New World Shwe Pyi Tan Co.,Ltd

Brick Production and Distribution

Oattarathiri Township

Naypyidaw

Initial Environmental Examination (IEE)

Prepared by
SEE-Trust
Nay Wun Myat(s) Co.,Ltd

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Version II

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Acronym

IEE	–	Initial Environment Examination
NWSPT	–	New World Shwe Pyi Tan Co.Ltd
EMP	–	Envoronmental Management Plan
EIA	–	Environmental Impact Assessment
ECD	–	Environmental Conservation Department
ECC	–	Environmental Compliance Certificate
T.O.R	–	Terms of References
CSR	–	Corporate Social Responsibility
NEQ	–	National Emission Quality
HSE	–	Health Safety and Envrionment
PPE	–	Personal Protection Equipment
CI	–	Cummulative Impacts
SUK	–	100 Cubit Feet
WHO	–	World Health Organization
EQEM	–	Environmental Quality (Emission) guide lines
AOI	–	Area of Influence
UNFCC	–	United Nations Frame Works Convention on Climate Change
IFC	–	International Finance Corporation
IUCN	–	Internation Union for Conservation and Nature

သစ်လွင်သော ကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီလီမိတက်

စက်အုတ်ထုတ်လုပ်ဖြန့်ဖြူးရေးလုပ်ငန်း

နေပြည်တော်

ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အစီရင်ခံစာ

(Initial Environmental Examination)

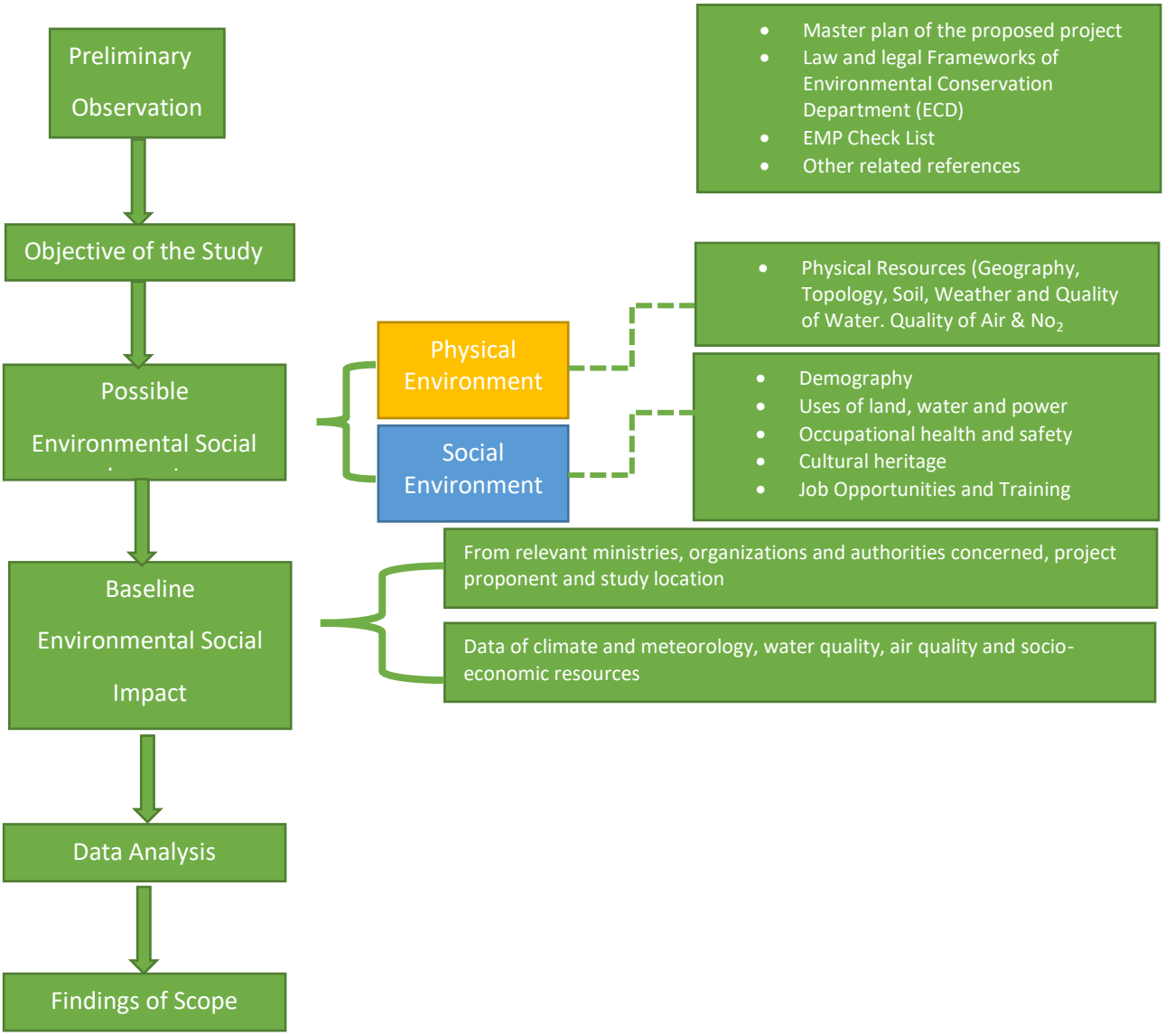
အကျဉ်းချုပ် (Executive Summary)

ဤစီမံကိန်းကို သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီလီမိတက်မှ နေပြည်တော်ဒေသ၊ ဥတ္တရသီရိ မြို့နယ်၊ တောင်ညိုကျေးရွာအုပ်စု၊ အမှတ် (၅၂)၊ သစ်စက်ကျေးရွာ၊ မြနန်းခင်ကွင်းအမှတ် (၁၂၈) နှင့် (၅၂) သစ်စက်ကျေးရွာ ဦးပိုင်အမှတ် (၁၁၁၇) ရှိမြေဧရိယာ (၂၀.၄၇) ဧကတွင် တည်ထောင်မည့် စက်အုတ်ထုတ်လုပ်ဖြန့်ဖြူးရေးလုပ်ငန်းဖြစ်ပါသည်။ မြန်မာနိုင်ငံသားပိုင် ရင်းနှီးမြှုပ်နှံမှုဖြစ်ပြီး မြန်မာကျပ်ငွေ သန်း ၅,၈၀၀ ရင်းနှီးမြှုပ်နှံသွားမည် ဖြစ်ပါသည်။

အုတ်ထုတ်လုပ်ရာတွင် လောင်စာထင်းမသုံးဘဲ အုတ်ဖုတ်ရာတွင် မြေနှင့် ကျောက်မီးသွေးအမှုန့် ရောစပ်ပြီး မီးဖိုအတွင်း၌ မြေနှင့်ကျောက်မီးသွေးကိုပင် လောင်စာအဖြစ် လောင်ကျွမ်းစနစ်ဖြစ်ပါသည်။ ကနဦး အပူချိန်ရစေရန်သာ အပူပေးရသည့်စနစ်ဖြစ်သည်။ နောက်ပိုင်းအုတ်ဖုတ်ရာ၌ အပူချိန်လိုမှသာ ဖိုအပေါ်မှ ကျောက်မီးသွေးတုံးများချပေးသည့်စနစ်ဖြစ်ပါသည်။ အုတ်အအေးခံသည့်အခါ အပူကို ပြန်စုပ်ယူ၍ အပူပေး သည့်အပိုင်းသို့ ပြန်ပို့သည့်စနစ်ဖြစ်ရာ မီးခိုးနှင့်ဓာတ်ငွေ့ထုတ်လွှတ်မှုအလွန်နည်းသည့် စနစ်ဖြစ်ပါသည်။

ဤစီမံကိန်းအား IEE ရေးဆွဲရန်လိုအပ်သဖြင့် SEE-Trust, Naywunmyat(s) Co., Ltd အား တတိယအကြံပေးခန့်အပ်ဆောင်ရွက်ရန် တင်ပြခဲ့ရာ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ခွင့်ပြုချက်ဖြင့် ဆောင်ရွက်ခဲ့ခြင်းဖြစ်ပါသည်။

အခန်း (၁) ၌ နိဒါန်းအနေဖြင့် အထက်ပါနောက်ခံအကြောင်းအရာများ၊ IEE ရေးဆွဲရခြင်းအကြောင်းရင်းနှင့် တတိယအဖွဲ့တွင်ပါဝင်မည့် ပုဂ္ဂိုလ်များကို ဖော်ပြထားပါသည်။ IEE ရေးဆွဲမည့်နည်းလမ်းများကိုလည်း ဇယားဖြင့် ဖော်ပြထားပါသည်။



အခန်း (၂) သည် စီးမံကန်းအကြောင်းအရာဖော်ပြချက်နှင့် အခြားနည်းလမ်းနှင့်ပတ်သက်သည့် အခန်း ဖြစ်ပါသည်။

တည်နေရာပြမြေပုံ၊ ကွန်တိုမြေပုံတို့ကို ဖော်ပြထားပါသည်။ စီမံကိန်း၌ အဆောင်အဦ (၁၉) လုံး တည် ဆောက်သွားမည်ဖြစ်ပါသည်။

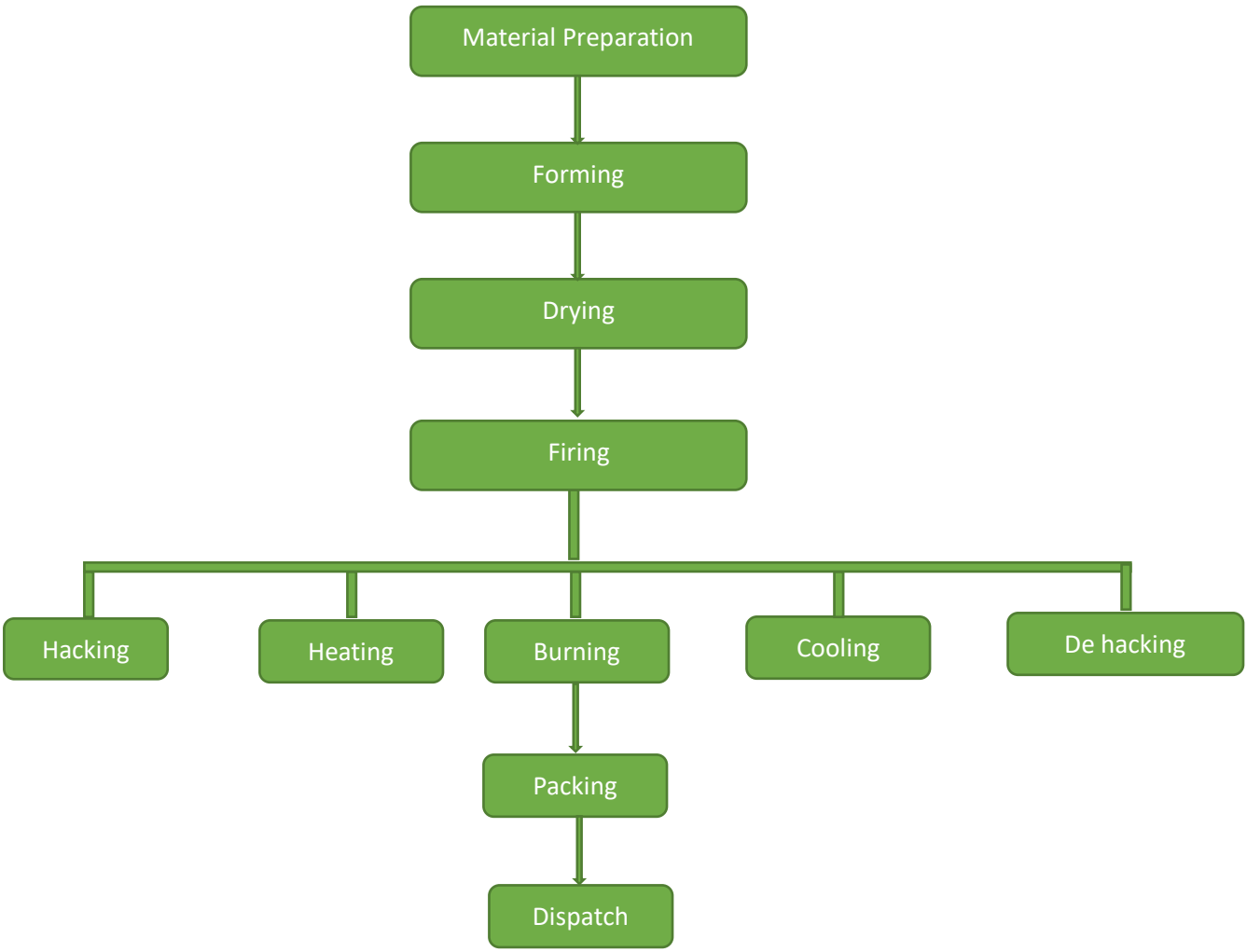
လုပ်ငန်းလိုအပ်ချက်အနေဖြင့် ကုန်ကြမ်းမြေကြီး (၁) ရက် ၅၄ ကျင်း၊ ကျောက်မီးသွေး (၁) ရက် (၁၀) တန်၊ ရေ (၅၀၀) ဂါလံ၊ လျှပ်စစ် တစ်နေ့လျှင် ၀.၈ – ၁.၅ Mega Walt ၊ ဒီဇယ် တစ်နှစ်လျှင် (၃၆,၀၀၀) ဂါလံ လိုအပ်မည်ဟု တွက်ချက်ထားပါသည်။

လုပ်သား (၉၂) ဦး လိုအပ်မည် ဖြစ်ပါသည်။ နိုင်ငံခြားသား (၉) ဦးကိုသာ တည်ဆောက် တပ်ဆင်ရေး ကာလတွင် ခန့်ထားမည်ဖြစ်ပါသည်။

ထုတ်လုပ်မည့်အုတ်မှာ (၁၁၅ မမ x ၂၄၀ မမ x ၅၃ မမ) အမျိုးအစားဖြစ်ပြီး အုတ်ခံနိုင်ရည်အား ၁၅၀၀ - ၁၈၀၀ psi ဖြစ်ပါသည်။ တစ်ရက်လျှင် လျာထားကုန်ထုတ်လုပ်မှုမှာ အုတ်အလုံးရေ ၈၀,၀၀၀ မှ ၁၀၀,၀၀၀ အထိ ဖြစ်ပါသည်။

လျာထားကာလမှာ အောက်ပါအတိုင်းဖြစ်သော်လည်း COVID အခြေအနေကြောင့် နောက်ကျခဲ့ပြီး ယခုအခါ စမ်းသပ်လည်ပတ်မှုသာဆောင်ရွက်နိုင်ပြီး စက်လိုအပ်ချက်များကို ပြန်လည်မွမ်းမံပြင်ဆင်လျှက် ရှိပါသည်။

ထုတ်လုပ်မှုလုပ်ငန်းစဉ်အဆင့်ဆင့်ကို ဤအခန်း၌ ဖော်ပြထားပါသည်။ ထုတ်လုပ်လုပ်ငန်းစဉ်ဇယား မှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။



စက်ရုံ၏အညစ်အကြေးစွန့်ထုတ်မှုအစီအစဉ်များကို သုံးသပ်ဖော်ပြထားပါသည်။ အဓိကအားဖြင့် ရေမြောင်းစနစ်ကို ပိုမိုကောင်းမွန်ရန် လိုအပ်ကြောင်း တွေ့ရပါသည်။

စီမံကိန်းအား အခြားနည်းလမ်းဖြင့် ဆောင်ရွက်နိုင်မည့်နည်းလမ်းများရှာဖွေလေ့လာခဲ့ပါသည်။ အခြား နည်းလမ်းမလိုအပ်ပါ။ သို့ရာတွင် အုတ်အရည်အသွေးမြင့်ရေးအတွက် ကုန်ကြမ်းကို စက်ရုံဝန်းမှ မြေအပြင် အစေးဓာတ်များသည့်မြေ (Clay) ဖြည့်စွက်သုံးသင့်ကြောင်း တွေ့ရပါသည်။

အခန်း (၃) တွင် မူဝါဒ၊ ဥပဒေများနှင့်ပတ်သက်၍ဖော်ပြထားပါသည်။ လိုက်နာရန် ပတ်ဝန်းကျင် ဆိုင်ရာ မူဝါဒ၊ ဥပဒေ၊ နည်းဥပဒေ၊ လုပ်ထုံးလုပ်နည်း၊ စံချိန်စံညွှန်းများကို ကောက်နုတ်ဖော်ပြထားပါသည်။ လိုက်နာရန် စွန့်ထုတ်အရည်အသွေး၊ စံနှုန်းများကိုလည်း ဖော်ပြထားပါသည်။

<u>စွန့်ပစ်အရည်အသွေး</u>

Parameter	Unit	Maximum Concentration
Biological Oxygen demand	Mg/L	30
Chemical oxygen demand	Mg/L	125
Oil and grease	Mg/L	10
PH	SU[a]	6–9
Total coliform bacteria	100mL	400
Total Nitrogen	Mg/L	10
Total Phosphorus	Mg/L	2
Total suspend solid	Mg/L	50

<u>လေထုအရည်အသွေး</u>

Parameter	Averaging period	Guideline value Mg/m³
Nitrogen dioxide	1 year 1 hour	40 200
Ozone	8 hours daily	100

	Maximum	
Particulate matter PM10[2]	1 year 24 hours	20 50
Particulate matter PM_{24}[b]	1 year 24 hr	10 25
Sulphur dioxide	24 hr 10 m mule	20 500

<u>ဆူညံသံ</u>

Receptor	One–hour L Aeq (dBA)[a]	
	Day (7:00–22:00) **Public holiday (10:00–22:00)**	**Night 22:00 – 07:00** **Public holiday (22:00 – 10:00)**
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

လိုက်နာရမည့် အပြည်ပြည်ဆိုင်ရာ သဘောတူညီချက်များကိုလည်း ဖော်ပြထားပါသည်။

အခန်း(၄)သည် ပတ်ဝန်းကျင်ဆိုင်ရာ အချက်အလက်များကို လေ့လာဖော်ပြသည့်အခန်းဖြစ်သည်။ လေ့လာမည့်နယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်-

<u>စက်ရုံဝန်း</u>

ကုန်ကြမ်းဧရိယာ

သိုလှောင်ဧရိယာ

ရုံးနှင့်ဝန်ထမ်းဆောင်

စိမ်းလမ်းဇုန်

သစ်တောနှင့် ဇီဝမျိုးစုံ/မျိုးကွဲ

ပတ်ဝန်းကျင်ကျေးရွာများ

တတိယအဖွဲ့အစည်းမှ ကွင်းဆင်းလေ့လာခြင်း၊ တိုင်းတာခြင်း၊ နမူနာကောက်ခြင်း၊ ဓာတ်ခွဲစမ်းသပ်ခြင်း၊ ဒေသခံများနှင့်မေးမြန်းစာရင်းယူခြင်းများဆောင်ရွက်ခဲ့ပါသည်။ ဒုတိယကိန်းဂဏန်းကို သက်ဆိုင်ရာဌာနများမှ ကောက်ယူခြင်း၊ သုတေသနစာတမ်းများ၊ အစီရင်ခံစာများမှ စုစည်းခဲ့ပြီး တတိယအဖွဲ့မှ စိစစ်ပိုင်းခြားကာ သုံးစွဲထားပါသည်။ ပထဝီနှင့် ဘူမိအနေအထား၊ ရာသီဥတု၊ လူဦးရေ၊ ပို့ဆောင်ရေး၊ မြေအသုံးချမှု၊ ပညာရေးနှင့်ကျန်းမာရေး၊ လျှပ်စစ်၊ ရေရှိရေး စသည်တို့ကို ဖော်ပြထားပါသည်။

ဒေသခံများကို စာရင်းဇယား ကောက်ယူခဲ့ပါသည်။ ကျေးလက်လူဦးရေ၊ အိမ်ထောင်စု၊ အိမ်များအခြေအနေ၊ လျှပ်စစ်၊ ရေ၊ ကိုးကွယ်မှု၊ ပညာ/ကျန်းမာရေးနှင့် စားဝတ်နေရေးတို့ကို လေ့လာခဲ့ပါသည်။ စီးပွားရေးအမျိုးအစားအားဖြင့် အောက်ပါအချိုးအတိုင်းရှိပါသည်။

စိုက်ပျိုးရေး	-	၄၁%
စက်မှု	-	၅.၅%
သယ်ပို့	-	၄%
ကုန်သယ်	-	၁၀%
ဝန်ထမ်း	-	၂.၂%
လုပ်သား	-	၃၇.၃%

အိမ်ထောင်တစ်စု၏ပျမ်းမျှဝင်ငွေမှာ တစ်လ ၃၅၀,၀၀၀ ကျပ်ဖြစ်ပါသည်။ ဇီဝမျိုးစုံမျိုးကွဲများကိုလည်း နမူနာကွက်များယူ၍ စာရင်းကောက်ယူဖော်ပြထားပါသည်။

လေထုအရည်အသွေး၊ ဆူညံသံ၊ ရေအရည်အသွေးတို့ကိုလည်း တိုင်းတာခြင်း၊ ဓာတ်ခွဲစမ်းသပ်ခြင်းများ ဆောင်ရွက်ခဲ့ပါသည်။ တိုင်းတာရရှိသည့် ရလာဒ်များကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးမှ သတ်မှတ်ထားသည့် စံနှုန်းဘောင်အတွင်း၌ ရှိနေပါသည်။

အဓိကသက်ရောက်နိုင်မှုအခြေအနေနှင့် လျော့ချမည့်အစီအစဉ်များကို အခန်း (၅) တွင် ဖော်ပြထားပါသည်။ ထိခိုက်မှုများကိုလည်း ဖော်ထုတ်ရာတွင် အရည်အသွေးနှင့် အရေအတွက်ကို အခြေခံကာ အမှတ်ပေး စနစ်ဖြင့် ဆုံးဖြတ်ဖော်ထုတ်ထားပါသည်။ ထိခိုက်နိုင်မှုအား ပမာဏ (Magnitude) ၊ ကာလ (Duration)၊ ထိခိုက်နေရာအဝန်း (Extent) ၊ ဖြစ်နိုင်စွမ်း (Extent) ကို အခြေခံကာ ထိခိုက်နိုင်မှုကိန်း (Significant Point) ကို ဦးစွာဖော်ထုတ်ပါသည်။ ယင်းရမှတ်မှ ထိခိုက်မှုပမာဏကို အောက်ပါဇယားဖြင့် တိုင်းတာသတ်မှတ်ပါသည်။

ထိခိုက်မှုပမာဏ ရမှတ် CSP	ထိခိုက်မှု သတ်မှတ်ချက်
< ၁၅	အလွန်နည်း
၁၅ - ၂၉	နည်းပါး
၃၀ - ၄၄	အလယ်အလတ်
၄၅ - ၅၉	မြင့်မား
> ၆၀	အလွန်မြင့်မား

ကာလ (၃) ရပ်အတွက် ထိခိုက်မှု ဖော်ထုတ်ရာတွင် ထိခိုက်မှုပမာဏမှာ အများအားဖြင့် နည်းပါး (Low) ဖြစ်သည်ကို တွေ့ရပါသည်။

တွေ့ရှိရသည့် သက်ရောက်မှုအခြေအနေများမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်-

တွေ့ရှိရသည့် သက်ရောက်မှု	တွေ့ရှိရသည့် ကာလ/ပမာဏ								
	တည်ဆောက်			လည်ပတ်			ပိတ်သိမ်း		
	အလယ်အလတ်	နည်းပါး	အလွန်နည်း	အလယ်အလတ်	နည်းပါး	အလွန်နည်း	အလယ်အလတ်	နည်းပါး	အလွန်နည်း
အပြင်ပသာဒ		✔			✔			✔	
လေအရည်အသွေး		✔			✔			✔	
ဆူညံသံ		✔			✔			✔	
စွန့်ပစ်အစိုင်အခဲ		✔			✔			✔	
ဘေးဖြစ်အစိုင်အခဲ		✔			✔			✔	

ရေဆိုး		✔			✔			✔	
စက်ဆီယိုဖိတ်မှု		✔			✔			✔	
ကျန်းမာ/ဘေးကင်း		✔			✔			✔	
မြေဆီလွှာတိုက်စားမှု		-			-			✔	
ယာဉ်အန္တရာယ်		-			✔			✔	
လူမှုစီးပွား		***ကောင်းကျိုး***			***ကောင်းကျိုး***			***ကောင်းကျိုး***	

စီမံကိန်းဆက်စပ်သက်ရောက်မှု (Cumulative Impact) ရှိ/မရှိစစ်ရာ ပတ်ဝန်းကျင်တွင် စက်ရုံ/ အလုပ်ရုံများ လည်ပတ်မှုမရှိခြင်း၊ ဥယျာဉ်၊ စိုက်ခင်း၊ နေအိမ်များသာ၍မရှိကြောင်း တွေ့ရပါသည်။

Risk Assessment လေ့လာရာတွင် အောက်ပါအတိုင်းတွေ့ရပြီး လုပ်ဆောင်ရမည့် ကြိုတင်ကာကွယ်မှု လျော့ချရန် အစီအစဉ်ကို ရေးဆွဲထားပါသည်။

ထိခိုက်မှု - သင့်

လုပ်သား ကျန်းမာရေး - မြင့်

ကျေးလက်ကျန်းမာရေး - နည်းပါး

မီးအန္တရာယ် - နည်းပါး

သဘာဝဘေး - မြင့်မား

အခန်း (၆) တွင် အများပြည်သူ တွေ့ဆုံဆွေးနွေးပွဲနှင့်ပတ်သက်၍ ဖော်ပြထားပါသည်။ ဆွေးနွေးပွဲကို (၂၉၊ ၁၀၊ ၂၀၂၁) ရက်နေ့တွင် ကျင်းပခဲ့ရာ လူ (၃၈) ဦးတက်ရောက်ခဲ့ပါသည်။ အစည်းအဝေးတွင် ဆွေးနွေးဆုံးဖြတ်ချက်များမှာ -

(၁) လုပ်သား နေ့ဝင်/ထွက် မှတ်တမ်း စက်ရုံ၌ထားရန်

(၂) အန္တရာယ်ကာကွယ်ရေးဆိုင်းဘုတ်များထားရှိရန်

(၃) စက်ရုံဝန်းပတ်လည် နွေရာသီ၌ မီးတားလမ်းဖောက်ရန်

(၄) မီးသတ်သင်တန်းပေးရန်၊ မီးသတ်ကိရိယာများ ဖြည့်တင်းရန်၊ မီးသတ်ရန် ရေပိုမိုသိုလှောင်ရန်

(၅) ရေမြောင်းများနှင့် စွန့်ပစ်ရေလွှတ်မှုစနစ် ပြုပြင်ရန်

(၆) ကုန်ကြမ်း သယ်ယူ/တင်ချ/သိုလှောင်ရာ၌ ဂရုစိုက်ရန် (အထူးသဖြင့် ကျောက်မီးသွေး)

(၇) စီမံကိန်းလုပ်ငန်းအား သဘောတူလက်ခံသည်

(၈) လူမှုရေး တာဝန်သိမှုအနေဖြင့် အကျိုးအမြတ် ၂% ကို သုံးစွဲရန် လုပ်ငန်းရှင်မှ ကတိပြုသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) ကို အခန်း (၇) တွင် ဖော်ပြထားပါသည်။ တည်ဆောက်ရေးကာလ၊ လည်ပတ်ကာလနှင့် ပိတ်သိမ်းကာလအတွက် ထိခိုက်မှု လျော့ချမည့်အစီအစဉ်များ၊ စောင့်ကြည့်အစီအစဉ်များကို ဇယားဖြင့် ရေးဆွဲထားပါသည်။ ရန်ပုံငွေလျာထားမှုနှင့် တာဝန်ခံမည့် အဖွဲ့အားလည်း ဖော်ပြထား ပါသည်။

သီးခြားအနေဖြင့် အောက်ပါအစီအစဉ်များကို ဤအခန်း၌ ရေးဆွဲဖော်ပြထားပါသည်။

- လုပ်ငန်းခွင် ဘေးကင်းရေး
- မီးဘေးကာကွယ်ရေးစီမံချက်
- အရေးပေါ်စီမံခန့်ခွဲမှုအစီအစဉ်
- လုပ်သားနှင့် ပြည်သူ ကျန်းမာရေးနှင့် ဘေးကင်းရှင်းရေး
- စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲရေး
- မကျေနပ်မှုဖြေရှင်းရေးအစီအစဉ်
- လေ့ကျင့်ပညာပေးရေး
- လူမှုရေးတာဝန်သိမှု

ထောက်ခံအကြံပြုချက်အနေဖြင့် အောက်ပါအတိုင်းဖော်ပြထားပါသည်-

အခန်း(၈)တွင် ကတိဝန်ခံချက်များ ဖော်ပြထားသည့်အခန်းဖြစ်ပါသည်။ လုပ်ငန်းရှင်မှ IEE အစီရင်ခံစာသည် တိကျမှန်ကန်ကြောင်း၊ စံဥပဒေ၊ နည်းဥပဒေ လုပ်ထုံးလုပ်နည်းများနှင့်အညီ ပြုစုထား

ကြောင်း၊ ဤအစီရင်ခံစာပါထိခိုက်မှုလျော့ချရေးအစီအစဉ်များ၊ EMP အချက်အလက်များကို လိုက်နာမည် ဖြစ်ကြောင်းကိုလည်းကောင်း၊ တတိယအဖွဲ့အစည်းမှ ဤအစီရင်ခံစာသည် တိကျပြီး ပြည့်စုံမှန်ကန် ကြောင်းနှင့် ပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်အညီ ပြုစုထားကြောင်း ဖော်ပြထား ပါသည်။

(၁) ဤထုတ်လုပ်မှုစနစ်သည် ပတ်ဝန်းကျင်ထိခိုက်မှုအနည်းဆုံးစနစ်ဖြစ်ကြောင်း တွေ့ရပါသည်။

(၂) ရေးဆွဲထားသည့် လျော့ချရေးအစီအစဉ်များကို တိကျစွာလိုက်နာဆောင်ရွက်ခြင်းဖြင့် ထာဝစဉ် ဖွံ့ဖြိုးရေး ဆောင်ရွက်ရန်

(၃) လုပ်သားများ သက်သာချောင်ချိရေး အလေးပြုဆောင်ရွက်ပေးရန်

(၄) ဒေသခံများဖွံ့ဖြိုးရေး ကူညီဆောင်ရွက်ရန်

(၅) အရည်အသွေးထိန်းသိမ်းခြင်းလုပ်ငန်း ပုံမှန်ဆောင်ရွက်ရန်

(၆) ဖြစ်နိုင်ပါက စက်ရုံ၌အရည်အသွေးစမ်းသပ်စက် တပ်ဆင်သင့်ပါသည်။

နိဂုံးချုပ်ဖော်ပြရာတွင် ဤလုပ်ငန်းသည် နေပြည်တော်နယ်မြေ ဖွံ့ဖြိုးရေးအတွက် အထောက်အကူ ဖြစ်စေသည့်လုပ်ငန်းဖြစ်ပြီး လောင်စာစွမ်းအင် ချွေတာနိုင်ပြီး လေထုသို့ဓာတ်ငွေ့စွန့်လွှတ်မှု နည်းပါးသည့် စနစ်ဖြစ်ကြောင်း နိဂုံး၌ ဖော်ပြထားပါသည်။

Executive Summary

This project will be development by the New World Shwepyitan Co.,Ltd. The project will be located at Naypyidaw, Oattara Thiri township, Taungnyo village tract, No.52 Saw mill village. The investment will be made by cent percent Myanmar. The total investment amount is equivalent Myanmar Kyat 5800 million.

The Brick making method is different with conventional method, which use a lot of fire wood for burning. These methods use only few coal for burning in the initial time to get heat in the tunnel of drying and burning zone. The soil and coal are mixed together in green brick and its green brick itself is used as a heating agent. The extra heats come out from cooling the hot air has to return back to the drying zone. This method least air emission and less smoke from chimney.

According to the requirement to conduct IEE for the project, this process was formulated by SEE Trust, Naywunmyat(s) Co with the approval of ECD.

Chapter one dealed with background of project, justification to do IEE, about third party team members and methodology of IEE process were mentioned.

Description of project and alternatives were discussed in the chapter (2).

The location maps (UTM & Satellite) maps and contour maps are illustrated in this chapter. There will be constructed (19) buildings in the factory compound.

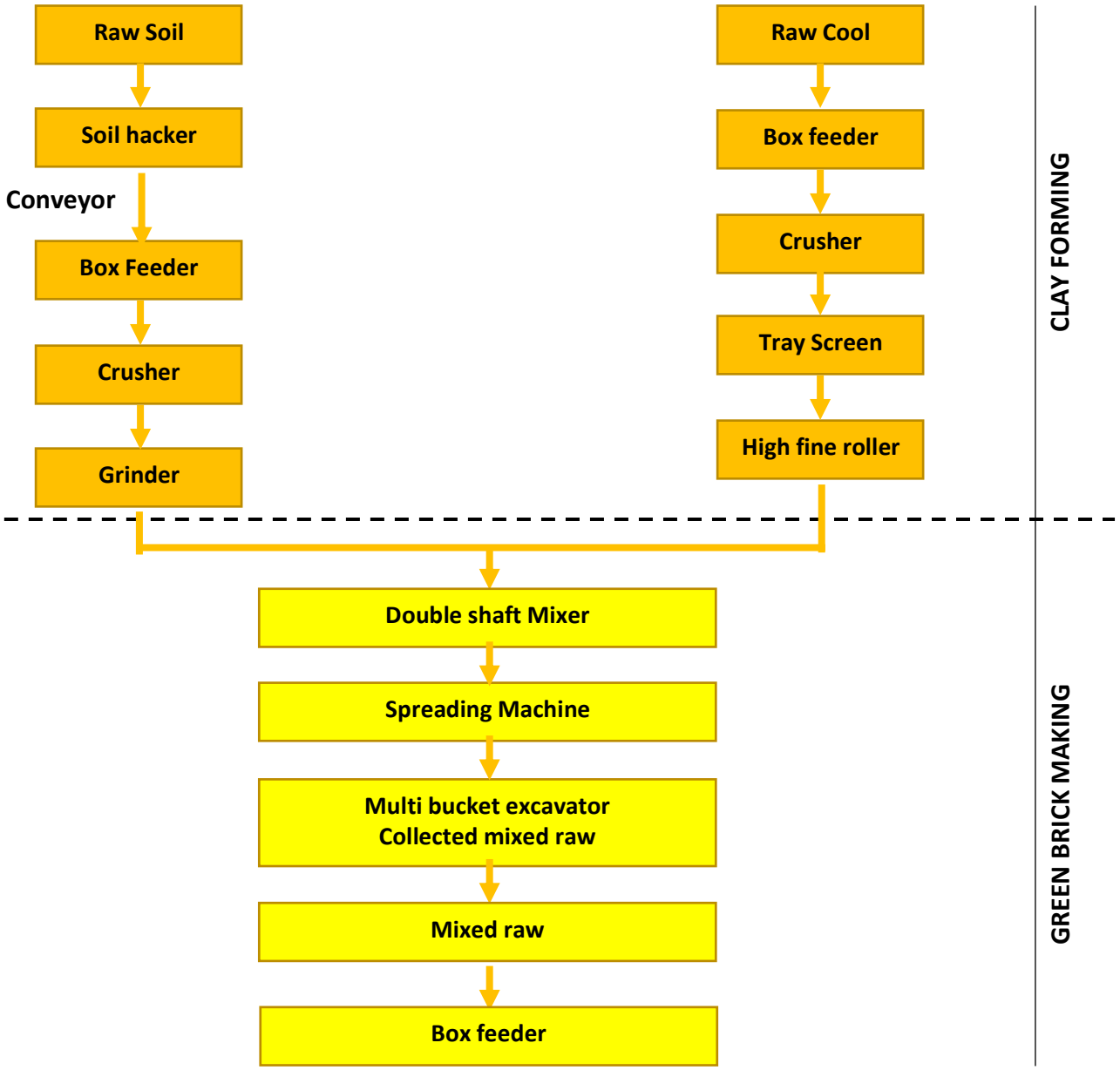
The basic requirements of factory are:

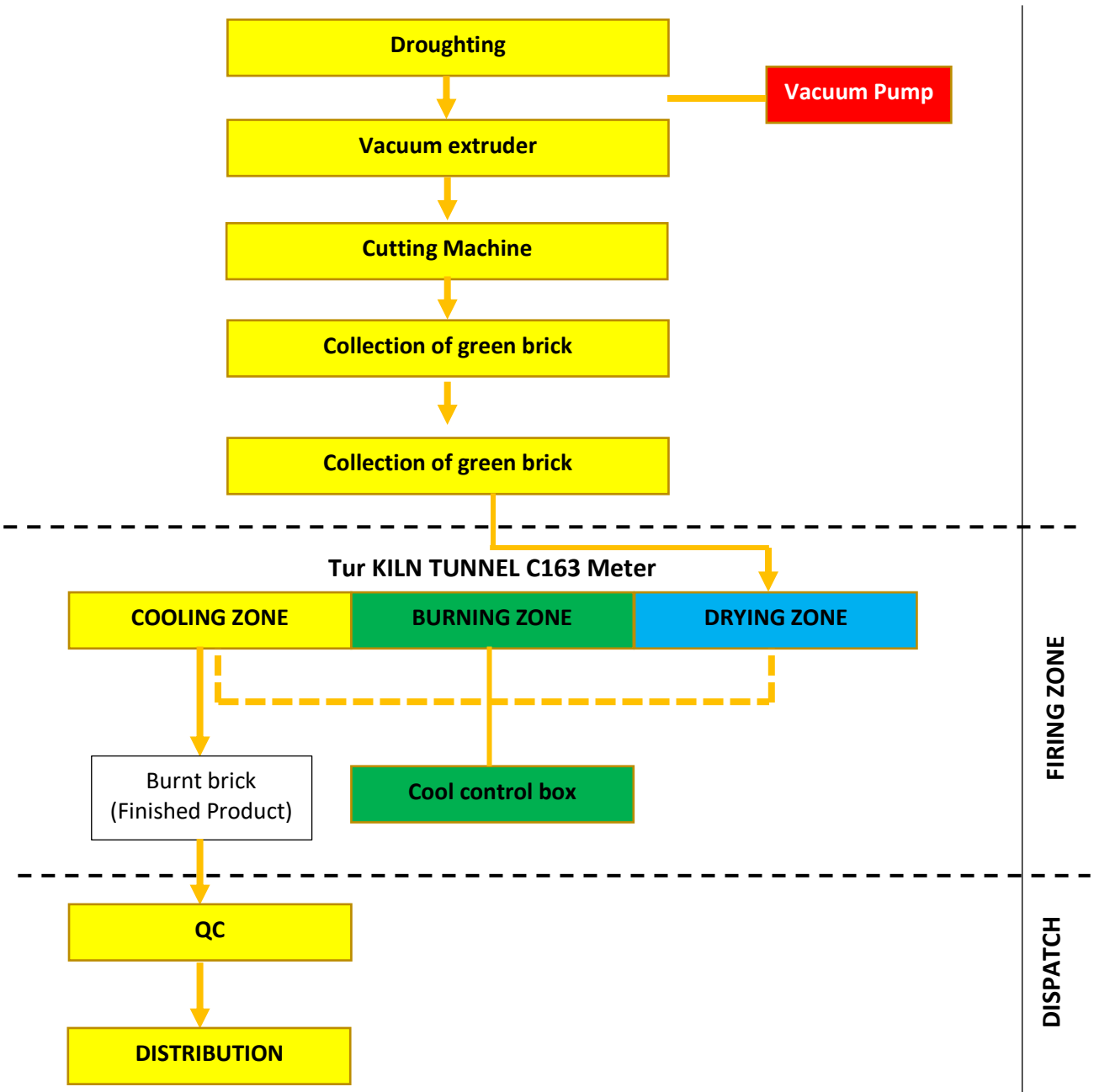
Soil for making brick	–	54 SUK / day
Coal	–	10 tan / day
Water	–	5000 gallon / day
Electricity	–	0.8 – 1.5 Mega watt / day
Diesel	–	36000 Gallon / annum

The product size is 115 mm x 240 mm x 53 mm. The strength target is between– (1500–1800) psi. Production capacity will be (80000– 100000) pieces per day.

The target plan is as follow, but projects have been implemented far beyond the plan because of covid–19. Now only test run can done and repairing and adjustment are doing to start running.

The processing methods discuss detail in this part. The process in brief is as follow.





The waste management conditions were discussed. The waste water channel and disposal of waste system shall be modified. Water quality (well water) waste water, Air quality, Noise have been measured and tested. The results seen acceptable.

Studies on the alternative method but there are no alternatives at the moment, except, some clayey soil shall be taken from other area and mixed with soil in the factory compound, because the soil in the mill needs clay to get the quality bricks.

Chapter (3) mentioned about policy, laws, rules and regulation regards on environment conservation. The procedures and standards also mentioned.

Waste water standard

Parameter	Unit	Maximum Concentration
Biological Oxygen demand	Mg/L	30
Chemical oxygen demand	Mg/L	125
Oil and grease	Mg/L	10
pH	SU[a]	6-9
Total coliform bacteria	100mL	400
Total Nitrogen	Mg/L	10
Total Phosphorus	Mg/L	2
Total suspend solid	Mg/L	50

Air quality

Parameter	Averaging period	Guideline value Mg/m³
Nitrogen dioxide	1 year 1 hour	40 200
Ozone	8 hours daily Maximum	100
Particulate matter PM10[2]	1 year 24 hours	20 50
Particulate matter PM_{24}[b]	1 year 24 hr	10 25
Sulphur dioxide	24 hr 10 m mule	20 500

Noise

Receptor	One–hour L Aeq (dBA)[a]	
	Day (7:00–22:00) Public holiday (10:00–22:00)	Night 22:00 – 07:00 Public holiday (22:00 – 10:00)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

The international convention Agreements ratified by Myanmar also expressed here.

Chapter four is about the surrounding environment. The area of scope we studied are:

(1) Factory compound

(2) Raw taking area

(3) Storage area

(4) Office and quarter

(5) Green zone

(6) Forest and biodiversity

(7) Surrounding villages

The study is made by field studies, laboratory testing, adhoc testing, surveying and interviewed with PAPs and surrounding villages. The secondary data are collected from concern department, research papers published reports and literatures collected. The collected data were screening by the experts of third party team. The geography geological formation, climatic conditions, population, transportation, land use, hydrology, health and education, electricity of the township were included in the report. The base line data of villages were collected and mentioned in this chapter. Population, household, housing, electricity use religion, source of water, education, health and livelihood were collected.

The livelihoods of the surrounding villages are: –

Agriculture – 41%

Manufacture – 5.5%

Transport – 4%

Merchant – 10%

Government staff – 2.2%

Labor – 37.3%

The average income of house hold are K 350000/–per month. Regards on religion the majority in Buddhist (97.2%).

Biodiversity survey also conducted and data shown in tables.

The air quality, Noise and water quality were tested at laboratory. The result use in the limit of ECD standard.

The possible impact and mitigation measures were discussed in chapter (5). The method of identification were done based on qualitative and quantitative methods use by IAIA. The impact is classified by Magnitude, Extent, Duration and Probability. The significance of impact is measured by S.P (Significant Point).

The impact level is fixed base on the table.

Significant Value	Impact level
< 15	Very low
15–29	Low
36–44	Medium
45–59	High
>60	Too High

The result from study found that most of impact levels are low in all phases.

The summary can be made as follow:–

Parameter	Impact level of each phases								
	Construction			Operation			Decommissioning		
	M	L	VL	M	L	VL	M	L	VL
Visual amenity		✔			✔			✔	
Air quality		✔			✔			✔	
Noise		✔			✔			✔	
Solid waste		✔			✔			✔	
Hazardous waste		✔			✔			✔	
Waste water		✔			✔			✔	
Oil spill		✔			✔			✔	
Health/ Safety		✔			✔			✔	
Soil erosion		–			–			✔	
Traffic accident		–			✔			✔	
Social Economy	Positive			Positive			Positive		

There were no cumulative impact founded risk assessment were made. The precaution and Mitigation for risk are planned.

Risk level

Accident	–	Medium
Labor	–	High
Community health	–	Low
Fire	–	Low
Natural disaster	–	High unexpected

In chapter (6), there are recorded the public consultation meeting. The meeting was conducted at (29, Oct 2021) at mill compound. (38) participants attended and decided as follow:–

(1) Factory in/out list should be recorded.
(2) More Safety sign shall be put in the factory
(3) Fire line shall be made along the fence to protect fire spreading inside the compound.
(4) Fire fight training shall arrange and to put more firefighting facilities and more emergency stored water for firefighting,
(5) The drainage system and silk pond should be developed
(6) Care should be taken in transporting, dumping and using coal.
(7) No objection by PAPs to the project
(8) Proponent committed to contribute 2% of profit for CSR programme.

The EMP was drawn in chapter (7). The mitigation measure, monitoring measures for construction, operation and decommissioning phase were stated in the tables. The budget and responsible group also mentioned in the tables. Apart from the above mitigation the following sub plan were prepared.

Fire fighting

Emergency Response and Preparedness Plan

Work Safety

Health and Safety plan

Waste Management

Grievance mechanism

Training

Corporative Social Responsibility

Also budget and responsibilities of proponent mentioned.

Chapter (8) is about the commitments. Proponent committed that these report is prepared completely and precisely. Also commitments were summarized in this chapter.

The report was concluded that this project is the essential for Naypyidaw infrastructure development and the least environmental impact process, and method of saving fire wood. The recommendation for projects are:

(1) This brick production method is the least impact method for environment.

(2) To follow the mitigation measures stickily for the sustainable of business as well as environments.

(3) Care should be taken for the welfare of labor

(4) Community development activities shall be initiative

(5) Quality controlling shall made regularly

(6) If feasible the brick testing machine should be installed.

Chapter (I)

Introduction

1.1 Background

This Initial Environmental Examination (IEE) is prepared for New World Shwe Pyi Tan Co., Ltd.'s “Brick Manufacturing and Distribution project”.

In Myanmar there are many local brick mills, which used a lot of fire wood for burning that direct effected to the deterioration of forests. The traditional type local brick factory product is mostly low quality.

To reduce the forest deterioration and environmental impact the New World Shwe Pyi Tan Co., Ltd (NWSPT) planned to establish at Naypyitaw, use of modern technology to produce high quality product.

1.2 Objectives

The objectives of project are:

(a) To fulfill the machined brick for constructions in Naypyitaw Region.

(b) To assist National development and job opportunities for people.

(c) Industrial development around Naypyitaw.

(d) To get technology development and skill

According to Myanmar Environmental Conservation Law (2012), it requires that the proponents of every development project shall submit an Environmental Management Plan (EMP), and Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to the Ministry of Natural Resources and Environmental Conservation (MONREC). The existing project requires to conduct IEE as ECD instructed to carried out by New World Shwe Pyi Tan Co., Ltd.

Therefore, U Naing Aung Lin (NWSPT), assigned SEE–Trust Environmental Service, Naywunmyat(s) Co., ltd for the Initial Environmental Examination (IEE) and Environmental Management Plan (EMP). Environmental Conservation Department (ECD) has agreed the interim consult to conduct IEE for this project vide letter No: EIA 1/General (1660/2020 Date 13/7/21).

The key objectives of the IEE & EMP are:

- To recognize that social responsibility and environmental management are among too highest corporate priorities.
- To ensure that applicable Acts, Law, Regulations and Guidelines are met.
- To assign clear accountability and responsibility for environmental protection and social responsibility for management and employees.
- To provide appropriate and sufficient resources, including training to achieve targeted performance level on an ongoing basis.
- To evaluate environmental performance and social responsibility against the company environmental and other policies, objectives and targets and fleek improvement where appropriate.

Thus, this report is formulated in accordance with the existing policy, laws, rules and instruction, and submitted as a partial fulfillment to receive the Environmental Compliance Certificate (ECC) from ECD.

1.3 Project Proponent

The project proponent for brick manufacturing and distribution is:

New World Shwe Pyi Tan Co., Ltd

Company registration No:	–	101446530
Status registration	–	Small Company
Address	–	No. 703, 7th Floor, Yuzana Tower, Bahan Township, Yangon, Myanmar.
Focal Person	–	U Naing Aung Lin (Managing Director)
Phone Number	–	09–979646343
Email	–	eddy.jcu@gmail.com, nainglinn.spt@gmail.com

The shareholder and director list are as follow:

Table (1–1) List of share holder

No.	Name	NRC Registration No:	Share Ratio (%)	Remark
1.	U Naing Aung Lin	5/MaKaNa(C)002684	60	Company registration is attached in Appendix (A)
2.	U Pai Wai Oo	12/KaMaYa(C)061596	40	Company abstract is attached in Appendix – B

1.4 Total Investment

The total investment for this project is MMK 5,800,000,000/- (Kyats Five thousand and eight hundred million only). The breakdown of the investment shown in the table (1-2).

Table (1-2) Break down of Investment

SR	Particular	Investment Amount (Kyat in Million)
1.	In Cash	1285.00
2.	Machines	2000.00
3.	Office equipment	500.00
4.	Land	160.13
5.	Building	1339.87
6.	Machinery	515.00
Total		**5800.00**

1.5 Third Party Consultation Team

NWSPT commissioned to SEE-Trust, Naywunmyat(s) Co., Ltd. The group has been registered as a Transitional consultant vide registration No. (0034) Dt: 15 June 2016. The registration is attached in Appendix (B). The members involved in the study were as follow:

Table (1-3) The Third-Party team member involved in this project

SR	NAME	DUTY IN THIS STUDY	EXPERTIES
1.	U Zaw Win	Team leader (Study on biodiversity, Industry management & Social Safe guard System Analyst.	Forest and biodiversity ecology, Management & Industry.
2.	U Soe Win Htun	System Analyst	GIS, Mapping and System analysis.
3.	Daw Thin Thin Myat	Team Member (Economic)	Economics
4.	U Soe Lin	Team Member (Engineering Study)	Mine Engineer
5.	U Myo Kyaw Thu	Team Member (Labor/Law)	Labor Law and Management
6.	U Soe Thein	Team Member	Geology and Soil
7.	U Soe Min Naing	Team Member (Environmental)	Environmental Science, Forest Plantation
8.	Dr.Theint Theint Hlaing	Team Member (M.B.B. S)	Human Resource, Health and Safety
9.	Daw Tin New Wint	Team Member (Chemistry)	BE (Chem), Dip (Environmental Service)
10.	U Khin Mg Htay	Team Member	Social
11.	U Khin Mg Htay	Team Member (Waste)	Waste Water Management
12.	U Myo Min Paing	Field Assistant	Surveyor, B.Sc. (Forestry)
13.	U Phyo Min Htwe	Field Assistant	Surveyor, BA (Eco)

The full address and log of SEE–Trust is

No.42, Pyinnyartazaung Street, Quarter–43, North Dagon Township, Yangon.

Phone: 01–3510442, 09–5063446, 09–971444413

Email: naywunmyat1@gmail.com. zwin@seetrust.co

Facebook Pages: https://www.facebook.com/seetrust

Website: www.seetrust.co

1.6 Terms of References (T.O.R)

The TOR for SEE–Trust are as follow–

1. To find and investigation the possible impact.
2. To find and study the impacts in more detail and find major impact and mitigation measures.
3. To conduct the public consulting meeting.
4. Draw an Environmental Management Plan, Mitigation measure, Monitoring Plan for both construction, operation and decommissioning phases.
5. Drawing plan for fire control, Health and Safety, emergency preparedness plan.
6. Submit a comprehensive IE report and EMP to ECD.

The report should cover with the following headings.

1. Executive summary in Myanmar and English Language
2. Introduction of project
    1. Background
    2. Objective
    3. Proponent
    4. The Third–Party team
    5. TOR
3. Project Description
    1. Location
    2. Project Proponent
    3. Infrastructure

4. Production Process
5. Water requirement and availability
6. Diesel and Electricity requirements
7. Labour
8. Raw material requirement
9. Heavy Machinery
10. Waste Management

4. Policy, Legal and instructional Frame Work
5. Description of Surrounding Environments
   (a) Physical Environment
   (b) Biological Environment
   (c) Socio–economic Environment
   (d) Culture feathers Environment
6. Public Consultation and Disclosure
7. Identification and Assessment of Potential Impact
   (1) Methodology
   (2) Mitigation reassures
   (3) Environmental Management Plan
   (4) Monitoring Plan
   (5) Corporate Social Responsibility (CSR)
   (6) Plan and commitment
   (7) Estimation Cost for EMP
   (8) Grievance readiness Mechanism
   (9) Emergency preparedness nets and Response Plan
   (10) Recommendation and Conclusion

1.7 Scope and methodology of IEE studies

1.7.1 Scope

Study has taken into consideration for three phases, construction, especially on operation phases and decommissioning phases. This scope of IEE covers:

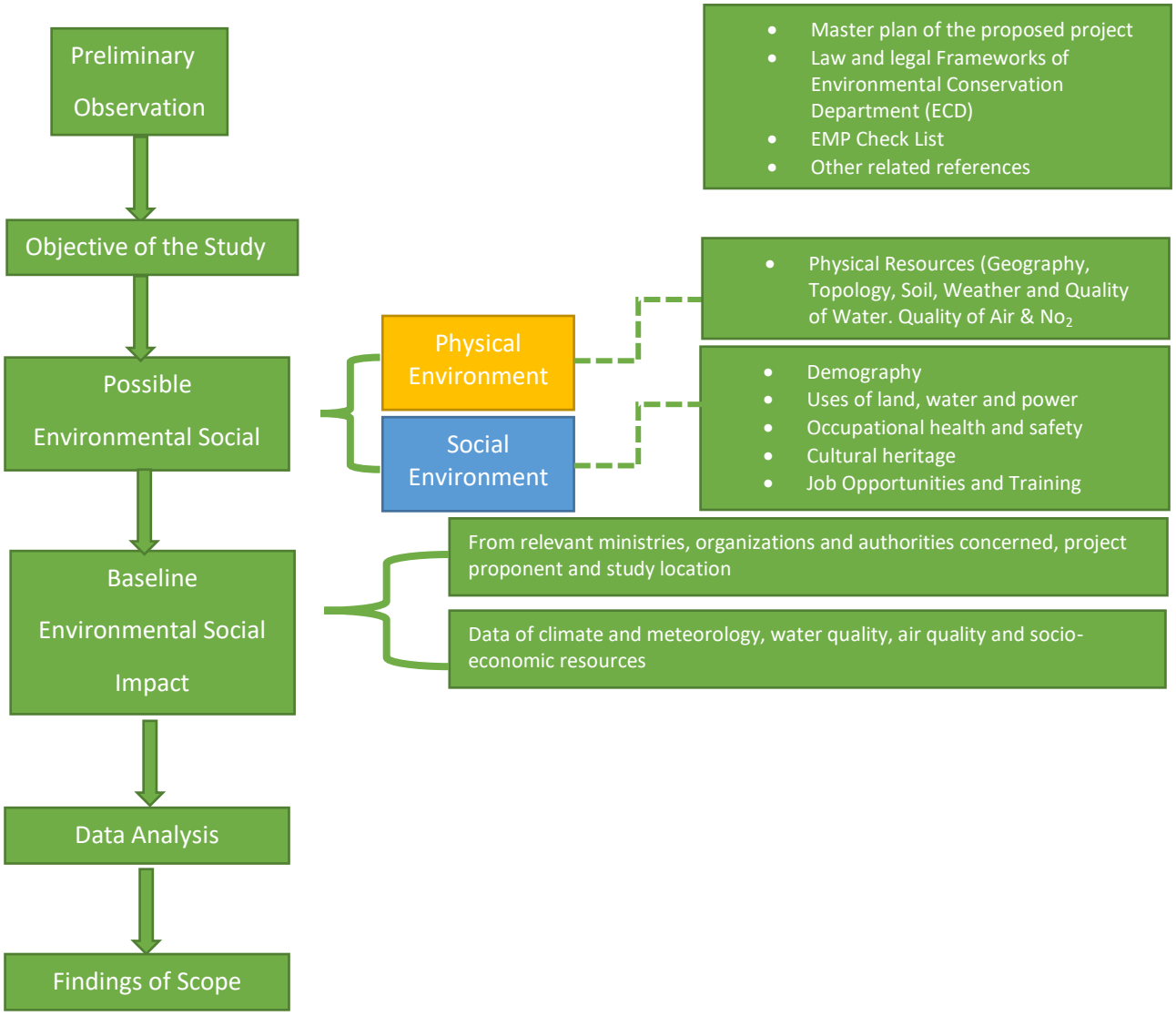
- Introduction
- Projection Description
- Provisions of Relevant policy laws, rules and regulations and commitments
- Description of surrounding environment
- Identification and Assessment of Potential Environmental Impacts and Mitigation measures
- Provision of Environmental Management Plan, Monitoring Plan Emergency Response Plan/CSR plan and Rehabilitations.

The field studies were carried out by members of SEE–Trust Environmental Services. SEE–Trust conducted field survey, assessment activities and review by the consultant teams of various expertise.

1.7.2 Methodology

The study on existing environmental resources in the project area is focused on two main resources–physical and socioeconomic resources. The physical resources such as quality of air and water inside the project are called primary data, which is collected from existing information in the field survey. This data collection is done by direct observation, interviewing and discussion with the responsible persons of this mine and analysis. And then. The secondary data for the socioeconomic resources is obtained from the relevant ministries/bodies and research institutions as reference material for the preparation of IEE report. Moreover, the SEE–Trust team made key information interview to the local people who live in villages nearby the existing project site. The impact is evaluated and mitigation measures developed for those impacts that are identified as significant. Flow chart for the Environmental Management Plan is shown in figure (1–1).

Figure (1–1) Flow Chart of Methodology for the Environmental Management Plan


Preliminary Observation
Objective of the Study
Possible Environmental Social
Baseline Environmental Social Impact
Data Analysis
Findings of Scope
Physical Environment
Social Environment
Master plan of the proposed project
Law and legal Frameworks of Environmental Conservation Department (ECD)
EMP Check List
Other related references
Physical Resources (Geography, Topology, Soil, Weather and Quality of Water. Quality of Air & No_2
Demography
Uses of land, water and power
Occupational health and safety
Cultural heritage
Job Opportunities and Training
From relevant ministries, organizations and authorities concerned, project proponent and study location
Data of climate and meteorology, water quality, air quality and socio-economic resources

Chapter (2)

Description of Project and Alternatives

2.1 Introduction

New World Shwe Pyi Tan Co., Ltd is a national business firm registered at the Directorate of Investment and Company administration with the purpose of producing goods since 2011.

In 2020, New World Shwe Pyi Tan Co., Ltd had proposes to Myanmar Investment Commission (MIC) to set up the Brick Production at Naypyitaw. MIC had been approved this project in vide letter No: The proponents have experiences in production of bricks as he had already set up mill at Hlegu Township, Yangon and plan to establish modern brick factory at Kawhmu Township, Yangon Region and Nyaung Shwe Township, Shan State in the near future.

This brick production project was setup for the following objectives–

(a) To supply the quality brick
(b) To reduce the fuel wood consumption by modern technology, used in the conventional method
(c) Job opportunity and human resources development
(d) Regional developments

The Investment of this project is Kyats 5,800 million, invested by cent percent Myanmar Company.

2.2 Original Land History

The original Lands are Agricultural Land. The maps (Form–105) were attached in Appendix (E) and (F). The lands were bought by owner of NWSPT. The descriptions of original lands were summarized in the table:

Table (2–1) The description of original lands were summarized

Original Owner	Plot Location			Area (Acres)
	Village Tract	Kwin No:	Oo Paing No:	
U Htein Win	Taung Nyo (Mayan Khon)	1893	117	12.88
U Hla Myint Soe	Taung Nyo (Mayan Khon)	1893	128	7.59
Total				**20.47**

There were no land use issues in this proposed project area.

2.3 Location and Size of Land

The project is located at Naypyitaw Region, Ottatathiri Township, Taung Nyo Village tract, Myanan Khin Kwin, Oo Paing No. 128, Kwin No. 1893 and 52 Thit Sat (Saw Mill) Village Oo Paing No. 117.

There are 52 Thitsat block and paddy fields on the east, mountains on the west, Min Naung village on the North and Mayan Khon Village on the South of project site. It is on the left side of Naypyitaw–Taung Nyo road. The location maps shown in Figure (2–1) and contour map in Figure (2–2).

The geographical coordinates of the project site are as follows:

North Latitude: **19° 53' 57.81" N**

East Longitude: **96° 1' 25.55" E**

The total land area is 20.47 Acres. The land planned to use three acres for factory building and (17.47) Acres for raw material (Soil) collection.

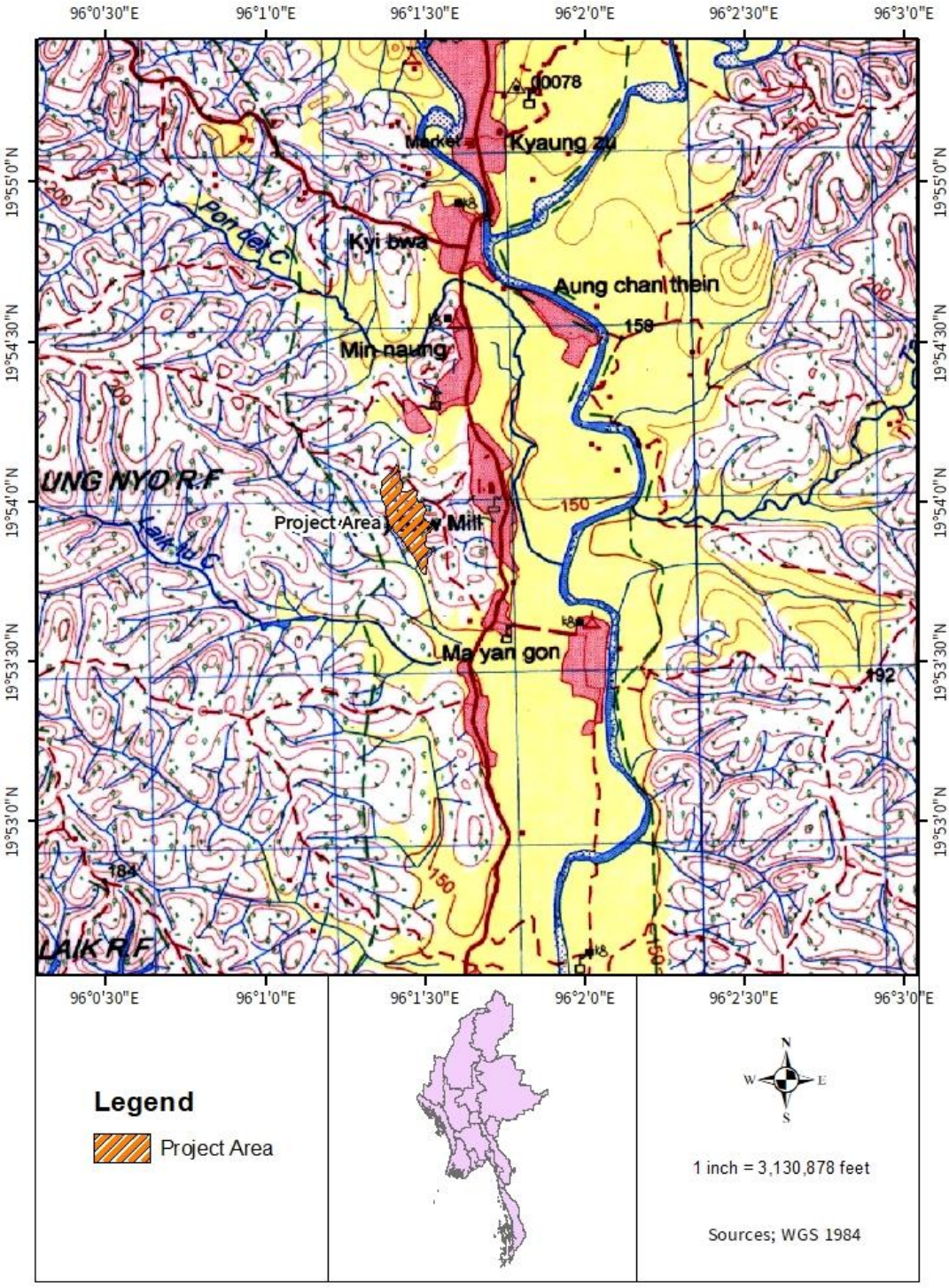


Figure (2-1) Location map of Brick Factory

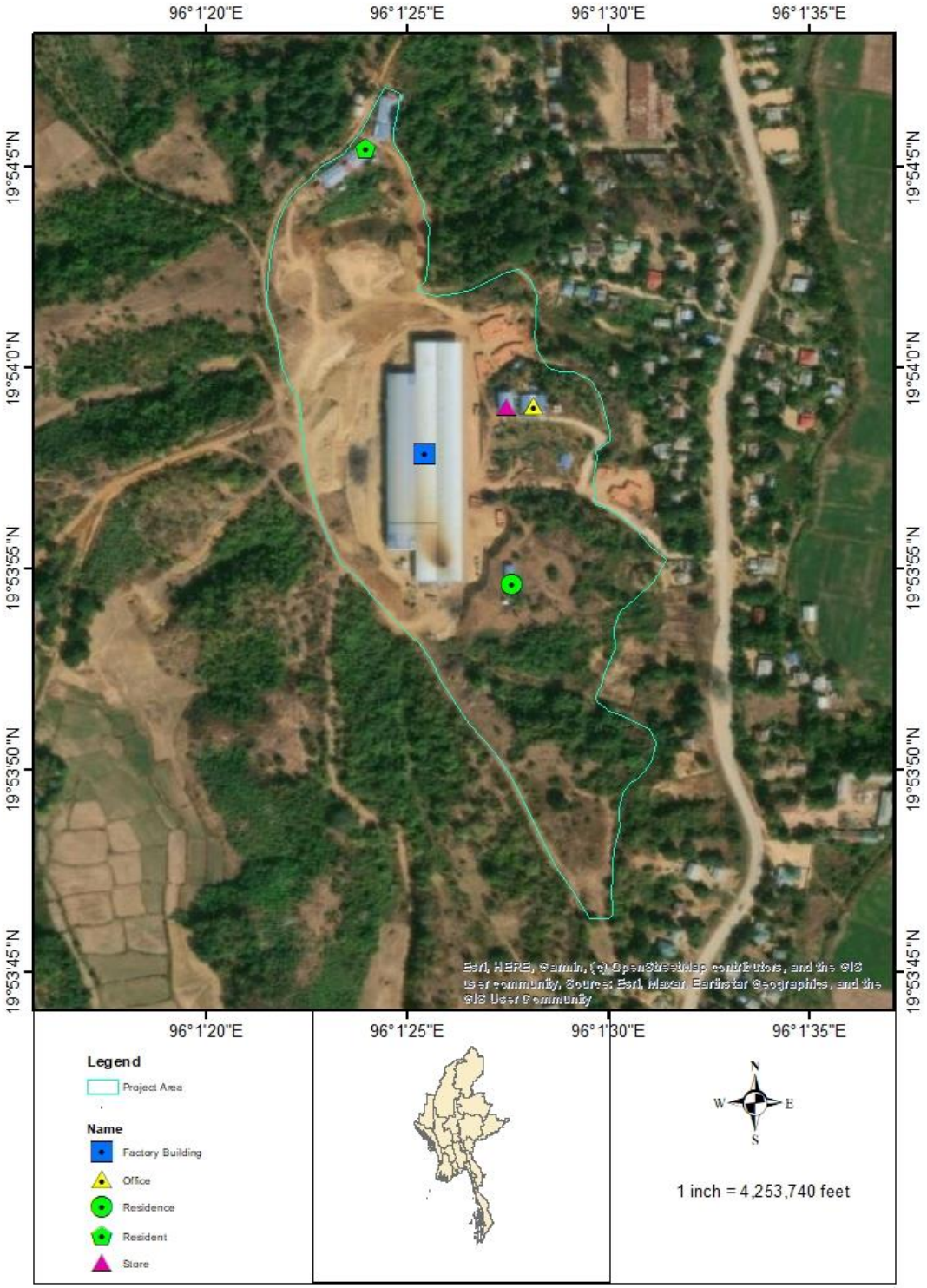
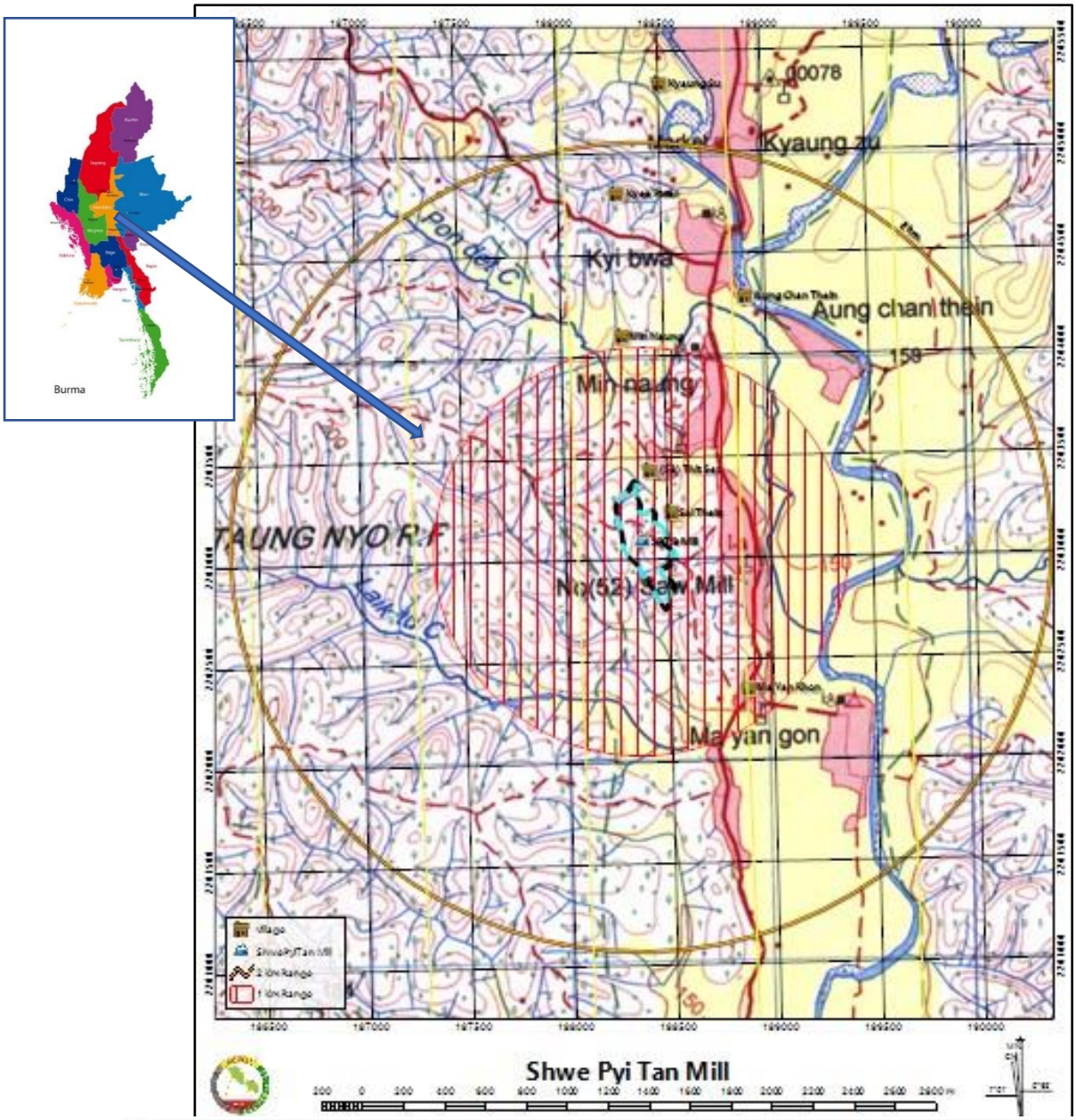


Figure (2-1-A) Location map of Brick Factory and its Layout

Figure (2–2) Contour map of Brick Factory



Village Near Shwe Pyi Tan Mill						
Village Name	**Easting**	**Northing**	**Zone**	**UTM**	**Dist From Mill KM**	Map Rerf
SPT B Mill	188371	2203090	47Q	883030	0.00	UTM 1996-01 (94 A1)
Sal Thein	188516	2203231	47Q	885032	0.20	
(52) Thit Set	188423	2203438	47Q	884034	0.35	
Ma Yan Khon	188874	2202355	47Q	888023	0.89	
Min Naung	188290	2204103	47Q	882041	1.02	
Aung Chan Thein	188900	2204288	47Q	888042	1.31	
Kyee Pwar	188295	2204803	47Q	882048	1.71	
Pyi Taw Lin	188239	2205964	47Q	882059	2.87	

2.4 Building

This building built in the project are as follow:

Table (2-2) Building List and Specification

Name of Building	Size Length x Breath (Feet)	Quantity (Nos)	Remark
Office (1)	19' x 38"	1	
Office (2)	19' x 38"	1	
Store	40'x 60'		
Staff Quarter	24'x60'	3	
Toilet	–	15	
Factory Building (1)	163 m x 18 m	1	
Factory Building (2)	163 m x 18 m	1	
Factory Building (3)	163 m x 18 m	1	
Factory Building (4)	72 m x 20 m	1	

The main building is fixed with 19 NOS of ceiling ventilation fans. Although the number of toilets is sufficient for labor, bur the toilets were mostly placed in the office and0 resident areas. So, the toilet with washing facilities shall be placed nearby the factory. The new 5 toilets shall be construct near the factory.

Table (2-3) Number of toilets requirements for workers according to Health and Safety Executive (UK)

Number of Workers	Number of Toilet	Number of Wash Basin
1 – 5	1	1
6 – 25	2	2

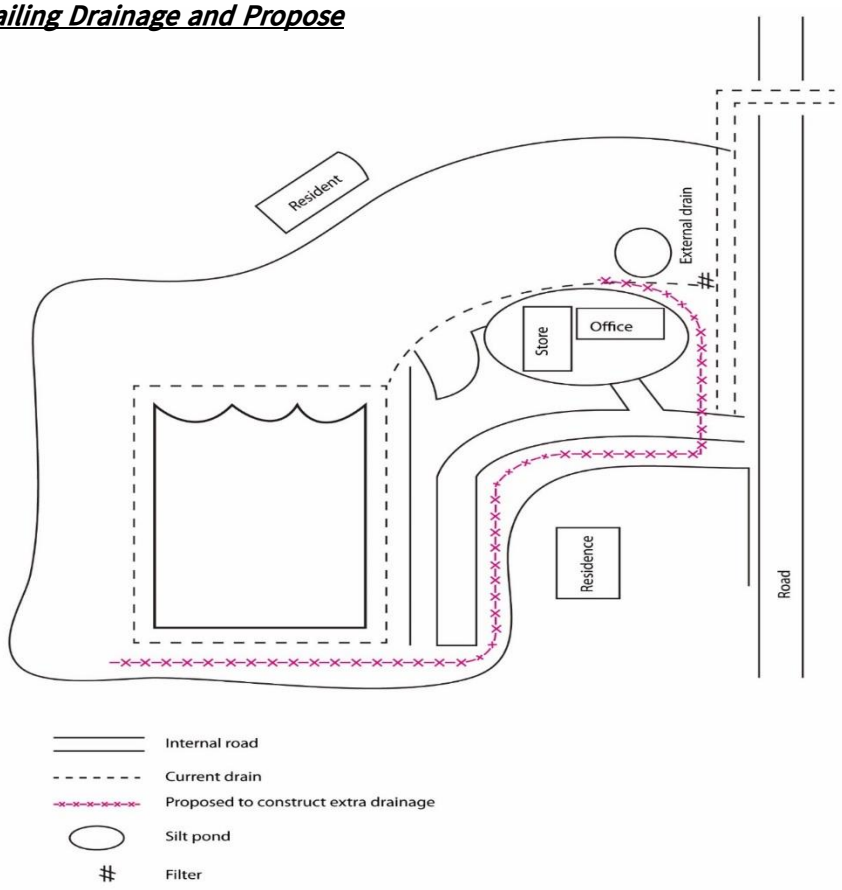
26 – 50	3	3
51 – 75	4	4
76 – 100	5*	5*

Drainage System

The drain is constructed around the factory area. The size of drainage is 1 ½ wide and depth between 1 ½ to 4 ¼' ft depth depending on slope (slope degree 1:19). The factory roof area as is totally about 90,000 sqft, and water come down through 123 pipes of Diameter 3" from the roof. It is not sufficient for collect water.

The drainage shall be widened to collect the water from roof and water from surrounding. The new drainage shall be constructed to collect the water from factory compound.

Figure (2–3) Prevailing Drainage and Propose



2.5 Water requirement and availability

The daily water requirement is 5,000 gallons. Water used for business and general use are divided as follows:

Table (2–4) Usage of Water

No.	Usage	Gallon
1	Business	4000
2	General	1000
Total		5000

The main source of water is available from two tube wells. The specification of tube wells is as follow:

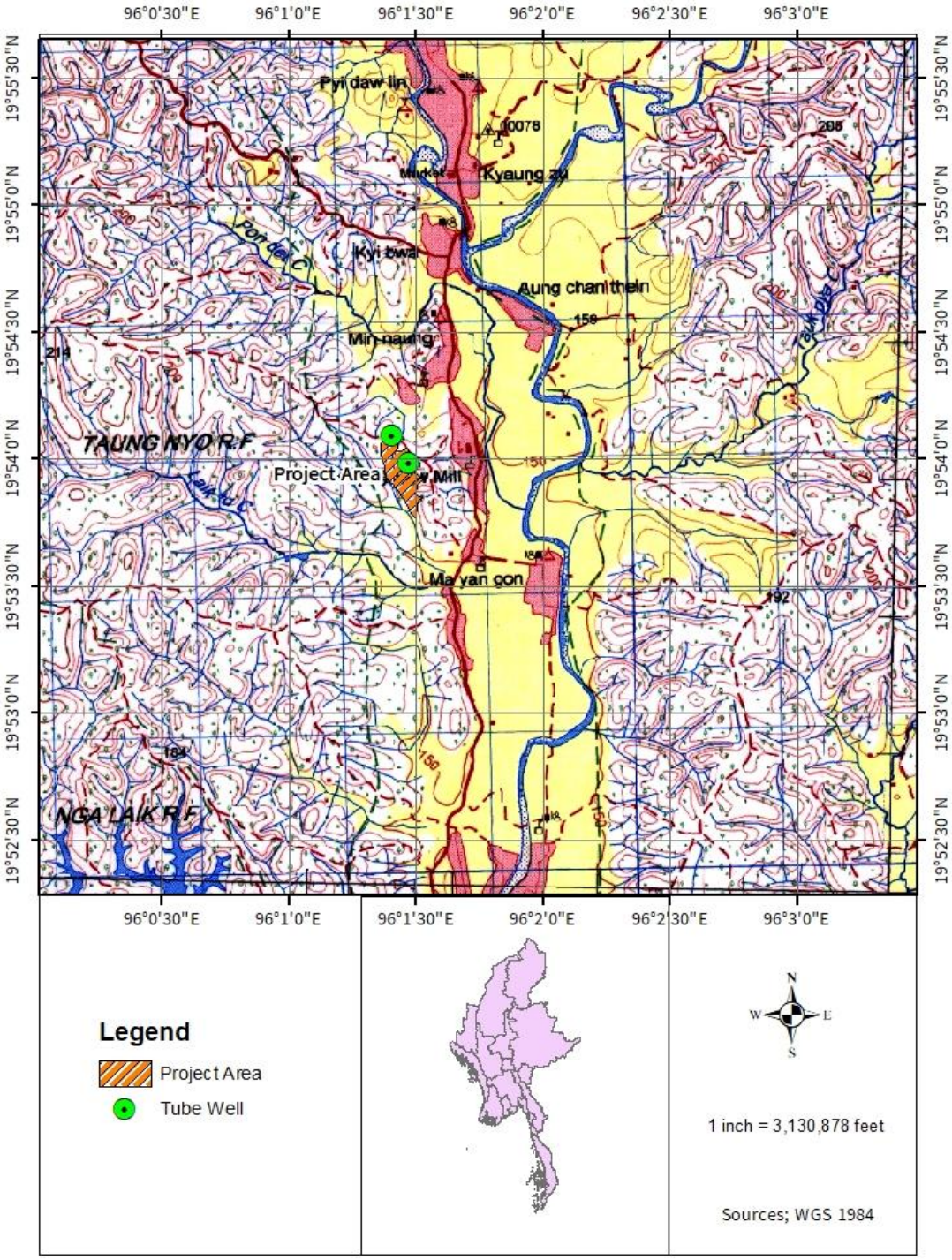
Table (2–5) Specification of tube well

Tube Well	Location	Elevation	Diameter (Inches)	Depth (Ft)	Tank Height (ft)	Storage Capacity
No (1)	N 19° 53' 59.1" E 096° 01' 28.5"	197.18 m	4”	400	25	
No (2)	N 19° 54' 05.7" E 096° 01' 24.5"	200.53 m	6”	320	25	

The other water storage capacity in the mill is (1,600) gallons on the ground tank.

Figure (2–4) Overhead water tank

Figure (2-5) Location of Tube Well



2.6 Water Sources

The amount of water released from two tube wells, which is the water source that is currently being used, is sufficient for the business, so there is no plan to use other water sources.

2.6 Electricity Requirements

The power requirement is 0.8–1.5 Maga Watt per day. There are one number of 1,000 KVA transformer in the project. There are 160 KVA generator for emergency use.

2.7 Fuel Requirement

The fuel and lubricant requirement are as follow. The diesel will be stored in the site only for heavy machineries. Diesel for trucks will be filled in the outside fuel filling station. The diesel filling is by using electric pumps.

Table (2–6) Annual fuel requirements

Fuel Type	Gallon/Kilogram	Remarks
Diesel	36,000	Machines
Hydraulic Oil	1,500	Machines/Trucks
Engine Oil	1,000	Machines/Trucks
Grease	150 kg	Machines/Trucks

Hydraulic oil, Engine Oil and grease are kept in the store. More systematic handling of fuel and lubricants are need.

2.8 Raw Material Requirements

(a) Coal is one the major raw for the factory. The coal requirement per day is 10 metric tons. The coal will be carried from Minbu and Magwe by trucks. 20 persons of requirement is for burning and 80 persons is for mixing in the soil to make bricks. The burning needs only in the initial stage and then the mixed soil and coal itself is like a fuel in the burner. If heat is not sufficient for burning the pieces of coal are

filled from top holes of tunnels. There are temperature meters om top of the tunnel so the operators can be known the heat conditions in the turn.

(b) Soil

The daily soil requirement for the factory is 54 Sack per day. The annual soil requirement is about 16,200 sacks (1,062 million Cubic ft). That soil clay will be collected from the 17.47 Acre of land in the compound. The hill will cut into the factory plinth level. It was estimated that the raw material from site can sufficient for over (20) years production.

2.9 Production Capacity and Specification

The standard brick size is (115mm x 240 mm x 53 mm. The compressive strength of brick is between 1,500 – 1,800 psi. The machine capacity is 80,000 to 100,000 bricks daily.

The two types of brick which will produce from NWSPT brick mill are as follow:

Figure (2–5) Two types of NWSPT brick sample photo

NWSPT has another brick mill at Hlegu Township, Yangon Region, which producing 60,000 bricks daily. The Ex (Factory) price is Kyat 85 per pieces. NWSPT have planned to establish other factories at Tontay Township, Yangon Region and Tawngyi Township, Shan State.

2.10 Work Plan for Establishment

The work plan is expressed in the following. But the progress is far bey and target because of pandemic (COVID – 19). Final target is:

(a) Construction to be completed – Jan, 2020

(b) Completed Machine Installation – April, 2020

(c) Targeted test run – 15 July, 2020

2.11 Working Time and Machine Operating

Employees work from 7:00 AM to 4:00 PM and from 12:00 PM to 1:00 PM is designated as lunch time. Working days and machine operating days are 6 days per week, and employees are allowed one day off per week.

2.11 Human Resources

The human resources of the project are shown in table (2–7) and organization structure stated in figure (2.6).

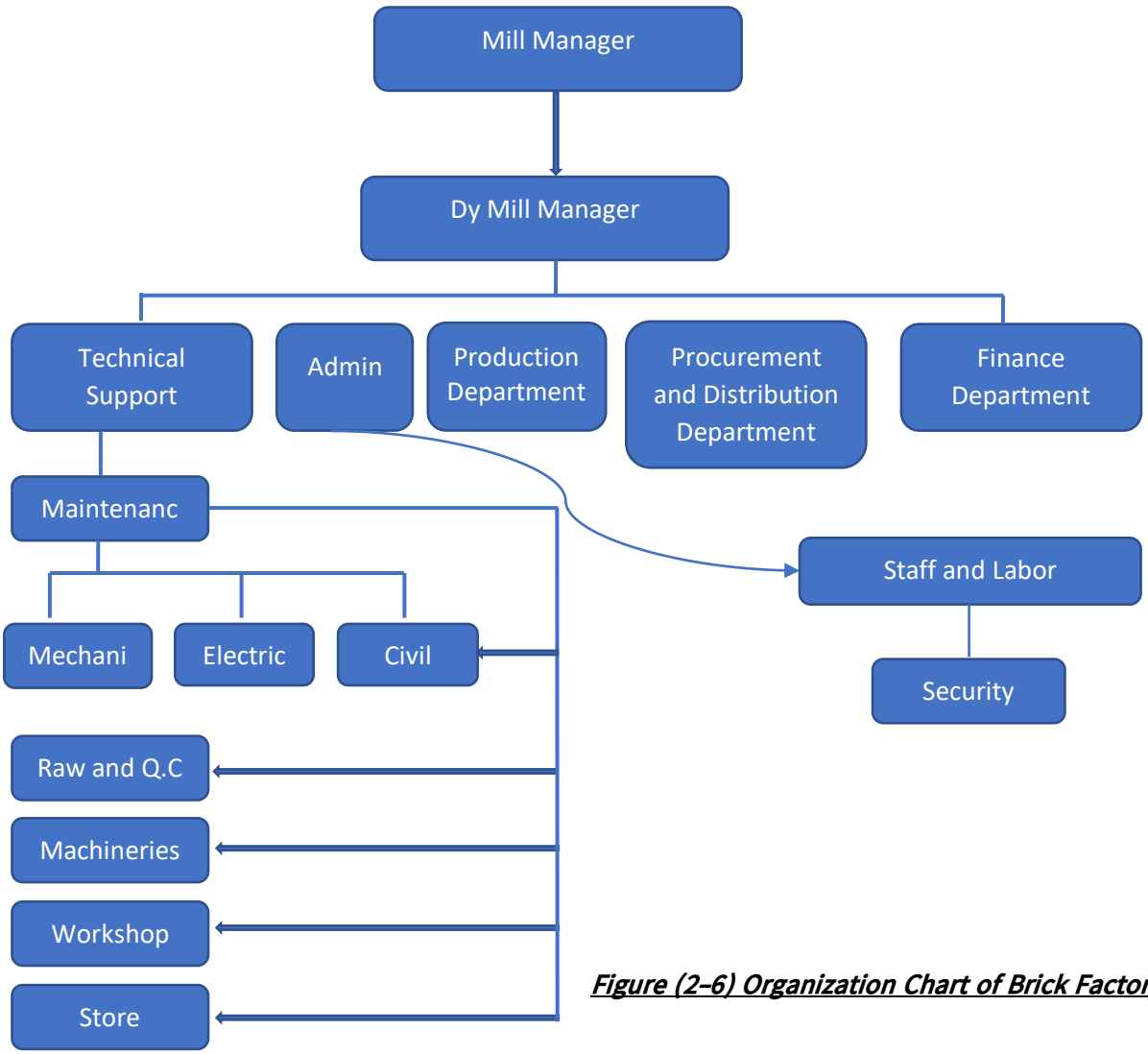


Figure (2–6) Organization Chart of Brick Factory

Table (2-7) List of require staff and salary

(a) Foreign Employee

No	Position	Salary (USD)	Type	Qty	Remarks
1.	Kiln Tunnel Engineer	1,000	Construction	1	
2.	Asst-Kiln tunnel Engineer	500	Construction	8	
Total		**1,500**		**9**	

(b) Local Employees

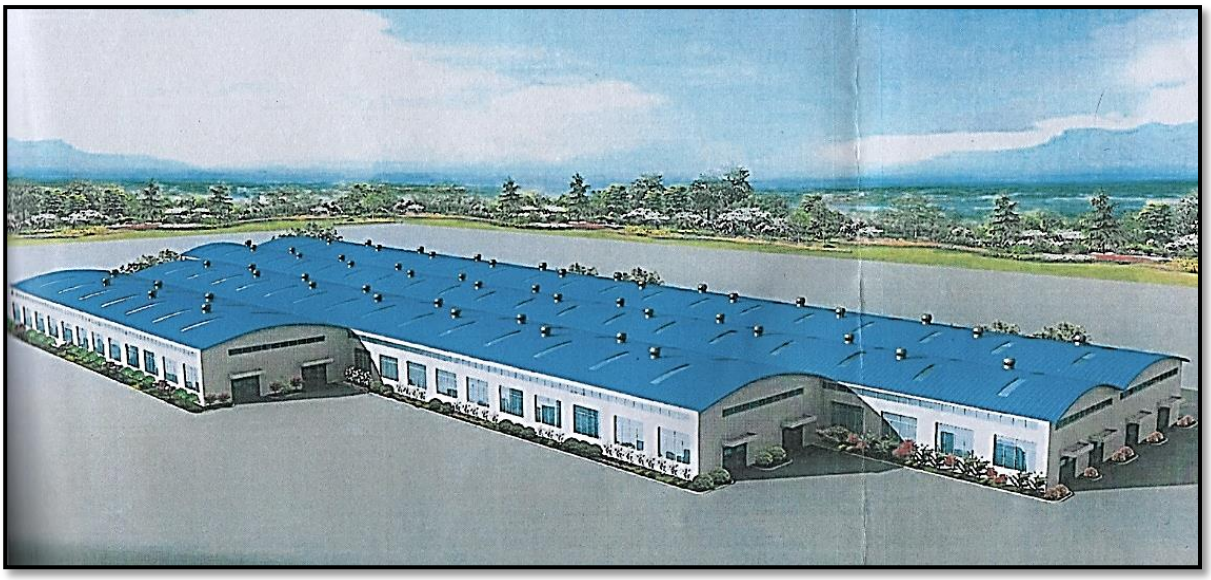
No	Position	Salary (MMK)	Type	Qty	Remarks
1.	Manager	700,000	Management	1	
2.	Dy Manager	600,000	Admin	1	
3.	Asst Manager	500,000	Production	1	
4.	Asst Manager	500,000	Finance	1	
5.	Asst Manager	500,000	Management	1	
6.	Supervisor	400,000	Admin	4	
7.	Supervisor	400,000	Production	1	
8.	Supervisor	400,000	Marketing and Distribution	1	
9.	Supervisor	400,000	Management	1	
10.	Sy Supervisor	350,000	Admin	2	
11.	Sy Supervisor	350,000	Finance	1	
12.	Machine Operator	275,000	Production	4	
13.	Operator	275,000	Admin	5	
14.	Driver	175,000	Admin	6	

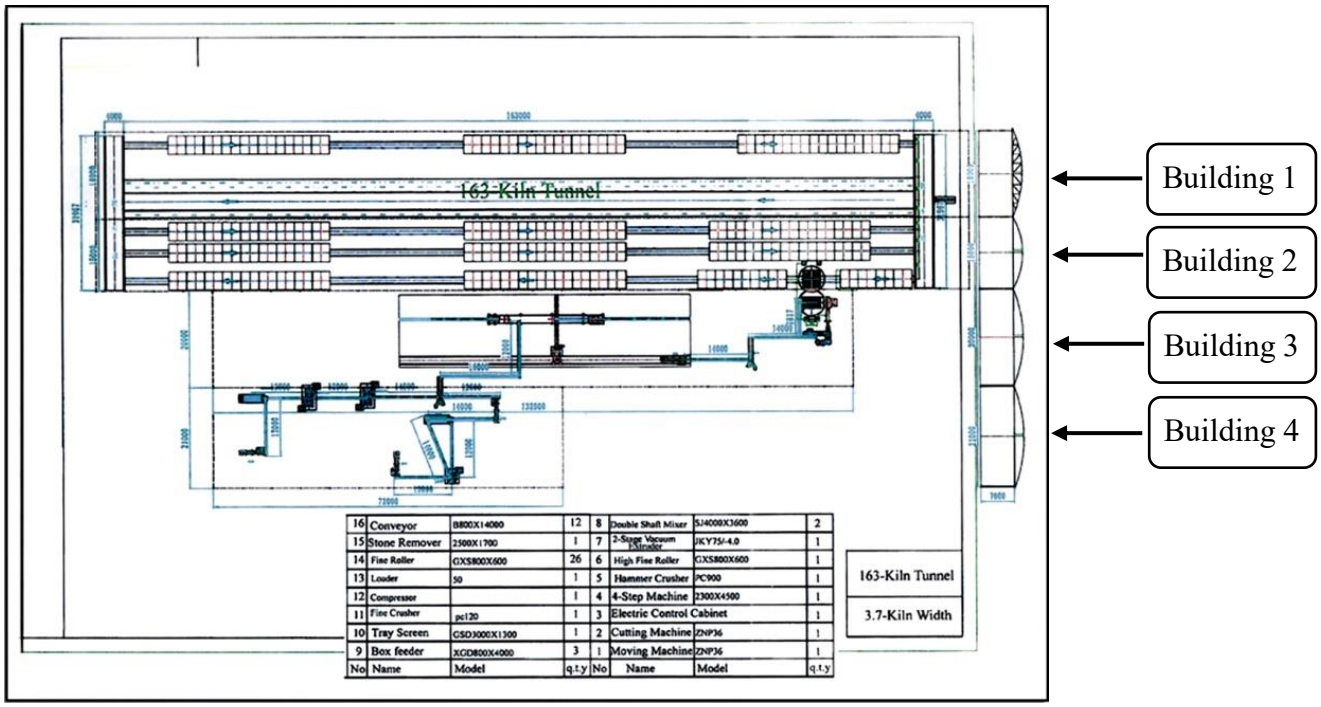
15.	Mechanic	300,000	Admin	5	
16.	Mechanic	300,000	Admin	4	
17.	Electrician	250,000	Admin	3	
18.	Kiln Skill	350,000	Admin	4	
19.	Lab/raw	110,000	Admin	3	
20.	Distributor	220,000	Sale and Distribution	6	
21.	Accountant	220,000	Finance	6	
22.	General Worker	150,000	Production	26	
23.	Store Keeper	150,000	Admin	2	
24.	Security	80,000	Management	6	
Total		**7,955,000**		**92**	

2.12 Factory Building

The factory building is steel structure one stored building. Four buildings joint together. The architecture drawing can see in Figure (2.7) and building and flow plan drawing in Figure (2–8).

Figure (2–7) Architecture drawing of mill





No	Name	Model	q.t.y	No	Name	Model	q.t.y
16	Conveyor	B800X14000	12	8	Double Shaft Mixer	SJ4000X3600	2
15	Stone Remover	2500X1700	1	7	2-Stage Vacuum Extruder	JKY75/-4.0	1
14	Fine Roller	GXS800X600	26	6	High Fine Roller	GXS800X600	1
13	Loader	50	1	5	Hammer Crusher	PC900	1
12	Compressor		1	4	4-Step Machine	2300X4500	1
11	Fine Crusher	pc120	1	3	Electric Control Cabinet		1
10	Tray Screen	GSD3000X1300	1	2	Cutting Machine	ZNP36	1
9	Box feeder	XGD800X4000	3	1	Moving Machine	ZNP36	1

Figure (2-8) Building Plan and Flow Plan

The dimension of the factory buildings is:

Building (1) – 163 m x 18 m x 7 m (Length x Breath x Height)

Building (2) – 163 m x 15 m x 7 m (Length x Breath x Height)

Building (3) – 132 m x 29 m x 7 m (Length x Breath x Height)

Building (4) – 73 m x 20 m x 7 m (Length x Breath x Height)

The building contractor is Shaanxi New Building Machinery Manufacturing Co., Ltd.

2.13 Machine List

The brick mill factory equipment's and machineries will be imported from China. The list of import items is mention in table (2–8). The photos of machines are attached in Appendix (L). The total value of important items is US 1,633,987.

Table (2-8) Import items for production brick

No.	Commodity	HS Code	Unit	Qty	Value	Import from
	1	2	3	4	5	6
Equipment Available for Brick Factory						
1.	**Furnace Operation Equipment**	**8472**	**Set**		**200,000**	**China**
1.1	Kiln car assembly	8472	Set	135		China
1.2	Centrifugal Fan	8472	Station	1		China
1.3	Positioning Shuttle bus	8472	Station	1		China
1.4	Top Car (150 T)	8472	Station	1		China
1.5	Tractor	8472	Station	8		China
1.6	Card Wild	8472	Set	32		China
1.7	Fire Cover	8472	Set	160		China
2.	**Brick Press Equipment**	**8472**	**Set**		**560,000**	**China**
2.1	Box Feeder	8472	Station	2		China
2.2	High-fine roller	8472	Station	2		China
2.3	Hammer Crusher	8472	Station	1		China
2.4	Tray Screen	8472	Station	1		China
2.5	Wet Soil Stone Remover	8472	Station	1		China
2.6	Double Shaft Mixer	8472	Station	2		China
2.7	Tow Stage Vacuum extruder (JKY75)	8472	Station	1		China
2.8	Cutting Machine and Moving Machine	8472	Station	1		China
3.	**Running Supporting Equipment**	**8472**			**50,000**	**China**
3.1	Vacuum Pump	8472	Set	1		China
3.2	Motor	8472	Set	24		China
3.3	Screw Compressor (Gas Tank)	8472	Station	1		China
3.4	Conveyor	8472	Meter	300		China
4.	**Soil Mixing Equipment**	**8472**			**210,000**	**China**
4.1	Coal Control machine	8472	Station	1		China
4.2	Reversible High-altitude Spreader (22m)	8472	Station	1		China
4.3	Multi Bucket Excavator	8472	Station	1		China
5.	**Vehicles**				**613,987**	**China**

5.1	Excavator (20 tons)	8429	Unit	2	160,000	China
5.2	Dump Truck	8704	Unit	4	100,000	China
5.3	Wheel Loader	8429	Unit	2	53,987	China
5.4	Sheep foot roller	8431	Unit	1	50,000	China
5.5	Dozer	8479	Unit	2	50,000	China
5.6	Trailer	8716	Unit	4	60,000	China
5.7	Prime mover	8701	Unit	4	140,000	China
Totals					**1,633,987**	

2.14 Production and Income

The estimated production cost, yearly from year 1 to year 8, and Net profit in Table (2–9). The estimated production cost is 40 Kyats per piece and selling price is 85 kyats per pieces. The estimated net profit per year is between 471 million kyats to 707 million kyats. The average yearly profit is 574 million.

Table (2–9) The estimated production Cost, Income and Net Profit

No.	Particular	Year							
		1	2	3	4	5	6	7	8
1.	Production	29411764.00	29311764.71	29311764	29400000	29350000	29401764.71	29410764	29411064
2.	Raw Material requirement								
3.	Land	20,000	19,900	19,500	19,800	19,910	19,910	19,920	19,930
4.	Coal	5,882.35	5,862.35	5,862.35	5,880.00	5,870.00	5,880.00	5,882.15	5,862.35
5.	Production cost per pcs	40	42	45	46	44	43	42	38
6.	Estimated sale price per pcs	85	85	85	85	85	85	85	85
7.	Total Net Income USD (Million)	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
8.	Total Net Income MMK (Million)	2,500.00	2,491.50	2,491.50	2,499.00	2,494.75	2,499.15	2,499.15	2,499.49
9.	Finished Good Brick	29411764.00	29311764.71	29311764	29400000	29350000	29401764.71	29410764	29411064

	(pcs)								
10.	Income MMK (million)	2,500.00	2,491.50	2,491.50	2,499.00	2,494.75	2,499.15	2,499.15	2,499.49
11.	Total Income MMK (Million)	2,500.00	2,491.50	2,491.50	2,499.00	2,494.75	2,499.15	2,499.15	2,499.49
12.	Production Cost MMK (Million)	-1,176.47	-1,231.09	-1,319.03	-1,352.40	-1,291.40	-1,264.28	-1,235.25	-1,117.62
13.	Gross Profit	1,323.53	1,260.41	1,172.47	1,146.60	1,233.35	1,234.87	1,246.66	1,382.32
14.	Selling and Distribution Expenses-50.00 MMK (Million)	-50.00	-49.83	-49.83	-49.98	-49.90	-49.98	-50.00	-50.00
15.	Admin Expenses MMK (Million)	-625.00	-622.88	-622.87	-624.75	-623.69	-624.79	-624.98	-624.99
16.	Total Expenses MMK (Million)	-675.00	-672.71	-672.70	-674.73	-673.58	-674.44	-674.98	-674.98
17.	Total Net Profit MMK (Million)	648.53	587.7008824	499.7655762	471.87	529.77	560.1036177	589.69	707.34

2.15 Basic of Brick Making Process

Basically, the process if manufacturing of bricks from clay in values preparation of clay, molding and then drying and burning of bricks. The bricks are building materials which are

generally available as rectangular blocks.

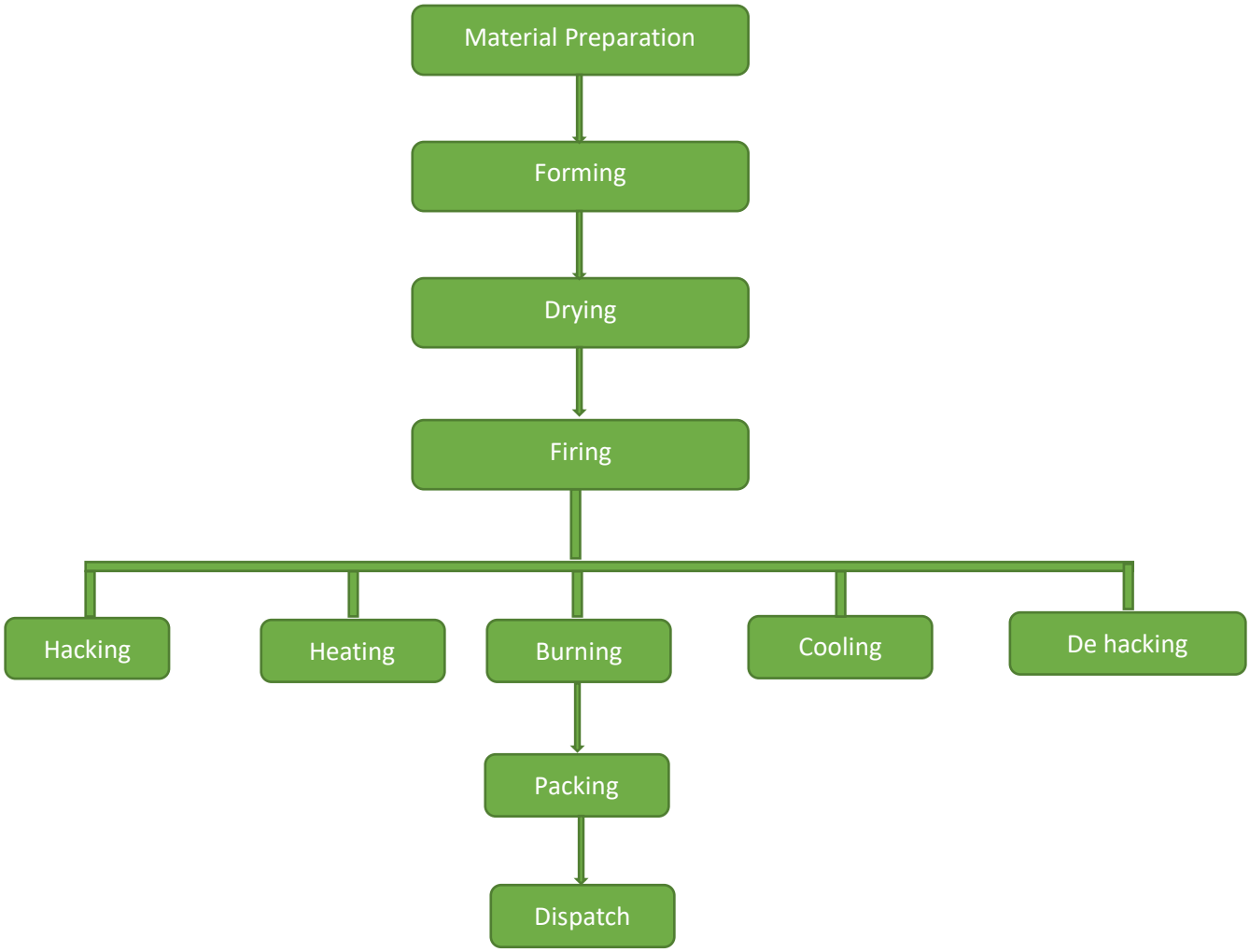
The best soil for mud bricks would be those classed as 'clays' clay loams, silty clay loams or silty clay. A sandy clay loan would require additional clay of organic matter (eg. straw) to make an effective brick mixture. The Chinese mud brick builder, Lin Wei-Hao has suggested the following tips for different soil.

- Clay content can be as high as 85%

- Soil with 25–40% sand can be used without the mead of straw
- Very sandy soil is not suitable to make brick

The basic flow is not suitable to make brick.

Figure (2–9) Basic brick manufacturing process



2.16 The brick manufacturing method use for NWSPT

This factory installed the One Service brick manufacturing process. The process stages are as follow–

(a) Clay preparation

(b) Clay Forming

(c) Green brick making

(d) Firing (heating, burning, cooling)

(e) Packing and dispatch.

The process flow chart mention in Figure (2–8)

(A) Clay Preparation

Soils are collected by excavator and load on to the truck. The truck unload at the factory. Firstly, hack the collected, and move by box feeder to the crusher and grinder.

Raw coals for mixing with soil are carried by box feeder to crusher. The crushed coal is sized by Tray screen. And grind with High–fine roller.

(B) Clay Forming

The soil and coal mixed by Double shaft mixer. (The ratio of soil and coal is 93.5:6.5). The mixed raw are spreader out by spreading machine. These mixed raw materials (Soil and Coal) are loaded on the box feeder by Multi Bucket excavator.

(C) Green Brick Making

The mixed raw are droughting with water. And then pass to the vacuum extruder. The extra water is collected by vacuum pump.

Then pass to the cutting machine and forming green bricks. Green bricks are collected by Auto Stacking Machine. Then leave (72) hour in the kiln. After that ready to pass the kiln.

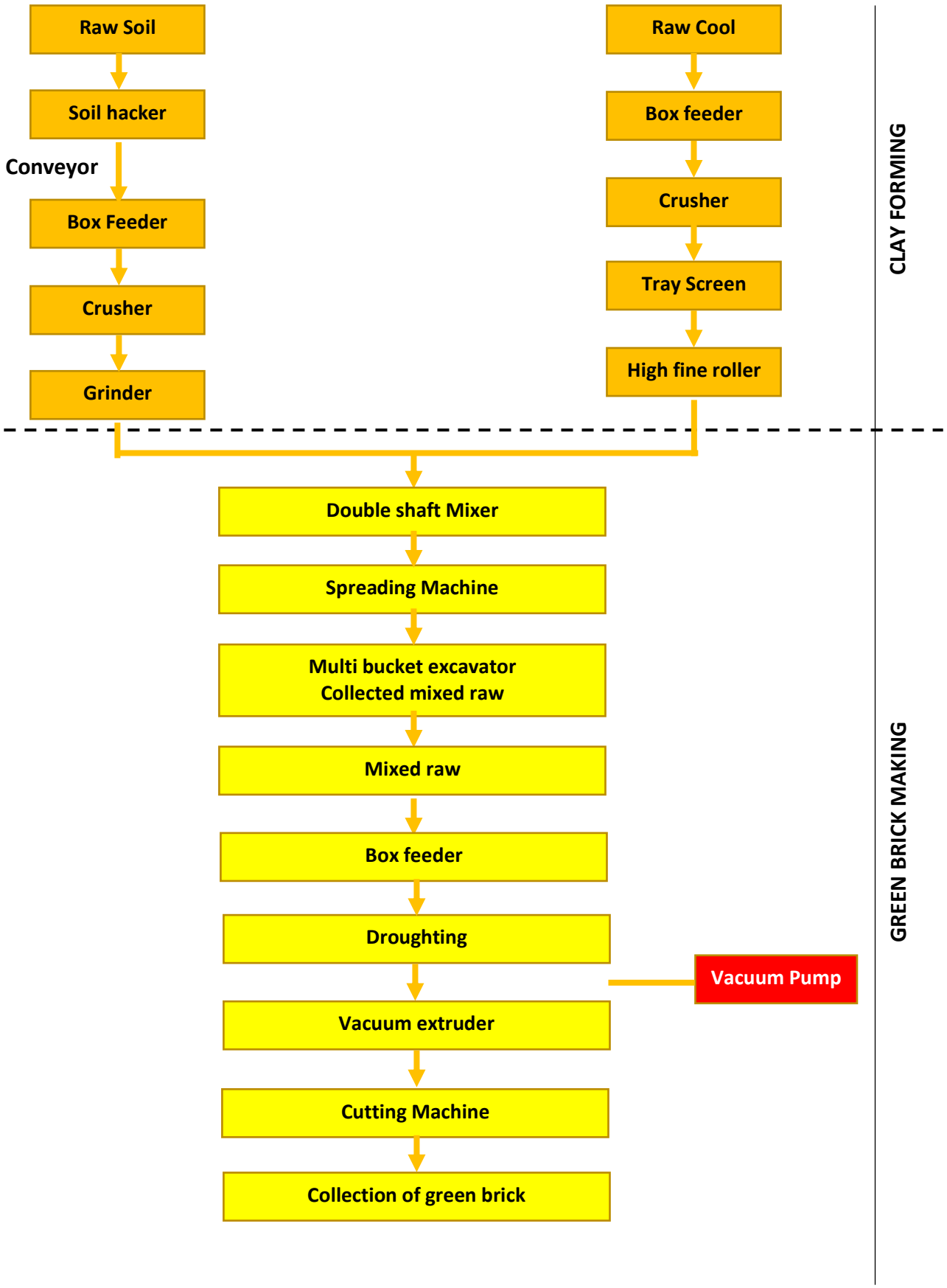
(D) Firing

The Tunnel kilns are 163 meter long. The kiln comprises of three sections, Drying Zone, Burning Zone and Cooling Zone.

The kiln is initially burn with pieces of coal. The burning system is complete inter burning system. The brick itself used as a heating agent. The burnt brick is moved to colling zone. The heats from burnt bricks are collected by waste heat fan and return to Drying Zone. (Back drying).

Burning Zones is used of Sustainable firing method. Only the least carbon emission gas exhaust thought the 30 feet height Chimney.

Figure (2-10 (A)) Brick manufacturing process of NWSPT



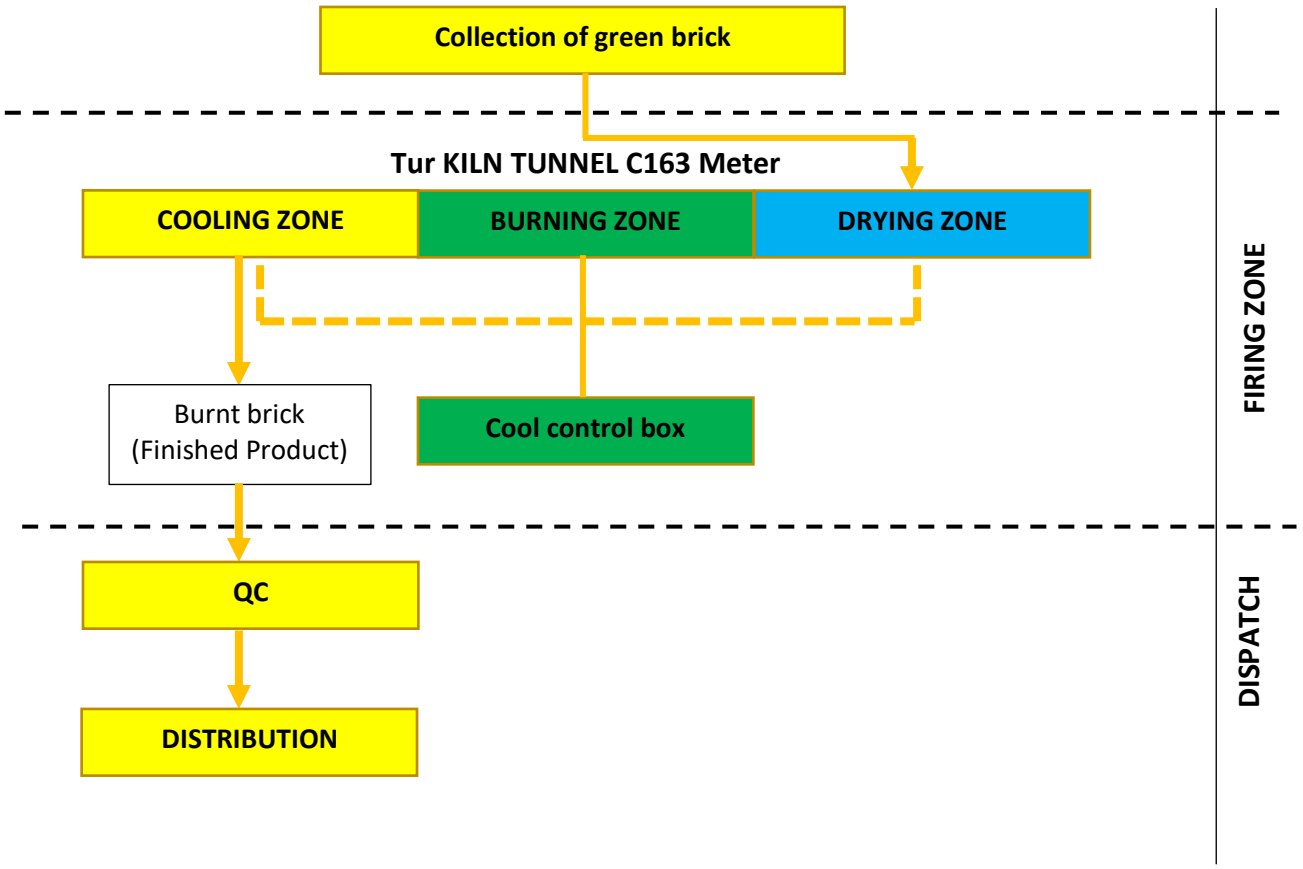
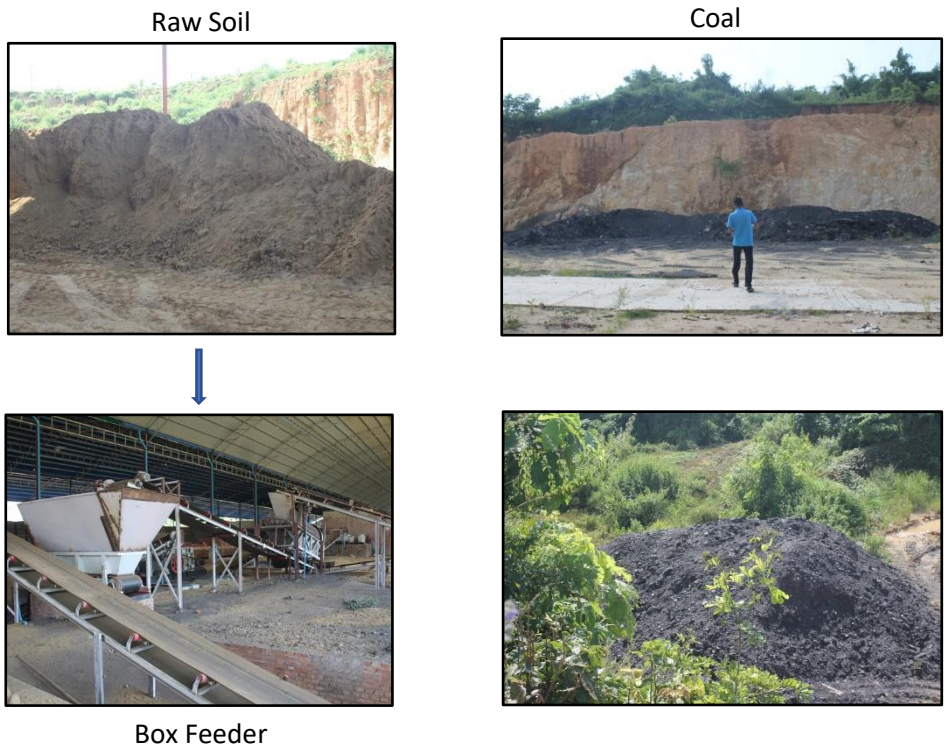


Figure (2.10 (B)) Brief illustration of process



Crusher

Grinder

Mixed raw

Droughting

Cutting

Green Brick

Storage

Bunt brick (finshed)

Cooling

Drying in brick

2.17 Waste Management

There are three types of solid waste from the project, such as general solid waste and hazardous waste and recycle things from waste. During the construction phase the majority of solid wastes were construction material waste. Some can used as recycle and some are classified as hazardous waste.

2.17.1 Solid Waste

In operation phase the solid waste will be waste from dormitory, kitchen, office and industrial wastes, which include reject bricks and machinery parts, waste of office utensil. In the brick manufacturing industry, coal is used as raw material, it is also used as fuel, and heating it produces ash as a byproduct.

Only a small amount of fly ash is produced per day, and instead of being directly disposed of, it is mixed into the brick–making clay and reused.

The wastes are collected in different kind of waste bin and dispose separately to the dispose site.

The production process shall be designed and operated to prevent or minimize the quantities of wastes generated.

2.17.2 Liquid Waste

Grey water from staff quarter should be disposed to the normal drains and sanitary water from office, staff quarter and factory shall be collected at septic tank. In rainy season, the drainage system shall be maintained to avoid blocking and flooding.

2.17.3 Hazardous Waste

During the phases, the project proponent shall be provided adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as chemical and lubricating oils.

The hazardous wastes shall be kept in good containers which shall be covered except when the wastes are transferred into them. Hazardous wastes shall be stored in specific

areas. The Coal are store outside the factory in compound. But no storage buildings had not built yet. Current Coal storage photo in Figure 2.10(B).

2.18 Gaseous Emission

Moreover, the project estimated 36,000 gallons of diesel annually (100 gallons per day), the emission from diesel, fuel is 0.040 metric ton of Co2 per gallon, and emission per year is 0.32 kilo ton Co_2 e/year. Emission for electricity is 0.127 kilo ton Co_2 e/year and emission from coal is about 6.258 kilo ton Co_2 e/year if totally burnt.

The emission of CO_2 gas from coal, machines and electric uses are calculated in the following Table (2–9).

Table (2–10) Emission of CO_2 from proposed project

Description	Metric ton of Co_2 emission factor	Resource Consumption per day	Metric ton of Co_2 e/MWh per day	Kilo ton of Co_2 e per day	Kilo tan of Co_2 per year
Machinery/trucks	0.010	100 gallons	–	0.001	0.32
Electricity	1.023	1.5 MW/h	0.13	–	0.127
Coal	2.086	10 ton/day	20.86	–	6.258
					6.385

The total estimated emission of Co_2 from project is 6.385 kilo ton per year. According to the EBRD GHG Assessment Methodology, the total amount 6.258 kilo ton Co_2 e/year can be considered as low (see Table (2–10) so the project has no climatic change effect. Air emissions are minimized with controls such as scrubbers installed on kiln exhausts. Dust in plants is controlled through the use of filtering systems, vacuums, additives and water mists.

Table (2–11) EBRD Standard of Co_2 Emission

Category	Range
Negligible	No GHC assessment necessary
Low	<20 Kt/y Co_2, equivalent (Co_2 – e)
Medium – Low	20 – 100 Kt/y Co_2, equivalent (Co_2 –e)
Medium – High	100 Kt – 1 Mt Co_2, equivalent (Co_2 – e)
High	>1Mt Co_2 – e

2.19 Project Alternatives

Discrete alternatives are options which are generally identified during the prefeasibility, feasibility and scoping stage of EIA.

Incremental alternatives arise during the assessment process in order to address the negative impacts that have been identified.

It should identify as early as possible in the projects cycle. When identifying alternatives that they should be practicable, feasible, relevant, reasonable and viable.

The different categories of alternative than can be identified in Brick manufacturing are:

(a) Location

The factory location is the strategic are, as easily transport the product to the market areas.

The location of factory is less impact to the environment, but it's too closed with some houses.

But the proponent plan to purchase the home land and to arrange for resettlement.

The sources of raw material are abundance and cheaply transport to factory.

So there are no alternative for site.

(b) Technology alternative

In traditional brick making the majority of brick are made by extrusion method and usually bunt in the kiln by fire wood, sawdust, or gas Brick are fired between 10 and 40 hours depending upon kiln type and other variables. It was used a lot of energy for burning and exhaust a lot of carbon to the atmosphere.

The method used in this project use very small quantity of charcoal for pre burning and brick itself serve as and burning agent. The heats are recycling in the long eternal.

This method is the environmental acceptable method, which is no alternative currently.

(c) Input Selection alternative

The raw material (soil) will be collect from factory compound which is the cheapest way for main raw material. It was estimated that the soil can get up to twenty years. After that time they collected from other sources. The composition of soil in the factory compound is suitable for making bricks.

Another raw material is low grade charcoal. The charcoal will be carried within Nay Pyi Taw, which is the nearest distance of raw source. It is also feasible for the production.

(d) Activity alternatives

Currently there are no brick industries in Naypyitaw. Mostly used local handmade brick (made of sand stone and lime stone) which is not suitable to use in high rise building.

The brick factory will produce the requirement of bricks for infrastructure development of state.

Table (2–12) Evaluation of Project Alternatives

Constraint	Present plan	Change of Plan	No project
Location	– Currently, the Shan state needs bricks for infrastructure development – Easily transport by road – Abundance of raw material	Factory had been constructed and machines were installed.	For such a case Nation can lost income – Lost of job opportunity and regional infrastructure development
Process / Technology	– Can save fuel wood energy – Low carbon emission – Updated technology	Already set up and approved – If need the modification shall be done	For such a case Nation can lost income – Lost of job opportunity and regional infrastructure development
Input selection	– Easily available raw (soil) from factory compound – To find soil source after 20 yrs operated – Low quality coal can available abundance in Shan State.	No other plan	For such a case Nation can lost income – Lost of job opportunity and regional infrastructure development
Activities	– Strategically quality brick production is required for the infrastructure development (esp– high rise building and quality infrastructure construction works	– Already approved by government – Already set up machines	For such a case Nation can lost income – Lost of job opportunity and regional infrastructure development

Conclusion

There are no alternatives for the project expects some modification shall be made for getting good performance and least damaging the environments.

If 'No project', that will be the following prospect will loss.

(1) National income
(2) Job opportunity (Direct / Indirect)
(3) Community Development (Surrounding areas)
(4) Transferring new technology
(5) Infrastructure development of states.

Chapter (3)

Overview of the Policy, Legal and Institutional Frame Work

Policy and Law

The Ministry of Environmental Conservation and Forestry (MOECAF) was re–organized as the Ministry of Natural Resources and Environmental Conservation (MONREC) on 30th March 2016 in order to undertake both environmental and natural resources conservation and management more effectively. Under Section 3 of the Environmental Impact Assessment Procedure (2015) pursuant to section 21 of the law and Articles 52, 53 and 55 of the Environmental Conservation Rules all projects and project expansions undertaken by any organization. Which may cause impact on environmental quality are required to obtain prior permissions from MONREC. This is in accordance with section 21 of the Environmental Conservation Law and Article 62 of the Environmental Conservation Rules, having the potential to cause adverse Impacts, are required to undertake IEE or EIA or to develop an EMP and to obtain an Environmental Compliance Certificate (ECC) in accordance with the EIA procedure.

3.1 Legal Requirement

This chapter discusses and describes the involvements of laws, rules, regulations and guidelines related to the implementation of the project and the assessments of the environmental and social impacts of this project.

The brick production project which is invested by Mount New World Shwe Pyi Tan Co., Ltd will be complied with the existing national laws, rules and regulation of the Republic of the Union of Myanmar presented in the following table (3–1).

Table (3–1) Relevant National Laws and Regulations of Myanmar

Laws and	Description
Constitution of the Republic of the Union of Myanmar,2008	
The Constitution of the Union of Myanmar is the supreme law of the country and has provisions regarding the protection of the environment in Myanmar. Articles in the Constitution relevant to environmental protection are Articles 37,42 and 390. They are quoted below:	
Article 37	(a) The Union is the ultimate owner of all lands and all natural resources above and below the ground, above and beneath the water and in the atmosphere in the Union; (b) The Union shall enact necessary law to supervise extraction and utilization of State owned natural resources by economics forces;
Article 42	The Union shall protect and conserve natural environment.
Laws and Regulations	**Description**
Article 390	Every citizen has the duty to assist the Union in carrying out the following matters: (a) Preservation and safeguarding of cultural heritage; (b) Environmental conservation; (c) Striving for development of human resources; (d) Protection and preservation of public property. These three Articles in the Constitution provide a basis for legalizing and institutionalizing environmental health impact assessment and social impact
National Environmental Policy (1994)	
To achieve harmony and balance between socio–economic, natural resources and environment through the integration of environmental considerations into the development process enhancing the quality of the life of all its citizens.	
National Land Use Policy (2016)	

Objectives	(a) To promote sustainable land use management and protection of cultural heritage areas, environment, and natural resources for the interest of all people in the country; (b) To strengthen land tenure security for the livelihoods improvement and food security of all people in both urban and rural areas of the country; (c) To recognize and protect customary land tenure rights and procedures of the ethnic nationalities; (d) To develop transparent, fair, affordable and independent dispute resolution mechanisms in accordance with rule of law; (e) To promote people centered development in land resources and

The Environmental Conservation Law, 2012

The Pyidaungsu Hluttaw enacted this law by Law No.9 of 2012 on the date of 30th March 2012. The legal mechanism for ESHIA has been put in this law. This law was enacted with the objectives of:

(a) To enable to implement the Myanmar National Environmental Policy;

(b) To enable to lay down the basic principles and give guidance for systematic integration of the matters of environmental conservations in the sustainable development process;

(c) To enable to emerge a healthy and clean environment and to enable to conserve natural and cultural heritage for the benefit of present and future generations;

(d) To reclaim ecosystems as may be possible which are starting to degenerate and disappear;

(e) To enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially;

(f) To enable to implement for promoting public awareness and cooperation in educational for dis-semination of environmental perception;

(g) To enable to promote international, regional and bilateral cooperation in the matters of environmental conservation;

(h) To enable to cooperate with Government Departments, Government Organizations, International Organizations, non–government organizations and individuals in matters of environmental conservation.

The following articles are particularly relevant to EIA requirements and this project:
Article 7 of chapter 4 mentions the need for SIA and EIA for any project operated by the government or organizations or individuals.

The duties and powers relating to the environmental conservation of the Ministry are as follows:

- Implementing the environmental conservation policies
- Laying down, carrying out and monitoring programs for conservation and enhancement of the environment and for conservation, control and abatement not to cause environmental pollution
- Specifying categories and classes of hazardous wastes generated from the production and use of chemicals or other hazardous substances in carrying out industry agriculture, mineral production, sanitation and other activities;
- Prescribing categories of hazardous substances that may affect significantly at present or in the long run on the environment;
- Promoting and carrying out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances;
- Prescribing the terms and conditions relating to effluent treatment in industrial estates and other necessary places and buildings and emissions of machines, vehicles and mechanisms;
- Laying down and carry out a system of Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) as to whether or not a project or activity to be undertaken by any Government department, organization or person may cause a significant impact on the environment;
- Managing to cause the polluter to compensate for environmental impact,

Also, in this law. Article 14 and Article 15 are related with waste disposal in accordance with environmental standards;

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

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.

16. A person or organization operating business in the industrial estate or business in the SEZ or category of business stipulated by the Ministry;

(a) is responsible to carry out by contributing the stipulated cash or kind in the relevant combined scheme for the environmental conservation including the management and treatment of waste;

The Environmental Conservation Rules, 2014

The Ministry of Environmental Conservation and Forestry, in exercise of power conferred under sub–section (a) of section 42 of the Environmental Conservation Law, issues this rule by No.50 of 2014 on the date of 5th June 2014.

Rule 51	The Ministry shall assign duty to the Department for enabling to adopt and carry out the environmental impact assessment system.
Rule 52	The Ministry shall determine the categories of plan, business or activity which shall carry out environmental impact assessment.
Rule 53	The Ministry shall to scrutinize whether or not it is necessary to conduct environmental impact assessment, determine the proposed plans, businesses or activities which do not include in stipulation under rule 52.

Rule 56	The person who carries out any project, business or activity shall arrange and carry out for conducting the environmental impact assessment for any project, business or activity by a qualified third person or organization accepted by the Ministry.
Rule 58	The Ministry shall form the Environmental Impact Assessment Report Review Body with the experts from the relevant Government departments, Government organizations.
Rule 61	The Ministry may approve and reply on the EIA report or IEE or EMP with the guidance of the Committee.
Rule 69	i. Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants and the hazardous waste or hazardous material stipulated by notification under the Law and any of these rules at any place, which may affect the public directly or indirectly.
	ii. Any person shall not carry out of damage the ecosystem and the natural environment, which is changing due to such system, except for carrying out with the permission of the Ministry for the interest of the people.
The Forest Law, 2018	
The State Parliament had enacted the following Law in 20 Sep 2018 as Forest Law. (Pyidaungsu Hluttaw Law 29/2018).	
Chapter II: Basic Principles	3. This Law shall be implemented in accordance with the following basic principles: (a) to implement the forestry policy of the Government; (b) to implement the environmental conservation policy of the Government;
Laws and Regulations	**Description**
Government	

Chapter IV: Management of Forest Land	9. The functions and responsibilities of the Forest Department are as follows: (a) implementation of the forestry policy of the Government; (b) implementation of the plans relating to conservation of water, biodiversity and environment, sustained yield of forest produces and protection of forest covered land; (c) management of forest land in accordance with the provision of this Law; (d) submitting proposals to the Minister for the determination, alteration or cancellation of reserved forest, protected public forest and species
Chapter XII: Offences and Penalties	40. Whoever commits any of the following acts shall, on conviction be punished with fine which may extend to Kyat 5,000 or with imprisonment for a term which may extend to 6 months or with both: (a) trespassing and encroaching in a reserved forest; (b) pasturing domestic animals or permitting domestic animals to trespass in a reserved forest; (c) breaking up any land clearing, digging or causing damage to the original condition of the land without a permit in a reserved forest; (d) causing damage to a water-course, poisoning in the water, using chemicals or explosives in the water in a reserved forest (e) catching animals, hunting or fishing in a reserved forest;
The Protection of Wildlife and Natural Areas Law, 1994	
The State Law and Order Restoration Council had enacted the Protection of wildlife and Natural Areas Law on 8th June, 1994	

Objectives	The objectives of this Law are as follows: – a) to implement the Government policy for wildlife protection; b) to implement the Government policy for natural areas conservation; c) to carry out in accordance with the International Conventions acceded by the State in respect of the protection and conservation of
Protected Wildlife	15. The Director General shall, with the approval of the Minister: a) determine and declare endangered species of wild animal which are to be protected according to the following categories: i. completely protected species of wild animals; ii. normally protected species of wild animals; iii. seasonally protected species of wild animals; b) determine and declare the endangered species of wild plants and

Taking Administrative Action	31. A Forest Officer may pass an administrative order causing a fine that may extend to Kyat 10,000 to be paid, on a person who kills, hunts, wounds or raises a seasonally protected wild animal without permission during the closed season.
Public Health Law, 1972	
Purpose: to ensure the public health include not only employees but also resident people and cooperation with the authorized person or organization of health department. It is concerned with the protection of peoples' health by controlling the quality and cleanliness of food, drugs, environmental sanitation, epidemic diseases and regulation of private clinics. The project owner will cooperate with the authorized person or organization in line with the section 3 and 5 of said law. Section 3: The project owner will abide by any instruction or stipulation for public health. Section 5: The project owner will accept ant inspection, anytime, anywhere if it is needed.	
Prevention and control of communicable Disease Law, 1995	

Purpose: to ensure the healthy work environment and prevention the communicable diseases by the cooperation with the relevant health department The project owner will cooperate with the health officer in line with the clause (9) of subsection (a) of section 3 of said law. The project owner will abide by any instruction or stipulation for public health. Section 4 The project owner will inform promptly to the nearest health department or hospital if the following are occurred;(section 9) (a) mass death of birds or chicken (b) mass death of mouse (c) suspense of occurring of communicable disease or occurring of communicable disease (d) occurring of communicable disease which must be informed The project owner will accept any inspection, anytime, anywhere if it is needed. (section 11)	
Mining Law, 1994	
Chapter II: Objectives	3.The objectives of this Law are as follows: a) to implement the Mineral Resources Policy of the Government: f) to protect the environmental conservation works that may have detrimental effects due to mining operation.
Chapter III: Application and Granting of Permit	4. A person or organization, desirous of carrying out any of the following operations, shall apply to the Ministry in accordance with the stipulations for obtaining permit 8. The Ministry may grant permit for the following operations: a) large scale production of industrial mineral or stone with local investment
Chapter IV: Duties of the Holder of	12. The holder of permit shall:

Laws and Regulation	Description
Permit	a) abide by the provisions of this Law, rules, orders and directives made there under; b) abide by the conditions contained in the permit; c) pay rent for the land related to the permit calculated in accordance with the rates prescribed by the rules made under this Law; d) pay rent for the land for each permit separately; 13. The holder of permit shall comply with the rules prescribed under this law in Respect of the following matters: c) making provisions for safety and the prevention of accidents in a
Chapter V: Right of Utilization of Land and Water for Mineral Production	15. If, in the interest of the State, it is necessary to acquire the land where mineral production could be undertaken on commercial scale, the Ministry shall co–ordinate with the relevant. Ministry for the acquisition of such land in accordance with the existing Law. 16. If the holder of mineral production permit requires the use of public water for mineral production he shall first and foremost inform the Department of such requirement in accordance with the prescribed manner.
Chapter VI: Royalty	d) for industrial mineral or stone at the rate of 1% to 3%
Chapter IX: Taking of Action by Administrative Means	28. If the holder of permit or a person managing on his behalf or any of the worker fails to comply with any of the orders or directives made under this Law, or contravenes any of the terms of the permit, the person issuing the permit may pass any of the following administrative orders: – a) suspending all or portion of the operations carried out under the permit; b) allowing continuation of the operation, after causing the payment of fine; c) cancelling the permit;

The Factories Act, 1974

This act contains the provisions for chemicals management and storage. Some chemicals are likely to require permits. It also requires all factories to have proper pollution control measures such as air pollution, sewage and wastewater treatment system.

The Private Industrial Enterprise Law, 1990

The State Law and Order Restoration Council enacted this law by Law No.22/90 on 26th November 1990. According to this law, all private industrial enterprises shall avoid or reduce the use of polluting technology. The Supervisory Body supervises and inspects the enterprise to ensure the following:

- ❖ No health threats from the industrial enterprise to the nearby residence;
- ❖ No fire threats or hazards;
- ❖ No source of nuisance or pollution originating from the enterprise;
- ❖ No occupational hazard to the workers and
- ❖ Compliance with the existing law.

Myanmar Citizen Investment Law (2013)

(41) The following investments shall be stipulated as prohibited investment;

(a) business/ investment activities which may bring or cause the hazardous or poisonous wastes into the Union;

(b) Business/ investment activities which may bring technologies, medicines, flora and fauna and instruments which are still being tested abroad or which have not been obtained approvals for use, planting and cultivation except the investments which made for the purpose of research and development;

(c) Business/ investment activities which may affect the traditional culture and customs of the racial groups within the Union;

(d) Business/ investment activities which may affect the public health

(e) Business/ investment activities which may cause significant damage to the natural environment and ecosystem; and

(f) Business / investment activities, which manufacture goods or provide services that, are prohibited in accordance with applicable laws.

(42) The following investment activities shall be stipulated as restricted investment: (a) Investment activities allowed to carry out by Government only;

(b) Investment activities restricted to foreign investors;

(c) Investment activities allowed only in form of joint ventures with a citizen owned entity or a citizen of Myanmar; and

(e) Investment activities permitted with the recommendation of the relevant ministries.

(50) (b) Foreign investor may lease land or building up to an initial period of 50 years commencing on the date of receipt of the permit or endorsement from the Commission

The objectives of Myanmar Fire Force Law are;

a) To take precautionary and preventive measure and loss of state own property, private property, cultural heritage and the lives and property of public due to fire and other natural disasters

b) To organize fire brigade systemically and to train the fire brigade

c) To prevent from fire and to conduct release work when fire disaster, natural disaster.

Epidemic disease or any kind of certain danger occurs

d) To educate, organize an inside extensively so as to achieve public corporation

e) To participate if in need for national security, peace for the citizens and law and order

The relevant Government Department or organization shall, for the purpose of precaution and prevention obtain the approval of the Fire force Department before granting permission for the following cases:

a) Constructing three-storied and above buildings market and condominium buildings,

b) Operating hotel, motel, guest house enterprise

c) Constructing factory, workshop, storage facilities and warehouse

d) Operating business expose to fire hazard by using in inflammable materials or explosive materials

e) Producing and selling fire–extinguishing apparatuses

Doing transport business, public utility vehicles train, airplane, helicopter, vessel, ship, etc. The relevant government department or organization shall obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans.

Underground Water Act, 1930

The underground water act enacted on the date of 21st June in 1930 whereas it is expedient

to conserve and protect underground sources of water supply in the Union of Burma. This act prohibits sinking of a tube for obtaining underground water except under and in accordance with the terms of a license granted by the water officer. Township Officer the local area concerned and the expense of such closure shall be recoverable from the owner of the tube as if it were an arrear of land–revenue.

The Settlement of Labor Dispute Law, 2012

The Pyidaungsu Hluttaw hereby had enacted this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and

Worker justly.

The Social Security Law (2012)

Section 53(a)	The employers and workers shall co–ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment;

Chapter II: Formation of the Workplace Coordinating Committee

3. In any trade in which more than 30 workers are employed, the employer, with the view to negotiating and concluding collective agreement, shall: (a) if there is any labor organization, form the Workplace Coordinating Committee with the view to make a collective bargaining as follows: (i) two representatives of workers nominated by each of the labor organizations; (ii) an equivalent number of representatives of employer;
(b) if there is no labor organization, form the Workplace Coordinating Committee as follows: (i) two representatives of workers elected by them; 5. The Coordinating Committee shall promote the good relationship between the employer and worker or labor organization, negotiation and coordination on the conditions of employment, terms and conditions and occupational safety, health, welfare and productivity. 6.(a) If the worker or labor organization or the employer, by themselves or by representative, request and complain their grievances to the Coordinating committee within five days, not including the official holidays, from the day of the receipt of the request. (b)The Coordinating Committee shall keep the record of settlement and shall send report on the situation of performance in accord with the stipulation to the relevant Conciliation Body.
Chapter III: Formation of the Conciliation Body
10. The Region or State Government shall form the Conciliation Body in the townships.
Chapter IV: Formation of the Dispute Settlement Arbitration Body
16. (a) The Ministry shall, with the approval of the Union Government, from the Dispute Settlement Arbitration Body in the Regions or States.
Chapter V: Formation of Dispute Settlement Arbitration Council
19. The Ministry shall, with the approval of the Union Government, form the Dispute Settlement Arbitration Council with 15 qualified persons of good standing from legal experts and experts in labor affairs.
Chapter VI: Settlement of Dispute
23. A party, employer or worker, may complain individual dispute relating to his grievance to the Conciliation Body and if he is not satisfied with the conciliation of such body in accord with stipulated manners, may apply to the competent court in person or by the legal representative.
Prevention of Hazard from chemical and related substance law (2013)

Employment Skill Development Law (2012)
Fire brigade law (2015)
Vehicle law (2015)
Water resource and river maintenance law (2016)

3.2 National Environmental Quality (Emission) Guidelines (2015)

For brick manufacturing, the project proponent will follow the guidelines below.

The effluent level of storm water must within the limit resorbed in the following standard:

Parameter	Unit	Maximum Concentration
Biological Oxygen demand	Mg/L	30
Chemical oxygen demand	Mg/L	125
Oil and grease	Mg/L	10
PH	SU[a]	6–9
Total coliform bacteria	100mL	400
Total Nitrogen	Mg/L	10
Total Phosphorus	Mg/L	2
Total suspend solid	Mg/L	50

The air quality must be within the following level prescribed by Environmental Quality (Emission Guidelines (2015))

Parameter	Averaging period	Guideline value Mg/m^3
Nitrogen dioxide	1 year 1 hour	40 200
Ozone	8 hours daily Maximum	100
Particulate matter PM10[2]	1 year 24 hours	20 50

Particulate matter PM_{24}[b]	1 year 24 hr	10 25
Sulphur dioxide	24 hr 10 m mule	20 500

3.3 National and International Guidelines

The basis for regulation and control of air emissions, noise and liquid discharges from various sources in order to prevent pollution for the protection of human and ecosystem health. The World Health Organization Guide line, and international Finance Corporation Guidelines for Mining (2007) are used for data interpretation and referred to Environmental Management Plan of the proposed quarry operation.

3.3.1 Parameter for testing

The Ambient air quality, Noise/ Vibration, surface water quality, ground water and waste water shell be tested. The parameter and NEQ standard guide lines are mentioned in the following table.

3.3.2 Air quality

Table (3-2) Air quality guide line

Parameter	**Averaging period**	**Guideline Value µg/m^3**
Nitrogen dioxide	1 hr	200
Ozone	8 hr daily	100
PM_{10}[a]	24 hr	50
$PM_{2.5}$[b]	24 hr	25
Sulphur Dioxide	–	20

3.3.3 Noise

Table (3–3) Noise level guide line

Receptor	One–hour L Aeq (dBA)[a]	
	Day (7:00–22:00) Public holiday (10:00–22:00)	Night 22:00 – 07:00 Public holiday (22:00 – 10:00)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

Equivalent continuous sound level in decibels.

3.3.4 Effluent levels

Table (3–4) Effluent level guide line

Parameter	Unit	Maximum Concentration
Biological oxygen demand	mg/L	30
Chemical Oxygen demand	mg/L	125
Oil and grease	mg/L	10
PH	SU	6–9
Total coliform bacteria	100 ml	400
Total Nitrogen	mg/L	10
Total Phosphorus	mg/L	2
Total Suspended solid	mg/L	50

3.3.5 Surface water/ ground water

Table (3–5) Water quality reference

Parameter	Unit	WHO drink
PH	SU	–
Turbidity	NTU	5
Total Hardness	mg/L	500
Iron	mg/L	0.3
Sulphate	mg/L	500
Dissolved Solid	mg/L	1000
Suspended Solid	mg/L	–

3.4 International Convention Agreements Signed by Myanmar

Union of Myanmar Signed many agreements or International Conventions and protocols. The relevant key International Conventions Protocols which relevant to the project are shown in the table (3–6).

Table (3–6) International Conversation Agreements ratified by Myanmar

Sr No	Title of convention / Agreement	Year of commence
1.	The Ramseur Convention	1971
2.	Convention on the International Trade in Endanger Species of wild fauna and flora	1973
3.	The Bonn convention	1979
4.	International Tropical Timber Agreement	1985
5.	Vienna Convention for Protection of the Ozone Layer	1989

6.	Basel Convention	1992
7.	Convention on Biological Diversity	1992
8.	United Nations Framework Convention on climatic change UNFCC	1992
9.	Convention on Biological Convention	1992
10.	The Reo Declaration	1992
11.	Agented 21	1992
12.	United Nations frame work convention on climatic change (UNFCC) and Kyoto Protocol	1997
13.	United Nations Frame work convention on climate change (UNFCC) New York	1997
14.	Stoch olm convention on persistent organic pollutants	2001
15.	International Environmental Agreement	2012
16.	Agenda 21: Myanmar	2003
17.	International Convention Economic Social and Cultural lights	2017

3.5 Commitments regarding law, Rules and Regulation

The proponents committed to abide the environmental law, rules and regulation as well as concern Laws, Act and rules mentioned in this chapter. (See Appendix–R)

Chapter (4)

Conditions of Surrounding Environment

4.1 Introduction

This chapter describes the bio–physical and social environment around the project and the method that will be or have been used for investigation of the environ conditions for the purpose of preparing IEE report for proposed project. These studies have been done by the SEE Trust, Naywunmyat(s), the third–party team.

4.2 Objectives of study

Environmental assessment is taken up in the exercise as a rapid assessment technique for determining the current status of environment. The description of environmental condition is made for following reasons.

(a) To get base line data for assessment of impact

(b) To product the environmental consequences of the development project

(c) To ensure potential problems

(d) Make sure that EMP's developed sufficiently and sound for the proposed project.

4.3 Study Area and Areas of influences

This section presents the physical, environmental, socio–economic, cultural and visual characteristics of the **Study Area**. The **Study Area** is defined as the wider area in which the environmental and social conditions are evaluated with the sources of risk, in order to

determine interactions and the magnitude and significance of potential impacts resulting from the Project.

For this Project, the **Study Area** is defined as a 1 km buffer around. This area definition also facilitates the comparison of cumulative impacts between the individual Project components.

The '**Area of Influence**' (**AOI**) is defined as the village tracts, wards and townships within or neighboring the project Area. The project with this associated feature will have a potential to influence several geographic areas. The geographic zones, which can experience direct or indirect environment impacts can systematically divided as follow:

(a) Factory compound

1) Raw taking area
2) Brick mill
3) Storage area
4) Office and quarter
5) Green Zone

(b) 1 Km around the factory

1) Forest and agriculture
2) Surrounding village
3) Saw mill No: (52)
4) Roads

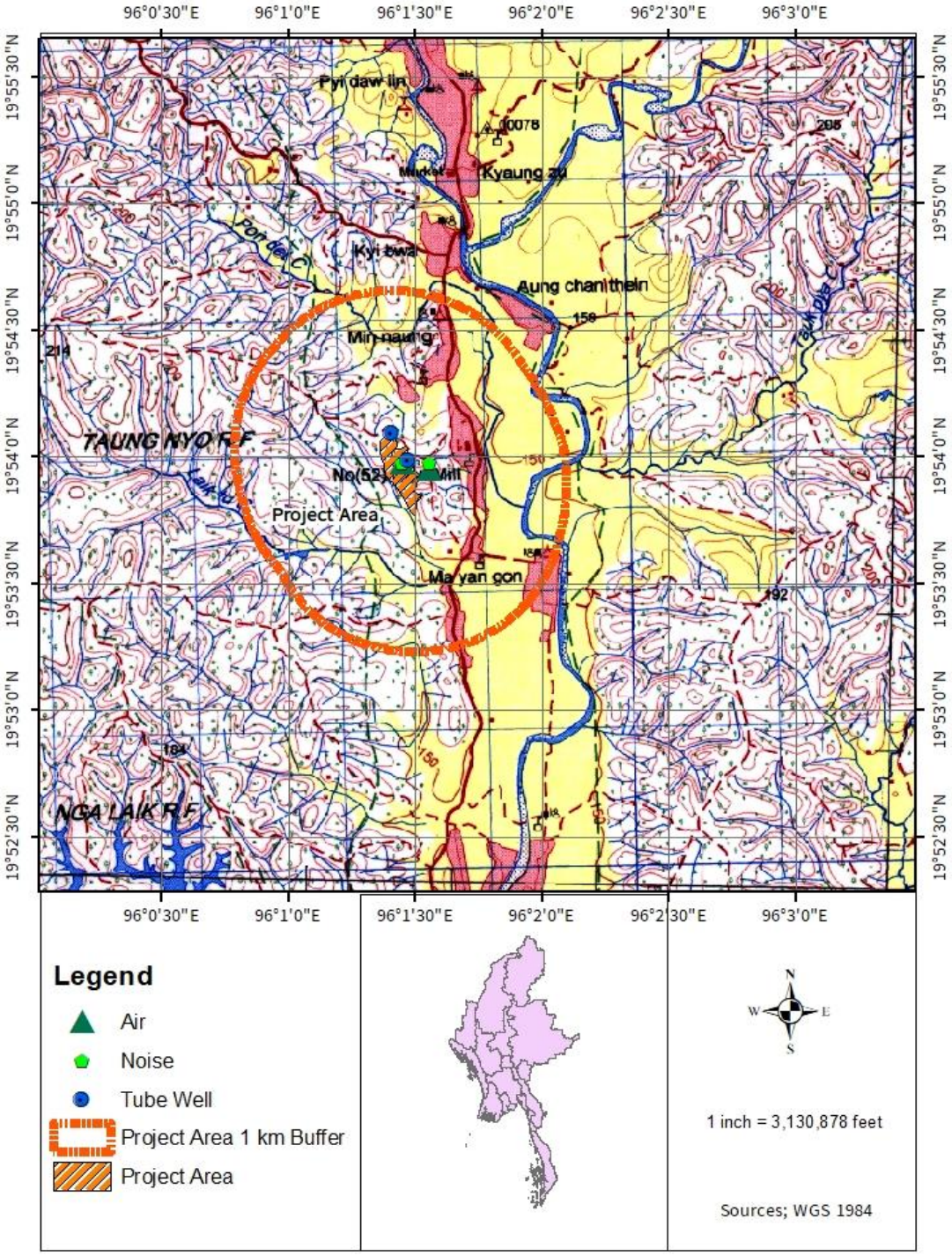


Figure (4–1) Study area map of the project

4.4 Methodology

Desk studies as well as site specific baseline surveys were carried out to provide a full picture of the status of the existing natural and human environment and to understand potential impacts and any sensitive risk receptors for the Project. Those collected data were screening by the experts of third party for verifying data and information.

The primary data were collected from field study, laboratory testing, Ad hoc testing, social surveying and interviewed with the PAPs and surrounding villagers.

Secondary data were collected from concern government organization, research institutes and papers, regional government bodies and published reports and literatures collected from internet.

The environmental baseline data such as water, air and noise quality, and ecological survey was conducted selected sample sites within the project site. The ecological survey was conducted to assess the type of flora and fauna prevailing within the site. Topography, climate and meteorology, geology was collected through literature review and available data from Universities. Topography and geology of the area was studied using available topographic maps and satellite imagery.

The following is the activities of environmental baseline data collection in the project site.

4.5 Geography

Naypyidaw is located between Bago Yoma and Shan Yoma mountaion ranges. The city covers an area of 7054 Km^2 (2723.71 Sq mile).

Chaung magyi Dam is located a few kilometers to the north of Naypyidaw, While Ngalaik Dam is a few Kilometers to the south. The Yezin Dam is farther away from north–east. There are eight townships in Naypyidaw. They are Pyimana, Lewe, Tatkone, Oatarathiri, Dekkhinathiri, Pobbathiri, Zabuthiri and Zeyarthiri Townships.

The average climate data of Naypyidaw is expressed in Figure (4–1).

Figure (4–2) Average Climatic data of Naypyidaw

	Avg. Temperature °C (°F)	Precipitation / Rainfall mm (in)	Humidity (%)	Rainy days (d)	avg. Sun hours (hours)
January	21.5 (70.7)	10 (0.4)	57%	1	10.0
February	24.2 (75.6)	2 (0.1)	43%	0	10.0
March	28 (82.5)	6 (0.2)	38%	1	11.0
April	30.6 (87.1)	21 (0.8)	43%	3	11.0
May	28.2 (82.7)	165 (6.5)	70%	14	9.0
June	25.7 (78.3)	283 (11.1)	87%	20	7.0
July	25.1 (77.1)	309 (12.2)	89%	21	6.0
August	25 (77.1)	301 (11.9)	89%	21	7.0
September	25.5 (78)	225 (8.9)	87%	20	8.0
October	25.7 (78.3)	122 (4.8)	84%	15	9.0
November	24.4 (75.9)	29 (1.1)	72%	4	9.0
December	22.1 (71.8)	9 (0.4)	63%	1	9.0

4.6 Geological formation

Geo–morphologically as well as tectonically Myanmar can be sub divided into four major tectonic provinces which are north–south trending linear belts: these are from east to west

(1) Shan–Tanintharyi Block

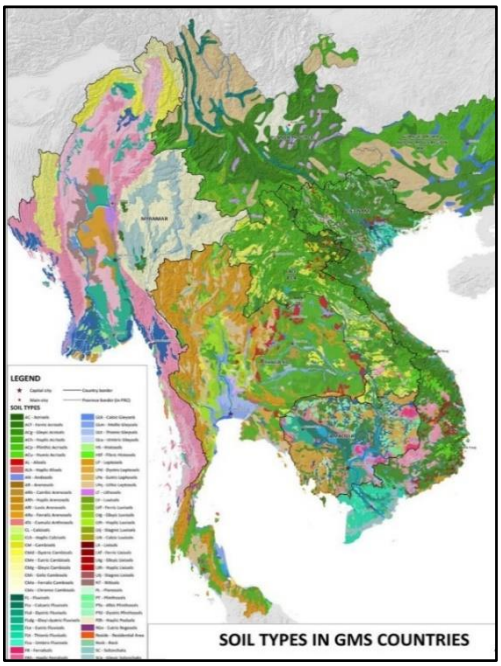
(2) Central Cenozoic Belt

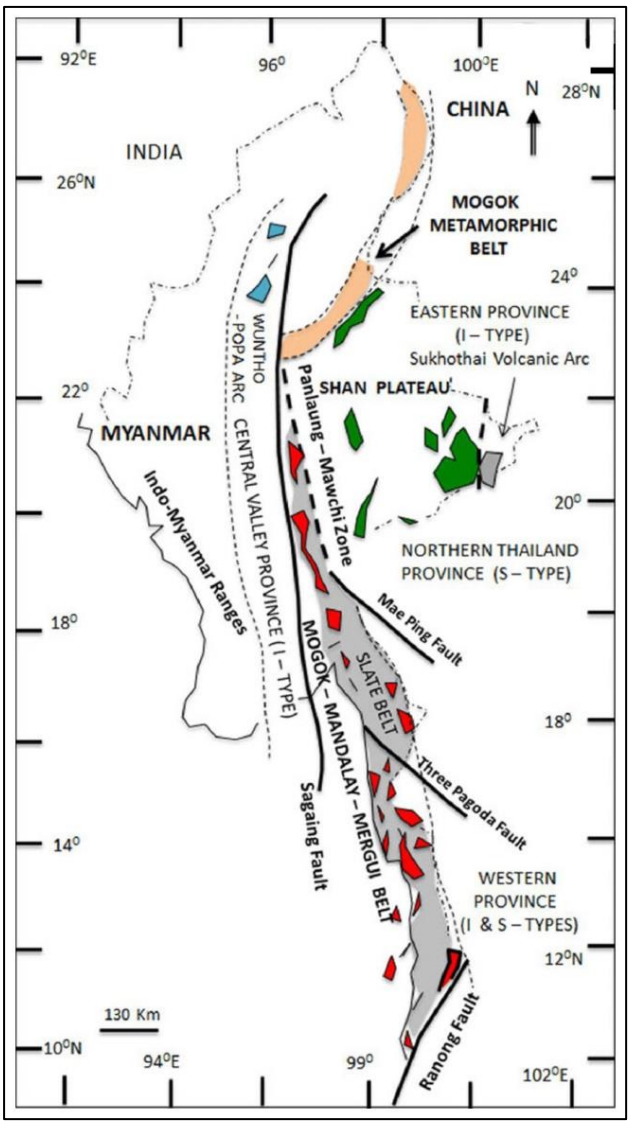
(3) Western Fold Belt.

(4) Roasal Coastal Belt.

The structural geology of Myanmar is not complex. One of the major active faults in Sagaing Fault. It controls the structural geology. It passes through just east Bago and enters western Gulf of Martaban.

Figure (4–3) Geological map and fault of earthquake





Source: Research Gate

4.7 Soil types of Naypyidaw region

There are 24 soil types in Myanmar which or dictated by Soil–forming factors such as rainfall, parent rocks, topography and land form. However only three main soil groups for agriculture are recognized, alluvial, black and red laterite soil.

According to FAO/ UNES CO classification type of soil in Naypyitaw area is–

FL dg – Gleyi–dystric Fluvisols

4.8 Population

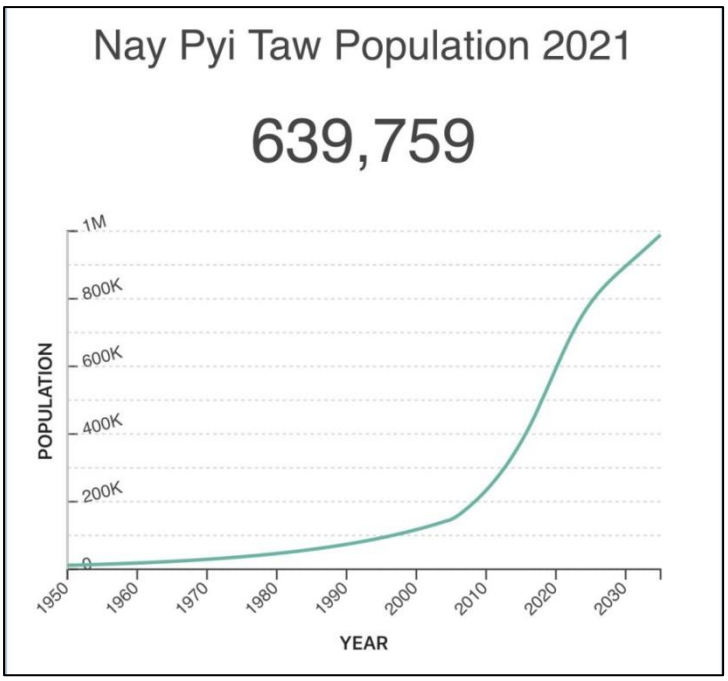
Naypyidaw Historical population data is as follow. It's see in population increase a lot after 2010. The population density is 133.1/Km2

Table (4–1) Historical Population data of Naypyidaw

Year	Population	Growth role rate	Increase No:
2006	159,566	8.11%	11,969
2007	175,506	9.99%	15,940
2008	193,064	10.00%	17,558
2009	212,322	9.97%	19,258
2010	233,532	9.99%	21,210
2011	257000	9.83%	25260
2012	282,558	10.00%	25,697
2013	310,743	9.97%	28,185
2014	341,785	9.99%	31,042
2015	375,928	9.99%	34,143
2016	413,482	9.99%	37,554
2017	454,787	9.99%	41,305
2018	500,218	9.99%	45,431
2019	546,487	9.25%	46,269
2020	593,596	8.62%	47,109
2021	639,759	7.78%	46,163

Source: UN World Population Prospect.

Figure (4–4) Naypidaw population in 2021



Sources: Worldpopulationreview.com

4.9 Transportation

There are two high way roads to Naypyidaw. Railway and Airways also connected to Naypyidaw and others town. The internal road access in Naypyidaw region is best. The maps of transport route and internal road access shown in the figures.

Figure (4–5) Railway route

Source: MRE

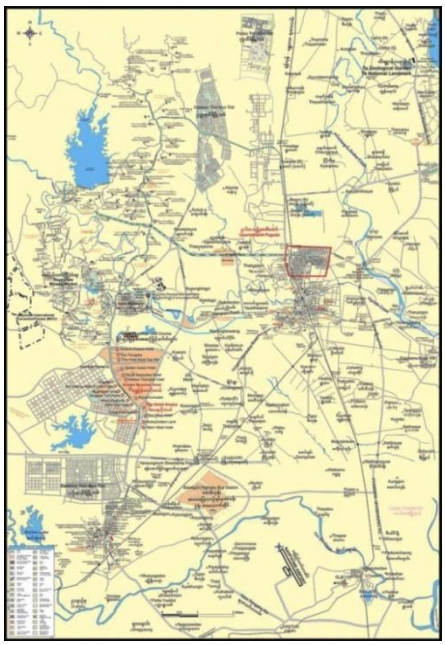
Figure (4–6) Air route

Source: Country profile

Figure (4–7) Express Road

Source: Wikipedia

Figure (4–8) In town road access



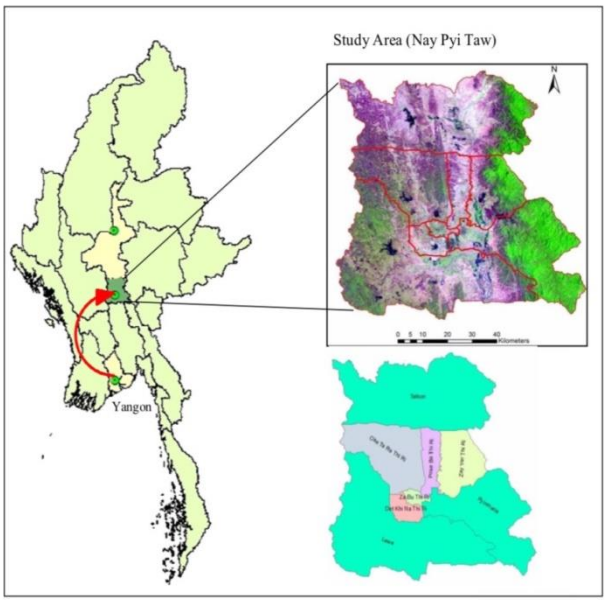
Source: Naypyidaw DC

4.10 Land use of Naypyidaw

Naypyidaw has experienced significant land use and land–cover changes since its becoming the capital city of Myanmar in 2005. The areas of settlements / built–up and bare land, increased by 28,902 ha, 2249 ha, and 569 ha, respectively, whereas agriculture land and natural vegetation decreased by 9299 ha and 21790 ha, respectively.

The increase in settlement/built–up land mainly came from the conversion of agriculture land (56%) and natural vegetation (44%) during the study period (Kay Khine Oo etal).

Figure (4–9) Location of land use study area



4.11 Best site and historical land mark

The best sight and historical land mark in Naypyidaw are:–

– Uppantasanti Pagoda

– 20 lane High way

– Thatta Thattaha Maha Bodi Pagoda

– Water Fountain Garden

– Saint Michael Calholic Church

– Pyidaungsu Hluttaw

4.12 Health care in Naypyidaw

The city is served by five public hospitals:

- 1000 bed Naypyidaw general hospital
- Naypyidaw Woman hospital
- Naypyidaw ENT
- 100 bedded Naypyidaw Traditional Medicine hospital
- Naypyidaw Orthopaedic

There is also 300 bed Obstetric, Gynecological and children's hospitals of Myanmar Defence service. The nearby town of Lewe, Pyinmana and Tatkon each have one hospital.

4.13 Education and Research

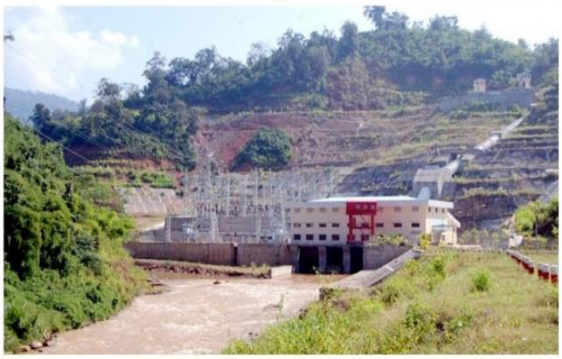
Table (4–2) List of school, University and research center

High school	Higher Education	Research
3	**3**	**3**
No (1) Basic High School No (2) Basic High School No (3) Basic High School	University of Veterinary Agricultural University University of Forest and Environment	Forest Research Institute Department of Agricultural Research South east Asia Biodiversity Research Institute

4.14 Electricity

There are two hydroelectricity dams in Naypyitaw, Paunglaung and Nancho. The facts of hydroelectric station are shown below: –

Figure (4–10) Facts of Paunglaung



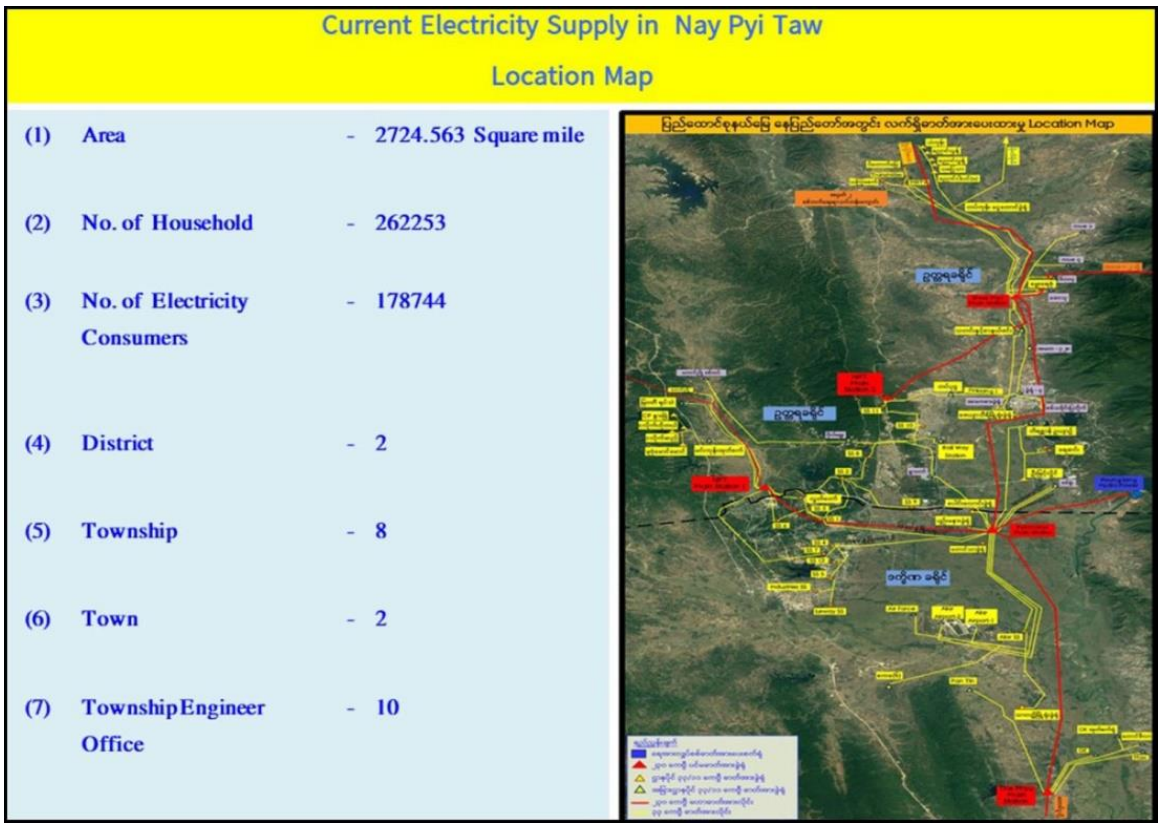
Paunglaung			
1	Location	–	Zayyarthiri Township, NayPyiTaw Territory
2	Creek	–	Paunglaung
3	Construction Starting Date	–	1.2.1997
4	Commercial Running Date	–	2005
5	Installed Capacity	–	280 MW (70MW × 4)
6	Rated Head	–	340 ft
7	Type of Turbine	–	Francis (Vertical)
8	Discharge	–	4 × 2701.75 ft^3/s = 10807 ft^3/s
9	Annual Design Generation	–	911 GWh
10	Transmission Line	–	230 kV Paunglaung – Pyinmana Line (1) & (2) (11) miles
11	Penstock	–	263 ft (2) Nos (f - 28 ft)

Figure (4–11) Facts of Nancho dam

1	Location	–	(16)Miles East of Pyinmana Township, NayPyiTaw Territory
2	Creek	–	Nan Cho
3	Construction Starting Date	–	2006
4	Commercial Running Date	–	11.4.2014
5	Installed Capacity	–	40 MW (20 MW × 2)
6	Rated Head	–	328 ft
7	Type of Turbine	–	Francis (Vertical)
8	Discharge	–	1674 ft^3/ Sec
9	Annual Design Generation	–	152 GWh
10	Transmission Line	–	230kV, Nancho-Paunglaung (7.6) miles 230kV, Nancho -Upper Paunglaung
11	Penstock	–	263 ft (2) Nos (f - 28 ft)

Nan Cho

Figure (4–12) Location map of electric supply



The electrified Household are shown in table (4–3) and off grid electrical house hold are shown in table (4–4).

Table (4–3) List of electrified Households

List of Off - Grid Electrified Households in Nay Pyi Taw

Sr.No	Name of District	No. of Household	Electrified Household	Unelectrified Household	Electrified Household (%)
1	Dekkhinathiri	143426	103334	40092	72.05%
2	Ottarathiri	118827	75410	43417	63.46%
Total		**262253**	**178744**	**83509**	**68.15%**

Table (4–4) List of electrified town and village

Electrified Towns / Villages in Nay Pyi Taw															
Sr. No	Name of District	No. of Towns							No. of Village						
		List	Electrified					Un electrified	List	Electrified					Un electrified
			Power System	Other			Power System + Other Total			Power System	Others			Power System + Other Total	
				Diesel	Solar	Small					Diesel	Solar	Small Hydro		
1	Dekkhinathiri	4	4	-	-	-	4	-	433	280	5	62	1	348	85
2	Ottarathiri	4	4	-	-	-	4	-	363	307	-	31	-	338	25
	Total	**8**	**8**	-	-	-	**8**	-	**796**	**587**	**5**	**93**	**1**	**686**	**110**

4.15 Socio–economic situation of surrounding

4.15.1 Demographic

The total population of Oattarathiri township is 81620. Out of this the urban population is about 29.3%. There are two wards and eight village tracts. The sex ration is 103 males and 100 females (MIMU, Oattarathiri). The total population in the village is 55014 live in 13766 House hold.

The mill is in the Toungnyo village tracts and its population is as follow: –

Village Tract	No: of Conventional household	Population		
		Total	Males	Females
Taungnyo Villagwe Tract	2796	11794	5959	5835
Total Oattarathiri	18661	81620	41309	40311

The population in the surrounding villages are:

Village	Household	Population
No 52 Village	141	532
Min Naung	7169	735
Mayankon	384	1575

4.15.2 Housing, electricity and communication

The types of housing in the rural areas overage 42.5% in wooden house 40.3% in bamboo house. The others types are apartment Bungalo, semi pacca house and hut which the total percentage of 17.2%.

The most of the surrounding village access with electricity from government (84.7%). The rest are using solar, batteries and generator.

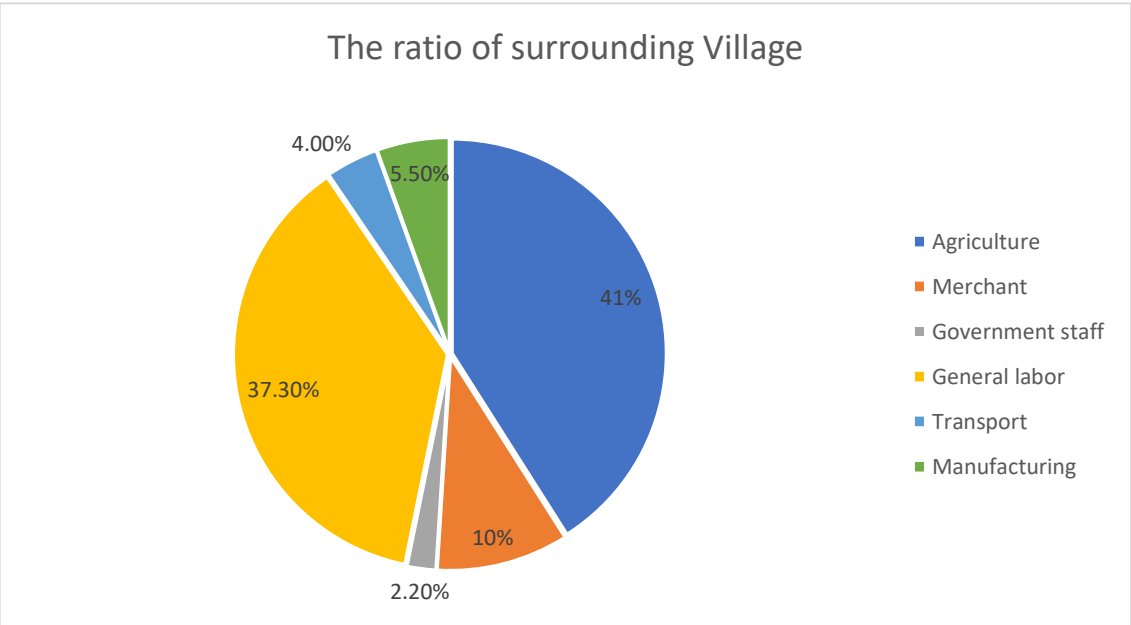
Regarding communication they access to television about 45% of household and access to radio about 43%. 35% of availability household have mobile phone. The transportations are car, truck, bicycle, motor cycle, wheel tractor, cart etc.

4.15.3 Livelihood

The main livelihood of villages is Agriculture, followed by general workers and merchant. Most of the household have home garden, chicken, and pig. The ratios of surrounding village are shown in the figure (4–13).

The average income of household is K 350000 per months.

Figure (4–13) The ratio of surrounding village



4.15.4 Coaling fuel and source of water

The surrounding village use firewood 68.6% and charcoal 22.7%. The rest are use electricity and coal.

The main source of water is from tube well and bore hole. The rest are get from rain water, canal and stream.

4.15.5 Religions

The religions of the surrounding villages are as follow:

Buddhist	97.2 %
Christan	1.8 %
Islam	0.6 %
Hindu	0.2 %
Animist	0.2 %

4.15.6 Historical building

There are no historical buildings found in the surrounding areas.

4.16 Forest and Biodiversity

The Naypyidaw (Previous covered the Pyinmana and Yamethin districts) were covered with good teak forests. The project area is in the Ottara District. The basic imformation of Ottara District Forest are: –

(a) **Forest types** – Mixed deciduous

– Dry forest

– Indaing forest

– Hill forest

(b) Forest Reserve and Public

Protected/ Forest	Ottara T/s	Tat Kon T/s	Total area

No: of reserve (Nos.)	7	10	17
Total area (acre)	135767	173054	308821

(c) Land encroachment in Ottara district

Agriculture	4886 acres
Farms	4045 acres
Total	8831 acres

(d) List of tree species found in Ottara district

Table (4–5) list of tree species of found in Ottara district

ဥတ္တရခရိုင်အတွင်း ပေါက်ရောက်လျှက်ရှိသော အပင်များ:

စဉ်	သစ်မျိုးအမည်		မျိုးရင်း Family	သိပ္ပံအမည်(Scientific Name)	
	မြန်မာအမည်	အင်္ဂလိပ်အမည်		မျိုးစု	မျိုးစိတ်
၁	ကျွန်း	Teak	Verbenaceae	*Tectona*	*grandis*
၂	ပျဉ်းကတိုး	Myanmar Iron Wood	Mimosaceae	*Xylia*	*xylocarpa*
၃	ပိတောက်	Myanmar Rosewood	Papilionaceae	*Pterocarpus*	*macrocarpus*
၄	သစ်ယာ	Myanmar Sal Tree	Dipterocarpaceae	*Shorea*	*obtusa*
၅	အင်ကြင်း	Dark Red Meranti	Dipterocarpaceae	*Shorea*	siamensis
၆	တမလန်း	Myanmar Rosewood	Papilionaceae	*Dalbergia*	*oliveri*
၇	ကညင်	Wood-oil-Tree	Dipterocarpaceae	*Dipterocarpus*	*turbinatus*
၈	ကုက္ကို	Rain Tree	Mimosaceae	*Albizzia*	*lebbek*
၉	စကားဝါ	Yello Champac	Magnoliaceae	*Machellia*	*Champaca*
၁၀	စစ်	White Siris	Mimosaceae	*Albizzia*	*procera*
၁၁	တောင်တမာ	Neem,Margosa Tree	Meliaceae	*Cedrela*	*serrata*
၁၂	နော		Rubiaceae	*Adina*	*cordifolia*
၁၃	ဘင်္ဂ		Rubiaceae	*Mitragyana*	*rotundifolia*
၁၄	မကျီးပွေး		Ebenaceae	*Diospyros*	*pendula*
၁၅	ရင်းမာ	Chittagong Wood	Meliaceae	*Chukrasia*	*velutina*
၁၆	ယမနေ	Coomb Teak	Verbenaceae	*Gmelina*	*arborea*
၁၇	ယင်းတိုက်	Burma Blackwood	Fabaceae	*Dalbergia*	*cultrata*
၁၈	သဒီ		Burseraceae	*Protium*	*serratum*
၁၉	သင်းဝင်	Thinwin	Fabaceae	*Millettia*	*pendula*
၂၀	သစ်စေး	Lacquer Tree	Anacardiaceae	*Melanorrhoea*	*usitata*
၂၁	သစ်မကျီး	Ceylon Rosewood	Mimosaceae	*Albizzia*	*odoratissima*
၂၂	အင်ပင်		Dipterocarpaceae	*Dipterocarpus*	*tuberculat*
၂၃	တောင်သရက်		Anacardiaceae	*Suintonia*	*floribunda*
၂၄	တောင်ပိန္နဲ	Taungpeinne	Moraceae	*Artocarpus*	*chaplasha*
၂၅	ထောက်ကြံ့	Taukkyan	Combretaceae	*Terminalia*	*crenulata*
၂၆	ပျဉ်းမ	Queen's crape-myrtle	Lythraceae	*Lagerstroemia*	*speciosa*
၂၇	ဖန်းခါး	Chebulic myrobalan	Combretaceae	*Terminalia*	*chebula*
၂၈	ရုံး	Buttontree	Combretaceae	*Anogeissus*	*acuminata*
၂၉	သပြေ	Java Plum	Myrtaceae	*Eugenia*	*jambolana*
၃၀	ကုတ်ဟဲ		Bombacaceae	*Bombax*	*anceps*
၃၁	ဂွေး	Hog Plum	Anacardiaceae	*Spondias*	*mangifera*
၃၂	ဒီးဒူး	Red Silk Cotton Tree	Bombacaceae	*Bombax*	*insigne*
၃၃	နဘဲ	Indian Ash Tree	Anacardiaceae	*Lannea*	*coromandelica*

Table (4–6) List of Bamboo species found in Otta ra District

ဥတ္တရခရိုင်အတွင်း ပေါက်ရောက်လျက်ရှိသော ဆေးဘက်ဝင်အပင်များ

စဉ်	သစ်မျိုးအမည်		မျိုးရင်း	သိပ္ပံအမည်(Scientific Name)	
	မြန်မာအမည်	အင်္ဂလိပ်အမည်	Family	မျိုးစု	မျိုးစိတ်
၁	ကြသောင်းဝါး	Burmese Bamboo	Poaceae	*Bambusa*	*polymorpha*
၂	ဝါးဘိုးဝါး	Burma Bamboo	Poaceae	*Dendrocalamus*	*brandisii*
၃	သိုက်ဝါး	Indian Timber Bamboo	Poaceae	*Bambusa*	*tulda*
၄	တင်းဝါး	Tinwa	Poaceae	*Cephalostachyu m*	*pergracile*
၅	မျှင်ဝါး	Solid Bamboo	Poaceae	*Dendrocalamus*	*strictus*
၆	ဝါးနက်	Long-sheath Bamboo	Poaceae	*Dendrocalamus*	*longisputhus*

Table (4–7) List of Medical plants

ဥတ္တရခရိုင်အတွင်း ပေါက်ရောက်လျက်ရှိသော အပင်များ

စဉ်	သစ်မျိုးအမည်		မျိုးရင်း	သိပ္ပံအမည်(Scientific Name)	
	မြန်မာအမည်	အင်္ဂလိပ်အမည်	Family	မျိုးစု	မျိုးစိတ်
၁	ဖလန်တောင်ဇေး	Indian Spiral Ginger	Zingiberaceae	*Costus*	*speriosus*
၂	ဝံအူ		Fabaceae	*Millettia*	*extensa*
၃	ကင်ပလင်း		Euphorbiaceae	*Antidesma*	*collettii*
၄	စူလာနဖာ	White flower snake-tongue grass	Rubiaceae	*Oldenlandia*	*diffusa*
၅	သက်ရင်းကြီး		Euphorbiaceae	*Croton*	*oblongifolius*
၆	တောမိသာလင်	Meik-thalin	Zingiberaceae	*Zingiber*	*barbatum*
၇	တောချဉ်ပေါင်	Rose Mallow	Malvaceae	*Hibiscus*	*hispidissimus*
၈	ဘိစပ်		Asteraceae	*Microglossa*	*pyifolia*
၉	ဝက်ချိုးပိန္နဲ		Malvaceae	*Pavonia*	*rigida*
၁၀	တောငှက်ပျော	Banana	Musaceae	*Musa*	*ornata*
၁၁	ရှဉ့်မတက်	Climbing Asparagus	Asparagaceae	*Asparagus*	*acerosus*
၁၂	ဆင်တုံးမနွယ်	Tinospora	Menispermaceae	*Tinospora*	*nudiflora*
၁၃	သမနုင၊ ကောက်မနိုင်		Cyperaceae	*Diplacrum*	*caricinum*
၁၄	ကနဖော့	Water Cress	Asteraceae	*Enhydra*	*fluctuans*
၁၅	ကပ်စေးနဲ	Country Mallow	Malvaceae	*Sida*	*aeuta*
၁၆	မြင်းခွာ	Asiatie Pennywort	Hydrocotylaceae	*Centella*	*asiatica*
၁၇	ကြိတ်မှန်	False Daisy	Asteraceae	*Eclipta*	*alba*
၁၈	ကညွတ်	Common Asparagus	Asparagaceae	*Asparagus*	*officinalis*
၁၉	ထိကရုံး	Sensitive plant	Mimosaceae	*Neptunia*	*javanica*
၂၀	ပင်စိမ်းနက်	Sacred Basil	Labiatae	*Ocimum*	*sanctum*
၂၁	ကြေရာဇ်	Indian Cork Tree	Bignoniaceae	*Millingtonia*	*bortensis*
၂၂	လက်ထုပ်ကြီး	Kurchi conessi	Apocynaceae	*Holarrhena*	*pubescens*

Table (4-8) List of mamma

ဥဗ္ဗရစရိုင်အတွင်း တွေ့ရှိရသော သားငှက်တိရစ္ဆာန်များ

စဉ်	တိရိစ္ဆာန်		မျိုးစဉ် Order	မျိုးရင်း Family	သိပ္ပံအမည် (Scientific Name)	
	မြန်မာအမည်	အင်္ဂလိပ်အမည်			မျိုးစု	မျိုးစိတ်
၁	ဆင်	Indian Elephant	PROBOSIDAE	ELEPHATIDAE	*Elephas*	*maximus*
၂	ချေ	Common Barking Deer	ARTIODACTYLA	CERVIDAE	*Muntiacus*	*muntjak*
၃	တောဝက်	Common Wild Pig	ARTIODACTYLA	SUIDAE	*Sus*	*scrofa*
၄	မျောက်ညို	Langur	PRIMATES	LORISIDAE	*Prestrytis*	*phayrei*
၅	သင်းခွေချပ်	Malayan Pangolin	PHOLIDOTA	MANIDAE	*Menis*	*govanica*
၆	ယုန်	Hare	LAGOMORPHA	LEPORIDAE	*Lepus*	*peguensis*
၇	ရှဉ့်	Malayan Giant Squirrel	RODENTIA	SCIURIDAE	*Ratufa*	*bicolor*
၈	တောကြောင်	Jungle Cat	CARNIVORA	FELIDAE	*Felis*	*ehaus*
၉	ဖြူ	Brush-tailed Porcupine	RODENTIA	SCIURIDAE	*Atherurus*	*macrourus*
၁၀	ခွေးတူဝက်တူ	Hog-Badger	CARNIVORA	MUSTELIDAE	*Arctonyx*	*collaris*
၁၁	ကြောင်မင်း	Golden Cat	CARNIVORA	FELIDAE	*Felis*	*temmiveki*
၁၂	မြွေပါ	Small Indian Mongoose	CARNIVORA	VIVERRIDAE	*Herpestes*	*auropunetatus*

Table (4-9)List of Reptile

စဉ်	တိရိစ္ဆာန်		မျိုးရင်း Family	သိပ္ပံအမည်(Scientific Name)	
	မြန်မာအမည်	အင်္ဂလိပ်အမည်		မျိုးစု	မျိုးစိတ်
၁	ဖွတ်	Clouded Monitor	SQUAMATA	VARANIDAE	*nebulosa*
၂	ပုတတ်	Granular-sealed Lizard	SQUAMATA	UROMASTICIDAE	*belliana*
၃	စပါးကြီးမြွေ	Regal or reticulated Python	SQUAMATA	BOIDAE	*reticulatus*
၄	စပါးအုံးမြွေ	Rock Python	SQUAMATA	BOIDAE	*molurus*
၅	မြွေပွေး	Russel's Viper	SQUAMATA	VIPERIDAE	*russellii*
၆	ငန်းတော်ကြား	Banded Krait	SQUAMATA	ELAPHIDAE	*faciatus*
၇	မြွေဟောက်	Asiatic or common Cobra	SQUAMATA	ELAPHIDAE	*naja*
၈	လင်းမြွေ	Rat Snake or Dhamna	SQUAMATA	CALAMARIDAE	*carinatus*

Table (4-10) Plant species of found nearly forest (unclass forest)

Sr.	Common Name	Scientific Name
(A)	**Trees**	
1.	Teak	*Tectona grandis*
2.	Kakko (Extic)	*Androlobium saman*

3.	Site	*Albizzia procera*
4.	Binga	*Mitrygyna rotandifolia*
5.	Thit Magyi	*Albizzia odoratisimma*
6.	Pyinma	*Lagerstoemia speciosa*
7.	Tauk kyant	*Terminalia tomentosa*
8.	Phanga	*Terminalia chebulu*
9.	Thabye	*Eugenia jambolana*
10.	Gwe	*Spondias Mangifera*
11.	Nabe	*Linea grandis*
12.	Mau lettanshe	*Anlhocephalus cadamba*
13.	Leza	*Legerstomea tomentosam*
14.	Letpan	*Bombax ceiba*
15.	Phyab seik	*Homalium longifolium*
16.	In	*Dipterocarpus tuberlulatus*
17.	Myauk Ngo	*Duabanga grandiflora*
18.	Zee	*Zizyphus jaguba*
(B)	**Bamboo**	
1.	Thaik wa	*Bambuse tulda*
2.	Khathaung wa	*Bambusa poly marpha*
3.	Myin wa	*Dendrocatamus strictus*
(C)	**Shyrub/Climber**	
1.	Pha lantaung Hmue	*Costus speriosus*
2.	Thetyingyi	*Croton oblong folius*
3.	Taw Chin Paung	*Hibiscus hispidissimus*
4.	Bisat	*Microglosa pyifolia*
5.	Katsine	*Sida aeuta*
6.	Hti kayone	*Neptuna javanica*
7.	Let tok gyi	*Holarrhena pubescens*

8.	Kyi Ah (c)	
9.	Kway la yar (C)	*Mucana pruiens*
10.	Kaing (grass)	*Saccharum spohtaneum*
11	Glory Lily (Si Mee Tauk) (C)	*Gloriosa superba*

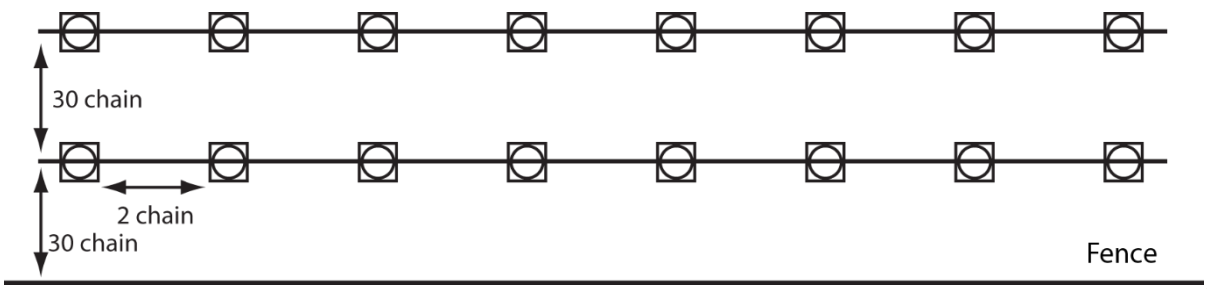
Table (4–11) List of birds

ဥတ္တရခရိုင်အတွင်း တွေ့ရှိရသော သားငှက်တိရစ္ဆာန်များ

စဉ်	သစ်မျိုးအမည်		မျိုးရင်း Family	သိပ္ပံအမည် (Scientific Name)
	မြန်မာအမည်	အင်္ဂလိပ်အမည်		
၁	ရစ်	Blacked-breasted Kalif Pheasant	Phasianidae	*Gennocus lineatus*
၂	ဘုတ်	Crow Pheasant	Cuculidae	*Centropus sinensis*
၃	ခါ	Francolin	Phasianidae	*Anastomus oscitans*
၄	ငုံး	Bustard-Quail	Turnicidae	*Turnix suscitator*
၅	လင်းယုန်	Crested Serpant Eagle	Falconidae	*Hoematornis cheela burmanicus*
၆	စွန်	Common Pariah Kite	Falconidae	*Milvus migrans govinda*
၇	ဇီးကွက်	Spotted Owlet	Strigidae	*Althene brama pulchra*
၈	ကျီးကန်း	House Crow	Corvidae	*Corvus splendens insolens*
၉	တောကြက်	Junglefowl	Phasianidae	*Gallus gallus subsp*

The project area is include in the Taung Nyo Village tract, No (52) Saw Mill Village. The land classification is under agriculture land. The proponent got permission for using industrial purpose.

The third party team conducted the field study around the factory land one mile away from fences. The sample design is as follow.



The observation from field trip found that the surrounding areas are hilly area. Some land are use for agriculture land and some are leaving as an scrub forest. The surrounding forest are degraded land. Only small and medium trees, scrub, climbers and bamboo was observed. During the study time no fauna was found except some bird species.

There were some faunas found rarely in the forest (about 4 miles from village), which information collected from farmers and villages. No IUCN red list species were found.

The plant species found in the study are stated in table (4–12).

Table (4–12) Mamal /Reptiles / Birds species

Sr.	Common Name	Scientific Name
(D)	**Mamal**	
1.	Chay (barking deer)	*Muntiacus muntjac*
2.	Wild pig	*Sus scrofa*
3.	Hare (Yon)	*Lepus peguensis*
4.	Squirrel	*Ratufa bicolor*
5.	Small Indian Mangoose	*Iterpestes awropunetatus*
(E)	**Reptile**	
1.	Phust (Clouded Monitor)	*Var anide nebulosa*
2.	Viper	*Viperidae russelii*
3.	Lin (Rat snake)	*Calamaridae carinatus*
4.	True lizard	*Draco maculatus*
(F)	**Birds**	
1.	Jungle fowl	*Gallus gallus subsp*
2.	House crow	*Corvus splendens insolen*
3.	Bok (Crow pheasant)	*Centropas sineatus*
4.	Yit	*Gennocus lineatus*

5.	Zayet	*Aeridolheres tristis tristis*
6.	Sar (Sparrow)	*Passer domesticus indicus*
7.	Byaing	*Ardeola ibis coromandus*
8.	Pyan Hlwar	*Choe tara gigantea indica*

4.17 Water Resources

4.17.1 Ground Water

Ground water contained in spaces within soil, bed rock and regolith. The ground water volume is more than 40 time abundant than water found in lakes, rivers and stream. It is stored in the earth and remains available in dry period. Ground water is not exposed to evaporation.

Contaminant present in surface water may present in ground water, except ground water is free from pathogenic organisms. So care should be taken in waste management.

The main water source of water is from tube well. There are two tube wells in the factory and the water collect from each well is average 2500 gallon a day. So there will be no possibility on shortage of ground water.

Figure (4–14) Map of water resource

4.17.2 Possible alternative source of water

According to Naypyitaw development committee presentation (in 2017) there were (13) dams can supply water. Currently supplying “15 million” gal water daily. There are Oatarathiri dam near the area and there will water supply plan to the village in near future.

4.18 Air Quality

Air quality was tested with EPAS (HAZZ SCANNER) Environmental Parameter Air station. This instrument can be used to measure ambient air quality and to measure document critical pollutants including nitrogen dioxide, carbon, carbon dioxide particles VOC and more. EPAS provides direct reading in real time with data logging capabilities.

Based line air quality was measured in the vicinity of the site to assess back ground level of key pollutants and to differentiate between existing ambient conditions and project–related impacts in future. Air quality is composed of dust and gas emissions.

For this project observation of air quality for 1–hour interval and 24–hours average are compared with National Environmental Quality (Emission) guide lines.

At testing was done at 13, Oct 2020 to 14, Oct 2020 at the center of project site and Location point (1) is Lat: 19° 53′ 58.58″ N, Long: 96 01′ 26.9″ E and location point (2) is Lat: 19 53′ 57.14″ N, Long: 96 01′ 33.45″ E.

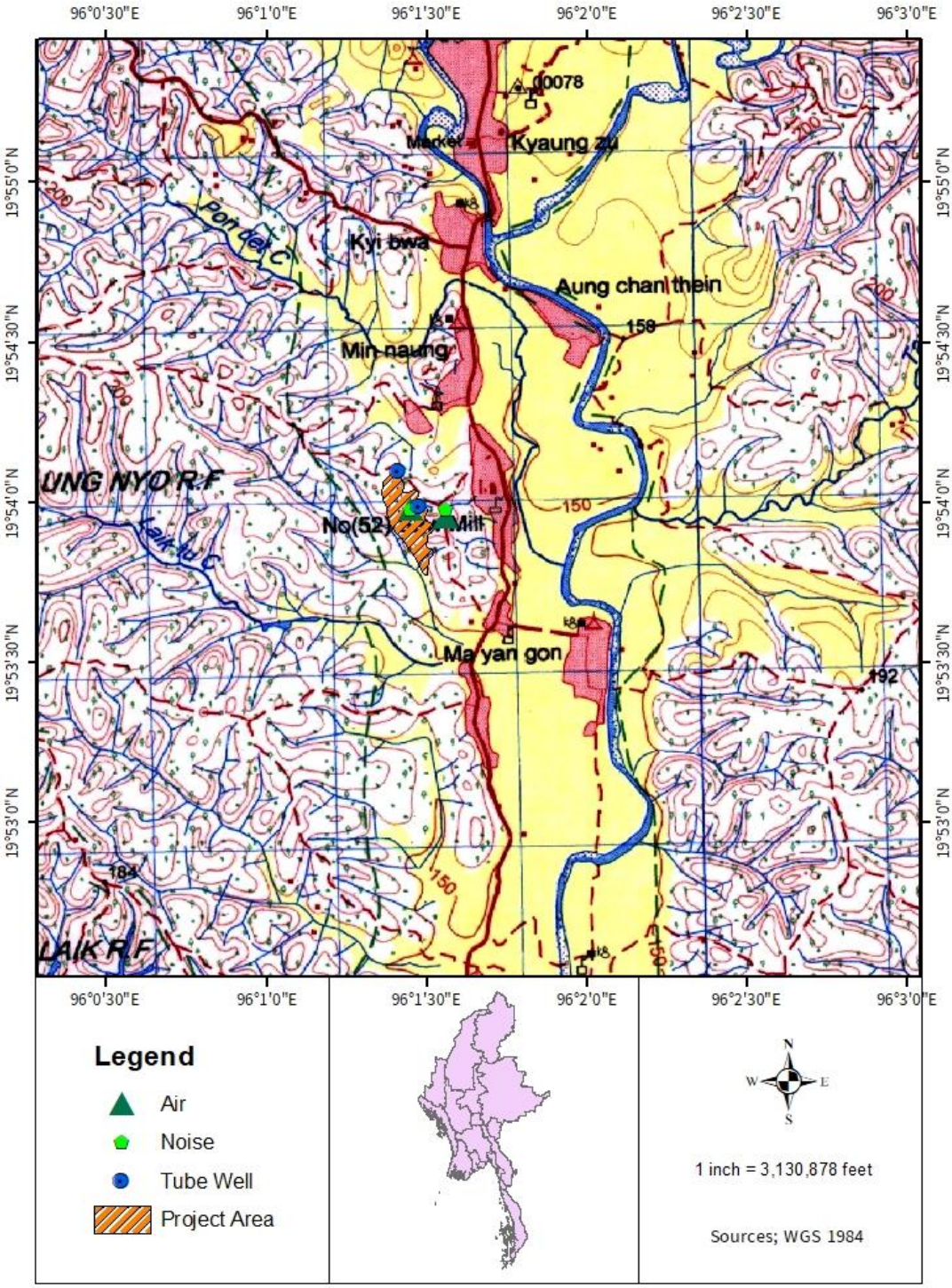


Figure (4–15) Sample location points map of study area

4.18.1 Ambient Air Quality

The ambient air quality result of the project and village is shown in table.

Table (4–13) Observed value compared with Guide Line

Item No.	Parameter	Averaging Period	Observed		NEQEG Guide line value
			Factory	village	
1.	PM_{10}	24 hours	6.47	6.03	50
2.	$PM_{2.5}$	24 hours	2.13	1.77	25

The observed result were under the prescribed standard

4.18.2 Gaseous Emission

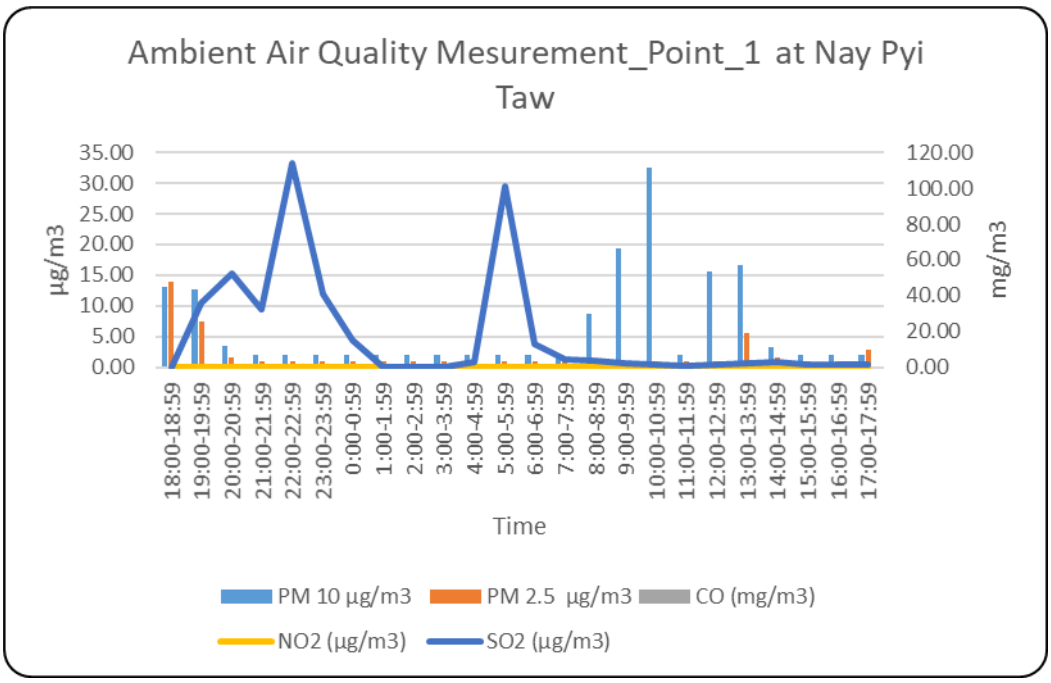
Concentration of CO, NO, NO_2, SO_2 were measure and recorded as on base line data. The observed value is compared with NEQEG (Emission) guide line value.

Table (4–14) Observed values of Gaseous Emission of Project

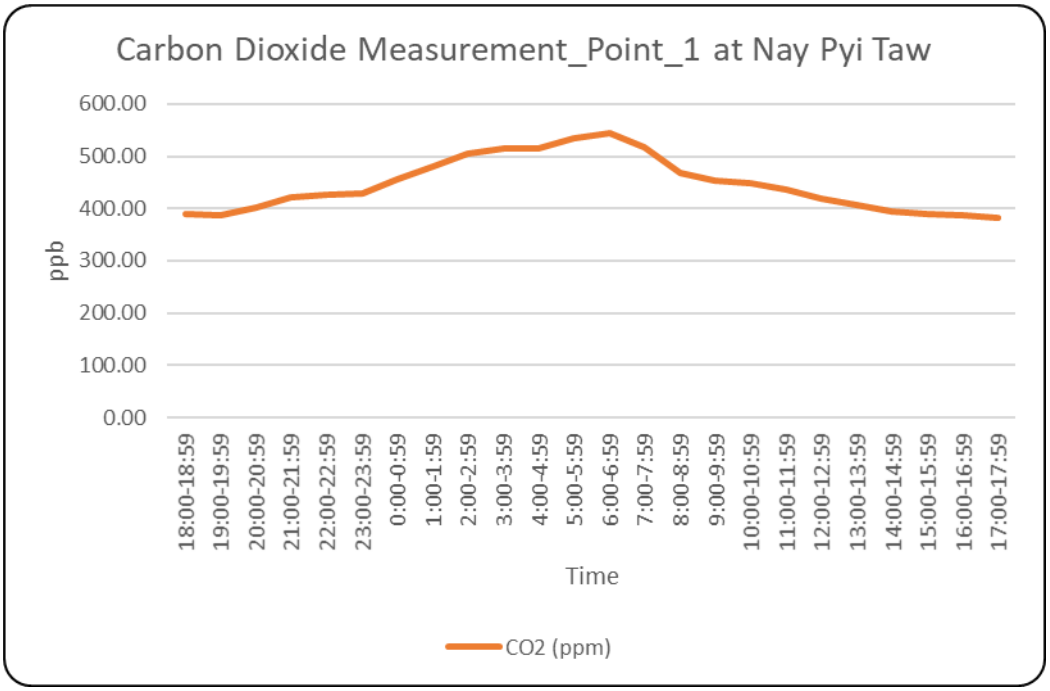
SR	Parameter	Observed Value		NEQEG Guideline
		Factory	Village	Value
1.	Carbon monoxide (CO)	0.00	0.00	10 Mg/m^3
2.	Nitric Oxide (NO)	0.00	0.00	200 Mg/m^3
3.	Carbon Oxide (CO_2)	446.14	392.84	84.50000 ppm
4.	Sulphur Dioxide (SO_2)	17.95	17.95	20. Mg/m^3

All the observed values of gaseous emission are within the range of guideline values of related organization.

Figure (4-16) Ambient Air Quality at point (1)

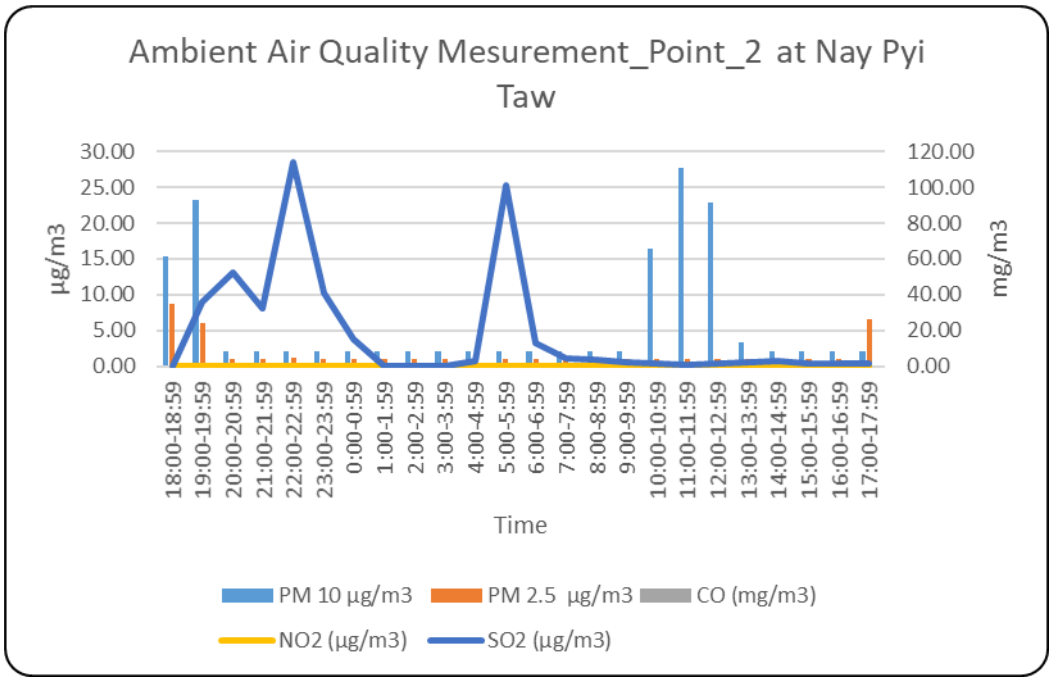


24 hours continuous measurement of ambient air quality measurement Point_1

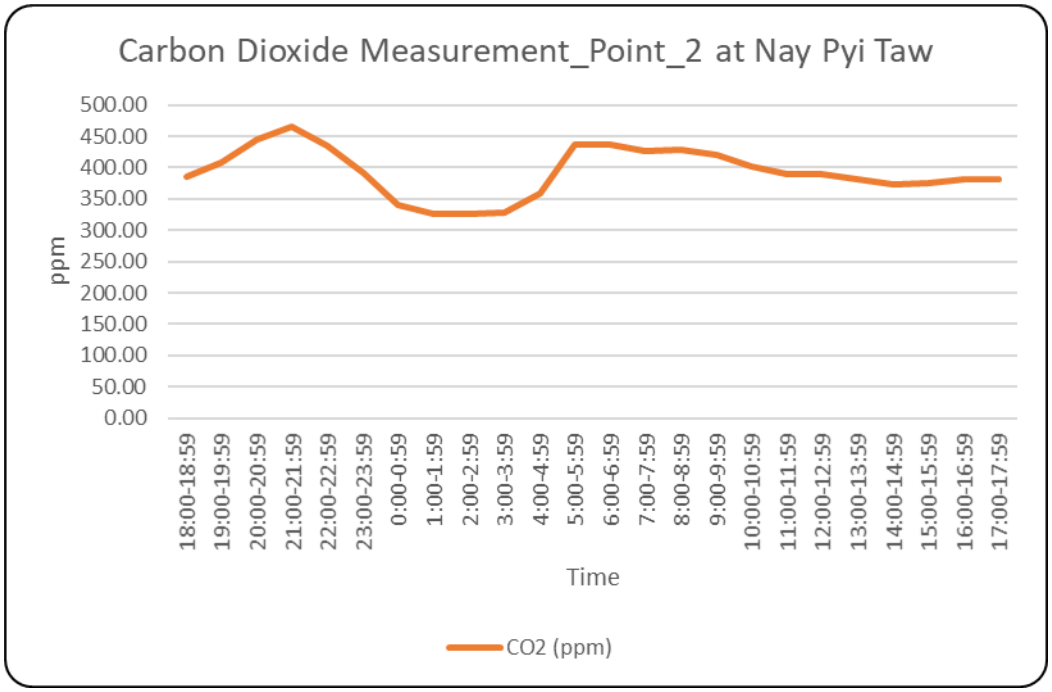


24 hours continuous measurement of Carbon Dioxide measurement

Figure (4-17) Ambient Air Quality at Point (2)



24 hours continuous measurement of ambient air quality measurement Point_2



24 hours continuous measurement of Carbon Dioxide measurement

4.18.3 Noise

The observed result in factory is less than standard limit. But in the village the noise levels are bit higher than standard limit during day and night. Both in day and night times the noise level is higher than noise level in factory. This may because of noise produced from traffic and sound produced in the village residence.

Noise level for the project is measured used of digital sound level meter. The test are done in factory (4–12) and Village on 13 and 14, Oct 2020. The results show in table (4–15).

Table (4–15) Sound Level

Date/Time	Place	Average sound level		National Standard	
		Day	Night	Day	Night
13.10.21 16:00 to 14.10.21 15:59	At Site – Lat:19° 53′ 58.58″ N Long: 96° 01′ 26.9″ E	55.53	55.67	70	70
14.10.21 16:00 to 15.10.21 15:59	At Village – Lat:19° 53′ 57.14″ N Long: 96° 01′ 33.45″ E	57.77	58.38	55	45

Figure (4–18) Noise Level at Point (1) Factory

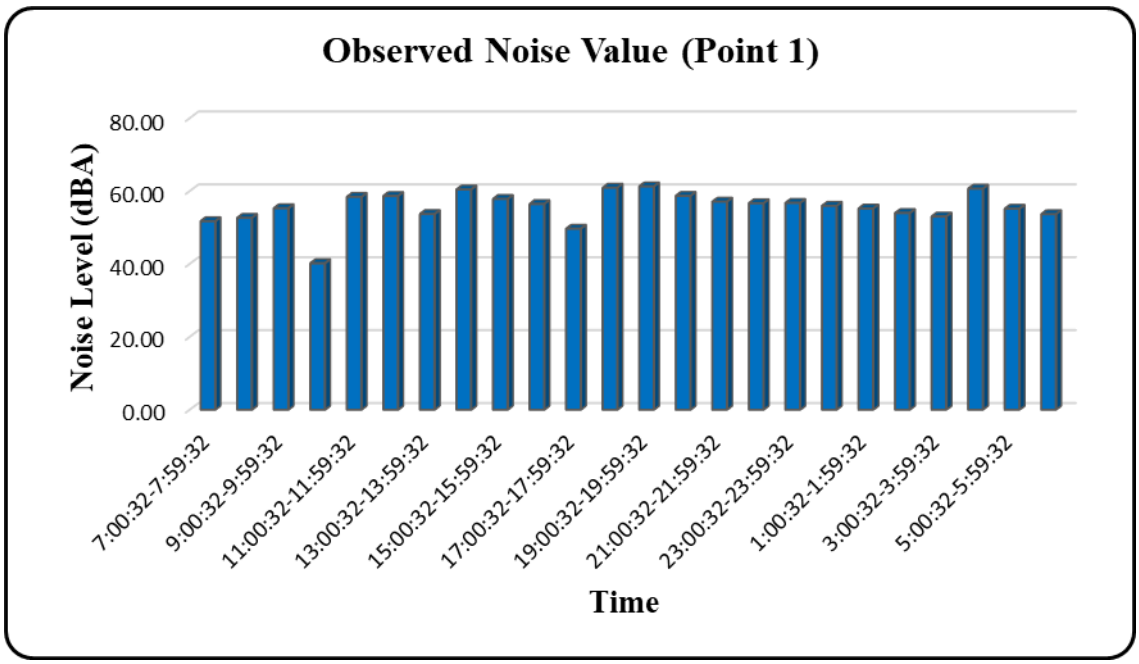
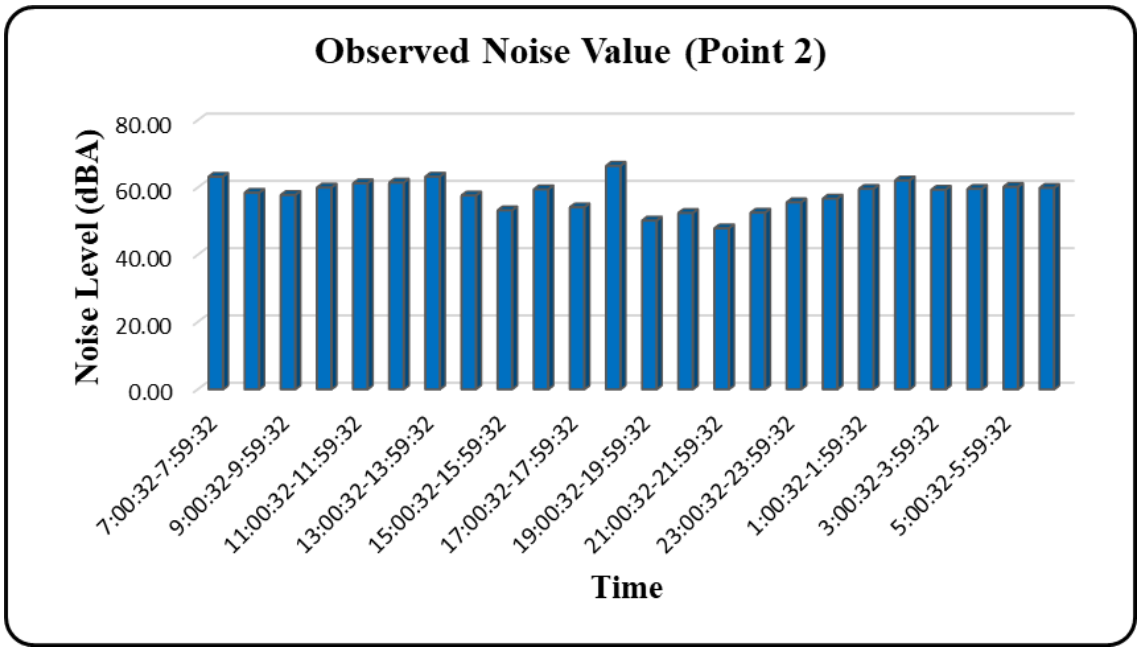


Figure (4–19) Noise Level at Point (2) Village



4.18.4 Water Quality

During the construction stage the main source are sanitary waste and domestic waste water from bathing, cooking and washing cloths and utensil. Those water were drained into the vegetable garden of factory. The water quality of tube well is collected and tested at the laboratory. The tested result shown in table (4–16).

Table (4–16) Test result of tube well water (Test– 15 Jun 2020) by ISO Tech Lab

Parameter	Test result	WHO Drinking water guide (Geneva –1993)
P^H	8.2	6.5–8.5
Color	5 TCU	15 TCU
Turbidity	8 NTU	5 NTU
Total Hardness	232 mg/L as $CaCo_3$	500 mg/L as $CaCo_3$

Iron	0.33 mg/L	0.3 mg/L
Chloride	26 mg/L	250 mg/L
Dissolved solid	265 mg/L	1000 mg/L
Salinity	0.2 ppt	
Total coliform count (CFU/ml)	0	3m Plate count test
Total E.col count (CFU/ml)	0	3m Plate count test

4.18.5 Waste water quality from drainage channel

The water quality from drainage channel were taken on site measurement (Ad hoc) and Laboratories tests.

The reason that the Total Phosphorus value exceeds the NEQEG guideline value is because the project area and the surrounding area are agricultural lands, so the use of fertilizers; It should be noted that it is exceeding the Guideline value due to being livestock grazing land and not due to the implementation of project activities.

Table (4–17) water quality from drainage channel

SR	Parameter	Unit	Result		NEQEG Guideline value	Remarks
			Onsite	Laboratory test		
1.	PH		7.4	8.2	6.5–8.5	Normal
2.	Temperature		27.6	–		
3.	Electric conductivity	Ms/cm	2.63	–		
4.	Total Dissolved solid (TDS)	Mg/L	2.62		<1000	
5.	BOD	Mg/L	–	3.1	30	

6.	COD		–	<30	125	
7.	Total Phosphorus	Mg/L	–	6.0	2	
8.	Total Nitrogen	Mg/L	–	<5	10	
9.	Oil and Grease	Mg/L	–	2	10	

Dt collected. 5/2/2020, Test at ALARM Ecological Lab.

Chapter (5)

Key Potential Environmental Impacts and Mitigation Measures

5.1 Objectives

In the IEE process assess to be carried out to (a) identify the project activities and requirements that will certainly cause the primary and secondary impacts (b) identify and define the mitigation measures for minimizing the impacts.

According to the above conceptual frame work, IEE will involve carrying out the following tasks:

(1) Identify key project construction and operation activities that will cause significant primary impact

(2) Identify the affected valued environmental components and sensitive receptors of the secondary and tertiary impacts

(3) Identify and define significant risk

(4) Prepare mitigation measures for minimizing the environmental impacts and risks

5.2 Methodology & Approach for identification of impact

The assessment of each impact is based on consideration of four parameters, magnitude duration, spatial and frequency of activities, which are going to be carried out during three phases and characteristics of the project site.

The following methodology has been applied to assess the environmental impacts of the plantation operation mainly on biodiversity, air, noise, vibration, water, waste disposal. Hazardous materials and also includes human beings. Each source of impacts has been assessed by four parameters such as magnitude, duration, extent and probability and each access point have five scales as mentioned in the following Table (5–1).

Table (5–1) Impact Assessment Parameters and Its Scale

Assessment	Scale				
	1	2	3	4	5
Magnitude	Insignificant	Small and Will have no effect on the environment	Moderate and Will result in minor changes in the	High and will Result insignificant changes on	Very high And will result in permanent changes on
Duration	0–1 year	2–5 year	6–15 year	Longer than 15 year	Permanent
Extent	Limited to the Site	Limited to the Area	Limited to the region	National	International
Probability	Very improbable	Improbable	Probable	Highly probable	Definite

Then, the significant point (SP) is calculated by following formula.

Significant Point = (Magnitude + Duration +Extent) x Probability

Impact Significance: Based on calculated significant point, impacts significance can be categorized as follows;

Table (5–2) Significance of Impacts

Significant Point (SP)	Impact Significance
<15	Very Low
15–29	Low
30–44	Moderate
45–59	High
>60	Very High

5.3 Phases for Analysis of Potential Impact

Environmental impacts assessment follows in three phases.

(1) Construction phase

(2) Operation phase

(3) Decommissioning phase

Table (5–3A) Identification of potential impacts in construction phase

Sr. No.	Impacts	Project activities causes	Significant of potential impact					Impact Significance
			M	D	E	P	SP	
1.	Visual amenity	– Land cleaning and land preparation activities – Construction activities (Limited to the site, short duration about one year)	2	1	1	3	12	Very Low
2.	Air Quality	– Dust made by land clearing, land leveling, digging land for construction will produce dust. – Emission of gas from machineries, Diesel Engines and Trucks – Dust made by construction activities	3	1	2	3	18	Low
3.	Noise	– Noise from machine, trucks in construction and land preparation activities – Noise from generator, especially at night time – Noise made by construction labor – Noise in machine installation, loading and unloading	2	1	2	3	15	Low

4.	Solid waste	– Piece of wood, metal, iron, cement, sand, bricks, wire used in construction building, waste from kitchen and worksite.	3	1	2	3	18	Low
5.	Hazardous waste	– Ask Paints, Chemicals, Box, Bottle, used tyre, plastic, used batteries, acid, used office equipment and ink, printer powder etc.	2	1	2	3	15	Low
6.	Waste water	– Waste water from kitchen, temporary camps, waste water produced by construction activities, runoff water from land of mill compound.	3	1	2	3	18	Low
7.	Oil spill	– Oil spill from machines and oil leakage from store. Oil and Lubricant from machine maintenance and repair.	3	1	2	3	18	Low
8.	Health and Safety	– Injuries and accident may cause by construction, installation of machine. Effect to eyes by welding, effect of noise by machines, dust produced from construction, physical contact with dirty water, insufficient quality and quantity of toilet.	2	1	1	3	12	Low
9	Social economy	– Job opportunity to the community – Community development activities provide by the proponent. (positive impact)	2	1	2	3	15	Positive impact

Table (5–3B) Identification of potential impact in operation phase

Sr. No.	Impacts	Project activities causes	Significant of potential impact					Impact Significance
			M	D	E	P	SP	
1.	Air quality	– Digging and collection of soil for making brick – Loading/ unloading of soil – Transportation of coal – Loading/ unloading of soil – Grinding mixing of coal and soil in the mill – Gaseous emission from machinery and burning	3	4	2	3	27	Low
2.	Noise	– Noise from machine, truck in brick production process – Loading/unloading of raw and finished product – Noise from generator, especially night time when electricity off but rarely happened.	2	4	2	3	24	Low
3.	Solid waste	– Unused soil and coal – Rejected pieces of bricks – Waste from worksite, kitchen, dormitory and labor dining hall	2	4	2	3	24	Low
4.	Hazardous waste	– Used box, bottle, plastic	2	4	2	3	24	Low

		– Oil and lubricant, chemical spill – Old batteries, tyre, used parts of machines – Used office equipment such as printing ink, powder, pen						
5.	Wastewater	– Waste water from Toilet, kitchen, dormitory and worksite – Run off water from land of mill compound – Rain water – Excess water from process	2	4	2	3	24	Low
6.	Oil spill	– Oil spill from storage, filling – Oil spill from machines	2	4	2	3	24	Low
7.	Health and Safety	– Injuries and accident cause from processing, loading/ unloading – Traffic accident – Noise – Dust from processing – Gas from process (Very limited) – Electric shock – Physical contact with product, Mixed soil and Coal, Piecies of coal, Heat – Fire may cause accidentally	2	4	1	3	21	Low

8.	Social economy	– Job opportunity – Business related with factory – Village developed by C.S.R programme – Awareness and capacity building provide by proponent in Livelihood and Ecosystem.	3	4	2	3	27	Positive impact

Table (5-3C) Identification of potential impact in Decommissioning phase

Sr. No.	Impacts	Project activities causes	Significant of potential impact					Impact Significance
			M	D	E	P	SP	
1.	Visual	– All the buildings were released and only bare ground will be left and effected the beauty of land.	2	1	1	3	12	Neglatable
2.	Air quality	– Dust and gas produce from demolishing activities – Dust from land refilling activities – Transporting the machine (Temporary impacts)	2	1	2	3	15	Low
3.	Noise	– Noise from decommissioning activities	2	1	2	3	15	Low
4.	Solid waste	– Demolished materials, such as piecies of broken bricks, cements,	2	1	2	3	15	Low

		iron, steel, broken furniture, kitchen waste, toilet waste.						
5.	Hazardous waste	– Use box, bottle, plastic, wire, pipes old batteries, tyre, used office equipment and refill, containers and tank, strapping steel	2	1	2	3	15	Low
6.	Waste water	– Cleaning machines, kitchen	2	1	2	3	15	Low
7.	Oil spill	– Oil spill from machineries and machine – Oil spill during loading container and tank	2	1	2	3	15	Low
8.	Erosion	– Erosion of land	2	1	2	3	15	Low
9.	Health and Safety	– Injuries and accident cause in demolishing activities – Traffic accident – Noise – Dust – Physical contact with hazardous items	2	1	2	3	15	Low
10.	Social economy	– Loss of Job opportunity – Business develop due to CSR program during the operation phase – Human resources developed and can available jobs in other industries.	2	1	2	3	15	Positive and Negative mixed

Table (5–4) Summary of impacts

Phase	Impact					
	High	Moderate	Low	Very low	Negligible	Positive impact
Construction	–	–	7	1		1
Operation	–	–	7	–	–	1
Decommissioning	–	–	8	–	1	1
	–	–	21	1	1	3

The identification of impact resulted mostly low impacts. Residual impact may possible to impact on soil and ground water. There are no climate change effects by project.

5.4 Mitigation Measures

5.4.1 Mitigation Measures of Construction Phase

Table (5–5) Mitigation measures of construction phase

Sr. No.	Particular	Impact	Mitigation Measures
1.	Visual amenity	– Land cleaning and land preparation activities – Construction activities (Limited to the site, short duration about one year)	– Just short period and it's only in the project compound. – No mitigation measures
2.	Air Quality	– Dust made by land clearing, land leveling, digging land for construction will produce dust. – Emission of gas from machineries, Diesel Engines and Trucks – Dust made by construction activities	– Dust suppression of the constructed material – Welting the ground to reduce dust – In the transportation of constructed items, the trucks shall be covered with tarpaulin – To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.
3.	Noise	– Noise from machine, trucks in construction and land preparation activities – Noise from generator, especially at night time – Noise made by construction labor – Noise in machine installation, loading and unloading	– constructing should be done at day time – Sound prof Generator shall be used

4.	Solid waste	– Piece of wood, metal, iron, cement, sand, bricks, wire used in construction building, waste from kitchen and worksite.	– Recycle material shall be separated and sold out or reuse
5.	Hazardous waste	– Ash Paints, Chemicals, Box, Bottle, used tyre, plastic, used batteries, acid, used office equipments and ink, printer powder etc.	– Hazardous waste shall be completely clean, collect and dispose to the prescribe disposal site. – Handling should be done with care – PPE shall provide to the workers – Hand and body cleaning facilities shall be provided by proponent
6.	Waste water	– Waste water from kitchen, temporary camps, waste water produced by construction activities, runoff water from land of mill compound.	– constructing shall be done on opening season – The soil and particles in the siltation pond shall be take out and disposed – Proper water channel shall be left the site – Don't throw the solid material into the drain – To provide sufficient quantity and quality temporary toilet
7.	Oil spill	– Oil spill from machines and oil leakage from store. – Oil and Lubricant from machine maintenance and repair.	– Care shall be taken in takeoff machines for not spill the oil and lubricant on ground. If spill the area shall be cleaned and take out waste. – Handling of fuel tank, container carefully to avoid oil spill on ground.

8.	Health and Safety	– Injuries and accident may cause by construction, installation of machine. – Effect to eyes by welding, effect of noise by machines, dust produced from construction, physical contact with dirty water, insufficient quality and quantity of toilet.	– To put temporary signage for safety – The electrical connection shall be cut–off before constructing – To provide PPE to the staff and labor – Not allow the un responsible person to the demolishing site – Close supervise in handling /loading (unloading material – Care shall be taken when contact with heavy or hazardous items – Check and recheck the site after completion. – Stickily prohibit smoking and drinking alcohol
9.	Social economy	– Job opportunity to the community – Community development activities provide by the proponent. (positive impact)	– Temporary job opportunity in constructing – Labor lost job after factory closed down – Labor can find new job in other industries, as they got some experience in industry already – Possible to developed sustainability social and economy by provided CSR activities from project

5.4.2 Mitigation Measures of Operation Phase

Table (5-6) Mitigation measures of operation phase

Sr. No.	Particular	Impact	Mitigation Measure
1.	Air quality	– Digging and collection of soil for making brick – Loading/ unloading of soil – Transportation of coal – Loading/ unloading of soil – Grinding mixing of coal and soil in the mill – Gaseous emission from machinery and burning	– Dust suppression of the demolished material – Welting the ground to reduce dust – In the transportation of demolished items, the trucks shall be covered with tarpaulin – To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.
2.	Noise	– Noise from machine, truck in brick production process – Loading/unloading of raw and finished product – Noise from generator, especially night time when electricity off but rarely happened.	– Demolishing should be done at day time – Systematic collection and disposing the demolish materials
3.	Hazardous waste	– Used box, bottle, plastic – Oil and lubricant, chemical spill – Old batteries, tyre, used parts of machines – Used office equipment such as printing ink, powder, pen	– Hazardous waste shall be completely clean, collect and dispose to the prescribe disposal site. – Handling should be done with care – PPE shall provide to the workers – Hand and body cleaning facilities shall be provided by proponent

4.	Solid waste	– Rejected pieces of bricks – Waste from worksite, kitchen, dormitory and labor dining hall	– Use for road construction and building foundation – Systematic dispose in the compound and to make compose fertilizer
5.	Wastewater	– Waste water from Toilet, kitchen, dormitory and worksite – Run off water from land of mill compound – Rain water – Excess water from process	– Use for irrigating plant – The water catch pond shall be made only dispose the overflow water into the main drain.
6.	Oil spill	– Oil spill from storage, filling – Oil spill from machines	– To use secondary containment – Proper checked and maintenance of machine and vehicle to avoid oil leakage
7.	Health and Safety	– Injuries and accident cause from processing, loading/ unloading – Traffic accident – Noise – Dust from processing – Gas from process (Very limited) – Electric shock – Physical contact with product, Mixed soil and Coal,	1. To provide and use PPE by labor 2. To erect Safety and caution sign in the work area 3. Dust shall be supported by water 4. Truck moving speed shall be limited to avoid accident 5. Firefighting equipment shall be provide, 6. Firefighting , and first aid training shall be conducted for labor

		Pieces of coal, Heat – Fire may cause accidentally	
8.	Social economy	– Job opportunity – Business related with factory – Village developed by C.S.R programme – Awareness and capacity building provide by proponent in Livelihood and Ecosystem.	– CSR programme shall be made effective ways – Give priority to the local people in job creation

5.4.3 Mitigation Measures of Decommissioning Phase

Table (5–7) Mitigation measures of decommissioning phase

Sr. No.	Particular	Impact	Mitigation Measure
1.	Visual	– All the buildings were released and only bare ground will be left and effected the beauty of land.	– After demolished the land of the site shall be clean – The land need to fill must fill completely – Drainage shall be made to avoid water blocking – Plant with soil cover plants and tree reduce soil erosion and landslide
2.	Air quality	– Dust and gas produce from demolishing activities – Dust from land refilling activities – Transporting the machine (Temporary impacts)	– Dust suppression of the demolished material – Welting the ground to reduce dust – In the transportation of demolished items, the trucks shall be covered with tarpaulin

			– To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.
3.	Noise	– Noise from decommissioning activities	– Demolishing should be done at day time – Systematic collection and disposing the demolish materials
4.	Hazardous waste	– Use box, bottle, plastic, wire, pipes old batteries, tyre, used office equipment and refill, containers and tank, strapping steel	– Hazardous waste shall be completely clean, collect and dispose to the prescribe disposal site. – Handling should be done with care – PPE shall provide to the workers – Hand and body cleaning facilities shall be provided by proponent
5.	Solid waste	– Demolished materials, such as piecies of broken bricks, cements, iron, steel, broken furniture, kitchen waste, toilet waste.	– Recycle material shall be separated and sold out or reuse
6.	Wastewater	– Cleaning machines, kitchen	– Decommissioning shall be done on opening season – The soil and particles in the siltation pond shall be take out and disposed – Proper water channel shall be left after demolish the site – Don't throw the solid material into the drain – To provide sufficient quantity and quality temporary toilet

7.	Oil spill	– Oil spill from machineries and machine – Oil spill during loading container and tank	– Care shall be taken in takeoff machines for not spill the oil and lubricant on ground. If spill the area shall be cleaned and take out waste. – Handling of fuel tank, container carefully to avoid oil spill on ground.
8.	Health and Safety	– Injuries and accident cause in demolishing activities – Traffic accident – Noise – Dust – Physical contact with hazardous items	– To put temporary signage for safety – The electrical connection shall be cut–off before demolishing – To provide PPE to the staff and labor – Not allow the unresponsible person to the demolishing site – Close supervise in handling /loading (unloading material – Care shall be taken when contact with heavy or hazardous items – Check and recheck the site after completion. – Stickily prohibit smoking and drinking alcohol
9.	Social economy	– Loss of Job opportunity – Business develop due to CSR program during the operation phase – Human resources developed and can available jobs in other industries.	– Temporary job opportunity in decommissioning – Labor lost job after factory closed down – Labor can find new job in other industries, as they got some experience in industry already – Possible to developed sustainability social and economy by provided CSR activities from project

5.5 Cumulative Impacts

Cumulative impacts (CI) result when the effects of an action are added to or interact with other effects in a particular place and within a particular time.

5.5.1 Types of Cumulative

Below are types of CIA

(a) Cumulative impact of combined elements of single project/activity

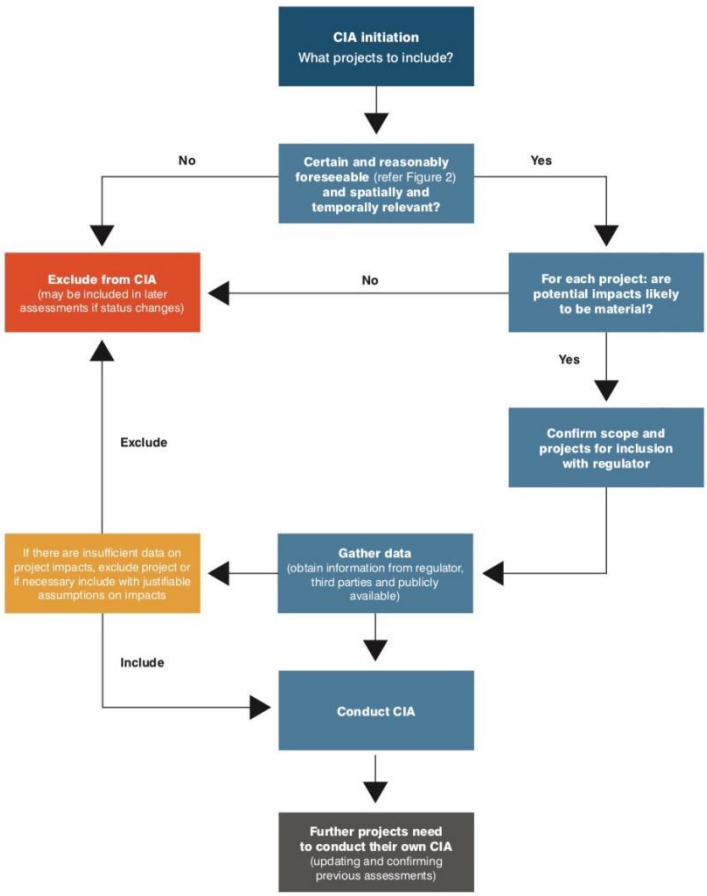
(b) Contributing impacts of a single project/activity on an existing baseline or current health system

(c) Cumulative impact of multiple project/activities single environment or asset

(d) Cumulative impact of multiple project

5.5.2 Process of CI

Figure (5–1) Broad process for determining projects for inclusion in cumulative impact assessment



5.5.3 Result of CI

According to the analyzing there are no impact of CI by combined elements of single project and contribution impact of single project on existing have base line.

We considered on CI caused by multiple project. But there were only No (52) saw mill in the area and rest are resident and agriculture land. The No (52) saw mill had been already closed down, only building left.

The saw mill will decommission soon and the land will be used for building laboratory of ECD.

So, there will be no CI at the moment

5.6 Risk Assessment

Risk assessment is a tool for conducting a formal examination of the harm or hazard to people, result from project activities or situation.

A risk is an evaluation of the probability of the hazard occurring.

With the risk assessment process, users take a look at their organization LO.

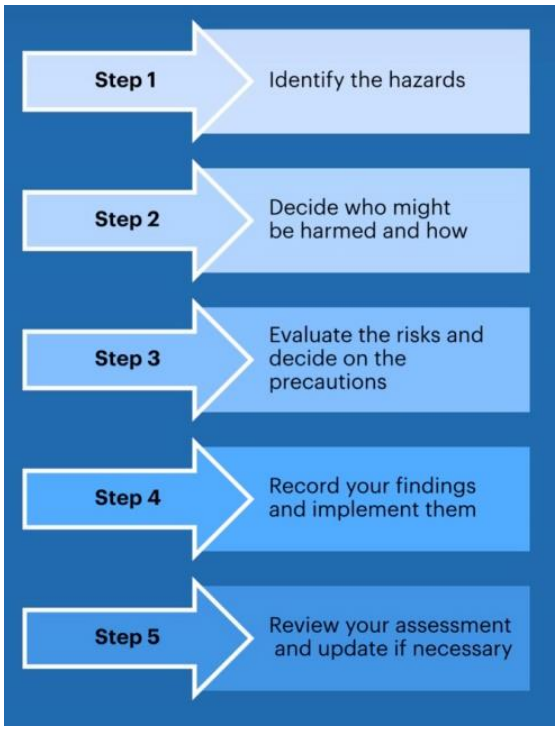
- Identify processes and situation that may harm particularly to people
- Determine how likely it is that each hazard will occur and how severe the consequence would be
- Decide steps can take to stop these hazard

5.6.1 Goal

- Providing an analysis of possible threats
- Preventing injuries or illness
- Creating awareness about hazards and risk
- Justifying the cost of management risks
- Determining the budget to remediate risk
- Understanding the return on investment

5.6.2 Assessment steps

The steps of assessment are as follow:



5.6.3 Risk Assessment Matrix

Figure (5–2) Risk Assessment Matrix

Risk Matrix							
			Probability				
Severity			Remote	Unlikely	Possible	Likely	Certain
			1	2	3	4	5
Fatal injuries, death	Catastrophic	5	5	10	15	20	25
Extensive injuries	High	4	4	8	12	16	20
Medical assistance required	Medium	3	3	6	9	12	15
First aid procedures	Low	2	2	4	6	8	10
Small bruises, cuts	Negligable	1	1	2	3	4	5

By using above matrix, the risk can be classified as follow:

Work accident	-------	4x3	=	12	Medium
Health of labor	-------	4x3	=	12	High
Health of communities	-------	3x3	=	9	Low
Fire	-------	3x4	=	12	Medium
Natural disaster	-------	4x4	=	16	High

5.6.4 Precaution for Risk

Risk	Area	Intensity	Duration	Precaution/Mitigation
Work accident	Mine area	Medium	Working time	The precaution and mitigation of the risks are prepared in the following sub–plans Emergency Preparedness and Response Plan, Health and Safety Plan, OEHS Plan, Firefighting Plan
Health of labor	Mine/Resident	Medium	All time	
Health of Communities	Village	Low	All time	
Fire hazard		Low	All time	
Natural disaster		High	Can occur any time	

Chapter (6)

Public Consultation and Disclosure

6.1 Public Consultation and Disclosure

According to the EIA procedure (2015), Paragraph (34), it is stated that the project proponent shall undertake the following Public consultation process in regards to an IEE Type Project.

(a) Immediately upon commencement of the IEE, disclosure relevant information about the proposed project to the public and civil society through the project or project proponent's websites and local media, including by means of the prominent posting of legible signboards at the project site which are visible to the public, and comply with the technical guidelines issued by the Ministry; and

(b) Arrange the required complement of consultation meetings as advised by the ministry, with local communities, potential PAP's, local authorities, community–based organizations, and civil society, and provide appropriate and timely explanations in press conference and media interviews.

6.2 Purpose of Meeting

Public consultation meeting is one of the prime steps in environmental assessments (EIA, IEE, EMP). The Opinium of stake holders should be held with people potentially to be affected by the brick production, administrative bodies, community–based organization and social organization. Invited those stakeholders with invitation letters, posted signage and contacted by proponent.

6.3 Approach and Method

Information disclosure shall be done by announcing the public consultation meeting about project and its potential impacts to the public by setting up signboard, distributed invitation letter. The signboard, invitation card, meeting minutes and participants list are described in appendix (H) and Power point presentation in appendix (I).

The meeting was held in the factory compound so the attendee can possible to see the condition and process of projects.

6.4 Agenda

– Opening

– Welcome speech of Manager, SPT Brick factory

– Opening remarks by Assistant Director, ECD

– Presentation of project and findings by third party

– Discussion by participant

– Response by concern persons

– Closing the meeting

Date – 29 Oct 2021 (Friday)

Time – (10:00 AM ~ 12:00 PM)

Place – Factory Compound

No	Organization	No. of Participant
1.	Departmental	2
2.	Village Administration	1
3.	Community	28
4.	Labor	3
5.	Third party	4
Total		**38**

6.5 Discussion

(a) Welcome speech by Manager U Min Naing (New World Shwe Pyi Tan Brick Factory).

He delivered the welcome speech to the official concerns for ECD, the village communities, village head for attend this event.

(b) A Naing Htet Lwin: Assistant Director of Naypyidaw Environmental Conservation Department.

He explained about the importance of social and environmental conservation in establishing projects. He said the objectives of consultation meeting is to hear the sound, comments and ideas of community, PAPs and civil society. This IEE report will be updated if new information and comment made by attendees.

(c) U Zaw Win, Managing Director, SEE–Trust Environmental Service, Naywunmyat(s) Co.

Firstly, U Zaw Win introduced about his third–party team and their policy on environments. He said this event is prime steps in IEE that the report will not be completed without the ideas and concerns of the state holder. Also explained about the description of project, duties of third party and work done of SEE Trust.

He explained the finding of the project with power point presentation. He openly discuss about the needs and requirement to follow by the proponent.

(d) Discussion

U Khin Muang; Village administrator

- Advice to take records on people pass to the factory and exit for health and security purposes
- To contact with the fire department for fire controlling purpose
- To put contact number of fire department on Notice board.

U Naing Htet Lwin; Assistant Director, ECD, Naypyidaw

- Advice to take water quality test for surface water
- To test the Air Quality at the time of fall stream operating of mill

Daw The Cho Aye; Assistant Director, ECD Naypyidaw

- She asked about the storage arrangement for coal. She urged to handle carefully on coal to reduce emission and spreading on the soil

Discussion of U Min Min; Community

- He wants to know about the following matters.
- How to store the coal systematically
- How to prevent dust and Odor
- How to dispose waste from factory

Responded by SPT's Engineer U Aung Ko Min

Responded on the discussion that due to test running of production it was found that some repair and modification were needed. He said, they will correct and fulfill the requirements discussed here and will follow the require points suggested by third party.

Responded by SEE Trust

U Zaw Win said he will put the advice points in IEE report. He also suggested for more carrying about Work Safety, Fire Fighting and to control for not damaging the surface water as well as ground water.

Decision

(9) Factory in/out list should be recorded.

(10) More Safety sign shall be put in the factory

(11) Fire line shall be made along the fence to protect fire spreading inside the compound.

(12) Fire fight training shall arrange and to put more firefighting facilities and more emergency stored water for firefighting,

(13) The drainage system and silk pond should be developed

(14) Care should be taken in transporting, dumping and using coal.

(15) No objection by PAPs to the project

(16) Proponent committed to contribute 2% of profit for CSR programme.

Closing

U Zaw Win appreciated the attendees for attending the meeting and active participation in this consultation meetings.

The meeting was closed at (11:40) AM.

Remarks

Meeting minutes was stated in Appendix (H).

Chapter (7)

Environmental Management Plan

7.1 Environmental Requirements

This Environmental Management Plan (EMP) is prepared as and environmental management frame work for New World Shwe Pyi Tan Co.,Ltd's Brick manufacturing and Distribution project at Oaharthiri Township, Naypyidaw. The practices, procedures and responsibilities are defined here to get complete compliance with the existing environmental policy, law, rules and instruction of Myanmar.

7.2 Environmental Management Plan

The EMP prepared for the project covers the anticipated impact of the said project, mitigation measure management and monitoring plans during the following phase:

(a) Operation Phase

(b) Decommissioning Phase

(As the construction phase had been already completed at the time of this study)

The objectives of EMP are as follow:

- To identify the possible impacts of project activities
- Develop measure to minimize, mitigate and management these impact
- Estimation of Budget.

The EMP is composed 9 parts of sub plan as follow:

(a) Air Quality Management Plan

(b) Noise Management Plan

(c) Odor Management Plan

(d) Waste Management plan

(e) Traffic Management Plan

(f) Health and Safety Plan

(g) Emergency Preparedness and Response plan

(h) Rehabilitation Plan

(i) Grievance mechanism

7.2.1 Air Quality Management Plan

Objectives

The objectives of air quality management are to reduce adverse impacts of air emissions on human health and amenity, reduce the generation of dust and other harmful.

Applicable laws, rules, guidelines and standard

The Myanmar regulatory requirements applicable to air quality and dust are:

The Environmental Conservation Law (2012), specifically:

- Section 7(o) requires polluters to pay for environmental damages caused.
- Section 14 requires point source emissions/pollution to comply with environmental quality standards.
- Section 15 requires owners and occupiers to monitor and manage point source emissions/pollution using environmentally sound methods.
- Section 24 permits the Ministry to stipulate terms and conditions for environmental conservation and to conduct inspections to ensure compliance with the terms and conditions.
- Section 29 requires that no person violates the requirements set out in orders, directives and procedures issued under this law.

National Environmental Quality (Emission) Guidelines set out noise, air emission and water discharge criteria for protecting human and ecosystem health. The National Environmental Quality (Emissions) Guidelines encourage operators of projects with significant sources of air emissions, and potential for significant impacts to ambient air quality, to prevent or minimize. Guidelines (for ambient air quality) are shown in table.

Parameter	Averaging Period	Guideline Value µg/m³
Nitrogen dioxide	1 year	40
	1 hour	200
Ozone	8 hour daily maximum	100
Particulate matter PM_{10}	1 year	20
	24 hour	50
Particulate matter $PM_{2.5}$	1 year	10
	24 hour	25
Sulfur dioxide	24 hour	20
	10 minute	500

The following standards and guidelines represent good international practice and should be applied where Myanmar guidelines do not include a particular pollutant or aspect of air quality management:

- WHO Air Quality Guidelines (2005).
- IFC Environmental and Social Performance Standard 3. Resource Efficiency and Pollution Prevention (2012).
- IFC Environmental, Health and Safety General Guidelines (2007).

Management measure and action plan

The following management measures must be done:

- Train workers in the dust suppression measures in this plan.
- Identify water sources for dust suppression and seek approval to use the water sources.
- Avoid using saline groundwater or contaminated wastewater for dust suppression.
- Provide appropriate personal protective equipment (PPE), including face masks for workers exposed to dusty conditions.
- In the transportation of constructed items, the trucks shall be covered with tarpaulin
- To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.

Monitoring plan

19° 54′ 0.83″ N, 96° 1′ 25.57″ E

SR NO	Environmental Concerns	Parameter	Time Frame	Location	Responsible Party
1.	Air	PM_{10}, $PM_{2.5}$, VOC, CO, CO_2, SO_2& NO_2	Twice a year	Project Site	HSE Coordinator & Third Party

7.2.2 Noise Management Plan

Object

The objectives of noise management are to:

- Avoid unacceptable health, safety and amenity risks related to industry.
- Prevent nuisance by minimizing, to the extent practicable, the level and type of potentially harmful noise and vibration generated by brick manufacturing activities.

- Minimize the impacts of brick manufacturing related noise and vibration on local communities, workers and other sensitive receptors.

Applicable laws, rules, guidelines and standard

The laws, rules and guidelines relating to noise and vibration are:

The Environmental Conservation Law (2012), specifically:

- Section 7(0) requires polluters to pay for environmental damages caused.
- Section 14 requires point source emissions/pollution to comply with environmental quality standards.
- Section 15 requires owners and occupiers to monitor and manage point source emissions/pollution using environmentally sound methods.
- Section 24 permits the Ministry to stipulate terms and conditions for environmental conservation and to conduct inspections to ensure compliance with the terms and conditions.
- Section 29 requires that no person violates the requirements set out in orders, directives and procedures issued under this law.

National Environmental Quality (Emission) Guidelines set out noise, air emission and water discharge criteria for protecting human and ecosystem health.

Receptor	One Hour LAeq (dBA)[a]	
	Daytime 07:00 – 22:00 (10:00 – 22:00 for Public holidays)	Night time 22:00 – 07:00 (22:00 – 10:00 for Public holidays)
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Management measure and action plan

The measures for managing noise and vibration are:

- Train all personnel in the measures in this plan to reduce noise and vibration levels.
- Provide appropriate personal protective equipment (PPE) for workers using noise generating equipment, including adequate hearing protection (ear muffs).
- Use sound prove generator
- By using noise reduction fences to prevent noise at resident
- Tree shall be planted around the compound

- Schedule and conduct noisy activities only during the daytime, and, where practicable, during periods that are less likely to result in noise nuisance.
- Use the Community Grievance Mechanism to manage all community complaints related to brick manufacturing.

Monitoring plan

19° 53′ 59.32″ N, 96° 1′ 24.79″

SR NO	Environmental Concerns	Parameter	Time Frame	Location	Responsible Party
1.	Noise/ Vibration	Equivalent noise Level dB(A)	Twice a year	Project Site	HSE Coordinator & Third Party

7.2.3 Waste, Wastewater and Hazardous Waste Management Plan

Object

The objective for waste management is to avoid or minimize potential adverse impacts and risks to the environment, safety and human health through inappropriate management of waste.

Applicable laws, rules, guidelines and standards

The Myanmar regulatory requirements applicable to the management of non–hazardous waste are:

Freshwater Fisheries Law (1991), specifically:

- Section 40 prohibits persons from harassing fish or aquatic organisms or polluting their habitat.
- Section 41 prohibits persons from affecting water quality and quantity in a leasable or reserved fishery and the rivers and creeks supplying water to that fishery.

The Conservation of Water Resources and Rivers Law (2006), specifically:

- Section 22 requires persons to obtain permission to stockpile materials on river banks and waterfronts.
- The Conservation of Water Resources and Rivers Rule (2013) prohibits dumping of rubbish and dangerous materials in rivers.
- The Environmental Conservation Law (2012), specifically:
- Section 7(o) requires polluters to pay for environmental damages caused.
- Section 14 requires point source emissions/pollution to comply with environmental quality standards.

- Section 15 requires owners and occupiers to monitor and manage point source emissions/pollution using environmentally sound methods.
- Section 24 permits the Ministry to stipulate terms and conditions for environmental conservation and to conduct inspections to ensure compliance with the terms and conditions.
- Section 29 requires that no person violates the requirements set out in orders, directives and procedures issued under this law.

National Environmental Quality (Emission) Guidelines set out noise, air emission and water discharge criteria for protecting human and ecosystem health. In the absence of specific regulation or guidance on waste management in Myanmar, the following standards and guidelines represent good international practice:

- International Finance Corporation (IFC):
- Performance Standard 3: Resource Efficiency and Pollution Prevention.
- Environmental, Health, and Safety (EHS) Guidelines: Environmental – Waste Management Facilities.

Management measure and action plan

- To avoid or minimize the generation of waste.
- Allocate primary responsibility for waste management to the manager and environment and safety officer.
- Train and induct all personnel in the procedures for the safe handling, transport, storage and disposal of hazardous waste.
- Provide personnel with appropriate personal protective equipment (PPE) required implementing waste management procedures.
- Identify the types of non–hazardous waste expected to be generated at onsite collection and storage areas for these types.
- To construct good drainage
- To construct temporary sediment pond
- Dispose water after filter
- To avoid ran of water directly onto the public road
- Use proper handling method in storage, filling of fuel and lubricant
- Maintain the machine to avoid oil spill and leakage
- Collect hazardous waste in separate waste bin and dispose separately at limited waste disposal site
- Store and use the hazardous material carefully

- Not dispose waste into the water way

Monitoring plan 19° 53′ 59.32″ N, 96° 1′ 24.79″

SR NO	Environmental Concerns	Parameter	Time Frame	Location	Responsible Party
1.	Waste Generation	Visual Inspection	Weekly	Project Site	HSE Coordinator & Third Party
2.	Wastewater	BOD, COD, Oil and grease, pH, Total Coli form bacteria, Total Nitrogen	Monthly	Project Site	HSE Coordinator & Third Party

7.2.4 Odor management Plan

Objectives

The objectives of odor management are to avoid unacceptable smell for surrounding.

Applicable laws, rules and regulations

- Environmental conservation law rules and regulation
- Public health law

Management measure and action plan

There are no serious odors produced by the brick manufacturing. But to check odorless whether it happens to or not to the surrounding If an odor occurs or there is a complaint about odor from surrounding areas, the proponent has to repair the system immediately.

Monitoring plan

Village – E 19° 1′ 30.7″ / N 96° 54′ 2.0″

Project – E 19° 53′ 59.32″ / N 96° 1′ 24.79″

Sr.	Environmental Concern	Parameter	Time	Location
1.	Odor	Physical smell Test with meter	Weekly Twice a year	Project site and Surrounding Project site and Surrounding

7.2.5 Traffic Control Management Plan

Object

To reduce accident applicable law, rules and regulations

- Vehicle law (2015)
- Vehicle Rule (1987)
- ယာဉ်အန္တရာယ်ကင်းရှင်းရေးနှင့် မော်တော်ယာဉ်စီမံခန့်ခွဲမှုဥပဒေ (၂၀၂၀)
- လမ်းမကြီးများဥပဒေ
- လမ်းမကြီးများဆိုင်ရာ နည်းဥပဒေ (၂၀၀၀)
- Section (10) 19 (A) (D) (2002)

Management measures and action plan

(1) The drivers shall be qualified
(2) To maintain the truck regularly
(Especially brake system)
(3) To control the driving speed
(4) No load exceed than allowed limit
(5) To speed has to slow down near school, hospital, market and in town area
(6) Not allowed the drivers to use alcohol and nagotic drugs.

Monitoring Plan

The motor in charge has to regular charge the trucks. All incidents has to recorded. The records and complaints shall be analyzed quarterly.

7.3 Firefighting

The fire hazards can be occurred from use of explosive materials near diesel storage tanks and also from surrounding local communities. But the potential fire hazards in the proposed project area are low. The procedures for firefighting are:

- Inspect fire extinguishers and combustible materials in every places;
- Give fire hazardous training to workers and the nearby communities; and
- Store sufficient water for fire fighting
- Provide accurate information and organize training sessions to prevent future spills.

- Demarcated meeting place if fire occurred.
- Emergency contacts should be displayed.
- Arrange fire alarm system.

7.4 Emergency Response and Preparedness plan

The purpose of emergency planning is to minimize the effect of emergency that occurs at a proposed site, to protect the loss of lives and properties from emergency cases and to aware arising from the proposed project are can accidents, fire hazard, natural disasters to cause environmental and human damaging which disrupt of operation and wild elephant encroaching to cause environmental damage which disrupts of operations. Emergency preventing through will management operation, maintenance and inspection can reduce the probability of occurrence and consequential control the effect of such outcomes.

7.4.1 Purpose of plan

The purpose of plan is as follow:

- Provide guidelines for responding to and managing a variety of emergency situation.
- Reduce loss of assets and business.
- Protect the community and the public
- Ensure employees have the skill and abilities to act efficiently and effectively during emergency.

7.4.2 Planning purpose

The steps for creating effective emergency action plan.

Step 1. Assemble team

Step 2. Conduct Risk assessment

Step 3. Establish Performance Objectives

Step 4. Create a Policy

Step 5. Develop an onsite Emergency Team

Step 6. Offer training practice and Review emergency action plan.

7.4.3 Objectives

To minimize the effect of emergency occurs at project site surrounding, to protect the loss of live and properties from emergency cases.

7.4.4 Possible risk

Possible risk in plantation development Project may be as follow:

(1) Fire

(2) Flooding

(3) Earthquake

(4) Lightening

(5) Storm (Other risk are mentioned under OEHS)

7.4.5 Develop of on–site emergency team

Proponent must form the site emergency team and give the authority and responsibility to the teams members.

The team consists of:

(1) Plantation Manager	–	Leader	
(2) Plantation Assistants	–	Deputy leaders	
(3) HSE Coordinator	–	Secretary	
(4) Medical Officer	–	Joint secretary	
(5) Security, Fire, Electrician	–	Member	(15) Members
(6) Supervisor, Labor head, Village head	–	Member	

7.4.6 Responsibility of team

Leader – Responsible for preparedness preventing and emergency rescue management.

Deputy Leader	–	To assist the leader
Secretary	–	To assist the leader, Dy leader and coordination, reporting and recording.
HSE Coordinator	–	Responsible for not harming environments and work together with leader.
Medical Officer	–	First aid and medical care and arrange for movement and transport the effected people.
Supervisor, Village head, Village administrator	–	To participated in preparation and contingency process. Information announcements to the surrounding effected people.
This team responsible in ad hoc.		The management team is fully responsible in contributing finance and prompt decision.

7.4.7 Preparation Measures

Table (7-1) Mitigation and Contingency plan

Risk	Impact	Livelihood effect	Mitigation	Contingency Plan
Fire	Medium	Likely	Prepare firefighting plan. Equip instruments and form firefighting groups	Develop EPR team/ faculties
Flooding	Low	Likely	Good drainage system Emergency sand bags will be used to control water.	Rescue plan (check call care)
Earthquake	Low	Likely	Elevation level	Health and mental care
Lightening	Low	Likely	Emergency Plan	Re-habitation
Storm	High	Highly	Emergency Plan	
Pandemic disease	Moderate	Likely	Health education, Prevention and cure	

7.5 Work Safety

During the EIA study process the following safety measures shall be followed.

(1) Transport and loading unloading machines, construction material and fuel in accordance with proper handling method and safety guide lines.

(2) Access accurately work site safety.

(3) Develop control abuse of alcohol and other drugs policy for workers.

(4) Provide personal protection equipment (PPE). (Reflective clothing, dust mask, safety boot, etc.) PPE and their function show in table.

(5) To put up safety signage in the project site with sign and Myanmar language. The example signage show bellow.

Table (7- 2)Personal protection Equipment and its function

Required Personal Protective Equipment	Functions of PPE	Part of the body to be protected	Features and characteristics of PPE
Earmuffs	They offer a high level of sound reduction and are suitable for high noise levels. They can be used in combination with a safety helmet.	Ear	
Reflective clothing, safety glasses, safety helmet	They can reduce a high level of injuries or accidents by quarry operations.	Head, Eye, Body	
Ears plugs	Disposable earplugs for short-term use–not suitable for high noise levels.	Ear	

Dust Goggles & Dust Mask	Protection from dust and fine particles etc.	Nose and mouth	
Latex Glove & Boots	Protection from injures, and other related materials.	Hands and Legs	

Table (7-3) Safety signage and their description

Description	Safety Signage
These signs indicate all visitors must report to the site office and obtain permission to proceed on to the site or any work area and safety equipment must be used at all time.	
These signs should be used to make people aware of nearby dangers such as mines.	
These signs should be tagged to indicate the location of chemical storage area.	
These signs should be used to make people aware of nearby dangers such as diesel fuel.	

7.6 Health and Safety Plan for workers and community

The community health and safety plan is intended to implement during the operation phase of project. It aims to provide maximum safe and sound working environment for workers on site. This can be placed in safe condition by adopting the following measures for prevention of accidents and hazards.

The precautions related with occupational health and safety environmental conservation and community health and safety caused by brick production are needed to implement systematically.

The instruction for health and safety shall prescribed by proponent and need to follow by labor. It is need to provide appropriate first and training for the workers and placed first aid felicities at the sites.

Proponent shall contact with the village and township health department as well as health complaints from communities. Proponent have is made necessary health fund for community as well as essential precaution measure will be done.

7.7 Waste Management Plan

Except from normal waste management practice it is important not to spread the particles of coal by runoff water and air. The coal shall be stored in the open shed. The particles shall be preventing not to run off with the waste water. The waste water shall be collected in the silt pond and filter the water before dispose to the external drain.

7.8 Grievance Mechanism

Grievance Mechanism are:

- To encourage human problem to be brought out
- To give opportunity to the workers to solve the problems
- To blow about the superior by Management
- To develop good culture
- To respect on environment and human aspect

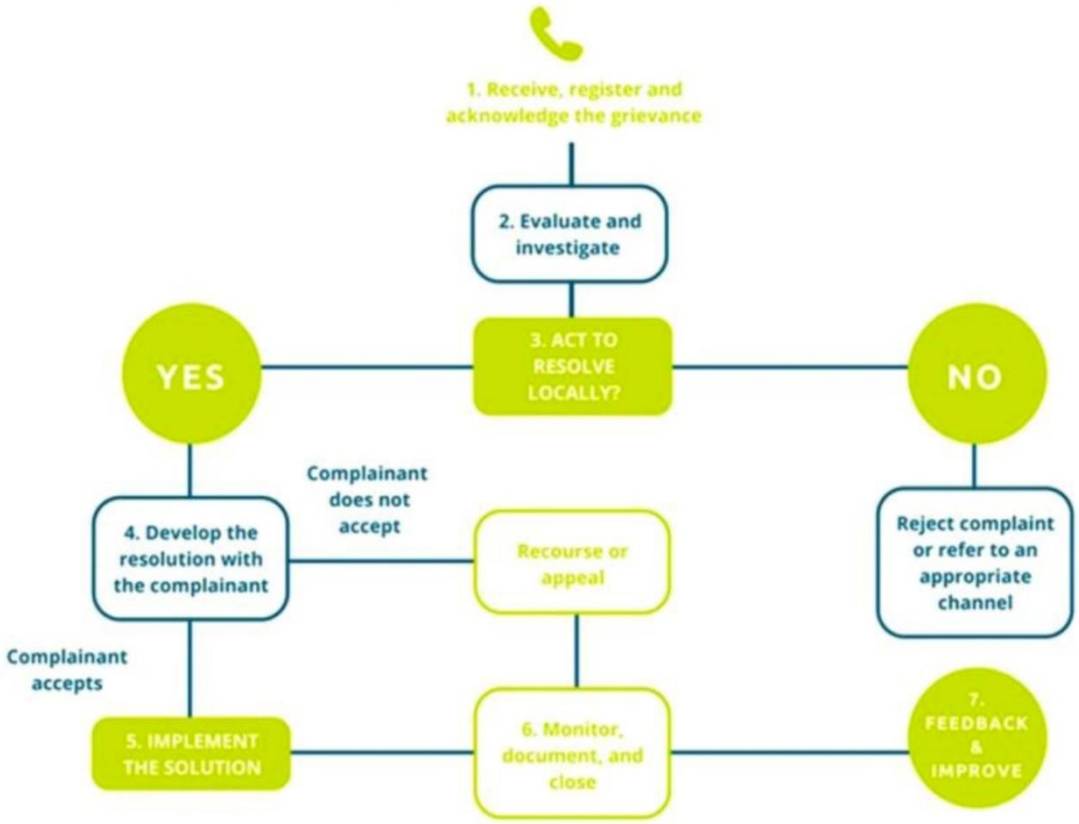
There are two types of grievance

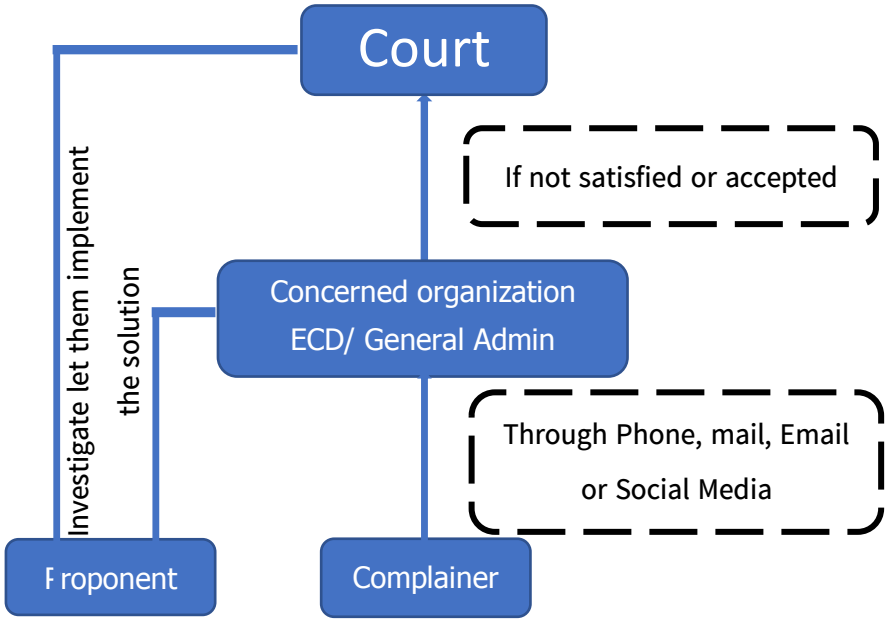
(1) Internal

(2) External

The basic steps in a grievance procedure are shown in figure (7–1).

Figure (7–1) Basic Steps in Grievance Procedure





Address

1. Township/District/Regional Administrative office
2. Environmental Conservation Department, Naypyidaw
3. U Naing Aung Lin

   No.703, 7th Floor, Yuzana Tower, Bahan Township, Yangon, Myanmar.

   Ph: 09 979646343

   Mail: eddy.jcu@gmail.com, nainglinn.spt@gmail.com

7.9 Training

Firefighting, first aid training will be arranged for the team member. Occasionally fire drill should be conducted.

Health education and awareness program will be conducted at village level.

The training will be conducted as per following Schedule.

Table (7–4)Training Matrix

Training	No of training	Time Schedule
Fire–fighting	Once a year	December
First–aid training	Once a year	February
Health Education for Communities	Twice a year	May

The awareness and safety and health training will give to all labor at least one time.

7.10 Responsibilities by Proponent for Environment and Budget

For sustainable development of social and environment the proponent committed to implement. Proponent has been allotted budgets for environmental repairs and monitoring as well as CSR. If the budget is not sufficient to carry out the activities, shall be added more.

7.10.1 The Responsibility

The Managing Director has taken full responsible and Management and Environmental Affair. Proponent will assign the following staff for implementation of environmental works.

HSE coordination – Responsible for whole project in environmental social and Health.

Asst. Coordination – Responsible for health and safety (medical officer)

Asst. Coordination – Mill/ officer

All the foremen have responsible for firefighting, cleaning, safety in the mill.

This team meets regularly to solve problems if occurred. This group was responsible for monitoring and relation with communities.

7.11 Corporate Social Responsibility

New World Shwe Pyi Tan Co.,Ltd committed to contribute 2% of the gross profit to the CSR programme. The objective of this plan is to create social welfare of mining workers and local communities as infrastructure developments of Area.

Since last period New World Shwe Pyi Tan Co.,Ltd contributed for road construction, bridge construction, electricity connection to the village and water supply. Donation were made for education, traditional and cultural activities as well.

The proponent plan to break down the CSR as per table below:

Table (7-5) Corporate Social Responsibility Plan of NWSPT Quarry mine

SR	Activities	Responsible Party	Timing	Estimated Percentage of Gross profit
1.	Social and welfare development of mining workers	NW SPT Co	Annually	1%
2.	Social development of community	NW SPT Co	Annually	0.5 %
3.	Infrastructure developments	NW SPT Co	Annually	0.25 %
4.	Education, Health and culture	NW SPT Co	Annually	0.25 %
			Total	**2.0 %**

When the utilize the CSR fund proponent will consider on the needs of people.

7.12 Mitigation Measures

Table (7-6) Mitigation Plan for construction Phase

No	Potential impacts	Location	Impact Level	Residual impact	Mitigation measure	Estimated Cos (MMK)	Responsible Party
1.	Visual amenity	Project site	(Very Low)	Nil	1. Systematic planning in land clearing 2. Planted and greening as early as possible 3. Cleaning of work site 4. Leave buffer area around the fences	3000000	HSE Coordinator and group
2.	Air quality	Project site and its surrounding	Low	Nil	• Dust suppression facilities shall use in the mill • Used cover on the mixture, girders • Spray water on the ground of soil collection area • Control burning to reduce emission and smoke • Machineries and vehicles shall be maintained properly to reduce emission • Control the power and speed of machines to reduce gaseous emission • To provide PPE to the staff and labor • The truck carrying coal and soil shall be covered with turpulin. • The soil/stone roads shall be sprayed with	5000000	HSE Coordinator and group

					water		
3.	Noise Vibration	All operation area and residence	Low	Nil	• To draw plan and follow according to the plan to do the noisy activities during working hour (day time) • To control the noise level • To provide ear plug, ear muff to the staff who work near noise and vibrate machines • Use sound prove generator • By using noise reduction fences to prevent noise at resident • Tree shall be planted around the compound	3000000	HSE Coordinator and group
4.	Water pollution	All operation area	Contamination and sedimentation change of water way (Low)		• To construct good drainage • To construct temporary sediment pond • Dispose water after filter • To avoid ran of water directly onto the public road • Use proper handling method in storage, filling of fuel and lubricant • Maintain the machine to avoid oil spill and leakage	4000000	HSE Coordinator and group
5.	Hazardous	Mill and	Contamination		• Collect hazardous waste in separate waste bin	10000000	HSE

	waste	residence area	and sedimentation of water and soil Health impact (Low)		and dispose separately at limited waste disposal site • Store and use the hazardous material carefully • Not dispose waste into the water way		Coordinator and group
6.	Health and safety	Mill	Injuries accident and unhealthy		• PPE shall be provided to labor • Safety and precaution sign shall be place in the dangerous area • Clinic or first aid medicine shall be provide • First aid training shall be conducted • Yearly medical checkup programme	25000000	HSE Coordinator and group
6.	Socio–economic	Mill and surrounding communities	Positive		• Provide job opportunity to the villagers • Provide good salary and incentive to labor • To arrange good working atmosphere • Contribution from CSR fund to the community • Community development activities shall be done	15000000	HSE Coordinator and group

Table (7–7) Mitigation Plan for 0peration Phase

No	Potential impacts	Location	Impact Level	Residual impact	Mitigation measure	Estimated Cos (MMK)	Responsible Party
1.	Air Quality	Project site	Low (Temporary)	NIL	– Dust suppression of the demolished material – Welting the ground to reduce dust – In the transportation of demolished items, the trucks shall be covered with tarpaulin – To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.	5000000	
2.	Noise	Project site and Surrounding			– Demolishing should be done at day time – Systematic collection and disposing the demolish materials		
3.	Solid waste	Project site	Low	Negligible	– Recycle material shall be separated and sold out or reuse	1500000	
4.	Hazardous	Project site	Low		– Hazardous waste shall be completely clean, collect and dispose to the prescribe disposal site. – Handling should be done with care – PPE shall provide to the workers	3000000	

					– Hand and body cleaning facilities shall be provided by proponent		
5.	Waste water	Project site	Low		– Decommissioning shall be done on opening season – The soil and particles in the siltation pond shall be take out and disposed – Proper water channel shall be left after demolish the site – Don't throw the solid material into the drain – To provide sufficient quantity and quality temporary toilet		
6.	Oil spill	Project site	Low		– Care shall be taken in takeoff machines for not spill the oil and lubricant on ground. If spill the area shall be cleaned and take out waste. – Handling of fuel tank, container carefully to avoid oil spill on ground.		
7.	Work safety	Project site	Low		– To put temporary signage for safety – The electrical connection shall be cut-off before demolishing – To provide PPE to the staff and labor		

					– Not allow the unresponsible person to the demolishing site – Close supervise in handling /loading (unloading material – Care shall be taken when contact with heavy or hazardous items – Check and recheck the site after completion. – Stickily prohibit smoking and drinking alcohol		
8.	Soil erosion	Project site	Low		– After demolished the land of the site shall be clean – The land need to fill must fill completely – Drainage shall be made to avoid water blocking – Plant with soil cover plants and tree reduce soil erosion and landslide	2000000	
9.	Socio–economy				– Temporary job opportunity in decommissioning – Labor lost job after factory closed down – Labor can find new job in other industries, as they got some experience in industry already – Possible to developed sustainability social and economy by provided CSR activities from project		

Table (7-8) Mitigation Plan for Decommissioning Phase

No	Potential impacts	Location	Impact Level	Residual impact	Mitigation measure	Estimated Cos (MMK)	Responsible Party
1.	Air Quality	Project site	Low (Temporary)	NIL	– Dust suppression of the demolished material – Welting the ground to reduce dust – In the transportation of demolished items, the trucks shall be covered with tarpaulin – To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.	5000000	HSE Team
2.	Noise	Project site and Surrounding			– Demolishing should be done at day time – Systematic collection and disposing the demolish materials		
3.	Solid waste	Project site	Low	Negligible	– Recycle material shall be separated and sold out or reuse	1500000	
4.	Hazardous	Project site	Low		– Hazardous waste shall be completely clean, collect and dispose to the prescribe disposal site. – Handling should be done with care – PPE shall provide to the workers – Hand and body cleaning facilities shall be provided by proponent	3000000	

5.	Waste water	Project site	Low		– Decommissioning shall be done on opening season – The soil and particles in the siltation pond shall be take out and disposed – Proper water channel shall be left after demolish the site – Don't throw the solid material into the drain – To provide sufficient quantity and quality temporary toilet		
6.	Oil spill	Project site	Low		– Care shall be taken in takeoff machines for not spill the oil and lubricant on ground. If spill the area shall be cleaned and take out waste. – Handling of fuel tank, container carefully to avoid oil spill on ground.		
7.	Work safety	Project site	Low		– To put temporary signage for safety – The electrical connection shall be cut–off before demolishing – To provide PPE to the staff and labor – Not allow the unresponsible person to the demolishing site – Close supervise in handling /loading (unloading material		

					– Care shall be taken when contact with heavy or hazardous items – Check and recheck the site after completion. – Stickily prohibit smoking and drinking alcohol		
8.	Soil erosion	Project site	Low		– After demolished the land of the site shall be clean – The land need to fill must fill completely – Drainage shall be made to avoid water blocking – Plant with soil cover plants and tree reduce soil erosion and landslide	2000000	
9.	Socio–economy				– Temporary job opportunity in decommissioning – Labor lost job after factory closed down – Labor can find new job in other industries, as they got some experience in industry already – Possible to developed sustainability social and economy by provided CSR activities from project		

7.13 Monitoring Plan

The monitoring plan for operation and decommissioning phase are mentioned in table (7–9) and (7–10). In the table budget also estimated. If the budget not sufficient to conduct activities the budget can be revised.

Table (7-9) Monitoring plan for Operation Phase

SR NO	Environmental Concerns	Parameter	Time Frame	Location	Estimated Cast (MMK)	Responsible Party
1.	Air	PM_{10}, $PM_{2.5}$, VOC, CO, CO_2, SO_2& NO_2	Twice a year	Project Site	1,500,000	HSE Coordinator & Third Party
2.	Noise/ Vibration	Equivalent noise Level dB(A)	Twice a year	Project Site	400,000	HSE Coordinator & Third Party
3.	Water	PH, Color, Turbidity Total Hardness, BOD, Total dissolved water, Total Suspended Solid, Temperature	3 time a year	Stream water near site	1,500,000	HSE Coordinator & Third Party
4.	Soil erosion/ Land slide	Sediment collection from silt trap, silt ponds.	Weekly during rain	Project Site	1,000,000	HSE Coordinator
5.	Fire hazard	Visual inspection, Fire extinguishers and regular check of combustible materials.	Monthly	Project Site	1,000,000	HSE Coordinator
6.	Waste Generation	Visual Inspection	Weekly	Project Site	1,000,000	Supervisor
7.	Safety and Health	Number of type of safety equipment provided, Health & Sanitation facilities, Signage. Health service	Monthly	Project Site	80,000	HSE Coordinator
8.	Environmental auditing	Access the compliance to EMP, and other environmental Policy law, rules and regulation	Twice a year	Project Site	1,000,000	HSE Coordinator, related dept:/ Third Party

Table (7–10) Monitoring plan for Decommissioning Phase

SR NO	Environmental Concern	Parameter	Time Frame	Location	Budget (MMK)	Responsible Party
1.	Air	PM_{10}, $PM_{2.5}$, VOC, CO, CO_2, SO_2 and NO_2	Ture a year	Project Site	2,000,000	HSE Coordinator & Third Party
2.	Noise/ Vibration	Equivalent noise level dB(A)	Ture a year	Project Site	100,000	HSE Coordinator & Third Party
3.	Waste Water	BOD, COD, Oil and grease, PH, Total Coli form bacteria, Total Nitrogen				
4.	Fire hazard	Visual Inspection, fire extinguishers and regular check of combustible material	Monthly	Project Site	2,000,000	HSE Coordinator & group
5.	Safety & Health	Number and type of safety equipment provided. Health and sanitation facilities in camps signage, PPE, Health care services and facility.	Monthly	Project Site	1,100,000	HSE Coordinator & group
6.	Environmental auditing	Assess the compliance once with this EMP, environmental policy laws, rules and regulation	Once a year	Project Site	10,000	HSE Coordinator & group

Table (7–11) Parameter for testing

SR NO	Environmental Concern	Parameter	Time Frame	Location	Budget (MMK)	Responsible Person
1.	Air	PM_{10}, $PM_{2.5}$, VOC, CO, CO_2, SO_2 and NO_2	Once a year	Project Site	1,000,000	HSE Coordinator & Third Party
2.	Noise/ Vibration	Equivalent noise dB(A)	Once a year	Project Site	500,000	HSE Coordinator & Third Party
3.	Water	PH, Color, Turbidity, Total Hardness, CaCO3, BOD, Total Dissolved Oxygen, Total	Once a year	Stream or well near project	1,000,000	HSE Coordinator & Third Party
4.	Soil erosion land slide	suspended solid Sediment collection form silt trap/ silt pond and stream bank	Once a year	Stream or well near project	1,500,000	HSE Coordinator & Third Party
5.	Rehabilitation	Recovering the open cut mining areas and re-vegetation areas.	Once a year	All decommissioning area	3,000,000	HSE Coordinator & Third Party

Chapter (8)

Commitment

8.1 Commitment of Project Proponent

The proponent committed regards on the project as follow

Table (8-1) Commitment summary

Sr.	Commitment brief	Explanation for Commitment	Reference
1.	To abide Law	To abide Environmental law, rules, regulation and concerns law rules, act, procedure To follow EMP prescribed in IEE report	Chapter (3)
2.	To abide the mitigation measures	To follow the mitigation measures strictly and committed	Chapter (5/7)
3.	EMP	To follow the EMP of this project such as - Mitigation - Monitoring - Sub plans - To contribute the express for environmental monitoring - To contribute CSR programs as per commitment	Chapter (7)
4.	Commitment on Report by proponent Third party	 - Complete and precisely - Complete and précised - Prepared according to the EIA procedure - To keep the third party ethic	 Appendix (N) Appendix (O) Appendix (P) Appendix (Q)

According to EIA procedure clause (35), the project proponent hereby certifies and acknowledges that the initial environmental assessment report has been prepared as follows and that the content is accurate:

(a) the accuracy and completeness of the IEE,

(b) that the IEE has been prepared in strict compliance with applicable laws including this Procedure, and

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

U Naing Aung Lin (Managing Director)

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8.2 Commitment of Third Party Consultation Team

The author of the report confirms that the contents of the report are accurate complete and prepared according to the EIA procedure.

The report was prepared according to the third party ethic.

U Zaw Win (Team Leader)

SEE-Trust, Naywunmyat(S) Co.,Ltd

No.42, Pyinnyartazaung Street, Quarter-43, North Dagon Township, Yangon.

Phone: 01-3510442, 09-5063446, 09-971444413

Email: naywunmyat1@gmail.com. zwin@seetrust.co

8.3 Other commitments (Section wise)

Commitment Source	No.	Commitment	IEE Reference
Legal Requirement	1.1	Project Proponent will comply with all Myanmar laws, and rules.	Section 3.1
	1.2	For brick manufacturing, the project proponent will follow National Environmental Quality (Emission) Guidelines (2015).	Section 3.2
Water Use	2.1	The amount of water released from two tube wells, is sufficient for the business, so there is no plan to use other water sources.	Section 2.6
Air Quality	3.1	To control the Machine power and speed to reduce emission the maintenance shall be done to reduce smoke from trucks and machine.	Section 5.3.1
Waste	4.1	Recycle material shall be separated and sold out or reuse	Section 5.3.1
	4.2	Hazardous waste shall be completely clean, collect and dispose to the prescribe disposal site.	Section 5.3.1
	4.3	The soil and particles in the siltation pond shall be take out and disposed. Don't throw the solid material into the drain and to provide sufficient quantity and quality temporary toilet.	Section 5.3.1
Noise	5.1	Constructing, operation and demolish will done at day time.	Section 5.3.1
	5.2	Systematic collection and disposing the demolish materials.	Section 5.3.3
Health and Safety	6.1	Hand and body cleaning facilities shall be	Section 5.3.1

		provided by proponent.	
	6.2	The electrical connection shall be cut–off before constructing.	Section 5.3.1
Oil Spill	7.1	Care shall be taken in takeoff machines for not spill the oil and lubricant on ground. If spill the area shall be cleaned and take out waste.	Section 5.3.1
	7.2	Handling of fuel tank, container carefully to avoid oil spill on ground.	Section 5.3.1
Social economy	8.1	Possible to developed sustainability social and economy by provided CSR activities from project.	Section 5.3.1

Chapter (9)

Conclusion and Recommendation

9.1 Conclusion

This IEE report is prepare for New World Shwe Pyi Tan Co.,Ltd's Brick manufacturing and distribution project in Naypyidaw.

The studies were done by the third party, namely, SEE–Trust, Naywunmyat(s) Co.,Ltd. The study period is about a year because of the restriction of covid–19 pandemic diseases.

The proponent is very enthusiasm in brick production as he has already set up one million in Yangon, second one in Naypyidaw and he has to extend another two brick production mills at Nyaung Shwe, Shan State and Kawhmu, Yangon Region.

The factory in Naypyidaw will assist for the city development of Capital Naypyidaw. There were a lot of office buildings, residence need to construct. This factory can provide a quality bricks in quantities.

The conventional brick production industries used a lot of fuel wood which effected to the deterioration of forest. The hope that this types of production method shall be used.

9.2 Recommendation

The recommendations for this project are:

(1) This brick production method is the least impact method for environment.

(2) To follow the mitigation measures stickily for the sustainable of business as well as environments.

(3) Care should be taken for the welfare of labor

(4) Community development activities shall be initiative

(5) Quality controlling shall made regularly

(6) If feasible the brick testing machine should be installed.

References

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- International Finances Cooperation, 2007 Environmental, Health and Safety Guidelines for Mining World Bank
- Work Health Organization, 2010 guide lines for indoor air quality: selected pollutants regional office for Europe.
- Win Shwe 2012 Outline geology and economic mineral occurrence of Union of Myanmar
- Environmental Science, A Global Concern (9th edition) William P Cunning harm.
- Assessment method, Turkish Environmental Law and Guide Lines for Environmental Impact Assessment (IEMA, 2004)
- Environmental and Social Management System Implementation Hand Book IFC, World Bank
- Working Plan, Ottarathiri District Cumulative Environmental Impact Assessment, Industry Guide Line, July 2015, Austria
- Trees, Flowers, Tropical Fruits (U Hoklin)
- Project proposal to MIC by proponent
- MIUI, Ottarathiri Township
- Ground water of Myanmar, Myint Thien
- Presentation on water Resources, Naypyitaw Development Committee
- IUCN Red List species List
- Social Risk Assessment, Training Notes, IFC&MEAA
- Health Impact Assessment training notes IFC&MEAA
- WHO Drinking Water Standard, 2016
- IUCN Red Lest species
- WHO drinking water quality
- Working plan for Ottara District
- Current Electricity Supply in Naypyitaw
- Soil Classification of FAO/USNESCO

Third party approval letter from ECD

Appendix (A)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
ညွှန်ကြားရေးမှူးချုပ်ရုံး

စာအမှတ်၊ EIA - ၁/၈/အတည်ပြု (TP)(၂၅၅၀/၂၀၂၂)
ရက်စွဲ ၊ ၂၀၂၂ ခုနှစ်၊ အောက်တိုဘာလ ၁၉ ရက်

သို့

Managing Director
New World Shwe Pyi Tan Co., Ltd.
Room No. 703, 7th floor, Yuzana Tower, Shwegonine
Bahan Township, Yangon

အကြောင်းအရာ။ **New World Shwe Pyi Tan Co., Ltd. ၏ နေပြည်တော်ရှိ စက်အုတ်ထုတ်လုပ်ဖြန့်ဖြူးခြင်းလုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination- IEE) အစီရင်ခံစာတင်ပြလာခြင်းနှင့် စစ်လျှဉ်း၍ သဘောထားမှတ်ချက်ပြန်ကြားခြင်း**

ရည်ညွှန်းချက်။ (၁) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၏ ၁၃-၇-၂၀၂၀ ရက်စွဲပါ စာအမှတ်၊ EIA-၁/ထွေ(၁၆၆၀/၂၀၂၀)

(၂) See –Trust, EIA Service Nay Wun Myats Co.,Ltd.၏ ၇ - ၈ - ၂၀၂၂ ရက်စွဲပါ စာအမှတ်၊ 042/See –Trust/2022

(၃) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၏ ၅-၉-၂၀၂၂ ရက်စွဲပါ စာအမှတ်၊ EIA-၁/၇/သဘောထား(TP)(၂၁၃၅/၂၀၂၂)

(၄) New World Shwe Pyi Tan Co., Ltd. ၏ ၂၃-၈-၂၀၂၂ ရက်စွဲပါ တင်ပြစာ

(၅) ဤဝန်ကြီးဌာန၊ ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၂၂-၄-၂၀၂၁ ရက်စွဲပါ စာအမှတ်၊ (သစ်တော) ၃ (၂) /၀၃ (EC)/(၁၀၉၄ / ၂၀၂၁)

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ နေပြည်တော်ကောင်စီနယ်မြေဥတ္တရသီရိမြို့နယ်၊ တောင်ညို ကျေးရွာအုပ်စု၊ အမှတ် (၂၅) ၊ သစ်စက်ကျေးရွာတွင် New World Shwe pyi Tan Co.,Ltd. မှ စက်အုတ်

J

ထုတ်လုပ်ဖြန့်ဖြူးခြင်း လုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination - IEE) အစီရင်ခံစာ ပြုစုရေးဆွဲရန်အတွက် တတိယအဖွဲ့အစည်းတွင် Waste Management, Air Pollution Control, Occupational Health and Safety ဆိုင်ရာ ကျွမ်းကျင်ပညာရှင်များအား တစ်ဦးချင်း TCR ရရှိထားမှုအထောက်အထား၊ TCR ရယူထားခြင်းမရှိပါက ပညာအရည်အချင်း အထောက်အထားများ၊ ကျွမ်းကျင်မှုနယ်ပယ်ဆိုင်ရာ လုပ်ငန်းအတွေ့အကြုံ အထောက်အထားများနှင့်တကွ ပြည့်စုံစွာဖြည့်စွက်၍ ပြန်လည်တင်ပြရန် ရည်ညွှန်း(၁)ပါစာဖြင့် အကြောင်းကြားခဲ့ရာ လုပ်ငန်းရှင်မှ ဖြည့်စွက်၍ တင်ပြရမည့် အစား တတိယအဖွဲ့အစည်းဖြစ်သည့် See -Trust, EIA Service Nay Wun Myats Co., Ltd. မှ ရည်ညွှန်း (၂) ပါစာဖြင့် ဖြည့်စွက်၍ ပြန်လည်တင်ပြလာခြင်းအပေါ် လုပ်ငန်းရှင်သို့ ရည်ညွှန်း (၃)ပါစာဖြင့် ထပ်မံ အကြောင်းကြားခဲ့ရာ လုပ်ငန်းရှင်မှ အဆိုပါကျွမ်းကျင်ပညာရှင်များ၏ အထောက်အထား စာရွက်စာတမ်း များနှင့် အချက်အလက်များကို ရည်ညွှန်း(၄)ပါစာဖြင့် တင်ပြလာပါသည်။

၂။ ပြင်ဆင်ဖြည့်စွက်တင်ပြလာသည့် ပညာရပ်နယ်ပယ် (၃)ခုအတွက် ပညာရှင် (၂)ဦးသည် TCR ရရှိထားခြင်းမရှိကြောင်း စိစစ်တွေ့ရှိရသော်လည်း ၎င်းတို့၏ ပညာအရည်အချင်း၊ ကျွမ်းကျင်မှုနယ်ပယ်ဆိုင်ရာ လုပ်ငန်းအတွေ့အကြုံ အထောက်အထားများနှင့်တကွ ပြည့်စုံစွာဖြည့်စွက်၍ Waste Management နှင့် Air Pollution Control နယ်ပယ်အတွက် (Ms. Tin Nwe Wint)၊ Occupational Health and Safety နယ်ပယ် အတွက် (Ms. Theint Theint Hlaing) စသည့် ဘာသာရပ်ဆိုင်ရာ ကျွမ်းကျင်ပညာရှင်များဖြင့် ပြုစုရေးဆွဲ ဆောင်ရွက်မည်ဖြစ်ကြောင်း စိစစ်တွေ့ရှိရပါသည်။

၃။ သို့ဖြစ်ပါ၍ နေပြည်တော်ကောင်စီနယ်မြေ၊ ဥတ္တရသီရိမြို့နယ်၊ တောင်ညိုကျေးရွာအုပ်စု၊ အမှတ် (၂၅) ၊ သစ်စက်ကျေးရွာတွင် New World Shwe Pyi Tan Co.,Ltd. မှ စက်အုတ်ထုတ်လုပ်ဖြန့်ဖြူးခြင်း လုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination-IEE) အစီရင်ခံစာကို See - Trust, EIA Service (Nay Wun Myats Co.,Ltd.)မှ မူလပညာရှင်များအပြင် သဘောထားမှတ်ချက်ပေးခဲ့သော ပညာရပ်နယ်ပယ် (၃)ခုအတွက် ပညာရှင် (၂)ဦးအား ဖြည့်စွက်၍ ရေးဆွဲဆောင်ရွက်ခွင့်ပြုပါရန် တင်ပြလာခြင်းအပေါ် ပြည်ထောင်စုဝန်ကြီးရုံး၏ ရည်ညွှန်း(၅)ပါ ခွင့်ပြုချက်အရ အတည်ပြုပါကြောင်းနှင့် အောက်ဖော်ပြပါအတိုင်း ဆက်လက်ဆောင်ရွက်နိုင်ရန် သဘောထားမှတ်ချက် ပြန်ကြားအပ်ပါသည်-

(က) ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းအပိုဒ် ၃၄၊ ၃၅၊ ၃၆၊ ၃၇၊ ၃၈၊ ပါသတ်မှတ်ချက်များနှင့်အညီ ရေးဆွဲ၍ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဝန်ကြီးဌာနသို့ တင်ပြအတည်ပြုချက် ရယူရန်၊

(ခ) စီမံကိန်းနှင့် ဆက်စပ်သောဒေသများတွင်ဌာနဆိုင်ရာအဖွဲ့အစည်းများ၊ အစိုးရမဟုတ်သော အဖွဲ့အစည်းများ၊ မီဒီယာများ၊ ဒေသခံများ၊ စီမံကိန်းကြောင့် အဓိက ထိခိုက်ခံစားရမည့်သူများပါဝင်လျက် တွေ့ဆုံဆွေးနွေးမှုများ ဆောင်ရွက်ရန်နှင့် ၎င်းတို့၏ အကြံပြုချက်နှင့် လိုလားချက်များအား အလေးထား ပေါင်းစပ် ဆောင်ရွက်ရန်။

ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား)

(ဒေါက်တာဆန်ဦး၊ ဒုတိယညွှန်ကြားရေးမှူးချုပ်)

မိတ္တူကို

ပြည်ထောင်စုဝန်ကြီးရုံး၊ သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ရုံးအမှတ် (၂၈)

ညွှန်ကြားရေးမှူးချုပ်ရုံး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန ရုံးလက်ခံ၊ မျှောစာတွဲ

Third Party Registration

Appendix (B)

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 0034 Date 15 JUN 2017

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)	Nay Wun Myat (S) Co., Ltd. (SEE-TRUST)
(b)	Name of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏အမည်)	U Zaw Win
(c)	Citizenship of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏နိုင်ငံသား)	Myanmar
(d)	Identity Card /Passport Number of the representative person in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏ မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်)	1/ Ba Ma Na (Naing) 035861
(e)	Address of organization (ဆက်သွယ်ရန်လိပ်စာ)	No. 42, Pyin Nyar Tazaung St, Quarter (43), North Dagon, Yangon. naywunmyat1@gmail.com, 09 5063446
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Organization
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for one year from (1.4.2018) to (31.3.2019)
ဤလက်မှတ်အား (၀-၄-၂၀၁၈) ရက်နေ့မှ (၃၁.၃.၂၀၁၉) ရက်နေ့အထိ တစ်နှစ်သက်တမ်း တိုးမြှင့်ပေးသည်။
12.10.2018
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. Ecology and Biodiversity
2. Land Use
3. Legal Analysis
4. Socio-Economy
5. Agronomist
6. Facilitation and Forest Law & Training
7. Forest Law
8. Geologist Exploration of Ground Water Supply
9. GIS and Mapping, Data Based
10. Labour Law
11. Plantation
12. Plantation Silviculture
13. Public Relation
14. Social and Community Development
15. Soil
16. Soil and Water
17. Soil, Watershed, Extension, Management
18. Wildlife, Biodiversity

EXTENSION
သက်တမ်းတိုးချဲ့ခြင်း
The VALIDITY of this certificate is extended for nine months from (1.4.2019) to (31.12.2019)
ကျွန်လက်မှတ်အား (၁-၄-၂၀၁၉) ရက်နေ့မှ (၃၁.၁၂.၂၀၁၉) ရက်နေ့အထိ (၉)လသုတ်တင်း တိုးချဲ့ပေးသည်။
10.6.2019
For Director General
(Soe Naing, Director)
Environmental Conservation Department

Company Registration of New World Shwepyitan Co.,Ltd | **Appendix (C)**

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီ လီမိတက်

NEW WORLD SHWE PYI TAN COMPANY LIMITED

Company Registration No. 101446530

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ

သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီ လီမိတက်

အား ၂၀၁၁ ခုနှစ် စက်တင်ဘာလ ၁ ရက်နေ့တွင်

အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ

အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that

NEW WORLD SHWE PYI TAN COMPANY LIMITED

was incorporated under the Myanmar Companies Act 1914 on 1 September 2011 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ

Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

Directorate of Investment and Company Administration

Former Registration No. 1774/2011-2012

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Status registration of DICA

Appendix (D)

DIRECTORATE OF INVESTMENT AND COMPANY ADMINISTRATION

Myanmar Companies Online Registry - Company Extract

Company Name (English)
NEW WORLD SHWE PYI TAN COMPANY LIMITED

Company Name (Myanmar)
သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီ လီမိတက်

Company Information

Registration Number	Registration Date	Status
101446530	01/09/2011	Registered
Company Type	**Foreign Company**	**Small Company**
Private Company Limited by Shares	No	No
Principal Activity	**Date of Last Annual Return**	**Previous Registration Number**
81 - Services to buildings and landscape activities 43 - Specialized construction activities 41 - Construction of buildings 42 - Civil engineering	17/01/2020	1774/2011-2012

Addresses

Registered Office In Union	SHWE GON DINE ROAD, NO.703,7TH FLOOR,YUZANA TOWER BAHAN TOWNSHIP YANGON, Myanmar

Officers

Name:	U NAING AUNG LINN	Type:	Director
Date of Appointment:	N/A	Date of Birth:	14/02/1969
Nationality:	Myanmar	N.R.C./Passport:	5/MAKANA(N)002684
Gender:	Male	Business Occupation:	-
Name:	U PAI WAI OO	Type:	Director
Date of Appointment:	09/12/2019	Date of Birth:	11/06/1995
Nationality:	Myanmar	N.R.C./Passport:	12/KAMAYA(N)061596
Gender:	Male	Business Occupation:	-

Ultimate Holding Company

Name of Ultimate Holding Company	Jurisdiction of Incorporation	Registration Number
-	Myanmar	NO

Share Capital Structure

Total Shares Issued by Company	Currency of Share Capital
500	MMK

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	500	50,000,000.00	0.00

Page 1 of 2
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DIRECTORATE OF INVESTMENT AND COMPANY ADMINISTRATION

Myanmar Companies Online Registry - Company Extract

Company Name (English)
NEW WORLD SHWE PYI TAN COMPANY LIMITED

Company Name (Myanmar)
သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီ လီမိတက်

Members

Name:	U NAING AUNG LINN		
Gender:	Male	Date of Birth:	14/02/1969
Nationality:	Myanmar	N.R.C./Passport:	5/MAKANA(N)002684

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	300	30,000,000.00	0.00

Name:	U PAI WAI OO		
Gender:	Male	Date of Birth:	11/06/1995
Nationality:	Myanmar	N.R.C./Passport:	12/KAMAYA(N)061596

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	200	20,000,000.00	0.00

Mortgages and Charges

Form / Filing Type	Effective Date
No records available	

Details about all mortgages and charges can be accessed from the Company Profile Filing History at no charge.

Filing History

Form / Filing Type	Effective Date
AR | Annual Return	17/01/2020
C-3 | Change to share capital or register of members	09/12/2019
D-1 | Particulars of directors and secretary	09/12/2019
AR | Annual Return	01/10/2019
D-1 | Particulars of directors and secretary	12/09/2019
B-1 | Application for re-registration of a private company limited by shares	23/08/2018

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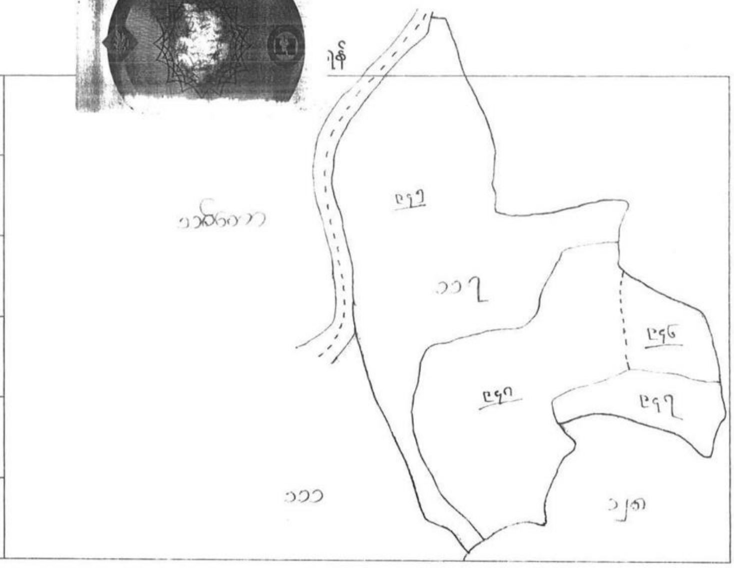
Form (105) for Plot (117)

Appendix (E)

မြေစာရင်းပုံစံ - ၁၀၅

မှန်ကန်ကြောင်း သက်သေခံ / သက်သေမှန် သော လက်ရှိမြေပုံတွင် ယခုနှစ်အသုံးပြုသော ဦးပိုင်မြေပုံ

တိုင်းဒေသကြီး/ ပြည်နယ်	
ခရိုင်	
မြို့နယ်/ မြို့နယ်ခွဲ	
ရပ်ကွက်/ ကျေးရွာအုပ်စု	
ကွင်း/ အကွက်အမှတ်နှင့်အမည်	၁၈၉၃
ဦးပိုင်အမှတ်/ မြေကွက်အမှတ်	၁၁၇



ဦးပိုင် အမှတ်	အခွန်စည်းကြပ်ခံရသူ/ပိုင်ရှင်/ ဂရန်ရှင်/အငှားဂရန်ရှင် အမည်	ပိုင်ဆိုင်ခွင့်	မြေမျိုးနှင့် အတန်း	ဧရိယာ (ဧက)	မှတ်ချက်
၁၁၇			Y2		
					၁၂.၇.၂၀၁၀

ရေးကူးပေးသည့်အကြောင်းအရာ

(အထက်ဖော်ပြပါအကြောင်းအရာအတွက်သာ အသုံးပြုခွင့်ရှိသည်)

လျှောက်ထားသူအမည် -

လျှောက်လွှာတင်သည့်နေ့စွဲ -

လျှောက်ထားသူသို့ ထုတ်ပေးသည့်နေ့စွဲ -

ယခုအထက်တွင် ပြဆိုသောမြေပုံမှာ မှန်ကန်သေချာစွာ ရေးကူးထားသော ( ) ခုနှစ် အတွက် နောက်ဆက်တွဲ တိုင်းတာခြင်း မြေပုံဖြစ်ကြောင်း သက်သေခံလက်မှတ် ရေးထိုးပါသည်။

ရုံးတံဆိပ်

အမှုတွဲထိန်း/မြေတိုင်းစာရေးလက်မှတ် -

နေ့စွဲ -

တိုက်ဆိုင်စစ်ဆေးပြီး မှန်ကန်ပါသည် -

လက်ထောက်ဦးစီးမှူးလက်မှတ် -

နေ့စွဲ -

စိစစ်အတည်ပြုပါသည်။

မြို့နယ်မြေစာရင်းဦးစီးဌာနမှူးလက်မှတ် - နေ့စွဲ -

50

Form (105) for Plot (128)

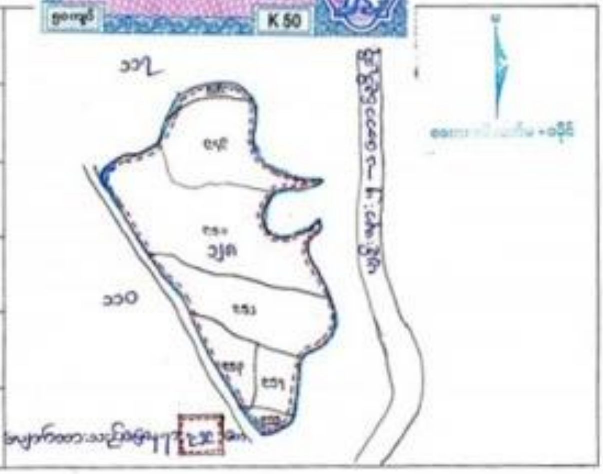
Appendix (F)

မြေစာရင်းပုံစံ – ၁၀၅ 2018 - 096425

မှန်ကန်ကြောင်း သက်သေခံ / သက်သေမခံ သောလက်ရှိမြေပုံတွင် ယခုနှစ်အသုံးပြုသော ဦးပိုင်မြေပုံ

DALMS

တိုင်းဒေသကြီး/ပြည်နယ် [illegible]	
ခရိုင် [illegible]	
မြို့နယ်/မြို့နယ်ခွဲ [illegible]	
ရပ်ကွက်/ကျေးရွာအုပ်စု [illegible]	
ကွင်း/အကွက်အမှတ်နှင့်အမည် [illegible]	
ဦးပိုင်အမှတ်/မြေကွက်အမှတ် ၁၂၈	



ဦးပိုင် အမှတ်	အခွန်ငွေးကြပ်ခံရသူ/ပိုင်ရှင်/ ဂရန်ရှင်/အငှားဂရန်ရှင်အမည်	ပိုင်ဆိုင်ခွင့်	မြေမျိုးနှင့် အတန်း	ဧရိယာ (ဧက)	မှတ်ချက်
၁၂၈	[illegible]	RUF	½	၇.၅၉	

ရေးကူးပေးသည့်အကြောင်းအရာ	[illegible]

(အထက်ဖော်ပြပါအကြောင်းအရာအတွက်သာ အသုံးပြုခွင့်ရှိသည်)

လျှောက်ထားသူအမည် - [illegible]

လျှောက်လွှာတင်သည့်နေ့စွဲ - ၂၀-၂-၂၀၂၀

လျှောက်ထားသူသို့ထုတ်ပေးသည့်နေ့စွဲ - ၂၀-၂-၂၀၂၀

ယခုအထက်တွင်ပြဆိုသောမြေပုံမှာ မှန်ကန်သေချာစွာ ရေးကူးထားသော(၂၀၂၀)ခုနှစ် အတွက် ကောက်ဆက်တွဲပိုင်းခြင်း မြေပုံဖြစ်ကြောင်း သက်သေခံလက်မှတ် ရေးထိုးပါသည်။

အမှုတွဲထိန်း/မြေတိုင်းစာရေးလက်မှတ် -

နေ့စွဲ -

ရုံးတံဆိပ်

တိုက်ဆိုင်စစ်ဆေးပြီး မှန်ကန်ပါသည်။

လက်ထောက်ဦးစီးမှူးလက်မှတ် -

နေ့စွဲ -

စိစစ်အတည်ပြုပါသည်။

မြို့နယ်လယ်ယာမြေစီမံခန့်ခွဲရေးနှင့် စာရင်းအင်းဦးစီးဌာနမှူးလက်မှတ်

MIC Approval Letter

Appendix (G)

Republic of the Union of Myanmar ★ Nay Pyi Taw Council Investment Committee
No.
Date.

Form (5-B)

THE REPUBLIC OF THE UNION OF MYANMAR

NAY PYI TAW COUNCIL INVESTMENT COMMITTEE

ENDORSEMENT

Endorsement No. NPW- 005/2020 Dated 10th March 2020

This endorsement is issued by the Nay Pyi Taw Council Investment Committee according to the section 25 (d) of the Myanmar Investment Law–

(1) Name of Investor U NAING AUNG LIN

(2) Citizenship MYANMAR

(3) Residence Address NO.135 , A(3), THAN LWIN ROAD, KAMAYUT TOWNSHIP, YANGON

(4) Name and Address of Principal Organization –

(5) Place of Incorporation –

(6) Type of business MANUFACTURING AND MARKETING OF BRICKS

(7) Place(s) of investment Project KWIN NO.1893, MAYANKHONE KWIN, HOLDING NO.117, 118, 52 THITSAT VILLAGE, TAUNG NYO VILLAGE TRACT, OTTARATHIRI TOWNSHIP, OTTARA DISTRICT

(8) Amount of Foreign Capital –

(9) Period for Foreign Capital to be brought in –

(10) Total Amount of Capital (Kyat) 5,800.000 MILLION (INCLUDING US$ 1.634 MILLION)

(11) Construction/ Preparation Period 6 MONTHS

(12) Validity of Endorsement 50 YEARS

(13) Form of Investment WHOLLY CITIZEN OWNED

(14) Name of Company Incorporated in Myanmar NEW WORLD SHWE PYI TAN COMPANY LIMITED

(Dr. Myo Aung)
Chairman

Signboard, Invitation Card

Appendix (H)

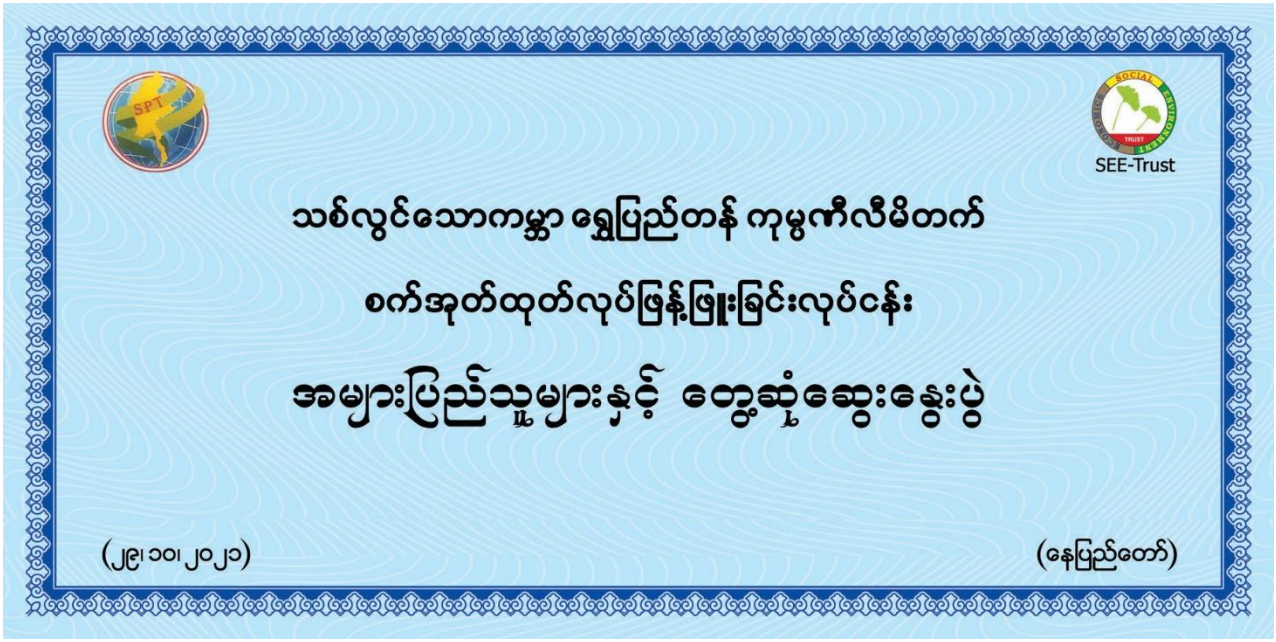
အများပြည်သူ တွေ့ဆုံဆွေးနွေးပွဲ ဖိတ်ကြားခြင်း

သစ်လွင်သောကမ္ဘာ ရွှေပြည်တန် ကုမ္ပဏီ၏ အုတ်စက်ထုတ်လုပ်မှုလုပ်ငန်းအပေါ် တတိယအကြိမ် ပေးအဖွဲ့မှ ဆောင်ရွက်ခဲ့သည့် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း တွေ့ရှိချက်နှင့် အုတ်စက်လုပ်ငန်းအား ရှင်းလင်းခြင်း (Initial Environmental Impact Assessment)ကို အောက်ပါအတိုင်းကျင်းပမည်ဖြစ်ပါ၍ တက်ရောက်နိုင်ပါရန် ကြိုတင်ဖိတ်ကြားပါသည်။ တက်ရောက်လိုသူများ စာရင်းပေးပို့နိုင်ပါသည်။

ကျင်းပမည့်နေ့ရက် ။ ။ (၂၉-၁၀-၂၀၂၁ (သောကြာနေ့)။
ကျင်းပမည့်အချိန် ။ ။ နံနက် (၁၀း၀၀) မှ နေ့လည် (၁၂း၀၀) နာရီအထိ။
ကျင်းပမည့်နေရာ ။ ။ အုတ်စက်ရုံဝင်း၊
(၅၂)၊ အုတ်စက်ကျေးရွာ၊ တောင်ညီကျေးရွာအုပ်စု။

ဆွေးနွေးပွဲကို (Covid-19) ကာကွယ်ရေး အစီအမံနှင့်အညီ ကျင်းပပါမည်။ (Zoom online meeting)ဖြင့် တက်ရောက်လာပါကလည်း တက်ရောက်နိုင်ပါသည်။ အသေးစိတ်အား ထပ်မံအသိပေး ဖိတ်ကြားပါမည်။

သစ်လွင်သော ကမ္ဘာ ရွှေပြည်တန်ကုမ္ပဏီ



SEE-Trust

သစ်လွင်သောကမ္ဘာ ရွှေပြည်တန် ကုမ္ပဏီလီမိတက်

စက်အုတ်ထုတ်လုပ်ဖြန့်ဖြူးခြင်းလုပ်ငန်း

အများပြည်သူများနှင့် တွေ့ဆုံဆွေးနွေးပွဲ

(၂၉၊ ၁၀၊ ၂၀၂၁) (နေပြည်တော်)

Meeting Minutes

သစ်လွင်သော ကမ္ဘာ့ရွှေပြည်တန်အုတ်စက်ရုံ
အများပြည်သူတွေ့ဆုံဆွေးနွေးပွဲမှတ်တမ်း

ကျင်းပသည့်နေ့ရက် - (၂၉၊ ၁၀၊ ၂၀၂၁)။
ကျင်းပသည့် အချိန် - (၁၀း၀၀) မှ (၁၂း၀၀)။
ကျင်းပသည့်နေရာ - စက်ရုံဝင်း။

တက်ရောက်သူ

စဉ်	အမည်	တက်ရောက်သူဦးရေ
၁။	ဌာနဆိုင်ရာ	၂
၂။	အုပ်ချုပ်ရေးမှူး	၁
၃။	ဒေသခံပြည်သူ	၂၈
၄။	လုပ်သား	၃
၅။	တတိယအဖွဲ့အစည်း	၄
		၃၈

မှတ်ချက်။ ။ တက်ရောက်သူစာရင်းအား/ပူးတွဲဖော်ပြထားပါသည်။
Zoom meeting တက်ရောက်သူမရှိပါ။

အစီအစဉ်

၁။ အခန်းအနားအစီအစဉ်ကြေညာခြင်း
၂။ အခန်းအနားဖွင့်လစ်ခြင်း
၃။ သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်မှ ကြိုဆိုစကားပြောကြားခြင်း
၄။ ပတ်ဝန်းကျင်ထိန်းသိမ်း ရေဦးစီးဌာနမှအဖွင့်အမှာစကားပြောကြားခြင်း
၅။ တတိယ အကြံပေးအဖွဲ့ မှ လုပ်ငန်းနှင့်ပတ်သက်၍ တွေ့ရှိချက်များကို အများပြည်သူအားခြုပြခြင်း
၆။ တက်ရောက်သူများကဆွေးနွေးတင်ပြခြင်း
၇။ တာဝန်ရှိသူတို့မှ ပြန်လည်ရှင်းလင်းဆွေးနွေးခြင်း
၈။ အခန်းအနားရုတ်သိမ်းခြင်း

အစည်းအဝေးမတိုင်မီ (၁၄) ရက်ကြိုတင်၍ အစည်းအဝေးဖိတ်စာအား ဆိုင်းဘုတ်တင်ခဲ့ပါသည်။ အစည်းအဝေးနီးသည့်အခါ ဖိတ်စာဖြင့်ဖိတ်ကြားပါသည်။ Zoom meeting ဖြင့် တက်ရောက်နိုင်ရန်လည်း စီစဉ်ထားခဲ့ပါသည်။

Covidကာလဖြစ်သည့် အားလျော်စွာ ဌာနဆိုင်ရာများနှင့် အုပ်ချုပ်ရေးအပိုင်းမှ အစည်းအဝေးတက်ရောက်နိုင်မှု အားနည်းခဲ့ပါသည်။

ဆွေးနွေးချက်

စက်ရုံမှုးမှကြိုဆိုအမှာစကားပြောကြားခြင်း

အုတ်စက် ရုံမှုးမှ အစည်းအဝေးတက်ရောက်သူများ၊ တာဝန်ရှိသူများအားကြိုဆိုပါကြောင်း၊ အစည်းဝေးတက်ရောက်လာကြသည့်အတွက်လည်းကျေးဇူးတင်ရှိပါကြောင်း၊ ရွှေပြည်တန်ကုမ္ပဏီအနေဖြင့် ပတ်ဝန်းကျင်စံချိန်စံညွှန်းကိုက်ညီအောင် ဆောင်ရွက်လျက်ရှိပါကြောင်း၊ အားနည်းချက်များရှိနေဆဲဖြစ်သည်များကို ပြင်ဆင်ဖြည့်စွက် ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း ပြောကြားပါသည်။

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး၊ဦးစီးဌာန၊ နေပြည်တော်မှလက်ထောက်ညွှန်ကြားရေးမှူး ဦးနိုင်ထက်လွင်မှ အဖွင့်အမှာစကား ပြောကြားခြင်း

ဦးနိုင်ထက်လွင်မှ လုပ်ငန်းများဆောင်ရွက်ရာတွင် ပတ်ဝန်းကျင်အားထိခိုက်မှု အနည်းဆုံးဖြစ်ရန် လိုအပ်ကြောင်း၊ တတိယအဖွဲ့အစည်းမှာလူမှုရေးနှင့် ပတ်ဝန်းကျင်အပေါ် ထိခိုက်နိုင်မှုများကိုဖော်ထုတ်ကာ၊ ထိခိုက်မှုမရှိသည့် နည်းလမ်းရှာဖွေခြင်း သို့မဟုတ် လျော့ချနိုင်ရေးနည်းလမ်းများ ရှာဖွေဖော်ထုတ်ခြင်းကို တတိယအဖွဲ့မှ ဆောင်ရွက်ခဲ့ပြီး အစီရင်ခံစာကြမ်းအား ချပြဆွေးနွေး၍ အကြံပြုချက်များကိုရယူကာ အပြီးသတ်တင်ပြသွားမည်ဖြစ်၍ တက်ရောက်သူများမှ ပွင့်လင်းစွာဆွေးနွေးတင်ပြသွားကြစေလိုကြောင်း မှာကြားပါသည်။

တတိယအကြံပေးအဖွဲ့မှ တွေ့ရှိချက်၊သုံးသပ်ချက်များတင်ပြခြင်း

တတိယအကြံပေးအဖွဲ့မှ ဦးဇော်ဝင်းက လုပ်ငန်းအပေါ်တွေ့ရှိချက်၊ အားနည်းအားသာချက်၊ လေ့လာဆောင်ရွက်ချက်များ ပတ်ဝန်းကျင်အပေါ် ထိခိုက်နိုင်မှုများ၊ ကွင်းဆင်းတိုင်းတာရလာဒ်များကို power point ဖြင့် ရှင်းလင်းသွားပါသည်။

လေ့လာချက်အရ တွေ့ရှိရသည့် ထိခိုက်နိုင်မှုများ၊ ယင်းတို့အား လျော့ချမည့် နည်းလမ်းများကို ဆွေးနွေးတင်ပြသွားပါသည်။

ဦးဇော်ဝင်းမှ ယခုဆွေးနွေးပွဲမှ အကြံပြုချက်၊ခံစားချက်များသည် အစီအရင်ခံစာပြုစုရာတွင် များစွာအရေးပါသဖြင့် အားမနာဘဲ ပွင့်လင်းစွာပါဝင် ဆွေးနွေးကြစေလိုကြောင်းမှာကြားပါသည်။

တက်ရောက်သူများမှ ဆွေးနွေးချက်များ

(က) ဦးခင်မောင် ၊ အုပ်ချုပ်ရေးမှူး

- စက်ရုံ သို့ ဝန်ထမ်း/လုပ်သားနှင့်ဧည့်အဝင်အထွက် စာရင်းမှတ်တမ်းထားသင့်ကြောင်း အကြံပြုပါသည်။
- မီးဘေးကြုံသည့်အခါ ဆက်သွယ်နိုင်သည့်ဖုံးအမှတ်များ စက်ရုံတွင်ရေးကပ်ထားရန်

- မီးကာကွယ်ရေးအတွက် မီးသတ်ဦးစီးဌာနနှင့်ဆက်သွယ်ထားရန်

(ခ) ဦးနှိုင်ထက်လွင်၊လက်ထောက်ညွှန်ကြားရေးမှူး၊ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး

- စွန့်ပစ်ရေအား တိုင်းတာသင့်ကြောင်းနှင့် လေထုအရည်အသွေးကို စွမ်းအားပြည့်လည်ပတ်ချိန်တွင် ထပ်တိုင်း သင့်ကြောင်း အကြံပြုပါသည်။

(ဂ) ဒေါ်သဲချိုအေး ၊ လက်ထောက် ညွှန်ကြားရေးမှူး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး

- ကျောက်မီးသွေးအားမည်သို့ သိုလှောင်မည်ကို သိလိုကြောင်း
- စနစ်တကျထိန်းသိမ်းကိုင်တွယ်ရန်
- ကျန်းမာရေး ထိခိုက်စေနိုင်သဖြင့် PPE များထုတ်ပေးသင့်ကြောင်း ဆွေးနွေးပါသည်။

(ဃ) ဦးမင်းမင်း၊ ဒေသခံ

ကျောက်မီးသွေးကို မည်သို့စီမံသိုလှောင်သုံးစွဲမည်ကို သိလိုကြောင်း ဖုံနှင့်ဓါတ်ငွေ့များ လွှတ်ထုတ်မှု မည်သို့ ထိန်းချုပ်ရန် အစီအစဉ်ရှိကြောင်းနှင့်စွန့်ပစ်ရေ စီမံခန့်ခွဲမည့်အစီအစဉ် သိလိုကြောင်း မီးကာကွယ်ရေး အတွက် စည်းရိုးပတ်လည်၌ မီးတားလမ်းများဖောက်ရန် အကြံပြုပါသည်။

(င) ဦးအောင်ကိုမင်း(အင်ဂျင်နီယာ) ရွှေပြည်တန်မှပြန်လည်ဆွေးနွေးချက်

စမ်းသပ်လည်ပတ်မှုမှရလာဒ် အပေါ်အခြေခံ၍စက်များ မွမ်းမံပြင်ဆင်လျက်ရှိကြောင်း၊ လိုအပ်ချက်များအား နည်းချက်များရှိနေကြောင်း၊ ပြင်ဆင်ဖြည့်စွက်ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း အစီရင်ခံစာပါအကြံပြုချက်များကိုလည်း လိုက်နာမည်ဖြစ်ကြောင်း ဖြေကြားပါသည်။

(စ) တတိယအကြံပေးအဖွဲ့မှ ပြန်လည်ဆွေးနွေးချက်

ဆွေးနွေးချက်များအတွက်ကျေးဇူးတင်ကြောင်းနှင့် အစီရင်ခံစာတွင်လိုအပ်သလို ဖြည့်စွက်သွားမည်ဖြစ်ကြောင်း၊ စက်ရုံမှ ဘေးကင်းကျန်းမာရေး၊ မီးကာကွယ်ရေးများကိုအထူးဂရုစိုက်ဆောင်ရွက်ရန် အကျယ်တဝင့်ဆွေးနွေးသွားပါသည်။

အဓိကအားဖြင့် ကျောက်မီးသွေးအမှုံများ အငွေ့အဖြစ်ငှင်း၊ အမှုံအဖြစ်ငှင်း၊ မိုးရေနှင့်အတူမျောပါဝိုင်းချောင်းမြောင်းများ လယ်ကွင်းများ မရောက်ရှိစေရေးစီမံရန် ဖြည့်စွက်ဆွေးနွေးပါသည်။

<u>ဆုံးဖြတ်ချက်</u>

(၁) စက်ရုံတွင် လုပ်သား/ဧည့်သည် ဝင်ထွက်မှတ်တမ်းထားရန်

(၂) အန္တရာယ်ကာကွယ်ရေး ဆိုင်းဘုတ်များ လိုအပ်သည့်နေရာများတွင်တပ်ဆင်ရန်

(၃) ခြံဝင်းပတ်လည်တွင် နွေရာသီ၌ မီးတားလမ်းဖောက်ခြင်း၊ မီးစောင့်ခြင်းဆောင်ရွက်ရန်

(၄) မီးသတ်သင်တန်းပို့ချခြင်း၊ မီးသတ်ဧရိယာ ၊ မီးသတ်ဘူး၊ ရေအလုံအလောက်ရှိစေရန်နှင့် အရေးပေါ်သည့်အခါဆောင်ရွက်ရန် စီမံချက်၊ တာဝန်ခံပုဂ္ဂိုလ်၊ ဆက်သွယ်ရန်ဌာနတို့ကို ကြိုတင်စီမံဆောင်ရွက်ရန်

(၅) စက်ရုံမှရေပြင်ပသို့ စွန့်လွှတ်ရာတွင်နှုန်းဖမ်းကန်ထား၍ အနည်ထိုင်စေပြီးစကာ ဖြတ်၍စီးစေရန်စီမံဆောင်ရွက်ရန်

(၆) ဤစီမံကိန်းအပေါ် ကန့်ကွက်ခြင်းမရှိပါ

(၇) CSR အစီအစဉ်အတွက် လုပ်ငန်းရှင်က အပြတ်ငွေ၏ ၂% ကိုကူညီရန်ကတိပြုသည်။

အစည်းအဝေးကို (၁၁:၄၀) တွင် ရုတ်သိမ်းပါသည်။

မှတ်တမ်းရေးသူ

(ဖြိုးမင်းထွေး)

ရက်စွဲ ၂၀၂၁၊ နိုဝင်ဘာလ (၂) ရက်

<u>ဖြန့်ဝေခြင်း</u>

- ဦးဆောင်ညွှန်ကြားရေးမှူး၊ သစ်လွင်သောကမ္ဘာ့ရွှေပြည်တန်ကုမ္ပဏီ
- ကြေညာသင်ပုံး
- IEEအစီရင်ခံတွင် နောက်ဆက်တွဲ၌ ဖော်ပြရန်

Attendance list

စက်အုတ်ထုတ်လုပ်ရောင်းချခြင်း လုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်းဆိုင်ရာ တွေ့ရှိချက်အား

အများပြည်သူအား ချပြခြင်းနှင့် တွေ့ဆုံဆွေးနွေးခြင်း တက်ရောက်သူများစာရင်း

SEE-Trust

Date 29.10.2021

စဉ်	အမည်	နိုင်ငံသားကဒ်အမှတ်	အလုပ်အကိုင်	ဌာန/ကျေးရွာ	လက်မှတ်	မှတ်ချက်
၁	[illegible]	[illegible]	[illegible]	[illegible]		
၂	[illegible]	[illegible]	[illegible]	"		
၃	[illegible]	[illegible]	[illegible]	[illegible]		
၄	[illegible]	-	[illegible]	"		
၅	[illegible]	SEE Trust	MD	Third Party		
၆	[illegible]	"	Staff	"		
၇	[illegible]	"	Staff	"		
၈	[illegible]	"	Staff	"		
၉						
၁၀						
၁၁						
၁၂						
၁၃						
၁၄						
၁၅						

စက်အုတ်ထုတ်လုပ်ရောင်းချခြင်း လုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်းဆိုင်ရာ တွေ့ရှိချက်အား အများပြည်သူအား ချပြခြင်းနှင့် တွေ့ဆုံဆွေးနွေးခြင်း တက်ရောက်သူများစာရင်း

SEE-Trust

Date 29.10.2021

စဉ်	အမည်	နိုင်ငံသားကဒ်အမှတ်	အလုပ်အကိုင်	ဌာန/ကျေးရွာ	လက်မှတ်	မှတ်ချက်
၁	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
၂	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
၃	[illegible]	[illegible]	[illegible]	52 ကျေးရွာ	[illegible]	
၄	[illegible]	[illegible]	[illegible]	52 ကျေးရွာ		
၅	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
၆	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
၇	[illegible]	–	–	–	[illegible]	
၈	[illegible]	[illegible]	[illegible]	52 ကျေးရွာ	[illegible]	
၉	[illegible]	[illegible]	[illegible]	52 ကျေးရွာ	[illegible]	
၁၀	[illegible]	[illegible]	〃	〃	[illegible]	
၁၁	[illegible]		[illegible]	〃	[illegible]	
၁၂	[illegible]		〃	[illegible]	[illegible]	
၁၃	[illegible]		[illegible]	52 ကျေးရွာ	[illegible]	
၁၄	[illegible]		[illegible]	〃	[illegible]	
၁၅	[illegible]		[illegible]	〃	[illegible]	

စက်အုတ်ထုတ်လုပ်ရောင်းချခြင်း လုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်းဆိုင်ရာ တွေ့ရှိချက်အား

အများပြည်သူအား ချပြခြင်းနှင့် တွေ့ဆုံဆွေးနွေးခြင်း တက်ရောက်သူများစာရင်း

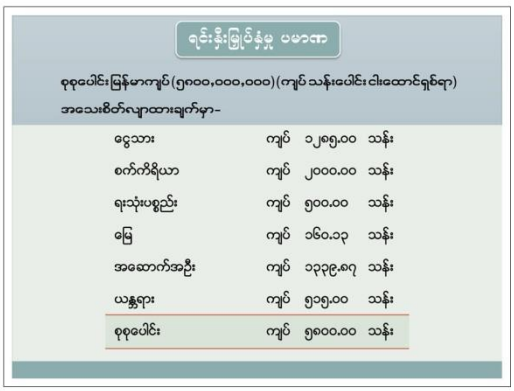
SEE-Trust

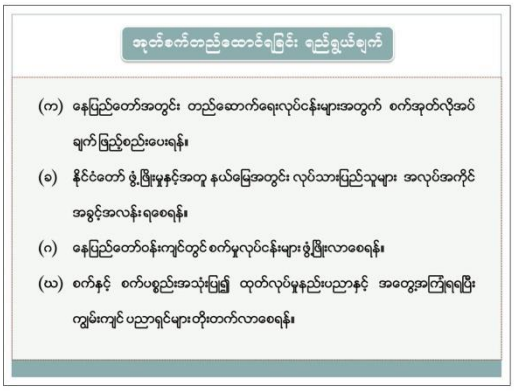
Date 29.10.2021

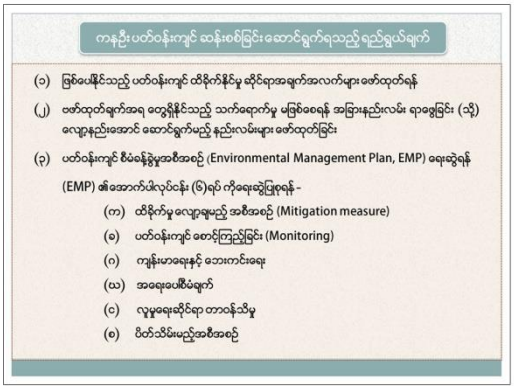
စဉ်	အမည်	နိုင်ငံသားကဒ်အမှတ်	အလုပ်အကိုင်	ဌာန/ကျေးရွာ	လက်မှတ်	မှတ်ချက်
၁	[illegible]	၉/ပမန(နိုင်)188143	[illegible]	52 ကျေးရွာ	[illegible]	
၂	[illegible]	၉/ပမန(နိုင်)203251	တောင်သူ	"	[illegible]	
၃	[illegible]		မှီခို	"	[illegible]	
၄	[illegible]		"	"	[illegible]	
၅	[illegible]	၉/ပမန(နိုင်)143693	ဝန်ထမ်း	"	[illegible]	
၆	[illegible]	၉/ပမန(နိုင်)203419	တောင်သူ	[illegible] ကျေးရွာ	[illegible]	
၇	[illegible]		ဝန်ထမ်း	52 ကျေးရွာ	[illegible]	
၈	[illegible]	၉/ပမန(နိုင်)196111	[illegible]	"	A4	
၉	[illegible]		ဝန်ထမ်း	"	[illegible]	
၁၀	[illegible]		"	"	[illegible]	
၁၁	[illegible]		မှီခို	52 ကျေးရွာ	[illegible]	
၁၂	[illegible]		မှီခို	52 ကျေးရွာ	[illegible]	
၁၃	[illegible]	၁၂/[illegible]0၁၂၁၇၄	steel structure	52 ကျေးရွာ	[illegible]	
၁၄	[illegible]	၉/[illegible]	[illegible]	52ကျေးရွာ	[illegible]	
၁၅	[illegible]	5/[illegible](နိုင်)0[illegible]97	ဝန်ထမ်း	"	Khaing	

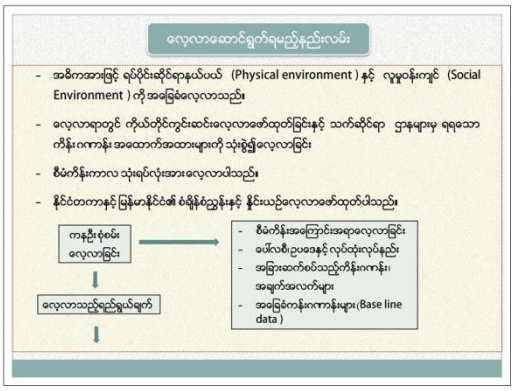
Power Point for Consultation meeting

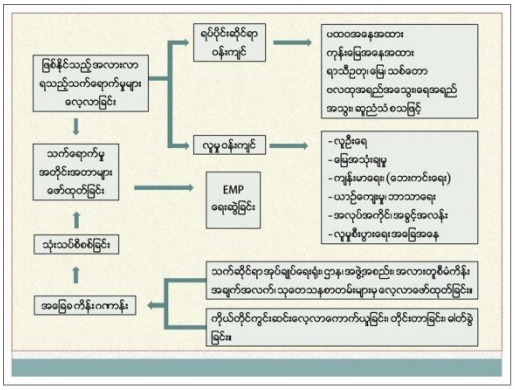
Appendix (I)

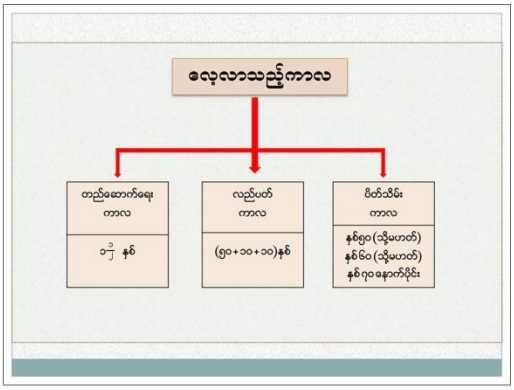


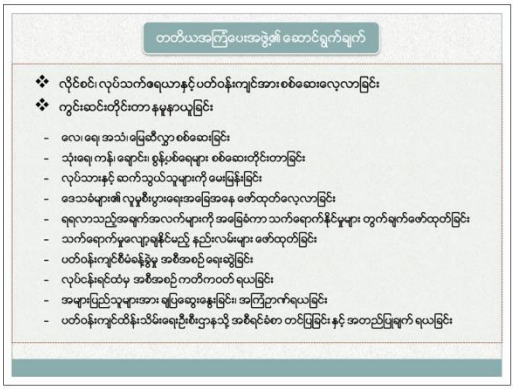


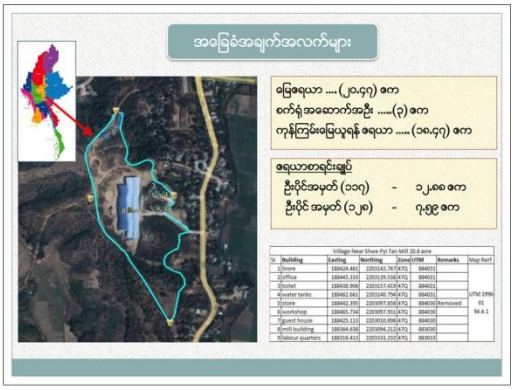


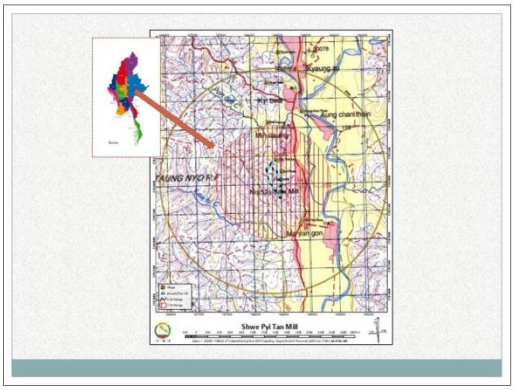


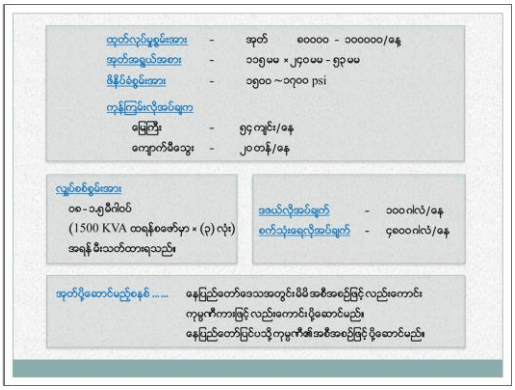

ဖြစ်နိုင်သည့်အလားအလာ ရသည့်သက်ရောက်မှုများ ဖေလ့လာခြင်း
ရင်ပိုင်းထိုင်ရာ ဝန်းကျင်
ပထဝအနေအထား ကုန်းမြေအနေအထား ရာသီဥတု၊မြေ သစ်တော ဝလထုအညွှေးအသွေးရေအရည် အသွေး ရည်သံ စသဖြင့်
လူမှုဝန်းကျင်
- လူဦးရေ
- မြေအသုံးချမှု
- ကျန်းမာရေး၊ (ဘေးကင်းရေး)
- ယဉ်ကျေးမှု၊ ဘာသာရေး
- အလုပ်အကိုင်၊အခွင့်အလန်း
- လူမှုစီးပွားရေးအခြေအန
EMP ရေးဆွဲခြင်း
သက်ရောက်မှု အတိုင်းအတာများ ဖော်ထုတ်ခြင်း
သုံးသပ်စီစစ်ခြင်း
အခြေခံကိန်းဂဏန်း
သက်ဆိုင်ရာအုပ်ချုပ်ရေးရုံး၊ဌာန၊အခွံအစည်း၊ အလားတူစီမံကိန်း အချက်အလက်၊ သုတေသနစာတမ်းများမှ ဖေလ့လာဖော်ထုတ်ခြင်း။
ကိုယ်တိုင်ကွင်းဆင်းလေ့လာကောက်ယူခြင်း။ တိုင်းတာခြင်း။ ဓါတ်ခွဲခြင်း။

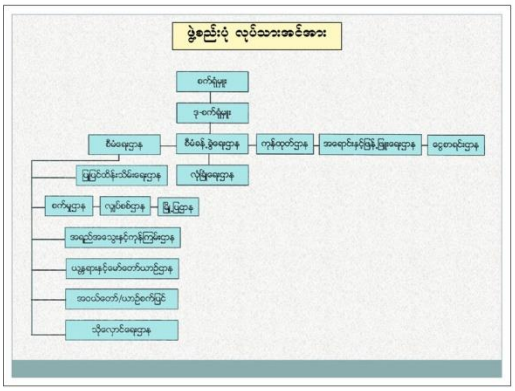

ဖလ့်လာသည့်ကာလ
တည်ဆောက်ရေး ကာလ
၁၂ နှစ်
လည်ပတ် ကာလ
(၅၀+၁၀+၁၀)နှစ်
ပိတ်သိမ်း ကာလ
နှစ်၅၀ (သို့မဟတ်) နှစ်၆၀ (သို့မဟတ်) နှစ်၇၀ နောက်ပိုင်း

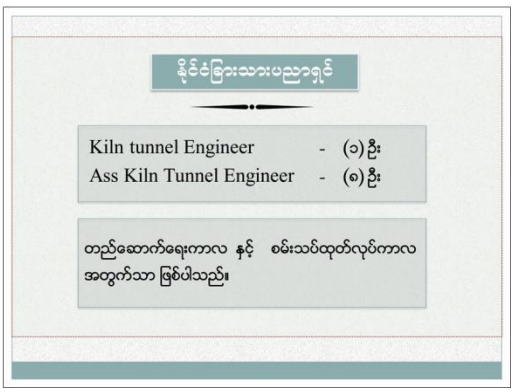

တတိယအကြိမ်ပေးအခွဲ၏ ဆောင်ရွက်ချက်
❖ လိုင်စင်၊ လုပ်သက်ဖလ့ယာနှင့် ပတ်ဝန်းကျင်အား စစ်ဆေးဖလ့လာခြင်း
❖ ကွင်းဆင်းတိုင်းတာ နမူနာယူခြင်း
- လေ၊ ရေ အသံ၊ မြေဆီလွှာ စစ်ဆေးခြင်း
- သုံးရေ ကန်၊ ချောင်း၊ ရွှံနှံစ်ရေများ စစ်ဆေးတိုင်းတာခြင်း
- လုပ်သားနှင့် ဆက်သွယ်သူများကို မေးမြန်းခြင်း
- ဒေသခံများ၏ လူမှုစီးပွားရေးအခြေအန ဖော်ထုတ်ဖလ့လာခြင်း
- ရရလာသည့်အချက်အလက်များကို အခြေခံကာ သက်ရောက်နိုင်မှုများ တွက်ချက်ဖော်ထုတ်ခြင်း
- သက်ရောက်မှုလျော့ချနိုင်မည့် နည်းလမ်းများ ဖော်ထုတ်ခြင်း
- ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် ရေးဆွဲခြင်း
- လုပ်ငန်းရင်ထဲမှ အစီအစဉ် ကတိကဝတ် ရယူခြင်း
- အများပြည်သူများအား ချပြဆွေးနွေးခြင်း၊ အကြံဉာဏ်ရယူခြင်း
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ အစီရင်ခံစာ တင်ပြခြင်းနှင့် အတည်ပြုချက် ရယူခြင်း

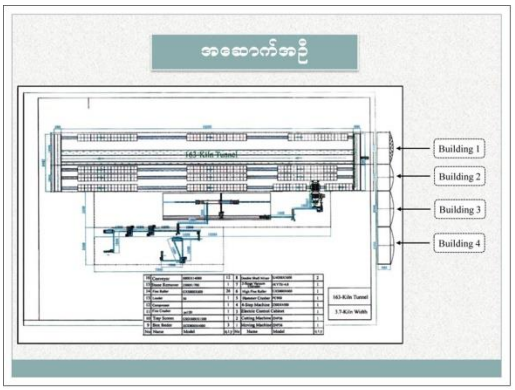

အခြေခံအချက်အလက်များ
မြေဧရိယာ ....(၂၈.၄၇) ဧက
စက်ရုံအဆောက်အဦး .....(၃) ဧက
ကုန်ကြမ်းမြေယူရန် ဧရိယာ .....(၁၈.၄၇) ဧက
ဧရိယာစာရင်းဇယ်
ဦးပိုင်အမှတ် (၁၀၇) - ၁၂.၈၀ ဧက
ဦးပိုင် အမှတ် (၁၂၈) - ၇.၉၉ ဧက

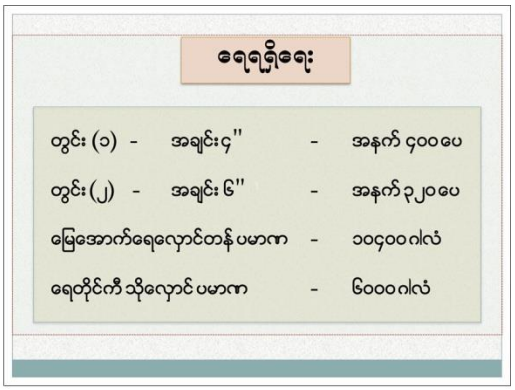

Shwe Pyi Tan Mill

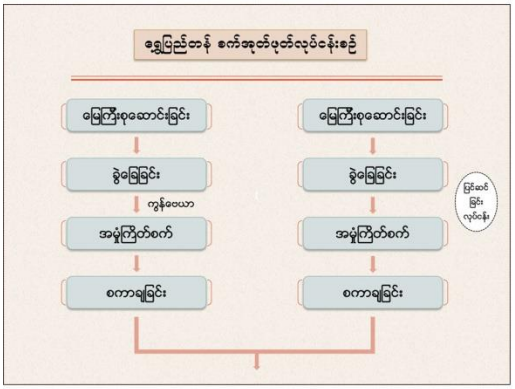

ထုတ်လုပ်မှုစွမ်းအား - အုတ် ၈၀၀၀၀ - ၁၀၀၀၀၀/ဝန
အုတ်အရွယ်အစား - ၁၃၅မမ × ၂၄၀မမ - ၅၃မမ
ဖိနှိပ်စွမ်းအား - ၁၅၀၀ ~ ၁၇၀၀ psi
ကုန်ကြမ်းလိုအပ်ချက်
ဓမြေကြီး - ၅၄ ကျူး/ဝန
ကျောက်မီသွေး - ၂၀တန်/ဝန
လျှပ်စစ်စွမ်းအား
၀၈ - ၁၅၅မီဂါဝပ်
(1500 KVA ထရန်စဖော်မာ × (၃) လုံး)
အရန် မီးသတ်ထားရသည်။
ဒေသလိုအပ်ချက် - ၁၀၀ဂါလံ/ဝန
စက်သုံးရေလိုအပ်ချက် - ၄၈၀၀ဂါလံ/ဝန
အုတ်ပို့ဆောင်မည့်ဝန်စ် .... နေပြည်တော်ဒေသအတွင်းမိမိ အစီအစဉ်ဖြင့် လည်ကောင်း ကုမ္ပဏီကာဖြင့် လည်းကောင်း ပို့ဆောင်မည်။
နေပြည်တော်ပြင်ပသို့ ကုမ္ပဏီ၏အစီအစဉ်ဖြင့် ပို့ဆောင်မည်။

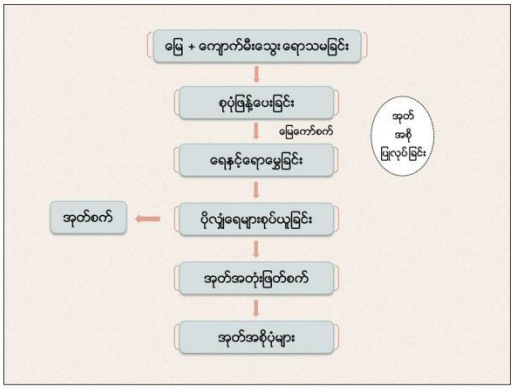

ပွဲစည်းပုံ လုပ်သားအင်အား
စက်ရုံမှူး
ဒု-စက်ရုံမှူး
စီမံရေးဌာန
စီမံနှိန်းခြေရေးဌာန
ကုန်ထုတ်ဌာန
အရောင်းနှင့်ဖြန့်ဖြူးရေးဌာန
ဥစ္စာရင်းဌာန
ပြည်ပသိန်းသိမ်းရေးဌာန
လုံခြုံရေးဌာန
စက်မှုဌာန
လျှပ်စစ်ဌာန
မြို့ပြဌာန
အရည်အသေးနှင့်ကုန်ကြမ်းဌာန
ယန္တရားနှင့်ဖော်တော်ယာဉ်ဌာန
အဝယ်တော်/ယာဉ်စက်မြင်
သို့လှောင်ရေးဌာန

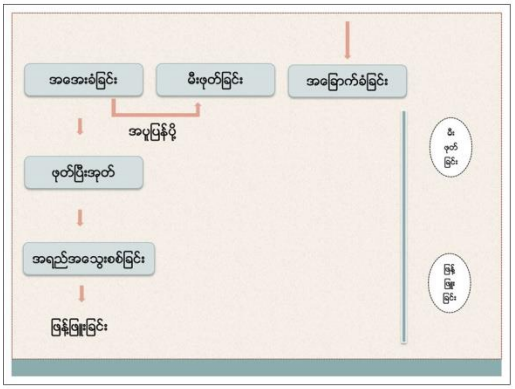

နိုင်ငံခြားသားပညာရှင်
Kiln tunnel Engineer - (၁) ဦး
Ass Kiln Tunnel Engineer - (၈) ဦး
တည်ဆောက်ရေးကာလ နှင့် စမ်းသပ်ထုတ်လုပ်ကာလ အတွက်သာ ဖြစ်ပါသည်။

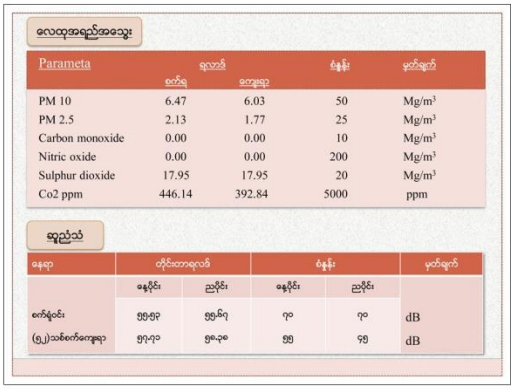










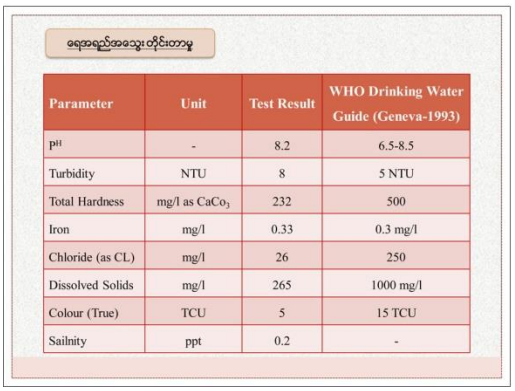


လေထုအရည်အသွေး

Parameta	ရလာဒ် စက်ရုံ	ရလာဒ် ကျေးရွာ	စံနှုန်း	မှတ်ချက်
PM 10	6.47	6.03	50	Mg/m^3
PM 2.5	2.13	1.77	25	Mg/m^3
Carbon monoxide	0.00	0.00	10	Mg/m^3
Nitric oxide	0.00	0.00	200	Mg/m^3
Sulphur dioxide	17.95	17.95	20	Mg/m^3
Co2 ppm	446.14	392.84	5000	ppm

ဆူညံသံ

နေရာ	တိုင်းတာရလဒ် နေ့ပိုင်း	တိုင်းတာရလဒ် ညပိုင်း	စံနှုန်း နေ့ပိုင်း	စံနှုန်း ညပိုင်း	မှတ်ချက်
ကော်ရံဝင်း	၅၅.၅၃	၅၅.၆၇	၇၀	၇၀	dB
(၅၂)သစ်ကောင်းရာ	၅၇.၇၁	၅၈.၃၈	၅၅	၄၅	dB

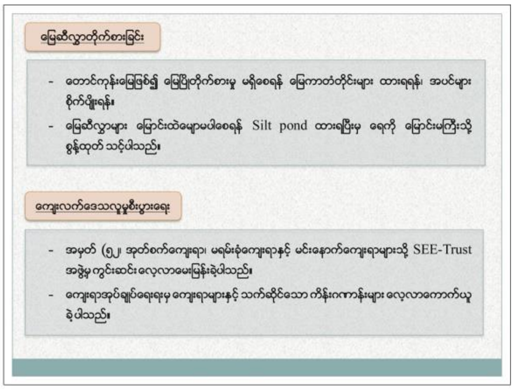


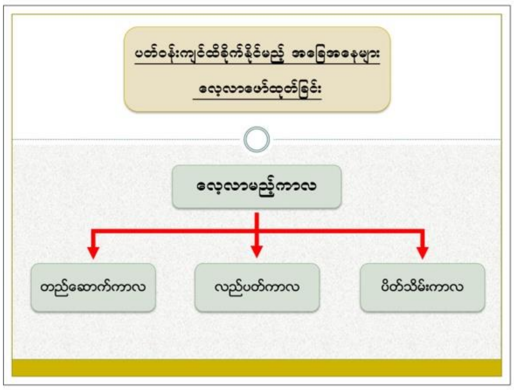
ရေအရည်အသွေး တိုင်းတာမှု

Parameter	Unit	Test Result	WHO Drinking Water Guide (Geneva-1993)
PH	-	8.2	6.5-8.5
Turbidity	NTU	8	5 NTU
Total Hardness	mg/l as $CaCo_3$	232	500
Iron	mg/l	0.33	0.3 mg/l
Chloride (as CL)	mg/l	26	250
Dissolved Solids	mg/l	265	1000 mg/l
Colour (True)	TCU	5	15 TCU
Sailnity	ppt	0.2	-

ရေအိမ် (အိမ်သာ)

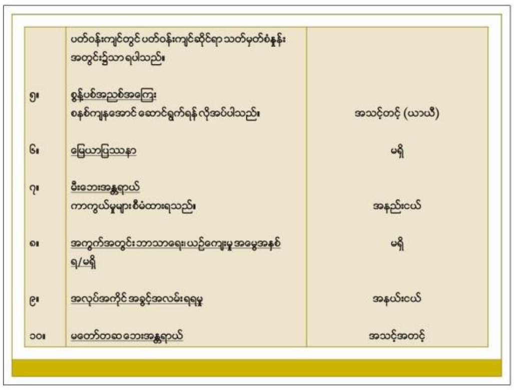
လုပ်သားဦးရေ	အနည်းဆုံးရ သင့်သည့်စံနှုန်း (ကမ္ဘာ့ဘဏ်)	ထားရှအရေအတွက်
၁-၅	၁	အိမ်သာ (၁၅)လုံးရှိသဖြင့် လူ (၉၂)ဦးရှိသည့် စက်ရုံ အတွက် လုံလောက်ပါသည်။
၁၆-၃၅	၂	
၃၆-၅၅	၃	
၅၆-၈၀	၄	
၈၁-၁၁၀	၅	
၁၁၁-၁၅၀	၆	





တည်ဆောက်ရေးကာလ

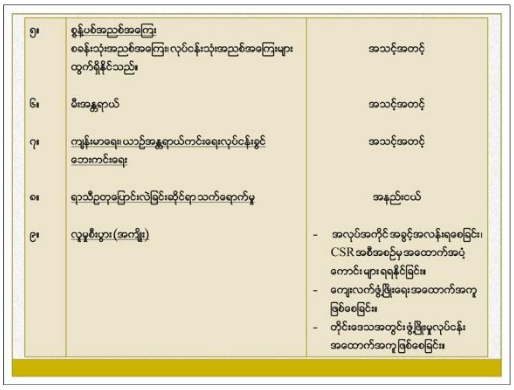
စဉ်	ထိခိုက်နိုင်ခြေများ	ထိခိုက်နိုင်မှု ပမာဏ
၁။	အမြင်ပသာဒ တည်ဆောက်ရေးလုပ်ငန်းဆောင်ရွက်စဉ် တောဖြိုခြင်း၊ မြေတူးခြင်း များကြောင့် ပသာဒအလှအား ယာယီထိခိုက် စေနိုင်သည်။	အနည်းငယ် (ယာယီ)
၂။	လေထုအရည်အသွေး မြေတူးလုပ်ငန်း၊ တည်ဆောက်ရေးလုပ်ငန်းကြောင့် အမှုန် အမွှား ပျံ့လွင့်မှုရှိ။	အသင့်အတင့် (ယာယီ)
၃။	စွန့်ပစ်ရေအရည်အသွေး	
၄။	ဆူညံသံတုန်ခါမှု စက်ရုံအတွင်း စက်ယန္တရားအသံများ ဆူညံမှုရှိသည်။	အနည်းငယ်



	ပတ်ဝန်းကျင်တွင် ပတ်ဝန်းကျင်ဆိုင်ရာ သတ်မှတ်စံနှုန်း အတွင်း၌သာ ရှိပါသည်။	
၅။	စွန့်ပစ်အညစ်အကြေး စနစ်ကျနအောင် ဆောင်ရွက်ရန် လိုအပ်ပါသည်။	အသင့်တင့် (ယာယီ)
၆။	မြေယာပြဿနာ	မရှိ
၇။	မီးဘေးအန္တရာယ် ကာကွယ်မှုများ စီမံထားရသည်။	အနည်းငယ်
၈။	အကွက်အတွင်း ဘာသာရေး ယဉ်ကျေးမှု အမွေအနှစ် ရှိ/မရှိ	မရှိ
၉။	အလုပ်အကိုင် အခွင့်အလမ်းရရှိမှု	အနယ်းငယ်
၁၀။	မတော်တဆ ဘေးအန္တရာယ်	အသင့်အတင့်

လည်ပတ်ကာလ

စဉ်	ထိခိုက်နိုင်ခြေများ	ထိခိုက်နိုင်မှု ပမာဏ
၁။	လေထုအရည်အသွေး မြေတူးခြင်း၊ သယ်ပို့ခြင်း၊ ကျောက်မီးသွေးသယ်ပို့ခြင်း ကျောက်မီးသွေးဖြင့် မီးဖိုခြင်း၊ ဘွိုင်လာမှအခိုးအငွေ့လွှတ် ထုတ်ခြင်း။	အသင့်အတင့်
၂။	ရေထုအရည်အသွေး မြေတွင်းသို့ ကျောက်မီးသွေးအမှုံအမွှားနှင့် ဓါတုစိမ့်ဝင်မှု ကြောင့် မြေအောက်ရေ အရည်အသွေးထိခိုက်နိုင်သည်။	အနည်းငယ်
၃။	မြေအောက်ရေရရှိမှု တစ်နှစ်လျှင် သုံးစွဲမှုရေပမာဏ များပြားသဖြင့် နှစ်ရှည် ကာလအတွက် ထိခိုက်မှု ရနိုင်သည်။	အသင့်အတင့်
၄။	ဆူညံသံ စက်ရုံမှ စက်များ၊ မီးစက်များ၊ ယန္တရားများမှ အသံများ ထွက်ရှိနိုင်ပါသည်။	အသင့်အတင့်



၅။	စွန့်ပစ်အညစ်အကြေး စခန်းသုံးအညစ်အကြေး၊ လုပ်ငန်းသုံးအညစ်အကြေးများ ထွက်ရှိနိုင်သည်။	အသင့်အတင့်
၆။	မီးအန္တရာယ်	အသင့်အတင့်
၇။	ကျန်းမာရေး၊ ယာဉ်အန္တရာယ်ကင်းရေးလုပ်ငန်းခွင် ဘေးကင်းရေး	အသင့်အတင့်
၈။	ရာသီဥတုပြောင်းလဲခြင်းဆိုင်ရာ သက်ရောက်မှု	အနည်းငယ်
၉။	လူမှုစီးပွား (အကျိုး)	- အလုပ်အကိုင် အခွင့်အလန်းရစေခြင်း၊ CSR အစီအစဉ်မှ အထောက်အပံ့ ကောင်းများ ရရှိနိုင်ခြင်း။ - ကျေးလက်ဖွံ့ဖြိုးရေး အထောက်အကူ ဖြစ်စေခြင်း။ - တိုင်းဒေသအတွင်း ဖွံ့ဖြိုးမှုလုပ်ငန်း အထောက်အကူ ဖြစ်စေခြင်း။

ပိတ်သိမ်းကာလ

(ကြိုတင်ခန့်မှန်းချက်သာဖြစ်ပါသည်။)

စဉ်	ထိခိုက်နိုင်ခြေများ	ထိခိုက်နိုင်မှု ပမာဏ
၁။	အမြင်ပသာဒ ဖျက်သိမ်းပြီး ပြန်လည်တည်ဆောက်ခြင်း (Forest rehabilitation) ဆောင်ရွက်စဉ်ကာလ အမြင်ဆိုးနိုင် ပါသည်။	အနည်းငယ် (ယာယီ)
၂။	လေထုအရည်အသွေး ဖျက်သိမ်းလုပ်ငန်းကြောင့် လေထုအရည်အသွေး ယာယီ ထိခိုက်နိုင်မည်။	အနည်းငယ် (ယာယီ)
၃။	ဆူညံသံ	အနည်းငယ် (ယာယီ)
၄။	စွန့်ပစ်အညစ်အကြေး	အသင့်အတင့် (ယာယီ)

၅။	ဘေးအန္တရာယ် ကင်းရှင်းရေး	အသင့်အတင့် (ယာယီ)
၆။	မြေအောက်ရေရရှိမှု မြေအောက်ရေ ပမာဏနှင့် အရည်အသွေးနှင့် နှစ်ရှည်ကာလ သုံးစွဲမှု၊ စက်လည်ပတ်မှုကြောင့် ပမာဏနှင့် အရည်အသွေးထိခိုက်နိုင်သည်။	
၇။	ဇီဝမျိုးစုံမျိုးကွဲ ထိခိုက်မှု အသံ၊ ဗလထုအရည်အသွေး၊ စီးဆင်းရေ မသန့်စင်ပါက ချောင်းများ၌ မှီခိုသည့် သတ္တဝါများအား ထိခိုက်နိုင်ချေရသည်။	အနည်းငယ်

အစီရင်စံစာပြုစုရေးဆွဲကာလအတွင်း ထိခိုက်မှုလျော့ချခြင်းဆောင်ရွက်ရန် (Mitigation measure)

စဉ်	သက်ရောက်မှု	အကြောင်းအရင်း	လျော့ချရေးနည်းလမ်း
၁။	အမြင်ပသာဒ	- တည်ဆောက်ရေးလုပ်ငန်းအတွက် မြေယာ ရှင်းလင်းခြင်း - ဆောက်လုပ်ဆဲလုပ်ငန်းနှင့် ပစ္စည်းများစုပုံခြင်း	- မြေနေရာရှင်းလင်းပြုပြင်ခြင်း၊ သစ်ပင်၊ ပန်းပင်များ၊ မြေကာပင်များ စိုက်ပျိုးရန်
၂။	လေထုအရည်အသွေး	- မြေယာရှင်းလင်းခြင်း - သယ်ယူတူးယူ သယ်ပို့ခြင်း - ဆောက်လုပ်ရေးလုပ်ခြင်း - စက်ရုံလည်ပတ်ခြင်း - ကျောက်မီးသွေးစုပုံခြင်း၊ သယ်ယူခြင်း - ဘွိုင်လာမှ အခိုးအငွေ့ထွက်ရှိခြင်း	- လုပ်ငန်းခွင်၌ ဖုံမထအောင်ရေဖျန်းခြင်း၊ ကာကွယ်ခြင်း - စက်ရုံလည်ပတ်အပင်များ စိတ်စိတ်စိုက်ပေးခြင်း - သယ်ပို့ရာ၌ ဖုံးအုပ်၍ သယ်ပို့ခြင်း - ဘွိုင်လာကို အခိုးအငွေ့၊ ပြာမထွက် သည့် ခေတ်မီ ဘွိုင်လာစနစ်ကို သုံးစွဲရန်နှင့် အမြဲ မွမ်းမံ စစ်ဆေးရန် - ယာဉ်/အန္တရာယ်ကြိုးနိုင်ရေးဆောင် ရက်ရန်။
၃။	ဆူညံသံ	တည်ဆောက်ရေးလုပ်ငန်းခွင်မှ အသံများ - စက်ရုံမှ အသံများ - မီးစက်မှ အသံများ - ယာဉ်ယန္တရားအသံများ	- လူခြေအိတ်ချိန်နှင့် အများပြည်သူရုံးပိတ်ရက်များ ဆူညံသည့်ကိစ္စရပ်များ မဆောင်ရွက်ရန် - လိုအပ်ပါက အသံထိန်းစနစ်များ ဆောင်ရွက်ရန် - မီးစက်အား အသံလုံမီးစက်သုံးခြင်း (သို့) နေရာင်ခြည်စွမ်းအင် သုံးစွဲရန်
၄။	မြေပေါ်ရေ အရည်အသွေး	- စီးဆင်းရေများတွင် အနည်အနစ်၊ အညစ်အကြေးများ ကျောက်မီးသွေးမှုံများကြောင့် ပင်မမြောင်း/ချောင်းရေများအား ညစ်ညမ်းစေခြင်း	- စက်ရုံအတွင်း ရေမြောင်းမှ ပြင်ပသို့ ရေမလွှတ်ထုတ်မီ နန်းဖမ်းကန်ထား၍ အနည်ထိုင်စေပြီးမှ ရေစွန့်လွှတ်ထုတ်ရန်
၅။	မြေအောက်ရေ အရည်အသွေး	- ဓါတ်ဆီ ချောဆီ ယဖိတ်မှုမှ စိမ့်ဝင်နိုင်သည်။ - ကျောက်မီးသွေးမှ စိမ့်ဝင်မှု	- ဓါတ်ဆီ ချောဆီ မဖိတ်စေရန် သိုလှောင်ရာတွင် (Secondary containment) ထားရန် - ယန္တရားများကြံ့ခိုင်ရေးပြုလုပ်ရန်
			- စက်ယန္တရား ဆေးကြောရေများမှ စိမ့်ဝင်ခြင်း မဖြစ်စေရန် စီမံရန်
၉။	စွန့်ပစ်ပစ္စည်း	- စီမံခန့်ခွဲမှုအားနည်းမှုကြောင့် ဖြစ်ပေါ်တတ်သည်။ - လုပ်သားများတွင်လည်း မလိုက်နာမှုကြောင့် ဖြစ်နိုင်သည်။	- စနစ်တကျ အမှိုက်စုခြင်း၊ စနစ်တကျစွန့်ပစ်ခြင်း၊ အမှိုက်အမျိုးအစားခွဲခြားစွန့်ပစ်ခြင်း၊ အမှိုက်စွန့်ရာ၌ ကားပေါ်ရှိအမှိုက်ကို ဖုံးအုပ်သယ်ဆောင်ရန် - ပြန်လည်သုံးနိုင်သည့်ပစ္စည်းများကို သီးခြားစုဆောင်းထုခွဲရန် - ဆေးလိပ်၊ ကွမ်း၊ အစားအသောက်များ စနစ်တကျ စီမံစွန့်ပစ်ရန်
၁၀။	မီးဘေးအန္တရာယ်	- ဘွိုင်လာမီးဖိုများ၊ စက်သုံးဆီများ၊ ယန္တရားများကြောင့် မီးလောင်ကျွမ်း ဖြစ်စေနိုင်ပါသည်။	- မီးကာကွယ်ရေးစီမံချက်ရေးဆွဲရန် - အသိပေးဆိုင်းဘုတ် ရေးဆွဲရန် - လုပ်ငန်းခွင်တွင် ဆေးလိပ်သောက်သုံးခြင်း မပြုရန် - လျှပ်စစ်ပိုင်းဆိုင်ရာ၊ စက်ပိုင်းဆိုင်ရာ၊ ယန္တရား
			- ပိုင်းဆိုင်ရာ ကြံ့ခိုင်ရေးကောင်းအောင် ဆောင်ရက်ရန် - မီးသတ်သင်တန်းများပို့ချခြင်း - မီးသတ်ခြင်းကို ဇတ်တိုက်လေ့ကျင့်ခြင်း
၁၁။	ဘေးအန္တရယ် ကာကွယ်ခြင်း	လုပ်ငန်းခွင်ကြောင့် လည်းကောင်း၊ သဘာဝဘေးအန္တရာယ်ကျရောက်ခြင်းကြောင့် လည်းကောင်းဖြစ်နိုင်သည်။	- ဘေးအန္တရာယ်ကင်း ဆိုင်းဘုတ်ထားခြင်း - ထုတ်ပေး၍ သုံးဆွဲစေခြင်း - ဘေးအန္တရာယ် ကာကွယ်ရေးအစီအစဉ်များ ထားရခြင်း - အန္တရာယ်ကြုံက စုရန်၊ စုရပ် သတ်မှတ်ခြင်း - သူနာပြု လက်စွဲများ လေ့ကျင့်ပေးခြင်း

အရေးပေါ်စီမံချက်

ကြိုတင်ကာကွယ်ရေး နည်းလမ်း	ဖြစ်ပွားရှိန် အတည်ပြုပြီး ဖြေရှင်းမည့်နည်းလမ်း	ပြန်လည်ထူထောင်မည့် ကာလ
❑ မီးသတ်ပစ္စည်း ကိရိယာများထားရှိခြင်း ❑ လုံလောက်သော မီးသတ်ရန် ရေပမာဏ၊ သဲပုံးများ၊ အသင့်ထားရှိခြင်း ❑ မြင်လွယ်၊ ကြားလွယ်သော အချက်ပေးစနစ်များ တပ်ဆင်ခြင်း ❑ သတိပေးဆိုင်းဘုတ်များ ထားရှိခြင်း ❑ မီးဘေးအန္တရာယ် သင်တန်းပေးခြင်း ❑ အရေးပေါ် မီးဘေးအန္တရာယ် သရုပ်ပြလေ့ကျင့်ပေးခြင်း	❑ အရေးပေါ် အခြေအနေအား အခြားနေရာများသို့ မပြန့်ပွားစေရန် ဆောင်ရွက်ခြင်း ❑ လူနှင့်ပစ္စည်းပျက်စီးဆုံးရှုံးမှု အနည်းဆုံးဖြစ်စေခြင်း ❑ ထိရောက်သော ကယ်ဆယ်မှုနှင့် ဆေးဝါးကုသမှုပေးခြင်း ❑ ဘေးကင်းရာသို့ ပို့ဆောင်ပေးခြင်း	❑ သက်ဆိုင်ရာတာဝန်ရှိသူများ၊ သက်ဆိုင်ရာ အဖွဲ့အစည်းများနှင့် ပူးပေါင်းဆောင်ရွက်ခြင်း

လူမှုရေးတာဝန်သိမှု

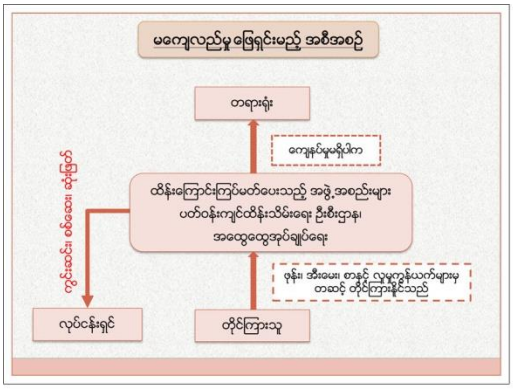
အကျိုးအမြတ်၏ ၂% ကို လူမှုရေးတာဝန်သိမှုရန်ပုံငွေ (CSR) အဖြစ် လုပ်ငန်းရှင်မှ ကတိကဝတ်ပြုကြသည်။

- ဘာသာရေး
- ပညာရေး၊ ကျန်းမာရေး၊
- ဒေသဖွံ့ဖြိုးရေး

→ လုပ်ငန်းများသုံးစွဲရန်

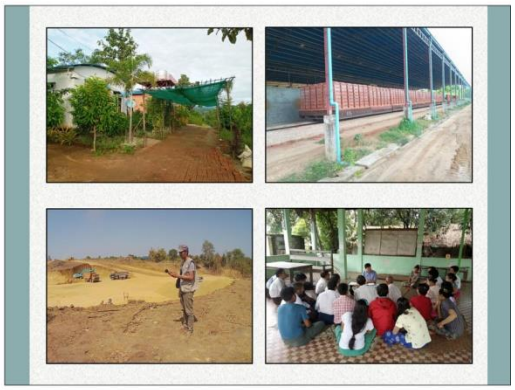
ရန်ပုံငွေလျာထား

- လုပ်ငန်းရှင်မှ ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေး၊ စောင့်ကြပ်ကြည့်ရှုခြင်း လုပ်ငန်းများကို စီမံကိန်းလုပ်ငန်းဆောင်ရွက်စဉ်နှင့် ပိုင်းပိတ်သိမ်း
- ကာလများအတွက် ကျသင့်မည့် ငွေများကိုသုံးစွဲ၍ လျာထားတွက်ချက်ထားပါသည်။


မကျေလည်မှု ဖြေရှင်းမည့် အစီအစဉ်
တရားရုံး
ကျေနပ်မှုမရှိပါက
ထိန်းကြောင်းကြပ်မတ်ပေးသည့် အဖွဲ့အစည်းများ
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာန၊
အထွေထွေအုပ်ချုပ်ရေး
ကွင်းဆင်း စစ်ဆေး ဆုံးဖြတ်
ဒုန်း၊ အီးမေး၊ စာနှင့် လူမှုကွန်ယက်များမှ
တဆင့် တိုင်ကြားနိုင်သည်
လုပ်ငန်းရှင်
တိုင်ကြားသူ


တိုင်ကြားနိုင်စေသာ လိပ်စာ
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ နေပြည်တော်၊
- အထွေထွေ အုပ်ချုပ်ရေးဦးစီးဌာန၊ ဥက္ကဋ္ဌသံရိပ်တော်၊
- အုပ်ချုပ်မှုဝါရိုက်တာ၊ နယူးဝေလ် ရွှေပြည်တန် အုတ်ဧက်၊
- ဒုန်း - ၀၉၉၇၉ ၄၆၃၄
- အီးမေးလ် - nainglin.spt@gmail.com
အကြံပြုလိုပါက
- အုပ်ချုပ်မှုဝါရိုက်တာ၊ နယူးဝေလ်ရွှေပြည်တန် ကုမ္ပဏီ၊
- ဆီးထရပ်စ်၊ နေဝန်းမြတ်ကုမ္ပဏီလီမိတက်၊
- တတိယအကြိမ်ပေးအဖွဲ့ - ဒုန်း - ၀၉၅၁ ၆၃၄၄
- အမှတ် ၄၂ ပညာတန်ဆောင်လမ်း၊ (၄၃)ရပ်ကွက်၊ မြောက်ဒဂုံမြို့နယ်၊ ရန်ကုန်မြို့
- အီးမေးလ် - naywunmyat1@gmail.com


မှတ်တမ်းတင်ဓါတ်ပုံများ
SAFETY FIRST
ENVIRONMENTAL QUALITY MEASUREMENT IN PROGRESS




ပါဝင်ဆွေးနွေးအကြံပြုပါရန်
မိတ်ဧကို အဖိပါသည်။

Air quality result

Appendix (J)

24 hours continuous measurement of ambient air quality Point_1 at Nay Pyi Taw (13/October/2021 – 14/October/2021)

Date	Time	PM 10 µg/m^3	PM 2.5 µg/m3	CO (mg/m3)	NO_2 (µg/m3)	SO_2 (µg/m3)	CO2 (ppm)
13.10.2021	18:00-18:59	13.14	13.88	0.000000	0.00	0.00	390.25
13.10.2021	19:00-19:59	12.70	7.53	0.000000	0.00	35.81	386.10
13.10.2021	20:00-20:59	3.50	1.50	0.000000	0.00	52.73	400.93
13.10.2021	21:00-21:59	2.00	1.00	0.000000	0.00	32.04	422.37
13.10.2021	22:00-22:59	2.00	1.00	0.000000	0.00	114.01	425.85
13.10.2021	23:00-23:59	2.00	1.00	0.000000	0.00	40.98	428.35
14.10.2021	0:00-0:59	2.00	1.00	0.000000	0.00	14.85	455.50
14.10.2021	1:00-1:59	2.00	1.00	0.000000	0.00	0.26	480.40
14.10.2021	2:00-2:59	2.00	1.00	0.000000	0.00	0.00	506.08
14.10.2021	3:00-3:59	2.00	1.00	0.000000	0.00	0.00	515.20
14.10.2021	4:00-4:59	2.00	1.00	0.000000	0.00	2.66	514.50
14.10.2021	5:00-5:59	2.00	1.00	0.000000	0.00	100.91	534.87
14.10.2021	6:00-6:59	2.00	1.00	0.000000	0.00	13.19	544.82
14.10.2021	7:00-7:59	2.00	1.00	0.000000	0.00	4.02	518.05
14.10.2021	8:00-8:59	8.68	1.00	0.000000	0.00	3.28	467.23
14.10.2021	9:00-9:59	19.28	1.00	0.000000	0.00	2.31	454.60
14.10.2021	10:00-10:59	32.48	1.00	0.000000	0.00	1.53	447.45
14.10.2021	11:00-11:59	2.00	1.00	0.000000	0.00	1.05	436.63
14.10.2021	12:00-12:59	15.53	1.00	0.000000	0.00	1.62	419.27
14.10.2021	13:00-13:59	16.55	5.63	0.000000	0.00	2.27	405.83
14.10.2021	14:00-14:59	3.33	1.67	0.000000	0.00	2.88	394.37
14.10.2021	15:00-15:59	2.00	1.00	0.000000	0.00	1.53	390.63
14.10.2021	16:00-16:59	2.00	1.00	0.000000	0.00	1.12	386.37
14.10.2021	17:00-17:59	2.00	2.82	0.000000	0.00	1.64	381.80

Date	Time	PM 10 µg/m^3	PM 2.5 µg/m3	CO (mg/m3)	NO_2 (µg/m3)	SO_2 (µg/m3)	CO2 (ppm)
	Average (24 hr)	6.47	2.13	0.000000	0.00	17.95	446.14
	Max	32.48	13.88	0.000000	0.00	114.01	544.82
	Min	2.00	1.00	0.000000	0.00	0.00	381.80
	Guidelines	**50 µg/m3**	**25 µg/m3**	**10 mg/m3**	**200 µg/m3**	**20 µg/m3**	**5000ppm**
	Source	**NEQEG**	**NEQEG**	**WHO**	**NEQEG**	**NEQEG**	**ACGIH**

24 hours continuous measurement of ambient air quality Point_2 at Nay Pyi Taw (14/October/2021 – 15/October/2021)

Date	Time	PM 10 µg/m^3	PM 2.5 µg/m3	CO (mg/m3)	NO_2 (µg/m3)	SO_2 (µg/m3)	CO2 (ppm)
14.10.2021	18:00-18:59	15.40	8.72	0.000000	0.00	0.00	384.85
14.10.2021	19:00-19:59	23.20	5.97	0.000000	0.00	35.81	408.33
14.10.2021	20:00-20:59	2.00	1.00	0.000000	0.00	52.73	445.42
14.10.2021	21:00-21:59	2.00	1.00	0.000000	0.00	32.04	464.38
14.10.2021	22:00-22:59	2.00	1.22	0.000000	0.00	114.01	434.48
14.10.2021	23:00-23:59	2.00	1.00	0.000000	0.00	40.98	391.38
15.10.2021	0:00-0:59	2.00	1.00	0.000000	0.00	14.85	339.82
15.10.2021	1:00-1:59	2.00	1.00	0.000000	0.00	0.26	326.67
15.10.2021	2:00-2:59	2.00	1.00	0.000000	0.00	0.00	325.08
15.10.2021	3:00-3:59	2.00	1.00	0.000000	0.00	0.00	328.25
15.10.2021	4:00-4:59	2.00	1.00	0.000000	0.00	2.66	358.33
15.10.2021	5:00-5:59	2.00	1.00	0.000000	0.00	100.91	436.35
15.10.2021	6:00-6:59	2.00	1.00	0.000000	0.00	13.19	437.50
15.10.2021	7:00-7:59	2.00	1.00	0.000000	0.00	4.02	426.07
15.10.2021	8:00-8:59	2.00	1.00	0.000000	0.00	3.28	428.33
15.10.2021	9:00-9:59	2.00	1.00	0.000000	0.00	2.31	420.05
15.10.2021	10:00-10:59	16.38	1.00	0.000000	0.00	1.53	402.23

Date	Time	PM 10 µg/m^3	PM 2.5 µg/m3	CO (mg/m3)	NO_2 (µg/m3)	SO_2 (µg/m3)	CO2 (ppm)
15.10.2021	11:00-11:59	27.75	1.00	0.000000	0.00	1.05	390.45
15.10.2021	12:00-12:59	22.83	1.00	0.000000	0.00	1.62	388.62
15.10.2021	13:00-13:59	3.25	1.00	0.000000	0.00	2.27	382.18
15.10.2021	14:00-14:59	2.00	1.00	0.000000	0.00	2.88	373.15
15.10.2021	15:00-15:59	2.00	1.00	0.000000	0.00	1.53	374.12
15.10.2021	16:00-16:59	2.00	1.00	0.000000	0.00	1.12	380.38
15.10.2021	17:00-17:59	2.00	6.60	0.000000	0.00	1.64	381.80
Average (24 hr)		6.03	1.77	0.000000	0.00	17.95	392.84
Max		27.75	8.72	0.000000	0.00	114.01	464.38
Min		2.00	1.00	0.000000	0.00	0.00	325.08
Guidelines		**50 µg/m3**	**25 µg/m3**	**10 mg/m3**	**200 µg/m3**	**20 µg/m3**	**5000ppm**
Source		**NEQEG**	**NEQEG**	**WHO**	**NEQEG**	**NEQEG**	**ACGIH**

Water Quality Test Result

Appendix (K)

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), LWSE 001
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 1

W0620 517

WATER QUALITY TEST RESULTS FORM

Client	Double - M
Nature of Water	Tube Well Water
Location	Nay Pyi Taw
Date and Time of collection	15.6.2020
Date and Time of arrival at Laboratory	16.6.2020
Date and Time of commencing examination	17.6.2020
Date and Time of completing	19.6.2020

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
pH	8.2		6.5 - 8.5
Colour (True)	5	TCU	15 TCU
Turbidity	8	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	232	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		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	0.33	mg/l	0.3 mg/l
Chloride (as CL)	26	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO_4)		mg/l	500 mg/l
Total Solids		mg/l	1500 mg/l
Total Suspended Solids		mg/l	
Total Dissolved Solids	265	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	0.2	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr. Chemist
ISO TECH Laboratory

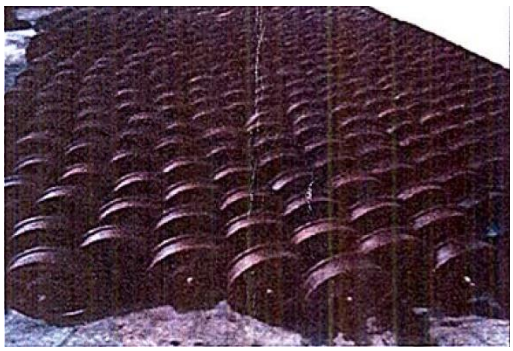
Approved by
Signature:
Name: Soe Thit
B.E (Civil) 1988,
Technical Officer
ISO TECH Laboratory

(a division of WEG Co.,Ltd.)

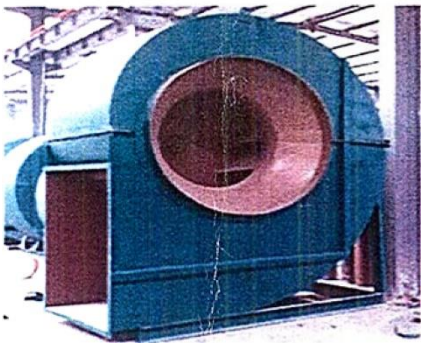
No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-73225175, 09-30339681, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

Machine Photos

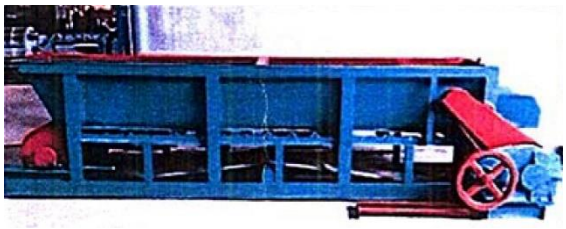
Appendix (L)



Kiln Car assembly

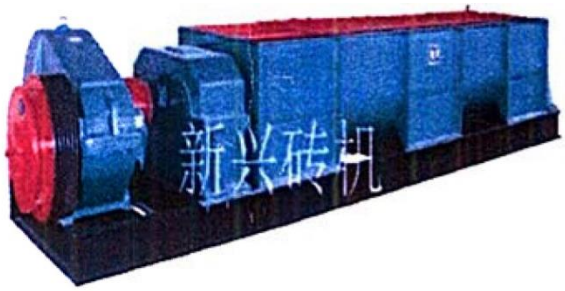


Centrifugal fan

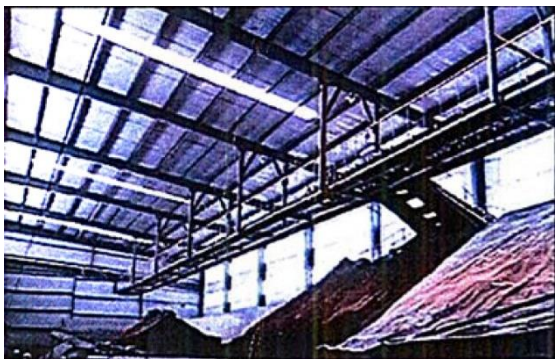


Coal control machine

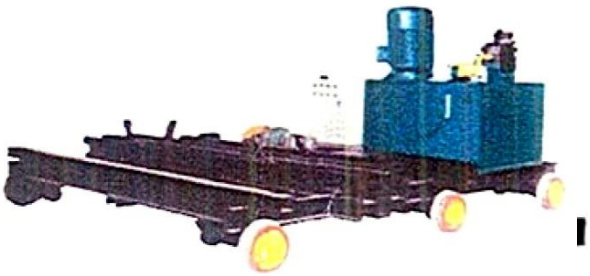
Conveyor



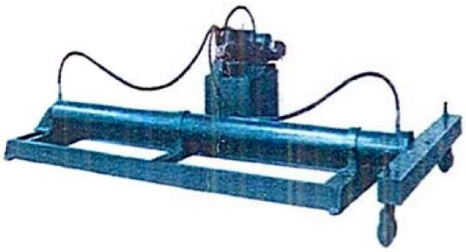
Reversible High Attitude Spreder



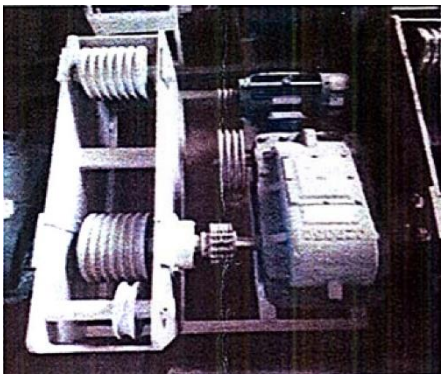
Mult Bucket Excavator



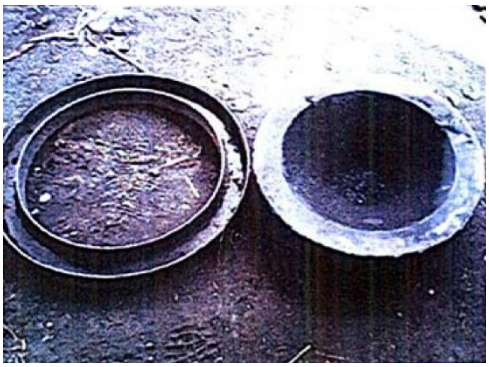
Positioning Shuttle bus



Top Car



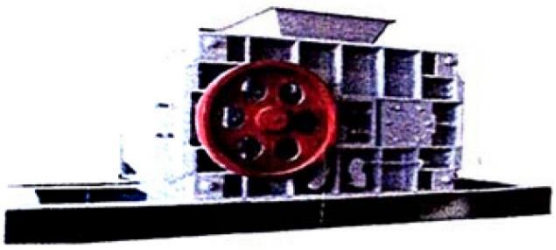
Tractor



Card wind

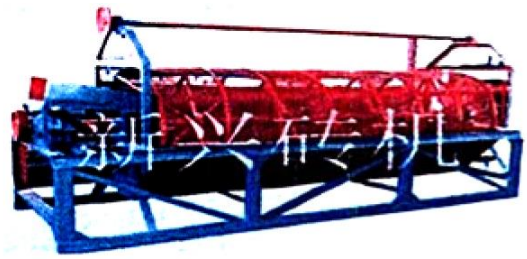
Fire Cover

Box feeder

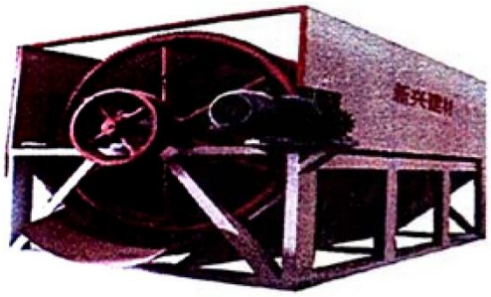


High Fine Roller

Hammer crusher

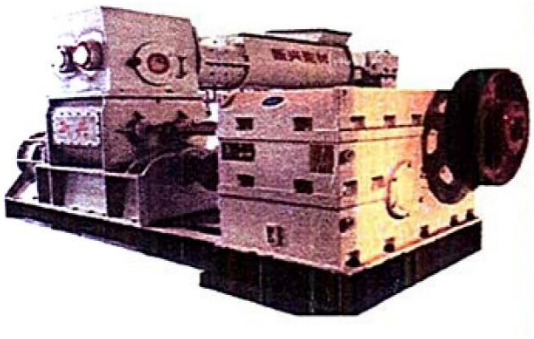


Tray Screen



Wet soil stone remover

Double shaft mixer



Two-stage vacuum extruder

Code blank cutting machine

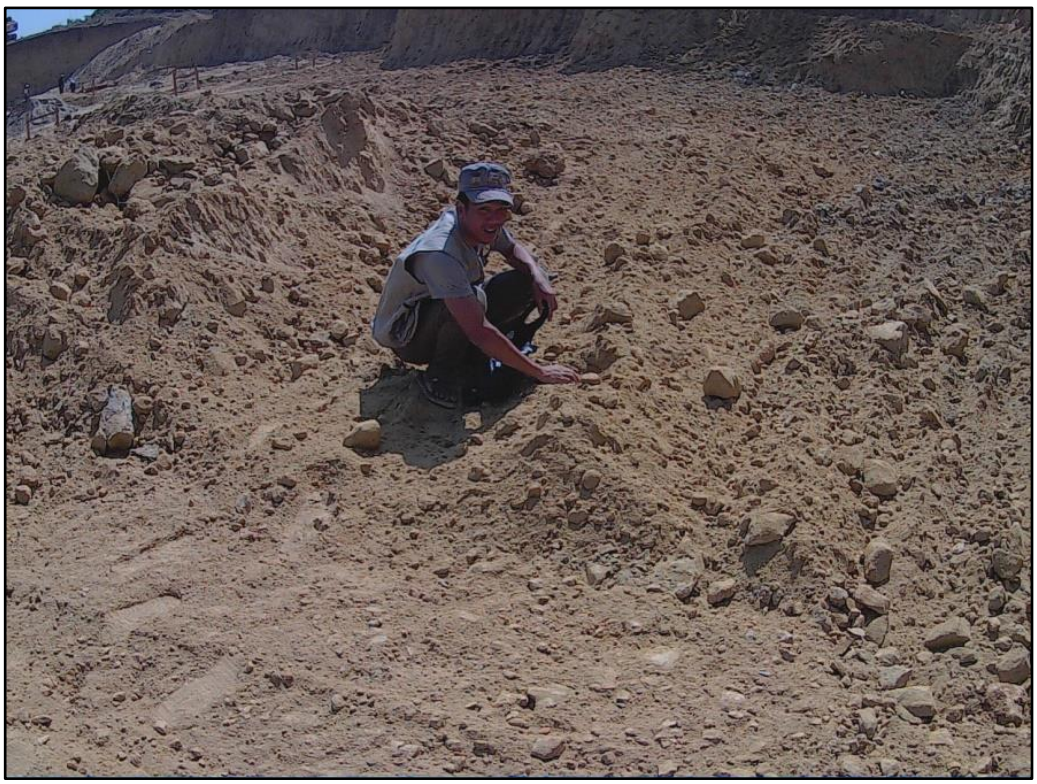
Vacuum pump

Motor

Screw compressor

Photo Records

Appendix (M)



NEW WORLD SHWE PYI TAN CO., LTD
Room No. 703, 7th floor, Yuzana Tower, shwegonine, Bahan Township, Yangon,Myanmar,
Tel ; 01- 557581 , 09 - 5017349, 09 - 979646343
E-mail : nainglinn.spt@gmail.com

Commitment Letter

Dated 2023, Mar (28)

We would like to commit that we will abide the mitigation measures prescribed in the IEE Report for our project.

New World Shwe Pyi Tan Co.,Ltd

U Naing Aung Lin
Managing Director
New World Shwe Pyi Tan Co.,Ltd

NEW WORLD SHWE PYI TAN CO., LTD
Room No. 703, 7th floor, Yuzana Tower, shwegonine, Bahan Township, Yangon,Myanmar,
Tel ; 01- 557581 , 09 - 5017349, 09 - 979646343
E-mail : nainglinn.spt@gmail.com

Commitment Letter

Dated 2023, Mar (28)

This letter is to acknowledge that our team (Proponent and staff) will strickly follow the Environmental Management Plan prescribed in IEE report.

U Naing Aung Lin
Managing Director
New World Shwe Pyi Tan Co.,Ltd

NEW WORLD SHWE PYI TAN CO., LTD
Room No. 703, 7th floor, Yuzana Tower, shwegonine, Bahan Township, Yangon,Myanmar,
Tel ; 01- 557581 , 09 - 5017349, 09 - 979646343
E-mail : nainglinn.spt@gmail.com

Commitment Letter

Dated 2023, Mar (28)

I would like to commit that the information and facts in the report are true, precise and complete. We have allowed the third party to prepared report without bias from us.

U Naing Aung Lin
Managing Director
New World Shwe Pyi Tan Co.,Ltd

Commitment on report by Third Party

Appendix (Q)

SEE - Trust, EIA Service
NAY WUN MYAT CO., LTD.
No.282,Seventh street (North) East Gyogone,Insein Township,Yagon Myanmar
Tel/Fax : 01 8010442 , Mobile : 09 5162889 , Email : naywunmyat1@gmail.com, Website-www.naywunmyat.com

Commitment Letter

Letter No – 073 / ST / 2023

Dated 2023, Mar (28)

We (SEE–Trust, Naywunmyat(s) Co) has sincerely signed the commitment on following points:

(a) The report are accurate and complete

(b) Prepared according to the EIA procedure

(c) Report was prepared based on the third party ethic.

ZAW WIN
MANAGING DIRECTOR
SEE-Trust, Naywunmyat(s) Co., Ltd.

NEW WORLD SHWE PYI TAN CO., LTD
Room No. 703, 7th floor, Yuzana Tower, shwegonine, Bahan Township, Yangon,Myanmar,
Tel ; 01- 557581 , 09 - 5017349, 09 - 979646343
E-mail : nainglinn.spt@gmail.com

To whom it may concern

Date: 2023 May (6)

Dear Sir / Madam

I would like to endorse the commitment as follow: –

"I will abide concern laws, rules and regulations prescribed in the Chapter–3 of this report."

Sincerely,

U Naing Aung Lin
Managing Director
New World Shwe Pyi Tan Co.,Ltd