်ခံတင်ပြခြင်း လုပ်ငန်းအတွက် ကုန်ကျစရိတ် ၈ ရာခိုင်နှုန်း - (ကျပ် ၅,၃၄၀,၀၀၀)
- အထွေထွေ ကုန်ကျစရိတ် (EMPအဖွဲ့၀င်ဖြစ်သော ရွာသားနှစ်ယောက်အတွက် အပါအ၀င်) ၃ ရာခိုင်နှုန်း - (ကျပ် ၂,၀၀၂,၅၀၀)

EXECUTIVE SUMMARY

This is the Initial Environmental Examination (IEE) report on the proposed project for the construction and operation of ply-woods factory by Jewellery Lucky Production Co., Ltd.

The company was registered as a private company limited by shares on 20-11-2007. The Company Registration No. is 14543112 (the former Registration No. was 1002/2007-2008).

The company has obtained an Endorsement issued by the Myanmar Investment Commission on 19-11-2021.

Jewellery Lucky Production Co., Ltd has contracted the consultant firm, Myanmar Environment Sustainable Conservation Co., Ltd (MESC) to conduct survey and prepare this IEE report including the Environmental Management Plan (EMP). The consultant firm, MESC, is confirmed by the environmental authority, Environmental Conservation Department (ECD), Mon State, to conduct IEE. (Document: 2/6/7 (05), (1657/2021), dated: 2021, September 24.) See ANNEX.

Project description in brief

The proposed project is for the production of rubber ply-woods by Jewellery Lucky Production Co., Ltd.

Location

The project site is located at Holding No.58/118, West War-kha-yu Kwin No. 921/Ka, War-kha-yu Village Tract, Thanphyu-zayat Township, Mon State. A plywood factory will be constructed and operated. The area is 3.96 acres for ply wood factory. The staff housing will be constructed 30 meters north of the factory and the area for staff housing is 3.75 acres.

The existing saw mill and veneer factory is at Holding No.2/Ga-2, West War-kha-yu Kwin No.921/Ka, War-kha-yu Village Tract, Thanphyu-zayat Township, and Mon State. The area is 3.81 acres.

The project site is 1.75 miles west of War-kha-yu Village and 3 miles north-west of Thanphyu-zayat Town. It is on the northern site of Thanphyu-zayat-Kyaikkhami Road.

The coordinates for the proposed plywood factory are: 15^{o} 59' 20.89" N and 97^{o} 41' 25.82" E.

The project life

Preconstruction Phase	- 1 year
Construction Phase	- 2 years
Operation Phase	- 30 years
Decommissioning Phase	- 2 years

The estimated budget is Ks 13350 million.

Installation and infrastructure

The proposed plywood factory is a large building complex (450' x 175' x 25') accommodating 3 main compartments under one roofing.

The site is easily accessible by motor road; the old road is renovated by the company.

The site has access to gridline electricity; the company will construct a substation with 1500 KVA transformers. The consumption of electricity will be 1,237,500 units/year.

Water will be sourced from ground water at a depth of 150 feet; 2 tube wells will be bored. Water requirement will be 720,000 gallons/year.

Fuel requirement is as follows:

Diesel	-	51,000 gallons/year
Engine oil	-	1,200 gallons/year
Hydraulic oil	-	1,200 gallons/year
Gear oil	-	120 gallons/year

Technology

Mechanization and automation will be the norm. Four feet long round rubber wood will be raw materials. The basic technology is the Peeling method, using Peeling Lathe machine. In this way rubber plies or rubber veneers are made.

The veneers are glued together using quality adhesives (glues) and applying both cold press and hot press methods, in this way plywood are manufactured.

The company has already a veneer factory nearby in the west. The veneers produced from this factory will be used as raw materials for production of ply woods. The technology for production of veneer is already described in an earlier separate IEE report submitted by the company.

The main steps in manufacturing process include: drying veneers, gluing the veneers and forming plywood, pressing the plywood, smoothing, sanding and trimming the plywood and final product.

Production

The production target for Year 1 is 54,600 CBM of plywood. Production will be increased year after year and by Year 6 and onward the production target will be 57,330 CBM for plywood. Some plywood will be exported while some will be local sales.

Machinery to be imported – include:

- Dryer machine, glue machine, pressing machine, dust collector machine (cyclone), automatic plate feeder among others. Vehicles, and other machinery and equipment will be locally purchased.

Chemical to be imported include chemicals for making resin glue including polyvinyl alcohol, melamine powder, caustic soda, formalin, etc.

Work force: During the Construction Phase about 100 workers will be deployed; during the Operation Phase a total of 556 employees (including 4 foreigner technicians) will be employed.

The working hours will be 8 hrs/day. Housing will be provided for employees.

The waste to be generated, emission, effluents and disturbances are described in Chapter 1 in relative details; the main waste during the Construction Phase will be construction wastes while during the Operation Phase the main waste will be small quantity of wood wastes resulting from the making of plywood.

Project alternatives

In the last part of Chapter 1 the probable project alternatives to be considered during the Construction and Operation Phase are briefly described.

About the project proponent

Chapter 2 is about the project proponent, Jewellery Lucky Production Co., Ltd was registered as a private company limited by shares in November, 2007. (Document: Company Registration No.145423112, Directorate of Investment and Company Administration, Date: 20-11-2007). (The former Registration No. was 1002/2007-2008.)

The company has obtained an Endorsement Issued by Myanmar Investment Commission (MIC) on 19-11-2021 (Endorsement No.227/2021; dated: 19-11-2021).

Name of project proponent	:	Jewellery Lucky Production Co., Ltd
Address (Head office)	:	Olympic Hotel, National Swimming Pool Compound, U Wisara Road, Dagon Township, Yangon Region, and Myanmar
Telephone	:	01-243130, 243131, 243134, 243135, 641763-7, 647650-4
Fax	:	95-1-242946
Contact Person	:	U Nay Lin Htet, General Manager
Telephone	:	09 444413166
Email	:	naylinhtet.ntt@gmail.com

Location of project site	:	Holding No.2/Ga-2 and 58/118, West War-kha-yu Kwin No.921/Ka, War-kha-yu Village Tract, Thanphyu-zayat Township, Mawlamyine District and Mon State.
GPS position of site	:	N. Lat. 15°59'20.89" and E. Long. 97°41'25.82"
Elevation	:	35 m asl

The executive and administrative body:

U Kyaw Sein @ Wai Chin	-	Managing Director
U Tin Nyunt	-	Director
U Thaung Htike Min	-	Director
U Min Myo Than	-	Director
U Kyaw Wai	-	Director
U Tun Wai	-	Director
Daw Khin Myat Mon	-	Director
Daw Ohn Mar Myint	-	Director

The company is 100% owned by Myanmar nationals.

About the IEE experts (the consultant firm, MESC)

MESC was 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: 6-6-2014. Registration No.830/2014-2015, (20-5-2014).

The Transitional Registration/License No. of the consultant firm, MESC is No. 0003, ECD, Dated 1st July 2017.

Contact Address : Room no. (B -5), Building no.67/69, Pamari 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

Facebook website : www.myanmar environment sustainable conservation.com

Members of MESC who are IEE appraisers, or IEE practitioners or who are involved in this IEE 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
Dr. Thiri Dawe Aung Ph.D (Zoology)	Myanmar 12/Da La Na (N) 029433	0008	Biodiversity Specialist (Ornithologist)
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
Dr. Htin Thaw Kaung M.B.B.S	Myanmar 13/ Pa Ha Na (N) 222723	Freelance	Occupational Health and Safety
Daw Hnin Nu Nu Aung B.E (Materials and Metallurgy) M.Sc (Environmental Planning and Management)	Myanmar 8/ Ma Ka Na (N) 204370	Applied	Environmental Engineer

- U Myint Kyaw Thura is involved in fauna study, writing of report, in part.
- U Saw Han Shein is involved in report writing (chief report writer).
- Dr. Thiri Dawe Aung involved in avifauna study writing part of report.
- U Tin Tun Aung is involved 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 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.
- Dr. Htin Thaw Kaung is a medical doctor and part time member of MESC and is involved in occupational health and safety aspects of the project.
- Daw Hnin Nu Nu Aung is involved in waste management aspect of the project. She is also involved in EIA/IEE/EMP practitioning appraising and report writing and Environmental Research.

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

Description of applicable laws

Chapter 4 described the applicable laws, rules, and regulation, standards, and guideline, corporate policies related to environmental and social matters of the project.

Applicable laws and regulation:

Applicable laws, rules and regulation are listed together with relevant section and sub-section excepted and reproduced.

The standards and guideline which are of relevant to the proposed project are given. These include NEQEG guideline values for emissions, effluents, noise level, vibration, odour.

Air quality/emission guidelines by ECD

(Air Emission Levels - for board and particle-based products)

Parameter	Unit	Guideline Value
Condensable volatile organic compounds	mg/Nm^3 (as Carbon)[a]	130
Formaldehyde	mg/Nm^3	20 (Wood dryers) 5 (Other sources)
Particulate matter PM_{10}	mg/Nm^3	20 (Medium density fiberboard) 20 (Wood dryers) 50 (Other sources)

Water quality/effluent guideline by ECD

(Effluent levels-for board and particle-based products)

Parameter	Unit	Guideline value
5 day biochemical oxygen demand	mg/l	50
Chemical oxygen demand	mg/l	150
Formaldehyde	mg/l	10
pH	S.U.	6-9
Temperature increase	ºC	<3[c]
Total suspended solids	mg/l	50

Noise level

The general guideline will follow 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

Corporate environmental and social policies

Jewellery Lucky Production Co., Ltd very well realizes that the ethic code of 21th century business is not to make profit at the expense of environment and local community. And that business should not focus only on economically viable venture but also on environmentally and functionally sound, ecologically viable and socially sustainable venture.

The first and foremost policy is to comply with laws, rules and regulations relating to the physical and social environment. Most of all, it will follow the rules and regulations set up by the Environmental Conservation Department (ECD), the main agency responsible for environmental management.

The company shall endeavour to:

- Implement the project in an environmentally and socially responsible manner and to comply with laws and regulations
- Prevent pollution of surrounding area; monitoring and adopting suitable measures for environment protection
- Implement IEE effectively to mitigate pollution of water, land, air, noise and dust and proper disposal of waste
- Conserve natural resources and energy as far as possible
- Create environmental awareness among employees and local community through education and training
- Compensate for damage and loss due to activities of the project.
- Implement CSR programme in a meaningful manner.

The policy on Environmental and social sustainability of IFC is reproduced.

Relevant government agencies the Environmental Conservation Department (ECD)

ECD is the main agency (directorate under MONREC) responsible for environmental protection, conservation and management. It is competent agency as well as the focal and coordinating agency for overall environment of the country. It is also directly responsible for all the management of IEE, EIA, EMP etc. activities taken places all over the country.

The agency (directorate) is headed by a director general and 11 main divisions are headed each by a director. The Natural Resources and EIA Division is responsible for Natural Resources Conservation and all EIA, IEE and EMP activities.

Brief description of the surrounding environment and social conditions

Chapter 5 is about the surrounding environment and social conditions.

The physical components

The climate is typical hot wet Monsoon Climate with temperature higher than 30^{o}C during the hot dry month and the monthly rainfall during the wet months up to 60 inches. (Annual rainfall mostly at 200 inches).

Topography – the area as a whole is a low land plain covered mainly by rubber plantations. There are no large mountains or river. From geologists perspective the rock stratum of the area is made up of Upper Carboniferous and Permian overlain by reef limestone from the Triassic Period.

Surface water – there is only one small ephemeral stream the Tong Ha Lute stream; Ground water is at a depth of 150 feet. The water quality is shown in Chapter 5.

The ambient air quality is shown in Chapter 5. As the project is not in operation the values are generally lower than the NEQEG guideline values.

The biological components

Biological survey covered an area of 16 square miles. As the whole area is predominantly covered by rubber plantation (with a few very small paddy fields here and there) the biodiversity is very low. There are no forests, only rubber plantation.

Flora

The rubber tree, *Hevea braziliensis* predominates the landscape. Only 50 species of plants (mostly small plants and artificial/cultivate plants) are found and identified. Big trees include mango, jack fruit, padauk and bander, the remaining are small shrub, herbs and grass.

Fauna

Birds are very rare in rubber plantation area; only 5 species are found; all are common forest birds e.g. sparrow, myna, bulbul etc.

A total of 15 herpetofauna species (1 species of toad, 5 species of frogs, 2 species of lizards, 2 species of gecko, 2 species of skinks, and 3 species of snake are found and identified).

There are no large wild mammals in the area; only rodent, rats and mouse inhabit the area.

Socio-economic

Survey on socio-economic of two villages within the 2 miles radius, namely, Wahkhayu and Tong-ha-lute, were carried out. The population of Wahkhayu and Tong-ha-lute are 7163 and

2256, respectively. The large majority of the villagers are Mon (90% and above) and 100% are Buddhists.

Both villages are easily accessible by cars. The main occupations are rubber planters and rice farmer. 25%-30% are working in Thailand; less than 10% are working in government service.

The literacy rate is high 80-90%. Wahkhayu has one Basic Education Middle School, one Post Primary School and two Primary Schools while Tong-ha-lute has only one Post Primary School.

Both villages have a village clinic each; access to Thanphyu-zayat Township hospital is easy, less than 3 miles for both villages.

The villagers are relatively better off; the large majority of houses are either one-storeyed brick houses with iron roofing or wooden houses with iron roofing. Most big houses are built by money remitted from Thailand.

Cultural component

As regard archeological aspects the ruin ancient city of Wahkhayu City is two miles away in the north east. It was the capital city of successive Mon Kings long ago.

There are historical monuments, such as Thanphyu-zayat War Cementry and the Death Railway Museum built by the British, 2.20 miles and 4 miles away, respectively, in the south east. Both are tourists attraction spots.

10 miles in the north-west is the famous Kyaikkhami Pagoda visited by both local and foreign tourists.

As regards recreational area, the famous Setse Beach Resort is about 6 miles in the west.

The impacts on these cultural, historical, religious and recreational due to the activities of the project are not envisaged they are quite at a distance.

Identification and assessment of potential environmental impacts

Chapter 6 deals with the potential environmental impacts, both negative and positive. Negative/potential negative (adverse) impact, envisaged, anticipated, identified and assessed are described in technical details, covering all four phases of the project. The positive (beneficial) impacts are also mentioned.

The two potential negative impacts envisaged and identified during the Preconstruction Phase are:

(a) Polarization of locals into pro-project and anti-project groups due to instigation by activities and radical environmentalist.
(b) Potential hiking of the price of land and property.

These two social impacts can be significant if not well-managed in the first place. The nine potential negative impacts envisaged and identified during the Construction Phase are:

(a) Potential impact on biodiversity

(b) Impact on air environment

(c) Impact: noise and vibration

(d) Impact on water environment

(e) Potential impact on soil

(f) Impact of waste

(g) Potential accident at workplace

(h) Potential social issue

(i) Potential security issue

Potential impact of solid wastes and potential accidents at work place can be significant if not well managed. But all these impacts can be mitigated. All these impacts are temporary; after the completion of Construction Phase all will be ceased.

The positive (beneficial) impact during the Construction Phase can be summarized as follows: -

The project can invigorated and boost the local economy in the form of provision of jobs for about 100 construction workers for 2 years; workers can improve their skill during the Construction Phase; merchants/vendors of construction materials can promote their sales, and the project will bring economic benefit to people who are directly or indirectly involved in the project.

At the national level benefit will accrue to the country as result of direct investment of Ks 13350 million, raising the GDP of the nation.

The 12 potential negative impacts identified during the Operation Phase are: -

(1) Impact on air environment

(2) Impact: noise and vibration

(3) Impact of waste (solid and liquid)

(4) Potential impact of hazardous substance

(5) Impact on soil

(6) Impact on water environment

(7) Loss of living resources

(8) Occupational health and safety issue

(9) Potential traffic impact

(10) Potential social issue

(11) Potential security issue

(12) Public perception

The impact on air environment, impact of solid wastes and potential accidents at work place can be significant if not well-managed in the first place. However, these can be mitigated and managed.

The positive (beneficial) impacts during the Operation Phase can be summarized as follows:

556 workers will be employed and will have their permanent jobs. The salaries will range from Ks 150,000 to Ks 500,000 with yearly increment. Employees will be provided with free housing. Rubber logs vendors/contractor will promote their sale and many locals will be benefited by selling their products.

At national level the direct investment of Ks 13350 million will raise the GDP. The follow up economic benefits such as increase in earning, taxes, duties and revenue are envisaged.

The potential negative impacts identified during the Decommissioning Phase are: -

(a) Potential accidents at work place

(b) Potential residual impact

Potential accidents at work place can be quite significant due to the fact that dismantling or demolition of old buildings and structure is of higher risk than building new building and structure. However, these two impacts can be mitigated and managed.

For each and every negative impact there are various options of mitigation measures to be put in places. All these are described later in Chapter 8, 8.2 and 9, 9.3.

Results of public consultation and public participation process

Chapter 7 described the public consultation and public participation in relative details.

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

A public consultation meeting during the IEE survey was held on 16-1-2022, at the Meeting Hall of Jewellery Lucky Production Co., Ltd.

Due to the prevailing COVID-19 pandemic the meeting was limited to fewer number of participants; 36 persons from two villages have attended the meeting, including the village Administrators of both villages.

As the local communities have already good relation with the company the meeting has ended smoothly. The company has already employed 540 people most of than the locals, at its existing veneer factory and will employ another 556 at the proposed plywood factory.

First of all U Kyaw Myo Han, the manager, explained to the participants about the proposed plywood factory project. Then U Myint Kyaw Thura of the consultant firm, MESC, explained to them the IEE survey to be conducted and the IEE report to be submitted to the relevant authority.

U Maung Han, the village Administrator of Taung-palu (Tong-ha-lute) village said that this project will play an important role for the development of the area and our local people will have many employment opportunities. As regard the existing veneer factory there have been compliant about effluent and bad odour. He therefore, asked the company authority to look into matter. Generally he welcomes the proposed project.

The manager then thanked the village administrator very much for expressing his view, and that he, in discussion with the company's authority, will tackle this issue soon.

U Aung Naing, the village Administrator of Wahkhayu Village said that he has nothing against the proposed project. The project will provide jobs as well as housing for our villagers.

One local, Daw Thida Mon expressed her delight, saying that our unemployed people will be soon employed.

The manager them replied that the company will give first priority to the locals for employment at the factory.0

,This public meeting held during the IEE survey was described in details in Chapter 7; including minutes of meeting in details, summary of comment and how comments were taken into account. These are recorded and incorporated in this report.

Recommendation for future consultation meeting is prescribed. More official public consultation meetings will be held from time to time whenever deems necessary.

The company has started the CSR programme since 2016, that is, during the veneer project; the CSR programme will continue during the proposed plywood project. The Grievance Redress Mechanism (GRM) will be implemented throughout the entire project period.

Environmental Protection Measures

Chapter 8 details with environmental protection measures encompassing the five components of the environment, namely, the physical, the biological, the socio-economic, the cultural and visual component, to be protected.

As this chapter is the essence of the IEE report various options of mitigation measures to be put in place for each and every impacts are described in relative details, encompassing impacts during all the four phases of the project life, namely, the Preconstruction, Construction, Operation and Decommissioning Phases.

Environmental Management Plan (EMP)

Chapter 9 is about Environmental Management Plan. This Chapter on the whole is theoretical in nature and so only plans that will be pragmatic and workable are emphasized.

The Health Policy of the nation, commitment, by the project proponent, Institutional Arrangement of National Health Committee (NHC) and the role plays by the Occupational and Environmental Health Division (OHED) under the Department of Public Health are briefly mentioned. The institutional arrangement of Jewellery Lucky Protection Co., Ltd for implement of EMP is shown in diagram.

Impacts and mitigation measures are once again summarized.

The content for each such plan covering: objectives, legal requirement, implementation schedule, management actions and monitoring plan are summarized.

The last part of the chapter is project budget and responsibilities and is briefly described.

As this chapter is not a standalone EMP (but only a chapter) certain sections/sub-sections which are already described earlier are omitted to avoid repetition.

<u>Persons, Organization and Budget needed for implementation of EMP</u>

This last chapter (Chapter 10) is about the organization, the responsible persons and overall budget for implementation of EMP. For the effective implementation of EMP first of all a small and dedicated nucleus organization, the EMP cell, will be organized and formed.

The general manager of the factory will be the EMP cell leader; 4 staffs and 2 villagers will be EMP cell members. (The EMP cell is shown in diagram together with cell members). Staffs will be specially trained for this task, which will be quite a difficult one. (There are EMP contractors in developed nations for hire, but not in Myanmar yet. Therefore, staffs will have to be trained based on resources available at hand).

The last part of the chapter is on budget for the implementation of EMP. 0.5 percent of the budget, equivalent to Ks 66,750,000 is allotted as EMP fund. The EMP fund is sub-allotted again as follows:

- 2% of EMP fund (Ks 1,335,000) for organization EMP cell
- 25% of EMP fund (Ks 16,687,500) for mitigation programme
- 25% of EMP fund (Ks 16,687,500) for monitoring programme
- 20% of EMP fund (Ks 13,350,000) for procurement of certain equipment for EMP
- 7% of EMP fund (Ks 4,672,500) for capacity building and training
- 10% of EMP fund (Ks 6,675,000) for emergency/contingency programme
- 8% of EMP fund (Ks 5,340,000) for reporting and documentation of programme
- 3% of EMP fund (Ks 2,002,500) for miscellaneous (including fees for two villagers who will be part time EMP cell members)

1. PROJECT DESCRIPTION

Brief background on the uses of rubber wood

Rubber trees are grown for production of latex; when the trees are old they no longer produce feasible latex. A rubber tree can be tapped for the latex when it is 5-7 years and latex tapping can be done up to 25-30 years. Most rubber trees end up as cheap fuel wood or simply as debris. Nowadays rubber wood has become a popular timber in many asian countries due to decline in tropical hard wood such as teak and iron wood.

A single rubber tree can provide a great deal of timber and plywood. Rubber wood is strong, flexible and resistance to fungus, bacteria and mold. The wood is quite easy to peel and is compatible with most industrial adhesives, thus it is ideal for making plywood. The wood is easy to work with and has a beautiful grain suitable for quality furniture.

Rubber wood is advertised as an "environmentally friendly wood" as it make use of plantation late. It is a good alternative, and eco-friendly alternative for replacing timber from natural forests.

The main objectives are:

- To produce plywood from rubber wood as well as rubber wood wastes.
- To set up plywood factory adjacent to the existing veneer factory for the production of plywood.
- To do an "environmentally friendly timber business" without extracting timber from natural forest, but only from plantation trees.
- To export most veneer and keep plywood for local sales.
- To boost the local economy and contribute to the growth of national economy by exporting abroad, earning hard currencies.

1.1 Project site location, size and layout

Location – The proposed plywood factory project site is at Holding No.58/118, West War-kha-yu, Kwin No.921/Ka, War-kha-yu Village Tract, Thanphyu-zayat Township, Mawlamyine District, and Mon State.

The plot is 1.75 miles west of War-kha-yu Village, 1.5 miles south east of Taung-ha-lute Village, and 3 miles North West of Than-phyu-zayat Town; and are on the northern side of the Thanphyuzayat-Kyaikkhami Road. Mawlamyine City, the capital of Mon State is about 40 miles (crow flight) in the north. Kyaikkhami Town (with the famous Kyaikkhami Pagoda) is 10 miles in the North West while the renowned Setse Resort is about 6 miles in the south west.

GPS coordinate for the proposed plywood factory are: N. Lat. 15° 59' 20.89" and E. Long. 97° 41' 25.82". The site is on flat terrain and the elevation is 35 m asl.

Figure – 1: Satellite image of proposed project site and its environs

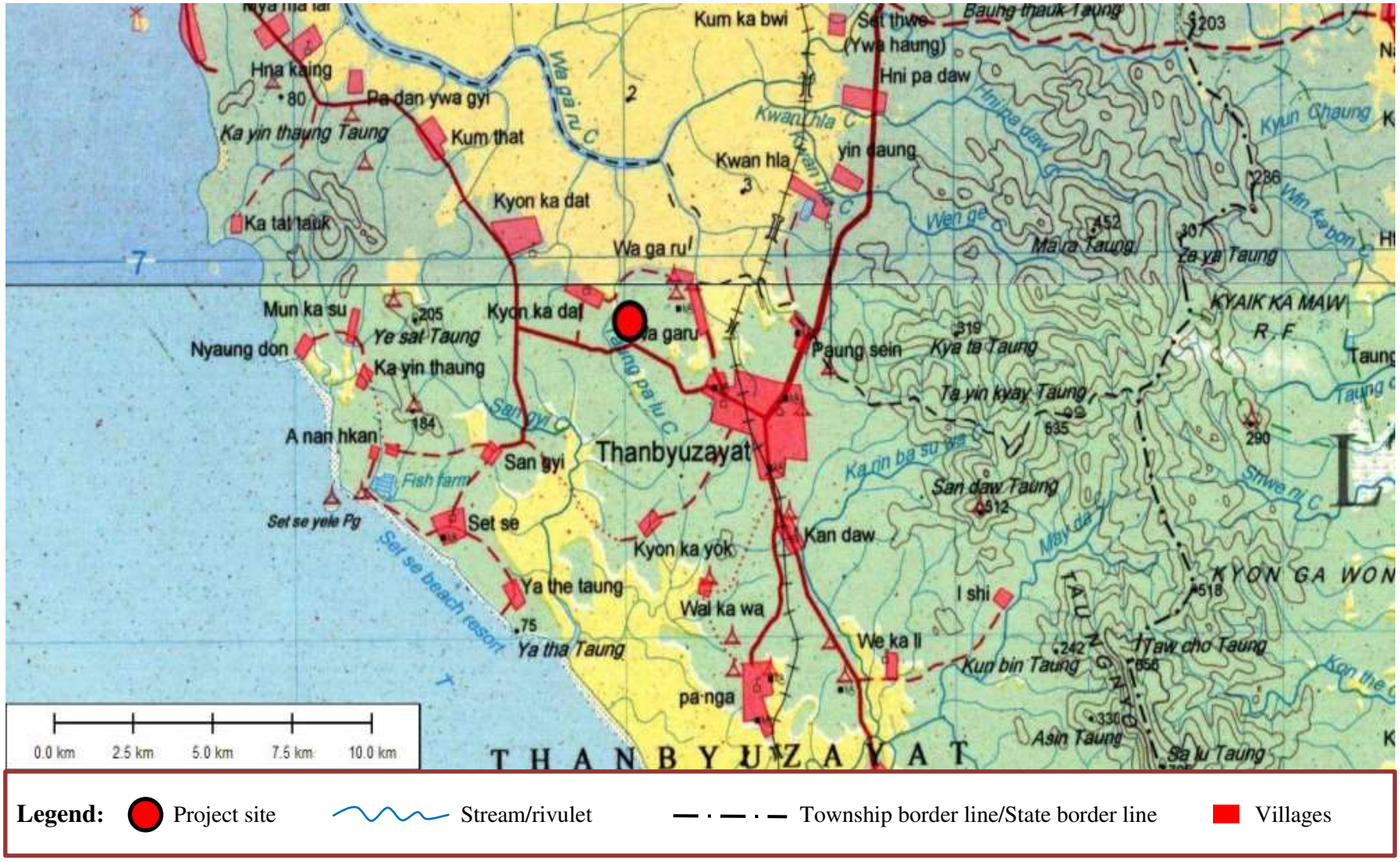


Figure – 2: Map of part of Thanbyusayat Township showing project site (in Black Square)

Area and size

The area of the proposed plywood factory compound is 3.96 acres and the shape of the proposed plywood factory premise is rather pentagonal in shape.

The coordinates at the corners (inflection points) of the plywood factories are:

A. 15° 59' 24.90" N and 97° 41' 24.10" E

B. 15° 59' 22.60" N and 97° 41' 28.70" E

C. 15° 59' 18.00" N and 97° 41' 26.20" E

D. 15° 59' 18.51" N and 97° 41' 25.10" E

E. 15° 59' 18.63" N and 97° 41' 24.46" E

F. 15° 59' 22.33" N and 97° 41' 24.26" E

G. 15° 59' 22.59" N and 97° 41' 24.26" E

The site is bounded in the east by the access road and in the south by Tong-ha-lute stream, an ephemeral stream, that dry up in the dry months.

Land acquisition

The whole area was rubber plantation area. The company has acquisition (purchased) the land from Daw Thin Thazin for construction of factory and from U Kyaw Wai for construction of staff housing.

Figure – 3: Satellite image showing project plot and seven corners

Figure – 4: Document for plot of land (for factory)

Figure – 5: Document for plot of land (for staff housing)

မွန်ပြည်နယ်အစိုးရအဖွဲ့.

လယ်မြေ မှတစ်ပါး လယ်ယာမြေအား အခြားနည်းဖြင့် အသုံးပြုရန်

ခွင့်ပြုမိန့်.

ရန်ကုန်တိုင်းဒေသကြီး၊ ရန်ကုန်(အရှေ့ပိုင်း)....ခရိုင်၊ ...တာမွေ.... မြို့နယ်နေ ဦး ...ထင်ညွန့်...၏ သမီး ...ခင်သင်းသဇင်... နိုင်ငံသားစိစစ်ရေး ကတ်အမှတ် ...၁၂/ထမန(နိုင်)၀၉၉၈၇၂... အား လယ်ယာမြေဥပဒေ ပုဒ်မ ၂၉ နှင့် ၃၀ တို့အရ အောက်ဖော်ပြပါ လယ်မြေ မှတစ်ပါး လယ်ယာမြေကို သတ်မှတ်ထားသည့် စည်းကမ်းချက်များနှင့်အညီ အခြားနည်းဖြင့် အသုံးပြုခွင့် ပြုလိုက်သည်။

အခြားနည်းအသုံးပြုခွင့်ပြုသည့် လယ်မြေမှတစ်ပါး လယ်ယာမြေအကြောင်းအရာ

.....မွန်..... ပြည်နယ်၊ ...မော်လမြိုင်... ခရိုင်၊ ...သံဖြူဇရပ်.. မြို့နယ်

စဉ်	ရပ်ကွက်/ကျေးရွာအုပ်စု	ကွင်း/အကွက်အမှတ်နှင့်အမည်	ဦးပိုင်အမှတ်	မြေအမျိုး	ခွင့်ပြုသည့်ဧရိယာ		ခွင့်ပြုသည့်နည်းလမ်း	မှတ်ချက်
					ဧက	ဒသမ		
၁	၂	၃	၄	၅	၆	၇	၈	၉
-	ဝါခရမ္ဘ	၉၂၁/က ဝါခရမ္ဘအနောက်ကွင်း	၅၈/၁၁၈	ဥယျာဉ်မြေ	၃	၉၈	ရော်ဘာစွန့်ဝစ်ပစ္စည်းမှီးသွေးတောက်စက်ခံမြေအဖြစ် အသုံးပြုရန်	

သက်သေခံမြေ ပုံပူးတွဲထားပါသည်။

မွန်ပြည်နယ်အစိုးရအဖွဲ့၏ (၁၈-၆-၂၀၂၀)ရက်နေ့၊ အစည်းအဝေးအမှတ်စဉ် (၂၅/၂၀၂၀)၊ ဆုံးဖြတ်ချက်အပိုဒ်(၁၂)အရ လက်မှတ်ရေးထိုးထုတ်ပေးခြင်းဖြစ်သည်။

လှဝင်းတင်

အတွင်းရေးမှူး

စာအမှတ်၊ ၃၀၀ /၁ - ၂၁/ အရေး (မွန်)

ရက်စွဲ၊ ၂၁၂၀ ပြည်နှစ်၊ ဝွန်လ ၂၄ ရက်

Figure – 6: Permit for land use

Figure – 7: Satellite image showing plot of land for proposed factory

(green colour) and plot of land for proposed staff housing (purple colour)

Project life

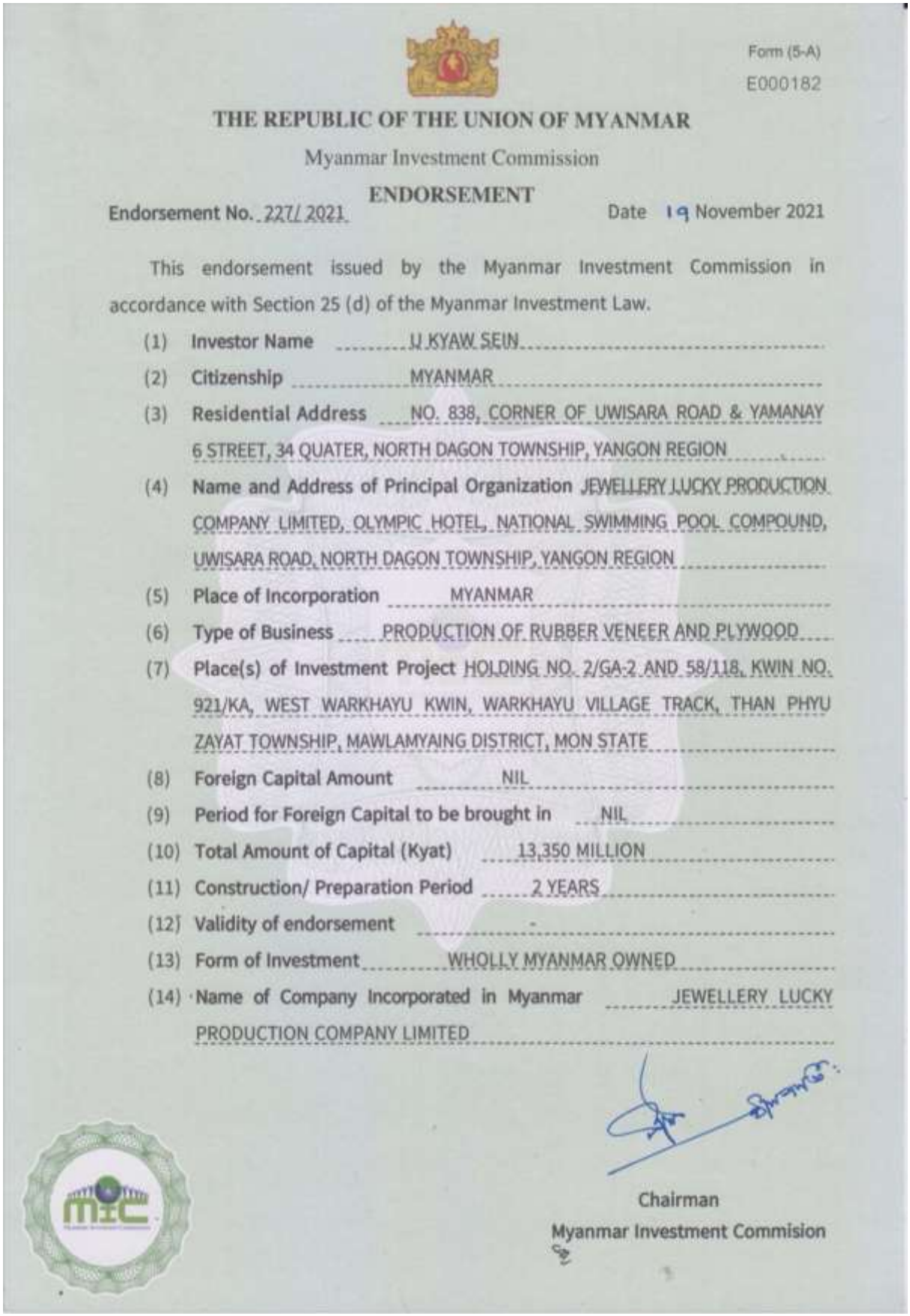
In this proposed project context the tentative life will be as follow:

- Preconstruction Phase 1 year (2020)
- Construction Phase 2 years (2021 – 2022)
- Operation Phase 30 years (2023 – 2053)
- Decommissioning Phase 2 years (2054 – 2055)

The estimated budget is Ks 13,350 million.

The project is now in its early Construction Phase (Endorsement from Myanmar Investment Commission was obtained on 19-11-2021.)

Construction Phase will last for two years. It is expected that operation will commence in the early months of 2023 and last for 30 years, based from the land grant permit. If all go as planned Decommissioning Phase will end in 2055).



Form (5-A)
E000182

THE REPUBLIC OF THE UNION OF MYANMAR

Myanmar Investment Commission

ENDORSEMENT

Endorsement No. 227/ 2021 Date 19 November 2021

This endorsement issued by the Myanmar Investment Commission in accordance with Section 25 (d) of the Myanmar Investment Law.

(1) Investor Name ..... U KYAW SEIN .....

(2) Citizenship ..... MYANMAR .....

(3) Residential Address ..... NO. 838, CORNER OF UWISARA ROAD & YAMANAY 6 STREET, 34 QUATER, NORTH DAGON TOWNSHIP, YANGON REGION .....

(4) Name and Address of Principal Organization JEWELLERY LUCKY PRODUCTION COMPANY LIMITED, OLYMPIC HOTEL, NATIONAL SWIMMING POOL COMPOUND, UWISARA ROAD, NORTH DAGON TOWNSHIP, YANGON REGION .....

(5) Place of Incorporation ..... MYANMAR .....

(6) Type of Business ..... PRODUCTION OF RUBBER VENEER AND PLYWOOD .....

(7) Place(s) of Investment Project HOLDING NO. 2/GA-2 AND 58/118, KWIN NO. 921/KA, WEST WARKHAYU KWIN, WARKHAYU VILLAGE TRACK, THAN PHYU ZAYAT TOWNSHIP, MAWLAMYAING DISTRICT, MON STATE .....

(8) Foreign Capital Amount ..... NIL .....

(9) Period for Foreign Capital to be brought in ..... NIL .....

(10) Total Amount of Capital (Kyat) ..... 13,350 MILLION .....

(11) Construction/ Preparation Period ..... 2 YEARS .....

(12) Validity of endorsement .....

(13) Form of Investment ..... WHOLLY MYANMAR OWNED .....

(14) Name of Company Incorporated in Myanmar ..... JEWELLERY LUCKY PRODUCTION COMPANY LIMITED .....

Chairman
Myanmar Investment Commision

Figure – 8: Endorsement from MIC

1.2 Installation and infrastructure (proposed plywood factory)

The proposed plywood factory is a large complex building accommodating there main compartments, under one roofing. The total building is rather triangular in shape occupying mast of the 3.96 acres plot. It is bounded in the east by the access road; in the south by the ephemeral Ton-ha-lute stream and in the north by the land own by U Aung Kyi.

In the west is the existing veneer factory and staff housing.

Proposed plywood factory (New building) (on 3.96 acres plot of land)

Sr. No	Particular	Nos.	Measurement	Costs (Ks' 000)
1	Factory building (Plywood factory building)	1	450' x 175' x 25'	440,000

Figure – 9: Model of proposed ply wood factory

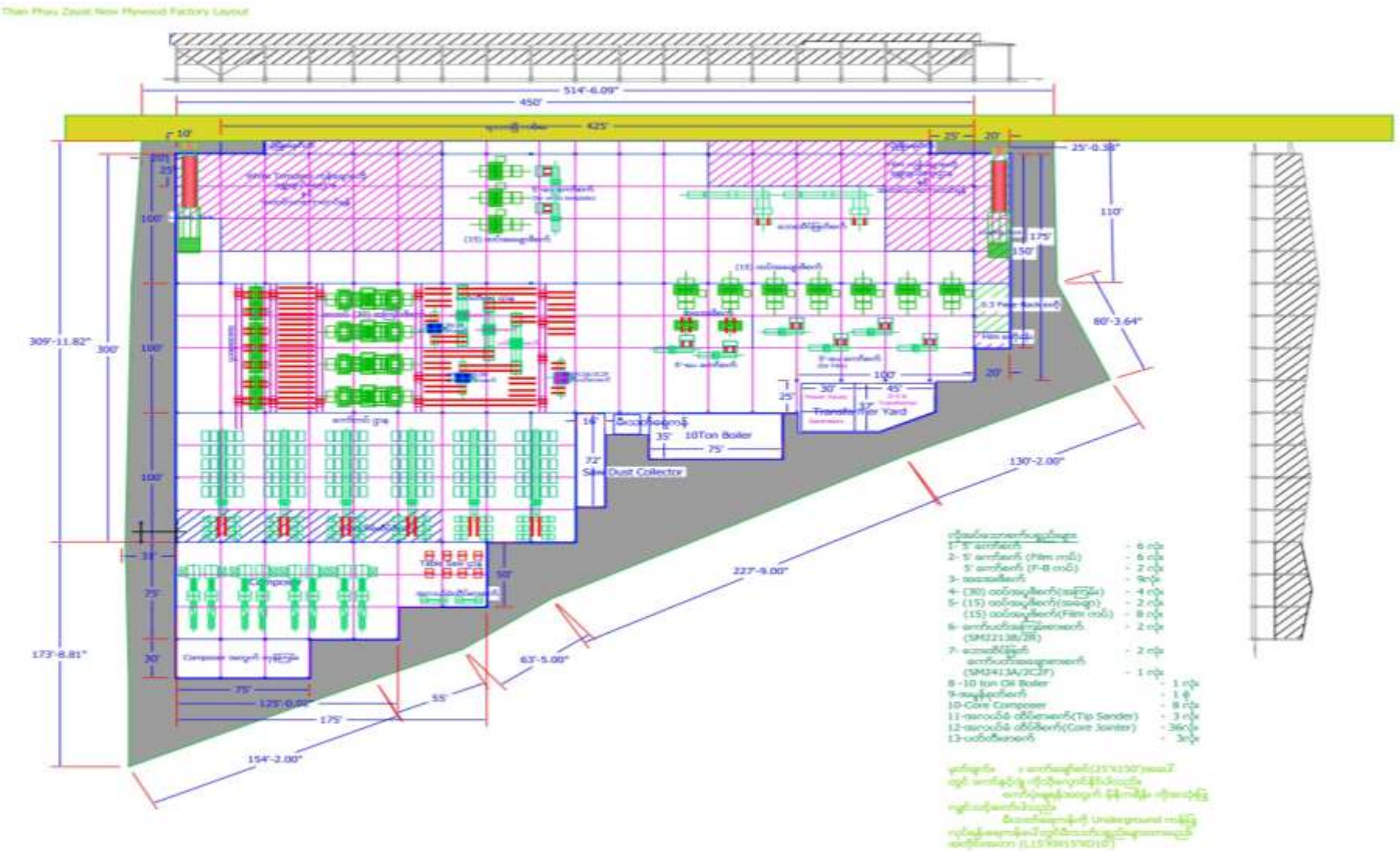


Figure – 10: Detailed layout plan of the factory

The main components of the factory are as follows:

1) Loading dock
2) Gluing section
3) Press section (Hot press and Cold press)
4) Sanding section
5) Trimming section
6) Coating/filming section
7) QC section
8) Final products storage section
9) Transformer yard
10) 10 Tons boiler house & stack
11) Fire fighting tank
12) Dust collector
13) Store
14) Security gates

Figure – 11: The factory in the process of construction

Infrastructure

Access Road

The proposed plywood factory is about 100 m north of the Thanphyuzayat-Kyaikkhami Road, thus easily accessible by motor road which joins the Thanphyuzayat-Kyaikkhami main Road.

Power supply

The site has access to National Gridline Electricity. The company will construct a separate substation with 1500 KVA transformer. In addition two 500 KVA generators will be installed as backup system in case of power outage.

To ensure power supply reliability of the first level load the cables will be connected to both the substation and 500 KVA generators and these will have automatic switching system.

Water supply

Water will be from ground water at a depth of 150 feet; two tube wells be bored and installed water will be for industrial use, domestic use and for firefighting when necessary.

1.3 Technology

Mechanization and automation are the norm; manual labour is minimized as far as possible.

Plywood (veneer plywood) making (manufacturing)

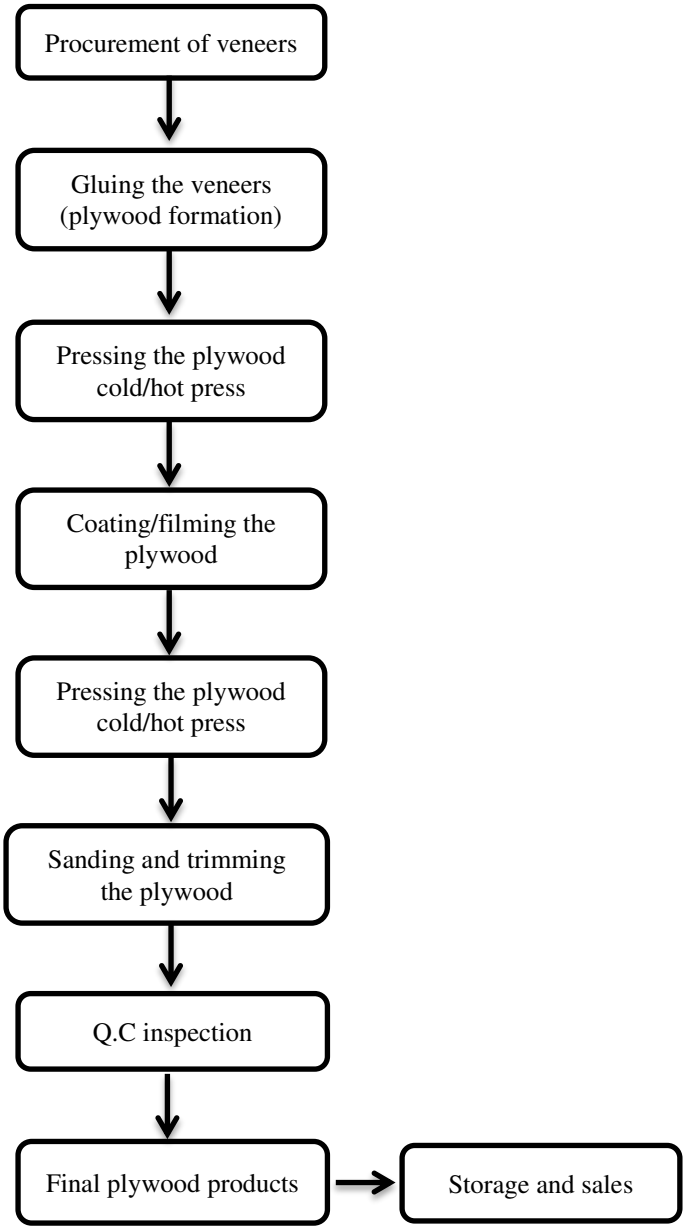
Veneer (plied) are simply glued together (applying) high pressure, cold press and hot press) to make plywood (veneer plywood). The thin veneers are glued together with adjacent veneers having their wood grains at right angle to each other.

The raw materials required for making plywood (veneer plywood) is veneer sheets.

The basic elements for making veneers and plywood have remained broadly the same throughout the history of veneer and plywood making.

1.4 Production Process

Simplified plywood manufacturing



Veneers and plywood manufacturing process in brief

All the manufacturing process involves mechanical works applying automation system. Manual labour is minimized as far as possible.

Step – 1: Procurement of veneers (from nearby existing veneer factory)

Step – 2: Gluing the veneers

Gluing is done mechanically applying Glue Machines Formaldehyde based resins and glues are sued as adhesives (binding materials). The company has its own formula for making adhesives (glues). The rubber wood is compatible with most industrial adhesives.

Multiple layers of veneers are laid out in the same direction but perpendicular to adjacent layers. The various layers of plies (veneer) are glued together, applying Glue Machines.

The company will deploy 14 Glue Machines.

After gluing the initial veneer plywood is formed.

Step – 3: Pressing the veneers plywood (cold press and hot press)

After gluing the veneers are pressed applying cold press first and then hot press methods; 9 sets of Plywood Cold Press Machines (also known as Pre-press Machine) and 14 sets of Plywood Hot Press Machines will be deployed.

Cold press machines are basically auxiliary machines which are used to apply equal pressure or making temporary bound between the glue-coated and non-glue coated veneers before hot pressing. Its main purpose is to curtail the time taken to hot press.

After cold press veneer plies are put into Hydraulic Plywood Hot Press Machines and pressed at high temperature and pressure.

Step – 4: Coating the plywood/film coating the plywood

Plywoods are value-added by coating/filming. For instance, the company will produce Film faced Plywood, Laminated Plywood, Template Plywood, Decorative Plywood etc. applying decorative coating of plywood.

Step – 5: Pressing the plywood (cold press and hot press)

The veneer plywoods are then cold pressed and hot pressed for the second time.

Step – 6: Sanding and trimming the veneer plywood

The surfaces of the plywood produced are mechanically smoothed with Sanding Machines. Three types of sanding machines, namely, double head sanding machine (2 sets). Three Head Sanding Machine (1 set) and Top Sanding Machines (3 sets) will be deployed.

As a final touch the edges of the plywood boards are mechanically trimmed.

Step – 7: Q.C inspection

The plywoods are then inspected for Quality Control. Final products; storage and marketing.

Type of ply wood to be produced, thickness and size: 5 mm (8' x 4'), 6 mm (8' x 4'), 7 mm (8' x 4'), 9 mm (8' x 4'), 12 mm (8' x 4').

Different colours and different designs/patterns will be produced.

Most plywood will be for local sales, while some will be value added to catch better price.

Production targets (CBM)

Year	Plywood	Total
- Year 1	54,600	156,000
- Year 2	55.146	157,560
- Year 3	55,692	159,120
- By Year 6 and on words	57,330	163,800

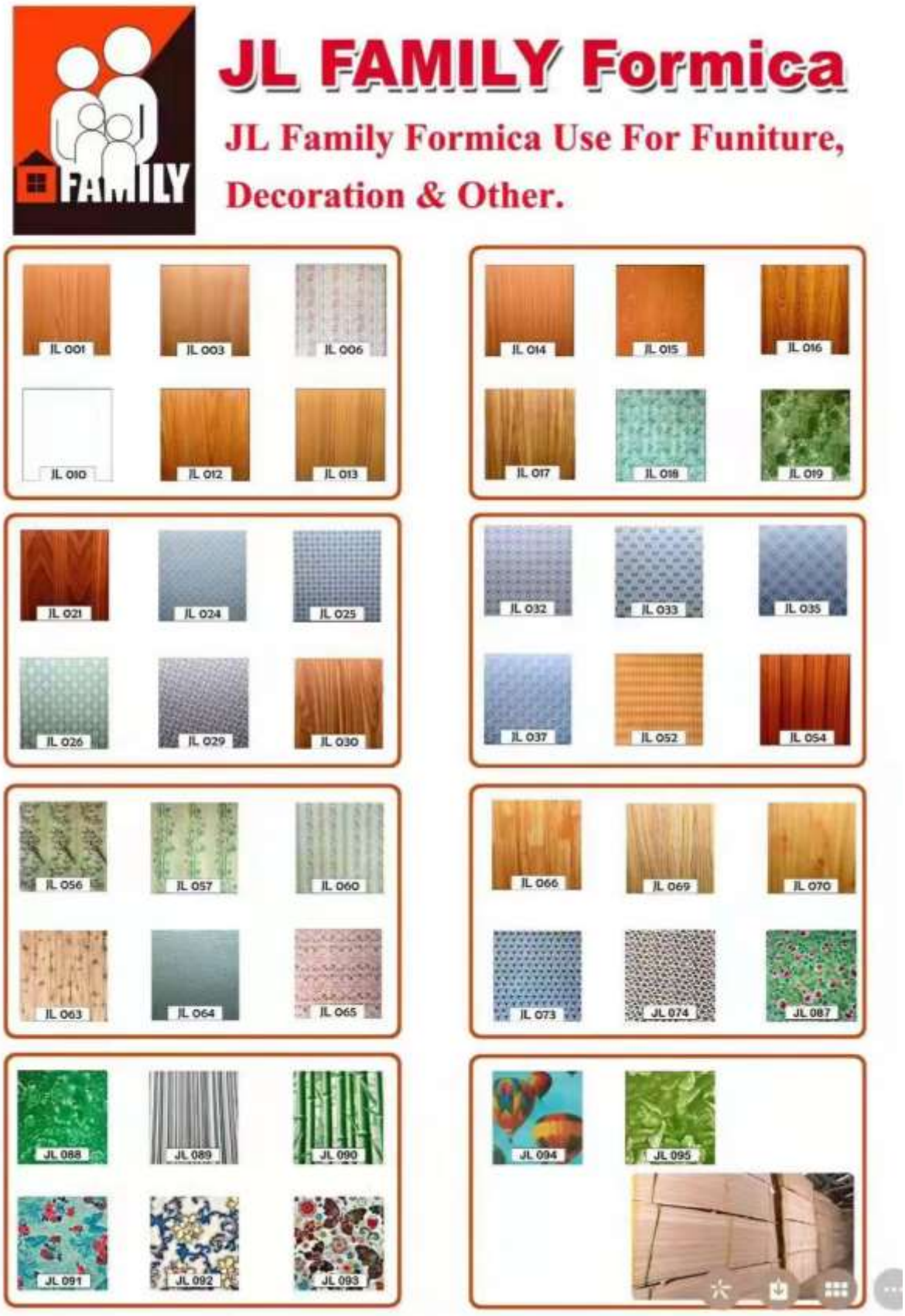


Figure – 12: Catalogue of final products

1.5 Uses of materials and resources

(a) Raw materials (veneer woods)

The raw material (veneer woods) will be obtained from nearby existing veneer factory owned by the company.

Other raw material (flour)

Annual requirement 1,638,000 kg/yr.

Flour will be locally purchased from Yangon and stored in the warehouse (50' x 50').

As production will be increased year after year by Year 6 and onwards the annual requirement will be 1,801,800 kg/yr or 1800 tons/yr.

(b) Raw materials to be imported (chemicals and others)

7 Kinds of chemicals comprising: Polyvinyl Alcohol Powder, Caustic soda, Formalin acid, Melamine powder, Hexamethyliente Tramine and Urea and Film sheets and paper tape will be imported.

These chemicals will be stored in the store room of the nearby existing veneer factory.

Their annual requirement (quantity), price and value are shown in tabulated form as follows:

Other Raw Material To Be Imported

Exhibit No.VI (B)

Particular	Unit	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6-10
Quantity							
Polyvinyl Alcohol Powder	Kg	36,855.00	37,592.10	38,329.20	39,066.30	39,803.40	40,540.50
Caustic Soda	Kg	16,380.00	16,707.60	17,035.20	17,362.80	17,690.40	18,018.00
Formalin	Kg	5,081,076.00	5,182,697.52	5,284,319.04	5,385,940.56	5,487,562.08	5,589,183.60
Formalin Acid	Kg	8,190.00	8,353.80	8,517.60	8,681.40	8,845.20	9,009.00
Melamine Powder	Kg	946,764.00	965,699.28	984,634.56	1,003,569.84	1,022,505.12	1,041,440.40
Hexamethylienete Tramine	Kg	41,769.00	42,604.38	43,439.76	44,275.14	45,110.52	45,954.90
Urea	Kg	1,729,728.00	1,764,322.56	1,798,917.12	1,833,511.68	1,868,106.24	1,902,700.80
Film Sheet for Plywood	Kg	728,000.00	742,560.00	757,120.00	771,680.00	786,240.00	800,800.00
Paper Tape of Plywood	Kg	582,400.00	594,048.00	605,696.00	617,344.00	628,992.00	640,640.00
Price							
Polyvinyl Alcohol Powder	US$/Kg	1.77	1.82	1.87	1.92	1.97	2.02
Caustic Soda	US$/Kg	0.82	0.84	0.86	0.88	0.90	0.92
Formalin	US$/Kg	0.31	0.32	0.33	0.34	0.35	0.36
Formalin Acid	US$/Kg	1.92	1.98	2.04	2.10	2.16	2.22
Melamine Powder	US$/Kg	1.45	1.49	1.53	1.57	1.61	1.65
Hexamethylienete Tramine	US$/Kg	1.22	1.26	1.30	1.34	1.38	1.42
Urea	US$/Kg	0.26	0.27	0.28	0.29	0.30	0.31
Film Sheet for Plywood	US$/Kg	0.90	0.93	0.96	0.99	1.02	1.05
Paper Tape of Plywood	US$/Kg	0.78	0.80	0.82	0.84	0.86	0.88

Value							
Polyvinyl Alcohol Powder	US$'000	65.23	68.42	71.68	75.01	78.41	81.89
Caustic Soda	US$'000	13.43	14.03	14.65	15.28	15.92	16.58
Formalin	US$'000	1,575.13	1,658.46	1,743.83	1,831.22	1,920.65	2,012.11
Formalin Acid	US$'000	15.72	16.54	17.38	18.23	19.11	20.00
Melamine Powder	US$'000	1,372.81	1,438.89	1,506.49	1,575.60	1,646.23	1,718.38
Hexamethylienete Tramine	US$'000	50.96	53.68	56.47	59.33	62.25	65.24
Urea	US$'000	449.73	476.37	503.70	531.72	560.43	589.84
Film Sheet for Plywood	US$'000	655.20	690.58	726.84	763.96	801.96	840.84
Paper Tape of Plywood	US$'000	454.27	475.24	496.67	518.57	540.93	563.76
Total	**US$'000**	**4,652.48**	**4,892.21**	**5,137.71**	**5,388.92**	**5,645.89**	**5,908.64**
Equ; (Ks)	**Ks'000**	**6,234,323.20**	**6,555,561.40**	**6,884,531.40**	**7,221,152.80**	**7,565,492.60**	**7,917,577.60**

Resources

Water and monthly requirement

Water will be sourced from ground water at a depth of 150 feet; there tube wells will be constructed.

Yearly water requirement: 720,000 gallons

Including domestic uses by staff.

A new overhead tank and two ground tanks will be built. In addition an underground firefighting water tank (15'x15'x10') will be constructed. Firefighting equipment will be placed near the tank.

Electricity and yearly requirement

The existing veneer factory has access to gridline electricity. The proposed plywood factory will also source electricity from the gridline electricity.

- Yearly electricity requirement for proposed plywood factory is estimated at 1,237,500 units.

A substation for veneer factory has already existed with a 33/11 KV transformer. A new substation for plywood will be installed.

The company will install 500 KVA generators as a backup system in case of power outage.

To ensure the power supply reliability of the first level load the cable will be connected to both the substation and the 500 KVA generator and these will have automatic switching system.

Fuel requirement is as follows:

Diesel - 51,000 gallons/year

Engine oil – 1,200 gallons/year

Hydraulic oil – 1,200 gallons/year

Gear oil – 120 gallons/year

A separate fuel depot for diesel with a capacity 15,000 gallons will be built.

Human resource

During the Construction Phase of 2 years about 100 construction workers will be deployed.

Workforce and staff organization (Operation Phase)

A total of 556 employees (4 foreigners) will be employed.

Their monthly salaries range from Ks 150,000 (for labourers) to Ks 500,000 (factory manager). The four foreigners technicians will be paid 400 USD$ each.

Working Hours

8 hours/day; 48 hours/week.

Workers will work in 3 shifts per 24 hours day.

Housing for staff

There will be 3 hostels for staff (two hostels with a dimension of 120' x 16' x 12' each one; with a dimension of 80' x 32' x 12'). These will be constructed on a 3.76 acres plot of land in the adjacent north west of the proposed plywood factory.

1.6 Machinery and equipment

Machinery and equipment to be imported for the proposed plywood factory

The list of machinery and equipment to be imported and installed at the proposed plywood factory is given below. All are from China.

No.	DESCRIPTION	H.S CODE	UNIT	TO BE IMPORTED MACHINERY LIST			COUNTRY OF ORIGIN	
				QTY	UNIT PRICE	AMOUNT (USD)	LOCAL	FOREIGN
1	5' GLUE MACHINE	8479.10.10.00	SET	14	4,000.00	56,000.00		CHINA
2	BOILER (10 Tons)	8402.11.00.00	SET	1	105,000.00	105,000.00		CHINA
3	HOT PRESS (15) LAYER 600 MT	8462.10.10.00	SET	10	30,720.00	307,200.00		CHINA
4	HOT PRESS (30) LAYER 800 MT	8462.10.10.00	SET	4	114,290.00	457,160.00		CHINA
5	COLD PRESS (600) MT	8465.99.90.00	SET	9	15,000.00	135,000.00		CHINA
6	COMPOSER MACHINE (CLUTCH BREAK)	8465.99.90.00	SET	28	52,580.00	1,472,240.00		CHINA
7	DUST COLLECTOR MACHINE (CYCLONE)	8479.90.90.00	SET	1	107,150.00	107,150.00		CHINA
8	DOUBLE HEAD SANDING MACHINE	8465.93.10.00	SET	2	50,000.000	100,000.00		CHINA
9	CORE JOINTER MACHINE	8453.20.00.00	UNIT	80	1,500.00	120,000.00		CHINA
10	THREE HEAD SANDING MACHINE	8460.90.10.00	SET	1	42,858.00	42,858.00		CHINA

11	SAWING MACHINE (SIZER)	8465.90.10.00	UNIT	2	28,535.00	57,070.00		CHINA
12	TABLE LIFTER	8428.10.39.00	UNIT	42	1,300.00	54,600.00		CHINA
13	FORKLIFT	8427.10.00.00	UNIT	8	9,150.00	73,200.00		CHINA
14	TOP SANDER MACHINE	8467.00.00.00	UNIT	3	6,860.00	20,580.00		CHINA
15	DRYER MACHINE (4-LAYERS)	8419.00.00.00	SET	7	295,500.00	2,068,500.00		CHINA
16	DRYER MACHINE (2-LAYERS)	8419.00.00.00	SET	3	54,285.00	162,855.00		CHINA
17	GENERATOR (1000~2500) KVA	8502.13.90.00	SET	2	110,000.00	220,000.00		CHINA
18	ROTARY CUTTING MACHINE & ROUND ABOUT MACHINE (2600)	8465.95.00.00	SET	10	55,000.00	550,000.00		CHINA
19	ROTARY CUTTING MACHINE & ROUND ABOUT MACHINE	8465.95.00.00	SET	10	21,000.00	210,000.00		CHINA
20	SMALL WHELL LOADER	8429.00.00.00	SET	5	10,000.00	50,000.00		CHINA
21	AUTOMATIC PLATE FEEDER (25")	8465.99.00.00	SET	100	6,430.00	643,000.00		CHINA
22	AUTOMATIC PLATE FEEDER (100")	8465.99.00.00	SET	20	15,425.00	308,500.00		CHINA
						7,320,913.00		

(c) Vehicles, furniture and office equipment (to be purchased)

- Forklift 4 Nos
- Clamp 2 Nos

Furniture and equipment

The company will share the same office and the same office furniture and equipment with the existing veneer factory.

1.7 Generation of wastes (solid and liquid, emissions and disturbance, in brief)

(a) During the Construction Phase

Construction works/civil works generate noise, dust, smoke and wastes (solid and liquid).

Noise and vibration – Noise is generated from construction work in many ways, e.g. from cement batching, engines, pumps and carpentry works; vehicular movements, loading and unloading also produce noise.

Vibration is generated from machinery operation and heavy truck movements.

Solid wastes

- Large quantity of building wastes, debris, left over building materials – e.g. pieces of wood, brick, sand gravel.
- Small quantity of domestic wastes.

Liquid wastes (effluent)

This may not be an issue as virtually all water used is for construction purpose onlly.

- Small quantity of domestic wastes water.

Emission

Dust (fugitives dust emission)

Construction works generate dust emission – e.g. clearing of land and earth works (foundation works); the loading and unloading of building materials (sand, cement, gravel, lime power) and stocking of them.

Vehicular movements, operation of certain machinery and the batching of cement generate dust.

Smoke (fugitive emission)

On the whole smoke generated from construction work is low, e.g. the use of vehicles, engines and pumps during construction. (These impacts are all temporary; after Construction Phase all will be ceased. These impacts during the Construction Phase are described in details later in Chapter 6 (6.2) and management and mitigation measures to be taken for each and every impact are described later in Chapter 8).

(b) During the Operation Phase

The operation of plywood factory has many impacts on the environment.

Noise and vibration

Noise will be generated from loading, cutting, trimming and sanding etc.

Noise and vibration are also generated from operation of machinery and vehicles.

Solid wastes

Wood wastes are produced from plywood factory in small quantity for instance;

- Wood particle from trimming and sanding.
- Saw dust, shavings, wood fine etc.

Other wastes – E.g. domestic wastes (general refuse) from office, and amenities; other debris, and trash.

Liquid waste (effluent)

Storm water – is generated from normal yard wash or other major washing, storm water/rain water influx occur when there is heavy rain.

Process water (industrial waste water) – generated from

- On the whole effluent generation from plywood processing is small; most evaporated in the dryer and hot press.
- Oil boiler does not need regular blow down.

Domestic waste water

This includes sewage and gray water generated from kitchen, both and toilets.

Emissions

- Point source/stationary emission from boiler stack (main emission).
- Emission from generator (point source emission).
- Gas emission from press especially hot press.
- Emission from burning of general burning of fuel oil (GHG emission).
- Hazardous gas emission (e.g. formalin) from hot press.

Dust

- Dust is generated throughout the processes in plywood factory
- Fugitive wood dust from mechanical operation e.g. trimming, sanding.
- Dust from vehicular movements.
- Dust from loading/unloading activities.

(These impacts are later described in details in Chapter 6 (6.3) and management and mitigation measures to be taken for each and every impact are prescribed later in Chapter 8).

1.8 Project alternative

It is necessary to have Plan A, B, C etc. (alternative plan) for the implementation of a proposed project to ensure that the project progress smoothly and successfully, even if a change in plan (an alternative) has to be undertaken.

1. The Preconstruction Phase/Planning Phase

Technology alternative

The technology appropriate for plywood production has to be considered and selected during this phase. eg. gluing and pressing

Location alternative

The proposed site is easily accessible by motor road (near Thanphyuzayat-Kyaikkhami Highway); it has access to Gridline Electricity; and water can be sourced from ground water at a depth of 150 feet.

Moreover, the raw materials (rubber woods from rubber falls) are readily available.

No better location an alternative can be envisaged.

2. The Construction Phase

Construction materials alternative

The eco-friendly construction principle rather than the conventional construction principle is selected.

The use of timber wood for construction is minimized as far as possible, to as a means of conservation of forest. Iron frame, material, bricks, corrugated iron roofing and walling are utilized to minimize the use of timber wood, as practical as possible.

Orientation alternative

Given the limited area (3.96 acres) and the shape of the plot (rather pentagonal in shape) there is little room left for orientation and maneuvering of layout plan for the buildings/structures to be constructed.

The large complex factory with one single roofing will occupy most of the plot area.

No better orientation alternatives envisaged.

3. Operation Phase

Raw materials alternative

Rubber woods from rubber falls (old rubber tress) is the most appropriate raw materials in this context.

Rubber woods are readily available (rubber plantation are everywhere in this region); the wood is relatively hard but flexible and is easy to handle (for peeling); rubber wood is compatible with most of the industrial glues (adhesives) for gluing; the grains of the wood are beautiful and attractive for making furniture.

(Hard woods and brittle wood need to be socked in hot water before peeling; no need for rubber wood).

In this context no better wood alternative is envisaged. The use of rubber wood (plantation wood) is considered eco-friendly business; no need to extract woods from natural forest.

Chemical uses alternatives

Many chemicals used in wood/timber industry are hazardous; formaldehyde (formalin) is known to be carcinogenic but it is essential. Therefore, the proponent has to use formalin and a combination of other chemicals (polyvinyl powder, melamine powder, caustic soda, etc.) for effective gluing and mitigation of formalin impact.

In this plywood factory context no better glue alternative is envisaged.

Labour (work) alternative

The project proponent maximizes mechanical labour while minimizes manual labour. It is safer to apply mechanical labour rather than manual labour. Mechanical labour is suitable for bulk production. The company also applies automation system, as far as possible, which is appropriate for large scale production.

Mechanical labour is preferred to manual labour.

Energy alternative

The site has access to gridline electricity and the company will take the advantage of this. But as an energy alternative during power outage the company will install two 500 KVA generators as a backup system.

Supply alternative

For the consumption of water, fuel, electricity the company will adhere to the principle of conservation rather than using them extravagantly; consumption conservation alternative is preferred to conventional consumption alternative, will minimize the use of water, fuel and electricity as far as possible.

Demand alternative

If the demand for raw material (rubber log) increases more rubber log contractors/vendors will be contacted for procuring rubber logs.

As time goes on and there is a need for more water a new tube well will be bored.

There are the preferred demand alternative.

Activities alternative

The company will educate, train and supervise its staff for good working practice, good safety practice and good environmental practice rather than follow the traditional/conventional way in performing their jobs.

The company will educate and train them to "work smarter" rather than "work harder".

Will educate them to walk or ride bicycle rather than riding car when commuting to and from workplace to conserve fuel and to contribute to emission reduction.

The "no go alternative" or "no project alternative"

The company will not consider the "no go alternative", the company has already spent millions of kyats for this project and therefore, no go alternative is out of the question.

Finally there is the "no go alternative" or "do nothing alternative" or "no project alternative". This would only means that rubber wood falls from old plantations will remain unused as a valuable timber product but only as cheap crude timber or fuel wood. Valuable rubber timber source will remain untapped; the rubber wood cannot contribute to the development of the construction sector of the nation and also the development of furniture business. The valuable rubber wood will end up only as fuel wood or cheap uses. The people and the nation will lose the good chance for generating more income from valuable rubber wood.

2. IDENTIFICATION OF PROJECT PROPONENT

2.1 Brief background

The project proponent, Jewellery Lucky Production Co., Ltd was registered as a private company limited by shares on 20-11-2007. (Document: Company Registration No.145423112, Directorate of Investment and Company Administrator, Dated: 20-11-2007). (The former Registration No. was 1002/2007-2008).

The company has obtained an Endorsement issued by Myanmar Investment Commission on 19-11-2021 (Endorsement No.227/2021, dated: 19-11-2021).

Name of project proponent	:	Jewellery Lucky Production Co., Ltd
Address (Head office)	:	Olympic Hotel, National Swimming Pool Compound, U Wisara Road, Dagon Township, Yangon Region, Myanmar
Telephone	:	01-243130, 243131, 243134, 243135, 641763-7, 647650-4
Fax	:	95-1-242946
Contact Person	:	U Nay Lin Htet, General Manager
Telephone	:	09 444413166
Email	:	naylinhtet.ntt@gmail.com
Location of project site	:	Holding No.2/Ga-2 and 58/118, Kwin No.921/Ka, West War-kh-yu Kwin, War-kha-yu Village Tract, Than-phyu-zayat Township, Mawlamyine District, Mon State.
GPS position of site	:	N. Lat. 15° 59' 16.50" and E. Long. 97° 41' 18.30"
Elevation	:	35 m asl

Particulars of Executive and Administrative Body

Sr. No.	Name	Nationality and N.R.C No.	Designation	Usual Residential Address	Other business Occupation
1	U Kyaw Sein @ Wai Chin	Myanmar 13/LaYaNa(N) 059636	Managing Director	No.838; At U wisara Road and Yamanay 6 Road corner; 34 ward; North Dagon Township, Yangon.	Merchant
2	U Tin Nyunt	Myanmar 12/TaMaNa (N) 036334	Director	No.749, Zaw Ti Ka Road, 16/1 Ward, Thingankyun Township,Yangon	Merchant
3	U Thaung Htike Min	Myanmar 9/MaHtaLa (N) 001930	Director	No.62/E, Shwe Hin Thar Road, 11 Ward, Hlaing Township, Yangon	Merchant

4	U Min Myo Thant	Myanmar 9/MaHtaLa (N) 183780	Director	No.35, ¾ Floor, Anawrahta Road, Lanmadaw Township, Yangon	Merchant
5	U Kyaw Wai	Myanmar 12/DaGaMa (N) 027821	Director	No.838, at Uwisara Road and Yamanay 6 Road corner, 34 Ward, North Dagon Township, Yangon.	Merchant
6	U Tun Wai	Myanmar 12/DaGaMa (N) 027820	Director	No.838, at Uwisara Road and Yamanay 6 Road corner, 34 Ward, North Dagon Township, Yangon.	Director
7	Daw Khin Myat Mon	Myanmar 7/DaOuNa (N) 049956	Director	No.8, Lane 6, Mindama Raod, Shwekabar Housing, Mayangone Township, Yangon	Director
8	Daw Ohn Mar Myint	Myanmar 12/DaGaMa (N) 027822		No.838, at Uwisara Road and Yamanay 6 Road corner, 34 Ward, North Dagon Township, Yangon.	Director

- Type of business : Production of plywood
- Total amount of capital (kyat) : 13350 millions
- Type of business organization : One hundred percent wholly Myanmar owned.
- Share Ratio (local) : 100%
- Type of share : Ordinary share
- Number of shares allotted payable in cash : 52,000 shares

List of shareholders owned 100% of the shares and above

1. U Kyaw Sein @ Wai Chin - Share percentage 79.93 %
2. U Tin Nyunt - Share percentage 1.60 %
3. U Thaung Htike Min - Share percentage 4.08 %
4. Daw Khin Myat Mon - Share percentage 3.08 %
5. U Min Myo Thant - Share percentage 1.34 %
6. U Tin Tun Oo - Share percentage 2.84 %
7. U Kyaw Wai - Share percentage 2.51 %
8. U Tun Wai - Share percentage 2.51 %
9. Daw Ohn Mar Myint - Share percentage 2.51 %

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

ကံကောင်းခြင်း ရတနာထုတ်လုပ်မှုလုပ်ငန်း ကုမ္ပဏီလီမိတက်

JEWELLERY LUCKY PRODUCTION COMPANY LIMITED

Company Registration No. 145423112

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ

ကံကောင်းခြင်း ရတနာထုတ်လုပ်မှုလုပ်ငန်း ကုမ္ပဏီလီမိတက်

အား ၂၀၀၇ ခုနှစ် နိုဝင်ဘာလ ၂၀ ရက်နေ့တွင်

အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ

အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that

JEWELLERY LUCKY PRODUCTION COMPANY LIMITED

was incorporated under the Myanmar Companies Act 1914 on 20 November 2007 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ

Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများဦးစီးဌာန

Directorate of Investment and Company Administration

Former Registration No. 1002/2007-2008

Figure – 13: Certificate of Incorporation

3. IDENTIFICATION OF IEE EXPERTS

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

The consultant firm (MESC) is confirmed by the authority, ECD, to conduct IEE and submit the IEE report.

About the Consultant Firm, (MESC)

Myanmar Environment Sustainable Conservation, 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 new company registered number is 110649193.

The Transitional Registration/License No. of the consultant firm, MESC is No. 10003, ECD, Dated 1st July 2017.

Contact Address : Building No. 67/69, B-5, 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

Facebook website : www.myanmar environment sustainable conservation.com

Members of MESC who are IEE appraisers, or IEE practitioners or who are involved in this IEE 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

Dr. Thiri Dawe Aung Ph.D (Zoology)	Myanmar 12/Da La Na (N) 029433	0008	Biodiversity Specialist (Ornithologist)
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
Dr. Htin Thaw Kaung M.B.B.S	Myanmar 13/ Pa Ha Na (N)222723	Freelance	Occupational Health and Safety
Daw Hnin Nu Nu Aung B.E (Materials and Metallurgy) M.Sc (Environmental Planning and Management)	Myanmar 8/ Ma Ka Na (N) 204370	Applied	Environmental Engineer

- U Myint Kyaw Thura is involved in fauna study, writing of report, in part.
- U Saw Han Shein is involved in report writing (chief report writer).
- Dr. Thiri Dawe Aung involved in avifauna study writing part of report.
- U Tin Tun Aung is involved 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 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.

- Dr. Htin Thaw Kaung is a medical doctor and part time member of MESC and is involved in occupational health and safety aspects of the project.

- Daw Hnin Nu Nu Aung is involved in waste management aspect of the project. She is also involved in EIA/IEE/EMP practitioning appraising and report writing and Environmental Research.

Actually members of MESC always work together wholly as a tight-knit group in writing of each and every EMP/IEE/EIA report. Discussion, consensus building, cooperation and coordination are the principle and norm of the consultant firm.

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, medical officer (doctor), engineers and geologists 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; 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, saw mill/lumbering project, motorcycle and spare parts factory, sugar factory, hydro power electricity project, coal fired thermal plant, water boom park, zip line project, seed processing plant, specific taxonomic and ecological study of herpetofauna, specific biodiversity and ecological survey of forest and parts etc projects.

MESC is now involved in the on-going project such as private hospital project, biomass power plant, assembly and installation of lifts, escalators and elevator, transmission line, shopping center project, villa project, aquaculture project, industrial factory complex project, assembling/marketing car projects, concrete transmission poles, soft drinks and drinking water and sugar mill. Some members have also participated in road construction (air quality) project, herpetological survey in association with foreign experts.

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 2023 Date 20 JUL 2018

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
သက်တမ်းတိုးချုံးခြင်း
The VALIDITY of this certificate is extended for one year from (1.4.2018) to (31.3.2019)
ဤသက်သေခံအား (၁-၄-၂၀၁၈) ရက်နေ့မှ (၃၁.၃.၂၀၁၉) ရက်နေ့အထိ တစ်နှစ်သက်တမ်း တိုးမြှင့်သည်။
13.7.2018
For Director General
(Soe Naing, Director)
Environmental Conservation Department

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

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Air Pollution Control

2. Ecology and Biodiversity

3. Facilitation of Meeting

4. Geology and Soil

5. Land use

6. Modeling for Water Quality

7. Socio-Economy

8. Water Pollution Control

EXTENSION
သက်တမ်းတိုးပြုခြင်း
The VALIDITY of this certificate is extended for one year from (1.1.2020) to (31.12.2020)
ဤလက်မှတ်အား(၁-၁-၂၀၂၀) ရက်နေ့မှ (၃၁-၁၂-၂၀၂၀) ရက်နေ့အထိ တစ်နှစ်သက်တမ်းတိုးပြုပြင်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးပြုခြင်း
The VALIDITY of this certificate is extended for nine months from (1.4.2019) to (31.12.2019)
ဤလက်မှတ်အား(၁-၄-၂၀၁၉) ရက်နေ့မှ (၃၁-၁၂-၂၀၁၉) ရက်နေ့အထိ (၉)လ သက်တမ်းတိုးပြုပြင်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးပြုခြင်း
The VALIDITY of this certificate is extended for six month from (1.1.2021) to (30.6.2021)
ဤလက်မှတ်အား(၁-၁-၂၀၂၁) ရက်နေ့မှ (၃၀-၆-၂၀၂၁) ရက်နေ့အထိ (၆)လ သက်တမ်းတိုးပြုပြင်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးပြုခြင်း
The VALIDITY of this certificate is extended for six months from (1.7.2021) to (31.12.2021)
ဤလက်မှတ်အား(၁-၇-၂၀၂၁) ရက်နေ့မှ (၃၁-၁၂-၂၀၂၁) ရက်နေ့အထိ (၆)လ သက်တမ်းတိုးပြုပြင်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION (သက်တမ်းတိုးပြုခြင်း)
The VALIDITY of this certificate is extended for one year from (1.1.2022) to (31.12.2022)
ဤလက်မှတ်အား(၁-၁-၂၀၂၂) ရက်နေ့မှ (၃၁-၁၂-၂၀၂၂) ရက်နေ့အထိ တစ်နှစ်သက်တမ်းတိုးပြုပြင်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

Figure – 14: Certificate of consultant firm

ဆေးတက္ကသိုလ်-မကွေး

ဆေးပညာဘွဲ့

ဦးထင်ပေါ် ၏ သား/သမီး မောင်ထင်သော်ကောင်း အား
ဆေးပညာဘွဲ့ကို အပ်နှင်းချီးမြှင့်လိုက်သည်။

အထူးအောင်မြင်သည့် ဘာသာရပ် ....x....

....x....

....x....

ဘွဲ့ရသူ မှတ်ပုံတင်အမှတ် ၁၉၉၅/၂၀၁၁ (၂၀၀၉ ဒီဇင်ဘာ၊ နိုဝင်ဘာလ)

မော်ကွန်းထိန်း
ဆေးတက္ကသိုလ်၊ မကွေး

ပါမောက္ခချုပ်
ဆေးတက္ကသိုလ်၊ မကွေး

မကွေး မြို့

၂၀၁၀ ခု၊ ဖေဖော်ဝါရီ လ ၁၉ ရက်နေ့။

Figure – 15: Certificate of Dr. Htin Thaw Kaung

YANGON TECHNOLOGICAL UNIVERSITY

Postgraduate Diploma

The Postgraduate Diploma (Environmental Planning and Management)

is awarded to MAY 2019

Ma Hnin Nu Nu Aung ~~son~~ / daughter of U Than Htay ~

Citizenship Scrutiny Card No. 8/Ma.Ka Na (Naing) 204370

Graduate Registration No. 29015

Than Than Sint
Registrar
Yangon Technological University

Rector
Yangon Technological University

Date: 3 MAR 2019

Figure – 16: Certificate of Hnin Nu Nu Aung

MYANMAR ENGINEERING SOCIETY

Certificate of Completion

This is to certify that

HNIN NU NU AUNG

has successfully completed the training on

Wastewater Treatment System Course

from 27 January 2018 to 4 March 2018
Total Training Hours: 36 Hours

Certificate No. WWTSC-2018-01-011 *Issue Date: 4 March, 2018*

Engr. Aung Myint P.E.
President
Myanmar Engineering Society

Figure – 17: Certificate of Hnin Nu Nu Aung

4. DESCRIPTION OF APPLICABLE LAWS

Jewellery Lucky Production Co., Ltd will not only comply with the relevant law, the Forest Law, 2018, 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

Jewellery Lucky Production Co., Ltd will comply with the following laws:

1. Environmental Conservation Law, 2012
2. Environmental Conservation Rule, 2014
3. Environmental Impact Assessment Procedure, 2015
4. National Environmental Quality (Emission) Guideline, 2015
5. The Forest Law, 2018
6. The Conservation of Biodiversity and Protected Area Law, 2018
7. Protection and Preservation of Antique Objects Law, 2015
8. The Protection and Preservation of Cultural Heritage Regions Law, 2019
9. The Protection and Preservation of Ancient Monument Law, 2015
10. Myanmar Investment Law, 2016
11. Myanmar Investment Rules, 2017
12. The Factories Act, 1951
13. Prevention of Hazards from Chemical Substances Law, 2013
14. Boiler Law, 2015
15. Fire Brigade Law, 2015
16. Electricity Law, 2014
17. Myanmar Private Industry Enterprise Law, 1990
18. Employment and Skill Development Law, 2013
19. The Ethnic Rights Protection Law, 2015
20. Myanmar Insurance Law, 2015
21. The Social Security Law, 2012
22. Labour Organization Law, 2013

23. Workmen Compensation Act, 1951
24. The Leave and Holiday Act, 1951
25. Settlement of Labour Disputes Law, 2012
26. Payment and Wages Law, 2016
27. Minimum Wages Law, 2013
28. The Control of Smoking and Consumption of Tobacco Product Law, 2016
29. The Public Health Law, 1972
30. Occupational Health and Safety Law, 2019
31. Prevention and Control of Communicable Diseases Law, 1995
32. Myanmar Export Import Law, 2012
33. Myanmar Highway Law, 2000
34. The Petroleum and Petroleum Products Law, 2017
35. The Petroleum Rules, 1937
36. Vehicle Safety and Motor Vehicle Management Law, 2020
37. The Underground Water Act, 1930
38. National Environmental Policy of Myanmar, 2019
39. National Waste Management Strategy and Master Plan for Myanmar, 2018-2030
40. Myanmar Climate Change Strategy, 2018-2030
41. The Related Laws Enacted by Mon State Hluttaw and Rules Issued by Mon State Government

Jewellery Lucky Production Co., Ltd cannot be in a position to read and study all the above mentioned laws and rules as they cover very wide ranging aspects. The company has hired a legal expert to deal with all those relevant laws and advices the company whenever and where ever deems necessary.

The hired legal expert will help the company with the 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 plywood 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 will also refer to the recent publications by ECD regarding National Environmental Policy of Myanmar, 2019, National Waste Management Strategy and Master Plan for Myanmar, 2018-2030 and Myanmar Climate Change Strategy, 2018-2030.

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."

1. The Environmental Conservation Law, 2012

Section-7 (d): The ministry prescribes environmental quality standards including standards on emission, effluents, solid wastes, production procedures, processes and products for conservation and enhancement of environmental quality;

Section-14: A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards.

Section-15: 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-24: The Ministry may, in issuing the prior permission, stipulate terms and conditions relating to environmental conservation. It may conduct inspection whether or not it is performed in conformity with such terms and conditions or inform the relevant Government departments, Government organization to carry out inspections.

Section-29: No one shall violate any prohibition contained in the rules, notification, orders, directives and procedures issued under this Law.

Section-32: Whoever violates any prohibition contained in the rules, notifications, orders, directives and procedures issued under this Law shall, on conviction, be punished with imprisonment for a term not exceeding one year, or with fine, or with both.

2. The Environmental Conservation Rules, 2014

Rule-69 (a): Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants to environment and hazardous waste or hazardous material stipulated by notification under the Law and any these rules at any place which may affect the public directly or indirectly.

Rule-69 (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 public.

3. Environmental Impact Assessment Procedure, 2015

Section -102: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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

All the guidelines that are of relevance for this project are shown under a separate section of this report.

5. The Forest Law, 2018

Section-40: Whoever commits any of the following acts shall, on conviction, be punished with fine which may not exceed kyats 300,000 or with imprisonment for a term which may not exceed 1 year or with both:

(a) trespassing and encroaching in a reserved forest;

(c) breaking up any land, clearing, digging or causing damage to the rriginal condition of the land without a permit in a reserved forest;

Section-41: Whoever commits any of the following acts shall, on conviction, be punished with fine ranging from kyats 300,000 to 500,000 or which may not exceed 2 years or with both:

(a) extracting, moving, keeping in possession unlawfully any forest produce, with the exception of timber from teak and reserved tree, without a permit;

(b) selling or utilizing in other works, forest produce extracted under section 18 subsection (d), without the prior permission of the person authorized to grant permission for extraction.

Section-42: Whoever commits any of the following acts shall, on conviction, be punished with fine ranging from kyats 500,000 to 1,000,000 or with imprisonment for a term which may not exceed to 7 years or with both:

(a) felling, cutting, girdling, marking, lopping, tapping or injuring by fire or otherwise any tree in a reserved forest;

(b) extracting, moving, keeping in possession unlawfully timber from reserved tree other than teak without a permit;

6. The Conservation of Biodiversity and Protected Area Law, 2018

Section-29: With the approval of the Ministry, the Director General:

(a) shall check whether the licence application for a zoological garden or botanical garden conforms with the specified terms and conditions, and issue a licence if the conditions are met;

(b) may withdraw a licence within the prescribed period or cancel it if a person who receives a licence violates the prescribed terms and conditions.

Section-35: A park warden may pass an administrative order against any person to pay a fine from a minimum kyats 30,000 to a maximum kyats 100,000 if he commits any of the following acts within a protected area or a zoological garden or botanical garden which is administered by the Government or in which the Government has subscribed share capital:

(a) entering a prohibited area without permission;

(c) digging on the land, cultivating or carrying out any activity;

(d) extracting, collecting or destroying in any manner, any kind of wild flora or cultivated plant.

Section-39: Whoever commits any of the following acts shall, on conviction, be punished with imprisonment for a term not exceeding 3 years or with a fine from a minimum of kyats 200,000 to a maximum of kyats 500,000, or with both:

(a) intentionally polluting soil, water or air, damaging a water-course or poisoning water or electrifying water, or using chemical or explosive materials in the water within the protected area;

7. Protection and Preservation of Antique Objects Law, 2015

Section-12: A person who finds any object which has no owner or custodian shall promptly inform the relevant Ward or Village-Tract Administration if he known or it seems reasonable to assume that the said object is an antique object.

8. Protection and Preservation of Cultural Heritage Regions Law, 2019

Section-13: A person desirous of carrying out one of the following shall abide by the provisions of other existing laws and also apply to the Department in accordance with stipulation to obtain prior permission under this law:-

(a) Within the ancient monumental zone or the ancient site zone

(1) Construction or extending a building

(2) Renovating the ancient monument or extending the boundary of its enclosure;

(b) Within the preserved or protected zone, constructing extending, renovating a hotel, motel, guest house, lodging house or industrial building or extending the boundary of its enclosure

(c) Within the culture heritage region:

(1) Carrying out the renovation and maintenance work of the ancient monument without altering the original ancient form and structure or original workmanship;

(2) Carrying out archeological excavations;

(3) Building road, constructing bridge, irrigation canal and embankment or extending the same

Section-22: No person shall construct a building which is not in conformity with the conditions prescribed region wise by The Ministry of Culture in the cultural heritage region.

9. Protection and Preservation of Ancient Monuments Law, 2015

Section-12: Anyone who has found an ancient building of 100 years or more of age without owner on the ground, underground above the water or under the water has to inform, if the building is recognized as or believed to be an ancient monument , the nearest village or township administration department.

Section-15: Every person desirous to engage in the following within the area of certain ancient monuments has to apply for the permission of the administration department:

(b) Constructing industrial building

(e) Digging a well, pond

(h) Constructing buildings near an ancient monument if this violets the structural rules approved by the ministry.

The administration development can approve or reject an application submitted under section 14 or 15 after having analyzed it.

Section-20: No one is allowed to do any of the following acts likely to cause damage to an ancient monument within the boundary without prior written permission of the administration department

(b) Using and driving heavy machines and vehicles which may cause vibration within the area of an ancient monument

(f) Releasing of chemical waste which can cause pollution of ancient monument and the natural environment

10. Myanmar Investment Law, 2016

Section-50: (e) The Government may grant more favorable terms and conditions for the lease of land and the use of land by Myanmar citizen investors.

Section-51: 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.

Section-65: The investor:

(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-73: 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.

11. Myanmar Investment Rules, 2017

Rules-202: The Investor must comply with the conditions of the Permit and other applicable laws when making an Investment.

Rules-206: It 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: 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.

12. The Factories Act, 1951

The law contains 10 Chapters and 109 articles.

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, (Chapter 3, 4, 5 respectively) 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.

Chapter-8 is on the employment of young person.

Chapter-9 deals with punishment and procedure for employer who violates this law.

This factories 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.

13. Prevention of Hazard from Chemical Substances Law, 2013

Section-14: The Central Supervisory Board:-

(a) shall grant the licence with regulations, if permit to grant the licence, after being paid the licence fees.

Section-15: 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: A person who has obtained a license:-

(a) Shall abide by the license regulation;

(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: 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-20: A person who has obtained a licence shall apply the related chemical and related substances that will be used in his chemical and related substances business in accordance with the stipulations to the Central Supervisory Board.

Section-21: The Central Supervisory Board scrutinizes the application according to section 20 and if it is in accord with the stipulations, shall issue the registration certificate with regulations after being paid the registration fees for the respective chemical and related substances.

Section-22: 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-23: A person who has obtained the registration certificate:-

(a) shall apply to register again, to the Central Supervisory Board if the chemical and related substances, which are not contained in the registered list, are used;

(b) shall inform and submit the unused chemical and related substances list to the Central Supervisory Board, although which are contained in the registered list.

Section-27: 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;

(c) Performing in accordance with the stipulations in respect of transporting, possessing, storing, using, discharging the chemical and related substances;

(d) Not being imported or exported the chemical and related substances banned by the Central Supervisory Board and the machinery and equipment which are used them.

14. Boiler Law, 2015

Section-5: Any person desirous to use a boiler for any enterprise shall register under this law.

Section-6: A boiler shall be manufactured in accord with Myanmar standards and international standards.

Section-7: The documents and certificates relating to the boiler shall be attached to the application and submitted to the inspector when applying for the registration of the boiler under section-5.

Section-12: The owner shall:

(a) Apply to the respective inspector to obtain certificates in accord with the prescribed manner.

(b) Apply to register only for the boiler constructed in accord with Myanmar standards or international standards.

Section-14: The owner shall apply to the respective inspector in advance in order to obtain permission though he or she has obtained the certificate or the provisional order if desirous to carry out any of the following matters:

(a) Using the boiler at more than allowable pressure

(b) Repairing, altering adding or renewing any steam-pipe, pipe or any mounting or other fitting attached such steam pipe, feed-pipe or mounting or other fitting attached to the boiler.

Section-15: The owner shall submit the certificate or provisional order when so requested by the respective government department and organization as may be necessary.

Section-18: The owner shall inform immediately to the inspector if any accident occurs.

Section-19: The owner shall not:

(a) use a boiler at a pressure higher than allowable pressure;

(b) repair and alter or force to repair and alter the safety valve to exceed allowable pressure;

(c) do any act contained in sub-section (b) of section 14 without permission.

Section-20: The owner shall not use the following boiler:

(a) Boiler without certificate or provisional order

(b) Boiler of which certificate or provisional order is void

(c) Boiler of which certificate or provisional order is revoked.

Section-21: The owner shall engrave the register number specified by the chief inspector in accord with the prescribed manner.

Section-22: The owner:

(a) has the right to use a boiler in accord with the prescribed manner if he or she obtains certificate or provisional order;

(b) may, if desirous to alter the term of the certificate or provisional order, apply in advance for inspection before the expiry of the term of such certificate or provisional order.

Section-24: The owner shall not:

(a) Carry out with the person who has not boiler repairer certificate on the receipt of notice to repair, alter, add or renew any boiler, steam pipe, feed pipe or any mounting or other fitting attached to such boiler, steam-pipe and feed pipe.

(b) Assign any person to charge the boiler used in the work except the person who operates and maintains the boiler

Section-29: (a) Any person desirous to obtain a boiler attendant certificate may apply to the respective inspector in accord with the stipulations;

Section-30: The boiler attendant shall:

(a) have the right to operate the boiler which is issued certificate or provisional order with the approval of the owner;

Section-31: The boiler attendant shall not use the boiler at more than allowable pressure.

Section-38: The inspector, in accord with the prescribed manners, shall:

(a) Inspect the boiler existing within the area where he is responsible,

(b) Inspect any boiler existing anywhere according to the assignment of the Chief Inspector.

Section-40: During performing under section 38, an inspector may enter and inspect any place or building in which he has reason to believe that a boiler is in use.

Section-59: No one shall amend, alter, deface, destroy the form and make invisible the register number engraved under section 21.

Section-62: No one shall adjust and alter the safety valve in order to exceed the allowable pressure on his volition or under the instruction of the owner.

15. Fire Brigade Law, 2015

Section-24: 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, work site or business exposed to fire hazard shall:

(a) Not fail to form the reserve fire bridge

(b) Not fail to provide materials and apparatus for fire precaution and prevention, in conformity with the directive of the Fire Service Department

16. Electricity Law, 2014

Section-10: When engaging in electricity activities, the ministry, the relevant region or state government and the head ("oozi") of the relevant self-administered division or self-administered zone –

(b) shall carry out an environmental impact assessment (EIA) in order to minimize the impact on the environment in accordance with the provisions stipulated in the Environmental Conservation Law. They shall pay compensation for the impact and contribute to the environmental conservation fund. Private entrepreneurs holding a license must also comply with these points

Section-18: The license holder has the right to engage in electric power generation and distribution only after having received the electrical hazards safety certificate from the chief inspector.

Section-21: (a) The license holder shall, if he fails to comply with the law, rules, regulations, procedures, orders and directions or the specified quality, standards and norms, be responsible in accordance with the law if any person or organization is affected or suffers a loss as a result.

Section-22: (a) The license holder shall be responsible in accordance with the law if any person or organization is affected or suffers a loss due to his negligence in performance;

Section-26: The license holder must comply with the following-

(a) Electricity exploration must be done in accordance with the law;

(b) In electric power generation, transmission and distribution-

(1) Electrical power must be generated as specified in the license;

(2) Instruments for measuring electric power and protective equipment must be systematically used and maintained in accordance with the stipulations.

Section-27: The license holder and the authorized person must inform the chief inspector and the relevant department in charge immediately if an electrical hazard has accidentally occurred when generating, transmitting, distributing or consuming electric power.

Section-40: The license holders comply with the rules, norms and procedures issued by the ministry and must accept necessary inspections by the relevant government departments and organizations.

Section-68: If the negligence or irresponsibility of the license holder or of persons assigned by him has caused injury, disability or death by electrocution or fire, the aggrieved person has the right to request compensation from the license holder as follows-

(a) If the aggrieved person is entitled to compensation according to the existing labour compensation law, the compensation specified in this law;

(b) If the aggrieved person is not entitled to compensation according to the existing labour compensation law, the compensation specified in the rules, issued under this law

17. Myanmar Private Industrial Enterprise Law, 1990

Section-4: (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: 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-15: The entrepreneur has the right to carry out the followings:-

(a) appointing foreign experts and technicians with the approval of the Ministry;

(b) carrying out change of the name of enterprise, transfer of ownership, temporary suspension or permanent closing down of the enterprise in the manner prescribed and with the approval of the Directorate.

Section-16: The Director General shall, in order that entrepreneurs may, have the right to enjoy, submit to the Private Industrial Enterprise Co-ordination Body and carry out in respect of the following matters:-

(a) land, water, power, communication and transport et cetera required for use in his enterprise;

(b) exemptions and reliefs from taxes;

(c) loans for fixed capital and working capital;

(d) raw materials, machinery and spare parts required locally and from abroad for his enterprise;

(e) local and foreign technical know-how for enhanced production of goods and for improvement in the quality of finished goods;

(f) to acquire local and foreign markets;

(g) to acquire industrial areas and leased land for industrial enterprises.

Section-26: No one shall conduct a private industrial enterprise contained in section ~ without obtaining registration under this Law.

Section-27: 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.

Section-28: Whoever violates the provision of section 26 shall, on conviction:-

(a) in the case of conducting a small scale private industrial enterprise, he punished with fine which may extend from a minimum of kyats 5,000 to a maximum of kyats 10,000;

(h) in the case of conducting a medium scale private industrial enterprise, he punished with fine which may extend from a minimum of kyats 10,000 to a maximum of kyats 20,000:

(c) in the case of conducting a large scale private industrial enterprise be punished with fine which may extend from a minimum of kyats 20,00() to a maximum of kyats 50,000.

Section-29: If a person who is convicted of an offence under Section 28 continues in the commission of such offence, he shall be punished with fine at the following rate for each day of the extent of the period of continuance thereof: -

(a) in the case of a small scale private industrial enterprise, at the rate of kyats 100:

(h) in the case of a medium scale private industrial enterprise, at the rate of kyats 150:

(c) in the case of a large scale private industrial enterprise, at the rate -. of kyats 200.

18. Employment and Skill Development Law, 2013

Section-5: (a) (1) If the employer has appointed the employee to work for an employment, the employment agreement shall be made within 30 days. But it shall not be related with government department and organization for a permanent employment.

(2) If pre training period and probation period are stipulated before the appointment the said trainee shall not be related with the stipulation of sub-section (1).

(b) The following particulars shall be included in the employment agreement:

(1) The type of employment;

(2) The probation period;

(3) Wage, salary;

(4) Location of the employment;

(5) The term of the agreement;

(6) Working hour;

(7) Day off, holiday and leave;

(8) Overtime;

(9) Meal arrangement during the work hour;

(10) Accommodation;

(11) Medical treatment;

(12) Ferry arrangement to worksite and travelling;

(13) Regulations to be followed by the employees;

(14) If the employee is sent to attend the training, the limited time agreed by the employee to continue to work after attending the training;

(15) Resigning and termination of service;

(16) Termination of agreement;

(17) The obligations in accord with the stipulation of the agreement;

(18) The cancellation of employment agreement mutually made between employer and employee;

(19) Other matters;

(20) Specifying the regulation of the agreement, amending and supplementing;

(21) Miscellaneous.

(c) The worksite regulations contained in the employment agreement shall be in compliance with any existing law and the benefits of the employee shall not be less than those of the any existing law.

(d) According to the employment agreement, the Ministry shall issue the notification for paying the stipulated compensation to the employee by the employer, if the work is completed earlier than the stipulated period or the whole work or any part of it have to be terminated due to unexpected condition or the work has to be terminated due to various conditions.

(e) The employment agreement made under sub-section (a) shall be related with daily wage workers, piece rate workers who are appointed temporarily in the government department and organization.

(f) The worksite regulations and benefits contained in the employment agreement mutually made between the employer and employee or among the employees shall be amended as necessary, in accord with the existing law.

(g) The employer shall send a copy of the employment agreement made between the employer and employee, to the relevant employment and labour exchange office within the stipulated period and shall get the approval of it.

(h) The employment agreement made before the enforcement of this law shall be confirmed up to the end of the term of the original agreement.

Section-14: Employer shall conduct occupational training to enhance the skills of workers who are to be employed as well as workers who are presently employed in accordance with the requirements of the enterprise and the policy of the Skills Development Agency

Section-20: The duties of the Registered Training Centre are as follows:-

(a) Documenting the training program matters described below and submitting the same to the Skills Development Agency for approval:-

(1) Occupational Competency Standards

(2) Curriculum

(3) Location of the Training Centre, buildings and facilities.

(4) Names of the Instructors and their qualifications

(5) Duration of the training course

(6) Training Methodology and Training Aids

(7) Certificates to be awarded

(8) Training Fee

(9) Other matters prescribed by the Occupational Competency Standards and Training Committee

(b) Making Training Contract with the trainee

(c) Maintaining the personal data of the trainees

(d) Within 15 days of completion of the training program, submitting a report of the training program to the Skills Development Agency.

(e) If the Training Centre is to be handed over to another person who wants toestablish a training centre, to inform the Skills Development Agency at least 30 days in advance prior to such transfer.

(f) If it is desirous to terminate the training centre, to transfer the trainees together with the remaining training costs to another centre offering the same training course.

Section-30: (a) The employers of Industrial and Service Enterprises shall pay contribution to the fund every month without fail amounting to not less than below 0.5% of the payroll of his workers up to the level of supervisors of the workers.

Section-30: (b) The employer shall not deduct the contribution paid under sub- section (a) to the fund from the wages of the workers.

19. The Ethnic Rights Protection Law, 2015

Section-5: Ethnic people (ta-ne tain-yin-tha) should receive complete and precise information about extractive industry project and other business a activities in their area before project implementation so that negotiation between groups and the Government/companies can take place.

Section-5: The matters of the project shall completely be informed, coordinated and performed with the relevant local ethnic groups in the case of development works, major projects, business and extraction of natural resources will be implemented within the area of ethnic groups.

20. Myanmar Insurance Law, 2015

Section-15: Owner of motor vehicles shall effect life insurance for a minor

Section-16: 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.

21. Social Security Law, 2012

Section-11:(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) industries which carry out business whether or not they utilize mechanical power or a certain kind of power, businesses of manufacturing, repairing and servicing, or engineering businesses, factories, warehouse- es and establishments;

(ii) Government departments, Government organizations and regional administrative organizations which carry out business;

(iii) development organizations;

(iv) financial organizations;

(v) companies, associations, organizations, and their subordinate departments and branch carry out business;

(vi) shops, commercial establishments, public entertaining establishments;

(vii) Government departments and Government organizations which carry out 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) constructions carried out for a period of one year and above under employment agreement;

(ix) businesses carried out with foreign investment or citizen investment or joint ventured businesses;

(x) businesses relating to mining and gem contained in any existing law;

(xi) businesses relating to petroleum and natural gas contained in any existing law;

(xii) ports and out-ports contained in any existing law;

(xiii) businesses 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, that they shall be applied with the provisions of compulsory registration for Social Security System and benefits contained in this Law in coordination with the Social Security Board and with the approval of the Union Government.

Section-11: (b) The project owner will register to the respective social security office.

Section-15: (a) The project owner will pay the social security fund for four types of social security

Section-18: (b) The project owner will pay the fund which has to be paid by him together with the funds which have to be paid from the salaries of the employees.

Section-48: (b) The employers may affect insurance by registering voluntarily for the workers who are not applied to provisions of compulsory registration for employment injury benefit insurance system and by paying stipulated contribution to employment injury benefit insurance fund.

Section-49:

(a) The employers and insured of establishments where the employer had registered compulsorily under sub-section (a) of section 48 or where the employer had registered voluntarily under sub-section (b) of section 48 who have paid contribution to employm- ent injury benefit fund shall not apply to the provisions contained in the Workmen's Compensa- tion Act in respect of the employment injury benefit.

(b) The insured that has affected insurance for employment injury benefit under sub-sections (a) and (b) of section 48 shall only be entitled to employment injury benefits contained in this Law.

Section-75: The project owner will submit the lists and records, provided in article 75, to related social security office.

22. Labour Organization Law, 2011

Section-17: The labour organization shall have the right to carry out freely in drawing up their constitution and rules, in electing their representatives, in organizing their administration and activities or in formulating their programmes the labour organization has the right to negotiate and settle with the employer if the workers are unable to obtain and enjoy the right of the workers contained in the labour laws and to submit demands to the employer claim in accord with the relevant law if the agreement cannot be reached.

Section-18: 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: 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: 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: The labour organizations have the right to participate in solving the collective bargains of the workers in accord with the labour laws.

Section-22: 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.

23. Workmen's Compensation Act, 1923

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. E.g. fine which may extend to "Ks 100" is substituted by "Ks 10,000".

Section-13: Compensation shall be paid in line with the provision of the said law.

24. Leaves and Holiday Act, 1951

The law contains 18 sections and the purpose is for regulating the taking of leaves and holidays, covering the hours of work, weekly rest and paid leave. Three types of leaves, namely Earned leave, casual leave and leave on Medical Certificate are stipulated. The holidays during that period (the 19505) include: Independence Day, Fullmoon of Tabaung, Thingyan, Burmese New Year, May Day, Full Moon of Kason, Resistance Day, beginning of Buddhist Lent, Martyrs' Day, End of Buddhist Lent, Full Moon of Tansaungmone, and National Day. One Islam Holiday and Hindu Holiday are official but are not written in the Act, but are notified in short advance.

25. The Settlement of Labour Dispute Law, 2012

Section-38: No employer shall fail to negotiate and coordinate in respect of the complaint with the prescribed period without sufficient cause

Section-39: 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: 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-51: It 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. Payment and Wages Law, 2016

Section-3: The employer:

(a) shall pay wages to the workers employing in his business in local currency or foreign currencies stipulated by the Central Bank of Myanmar. Such payment may be paid in cash or cheque or deposit into the bank account of the worker with the agreement between the employer and the worker.

(b) In paying such wages:

(i) if it is necessary to pay particular benefit, profits and opportunities for workers working in commerce, production and service businesses, it may be paid in cash or some in cash and some in things set up by local price on own volition of workers in accordance with the stipulations.

(ii) For workers employing in agriculture and livestock breeding business, it rnay be paid some wage in cash and something set up by local price according to custom, or on the volition of majority of worker or by collective agreement. In paying so, it shall be for personal use and the interest of his family, and shall be appropriate and equitable.

(c) If any worker is conscripted under the Public Military Service Law, the (60) days of wages shall be paid as a special right.

Section-4: The employer:

(a) shall pay wages at the end of the work or at the time agreed to pay to the worker for hourly, daily, weekly or other part time work, or temporary or piece work;

(b) shall not exceed one month than the period agreed with the worker under sub-section (a) to pay wages;

(c) shall pay the wages for the permanent work monthly. In making such payment:

(i) if workers are not more than 100, wages shall be paid at the end of the period for payment of wage;

(ii) If workers are more than 100, it shall be paid no later than five days after the end of the period for payment of wage;

(d) shall pay the due wages within two working days from the date of termination, if a worker is terminated;

(e) shall pay the wages at the end of the period for payment of wages, if a worker resigns on his own volition by sending prior written notice of resignation;

(f) shall pay the due wages to a legal heir within two working days after the decease, if a worker is deceased;

(g) shall pay all wages on a working day.

Section-5: employer encounters difficulties to make payment under sub-section (c) of the Section 4 due to any unexpected condition, including natural disaster; the employer shall submit that which date has been altered for the payment of wages with the consent of the workers to the Department on reasonable ground.

Section-6: The Department may, with the approval of the Ministry, allow the employers to postpone payment within the appropriate time under stipulated conditions, if it is scrutinized that the submission under Section5should be allowed.

Section-7: The employer:

(a) may deduct from wages, except leaves which are entitled wages under the relevant law and public holidays, for the absent period from work;

(b) may deduct expenses which are allowance for accommodation and ferry service arranged by the employer, meal allowance, electricity charges, water service charges and income taxes liable to paid by workers and cash paid in excess under a mistake, which are not included in the expression of wages under this Law;

(c) may deduct advance payment or reimburse or saving for the worker or any contribution under any law demanded by a worker from wages.

(d) may deduct from the wages of the worker under a decision of a Court or Arbitration Council or Arbitration Body.

Section-8: The employer shall not deduct from the wages of the worker except deduction from wages in accordance with provisions of Section 7 and Section 11.

Section-9: In deducting from wages under Section 7, all deductions made by the employer shall not exceed 50 percent of the wages of a worker except deduction from wages for the failure of a worker to perform his duty.

Section-10: The employer:

(a) shall obtain prior approval of the Department for what deduction can be made from wage and how much can be deducted before deducting anything stipulated as a fine under section 11.

(b) shall post the approval contained in sub-section (a) in conspicuous places at relevant factory and work;

(c) shall not exceed fine deducted for compensation than the value of damage or loss by action or omission of a worker;

(d) in deducting from wages under Section 11:

(i) shall not deduct from wages without giving right to defence of the worker;

(ii) shal1 not deduct more than 5 percent of the monthly wages of the worker.

(e) shall not absolutely deduct as the fine from a worker under 16 years of age;

(f) may caffy out the date of payment of passing fine in accordance with the agreement between the employer and the worker;

(g) shall deduct from wages for compensation due to loss of property within a limited period by an agreement of the relevant Township Conciliation Body;

(h) shall enter the deducting cash from wages into the register and systematically maintain it;

(i) shall submit a report of the deduction from wages to the Department;

(j) sha1l use fines of deduction from wages under sub-section (b) of Section 11 for the worker benefit in coordination with legally registered Labour aryanization in the factory.

Section-11: The employer may designate as fine to compensate for the following acts and omissions of a worker and deduct from his wages:

(a) any loss of property and cash expressly entrusted to the worker by the employer due to intentional negligence and carelessness or dishonest acts or omissions of the worker, which is caused directly by the carelessness and mistake of such worker;

(b) violation of any terms or conditions stipulated as fines in the employment agreement.

Section-12: The worker:

(a) may request to the employer to be settled by himself or legally registered labour organization or the Workplace Coordination Committee in the factory if the following conditions occur;

(i) deduction from wages obtainable without credible reason;

(ii) failure to pay overdue payment of wages.

(b) may submit to the inspector to solve the problem, if the employer fails to solve the problem asked under sub-section (a), within six months from the date of deduction or failure to pay.

Section-13: (a)The inspector rnay scrutinize such submission under sub-section (b) of the Section 12 and, if necessary, interrogate the relevant persons and make an appropriate order.

Section-13: (b) The worker or employer may file an appeal to the chief inspector, if he does not satisfy the order made under sub-Section (a), within 30 days from the date of such order.

Section-13: (c) The chief inspector may make an appropriate order after scrutinizing the appeal under sub-section (b) and hearing the employer and the worker.

Section-13: (d) The order of the Chief Inspector is final.

Section-14: If a worker has worked overtime he has the right to be paid according to the rate of payment designated.

Section-22: No employer shall not violate sections 4, 5, 8, 9 and 11 regarding payment and term and rate of payment.

Section-23: No employer shall violate the rules, decrees and prohibition regarding payment to its employees.

Chapter-8 deals with penalties for violation of the law. The penalties range from:

- Imprisonment of no more than 3 months and fine not more than Ks 500,000.
- Imprisonment of no more than 3 months and fine at least Ks 2,000,000.
- Imprisonment of up to 6 months and fine at least Ks 5,000,000.

27. Minimum Wages Law, 2013

Section-12: 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: 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: 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.

28. The Control of Smoking and Consumption of Tobacco Product Law, 2016

Section-9: The person in charge at the factory shall:-

(a) Keep the caption and mark referring that it is a non-smoking area the place mentioned.

Section-6: In accordance with stipulation.

(b) Arrange the specific place where smoking is allowed as mentioned in section-7 and keep the caption and mark also referring that it is a specific place where smoking is allowed, in accordance with the stipulation

(c) Supervise and carry out measures so that no one shall smoke at the non-smoking area.

(d) Accept the inspection when the supervisory body comes to the place for which he is responsible.

29. Public Health Law, 1972

Section-3: The company shall cooperate with the authorized person or organization in line with the law and shall abide by any instruction or stipulation for public health.

Section-5: The company shall accept any inspection anytime and anywhere if it is needed.

30. Occupational Health and Safety Law, 2018

Section-12: 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: 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: 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: 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: 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: 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: 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: 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:

(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.

31. Prevention and Control of Communicable Diseases Law, 1995

Section-3: In order to prevent the outbreak of Communicable Diseases the Department of Health shall implement the following project activities.

(a) Immunization of children by injection or orally.

(b) immunization of those who have attained majority, by injection or orally, when necessary;

(c) carrying out health educative activities relating to Communicable Disease.

Section-4: When a principal epidemic disease of a notificable disease occurs:-

(a) Immunization and other necessary measures shall be undertaken by the Department of Health, in order to control the spread thereof

(b) The public shall abide by the measures undertaken by the Department of Health under sub-section (a)

Section-9: The head of the household or any member of the household shall report immediately to the nearest health department or hospital when any of the following events occur:-

(a) Rat fall

(b) Outbreak of a principal epidemic disease

(c) Outbreak of a noticeable disease

Section-11: In order to prevent and control the spread of a principal disease the health officer may undertake the following measures:-

(a) Investigation of a patient or any other person required

(b) Medical examination

(c) Causing laboratory examination of stool, urine, sputum and blood sample to be carried out

(d) Causing investigation by injection to be carried out

(e) Carrying out any other investigation.

32. Myanmar Export Import Law, 2012

Section-6: Without obtaining license, no person shall export or import the specific goods which is to obtain permission

Section-7: A person who obtain any license shall not violet the conditions contained in the license.

33. The Highway Law, 2000

Section-7: Whoever without the permission of the Public Works commits any of the following acts shall, on conviction, be punished with imprisonment for a term which may extend to 3 years or with fine or with both:-

(b) constructing the building within the boundary of the highway

Section-8: Whoever commits any of the following acts shall, on conviction, be punished with imprisonment for a term which may extend to months or with fine or with both:-

(c) planting, cutting or destroying tree or crops within the boundary of the highway without permission of Public Works

Section-9: Whoever commits any of the following acts shall, on conviction, be punished with imprisonment for a term which may extend to 3 months or with fine or with both:-

(d) setting up the signboard of advertisement within the boundary of high ways without permission of Public Works

34. The Petroleum and Petroleum Products Law, 2017

Article -9: The Ministry of Transport and communications shall carry out the following functions relating to any petroleum and petroleum products.

(a) Issuing license to vehicles, vessels and barges that carry any petroleum and petroleum product.

(c) Determine and supervision on ports for vessels and barges that carry out import, export and transport by water in accordance with procedures

Article -10: The ministry shall:

(a) Issue licence for the right to store for the storage tanks and warehouses

(b) Issue transport permit for the vehicles, vessels and barges that shall carry any petroleum and petroleum product

(d) If it occurs environmental impact, in carrying out petroleum and petroleum product business activities, taking action, as necessary in accordance with the existing laws of on-site inspection.

(e) Determine in coordination with ministries concerned, procedures and conditions relating to standard and quality of storage tanks and warehouse and tanks of vehicles, vessels and barges that carry any petroleum and petroleum product.

Article -11: On all receptacles containing any dangerous petroleum and petroleum product the warning sign of danger by stamping, embossing, painting, printing or any other means shall be expressed. If it is impossible to express as such, similar warning signs of the nature of danger of gasoline, spirit or petroleum shall be expressed in writing at the ostensible place in salient words or signs near the receptacle.

Article -31: Any license:

(a) Shall not violet any prohibition contained in the rules, regulations, bye-laws, notifications, orders, directives, procedure and conditions or fail the duty to implement

(c) Shall not import, transport, store, sell and distribute the dangerous petroleum and petroleum products or non-dangerous petroleum and petroleum product except by the means stipulated in the law

(d) Shall not have the right to carry out without under taking the environmental impacts, in operating petroleum and petroleum product business activities.

35. The Petroleum Rules, 1937

Chapter III, Part I:

Section-24: **Prevention of accidents. —** All due precautions shall be taken at all times to prevent accident by fire or explosion.

Section-25: **Prevention of escape of Petroleum.** — All due precautions shall be taken at all times to prevent any escape of petroleum during transport especially into any drain, sewer, harbour, river or water course.

Section-26: **Empty receptacles.** — All empty tanks or other receptacles which have contained class I petroleum or which have contained class II petroleum in bulk shall, except when they are opened for the purpose of cleaning them and rendering them free from petroleum vapour, be kept securely closed unless they have been thoroughly cleaned and freed from petroleum vapour.

Part IV:

Section-63: Prohibition of fires and smoking. —

(1) No fire or other artificial light capable of igniting inflammable vapour shall be allowed on any vehicle containing petroleum in bulk.

(2) No person shall smoke while on or attending such a vehicle.

(3) No article or substance capable of causing fire or explosion shall be carried on such a vehicle.

Explanation**.** — For the purposes of this rule any tank or other receptacle which has contained petroleum and which has not been thoroughly cleaned and freed from inflammable vapour shall be deemed to contain petroleum.

Section-64: Filling and discharge of tanks. —

(1) Tank-wagons, lorries or carts transporting petroleum shall only be filled or discharged by means of metal pipes or armoured hose in which the armouring is electrically continuous throughout.

(2) Tanks, other than fuel tanks on vehicles, containing Class - I petroleum shall not be filled or discharged—

(i) within 30 meters of any fire, furnace or artificial light capable of igniting inflammable vapour ; or

(ii) at any place where the lorry, wagon or cart is exposed to sparks:

Provided that the distance specified in clause (i) may be reduced to 9 meters when the petroleum is filled or discharged under seal and closed vapour return pipe lines are provided:

Provided further that the distance specified in clause (i) may be reduced to the figure 4 meters prescribed in the licence in Form K where the petroleum is filled, stored and discharged into a tank in any premises licensed in that Form.

Explanation**.** — A pipe supplying liquid to a tank is "under seal" to the tank if it is screwed to the tank or otherwise attached so that no liquid or vapour can escape into the air except through an approved vent.

Section-65: Means of extinguishing fire to be carried out**.** — An adequate supply of dry sand or other efficient means of extinguishing fire shall be carried in an easily accessible position on every vehicle transporting petroleum in bulk by road.

Section-66: Prohibition as to public service vehicles**.** — Petroleum shall not be transported on any public vehicles which is carrying passengers.

Section-67: Vehicles to be constantly attended. —

(1) Every vehicle while engaged in the transport of petroleum by road shall be constantly attended by at least one person: Provided that such vehicles may be left unattended in places previously approved by the Chief Inspector.

(2) Every vehicle on which more than 4,500 litres of petroleum is being transported by road, or which while transporting any petroleum by road is being trailed by another vehicle, shall so long as it is in motion, be attended by at least two persons.

Section-77: Approval of vehicles for transport in bulk, if necessary. —

(1) Petroleum in bulk shall not be transported by land except under a licence granted under these rule in a vehicle of a type approved in writing by the Chief Inspector.

(2) All such vehicles other than those exclusively used for the transport of class III petroleum shall have a stamped, embossed, painted or printed warning exhibiting in conspicuous characters the words "Petrol", "Motor Spirit", "Kerosene" or an equivalent warning of the nature of the contents.

(3) Every such vehicle and its fittings shall be maintained in good condition.

Chapter IV, Storage of Petroleum Requiring License

Section-90: **License for storage.** – Save as provided in section 7, 8 and 9 of the Act and by rule 109 no one shall store any petroleum except under a license granted under these rule

Provided that no licence shall be necessary for storage in a well-head tank.

Section-91: **Precautions against fire.** –

(1) No person shall smoke in any installation or storage shed.

(2) No person shall carry matches, fuses or other appliance for producing ignition or explosion in any installation or storage shed which is used for the storage of dangerous petroleum.

(3) No fire, furnace or other source of heat or light capable of igniting inflammable vapour shall be allowed in any licensed installation or storage shed save in places specially authorized by the licensing authority for the purpose.

(4) An adequate supply of dry sand or earth together with the necessary implements for its convenient application, or other efficient means of extinguishing petroleum fires, shall always be kept in every installation and in or adjacent to every storage shed.

Section-94: **Drainage.** – (1) All enclosures surrounding tanks or buildings belonging to an installation or storage shed shall be kept drained and no water shall be allowed to accumulate in the enclosure.

Section-95: **Exclusion of unauthorized persons.** – (1) Every installation shall be surrounded by a wall or fence of at least six feet in height:

Provided that nothing in this sub-rule shall apply to an installation licensed under the rules in force immediately before these rules come into operation unless its fencing is considered by the licensing authority to be unsatisfactory:

Provided further that the Chief Inspector may waive this sub-rule in the case of an installation connected with a pump outfit and floating storage barges, under such conditions as he deems necessary.

Section-100: **Construction of tank.** – Every tank or other receptacle used for the storage of petroleum in bulk other than well-head tank shall be constructed of iron or steel properly erected and designed according to sound engineering practice and, together with all pipes and fittings shall be so constructed and maintained as to prevent any leakage of petroleum.

Section-102: **Earthing of tanks.** – All tanks or other receptacles for the storage of petroleum in bulk other than well-head tank or tanks for receptacles of less than 10,000 gallons capacity containing heavy petroleum shall be electrically connected with the earth in an efficient manner by means of not less than two separate and distinct connections placed at opposite extremities of such tank or receptacles. The roof and all metal connections of such tank or receptacle shall be in efficient electrical contact with the body of such tank or receptacle.

Section-105: **Electric apparatus.** – (1) All electric wires installed at less than 15 feet from the ground in any petroleum installation or situated within 20 feet of any building or tank containing dangerous petroleum shall consist of insulated cables, enclosed in metallic coverings which shall be gas-tight, electrically and mechanically continuous throughout, and effectively earthed outside the building.

Section-107: **Posting up of rules and conditions.** – Copies of the preceding rules in this Chapter and of the conditions of the license shall be exhibited in a conspicuous place in very licensed installation and storage shed.

36. Vehicle Safety and Motor Vehicle Management Law, 2020

Section-9: The ministry must implement the following will the approval of the Union Government.

(a) designate and restrict the areas for the movement of vehicles used inside the nation.

Section-12: The ministry shall:

(c) as regards initial motor vehicle registration, must issue the safety and environmental regulation, and standards.

Section-14: The power and responsibilities of the Directorate are as follows:

(r) must designate motor vehicle speed on the roads used by public.

Section-18: The motor vehicle owner:

(a) must maintain the motor vehicle in accordance with the standards fixe by the Directorate for safety driving.

Section-81: No one must not

(a) carry or transport dangerous goods without regulation or public areas.

37. The Underground Water Act, 1930

Article -3: No person shall sink a tube for the purpose of obtaining underground water except under and in accordance with the terms of a license granted by the water officer.

Every person owning a tube which was in existence before the extension of this Act to the local area concerned shall apply to the water officer for a license for the said tube and such license shall be granted free of charge.

Article -6: The President of the Union may make rules:

(a) Prescribing the condition subject to which licenses may be granted by the water officer under section-3.

(b) Prescribing the form of and the procedure for granting such licenses and the fees payable for the issue thereof;

(c) Prescribing the information to be supplied to the water officer under section-5.

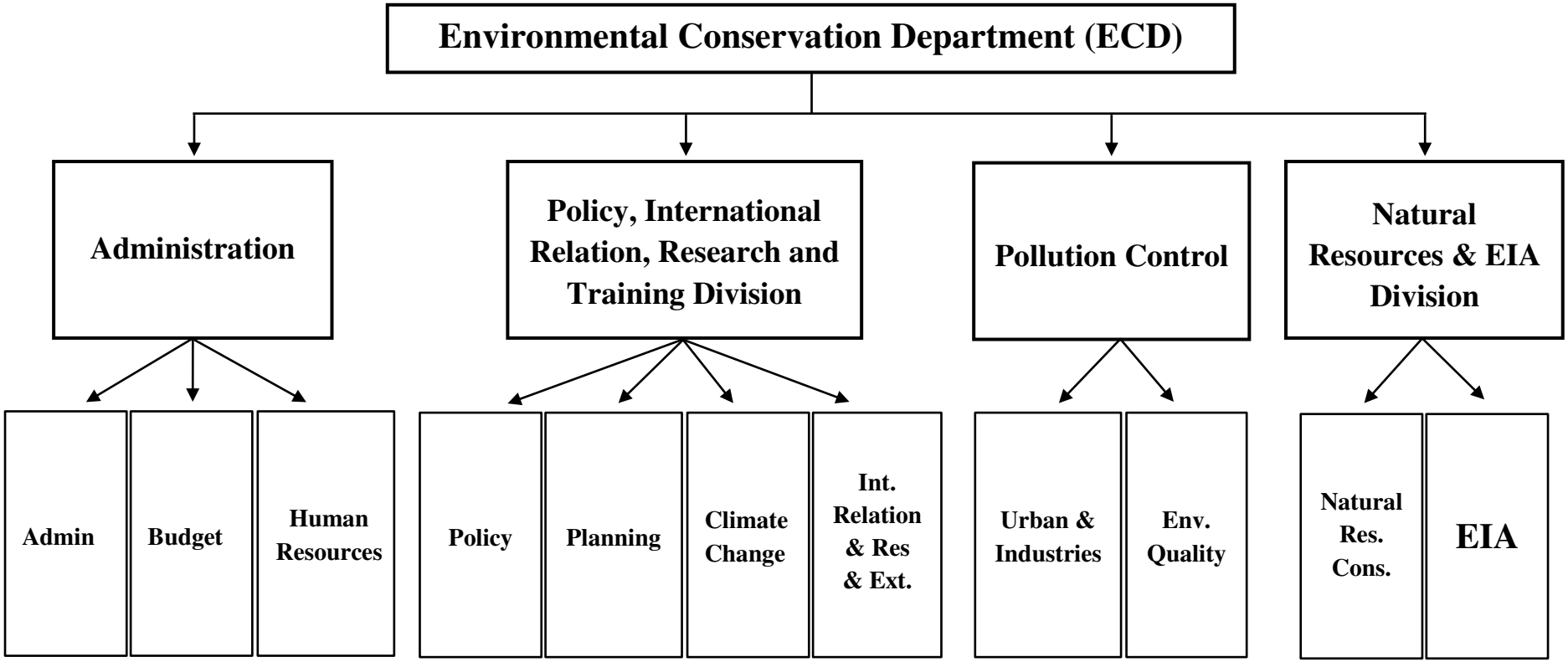
Jewellery Lucky Production Co., Ltd will comply with the above- mentioned laws, rules, regulation, particularly, the relevant section/subsection excerpted and reproduced above.

U KYAW SEIN
MANAGING DIRECTOR
JEWELLERY LUCKY PRODUCTION CO., LTD.

4.2 Institutional Arrangement

Institutional organization of ECD

The Environmental Conservation Department (ECD), under the Ministry of Natural Resources and Environmental Conservation (MONREC) is responsible for all the management of IEE, EIA and EMP activities taking places all over the country. The department is also the focal and coordinating agency for the overall environmental management in the country. This department is actually a directorate headed by a Director-General, and then a Deputy Director-General. Under the directorate there are 11 departments as follows:


Environmental Conservation Department (ECD)
Administration
Policy, International Relation, Research and Training Division
Pollution Control
Natural Resources & EIA Division
Admin
Budget
Human Resources
Policy
Planning
Climate Change
Int. Relation & Res & Ext.
Urban & Industries
Env. Quality
Natural Res. Cons.
EIA

Various Environmental Conservation Departments at States and Regional levels as well as District and Township Level 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 5 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.

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.

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 indigenous 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 indigenous 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

The company will follow the international standards and guidelines as practical as possible:

1) AP-42, CH 10.5: Plywood Manufacturing https://www3.epa.gov>final

2) Lumber dry kilns and equipment. Hard wood and soft wood. www.nyle.com/Nyle/kilns

3) Monitoring the technical and environmental standards of veneer and plywood manufacturing. https://www.fao.org>forestory

4) Manufacturing process of Veneer and Plywood/Estonian Timber. https://estoniantimber.ec>manufact

5) SOP manual for softwood veneer and plywood manufacturing. https://blog.fhyzics.net>sop>sop

6) Wood drying. Wikipedia. https://en.m.wikipedia.org>wiki-wood

7) Wood preservation. (Vacuum and pressure cycle). https://en.m.wikipedia.org>wiki>wood.

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

4.6.1 Air quality

(a) Jewellery Lucky Production Co., Ltd will follow the guidelines values for air emission for board and particles-based products (code no.2.3.3.2) 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.

(Air Emission Levels - for board and particle-based products)

Parameter	Unit	Guideline Value
Condensable volatile organic compounds	mg/Nm^3 (as Carbon)[a]	130
Formaldehyde	mg/Nm^3	20 (Wood dryers) 5 (Other sources)
Particulate matter PM_{10}[b]	mg/Nm^3	20 (Medium density fiberboard) 20 (Wood dryers) 50 (Other sources)

[a] Milligrams per normal cubic meter at specified temperature and pressure

[b] Particulate matter 10 micrometers or less in diameter

(b) Jewellery Lucky Production Co., Ltd will follow the general guidelines values (code no.1.1) for air emission (NEQE 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	10 25
Sulfur dioxide	24-hour 10-minute	20 500

[a] Particulate matter 10 micrometers or less in diameter

[b] Particulate matter 2.5 micrometers or less in diameter

Note:

4.6.2 Water quality

Jewellery Lucky Production Co., Ltd will follow the guideline values for board and particles-based products (code no. 2.3.3.2) for effluent, NEQ Guidelines (Notification No.615/2015, December 2015, by ECD, MOECAF).

(Effluent levels-for Board and Particles-based Products)

Parameter	Unit	Guideline value
5 day biochemical oxygen demand	mg/l	50
Chemical oxygen demand	mg/l	150
Formaldehyde	mg/l	10
pH	S.U.[a]	6-9
Temperature increase	ºC	<3[b]
Total suspended solids	mg/l	50

[a] Standard unit

[b] At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity; when the zone is not defined, use 100 meters from the point of discharge.

4.6.3 Noise level

The general guideline will follow for noise, NEQE 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

4.6.4 Odour

NEQE Guideline for odorant unit is between 5 and 10.

5. DESCRIPTION OF THE SURROUNDING ENVIRONMENT AND SOCIAL CONDITION

Rubber plantations dominate the landscape of Thanphyuzayat Township and the vicinity of the project site is not an exception. Rubber trees flank both sides of the Thanphyuzayat-Kyaikhami Highway road. The surrounding area is covered by rubber trees.

The forests in the area were cleared since more than a century ago. There are no more forests in the area but only rubber plantations. Cultivated fruit and shade trees can be found in Wah-kha-yu Village and nearby smaller villages. The flora diversity is very low and only main vegetation is the rubber tree, *Hevea braziliensis.* Due to low flora biodiversity the diversity of fauna is also very low. There are only a very few species of birds; the avifauna diversity inside rubber plantations and oil palm plantations is the lowest when compare with other habitats in Myanmar.

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, wind speed etc) which are are secondary data obtained from the Kyaik-khami Meteorological Department.

All data on biodiversity, flora and fauna, are primary data.

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

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

Cultural and visual components are also briefly mentioned.

5.1 Physical components of the surrounding environment

5.1.1 Climate

The climate of this region is tropical hot wet monsoon climate with annual rainfall more than 200 inches in most years and high temperature of up to 35ºC in dry hot season. There is a short dry premonsoon season (February to April) and relatively long wet season (May to end of September). The post monsoon (cool season) is only relatively cool in December and January.

Table (1, 2 and 3) shows the monthly maximum, minimum mean temperature, rainfall and wind speed for the year 2012 and 2021. Data were secondary ones obtained from the Meteorological and Hydrology Department, Kyaikhami.

Table – 1: Monthly maximum and minimum temperature (ºC) of Kyaikhami Township during 2012-2021

Monthly maximum temperature												
Max	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2012	31.7	32.7	33.7	34.3	31.8	29.9	29.1	28.2	29.8	32.0	33.0	32.7
2013	31.6	33.1	33.6	33.8	32.4	30.5	29.0	29.2	29.0	31.7	32.9	29.9
2014	30.0	31.4	33.1	33.4	32.3	29.7	28.8	28.7	29.1	32.4	33.1	33.4
2015	30.7	31.6	33.0	34.3	32.8	30.9	28.9	28.9	29.8	31.7	34.5	33.2
2016	31.1	32.6	33.1	34.1	33.7	30.5	30.4	29.6	29.7	31.4	33.4	33.3
2017	33.0	32.9	33.0	33.0	32.5	30.6	28.7	27.6	29.5	30.8	32.6	33.1
2018	32.1	33.0	32.9	34.0	31.7	30.2	28.7	28.5	30.3	32.8	33.5	33.4
2019	32.1	31.9	32.3	34.2	32.3	31.1	29.8	28.6	30.5	33.5	33.6	31.8
2020	31.5	31.5	32.4	33.5	33.2	30.9	30.4	30.0	30.8	30.8	33.1	32.3
2021	31.3	31.6	32.6	32.8	33.5	30.3	29.9	30.5	29.9	31.4	33.4	32.1

Monthly minimum temperature												
Min	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2012	19.0	20.9	23.1	25.4	23.6	24.1	23.2	22.6	23.0	23.1	23.2	20.8
2013	19.4	22.0	22.7	25.0	24.1	23.4	22.8	22.9	23.0	23.0	22.5	17.4
2014	16.7	19.7	22.4	26.2	24.5	23.8	23.8	23.4	23.5	23.4	22.1	20.4
2015	18.6	19.9	23.6	25.0	26.0	24.5	24.2	23.7	23.7	23.7	23.5	21.1
2016	18.9	19.4	24.0	26.8	26.0	24.1	24.0	24.5	24.2	24.1	23.3	21.4
2017	21.5	20.3	23.7	26.0	25.9	24.8	24.4	24.2	23.7	23.8	23.1	21.6
2018	21.2	23.8	23.7	25.6	25.1	25.1	24.7	24.5	24.4	24.6	23.7	23.1
2019	21.5	21.9	23.4	26.5	25.6	25.4	24.5	24.5	24.3	24.7	23.2	19.4
2020	20.2	20.9	23.8	25.6	26.8	24.9	24.8	24.5	24.8	24.3	23.4	21.1
2021	19.9	21.3	24.6	25.5	25.7	24.5	24.7	24.7	24.3	24.7	24.0	20.4

During the 2012-2021 years, the month November, 2015 had recorded the highest temperature (34.5ºC) while January 2014 had the lowest temperature record (16.7 ºC).

Table – 2: Shows the monthly rainfall and total rainfall of Kyaikhami Township during 201-2021

Total rainfall per month (inch)													
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	**Total**
2012	2.98	-	-	26.0	27.86	32.15	45.39	53.34	32.89	13.31	1.62	-	**235.54**
2013	0.26	0.16	0.39	0.99	27.36	25.28	57.03	54.08	52.17	10.05	0.32	1.02	**229.11**
2014	-	-	-	0.44	20.84	46.84	59.73	46.00	36.00	1.71	7.42	-	**218.98**
2015	2.68	-	0.04	0.52	13.04	37.84	63.81	39.90	29.84	11.86	1.32	-	**200.85**
2016	1.65	-	0.39	1.49	18.42	42.88	35.43	41.36	33.69	15.47	1.14	-	**191.92**
2017	0.51	-	-	5.87	12.00	53.08	44.60	29.29	32.65	15.23	1.11		**198.83**
2018	0.08	-	0.59	0.91	16.65	33.73	64.00	58.13	19.47	7.46	-	-	**200.43**
2019	1.85	-	0.08	-	33.64	30.72	49.35	69.81	28.56	2.29	1.73	-	**218.03**
2020	-	-	-	2.01	7.33	26.94	35.59	50.47	23.40	17.87	1.14	0.04	**164.79**
2021	-	-	-	2.02	12.17	43.48	52.16	24.31	39.77	6.73	2.17	0.16	**182.97**

A comparison of rainfall patterns during the 2012-2021 years revealed that the year 2012 had the highest rainfall – 235.54 inch while the year 2020 had the lowest – 164.79 inch.

Table – 3: Monthly wind speed (mph) of Kyaikhami Township during 2012-2021

Wind speed (mph)												
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
2012	10.8	18.4	17.4	16.8	28.0	35.5	30.9	30.0	25.0	25.0	24.4	10.5
2013	12.2	20.0	15.0	15.0	15.0	35.0	40.0	25.0	40.0	12.2	35.0	35.0
2014	15.0	18.0	20.0	16.5	35.0	35.0	34.6	25.0	27.9	15.0	20.0	13.3
2015	15.3	12.4	15.1	20.6	26.2	30.2	35.0	35.6	35.2	33.5	26.3	24.0
2016	33.4	22.4	30.5	23.7	52.0	52.2	47.0	45.0	47.0	27.8	15.4	18.4
2017	20.0	17.4	23.0	35.5	32.0	32.0	30.0	25.0	46.3	26.8	15.2	17.8
2018	15.6	24.0	26.9	26.7	25.8	34.1	30.2	24.0	26.3	14.4	17.8	20.5
2019	22.3	28.9	30.1	34.1	29.6	35.4	33.2	28.0	38.5	20.7	20.5	19.4
2020	18.7	18.9	28.7	25.4	28.5	30.2	31.8	24.9	33.0	19.6	21.8	18.2
2021	19.1	20.7	23.3	32.4	30.3	34.3	35.1	33.4	29.0	21.2	20.3	17.7

The highest wind speed (52.2 mph) was recorded while the lowest was recorded (10.8 mph).

5.1.2 Topography

The whole area is a flat low land plain covered mainly by rubber plantations with very small paddy fields here and there hidden among rubber plantations. There are no mountains but only one low hills range outside the vicinity in the east, running from noth to south.

There are no rivers or large stream of any magnitude exist in the area. But there is a small stream, the Wah-kha-yu stream, which flows into the corner of the project site. There are no lake or water body nearby. The Gulf of Mottama (Martaban) is about 6 miles in the west.

5.1.3 Basic geology

The area lies within the coastal region of Mon State with Mottama Gulf (Martaban Gulf) in the west and Mudon Township in the east.

From geologists perspective the rock strata of the area is made up of Upper Carboniferous and Permian overlain by reef limestone from the Triassic Period. The limestones, known as Moulmein limestone (Moulmein Series) are highly jointed, sometimes in several directions. The Permian Moulmein limestone is a continuation of the limestone-dolomite sequence extending from the southern Shan State through Kayah and Kayin State to Tanintharyi Region (Geology of Mon State, Internet). In this region the old stratum is gradually covered by alluvial deposit.

The project site and surrounding environment is also within the alluvial deposit plain of the Than Lwin River and both the old deposit (lower layer) and young deposit (upper layer) of Recent Epoh (Holocene Epoh).

Soil

The soil of the proposed site and vicinity is Fluvisol (alluvial soil) type (FAO Classification). Due to the existence of rubber plantations about a century ago the soil can be also termed orest soil (red and brown) with top thin layer organic humus originated from decomposition of rubber leaves and wastes.

The soil consists of clay, silt, sand, coarse sand, clean gravel and certain organic matters.

There is no evidence of soil contamination.

Soil quality

The soil samples from project site and Wah-ka-yu village are collected and taken back to Yangon for analysis. The coordinates at project site: 15°59'20.23"N, 97°41'24.84"E. The coordinates at Wah-ka-yu village: 15°59'56.78"N, 97°42'25.06"E. The results are as follows:

Figure – 18: Soil sample taken from project site

Figure – 19: Soil sample taken from Wah-ka-yu village

Soil test results

Sr. No	Sample plot	pH Soil : Water 1 : 2.5	Texture	Total N %	Available Nutrients
					P
1.	Project site	Moderately acid	Sandy Loam	Low	Low
2.	Wah-ka-yu village	Moderately acid	Loamy sand	Medium	Medium

Soil analytical data sheet

Sr. No	Sample plot	Moisture %	pH soil: Water 1: 2.5	Texture				Total N %	Available Nutrient
				Sand %	Silt %	Clay %	Total %		P ppm (Bray)
1.	Project site	2.26	5.87	66.16	20.48	13.36	100	0.20	7.98
2.	Wah-ka-yu village	1.99	5.45	76.92	19.82	3.26	100	0.21	46.93

5.1.4 Water

Surface water

There is no big stream (rivulet) or water body. But only one small stream, Taung-ha-lute Stream, which flows through the corner of the site area. The stream water is polluted. The company does not source water from this stream.

Ground water

Jewellery Lucky Production Co., Ltd sources water from the ground water.

The company has bored 2 tube wells and the average depth to the water table is 150 feet.

The water from these 2 tube wells will be adequate for the proposed plywood factory.

The coordinates are: 15°59'18.58"N, 97°41'25.30"E.

Figure – 20: Collecting water sample from tube well

The water sample is collected and brought back to Yangon and analysed at ISO Tech laboratory in Yangon. The results are shown in the following table.

Table – 4: Ground water quality from survey area

Sr. No	Parameters	Existing values at site	WHO guideline values
1	pH	7.2	6.5 – 8.5
2	Turbidity	18 NTU	5 NTU
3	Conductivity	56 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	25 mg/l	500 mg/l
7	Dissolved solids	40 mg/l	1000 mg/l
8	Temperature (ºC)	25.0 ºC	-
9	Calcium hardness ($CaCO_3$)	16 mg/l	-
10	Chloride (as Cl)	6 mg/l	250 mg/l
11	Carbonate ($CaCO_3$)	Nil	-
12	Nitrate ($N.NO_3$)	0.3 mg/l	50 mg/l
13	Fluoride (F)	0.9 mg/l	1.5 mg/l
14	Arsenic (As)	Nil mg/l	0.01 mg/l

All the values are generally lower than the WHO guideline values except Turbidity. (See also **ANNEX**).

5.1.5 Ambient air quality

Sampling Site

Two sample sites were chosen for the ambient Air Quality Monitoring at project site and Wah-ka-yu village, Thanphyuzayat Township, Mon State.

The coordinates at project site: 15°59'24.20"N, 97°41'24.30"E.

The coordinates at Wah-ka-yu village: 15°59'58.58"N, 97°42'24.75"E.

Sampling period

Air quality samplings were done for 24 hrs from two sites from 2nd to 4th, January 2022.

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.

Figure – 21: Measuring air quality at project site during day time

Figure – 22: Measuring air quality at project site during night time

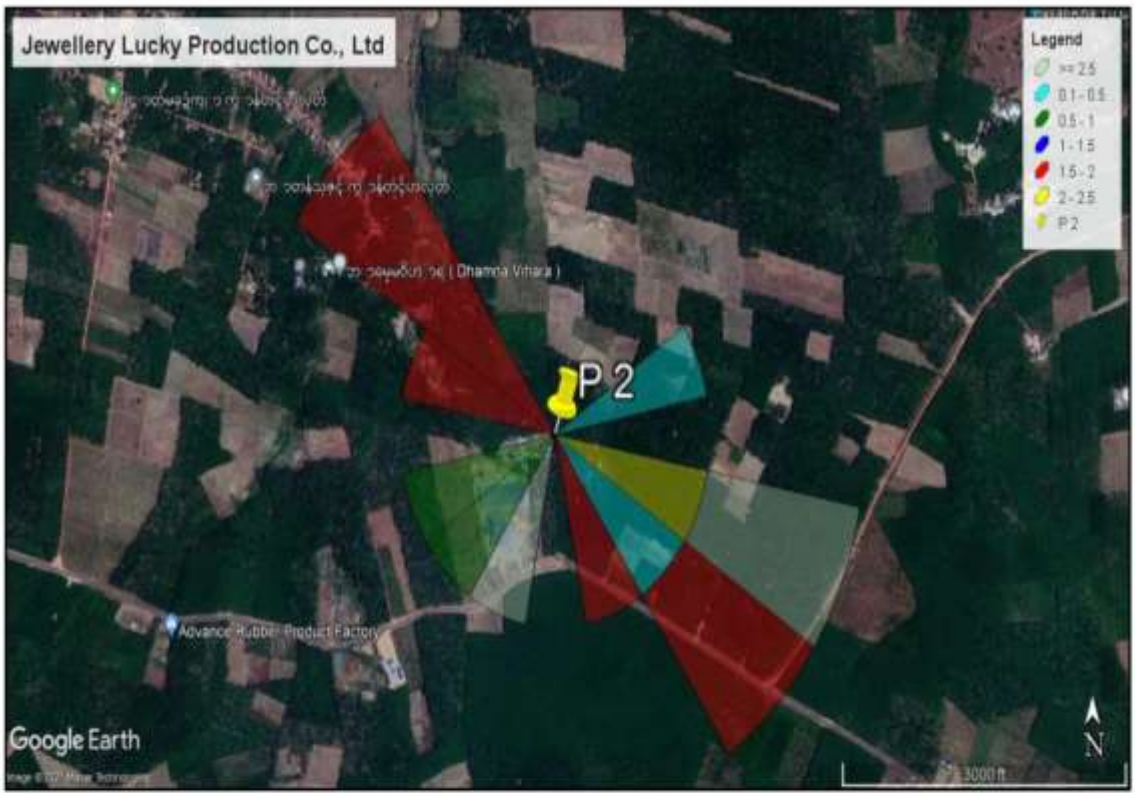
Figure – 23: Measuring air quality at Wah-ka-yu village during day time

Figure – 24: Measuring air quality at Wah-ka-yu during night time

Table – 5: Results of air quality

Sr. No	Parameters	Averaging period	Values at the project site	Values at the Wah-ka-yu Village	NEQEG guideline values
1.	Nitrogen dioxide (NO_2)	1 - hour	176.06 µg/m^3	136.46 µg/m^3	200 µg/m^3
2.	Ozone (O_3)	8 - hours	83.50 µg/m^3	83.57 µg/m^3	100 µg/m^3
3.	Particulate matter (PM_{10})	24 - hours	42.82 µg/m^3	37.62 µg/m^3	50 µg/m^3
4.	Particulate matter ($PM_{2.5}$)	24 - hours	22.98 µg/m^3	21.52 µg/m^3	25 µg/m^3
5.	Sulphur dioxide (SO_2)	24 - hours	0 µg/m^3	0 µg/m^3	20 µg/m^3

All the values are lower than NEQEG guideline values.



Wind Speed & Wind Direction (3.1.2022 – 4.1.2022 blowing from)

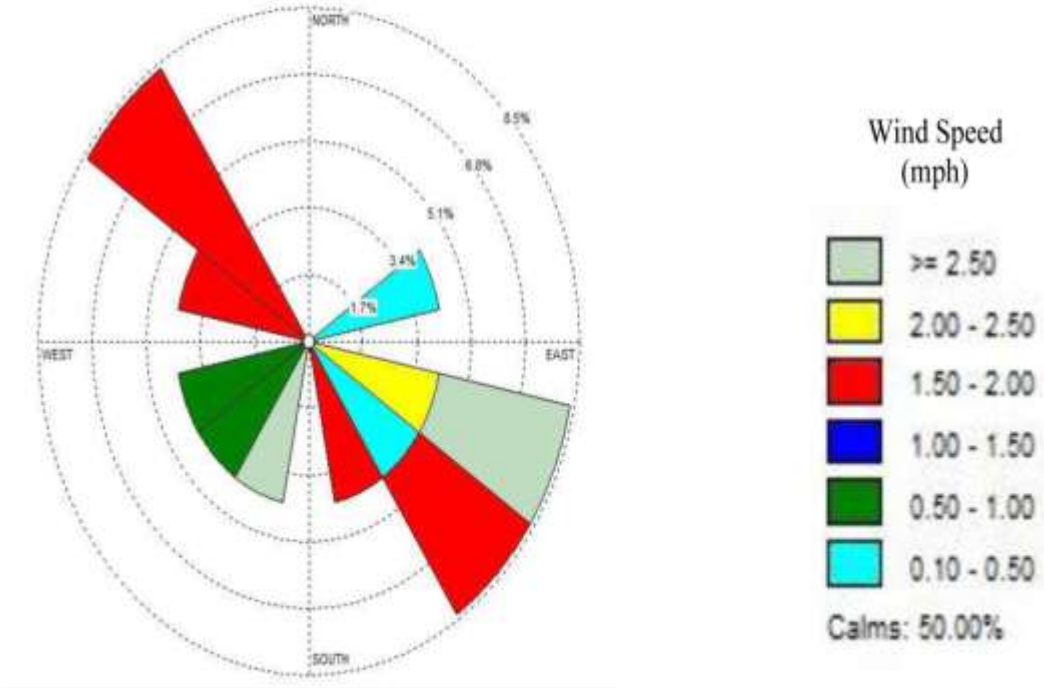
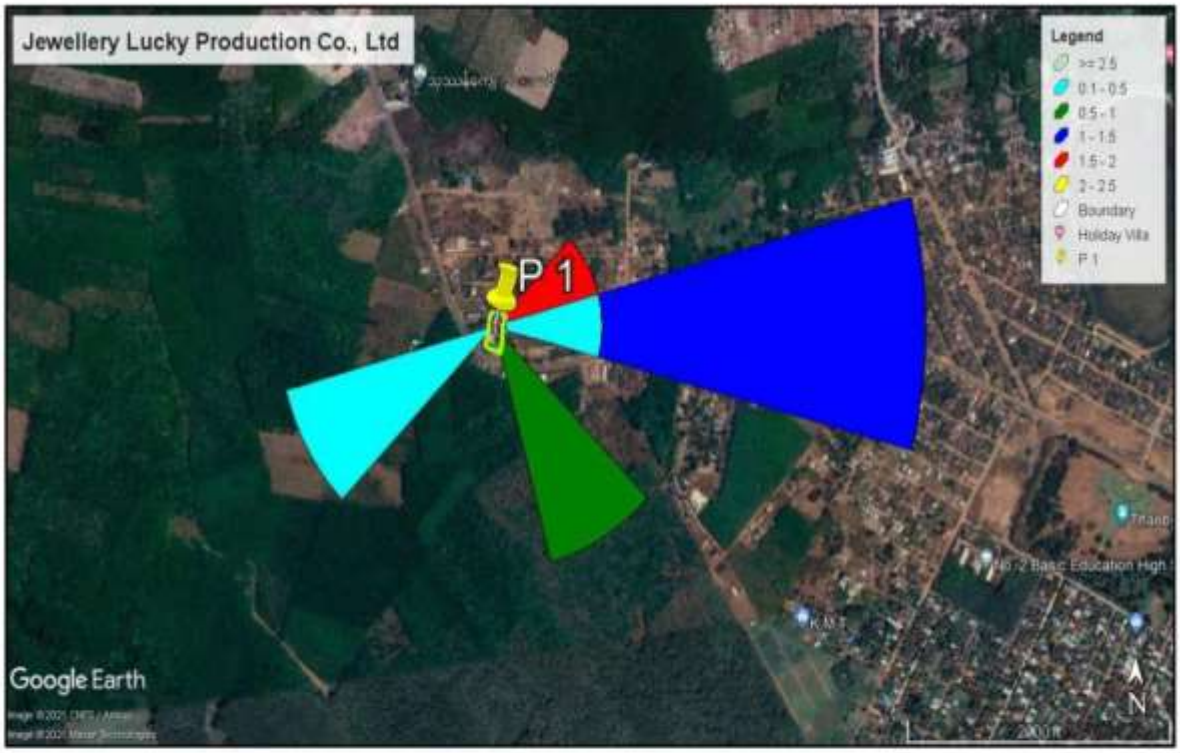


Figure – 25: Wind rose diagram for one day at project site



Wind Speed & Wind Direction (2.1.2022 – 3.1.2022 blowing from)

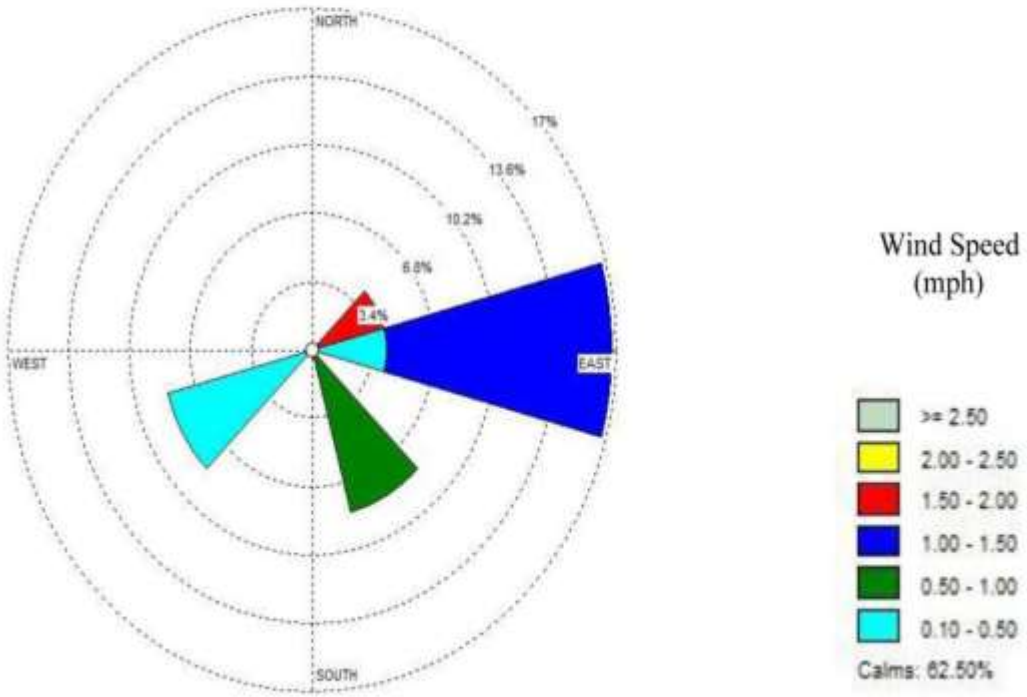


Figure – 26: Wind rose diagram for one day at Wah-ka-yu village

Ambient noise level

Noise levels were measured on the same day, at the same spot and at the same time with air quality.

The coordinates at project site: 15°59'24.20"N, 97°41'24.30"E.

The coordinates at Wah-ka-yu village: 15°59'58.58"N, 97°42'24.75"E.

The noise level results are as follows:

Table – 6: Quality of Ambient noise by sample sites

	At the project site		**At Wah-ka-yu Village**		**NEQEG guideline**	
	(3.1.2022) 18:05 Hrs to (4.1.2022) 18:05 Hrs		(2.1.2022) 17:30 Hrs to (3.1.2022) 17:30 Hrs			
	Day	**Night**	**Day**	**Night**	**Day**	**Night**
(Residential, institutional, educational)	59.26	71.92	50.60	50.13	55	45
Industrial commercial	-	-	-	-	70	70

Noise level is higher than the NEQEG guideline values due to the continuous operation of generator.

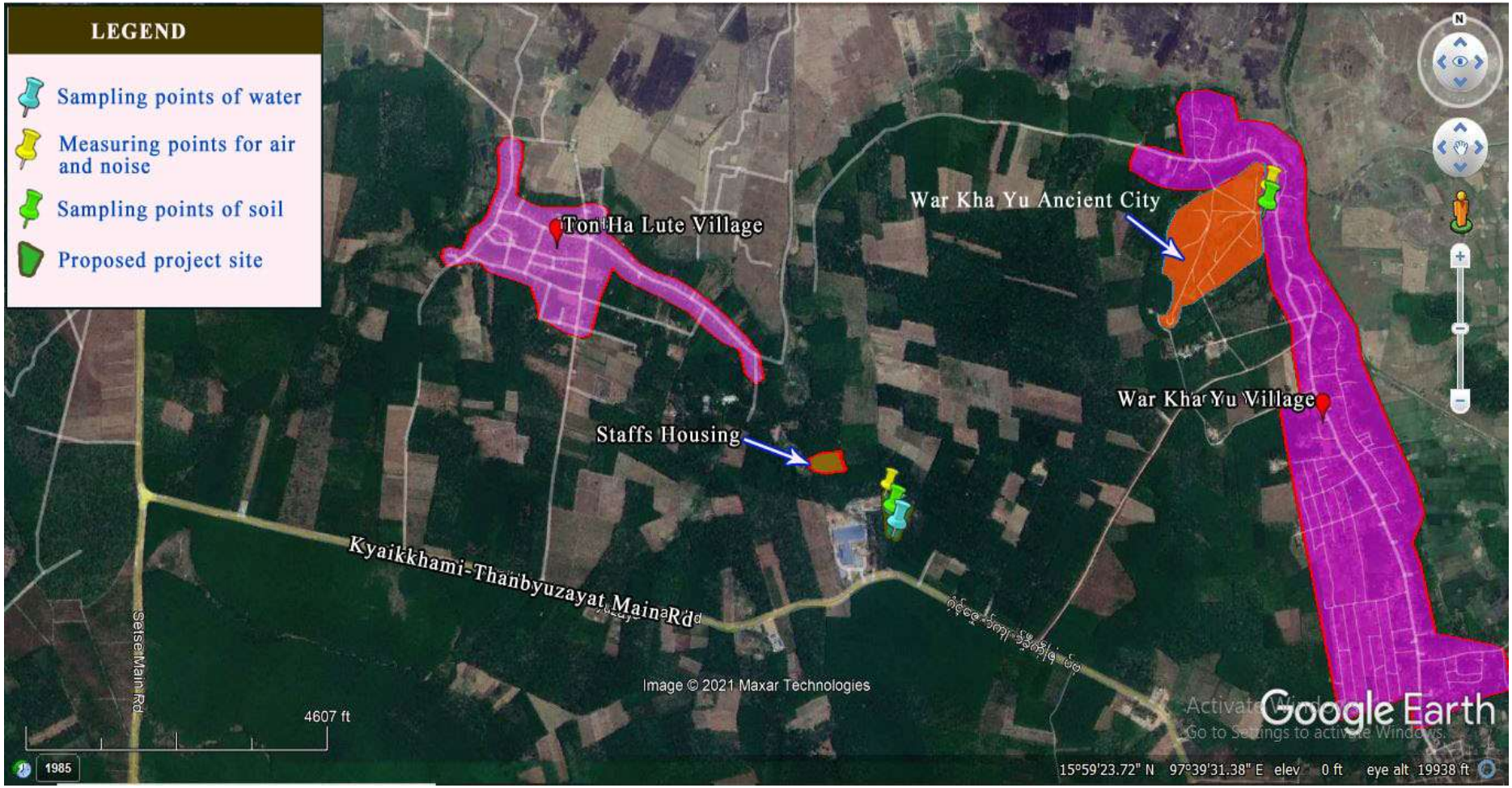


Figure – 27: Satellite image showing spots where air quality, noise levels were measured and soil samples and water samples were taken

5.2 Biological components of the surrounding environment

Biological survey covered an area of 16 square miles. There are little biological components to be studied as the whole area is virtually flat terrain covered by rubber plantation. Of all the areas around the country surveyed by the MESC team, so far, this area has the lowest diversity, lower than the arid land of the Dry Zone of Myanmar. Virtually all big trees are rubbers, *Hevea braziliensis*.

Among the fauna, birds (avian fauna) in particular, are very rare both in species and number.

Forest

There is no natural forest but only artificial one, the rubber plantation. The landscape is impressive, that is green, due to the existence of rubber trees which are ubiquitous. The tropical monsoon climate with heavy rainfall favours the luxurient growth of rubber trees. Prior to the introduction of the rubber plants in the area, that is more than a century ago, the area do doubt, was an Ever Green Tropical Rain Forest area.

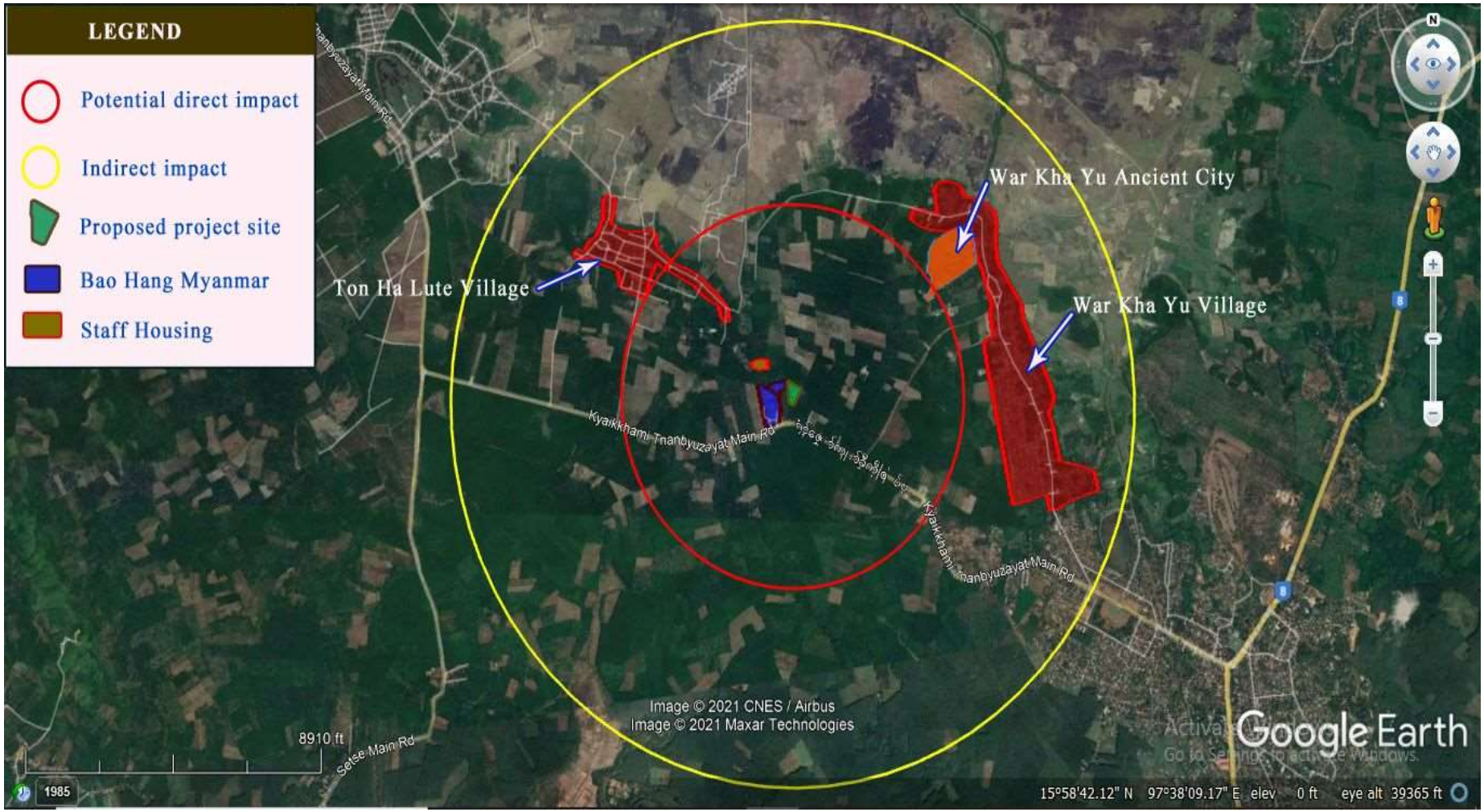


Figure – 28: Satellite image showing survey area within two miles radius

5.2.1 Flora species (mostly artificial or cultivated flora)

Species of trees, shrubs, herbs and grass found are identified and recorded.

Diversity

A total of 50 species of plants are recorded. Virtually all are artificial biodiversity (cultivated plants).

The inventory of plant species recorded for the whole area is shown in **Table-6**.

Table – 7: List of plant species

No	Species (Scientific name)	Local name	Family
1	*Acacia concinna* DC.	King-pon	Mimosaceae
2	Acacia rugata Buch.-Ham.	Su-pote	Mimosaceae
3	*Aloe vera* L.	Shar-saung-lat-pat	Aloaceae
4	*Amaranthus viridis* L.	Hin-nu-nwe	Amaranthaceae
5	*Ananas comosus* (L) Merr.	Nanat	Bromeliaceae
6	*Areca catechu* L.	Kwan-tee-pin	Arecaceae
7	*Artocarpus heterophyllus* Lam.	Pein-nel	Moraceae
8	*Azadirachta indica* A.Juss	Tama	Meliaceae
9	*Bambusa vulgaris* Schrad.ex J.C Wendl	Shwewar-warr	Poaceae
10	*Cajanus cajan* L.	Pal-sin-ngone	Fabaceae
11	*Calamus latifolius* Roxb.	Kyein	Arecaceae
12	*Carica papaya* L.	Thin-baw	Caricaceae
13	*Cassia alata* L.	Malzali-gyi	Caesalpiniaceae
14	*Caspsium minimum* Roxb.	Nga-yote-thee	Solanaceae
15	*Catharanthus roseus* (L.) G. Don	Thinbaw-manyo	Apocynaceae
16	*Chromotaena odorata* (L.)	Bi-zet	Asteraceae
17	*Chrysopogon aciculatus* Retz.	Naukpo-myet	Poaceae
18	*Citrus limon* (L.) Burm.f.	Shout	Rutaceae
19	*Colocasia esculenta* (L.) Schott	Pein	Araceae
20	*Cordyline fruticosa* Goeppert.	Zawgyi-taung-mway	Agavaceae
21	*Cucumis sativas* L.	Cucumber	Cucurbitaceae
22	*Cymbopogon citratus* Stapf.	Sapa-lin	Poaceae
23	*Delonix reiga* (Bjer. ex HK.) Raf.	Sein-pan	Caesalpiniaceae
24	*Eryngium foetidum* L.	Shan-nan-nan	Apiaceae
25	*Eugenia fruticosa* Roxb.	Tha-pyay-nee	Myrtaceae
26	*Euphorbia milli* Motins.	Kiss-me-quick	Euphorbiaceae

27	*Ficus benghalensis* L.	Nyaung	Moraceae
28	*Globba corneri* A.A.Weber	Padaing-ngo	Zingiberaceae
29	*Hevea brasiliensis* Mull.Arg	Rubber	Euphorbiaceae
30	*Hibiscus sabdariffa* L.	Chin-baung-ne	Malvaceae
31	*Impatiens balsamina* L.	Dan-pan	Balsmanaceae
32	*Ipomoea aquatic* Forsk.	Kazwan	Convolvulaceae
33	*Mangifera indica* L.	Tha-yet	Anacardiaceae
34	*Manihot esculenta* Crantz	Pi-law-pi-nan	Euphorbiaceae
35	*Mimosa pudica* L.	Hti-ka-yon	Mimosaceae
36	*Morinda citrifolia* L.	Ywat-yo	Rubiaceae
37	*Moringa oleifera* Lamk.	Dant-da-lon	Moringaceae
38	*Musa sinensis* Sw.	Ngat-pyaw	Musaceae
39	*Ocimum americanum* L.	Pin-sein	Lamiaceae
40	*Piper cubebe* L.f.	Pepper	Piperaceae
41	*Pinus merkusii* Jungh.	Htin-shuu	Pinaceae
42	*Psidium guajava* L.	Guava	Myrtaceae
43	*Pterocarpus indicus* Willd.	Padauk	Fabaceae
44	*Rosa damascene* Mill.	Nin-see	Rosaceae
45	*Sesbania grandiflora* (L.) Poir	Pauk-pan-phyu	Fabaceae
46	*Solanum indicum* L.	Kha-yan-kyut	Solanaceae
47	*Solanum melongena* L.	Kha-yan	Solanaceae
48	*Tagetes erecta* L.	Kalar-pan	Asteraceae
49	*Terminalia catappa* L.	Bandar	Combretaceae
50	*Urena lobata* L.	Kat si nae gyi	Malvaceae

5.2.2 Fauna species

As there are no forest (natural forest) big wildlife animals, are non-existence.

5.2.2.1 Avian fauna (birds)

Bird found are identified and recorded.

Diversity

A total of only 5 species are recorded namely, House Sparrow, *Passer domesticus*, Jungle Myna, *Acridotheres fuscus*; Common Myna, *Acridotheres tristis*; Red-whiskered Bulbul, *Pycnonotus jocosus* and Red-vented Bulbul *Pycnonotus cafer*. All are commonly found tree birds and are very rare. Rubber trees cannot provide food for birds but only for nesting and roosting.

5.2.2.2 Mammals

No large mammals (wildlife) exist in the area. Only domesticated mammals; cattle, buffaloes, pigs, dogs, cats can be found.

The hardy, prolific and ubiquitous rodents, rat, *Rattus rattus* and mouse, *Mus musculantus*) can live in the area.

5.2.2.3 Herpetofauna

An attempt was made to study the amphibians and reptiles of the area.

The species found are identified and recorded.

Diversity

A total of 15 amphibians and reptiles species were recorded, six amphibians and nine reptiles, belonging to 10 families.

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.	Microhylidae	*Kaloula pulchra*	Painted Toad
4.	Ranidae	*Hylarana erythraea*	Red-eared Frog
5.		*Hylarana macrodactyla*	Long-toed Frog
6.	Rhacophoridae	*Polypedates leucomystax*	Flying Frog
7.	Agamidae	*Calotes veriscolor*	Garden Fence Lizard
8.		*Calotes mystaceus*	Blue Forest Lizard
9.	Gekkonidae	*Hemidactylus brookii*	Brooke's House Gecko
10.		*Hemidactylus frenatus*	Asian House Gecko
11.	Scincidae	*Eutropis multifasctiata*	Common Sun Skink
12.		*Sphenomorphus maculatus*	Forest Skink
13.	Typhlopidae	*Indotyphlops braminus*	Blind Snake
14.	Colubridae	*Amphiesma stolatum*	Buff-striped Keelback
15.		*Xenochrophis piscator*	Chequered Keelback Water Snake

5.2.2.4 Aquatic organisms

No attempt was made to study the aquatic animals such as fish and prawn as there is no river or water body and there are no fishermen. Of course there are some fishing villages along the coast which is 6-10 miles away; but none of the villagers here are involved in fishing. The small stream, Taung-ha-lute stream is already polluted due to population pressure. The company will be careful not to exacerbate the pollution issue.

5.3 Socio-economic components of the surrounding environment

Wah-kha-yu Village with the status of a village tract and Chan-ta-yar hamlet are one mile to 2 miles away from the site. The village is incorporated into the study area of 16 square miles. The village is in the north of the Thanphyuzayat Town. It has good access to the town.

Existing and planned use of the territory

As mentioned earlier the area is flat terrain covered by rubber plantations with a very few narrow paddy fields here and there in the far vicinity.

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 existing veneer factory and the emergence of the plywood factory will change the land use pattern to a certain extent.

Since 540 workers are already employed at the veneer factory and another 556 workers will be employed at the proposed plywood factory the socio-economic structure of the area can be altered to a certain extent too.

Village

There are two villages within the 2 miles radius study area. War-kha-yu village with the status of a village tract is a big village about 1.75 miles east of the project site.

The smaller village, Toung-pa-lu (Tong-ha-lute) is 1.5 miles North West.

Figure – 29: Wah-ka-yu village

Figure – 30: Tong-ha-lute village

Socio-economic attributes

Sr. No.	Socio-economic atributes	Wah-kha-yu	Taung-pa-lu (Tong-ha-lute)	Remarks
1.	A. Basic demography			
	- Population	7163	2256	
	- Male	4068	-	
	- Female	3095	-	
	- Number of houses	988	400	
	- Number of households	1200	423	
2.	Ethnicity (%)			the large majority are Mons
	- Mon	98%	90%	
	- Bamars	2%	10%	
	- Others			

3.	Religion (%) - Buddhist - Christian - Other	 100% - -	 100% - -	
4.	Infrastructure - Access by motor road - Passenger bus service Other transportation - component (motor cycle) Access to gridline - electricity Water sources - Public water system - Tube well/shallow well	 √ √ √ √ × √	 √ √ √ √ × √	 Near Thanphyuzayat-Kyaikkhami high way pumping
5.	Occupation/livelihood (% of households) - rice of farmers - rubber planters - working in Thailand - working in factories - government services - daily wages (kyats)	 20% 20% 30% 20% 10% 6000 - 8000	 30% 35% 25% 5% 5% 6000 - 8000	 Many are working in Thailand in search of higher pay
6.	Education and education facility - Literacy rate (%) - BEHS (No) - BEMS (No) - BE(Post) PS (No) - BEPS (No) Village library	 90% - 1 1 2 √	 80% - - 1 - √	 students who pass Middle School Education go to BEHS in Thanphyuzayat Town
7.	Health and health facilities - village clinic - number of health worker/nurse - private clinic - access to public Township hospital at Thanphyuzayat Town	 √ 1 1 √	 √ 1 1 √	 - one Zeweta-dana (free Medicare) hospital, one mile away from Wakhayu and two miles away from Taung phlu village - many also go to Mawlamying State hospital
8	Religious facilities - Buddhist monastery (Nos) - Nos of monks/novices - Nos of nuns	 10 80/20 7	 4 100/60 1	- each monastery has its own "Thein" and "Dhamaryon" (religious hall) - most rural Mon people take religious seriously and are devout Buddhist

9	<u>Materials life style</u> <u>Types of houses</u> - two-storeyed brick hosue and iron roofing (%) - one-storeyed brick house and iron roofing (%) - wooden house and iron roofing (%) <u>Materials possession</u> <u>Vehicles (Nos)</u> - Saloon - Truck - Motor cycles (% of household) - Hand phone (% of hosuehold) - TV set (% of household)	 × 30% 70% 20 50 100% 100% 100%	 20% 50% 30% 10 20 100% 100% 100%	- most good houses were built by money remitted by relatives working in Thailand - mostly pick-up trucks and light trucks -
10	- Area with recreational and aesthetic value	×	×	Setse sea side Resort is about 6 miles in the west (crow flight)

Note: From visual inspection survey and KII secondary data.

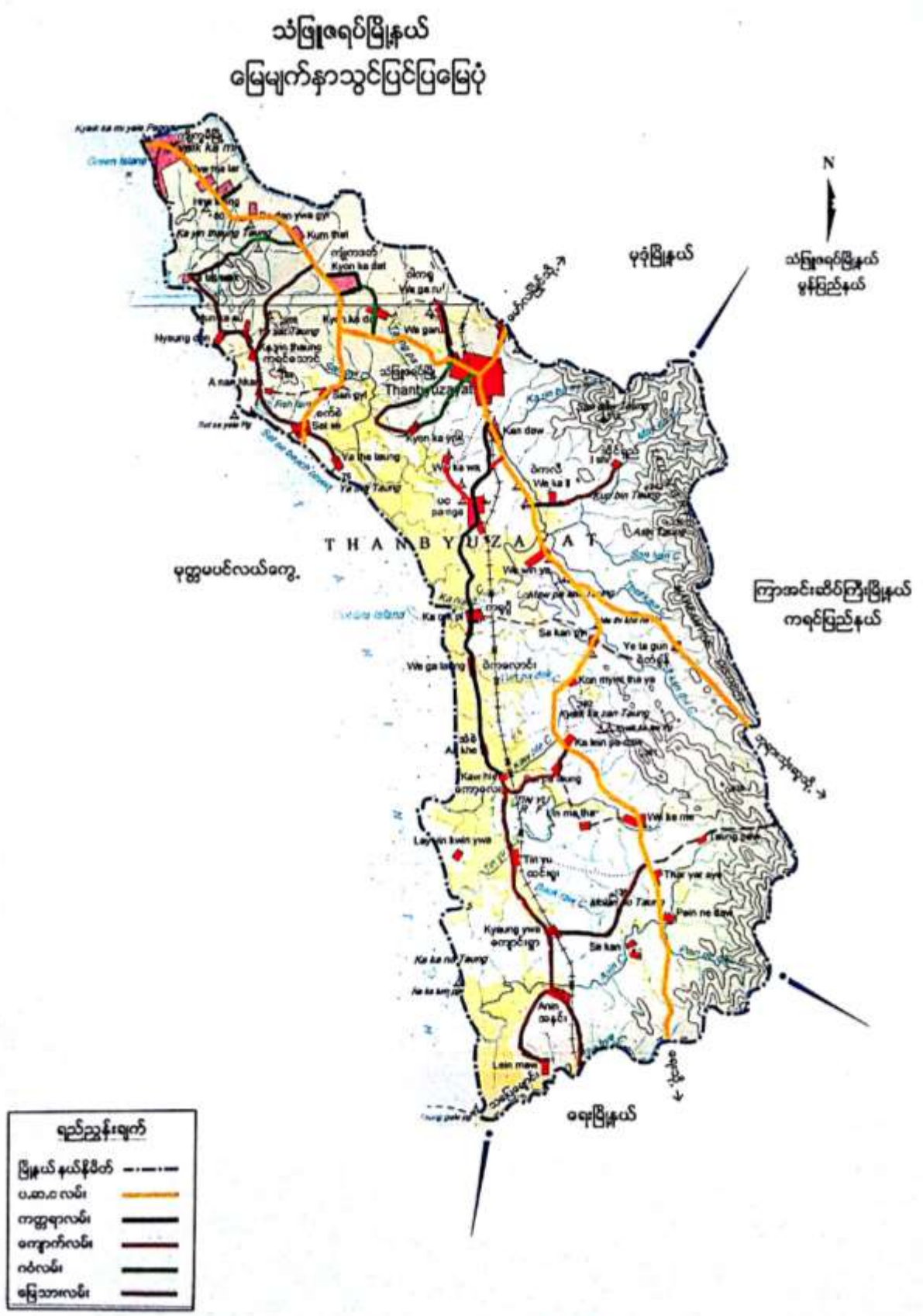


Figure – 31: Map of Thanphyuzayat Township

Figure – 32: Rubber plantation

Figure – 33: Thanbyusayat-Kyaikhami Highway

Figure – 34: Zewita-darna (free medicare) Hospital

Figure – 35: Village administrator office (Wah-ka-yu)

Figure – 36: Village administrator office (Tong-ha-lute)

Figure – 37: Wah-ka-yu village clinic

Figure – 38: Tong-ha-lute village clinic

Figure – 39: Thanbyusayat Township hospital

Figure – 40: Basic Education Middle School (Wah-ka-yu village)

Figure – 41: Basic Education Primary School (Wah-ka-yu village)

Figure – 42: Post Primary School (Tong-ha-lute village)

Figure – 43: Village library (Wah-ka-yu village)

Figure – 44: Village library (Tong-ha-lute village)

Figure – 45: Wah-ka-yu village pagoda and monastery (there are 11 monasteries)

Figure – 46: Tong-ha-lute village pagoda and monastery

Figure – 47: Setse beach resort

5.4 Cultural components of the surrounding environment

There are no religious, historical, cultural monuments or archeological site in the vicinity.

But there is a historical site, the Thanphyuzayat War Cemetry about 2.20 miles in the south-east. British soldiers either fallen during battles or perished at the hand of the Japanese Troops as "POW" or at the infamous "Pa-yarr-thone-su rail bridge" or the Death railway bridge on the river Kwai during the World War II were buried or entombed there. A museum known as "the Death Railway Museum" was about 3.50 miles south-east, built later in memory of the fallen British soldiers, mostly Australians and Canadians.

There is also an archeological site, the ruin War-kha-yu ancient city that existed more than about 1,600 years ago in the north east of the project site. It was the capital city of successive Mon King long ago.

About 10 miles in the north-west at the mouth of the Than-lwin (Salween) River is the Kyaikhami Town and the famous Kyaikhami Pagoda.

The Setse Beach Resort, the Kyaikhami Pagoda and the Thanphyuzayat War Cemetry are places of tourist attraction. Since all are not in the vicinity there will be no impacts on these monuments and sites due to the operation of plywood factory.

Figure – 48: Thanbyusayat War Cemetry

Figure – 49: The Death Railway Museum

Figure – 50: Entrance to ancient War-kha-yu city (an archeological site)

Figure – 51: Kyaikhami Pagoda

5.5 Visual components of the surrounding environment

As the surrounding environment consists of mainly rubber plantations on low flat terrain with no hill or mountain there is no outstanding natural landmarks. There is also no man made outstanding monument or building, other than the War Cemetery.

The pagoda the beach resort and the war cemetery mentioned earlier are all outside the far vicinity of the project site.

There are no visual components of the surrounding area to be impacted due to the operation of the plywood factory.

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 (e.g. socio-economic aspects). Impacts can be real impact or potential impacts. As regards socio-economic impact it can be two-way: the project can impact the community; on the other hand the community can impact the project (e.g. outcry, protest). Certain impacts can be cumulative in nature; e.g. the result of successive impacts happening for a long time or the combination of two or more impacts at the same time.

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

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

This phase mainly involves paper works, and generally there should be no potential impact. However there can be unexpected social impacts.

(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.

(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

As already mentioned earlier the veneer mill is already in operation. Therefore only plywood will be established close to the veneer mill on the nearby plot of land.

(1) Potential impact on biodiversity

The first main negative impact during the Construction Phase is on the biodiversity of the area. This would be in the form of habitats loss and habitats destruction. The clearing of vegetation and land for the site and for access road will have substantial negative impact on the flora and fauna. Vegetation has to be cleared, first for the construction of access road and vegetation has to be cleared for plywood factory and for staff housing. The impact on the biodiversity especially plants is no doubt, substantial. The clearing of vegetation, the excavation of earth, the noise and visual intrusion arising from land clearing activities and transportation activities have great negative impacts on the fauna of the area. However, only old rubber plants and bush will have to be cleared as there is no forest in the area.

(2) Impact on air environment

(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 , 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. Although the buildings are all iron or steel structure, cement has to be used in small quantity.

Nuisance and health impacts (e.g. diseases of respiratory duct and lung such as asthma, bronchitis, and lung cancer) 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.

(3) 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 55dBA during daytime, 45dBA during night time. The internationally accepted noise level in the work place must not exceed 85dBA.

Prolonged exposure to the noise level above 85 dBA can impair hearing and in severe 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 equipment and also, to some extent, damage buildings or structures.

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

(4) Potential impacts 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.

(5) Potential impact on water environment

As public water system is not available the factory will rely on the ground water. 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 temporarily impact the availability of water resources for neighboring tube-wells, if any.

There is a small stream, Tong-ha-lute stream, which is an ephemeral one, nearby and care has to be taken not to pollute the stream.

(6) 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, 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, cement, 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 compound as a result of construction work.

(7) 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 (scaffolding); 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.

(8) Potential social impacts; ill social behaviour

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 local's youths; potential conflicts between the company and the local community; 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.

(9) 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.

(10) 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 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 2 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 Ks 13,350 million. Follow up benefit such as income tax and other forms of taxes will go into the national coffers.

Jewellery Lucky Production Co., Ltd will bear in mind that while negative impacts should be mitigated or minimized positive impacts will be promoted or enhanced.

6.3 Negative/potential negative impacts during the Operation Phase

(1) Impact on air environment

Dust and smoke are generated due to the operation of plywood factory and also due to vehicular movements.

Smoke (emission) is generated from different sources. They are:

- Emission from boiler (utility boiler) stack (point source emission or stationary emission).
- Emission from hot gas generator and thermal fluid heater (point sources).
- Gas emission from hot press.
- Emission from vehicle exhausts (fugitive or diffuse emission).
- Greenhouse gas emission (from burning of fuel oil in general).
- Generators and pumps also generate smoke (fugitive).

Formaldehyde and other VOC evaporated from wood are released where wood is heated in veneer dryer. VOC are also released in the manufacturing and application of decorative coating or filming of the board (plywood).

In addition formaldehyde is released from hot presses (formaldehyde is a main component of many of the resins used in plywood board formation).

Dust is generated from various activities. They are:

- Dust is generated throughout the process in a plywood factory from processing.
- Fugitive wood dust also arises from other mechanical operation e.g. trimming, sanding.
- Dust from vehicular movements.
- Dust generated during the loading/unloading activities.
- Windblown dust (dirt).

CO, NO_2, SO_2, NO_x, oxides, hydrocarbon, VOC and PM (PM_1, 2.5, 10) are main air pollutants components. It is quite easy to protect larger particles, PM_{10}, 25, with mask. But not easy to protect smaller particles PM_1, 2.5, as it is more dangerous.

Increase level of dust and smoke will here serious impact on health such as diseases associated with respiratory duct, and lung e.g. Bronchitis, asthma to lung cancer.

(2) Impact: noise and vibration

Noise and vibration from the plywood factory will be mainly from machines, generator, pumps etc. Noise and vibration are also generated from vehicular movement.

In a plywood factory other sources of noise and vibration are:

- Loading for dispatch of plywood boards.
- In short, noise is generated from virtually all kinds of wood works:- trimming, and sanding, etc.

Long exposure to high noise level can impair the hearing and can lead to deaf. Vibration can also impair health and severe vibration can damage machinery and buildings.

(3) Impact: wastes (solid and liquid)

(i) Solid waste

Solid wastes produced from plywood factory are wood dust and wood particles.

Other wastes

- Domestic waste (general refuse) from office and amenities (kitchen, messing, toilet, bath etc.) and
- Other debris and trash and packing materials inside the compound.

There is the potential for solid waste and wood waste to contribute to water contamination and soil contamination if not well-managed and allow accumulating in an uncontrolled manner on-site. Office waste, waste from amenities, and packing materials may cause litter related problem if not adequately managed.

(ii) Waste water (effluent)

Two main types of waste water will be generated during the operation of plywood factory: storm water and domestic waste water.

Storm water is generated from normal yard wash or other major washing; large quantity is generated during heavy rain.

Storm water, rain water influx

The area has heavy rainfall (more than 200 inches) and storm water can be an issue if not well-managed, e.g. emission, sedimentation, destruction of surface soil profile.

Waste water contaminants include wood product, such as fines, dust, tannin, lignin and toxic compounds. Prolonged leaching of saw dust and wood waste will produce tannin and lignin which can lower the pH of the water and decrease in oxygen level in the water.

Domestic waste water

This includes sewage and gray water generated by site personnel, especially from kitchen, toilet and baths. (It is estimated that one worker generates 150 liter of waste water per day.)

Both solid and liquid wastes will have negative impacts on the soil and water and pollute the environment if not adequately manage.

(4) Potential impact of hazardous substances

Large quantities of hazardous chemicals have to be used in gluing veneer to form plywood; especially large quantities of resin are used. These resins contain hazardous compound such as formaldehyde (a common component of resin). The company will have to import up to 5 million kilogram of formaldehyde per year.

At low level, inhalation of formaldehyde (formalin) can cause eyes, nose and throat irritation. At high level it can cause skin rash, shortness of breath, wheezing and changing in lung functions. It can even cause nose cancer, or pharyngeal cancer and lung cancer.

Other chemicals such as polyvinyl Alcohol powder, caustic soda, melamine power, hexamethyllienets, Tramine, and Urea are normally not hazardous chemicals. But prolonged dermal contacts can cause nose, throat, and respiratory tract irritation. These chemical gases are released during drying, hot pressing and gluing.

These entire chemicals can represent a potential hazards it accidentally spilled and also can represent an occupational health and safety hazard if not handled and applied appropriately.

Workers have to be educated and trained for the safety handling and application of these chemicals.

(5) Impact on soil

Saw dust and other wood waste mentioned above can impact the soil in the form of litter and pollution of the soil. As mentioned earlier prolonged leaching of saw dust and other wood waste especially during the rainy season will contaminate the soil (with tannins and lignins etc.). Percolation will lead to contamination of ground water.

Vehicular movements inside and around the compound will compact the soil (if the ground is not hardened- eg concrete floor). Compacted soil has to be raked and restored.

Fuel oil spills or other chemical spillages will contaminate the soil and eventually ground water.

If the earth has to be dug (for construction of ditch or canal) the soil profile will be damaged and this has to be well-managed.

Soil erosion, siltation and sedimentation can occur during the rainy season.

(6) Impacts on water environment

There is a small stream, Tong-ha-lute stream, nearby and care will have to be taken not to pollute or contaminate the stream water and not to alter the water flow. However, it is an ephemeral stream only. Care shall be also taken not to contaminate the ground water. As mentioned above the prolonged stockpiling of saw dust and other wood waste during the rainy season will lead to percolation of contaminant, such as tannins, lignins and toxic pollutants to the ground water level.

Spills of fuel oils and chemical (will also eventually lead to contamination of ground water.

Domestic waste water (sewage and gray water) will also lead to the eventual contamination of ground water.

All waste water has to be treated before discharge. Very often it is quite easy not to pollute the surface water (stream or river water) but not easy to prevent the pollution of ground water unless well-managed.

(7) Impact: loss of living resources

If woods from natural resources are used for making plywood there is a real issue for management of forest resource. However, wood is a plantation wood, where old rubber trees no longer producing latex are used for making plywood. The use of rubber wood is considered environmentally friendly.

Rubber is a living artificial resource (not from a natural forest but from a plantation). However any living resources that are lost have to be replaced.

The Jewellery Lucky Production Co., Ltd is not directly involved in the cutting of old rubber trees (no longer productive) and the clearing of the rubber plantation; but it is indirectly involved. And the company has become an incentive for the clearing of old rubber trees.

Therefore the company will encourage the plantation owners to replant new rubber trees (rubber saplings) during the early rainy season and restore the rubber plantation. Replanting and restoration of rubber plantations will bring a long term benefit for the plantation owners as well as the company for the long term operation of the factory.

(8) Occupational health and safety issue

The company will apply cranes and forklifts (mechanical labour) as practical as possible. However, there can be condition where manual handling of log/timber has to be done.

In order to maintain occupational health and safety a worker should be always careful and attentive. Repetitive working for long hours can slacken attentiveness and carefulness and can lead to accidents.

Workers in a plywood mill are exposed to dust and other fine particles in the air, relatively high, noise level, temperature extreme (drying process) and repetitive strains due to nature of works.

Workers exposed for long hours with respiratory hazards (from dust, air borne molds and bacteria usually associated with timber) can get Sino-nasal effects in the upper respiratory parts e.g. diseases such as rhinitis, sinusitis, and nasal obstruction. And effect in the lower respiratory parts-such as asthma and bronchitis. Wood dust is classified as human carcinogen that can cause Sino-nasal cancer and even lung cancer.

Workers exposed to long hours of high noise level can get noise related hearing loss or in severe case, deaf.

Workers are exposed to high to extreme-high temperature (drying process) but not for long hours. Severe burns from steam, hot machinery are potential risks.

Lastly, workers are exposed to hazardous chemicals contain in resin which is an adhesive for gluing veneer to form plywood. Formaldehyde is a common component of resin and is released into the air during hot press process for gluing veneers. Cold press process releases less formaldehyde.

Inhaling formalin can cause eyes, nose, throat irritation; prolonged breathing can cause even lung cancer, nose cancer and oropharyngeal cancer.

Dermal contacts or inhalation of other chemical such as polyvinyl Alcohol powder, caustic soda, and hexamethylienets Tramine can also pose health tracts to workers in many ways.

Workers have to be educated and trained for good working practice, good safety practice and good health and hygiene practice.

(9) Impact on traffic

The site is accessible by cars and the road between Thanbyuzayat Town and Kyaikhami Town has relatively heavy traffic by cars and motorcycles

During the Operation Phase large quantity of rubber wood has to be transported from the sources of extraction (old rubber plantations) to the veneer/plywood factory almost on a daily basis.

The operation of the two factories will increase traffic volume on the road to a certain extent.

The company vehicles and motorcycles cannot have substantial increase on the traffic volume of the Thanphyuzayat-Kyaikkhami Highway or the Kyaikkhami-Mawlamying High way.

Since some sources of extraction (rubber plantations) can be far from the main road and dirt roads have to be used the impact can be on the villages if they are at or close to these dirt roads. The impact on the villages can be in the form of traffic disturbance, noise, vibration, dust and potential safety issue for villagers and domestic animals.

The truck drivers who deliver rubber logs are not under the control of Jewellery Lucky Production Co., Ltd but the company will ask the contractor or vendors of rubber logs to educate and train the driver for road safety both at the dirt roads and at the main road and conduct environmentally friendly driving of the trucks. (Slow defensive driving is a safety driving and generate less dirt, noise and vibration.)

(10) Potential social impacts

These are already mentioned in the Construction Phase. Such cases are unlikely to occur during the Operation Phase as all workers are handpicked by the executive members of the factory. Unlike the blue collar construction workers who are employed for short term (two years) the workers in the Operation Phase are permanents workers. It is expected that they are better well-disciplined than the construction workers.

Any way the authority of the factory has to deal with these workers on a long term basis. Measures for creating a peaceful and productive atmosphere will be taken into account.

Impacts on the socio-economic component of the area can be in the form of:

- Potential damage to existing roads caused by movement of heavy trucks and machinery; and continual uses of vehicles moving to and from the sites can impact the safety of people and domestic animals.
- Generation of dust, and noise causing potential disturbance or nuisance to the local people.
- Potential contamination of local drinking water, if any
- Potential siltation of nearby paddy fields during rainy season, if any
- Ill-social behavior of workers or locals can lead to quarrels and brawls among themselves or with locals; potential friction between the company and the lcoal community; theft, misappropriation of materials and money, vandalism, unethical sexual practice or sexual offences, spread of Sexually Transmitted Diseases (STD) and so on (as the site is near a village). These can have also certain negative impact on the project.
- Potential loss of natural resources or livelihood, mental agony and risk of food security etc.

(11) Potential security issue

This is already mentioned in the Construction Phase when about 100 workers were employed. Unlike the hectic nature of work during the Construction Phase the working atmosphere during the Operation Phase is stable, but with more workers.

However security situation tends to slacken when a factory is running for several years. So for the long term Operation Phase the plan for security should be more practical. It is expected that the employee hand-picked by the company authority will not pose any security threat to the factory. But outsiders, the local people, at one time or another can cause security problems such as theft, vandalism etc.

(12) Impact: public perception

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

The emergence of a big /plywood factory in the neighborhood 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 the company can never employ each and every local who wants a job.

On the other hand many locals are used to be 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.

(13) 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. 540 workers are already employed at the nearby existing veneer factory and saw mill and 556 new workers will be employed in this proposed plywood factory. This is a not so small benefit for the country, and a very big benefit for the region, especially in this time of high unemployment. It is a well-known fact that many of our youths have to go to Thailand for jobs and have to work in unfavorable work places and working conditions.

The salary will range from Ks 150,000 to Ks 500,000.

These employees can enjoy certain social benefits such as; free ferry, free housing and overtime wages. There will be a worker welfare teashop 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 operation progress well and when there is a probable expansion of 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 mill.

The benefit that will accrue to the nation as result of the direct investment inflow of 13350 million has been already mentioned. This will contribute in one way, or another, to the increase in 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 mill (including those from the workers) will also contribute to the economy of the nation in one way or another.

The company has so far spent Ks 6,950,000 for implementation of CSR programme for the area. See (ANNEX)

6.4 Potential negative impacts during the Decommissioning Phase

Because this phase will begin 30 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 decommissioning job. Another contractor will be hired for rehabilitation of the site.

(a) Impact: potential 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 then during the construction works, because the demolishing of the old buildings and structures is quite dangerous.

(b) Potential residuals impact

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

6.5 Overall assessment of negative/potential negative impacts

Impact in the form of nature, extent, duration, level, frequency, intensity, significance and probability are depicted in the following tabulated form. These are based from Experts Judgement/Experts Consensus/Ad hoc method. Assessment is made based from IFC table of risk assessment and risk matrix rating (probability x consequences = outcome).

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.	Potential impact on biodiversity	Foot print	Short term (Construction Phase)	Level-2	R	L	IS	HP	
2.	Impacts on air: dust, smoke, emission	Foot print	Short term (Construction Phase)	Level-2	OI	M	IS	D	intermittent
3.	Impacts: noise and vibration	Foot print	Short term (Construction Phase)	Level-2	OI	L	IS	D	intermittent
4.	Potential impacts on soil	Foot print	Short term (Construction Phase)	Level-1	R	L	IS	P	
5.	Potential impacts on water	Foot print	Short term (Construction Phase)	Level-1	R	L	IS	IP	
6.	Impact of waste	Foot print	Short term (Construction Phase)	Level-2	OI	H	S	D	
7.	Potential accidents in work place	Foot print	Short term (Construction Phase)	Level-1	R	L	S	IP	
8.	Political social impact	Foot print & beyond	Short term (Construction Phase)	Level-1	R	L	IS	VIP	
9.	Potential security issues	Foot print	Short term (Construction Phase)	Level-1	R	L	IS	VIP	

The criteria indicate the situation before or without mitigation measures taken. Most can be mitigate.

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.	Impacts on air quality: dust, smoke and gas emission	Foot print	Long term	Level-2	O	M	S	D	intermittent
2.	Impact: noise and vibration	Foot print	Long term	Level-2	O	M	IS	D	intermittent
3.	Impacts: waste (solids and liquids)	Foot print	Long term	Level-4	OI	M	S	D	
4.	Potential impact of hazardous substances	Foot print	Long term	Level-3	OI	M	IS-Sg	D	
5.	Impact on soil	Foot print	Long term	Level-2	S	L	IS	P	
6.	Potential impacts on water	Foot print	Long term	Level-2	S	L	IS	P	
7.	Loss of living resources	Far away from mill	Long term (but renewable)	Level-2	S	M	IS-Sg	P	
8.	Occupational health and safety	Foot print	Short term	Level-1	R	L	IS	P	
9.	Potential traffic issue	Foot print & beyond	Long term	Level-1	S	L	IS	P	
10.	Political social impacts	Foot print & beyond	Short term	Level-1	R	L	IS	VIP	
11.	Potential security issues	Foot print	Long term	Level-1	R	L	IS	IP	
12.	Public perception	Foot print & beyond	Long term	Level-1	R	L	IS	IP	

The criteria indicate the situation before or without mitigation measures taken. Most can be mitigate.

***Explanation**

Level of impacts

Level 1 = Very low (cannot be easily seen or felt)

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

Level 3 = Medium (Medium impact on environment)

Level 4 = High (short duration to medium duration of high impact)

Level 5 = Very high (long duration and very high impact)

Frequency of impacts

F = Frequently (happen more than once a month)

O = Often (happen more than once a year)

OI = Often (isolated case; happen once between 1 year and 10 years)

S = Seldom (happen once between 10 years and 100 years)

R = Rarely (rarely happen during 100 years period)

Intensity

VH = Very high or catastrophic : 91-100% (percentage of effect of impact)

H = High or crtical : 51-90% (percentage of effect of impact)

M = Medium or moderate : 11-50% (percentage of effect of impact)

L = Low or negligible : 1-10% (percentage of effect of impact)

Probability

VIP = Very improbable : 0-1% (chance or probability)

IP = Improbable : 2-10% (chance or probability)

P = Probable : 11-50% (chance or probability)

HP = Highly probable : 51-90% (chance or probability)

D = Definite or almost certain : 91-100% (chance or probability)

Significance

IS = Insignificance (usually low impact and can be effectively mitigated)

IS-Sg = Insignificance to significance (can range from low to high impact)

Sg = Significance (high to very high impact and cannot be effectively mitigated; avoidance and prevention are only plausible solutions, if that is possible. If not utmost mitigations have to be undertaken or at least, partially mitigate the serious impact.)

6.6 Potential residual impacts

Substantial residual impacts are not anticipated during the whole life of the project.

During the Construction Phase

Large quantity of solid wastes in the form of construction tailings, unused construction materials, discarded construction materials and debris are generated during this phase.

These wastes will be regularly collected and disposed at the approved City land fill. When the Construction Phase is completed all the solid wastes will be removed and disposed, and the site will be cleared. A contractor and party will be hired to do the tidying up job.

Therefore there can be no residuals impact after the Construction Phase.

There can be certain accidental spills of fuel, chemical, etc. from time to time during the Construction Phase. All accidental spillage of fuel oils and chemicals will be immediately removed (not using water for wash down but absorbents – eg. rugs, and/or saw dust will be used to removed and clear the spills). There will be no chance for residual impact and subsequent contamination of soil and ground water.

Therefore there can be no residual impacts and contamination of soil after construction phase.

During the Operation Phase

The same good practice for the removal and clearance of solid and liquid wastes and fuel & chemical spillages will be undertaken during the Long Operation Phase. There can be no substantial residual impact during and after the Operation Phase.

During the Decommissioning Phase/Rehabilitation Phase

After the completion of the long Operation Phase a decommissioning task (the comprehensive clearing and tidying up of the site) will be undertaken. A decommissioning contractor and party will be hired to carry out this decommissioning task.

The factory will be shutdown, all the buildings and structures will be dismantled or demolished. The machinery and equipment will be dismantled.

Certain old building materials that are still usable and saleable will be put up for sale. Those that are absolete will be removed and disposed at the approved city landfill.

Machinery and equipment that are usable and saleable will be put up for sale and those that are no longer usable will be made into scrap iron and sent to a smelting plant.

The soil, if contaminated, will be removed and discarded. The soil will be tested for the last time to ensure that there is no contamination. Air quality and water quality will be tested for the last time.

After that the site will be rehabilitated (planting trees) and restored to its quasi-ecological condition.

Therefore no residual impact is anticipated during the whole life of the project.

Of course the residual impacts can be seen and felt only at the common city landfill where wastes from all factories are dumped.

7. RESULTS OF PUBLIC CONSULTATION AND PUBLIC PARTICIPATION PROCESS

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 should 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 IEE 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 is 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 will 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 will 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 Grievances Redress Mechanism (GRM) or 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-economic data and community profile with the aid of programmed questionnaires
- 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

Public consultation meeting during the IEE survey

Date : 16- 1 -2022

Time : 11:00 – 12:15 hrs

Venue : At the company meeting hall

Attendance : 36 persons

Figure – 52: KII interview

Figure – 53: FGD interview

Figure – 54: Public consultation meeting

Due to the prevailing COVID-19 pandemic and the political situation comprehensive and inclusive public consultation meeting could not be held.

The meeting was attended by U Maung Than, Village Administrator of Tong-ha-lute village, U Aung Naing, Village Administrator member of War-kha-yu village, U Kyaw Myo Han, manager of the company, U Myint Kyaw Thura, team leader of IEE group, village elders and stakeholders and interested persons.

The meeting was addressed by U Kyaw Myo Han, the manager.

U Kyaw Myo Han (Manager)

Mingalarbar to all. My name is Kyaw Myo Han and I am the manager of the factory. This meeting is held to explain to you about the proposed new project for the construction and operation of a plywood factory at the adjacent plot of land.

Our existing veneer factory nearby is producing veneer daily, we have the burn the reject and waste from the factory fuel wood as we did not have the technology to reuse the reject. In this proposed plywood factory the rejects from the veneer factory will be reused for the manufacturing of plywood.

As the veneer rejects need not be burnt this will reduce emission and bring advantage for environment and air quality. Many of the local people will have employment opportunities. I also believe that the project will contribute to the economic development of the area.

U Myint Kyaw Thura, leader of the consultant firm, MESC

Mingalarbar to all. My name is Myint Kyaw Thura. Thank you all for giving your time for attending this meeting.

The name of our consultant firm organization is Myanmar Environment Sustainable Conservation (MESC) Co., Ltd. We are from Yangon. Our firm is a third party and we are neutral, neither on the side of the company or the government side. We are coming to study the impacts/potential impacts of the project on the local environment. We study the potential negative as well as positive impact of the project.

Our study will focus on the physical, biological, socio-economic, cultural and visual component of the local environment. For instance, we will measure the air quality which is to be measured for 24 hours. We will collect water and soil samples and bring them back to Yangon for detailed analysis. We will study the biological component comprising plants, animals (including amphibians and reptiles), and birds. These will be identified, recorded and incorporated into our IEE report and finally submit the report to the relevant authority.

These studies will be conducted prior to the operation of the project and then another study will be conducted when the project is in operation. We will compare the primary base line data with the later data and try to mitigate the negative impacts and enhance the positive impacts.

In addition to conducting IEE studies we have to hold such public consultation meeting. Usually large member of local people as well as authorities from various departments have to be invited. However, due to the pandemic and the political situation prevailing these days only a small meeting could be held.

From this public consultation meeting you will be able to know the potential negative and positive impact as well as the advantages and disadvantages of the proposed project. Therefore, I invite you to give comments and express your view and opinions frankly so that we can know the situation on ground.

In conclusion I urge you to express your views and opinions in a candid manner.

U Maung Than (Village Administrator, Taung-palu village)

Mingalar to all. I am the Taung-palu village Administrator U Maung Than. My view is that the establishment of such factories directly plays an important role for the development of the area and our locals have more employment opportunities. This will lead to the social-economic well-being of our local people. There can be advantages as well as disadvantages due to the establishment of the factories. The water from Tong-ha-lute stream nearby is used by the local rice farmers and cultivators. There used to be complaints about effluents and bad odour from the existing veneer factory. I therefore, ask the responsible officer of the company to look into this affair and tackle the issue. However, I welcome and appreciate the proposed project greatly as I know it will contribute to the local development. Thank you.

U Kyaw Myo Han (Manager)

I will discuss with our company authority and tackle this Tong-ha-lute stream issue promptly. Thank you very much for expressing you views candidly. Unlike veneer factory the plywood factory will not have any serious negative effect.

U Aung Naing (Village Administrator member, War-kha-yu village)

Mingalarbar to all, my name is U Aung Naing. Due to this project our unemployed people get a chance for employment. The old rubber falls which usually end up as cheap fuel wood and debris are now becoming valuable wood. Our local people, who need homes, can now live in the workers housing of the company when the project is in operation. I have nothing to object to the implement of this project. It is very good that our local people will get their jobs from the proposed factory.

U Kyaw Myo Han (Manager)

We have plan for the community assistance and community development in the form of health, education and welfare development of the locals. Our aim is that the project will benefit not only the company as but also the local community and that the project will bring development to the social-economic of the local people. From time to time we will visit your village and carry out community assistance and development. I invite the village leader to express the needs for the villages.

U Myint Kyaw Thura (MESC)

The company and local people should discuss the implementation of CSR programme in a systematic way. Only then can the assistance will go to the really needed places.

Daw Thida Mon (a local from Wah-kha-yu village)

We are glad to see the emergence of factory in our area. There will be jobs for our unemployed people. Of course, there are lots of unemployed villagers. Now they will have employment opportunities. I am delighted to see this.

U Kyaw Myo Han (Manager)

We will prioritize employing the local people. Second priority will be given to people from other area. Therefore please inform the villagers when we announce for employment at the factory. We will advertise this when the project is near operation. The locals will be mainly employed and you will have to work for your local development.

U Myint Kyaw Thura (MESC)

When advertise or announce for employment at the factory the requirement for education status, age, number to be employed should be put up on notice board at the village administrator offices and places frequented by villagers. This is my advice.

In conclusion, thank you all for giving your time and for attending this meeting.

The meeting was over at 12:15 hours.

Results of public consultation meeting

Many locals are already employed by the company at the existing veneer factory. All are already familiar with the project and most of them have acquainted with company staffs while many have cordial relation. When the operation of the proposed plywood factory commences another 556 locals will be employed. They will have their permanent jobs in the existing veneer factory and plywood factory.

Many local have already realized the advantages of a salaried worker with a steady and long term income. The basic monthly salary is Ks 150,000. And they have also realized that unless there is a big investment by a big company in the rural area there is very little chance for them to escape from the vicious cycle of unemployment and poverty.

Of course many locals are now working in Thailand. Actually they are not happy to work there; they work there out of desperation as there is little or no chance to get a decent job in their native villages. Those working in Thailand know very well that they have to do lowly jobs shunned by Thais and they are underpaid. If they have the chance to do a decent job in their native villages many will, no doubt, return to their villages.

The overall perception of the local on this proposed project is positive and favorable and the acceptance is high.

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

7.4 Information disclosure

The public consultation meeting held at Wah-kha-yu village on 16-1-2022 was made public. The information is also launched at the MESC Facebook website, http://www.myanmar environment sustainable conservation.com. The company will also disclose the information on its website, www.nttmyanmar.com. When the IEE report is approved part of the report, especially Executive Summary, will be launched at the website of the company.

CSR programme

The company has, so far, spent Ks 6,950,000 for CSR activities. (See **ANNEX**).

The company commits to raise a fund from 2% of its net profit. CSR programme will continue for plywood project.

Sr. No	Date	Particular	Amount (Ks)
1	4 January. 2018	Donation for Badminton tournament	300,000
2	January, 2019	Donation for Chess tournament	100,000
3	13 November, 2016	Donation for Katina by Industrial Management Directorate	100,000
4	17 February, 2017	Donation for Buildings at Kyaik-pyar-tok Pagoda	200,000
5	20 February, 2019	Donation for celebration of 72th Mon National Day	200,000
6	16 August, 2016	Donation for 96th Mon Resistant Day	500,000
7	23 September, 2017	Donation for Primary School (twice)	200,000
8	28 January, 2018	Donation of one motor car for Free Medicare Hospital	
9		Donation for Tasaung-daing festival and badminton tournament	300,000
10	15 March, 2018	Donation of 100 furniture for Bilin Township Basic Education School	5,000,000
11	26 June, 2017	Donation for International Drugs Abuse and Sales Annihilation Day	50,000

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. As regards the long Operation Phase (30 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.

The Complaints and Grievances Mechanism (CGM) or Grievance 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.

The GRM programme will be an affective programme, not a more formality. A hot line will be set up; and the handling and response will be effective.

The address and phone number of the project site office as well as the phone number of the company will be made available at the village administrator office. A record/log book will be kept for GRM.

The date and time of complaint, details of complaint, action taken and if not taken the reason why will be explained and all recorded.

Whether the issue is tackled or not will be recorded. Post GRM action, if required will be undertaken. The main objective is to tackle the problem or issue at the local level.

There will be no GRM programme for employees; they can lodge their complaints directly to the factory authorities, frankly.

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 will 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 (e.g. – dust, smoke, gases emission) and do not cause noise pollution, and vibration.
- Do not pollute the water (e.g. – surface water, ground water, also do not impact water courses, water 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, soil compact, 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. Avoid as far as possible ecologically fragile area, protected forest, parks and sanctuaries, endangered species area.

For the operation of the factory old rubber trees have to be cut and so there can be impact on the artificial flora. This shall be taken into consideration and protection measures such as not to cut young rubber trees and not to over exploit rubber wood resource.

(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).
- Impact on the socio-economic component will be in the form of:
    - Land grabbing, land disputes
    - Forced eviction and forced relocation
    - Loss or damage of land and properties
    - Ill social behaviour of workers can lead to quarrels, brawls; theft, vandalism, unethical sexual practices and sexual offences and so on; conflict between the project proponent and the locals.
    - Physical and mental agony for the locals

- Potential damage to existing roads caused by movement of heavy trucks and machinery; and continual uses of vehicles moving to and from the sites can impact the safety of people and domestic animals.
- Generation of dust, and noise causing potential disturbance or nuisance to the local people.
- Potential contamination of local drinking water sources due to operation activities.
- Potential siltation of nearby paddy fields or other farms, if any, during rainy season due to factory activities.

The company will be careful to avoid, prevent and protect these impacts as far as possible.

- If avoidance and/or prevention are not possible, then implement sustainable mitigation measures.

(d) Protect the cultural component of the environment

- Not to impact or harm the cultural, religious, historical and archeological sub-component etc.
- Avoid prevent/protect impact on religious components such as pagoda, Buddhist monasteries, shrines, Churches, mosques, Hindu Temples, etc.
- Avoid prevent/protect impact on cultural components such as Nat shrines, or other spiritual objects, sacred trees, sacred rocks, community grave yards, ritual sites, sacrificial spots, altars and other cultural objects.
- Avoid prevent/protect impact on all historical monuments, building and structure.
- Avoid prevent/protect impact on archeological sites of various magnitudes, archeological artifacts, and objects.
- Avoid prevent/protect impact on spots or sites, which are of educational, research and recreational values.

(e) Protect the visual component of the environment

- Not to impact or harm the visual component eg- aesthetics, natural landscape, landmarks, places or spots of educational and recreation values, religious and historical monuments, natural harmony etc. and not impair the vision.
- Cutting and extraction of rubber woods can impact the artificial beauty of ever green rubber plantations. Mitigation and, most of all, rehabilitation (replanting) of the extracted sites have to be duly implemented.

In addition to protecting the environment (physical environment, biological environment, socio-economic environment, cultural environment, and visual environment) the IFC policy on Environmental and Social Sustainability (2012) shall be followed and adhered to:

The principles of the policy include:

- Assessment and management of environmental and social risks and impacts.
- Management of labour and working condition including promoting fair treatment and equal opportunity of workers, promoting safety working condition and avoid the use of forced labour, among other.
- Management for resources efficiency and pollution prevention; including avoidance or minimization of adverse impact on human health and environment and promoting sustainable use of resourced including energy and water.
- Management of community health, safety and security- such as avoidance/prevention of adverse impacts the health and safety of the community.
- Management of land acquisition and involuntary resettlement. That includes avoidance/minimization of displacement; avoidance of forced eviction; provision of compensation and improvement of livelihood and standards of displaced person, if any.
- Biodiversity conservation and sustainable management of both natural and artificial living resources.
- Protection and favorable consideration for indigenous people. That includes to foster full respect for the human rights; promote sustainable development benefit for them; and preservation of their culture, among others, and
- Protection and conservation of cultural heritage and promoting equitable sharing of the benefits, among others.

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:

- Avoided, prevented, protected, controlled, mitigated, remediated, alleviated, minimized and eradicated.

Therefore the first thing to be considered for the impact is avoidance. It avoidance is not possible prevention should be considered. If prevention is not possible then protection should be considered. If protection is not possible then control should be considered. Then when control 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 or protected or controlled. So the last resort, mitigation, has to be undertaken.

When implementing a project the pragmatic way of protecting the environment is to implement mitigation. The impact has to be predicated, envisaged, 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.

8.2 Mitigation and associated measures for the environmental protection

Nowadays environment and unemployment issues have become a headache for all governments of the world nations. Environmental protection and conservation is a must for all nations.

But for developing countries national development is also a must for the country. Therefore, it is inevitable to implement developmental projects for the development of a developing country. Certain components of the environment or certain mini-ecosystem or micro-ecosystem have to be sacrificed for the sake of national development. This is the pragmatic way of thinking and doing thing for the national development. When natural resources both, non-living resources and living resources, have to be exploited it is inevitable that certain ecosystem will be impacted. In such a case mitigation measures and associated measures (avoidance, prevention, protection, control, alleviation, remediation and probable minimization) have to be duly taken for the protection and conservation of the environment.

The pragmatic way of implementing mitigation is to focus on each and every negative/potential negative impact. Such impacts have to be predicted, envisaged, anticipated, identified and assessed.

In this plywood factory context negative/potential negative impacts were already mentioned in **Chapter-6**, 6.1, 6.2, 6.3 and 6.4 (2, 9, 12 and 2 negative impact during the Preconstruction, Construction, Operation, and Decommissioning Phase, respectively, are already described in details). The mitigation measures to be taken for each and every negative impact is prescribed below.

8.3 Summary of impacts and mitigation 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 impact are all briefly described in outlines.

(a) During the Pre-construction 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 is necessary.
- Prioritize employing locals over personnel from beyond.

2) Impact: potential hiking of land and property

Mitigation measures (outline)

- Early public meeting and consultation.
- Staffs should not get involve themselves in speculative business.

(b) During the Construction Phase

1) Potential impacts on biodiversity

Mitigation measures (outline)

- Avoid unnecessary clearing of land and cutting of vegetation. The construction should be progressive, that is, implement as soon as a portion of the site is ready for construction.
- Do not clear vegetation too far advance of construction. Also avoid unnecessary clearing of land and cutting of trees along both sides of the access road to the factory.
- Keep original big trees, intact. Plant trees and grass in vacant spot and consider for the establishment of green zone or green belt.
- Effective planting of trees and grass should be started as soon as the construction works are completed.
- More trees of various species must be planted during the operation phase, not only in the premise of the factory but also in the vicinity. This will help restore the damaged mini-ecosystem of the area. Avoid planting of only one species of economic important plant, for instance, teak. From economic perspective this is viable. But from ecological perspective this will only lead to the emergence of mono-specific teak plantation, which is not ecologically viable. Only a forest with a variety of trees can restore the ecosystem to a certain extent.

2) Impacts on air environment

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.
- 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.
- Provide Personnel Protection Equipment (PPEs), eg-face masks, nose and mouth covers to workers exposed to long hours of dust and smoke.
- Regular cleaning of construction site.
- Covering of bulk material during transportation.
- Local community should be able to file complaint regarding dust and smoke.

3) Impacts: noise and vibration

Mitigation measures (outline)

- Plan for the management of noise and vibration.
- Try to meet NEQE 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.
- Plant 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.

4) 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.
- Discipline workers for the conservation of water.
- Monitor the daily use of water for construction.
- Avoid disposing of waste (solids and liquids) into Tong-ha-lute stream. Try not to pollute the stream.
- 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.

5) 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.

6) Impact of 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 housekeeping; 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. Toilets will be provided for construction workers.

7) Potential accidents at 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.

8) Potential social impact: 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 workers.

- 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- toilet, bath, small septic tank and adjoined soak pit for treatment of waste water.

9) 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 village 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.

(c) During the Operation Phase

1) Impacts on air environment

Mitigation measures (outline)

- Draw up a plan and implement for air quality management for the long term Operation Phase; plan for effective mitigation and measurement of smoke and dust.
- Try to meet all statutory requirements (rules, regulations); follow the NEQ guideline values prescribed by ECD, MOECAF (2015).
- Spray water adequately to suppress dust.

- If possible pave the whole compound with concrete floor and also pave high traffic area near the site.
- Deploy sweepers to clean up dirt, wood fibre and saw dust regularly.
- Regularly collect dirt, saw dust and dispose at approved landfill.
- Reduce the speed of vehicle to reduce dust generation.
- Avoid open burning of solid waste.
- Use well-maintained, well-operated and well-lubricated equipment and vehicles to reduce smoke.
- Regularly check all the engines of vehicles and machinery.
- Use vehicles and machines that emit less smoke and consume less fuel.
- Conserve fuel and prevent unnecessarily emission of gas (smokes).
- Plant trees and create green zone; trees will trap dust and trees will sequestrate CO_2 in the smoke.
- Provide adequate PPE such as face masks, nose and mouth covers to workers.
- Install cyclone dust filtration system and bag filters to control dust and dust emission (PM emission) into the atmosphere.
- Access air environment regularly (by visual mean only).
- Local community should be able to file complaint regarding dust and smoke.

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 NEQE guideline values for noise and vibration prescribed by ECD, MOECAF (2015).
- Orient the factory building so that the opening does not fact the main road (noise emission not to be heard from the road).
- Install noise absorbing insulation on the wall and roof to absorb excessive noise (do not use asbestos board which is carcinogenous).
- Ensure forklifts and loaders are fitted with reversing alarm control.

- 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 well-lubricated 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 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.
- Restrict or limit vehicular movements.
- 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.
- Regularly assess noise level (manually).
- The local community should be able to file complainst regarding high level noise.

3) Impact of waste (solid and liquid)

Mitigation measures (outline)

- Plan and implement the management of wastes.

For solid waste in general:

- Plan and implement the management of solid wastes.
- Avoid open burning of debris or trash outside the factory.
- Educated and train worker for good housekeeping practices: do not litter, do not dirty the environment.

For miscellaneous solid waste (office, dormitories 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.
- Always avoid open burning of solid waste.

For liquid wastes

- To manage waste water, first reduce and minimize the use of water where possible; educate and train workers for conservation of water.
- Control the use of chemicals (use biodegradable products).
- Manage all kinds of process water and waste water (contaminated storm water, surface run off waste water, yard wash, vehicle and machinery wash, domestic waste water etc).
- Comply with the NEQE guideline values (for effluent) prescribed by ECD.

4) Potential hazardous substances

Mitigation measures (outline)

Since large quantity of chemicals have to be used these will be stored is an appropriate warehouse or store.

- The warehouse must have concrete floor, brick walls and corrugated iron roofing with ceiling. The storage once must have sufficient space, good ventilation and lighting, and the temperature must be at normal room temperature. (The company has a chemical store at the nearby existing veneer factory where the chemicals for plywood manufacturing are kept.)
- Apply a Materials Safety Data Sheet (MSDS) system.
- None of the chemicals are flammable, they can be stored in the same room. Apply the general rules for storing chemicals including;

- label all chemicals fully
- provide a specific storage space for each chemical and ensure return after each use.
- the storage area must be tidy and chemical must be systematically stored.
- As for formalin it can be also stored at normal room temperature and kept away from any oxidizing agent, if any.
- Educate and trained workers for safety handling and application of each chemicals; thoroughly train them for good safety practice, good working practice and good health and hygiene practice until all these good practices have ingrained in their mind sets and become good habitat.
- Develop an emergency plan for any potential chemical accidents eg. eye wash, bath, first aid kits etc.
- Gluing, hot pressing, drying release formalin gas; therefore workers must be educated for awareness of this negative impact. Adopt safe method in gluing, pressing and drying plywood. (face mask, nose and mouth covers, gloves)
- Provide adequate PPE to workers whenever, and wherever necessary.

5) Impact on soil

Mitigation measures (outline)

- Manage for the conservation of soil structure and soil profile.
- Since there is no construction work during this phase avoid and/or prevent the impact on soil structure and profile.
- If holes have to be dug or canal/ditch to be constructed manage not to damage soil structure (backfill after completion of work).
- Avoid the contamination of soil by fuel oil, grease or chemical (avoid spillage).
- Should there be spillage of oil or chemical do not wash down with water. Use saw dust (good absorbent) to remove the spills.
- Rake and restore soil compacted by repetitive movements of heavy trucks and machinery (pave the road and compound or apply concrete floor).
- Avoid/prevent erosion and siltation of soil during the rainy season (or during major wash down of the yard).
- Never let saw dust or other wood waste accumulate for long period on the land inside the compound; regularly remove, treat and dispose.

6) Potential impact on water environment

Mitigation measures (outline)

- Protect and manage by all means not to impact the water environment (both surface and ground water).
- There is only one small stream, Tong-ha-lute stream, nearby and therefore never let the saw dust and wood waste enter the stream.
- Also avoid spillage of fuel oil, and chemical into the stream.
- Prevent the drain of waste water into the stream by all means.
- Prolonged accumulation of saw dust and wood waste can cause leachote that will eventually contaminate ground water; especially during the rainy season. Remove and systematically dispose wood waste and saw dust regularly.
- Spills of oil and chemicals on land can percolate into ground water. Therefore remove all oil and chemical spill immediately using saw dust as absorbent.
- Never dump wood wastes and other wastes into a river, lake or any water body.
- Conserve water by all mean; never over use water unnecessarily.
- 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; rainwater can be used in washing of machinery and vehicles, suppression of dust, watering plants and for firefighting etc.
- Check the water quality at least twice a year (hire technicians to do this).

7) Loss of living resources

Mitigation measures (outline)

- Manage for the sustainable extraction of old rubber logs.
- Educate the rubber log contractors, log vendors and rubber plantation owners for the sustainable extraction of old rubber tree (rubber wood fall).

- Ensure that all vacated plots (result of extraction) are replanted with rubber seedlings or saplings (the rubber plantation owners will do this but this should be done in time during the early rainy season).
- The company should consider establishing rubber nursery applying quality rubber seedlings and modern technology (the seedling or sapling can be sold to plantation owners).
- The company shall also consider for educating the plantation owners and locals in advanced technology in rubber nursery eg- selection of quality seeds or strain, or grafting technology etc. and also modern latex collection (this is for the long term benefit of the locals and the company, a win-win enterprise).
- Keep a log book for the record of rubber logs purchased (number of logs or tonnage or volume in cubic meter).
- Also keep a log book for the tonnage/cubic meter of wood/timber milled and processed.
- Regularly check the amount of logs purchased and milled (processed) on a weekly or monthly basis.
- Consider for sustainable and exploitation of rubber woods; ensure that the timber business is a renewable business.
- Try to create a long term and smooth demand and supply balance between the company and the rubber plantation owners/rubber wood vendors.

8) Occupational health and safety

Mitigation measures (outline)

- Carefully plan and create a safety workplace.
- Study the occupational health and safety impact mentioned earlier in **Chapter 6 (6.3)** and draw up a comprehensive plan and manage for a zero accident work environment.
- Heed for the occupational health and safety of all workers (also consider for community health and safety; the factory should never cause impact on the health and safety of the locals).
- Educate, train and supervise workers for good working practice, good safety practices and good health and hygiene practice until all these good practices become good habit ingrained in their mind-sets.
- Also train them for attentiveness and carefulness in their routine works, especially workers who have to do monotonous and repetitive work for long hours.
- Supervise new workers constantly and old workers occasionally.

- If possible reorganize worker organization, redesign work station; make tool redesign, create adjustable fixtures, re-adjust work preaks, make job rotation etc (This will increase team cooperation and enhance productivity. Workers will be spared for doing monotonous and tedious and repetitive job for very long hours. This will decrease potential for inattentiveness and potential accidents).

- Unknown to many workers inhalation of fine particles of wood dust for long period can lead to many kinds of muco-nasal and respiratory tract diseases and even lead to cancer. Exposure to very high level noise can lead to severe hearing impairment or deaf. All workers shall be educated for these common hazards.

- Provide adequate PPEs such as face masks, nose and mouth covers, ear muffs, helmets, gloves boots out fit for workers where necessary, especially those who are exposed to long hours of dust, loud noise and heat.

- Also provide PPEs for workers who have to handle formaldehyde and other toxic resin used as glue for plywood.

- Especially train and supervise them for skill; for handling and operation of machinery (hot press, cold press, trimming machine and sanding machine etc); operation and maintenance of boiler etc; also for handling and application of chemicals.

- Educate them on environmental awareness and OHS, especially health hazards.

- Provide proper sanitation for workers eg- toilets, baths etc.

- Check all workers for their health condition before being employed.

- Conduct regular medical check up (yearly) for workers; also provide full medical care for them.

9) Potential impact on traffic

Mitigation measures (outline)

As housing (dormitory) is provided for workers there will be little activities for ferrying workers. This lessens the use of vehicles.

- Plan and manage for road safety

- 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. Also ask log contractors/log vendors to educate their truck drivers.

- Train the drivers to comply with Myanmar High way Law, 2000.
- Avoid overloading of truck, or any vehicles.
- Regular maintenance of cars and motor bikes.
- Keep log book each for each vehicle.
- Also have a record book and check the arrivals and departures of all trucks that deliver rubber logs.
- Local community should be able to file complaints regarding traffic issue.

10) Potential social issues

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 avoid any impact or damage on their property (house, land) due to operation of the mill.
- Compensate generously if there is any damage or loss.
- Try to build and maintain good relation with the locals.
- 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 workers.
- Educate workers to be good workers, dutiful and well-disciplined.
- 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.
- Community should be able to file complaint regarding ill-or mis-behaviour of the factory workers or other grievances.

11) 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 mill (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.

12) 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 meetings 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.
- Community should be also to file complaints regarding the activities of the mill.
- 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.
- The authority and employees of the company should not get involve in land and property speculation activities, if any.
- Communicate the availability of job opportunities to the locals from time to time if there is any vacancy in job.

(d) 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 useable 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 approved land 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 30 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; 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 remove all other residuals, if any, resulting from 3 plus decades of activities.
- Test the air and water 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. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Objectives

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 overall environmental issues, including the physical, biological, socio-economic, cultural and visual issues.

The negative impacts and subsequent mitigation measures to be taken are integral parts of EMP. EMP has to be based on all impacts and their subsequent mitigation measures to be taken, big or small. Therefore, EMP is a frame work for the implementation and execution of mitigation measures.

The objectives of EMP are:

- To ensure that mitigation measures are implemented.
- To establish systems and procedures for this purpose.
- To monitor the effectiveness of mitigation measures.
- To ensure compliance with environmental laws and regulations.
- To take any necessary actions when unforeseen impacts occur,

9.1 Project description by project phases

This has been already described earlier in **Chapter-4** of this report. The Preconstruction Phase, Construction Phase, Operation Phase and the Decommissioning Phase will last for 2, 2, 30 and 2 years, respectively.

9.2 Health policies and commitments, legal requirements and institutional arrangements

9.2.1 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 Republic 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 people 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

9.2.1.1 National Environmental Health Agenda

Environmental Health is actually one of the integral 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-economic, 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.

9.2.1.2 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 IEE.

The IFC's EHS General Guidelines encompass Environmental, Occupational Health and Safety (OHS) and Community, Health and Safety (CHS).

These are already briefly mentioned earlier in **Chapter-3, 3.6** and will not be repeated here.

9.2.2 Commitments

The commitments made by both the project proponent, Jewellery Lucky Production Co., Ltd and the consultant firm, MESC, have been already mentioned earlier in **Chapter-3, 3.3** and therefore will not be repeated here.

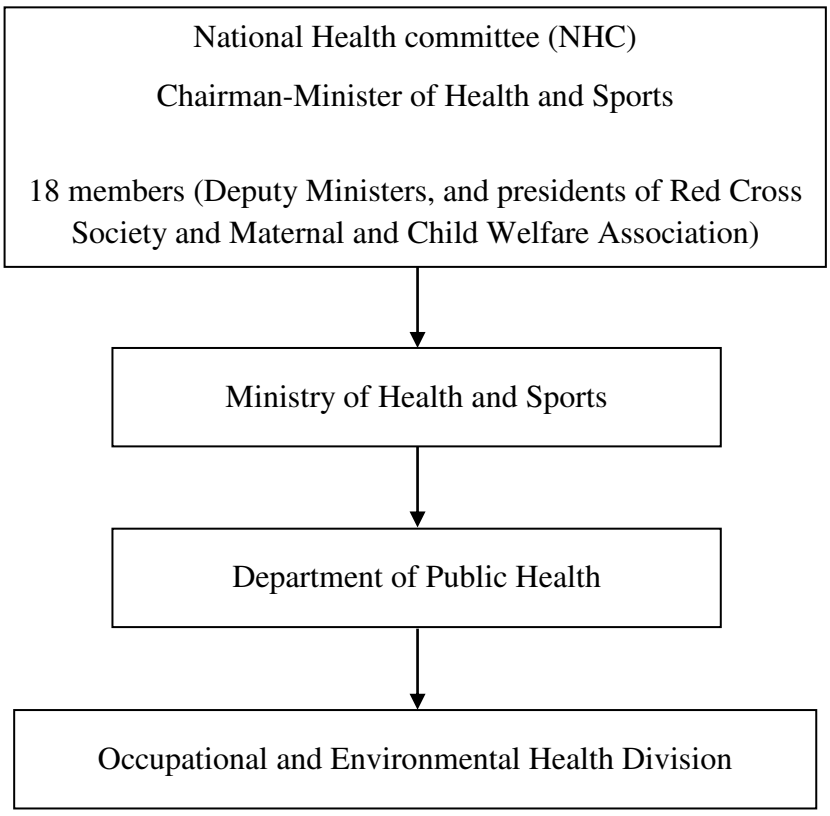
9.2.3 Legal requirements

This has been already described in detail earlier in **Chapter-3**, including among others, applicable laws and rules, requirements, national and international standards and guidelines. These will not be repeated here.

9.2.4 Institutional Arrangement

The following is the institutional arrangement for National Health Committee (NHC).

Institutional Arrangement (organization) of National Health committee



The National Health Committee (NHC) is an umbrella organization comprising 18 members from 9 ministries and one member of Nay Pyi Taw Council, and presidents of Red Cross Society and Maternal and Child Welfare Association.

The Chairman of NHC is the Union Minister of Health and Sports while the Vice Chairman is the Union Minister of Labour. 9 deputy ministers under 9 ministries, 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.

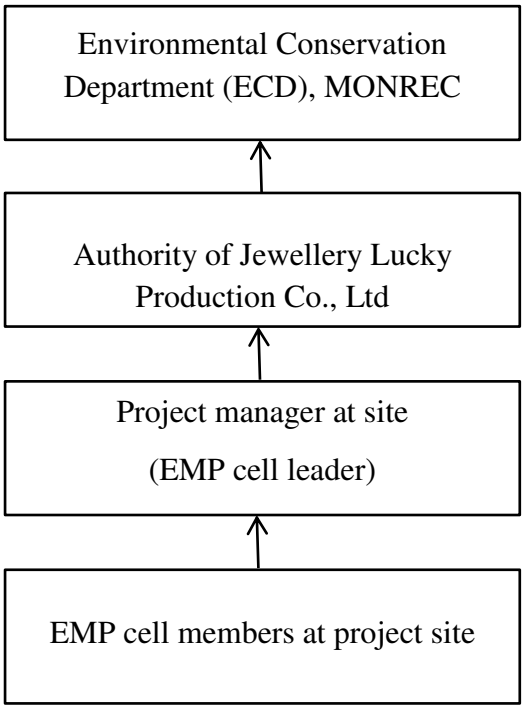
The Occupational and Environmental Health Division (OEHD) under the Department of Public Health is the focal agency involves in environmental and health affairs.

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 related to climate change and general health impact assessment.

Institutional arrangement of Jewellery Lucky Production Co., Ltd for implementation of EMP is again shown here:



The company does not have a separate department that deals with environmental affairs or a separate environmental and social safety unit.

9.3 Summary of impacts and mitigation measures to be taken during the 4 phases of the project

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, (6.1, 6.2, 6.3 and 6.4)**. In this Chapter the mitigation measures for each and every negative impact are summarized as follows.

(a) During the Pre-construction Phase

Sr. No	Impacts	Mitigation measures
1.	Polarization of local into pro-project and anti-project groups due to instigation by activists and radical environmentalists.	- Early public meeting and consultation; transparency is necessary. - Prioritize employing locals over personnel from beyond.
2.	Potential hiking of land and property prices	- Early public meeting and consultation. - Staffs should not get involve themselves in speculative business.

(b) During the Construction Phase

Sr. No	Impacts	Mitigation measures
1.	Potential impact on biodiversity	- Avoid unnecessary clearing of land and cutting of vegetation. The construction should be progressive, that is, implement as soon as a portion of the site is ready for construction. - Do not clear vegetation too far advance of construction. Also avoid unnecessary clearing of land and cutting of trees along both sides of the access road to the factory. - Keep original big trees, intact. Plant trees and grass in vacant spot and consider for the establishment of green zone or green belt. - Effective planting of trees and grass should be started as soon as the construction works are completed. - More trees of various species must be planted during the operation phase, not only in the premise of the factory but also in the vicinity.

2.	Air environment	- 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. - 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. - Provide Personnel Protection Equipment (PPEs), eg-face masks, nose and mouth covers to workers exposed to long hours of dust and smoke. - Covering of bulk material during transportation.
3.	Noise and vibration	- 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 much equipment operating at the same time. - Switch off or throttle down equipment during idle periods. - Schedule high noise activity only at certain period during day time hours. - Limit the speed of vehicular movements to reduce noise and vibration. - Keep equipment and vehicles well-operated, well-maintained and well-lubricated 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. - Plant 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.
4.	Potential impact on water	- Manage to prevent the pollution of surface and ground water. - Do not use water more than necessary during the Construction Phase. - Discipline workers for the conservation of water. - Monitor the daily use of water for construction. - Avoid disposing of waste (solids and liquids) into Tong-ha-lute stream. Try not to pollute the stream. - 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.
5.	Potential impact on 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. - 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.
6.	Wastes (Solids and liquids)	- 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.
7.	Potential accidents at workplace	- 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. - 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.
8.	Potential social impact: ill-social behaviour	- 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. - 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.
9.	Potential security issues	- 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 village 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.

(c) During the Operation Phase

Sr. No	Impacts	Mitigation measures
1.	Air environment	- Spray water adequately and regularly to suppress dust. - If possible pave the whole compound with concrete floor and also pave high traffic area near the site. - Deploy sweepers to clean up dirt, wood fiber and saw dust regularly. - Regularly collect dirt, saw dust and dispose at approved landfill; regularly impact dust control measures. - Reduce the speed of vehicle to reduce dust generation. - Avoid open burning of solid waste. - Use well-maintained, well-operated and well-lubricated and well-calibrated equipment and vehicles to reduce smoke. - Regularly check all the engines of vehicles and machinery. - Use vehicles and machines that emit less smoke and consume less fuel. - Install cyclone (pre-cleaner) system and dust collectors (the company will exactly do this). - Ensure that stack is of standard according to Good Engineering Practice (GEP); (the stack is 100 ft high). - Plant trees and create green zone; trees will trap dust and trees will sequestrate CO_2 in the smoke; trees also function as wind breaker which car control dust. - Provide adequate PPE such as face masks, nose and mouth covers to workers. - Access air environment regularly (by visual mean only) or semi-annually with the help of hired technicians.
2.	Noise and vibration	- Orient the factory building so that the opening does not fact the main road (noise emission not to be heard from the road). - Install noise absorbing insulation on the wall and roof to absorb excessive noise (do not use asbestos board which is carcinogenous). - Ensure forklifts and loaders are fitted with reversing alarm control. - 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 well-lubricated and machinery generate lower noise level and prevent undesirable noise level. - Develop green belt (plant trees) around the 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. - Restrict or limit vehicular movements. - Create suitable foundation design for machinery and equipment (eg. compressor and pumps etc.) to mitigate vibration. - Position, enclose and isolate noisier machinery. - Provide adequate PPE eg- ear muffs, ear protectors to workers exposed to long hours of high noise level. - Regularly assess noise level (manually).
3.	Wastes (solids and liquids)	**For solid waste in general:** - Plan and implement the management of solid wastes eg. wood dusts and wood particles from trimming and sanding. - Avoid open burning of debris or trash outside the factory. - Educated and train worker for good housekeeping practices: do not litter, do not dirty the environment. **For miscellaneous solid waste (office, dormitories 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 wastes only at approved landfill. - Always avoid open burning of solid waste.

		For liquid wastes - To manage waste water, first reduce and minimize the use of water where possible; educate and train workers for conservation of water. - Control the use of chemicals (use biodegradable products). - Manage all kinds of process water and waste water (contaminated storm water, surface run off waste water, yard wash, vehicle and machinery wash, domestic waste water etc).
4.	Potential hazardous substances	- The company has a chemical store at the nearby existing veneer factory where the chemicals for plywood manufacturing are kept. - Apply a Materials Safety Data Sheet (MSDS) system. - None of the chemicals are flammable, they can be stored in the same room. Apply the general rules for storing chemicals including; - label all chemicals fully - provide a specific storage space for each chemical and ensure return after each use. - the storage area must be tidy and chemical must be systematically stored. - As for formalin it can be also stored at normal room temperature and kept away from any oxidizing agent, if any. - Educate and trained workers for safety handling and application of each chemicals. - Develop an emergency plan for any potential chemical accidents eg. eye wash, bath, first aid kits etc. - Gluing, hot pressing, drying release formalin gas; therefore workers must be educated for awareness of this negative impact. Adopt safe method in gluing, pressing and drying plywood. (face mask, nose and mouth covers, gloves) - Provide adequate PPE to workers whenever, and wherever necessary.
5.	Soil	- Since there is no construction work during this phase avoid and/or prevent the impact on soil structure and profile. - If holes have to be dug or canal/ditch to be constructed manage not to damage soil structure (backfill after completion of work).

		- Avoid the contamination of soil by fuel oil, grease or chemical (avoid spillage). - Should there be spillage of oil or chemical do not wash down with water. Use saw dust (good absorbent) to remove the spills. - Rake and restore soil compacted by repetitive movements of heavy trucks and machinery (pave the road and compound or apply concrete floor). - Avoid/prevent erosion and siltation of soil during the rainy season - Never let saw dust or other wood waste accumulate for long period on the land inside the compound; regularly remove, treat and dispose.
6.	Potential impact on water environment	- There is only one small stream, Tong-ha-lute stream, nearby and therefore never let the saw dust and wood waste enter the stream. - Also avoid spillage of fuel oil, and chemical into the stream. - Prevent the drain of waste water into the stream by all means. - Prolonged accumulation of saw dust and wood waste can cause leachote that will eventually contaminate ground water; especially during the rainy season. Remove and systematically dispose wood waste and saw dust regularly. - Spills of oil and chemicals on land can percolate into ground water. Therefore remove all oil and chemical spill immediately using saw dust as absorbent. - Never dump wood wastes and other wastes into a river, lake or any water body. - Conserve water by all mean; never over use water unnecessarily. - 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. - 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 ; use for washing of machinery and vehicles, suppression of dust, watering plants and for firefighting etc. - Check the water quality at least twice a year (hire technicians to do this).
7.	Loss of living resources	- Educate the rubber log contractors, log vendors and rubber plantation owners for the sustainable extraction of old rubber tree (rubber wood fall). - Ensure that all vacated plots (result of extraction) are replanted with rubber seedlings or saplings (the rubber plantation owners will do this but this should be done in time during the early rainy season). - The company should consider establishing rubber nursery applying quality rubber seedlings and modern technology (the seedling or sapling can be sold to plantation owners). - The company shall also consider for educating the plantation owners and locals in advanced technology in rubber nursery eg- selection of quality seeds or strain, or grafting technology etc. and also modern latex collection (this is for the long term benefit of the locals and the company, a win-win enterprise). - keep a log book for the tonnage/cubic meter of wood/timber milled and processed. - Regularly check the amount of logs purchased and milled (processed) on a weekly or monthly basis. - Consider for sustainable and exploitation of rubber woods; ensure that the timber business is a renewable business. - Try to create a long term and smooth demand and supply balance between the company and the rubber plantation owners/rubber wood vendors.
8.	Occupational health and safety	- Study the occupational health and safety impact mentioned earlier and draw up a comprehensive plan and manage for a zero accident at work environment. - Heed for the occupational health and safety of all workers (also consider for community health and safety. - Educate, train and supervise workers for good working practice, good safety practices and good health and hygiene. - Also train them for attentiveness and carefulness in their routine works, especially workers who have to do monotonous and repetitive work for long hours.

		- Supervise new workers constantly and old workers occasionally. - If possible reorganize worker organization, redesign work station; make tool redesign, create adjustable fixtures, re-adjust work preaks, make job rotation etc. - All workers shall be educated for common hazards. - Provide adequate PPEs such as face masks, nose and mouth covers, ear muffs, helmets, gloves boots out fit for workers where necessary. - Also provide PPEs for workers who have to handle formaldehyde and other toxic resin used as glue for plywood. - Especially train and supervise them for skill; for handling and operation of machinery (hot press, cold press, trimming machine and sanding machine etc); operation and maintenance of boiler etc; also for handling and application of chemicals. - Educate them on environmental awareness and OHS, especially health hazards. - Provide proper sanitation for workers eg- toilets, baths etc. - Conduct regular medical check up (yearly) for workers; also provide full medical care for them.
9.	Potential impact on traffic	- 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. - Train the drivers to comply with Myanmar High way Law, 2000. - Avoid overloading of truck, or any vehicles. - Regular maintenance of cars and motor bikes. - Keep log book each for each vehicle. - Also have a record book and check the arrivals and departures of all trucks that deliver rubber logs.
10.	Potential social issues	- Try to avoid any impact or damage on their property (house, land) due to operation of the factory. - Compensate generously if there is any damage or loss. - Try to build and maintain good relation with the locals. - 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 workers. - Educate workers to be good workers, dutiful and well-disciplined. - 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.
11.	Potential security issues	- 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.
12.	Public perception	- Campaign against social evil to ensure security and order. - Conduct public consultation meetings 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. - Heed to the views and opinions of the neighbours. - The authority and employees of the company should not get involve in land and property speculation activities, if any. - Communicate the availability of job opportunities to the locals from time to time if there is any vacancy in job.

(d) During the Decommissioning Phase

Sr. No	Impacts	Mitigation measures
1.	Accident at work place	- 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 useable 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 approved land 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 30 years ago.

2.	Potential residual impacts	- Test the soil for any contamination by fuel oils or hydrocarbons; hire technicians. - Remove soils contaminated by fuel oils and chemical-; dispose at the approved land fill. - Ensure that all contaminates are removed; conduct final chemical testing. - Also remove all 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.

9.4 Overall budget for implementation of EMP

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 (Ks. 667.5 million) 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:

- Mitigation Programme
- Monitoring Programme
- Procurement of certain equipment, device
- Capacity building and training programme
- Emergency Programme
- Reporting

The company will, therefore, allotted the EMP fund (Ks. 667.5 million) for these programmes as follow:

- Cost of organizing EMP cell — 2% of EMP fund (Ks 13,350,000)
- Cost for actual execution and dissemination of EMP in the forms of:
  - (a) Taking mitigation measure — 25% of EMP fund (Ks 166,875,000)
  - (b) Monitoring actions — 25% of EMP fund (Ks 166,875,000)
- Cost for partial procurement of certain equipment and devices etc. — 20% of EMP fund (Ks 133,500,000)
- Cost for capacity building and training — 7% of EMP fund (Ks 46,725,000)
- Cost for emergency/contingency — 10% of EMP fund (Ks 66,750,000)
- Cost for reporting, documentation — 8% of EMP fund (Ks 53,400,000)
- Miscellaneous (including fees for two villagers) — 3% of EMP fund (Ks 20,025,000)

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 allotment are for the costs and expenses for the long Operation Phase only.

The fund cannot cover the whole life of the project of 30 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.

The cost estimation is based on the current unit price. Because the project will be implemented over many years price fluctuation and inflations will be unavoidable. A contingency amount will be prepared for any unavoidable such as inflation, event in the future.

In the near future there will be management review of EMP.

This will 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

For pragmatic purpose the cost for implementation of EMP and MP during the Operation Phase can be estimated as follows:

Table – 11: Expense for implementation of EMP and MP during the Operation Phase

Sr. no.	Natural of works	Approximate cost	Remarks
1.	Monitoring air quality (every six months)	Ks 1,000,000	Hired technicians
2.	Monitoring stack emission (every six months)	Ks 900,000	Hired technicians
3.	Monitoring noise and vibration (every six months)	Ks 100,000	Hired technicians
4.	Monitoring water quality (every six months)	Ks 70,000	Hired technicians
5.	Monitoring effluent (every six months)	Ks 80,000	Hired technicians
6.	Soil testing (every six months)	Ks 140,000	Hired technicians
7.	Solid waste management (purchasing waste bins --- from capital budget)	Ks 300,000	To be undertaken by EMP cell members and company's employees
8.	Waste water management (procurement of facility --- from capital budget)	Ks 200,000	To be undertaken by EMP cell members and company's employees
9.	Landscaping (procurement of plant sapplings, ornamental flower plants etc --- from capital budget)	Ks 500,000	To be undertaken by EMP cell members and company's employees
10.	Spraying of water procurement of water carts (from capital budget)	Ks 100,000	To be undertaken by EMP cell members and company's employees
Total		**3,390,000**	

For items 1-6: most of the expenses (Ks 2,290,000) will go to the hiring of technicians and/or private laboratories (in Yangon) and technicians from Department of Agriculture (Landuse). The expense is high to very high.

As for item 7-10 (solid and waste water treatment, landscaping and spraying of water) the cost will be for the purchase of facilities (from the capital budget).

There will be no labour costs for these as these works will be undertaken by EMP cell members and the company's employees (all are well-paid employees).

9.5 Management and monitoring sub-plans by project phase

Summary of management and monitoring sub-plans (MMSP) during the 3 project phases are shown in tabulated form.

Management and monitoring sub-plan by 3 project phases (Construction, Operation, decommissioning)

Table – 12: During the Construction Phase

Sr. No	Impacts/ issue	Management and monitoring sub-plan (MMSP)	Spot/point to be monitored	Frequency of monitoring	Responsible persons	Cost estimated
1.	Potential impact on biodiversity	- Plan and manage for impact on biodiversity - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.2** - Monitor the effectiveness of mitigation/ management	- In the surrounding area	- Semi-annually	- EMP cell members	- Free of charge
2.	Air environment	- Plan and manage for impact on air quality - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.2** - Monitor the mitigation measures taken and their effectiveness	- Inside factory N. Lat 15° 59' 24.20"; E. Long 97° 41' 24.30" - At Wah-ka-yu village N. Lat 15° 59' 58.58"; E. Long 97° 42' 24.75"	- Semi-annually - Semi-annually	- Hired technicians - Hired technicians	- Ks 1,000,000 - Ks 1,000,000
3.	Noise and vibration	- Plan and manage for mitigation for noise and vibration - For pragmatic EMP the company will take mitigation measures for noise and vibration mentioned earlier in **Chapter-6, 6.2**	- Inside the factory N. Lat 15° 59' 24.20"; E. Long 97° 41' 24.30" - At Wah-ka-yu village	- Semi-annually - Semi-annually	- Hired technicians - Hired technicians	- Ks 100,000 - Ks 100,000

		- Monitor the mitigation measures taken and their effectiveness	N. Lat 15° 59' 58.58"; E. Long 97° 42' 24.75"			
4.	Potential impact on water	- Plan and manage for water quality (tube well water) - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.2** - Monitor the effectiveness of management	- At the tube well N. Lat 15°59'18.58"; E. Long 97° 41' 25.30"	- Semi-annually	- Hired technicians	- Ks 70,000
5.	Potential impact on soil	- Plan and manage for protection of soil structure - For pragmatic EMP the company will take mitigation measures mentioned earlier in **Chapter-6, 6.2** - Monitor the effectiveness of management	- Inside the factory N. Lat 15°59'20.23"; E. Long 97°41'24.84" - At Wah-ka-yu village N. Lat 15°59'56.78"; E. Long 97°42'25.06"	- Semi-annually - Semi-annually	- Hired technicians - Hired technicians	- Ks 140,000 - Ks 140,000
6.	Wastes (Solid waste and liquid waste)	- Plan and manage for solid waste (construction waste and domestic wastes) and all liquid wastes - For pragmatic EMP the company will take mitigation measures mentioned earlier in **Chapter-6, 6.2** - Monitor the mitigation measures taken and their effectiveness	- Inside the factory N. Lat 15° 59' 22.15"; E. Long 97° 41' 24.69"	- Monthly	- EMP cell members	- Free of charge
7.	Potential accidents at workplace	- Plan and manage for safety working environment - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.2** - Monitor the effectiveness of mitigation/ management	- Inside the factory at all working places	- Monthly	- EMP cell members	- Free of charge

8.	Potential social impact: ill-social behaviour	- Plan and manage for prevention of social impact and ill-social behaviour - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.2** - Monitor the effectiveness of mitigation/ management	- All workers	- Weekly	- EMP cell members	- Free of charge
9.	Potential security issues	- Plan and manage for security of the factory and compound - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.2** - Monitor the effectiveness of mitigation/ management	- Factory compound N. Lat 15° 59' 20.69"; E. Long 97° 41' 27.19"	- Weekly	- EMP cell members	- Free of charge

Table – 13: During the Operation Phase

Sr. No	Impacts/ issue	Management and monitoring sub-plan (MMSP)	Spot/point to be monitored	Frequency of monitoring	Responsible persons	Cost estimated
1.	Air environment	- Plan and manage for impact on air quality		- Semi-annually	- Hired technicians	- Ks 1,000,000
		- Measure the parameters for ambient air (PM_{10}, $PM_{2.5}$, SO_2, NO_2 and Ozone)	- Inside the factory compound N. Lat 15° 59' 24.20"; E. Long 97° 41' 24.30"			
		- Measure the parameters for stack emission (PM_{10}, SO_2 and NO_2)	- At the stack N. Lat 15° 59' 21.43"; E. Long 97° 41' 24.37"	- Semi-annually	- Hired technicians	- Ks 900,000
		- For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3**	- At Wah-ka-yu village N. Lat 15° 59' 58.58"; E. Long 97° 42' 24.75"	- Semi-annually	- Hired technicians	- Ks 1,000,000
		- Monitor the mitigation measures taken and their effectiveness				

2.	Noise and vibration	- Plan and manage for mitigation for noise and vibration - Measure noise level and vibration - For pragmatic EMP the company will take mitigation measures for noise and vibration mentioned earlier in **Chapter-6, 6.3** - Monitor the mitigation measures taken and their effective	- Inside the factory compound N. Lat 15° 59' 24.20"; E. Long 97° 41' 24.30" At Wah-ka-yu village N. Lat 15° 59' 58.58"; E. Long 97° 42' 24.75"	- Semi-annually - Semi-annually	- Hired technicians - Hired technicians	- Ks 100,000 - Ks 100,000
3.	Wastes (Solid waste and liquid waste)	- Plan and manage for solid waste and liquid waste - Measure the parameters for effluent (BOD, COD, Formaldehyde, P^H, Temperature increase, TSS) - For pragmatic EMP the company will take mitigation measures mentioned earlier in **Chapter-6, 6.3** - Monitor the mitigation measures taken and their effectiveness	- Inside the factory N. Lat 15° 59' 22.15"; E. Long 97° 41' 24.69"	- Semi-annually	- Hired technicians	- Ks 80,000
4.	Potential hazardous substances	- Plan and manage for mitigation for impact of hazardous substances - For pragmatic EMP the company will take mitigation measures for noise and vibration mentioned earlier in **Chapter-6, 6.3** - Monitor the mitigation measures taken and their effective	- At the work place	Weekly	- EMP cell members	- Free of charge
5.	Soil	- Plan and manage for protection of soil structure - Measure the parameters for soil (P^H, Texture, N, P)	- Inside the factory N. Lat 15°59'20.23"; E. Long 97°41'24.84"	Semi-annually	- Hired technicians	- Ks 140,000

		- For pragmatic EMP the company will take mitigation measures mentioned earlier in **Chapter-6, 6.3** - Monitor the effectiveness of management	- At Wah-ka-yu village N. Lat 15°59'56.78"; E. Long 97°42'25.06"	- Semi-annually	- Hired technicians	- Ks 140,000
6.	Potential impact on water environment	- Plan and manage for water quality of tube well - Measure the parameters for water quality of tube well (P^H, Colour, Turbidity, Total Hardness, Total Alkalinity, Iron, Chloride, Sulphate, Total Solids, Nitrate) - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3** - Monitor the effectiveness of management	- At the tube well N. Lat 15° 59' 18.58"; E. Long 97° 41' 25.30"	- Semi-annually	- Hired technicians	- Ks 70,000
7.	Loss of living resources	- Provide education for rubber plantation owners for the long term use of rubber fall - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3** - Monitor the effectiveness of mitigation/ management	- Education for all rubber plantation owners	- Annually	- EMP cell members	- Free of charge
8.	Occupational health and safety	- Plan and manage for safety working environment - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3** for OHS plan - Monitor the effectiveness of mitigation/ management	- Inside the factory compound and at all working places	- Monthly	- EMP cell members	- Free of charge

9.	Potential impact on traffic	- Plan and manage for safe traffic - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3**	- At the entrance and on the Thanbyusayat-Kyaikkhami Highway Road N. Lat. 15º 59' 12.75"; E. Long. 97º 41' 22.33"	- Monthly	- EMP cell members	- Free of charge
10.	Potential social issues	- Plan and manage for prevention of social impact and ill-social behaviour - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3** - Monitor the effectiveness of mitigation/ management	- All workers	- Weekly	- EMP cell members	- Free of charge
11.	Potential security issues	- Plan and manage for security of the factory and compound - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3** - Monitor the effectiveness of mitigation/ management	- Factory compound N. Lat 15° 59' 20.69"; E. Long 97° 41' 27.19"	- Weekly	- EMP cell members	- Free of charge
12.	Public perception	- Try to maintain good relation with locals from two villagers - For pragmatic EMP the company will take mitigation measure mentioned earlier in **Chapter-6, 6.3** - Monitor the effectiveness of mitigation/ management	- At Wah-ka-yu village N. Lat 15° 59' 20.25"; E. Long 97° 42' 41.40" - At Tong-ha-lute village N. Lat 16° 00' 0.91"; E. Long 97° 40' 38.73"	- Annuall - Annually	- EMP cell members - EMP cell members	- Free of charge - Free of charge

Table – 14: During the Decommissioning/Rehabilitation Phase

Sr. No	Impacts/issue	Management and monitoring sub-plan (MMSP)	Spot/point to be monitored	Frequency of monitoring	Responsible persons	Cost estimated
1.	Accidents at workplace	- Plan and manage for safety decommissioning - For pragmatic EMP the company will take mitigation measures mentioned earlier in **Chapter-6, 6.4** - Monitor the decommissioning work	- At working places	- Weekly	- Hired a contractor	- about 0.5% the budget
2.	Potential residuals	- Plan and manage for potential residual impact - For pragmatic EMP the company will take mitigation measures mentioned earlier in **Chapter-6, 6.4** - Monitor the effectiveness mitigation	- The whole compound	- Once (during this Decommissioning Phase)	- Hired technicians	- Ks 1,310,000 for air, noise, water and soil

In accordance with EIA Procedure (2015) Chapter-, section/article-108 part of monitoring report for Operation Phase will be duly submitted to the authority on a semi-annual basis (especially physical environmental quality e.g. air, noise, waste).

Figure – 55: Satellite image showing monitoring spots during construction and operation phases

Overall generalized EMP for the whole project life

In addition to implementing each and every sub-plan for management relating to each and every impact the project proponent will also implement the following overall generalized EMP.

1. EMP for application of environmentally sound idea and technology (to be considered in the first places)
2. EMP for procurement of ecologically friendly equipment and machinery (to be executed in the first places)
3. EMP for air pollution management including noise and vibration (incompliance with NEQEG guideline values)
4. EMP for water pollution management (incompliance with NEQEG guideline values)
5. EMP for land pollution management (waste management, waste disposal)
6. EMP for biodiversity protection and conservation (education and training)
7. EMP for good working practices and good safety practices (in the form of capacity building)
8. EMP for conservation of water, fuel and energy (education and training etc.)
9. EMP for the protection of the socio-economic components and socio-economic life of the local community as well as cultural/religious components (including compensation for loss and damage, if any)
10. EMP for compensation for land and property damaged or lost due to the project
11. EMP for greening and rehabilitation after completion of project (green lawn and land scaping)
12. EMP for maintenance of high Environmental Performance Standard (EPS) (education and training).

9.6 Content of each sub-plan

9.6.1 Objective

- To ensure that EMP is thoroughly planned and effectively implemented
- To ensure that all the negative impacts (both significant and insignificant) anticipated identified and accessed are thoroughly studied and heeded
- Most of all, to ensure that mitigation measures to be taken are duly implemented and
- To ensure that the IEE report is not a formality but a meaningful tool for operating the plywood factory in an eco-friendly manner.

9.6.2 Legal requirement

The legal requirement for the implementation of this project and the National Environmental Quality guideline values to be complied are already described earlier in **Chapter-3**.

9.6.3 Overview maps, layout map, images etc

These are already depicted in **Chapter-1** of this report.

9.6.4 Implementation schedule

The management and monitoring sub-plan (MMSP) will cover all the four phases of the project.

During the Preconstruction (Planning) Phase

First of all the authority of the company will plan and manage for the application of environmentally sound idea and technology.

The authority of the company will plan and manage for the procurement of eco-friendly machinery, equipment, vehicles and materials etc (that generate less smoke, lower noise level, that consume less fuel oil, use fewer energy etc).

The authority will plan for prevention/mitigation of air, water and land pollution in implementing the project.

During the Construction Phase

The project proponent shall plan and manage for the construction of the plywood factory in an eco-friendly manner. The use of eco-friendly building materials and the application of ecologically sound methodology in construction activities will be applied. All the impact/potential impacts anticipated for this construction will be taken into consideration and subsequent mitigation measures duly taken during the construction of the plywood factory. The construction works will be undertaken with environmental awareness always in mind. The anticipated impacts during this phase will be always kept in mind and the mitigation measures to be taken will be duly taken.

During the Operation Phase

During this long Operation Phase the main task will be sustainable operation of plywood factory, maintenance and repair works. These works will be undertaken with environmental awareness always in mind. The predicted or anticipated impacts during this long phase will be kept in mind and the subsequent mitigation measures to be taken will be duly put in place.

During the Decommissioning Phase/Rehabilitation Phase

After the end of the Operation Phase affective and meaningful decommissioning task will be carried out. The project proponent will ensure that there is no residual impact left and there is no contaminated soil or substance left. After that effect revegetation of the site will be undertaken. In the aftermath of the project the site will be restored to it original condition.

The generalized implementation schedule is depicted follow.

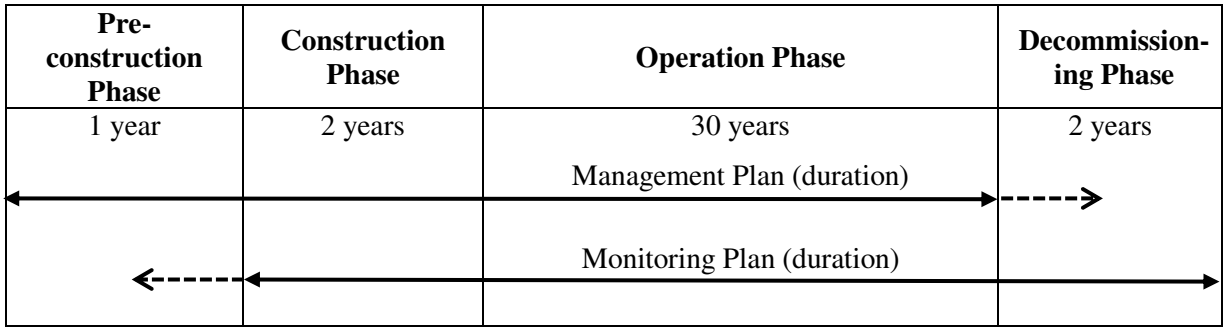


Figure – 56: Generalized time frame for planning and implementation of management and monitoring plan during the entire life (4 phases) of the project (not in same scale for duration)

9.6.5 Management actions and monitoring plans

Contents of each such-plan (management and monitoring sub-plan) during the Construction, Operation and Decommissioning Phase are already described earlier in tabulated form.

The management actions in the forms of mitigation and corrective measure are also already described earlier in **Chapter-6, 6.1-6.4**. They will not be repeated here.

9.6.6 Monitoring plans

All the impacts/issues to be managed and to be monitored during the 3 phases of project are already described earlier in tabulated forms (**Chapter-9, 9.5**) and will not be repeated here.

10. PERSON, ORGANIZATION AND BUDGET NEEDED FOR IMPLEMENTATION OF EMP

10.1 EMP cell

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

Jewellery Lucky Production Co., Ltd has tentatively formed the EMP cell as follow:

Sr no.	Name	Destination	Responsibility
1.	U Nay Linn Htet	General Manager	EMP cell leader
2.	U Kyaw Myo Han	Engineer	Cell member
3.	U Hla Myo Lwin	Engineer	Cell member
4.	U Ye Lin Oo	Technician	Cell member
5.	U Win Naing	Technician	Cell member
6.	U Aung Naing	Village administrator (Wah-ka-yu)	Cell member
7.	U Maung Than	Villager administrator (Tong-ha-lute)	Cell member

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.

The general manger is the EMP cell leader and is overall environmental officer and supervises all EMP activities. One engineer is the environmental security officers; another one is the work places security officers. One technician is the liaison officer for dealing with the locals. All will be also involved in the implementation of mitigation measures to be taken and the execution of EMP and MP.

They will 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, when necessary.

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 mill operation 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 otherwise result in under-staffed situation for the project. Therefore the EMP cell leader and members have also to get involved in the routine production work as far as possible.

10.1.2 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 e.g.- 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 (Ks 66,750,000) 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:

- Mitigation Programme
- Monitoring Programme
- Procurement of certain equipment, devise
- Capacity building and training programme
- Emergency Programme
- Reporting

The company will, therefore, allotted the EMP fund for these programmes as follow:

- Cost of organizing EMP cell	2% of EMP fund	(Ks 1,335,000)
- Cost for actual execution and dissemination of EMP in the forms of:		
(a) Taking mitigation measure	25% of EMP fund	(Ks 16,687,500)
(b) Monitoring actions	25% of EMP fund	(Ks 16,687,500)
- Cost for partial procurement of certain equipment and devices etc.	20% of EMP fund	(Ks 13,350,000)

- Cost for capacity building and training 7% of EMP fund (Ks 4,672,500)
- Cost for emergency/contingency 10% of EMP fund (Ks 6,675,000)
- Cost for reporting, documentation 8% of EMP fund (Ks 5,340,000)
- Miscellaneous (including fees for two villagers) 3% of EMP fund (Ks 2,002,500)

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 allotment are for the costs and expenses for the long Operation Phase only.

The fund cannot cover the whole life of the project of 30 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.

The cost estimation is based on the current unit price. Because the project will be implemented over many years price fluctuation and inflations will be unavoidable. A contingency amount will be prepared for any unavoidable such as inflation, event in the future.

For pragmatic purpose the cost for implementation of EMP and MP along the Operation Phase can be estimated as follows:

Table – 15: Expense for implementation of EMP and MP during the Operation Phase

Sr. no.	Natural of works	Approximate cost	Remarks
1.	Monitoring air quality (every six months)	Ks 1,000,000	Hired technicians
2.	Monitoring stack emission (every six months)	Ks 900,000	Hired technicians
3.	Monitoring noise and vibration (every six months)	Ks 100,000	Hired technicians
4.	Monitoring water quality (every six months)	Ks 70,000	Hired technicians
5.	Monitoring effluent (every six months)	Ks 80,000	Hired technicians
6.	Soil testing (every six months)	Ks 140,000	Hired technicians
7.	Solid waste management (purchasing waste bins --- from capital budget)	Ks 300,000	To be undertaken by EMP cell members and company's employees
8.	Waste water management (procurement of facility --- from capital budget)	Ks 200,000	To be undertaken by EMP cell members and company's employees
9.	Landscaping (procurement of plant sapplings, ornamental flower plants etc --- from capital budget)	Ks 500,000	To be undertaken by EMP cell members and company's employees
10.	Spraying of water procurement of water carts (from capital budget)	Ks 100,000	To be undertaken by EMP cell members and company's employees
Total		**3,390,000**	

For items 1-6: most of the expenses (Ks 2,290,000) will go to the hiring of technicians and/or private laboratories (in Yangon) and technicians from Department of Agriculture (Land use). The expense is high to very high.

As for item 7-10 (solid and waste water treatment, landscaping and spraying of water) the cost will be for the purchase of facilities (from the capital budget).

There will be no labour costs for these as these works will be undertaken by EMP cell members and the company's employees (all are well-paid employees).

REFERENCES

1) Alli, B. O. 2008. Fundamental Principles of Occupational Health and Safety (OHS). ILO. 2nd Edition.

2) BASF Wolman GmbH. Wood preservation-vacuum pressure treatment. www.wolman.de>wood preservation.

3) Chanard, T. 2003. A photographic guide to Amphibian in Thailand. S.E.A Education Public Co., Ltd, Thailand.

4) Code of practice for forest harvesting in Asia Pacific. FAO. http.fao.org>docrep>FAO.

5) Das. 1. 2010. A field guide to the Reptiles of Thailand and S.E Asia. Asia Book Co., Ltd. Thailand.

6) ECD/MONREC. Environmental Impact Assessment Procedure, 2015

7) ECD/MONREC, National Environmental Quality Emission (NEQEG) guideline 2015

8) Environmental Issue – Plywood Plain Facts http://plywoodplainfacts.blog.spot.com

9) Farnk, D. 2012. Social Impact Assessment of Project Development. Guide for Auitralion region.

10) Hansard, 1997. Occupational exposure limits and guidelines for formaldehyde, 4 Nov 1991, Column: 141.

11) Health Policy, Legislation and Plans. www.myanmarhdc.org>Health Policy.

12) Hong, L.T. 1991. Rubber wood utilization. Asuccess story. 20th IUFRO World Congress. Tampere, Finland.

13) IFC. 2007. General Environmental, Health and Safety Guidelines.

14) IFC, 2001 Environmental Health and Safety Guideline for Board and Particles Based Products, 2007

15) IFC. Sustainability Framework. Policy and Performance Standard on Environmental and Social Sustainability. 2012.

16) James, H. 2010. Health Policy and Practice in Myanmar; a civil society perspective.

17) Jia L. et al 2019. Life cycle assessment of plywood manufacturing processes in China. Int. Journal of Environmental Research and Public Health.

18) Killmann, W. 2001. Non-forest trees plantation. Forestry Department, FAO, Rome.

19) Kres, W. J. &. E. Farr. 2003. A checklist of trees, shrubs, herbs and climbers of Myanmar Washington D. C.

20) MTC (Malaysian Timber Council) 1999. Malaysian Timber Bulletin. 5 (9) Kuala Lumpur.

21) Myanmar forest sector legality analysis. https://www.nepcon.org>files>library.

22) National code of harvesting practice in Myanmar 2000. https://book.google.com>book.

23) National Occupation and Safety Commission (NOHSC) 1990. Wood dust; a guide for employers Canberra: NOHSC.

24) Robson, C. 2008. A field guide to the birds of Thailand and S.E Asia. Asia Book Co., Ltd. Thailand.

25) Sallch, M.N.1984. Heave wood-Timber of the future. Planter 60 (702); 370-381.

26) Ser, C.S. 1990. Rubber wood resources in ASEAN and the potential for its wider utilization. Proc. Int. Rubber wood seminar, Kuala Lumpur-21-225, Forest Research Institute.

27) Suttie E. 2004. Wood waste management – UK update. Final workshop COST Action E22 Lisbon, Portugal, 22-23 March 2004.

28) Wood Based Industry Department. Myanmar Timber Enterprise. www.myanmartimber.com.mm>index

29) Zemaitis, M and et al.1999. Treatment and Run off and Leachate from wood processing Operation, Project Report 1999-4. Edmonton, Canada, Sustainable Forest Management Net work.

ANNEX

ညွှန်ကြားရေးမှူးရုံး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
မွန်ပြည်နယ်၊ မော်လမြိုင်မြို့
စာအမှတ်၊ အီးအိုင်အေ-၂/၆/၇(ဝ၅)(၁၀၅၇/၂၀၂၁)
ရက်စွဲ၊ ၂၀၂၁ ခုနှစ်၊ စက်တင်ဘာလ ၂၄ ရက်

သို့

Jewellery Lucky Production Co., Ltd.

ရာဘာသစ်ပါးလွှာနှင့် အထပ်သားထုတ်လုပ်ခြင်းလုပ်ငန်း

ဝါးခရုကျေးရွာအုပ်စု၊ သံဖြူဇရပ်မြို့

အကြောင်းအရာ။ **ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(IEE) အစီရင်ခံစာရေးဆွဲရန် တတိယအဖွဲ့အစည်းအား ကန့်ကွက်ရန်မရှိခြင်းကိစ္စ**

ရည်ညွှန်းချက်။

(၁) ညွှန်ကြားရေးမှူးရုံး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မွန်ပြည်နယ်၏ (၁.၆.၂၀၂၁) ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ၂/၆/၇(ဝ၅) (၁၀၈၉/၂၀၂၁)

(၂) ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ နေပြည်တော်၏ (၁၂.၈.၂၀၂၁) ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၂/၄-စ (၁၂၆၇/၂၀၂၁)

၁။ အထက်အကြောင်းအရာပါကိစ္စနှင့်ပတ်သတ်၍ မွန်ပြည်နယ်၊ မော်လမြိုင်ခရိုင်၊ သံဖြူဇရပ်မြို့၊ ဝါးခရုအနောက်ပိုင်း၊ ဝါးခရုကျေးရွာအုပ်စု၊ ကွင်းအမှတ်(၉၂၁/က)၊ ဦးပိုင်အမှတ် (၂/ဃ-၂) နှင့် ဦးပိုင်အမှတ် (၅၈/၁၁၈)၊ မြေဧရိယာ (၃.၉၆) ဧကတွင် Jewellery Lucky Production Co., Ltdမှ ရာဘာသစ်ပါးလွှာနှင့် အထပ်သားထုတ်လုပ်ခြင်းလုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာကို တတိယအဖွဲ့အစည်းဖြစ်သည့် Myanmar Environment Sustainable Conservation Co., Ltd (MESC) ဖြင့် ရေးဆွဲဆောင်ရွက်ခွင့်ပြုပါရန် ကုမ္ပဏီမှတင်ပြလာခြင်းအပေါ် မွန်ပြည်နယ် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ ရည်ညွှန်း(၁)ပါစာဖြင့် ဦးစီးရုံးချုပ်(နေပြည်တော်)သို့ ပေးပို့တင်ပြခဲ့ပါသည်။

၂။ အဆိုပါတတိယအဖွဲ့အစည်းဖြစ်သည့် Myanmar Environment Sustainable Conservation Co., Ltd (MESC)သည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ ထုတ်ပေးထားသည့် ကြားကာလအကြံပေးလုပ်ကိုင်သူ မှတ်ပုံတင်ခြင်း အထောက်အထားလက်မှတ်ကို အဖွဲ့အစည်းအနေဖြင့် ရရှိထားသည့် ကုမ္ပဏီဖြစ်ပြီး အဆိုပြုလုပ်ငန်းကို Ecology and Biodiversity၊ Air Pollution၊

Modelling of Water Quality၊ Water Pollution Control၊ Geology and Soil ကျွမ်းကျင်ပညာရှင်များဖြင့် ရေးဆွဲပြုစုမည့် အပြင် Waste Management, Socio-economy, Facilitation of Meeting, Occupational Health and Safety နယ်ပယ်တို့အား IEE အစီရင်ခံစာ ပြင်ဆင်ရာ၌ ထည့်သွင်းဆောင်ရွက်မည်ဆိုပါက ရာဘာသစ်ပါးလွှာနှင့် အထပ်သားထုတ်လုပ်ခြင်း လုပ်ငန်း၏ IEE အစီရင်ခံစာရေးသားရန်အပေါ် လုံလောက်မှုရှိပါကြောင်း ဦးစီးရုံးချုပ်(နေပြည်တော်) မှ ရည်ညွှန်း (၂) ပါစာဖြင့် စိစစ်သုံးသပ်ပြီး မွန်ပြည်နယ် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ အကြောင်းကြားလာပါသည်။

၃။ သို့ဖြစ်ပါ၍ Jewellery Lucky Production Co., Ltd မှ ရာဘာသစ်ပါးလွှာနှင့် အထပ်သား ထုတ်လုပ်ခြင်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) အစီရင်ခံစာရေးသားမည့် Myanmar Environment Sustainable Conservation Co., Ltd (MESC) အား ကန့်ကွက်ရန်မရှိကြောင်းနှင့် IEE အစီရင်ခံစာ ရေးဆွဲရာ၌ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်း အပိုဒ် ၃၄၊ ၃၅၊ ၃၆၊ ၃၇၊ ၃၈ တို့နှင့်အညီ ရေးဆွဲပြုစု၍ သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာနသို့တင်ပြပြီး အတည်ပြုချက်ရယူဆောင်ရွက်သွားရန် အကြောင်းကြားပါသည်။

(အောင်အောင်လေး)
ညွှန်ကြားရေးမှူး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
မွန်ပြည်နယ်

မိတ္တူကို
မွန်ပြည်နယ်အစိုးရအဖွဲ့ရုံး၊ မော်လမြိုင်မြို့
ပြည်နယ်ဝန်ကြီး၊ သယံဇာတရေးရာဝန်ကြီးဌာန၊ မွန်ပြည်နယ်
ရုံးလက်ခံ
မျှော်စာတွဲ

JEWELLERY LUCKY PRODUCTION COMPANY LIMITED.

OLYMPIC HOTEL., NATIONAL SWIMMING POOL COMPOUND, U WISARA ROAD,
DAGON TOWNSHIP, YANGON REGION, MYANMAR.
TEL : 01 - 243130, 243134, 243135, 641763 ~ 7, 647650 ~ 4 FAX : 95 - 1 - 242946

Ref : *Date :*

CSR ရံပုံငွေထားရှိမည်ဖြစ်ကြောင်းဝန်ခံကတိပြုခြင်း

ကျွန်တော်များ Jewellery Lucky Production Co., Ltd သည် မွန်ပြည်နယ်၊မော်လမြိုင်ခရိုင်၊ သံဖြူဇရပ်မြို့နယ်၊ ဝါးခရူကျေးရွာအုပ်စု၊ ကွင်းအမှတ်(၉၂၁/က)၊ ဝါးခရူအနောက်ပိုင်း၊ ဦးပိုင်အမှတ်(၂/ဃ-၂) ရှိ မြေဧရိယာ(၃.၈၁)ဧက နှင့် မွန်ပြည်နယ်၊ မော်လမြိုင်ခရိုင်၊ သံဖြူဇရပ်မြို့နယ်၊ ဝါးခရူကျေးရွာအုပ်စု၊ ကွင်းအမှတ်(၉၂၁/က)၊ ဝါးခရူအနောက်ကွင်း၊ ဦးပိုင်အမှတ်(၅၈/၁၁၈)ရှိ မြေဧရိယာ(၃.၉၆)ဧကတွင် ရော်ဘာသစ်ပါးလွှာနှင့်အထပ်သားထုတ်လုပ်သော စက်ရုံတည်ဆောက်ပြီး ပြည်တွင်းရောဘာကုန်ကြမ်းများ အသုံးပြု၍ ရော်ဘာသစ်ပါးလွှာနှင့်အထပ်သားများကို ထုတ်လုပ်ပြီး ပြည်တွင်းပြည်ပသို့ ကျယ်ကျယ်ပြန့်ပြန့်ရောင်းချသွားမည်ဖြစ်ပါသည်။

အဆိုပြုလုပ်ငန်း၏ လုပ်ငန်းလုပ်ဆောင်ရှရှိလာသည့် နှစ်စဉ်အမြတ်ငွေမှ (၂ %)ကို **Corporate Social Responsibility (CSR)** ရံပုံငွေ အဖြစ် ထားရှိသုံးစွဲမည်ဖြစ်ကြောင်း ဝန်ခံကတိပြုပါသည်။

လေးစားစွာဖြင့်

U KYAW SEIN
MANAGING DIRECTOR
JEWELLERY LUCKY PRODUCTION CO., LTD.

JEWELLERY LUCKY PRODUCTION COMPANY LIMITED.
OLYMPIC HOTEL, NATIONAL SWIMMING POOL COMPOUND, U WISARA ROAD,
DAGON TOWNSHIP, YANGON REGION, MYANMAR.
TEL : 01 - 243130, 243134, 243135, 641763 ~ 7, 647650 ~ 4 FAX : 95 - 1 - 242946

Ref :

Date :

မီးဘေးကာကွယ်မှုအစီအမံများ

ကျွန်တော်များ **Jewellery Lucky Production Co., Ltd** သည် ရော်ဘာပါးလွှာနှင့်အထပ်သား ထုတ်လုပ်ခြင်းလုပ်ငန်းကို လုပ်ကိုင်ရာတွင် မီးဘေးအန္တရာယ်မဖြစ်ပွားစေရန်အတွက် အောက်ပါအစီအမံများ ကြိုတင်ကာကွယ် တားဆီးမှုများ ပြုလုပ်ထားမည်ဖြစ်ပါသည်။

(၁) ဝန်ထမ်းများအား မီးသတ်သင်တန်းများပေးခြင်း။

(၂) လုပ်ငန်းခွင်မဆင်းမီ တာဝန်ရှိသူများမှ ဝန်ထမ်းများအားစစ်ဆေးခြင်း။

(၃) တာဝန်ရှိသူမန်နေဂျာမှ အရေးပေါ်အစီအမံများကို နေ့စဉ်စစ်ဆေးခြင်း။ လိုအပ်သောကိရိယာများကိုစစ်ဆေးခြင်း။

(၄) အရေးပေါ်ထွက်ပေါက်၊ စုရုပ်တို့ကို သေချာသတ်မှတ်ပြီး တာဝန်ကျဝန်ထမ်းများအား အချိန်တိုင်း သတိနှင့်ရှိစေခြင်း၊

(၅) အပူရှိန်ရှိသည့် ပစ္စည်းများနှင့်ပတ်သက်၍ ကိုင်တွယ်လုပ်ဆောင်မှုပေါ်တွင် လုပ်ထုံးလုပ်နည်းများ ရှင်းပြထားခြင်း၊

(၆) မီးအန္တရာယ်ကျရောက်လာသည်နှင့်ချက်ချင်း အလုပ်အားလုံးကို ရပ်ရန်နှင့် သတိပေးချက်ဖြစ်ပေါ်စေရန်ဆောင်ရွက်ထားခြင်းနှင့် ဝန်ထမ်းအားလုံးသတ်မှတ်သည့် စုရုပ်သို့ရောက်ရှိရန်ဆောင်ရွက်ပေးခြင်း၊

(၇) သန့်ရှင်းရေးဝန်ထမ်းများအားလေ့ကျင့်ပေးပြီး အစဉ်အမြဲ နေရာတိုင်းသန့်ရှင်းနေအောင်ဆောင်ရွက်ခြင်း၊

(၈) ဝန်ထမ်းများအား တစ်ဦးချင်းစီ မီးဘေးအန္တရာယ် လုံခြုံရေးသတိဖြင့် နေထိုင်ကြရန် သတိပေးခြင်း။

လေးစားစွာဖြင့်

U KYAW SEIN
MANAGING DIRECTOR
JEWELLERY LUCKY PRODUCTION CO., LTD.

JEWELLERY LUCKY PRODUCTION COMPANY LIMITED.
OLYMPIC HOTEL., NATIONAL SWIMMING POOL COMPOUND, U WISARA ROAD,
DAGON TOWNSHIP, YANGON REGION, MYANMAR.
TEL : 01 - 243130, 243134, 243135, 641763 ~ 7, 647650 ~ 4 FAX : 95 - 1 - 242946

Ref :

Date :

လုပ်သားများ၏လူမှုဖူလုံရေး၊ လုပ်ငန်းခွင်သာယာရေး၊ ဝန်ထမ်းသက်သာချောင်ချိရေးအတွက် ဆောင်ရွက်ထားရှိရမည့် အစီအစဉ်အားတင်ပြခြင်း

ကျွန်တော်များကုမ္ပဏီအနေဖြင့် လုပ်ငန်းခွင်သာယာရေးအတွက် အောက်ပါအတိုင်း ဆောင်ရွက်ထားရှိမည် ဖြစ်ပါသည်–

(က) ဝန်ထမ်းစားရိပ်သာအဆောက်အဦးတခု ဆောက်လုပ်ထားရှိပါမည်။

(ခ) ရေအိမ်အတွက် အမျိုးသားရေအိမ် နှင့် အမျိုးသမီးရေအိမ် အလုံအလောက်ဆောက်လုပ်ထားရှိပါမည်။

(ဂ) ဝန်ထမ်းများကျန်းမာရေးအတွက် ကျန်းမာရေးဝန်ထမ်းထားရှိသွားမည်ဖြစ်ပြီး အရေးပေါ်ဆေးကုသရေးနှင့် လိုအပ်သောဆေးဝါးများ ထားရှိပေးသွားမည်ဖြစ်ပါသည်။ ပြီးနှယ်လူမှုဖူလုံရေးအသင်းသို့ အသင်းဝင်ရောက်စေပြီး နာမကျန်းဖြစ်ပါက ရသင့်သည့် ဝန်ထမ်းလူမှုဖူလုံရေးအခွင့်အရေးများ အပြည့်အဝခံစားခွင့်ပေးပြီး ဆေးကုသမှုခံယူစေမည်ဖြစ်ပါသည်။

(ဃ) ဝန်ထမ်းများကျန်းမာရေးအတွက် ကုန်ထုတ်လုပ်မှုမှ ထွက်လာသောသစ်အမှုံများမှ ကာကွယ်ရန် အကာအကွယ်(mask)များပေး၍ အသုံးပြုစေမည်ဖြစ်ပါသည်။

(င) သန့်ရှင်းသောရေ လုံလောက်စွာရရှိရေးအတွက် စီစဉ်ဆောင်ရွက်ပေးသွားမည်ဖြစ်ပါသည်။

(စ) COVID ကာလအတွင်း COVID စည်းမျဉ်းစည်းကမ်းများနှင့်အညီ ထားရှိဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။

ဝန်ထမ်းသက်သာချောင်ချိရေးအတွက် အောက်ပါအတိုင်းဆောင်ရွက်ထားရှိမည် ဖြစ်ပါသည်–

(က) အလုပ်ချိန်ကို နံနက်(၈း၀၀)နာရီ မှ ညနေ(၄း၀၀)နာရီအထိသတ်မှတ်မည်ဖြစ်ပြီး ထမင်းစားချိန်ကို နေ့လည်(၁၂း၀၀)နာရီမှ (၁း၀၀)နာရီအထိ သတ်မှတ်မည်ဖြစ်ပါသည်။

(ခ) အားလပ်ရက်အဖြစ် အပတ်စဉ်တနင်္ဂနွေနေ့နှင့် နိုင်ငံတော်အစိုးရ၏ရုံးပိတ်ရက်များအား သတ်မှတ်မည် ဖြစ်ပါသည်။

လေးစားစွာဖြင့်

U KYAW SEIN
MANAGING DIRECTOR
JEWELLERY LUCKY PRODUCTION CO., LTD.

DEPARTMENT OF AGRICULTURE (LAND USE)

SOIL INTERPREATATION OF RESULTS

MESC (10.1.2022)

Division -မွန်ပြည်နယ်

Township - သံဖြူဇရပ်မြို့နယ်။

Sheet No. 1

Sr No. S 1 /2022

Sr No.	Sample	pH Soil:Water 1:2.5	Texture	Total N	Available Nutrients P
1	Jewellery Luck	Moderately Acid	Sandy Clay Loam	Medium	Low
2	ဝါခရူကျေးရွာ	Moderately Acid	Loamy Sand	Medium	Medium

(ဒေါက်တာသန္တာညီ)

ဒုတိယညွှန်ကြားရေးမှူး

ဓာတ်ခွဲခန်းတာဝန်ခံ

မြေအသုံးချရေးဌာနခွဲ

DEPARTMENT OF AGRICULTURE (LAND USE)

SOIL ANALYTICAL DATA SHEET

MESC (10.1.2022)

Division -မွန်ပြည်နယ်

Sheet No. 1

Township - သံဖြူဇရပ်မြို့နယ်။

Sr No. S 1 /2022

Sr No.	Sample	Moisture %	pH Soil:Water 1:2.5	Texture				Total N %	Available Nutrients
				Sand %	Silt %	Clay %	Total %		P (ppm) (B)
1	Jewellery Luck	16.703	5.41	56.82	20.42	22.76	100	0.25	5.28
2	ဝါခရုကျေးရွာ	1.99	5.45	76.92	19.82	3.26	100	0.21	46.93

B = Bray & Kurtz Method

(ဒေါက်တာသန္တာညီ)
ဒုတိယညွှန်ကြားရေးမှူး
ဓာတ်ခွဲခန်းတာဝန်ခံ
မြေအသုံးချရေးဌာနခွဲ

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd), Consultant (Y.C.D.C), UWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

W0122 175

WATER QUALITY TEST RESULTS FORM

Client	MESC Co.,Ltd.
Nature of Water	Tube Well Water (Project Site)
Location	Thanbyuzayat
Date and Time of collection	7.1.2022
Date and Time of arrival at Laboratory	8.1.2022
Date and Time of commencing examination	9.1.2022
Date and Time of completing	11.1.2022

Results of Water Analysis			WHO Drinking Water Guideline (Geneva - 1993)
pH	7.4		6.5 - 8.5
Colour (True)	5	TCU	15 TCU
Turbidity	9	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	50	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness		mg/l as $CaCO_3$	
Magnesium Hardness		mg/l as $CaCO_3$	
Total Alkalinity	90	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity		mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)		mg/l as $CaCO_3$	
Bicarbonate (HCO_3)		mg/l as $CaCO_3$	
Iron	0.42	mg/l	0.3 mg/l
Chloride (as CL)	9	mg/l	250 mg/l
Sodium Chloride (as NaCL)		mg/l	
Sulphate (as SO_4)	10	mg/l	500 mg/l
Total Solids	95	mg/l	1500 mg/l
Total Suspended Solids		mg/l	
Total Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		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: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

(a division of WEG Co.,Ltd.)
No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

W0122 175

WATER QUALITY TEST RESULTS FORM

Client	MESC Co.,Ltd.
Nature of Water	Tube Well Water (Project Site)
Location	Thanbyuzayat
Date and Time of collection	7.1.2022
Date and Time of arrival at Laboratory	8.1.2022
Date and Time of commencing examination	9.1.2022
Date and Time of completing	11.1.2022

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 ($N.NO_3$)	0.2	mg/l	50 mg/l
Chlorine (Residual)		mg/l	
Ammonia Nitrogen (NH_3)		mg/l	
Ammonium Nitrogen (NH_4)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)		mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)		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 (SiO_2)		mg/l	

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

Tested by
Signature:
Name: Zaw Htun Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Thetut Thetut
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory


Non-Formal Primary Education
(NFPE)


4 , january , 2018


Non-Formal Primary Education
(NFPE)


JIVITADANA HOSPITAL THANBYUZAYAT

ဝိဇ္ဇာရာဇ်သွင် ဝဒုစရ ၊ ဂိတုဝံ (၁၄) မဂ် (၂၃-၁၀-၂၀၁၈) ထုံအရ

ဝါခါတွင်းပြုပြင်ခြင်းဂုဏ်ဆောင်ပုံ

ရောင်ဘွင်သွက်ဂုံပျံခြင်း ရှင်သိဒ္ဓိခိုင်ထပ် ပုံပွင့်ခွာ ပြုပ်ဖု-ကျင်ခမီ-စက်ဖဲ
ကိုလင်အရိုအောင် နက် ကွီစက်ကစိန်ဂုံ ပိပ်စိတ်တင်ဂုထပ် ဥမလေန်တဲ့
ကမ္မတီဆွာန်တဲ့ ရှင်သိဒ္ဓိခိုင်ထပ်ထဲ ဥတ်သန္တီ အပ်ပြုပ်ထာ
ဝါခါတွင်းပြုပြင်ဂုထပ်စရဲ့ထံဥစုတ်း

ဂုဏ်ပြုမှတ်တမ်းလွှာ

သံဃာရှင်-ဘဂျိကွမီ-စက်ခံလမ်းမအိုရှိ စက်ခံလမ်းဆံ့အဝိုင်းတွင်
ဟသံဓာရုံဆောင်ပြင်ခြင်းကုသိုလ်အနုအဖွဲ့ ကာနိုင်းကာလနှံဆောင်မှုဖြင့် အမေ့ထဆုံးဂိုင်
စတေနာဖြင့် ကျည်ဆောင်ဖွက်ပေးပါသော
' တံခေတင်ခြင်းစုတနှာ ~ ဆုတားဆေးပင်သားစောင်ခံ ခိသားနှ ' အား
ဟသံဓာရုံထုပြန်မြောက်ရေးကော်မတီမှ အသိအမှတ်ပြု ဂေးဓာဂုဏ်ပြုပေးသောအခြင့်
ဤဂုဏ်ပြုမှတ်တမ်းလွှာကို ပေးအပ်ပါသည်။

ဂုဏ်ပြုမှတ်တမ်းလွှာ

သံဃာရုပ်ပြီနယ် စစ်တုရင်အားကစားဆော်ကော်မတီမှ ကြီးမှုကျွပ်ပေသော
" ၂၀၁၉ ခုနှစ်၊ (ရာ) ကြိမ်မြောက် ရွှေတံဆိပ်ဆုရရှိနှုန် အထိန်းအမှတ်
နှုန်ပြည်နယ် (၀၀) ပြိုမှတ် ဒီတိုးစိုးစိုးတုရင်ပြိုင်ပွဲ " ပြုပ်မြောက်ရေးအလှုပ်
" ကံကောင်းခြင်းရတနာကျွန်တော် " မှ အလှူခံရ ၀၀၀၀၀၀/- (ကျပ်တစ်သိန်း)တိတိကို
ပိုင်ဝန်ကျည်ပုံပုံပေးပါ၍ သံဃာရပ်ပြီနယ်စစ်တုရင်အားကစားဆော်ကော်မတီမှ
အထူးကျေးဇူးတင်စွာဖြင့် ဂုဏ်ပြုမှတ်တမ်းတင်အပ်ပါသည်။

စစ်တုရင်အားကစားဆော်ကော်မတီ
သံဃာရပ်ပြီ

ရက်စွဲ ၊ ၂၀၁၉ ခုနှစ်၊ ဝန်နဂါဒီလ ရက်

ပြိုနှံဂုဏ်စရဲ့ တဲ့ကောန်ဂကူမန်(၃၂)ဒါ

(၃၂)ကြိမ်မြောက် မွန်အမျိုးသားနေ့

ဒွန်ပြိုစီးဇုစီးကဘဝ္ဒသိစရး (အထူး)တဝိဒ္ဒါ

အလှူခံဒွတ်တမ်းဂုဏ်ပြုလွှာ

အလှူရှင်အမည် - ဦးအေဒိန်ဒိ (ဂုဏ်ထူးဆိပါးမှုဂဏ်ရှိ JLC)

နေရပ် - ရန်ကုန်ပြိုင်

အလှူငွေတန်ဖြေ - ၂၀၀၀၀၀ ကျပ် ခုနစ်သိန်း တိတိကို

(၃၂)ကြိမ်မြောက်နှုန်အခိုင်ထားရန် ပြုပ်မြောက်ရန်အလှူကို ထပ်ဖြဲတရား ထတ်သန်ဂွာ
လှူဒါန်းသည်ကို ဤဂုဏ်ပြုလွှာတိတ်ဆွဲပြုပြီး ဂုဏ်ပြု ရှိကြောင်းပါသည်။

ဟသံဓာရုံ
ဒွန်ပြိုစီးဇုစီးကဘဝ္ဒသိစရး (အထူး)တဝိဒ္ဒါ

ရက်စွဲ ၂၀၁၉ ခုနှစ်၊ ဝေသော်ပြိုလ (၂၀)ရက်

JEWELLERY LUCKY PRODUCTION CO., LTD မှ လုပ်ဆောင်မည့် ရာဘာသစ်ပါးလွှာနှင့် အထပ်သားထုတ်လုပ်ခြင်း လုပ်ငန်းအတွက် IEE အစီရင်ခံစာရေးသားခြင်းဆိုင်ရာ လူထုတွေ့ဆုံဆွေးနွေးပွဲ အစည်းအဝေး တက်ရောက်သူများစာရင်း

ကျေးရွာအမည် ဝါးခုတ်ကျေးရွာ　　　　　　　　　　နေ့စွဲ ၆.၁.2022

စဉ်	အမည်	လက်မှတ်	မှတ်ချက်
၁	ဦးဘုရှိဘိုင်း	Spm	အုပ်ချုပ်ရေးမှူး
၂	ဦးဝေအောင်မိုး		
၃	ဦးထွန်းသိန်း		
၄	ဦးကျော်မျိုးဟန်		
၅	ဦးအောင်မြင့်မြတ်		
၆	ဦးအောင်မျိုးသက်		
၇	ဦးကျော်သူရ		
၈	ဒေါ်ဗီတာမွန်	Mon.	
၉	ဒေါ်ခိုင်ဝါလှိုင်	Khaing	
၁၀	ဒေါ်ချူးနန္ဒာလွင်		
၁၁	ဦးမင်းကိုကိုသိန်း	Thein	
၁၂	ဦးဂျဲမင်းထွန်း		

JEWELLERY LUCKY PRODUCTION CO., LTD မှ လုပ်ဆောင်မည့် ရာဘာသစ်ပါးလွှာနှင့်
အထပ်သားထုတ်လုပ်ခြင်း လုပ်ငန်းအတွက် IEE အစီရင်ခံစာရေးသားခြင်းဆိုင်ရာ
လူထုတွေ့ဆုံဆွေးနွေးပွဲ အစည်းအဝေး တက်ရောက်သူများစာရင်း

ကျေးရွာအမည် ဝါးခရုကျေးရွာ　　　　နေ့စွဲ ၆.၂.၂၀၂၀

စဉ်	အမည်	လက်မှတ်	မှတ်ချက်
13	ဒေါ်ဘသိန်း	[illegible]	အုပ်ချုပ်ရေးမှူး
14	ညီညီဝင်း	ဝင်း	
15	ဒေါ်တင်နွယ်ဝင်းထက်	[illegible]	
16	မျိုးမျိုးထွန်း	မျိုး	
17	မြတ်မြတ်ထွေး	ထွေး	
18	ဒေါ်တင်တင်မော်	[illegible]	
19	ခင်ချိုဝင်း	ခင်	
၂၀	ဘကာကလင်း	လင်း	
၂၁	သင်းသင်းမြိုင်	[illegible]	
၂၂	မောမောမာ	မော	
၂၃	ချမ်းမြေ့မော်	[illegible]	
၂၄	ထက်ရှိန်း	ထက်	

JEWELLERY LUCKY PRODUCTION CO., LTD မှ လုပ်ဆောင်မည့် ရာဘာသစ်ပါးလွှာနှင့်
အထပ်သားထုတ်လုပ်ခြင်း လုပ်ငန်းအတွက် IEE အစီရင်ခံစာရေးသားခြင်းဆိုင်ရာ
လူထုတွေ့ဆုံဆွေးနွေးပွဲ အစည်းအဝေး တက်ရောက်သူများစာရင်း

ကျေးရွာအမည် [illegible] နေ့စွဲ ၆.၇.၂၀၂၂

စဉ်	အမည်	လက်မှတ်	မှတ်ချက်
၂၅	[illegible]	[signature]	အုပ်ချုပ်ရေးမှူး
၂၆	[illegible]	[signature]	
၂၇	[illegible]	[signature]	
၂၈	ဝင်းမာနိ	[signature]	
၂၉	[illegible]	[signature]	
၃၀	ရဲထက်အောင်	[signature]	
၃၁	အောင်ဝင်းထွန်း	[signature]	
၃၂	[illegible]	Shen	
၃၃	[illegible]	[signature]	
၃၄	မောင်စိုးနော်	[signature]	
၃၅	[illegible]	[signature]	
၃၆	ခင်မာနိုး	[signature]	

No.67/69, B - 5, Parami Road, 16 Ward, Hlaing Tsp. ph: +95- 9420105071, +95- 973044903

Email: myanmar.esc@gmail.com