

INITIAL ENVIRONMENTAL EXAMINATION

RICE MILL PROJECT, TWANTAY, MYANMAR



IEE REPORT

DATE: June 2025

Prepared for

Golden Lace POSCO International Company Limited

Prepared by










Revised by



Environmental Compliance Consultancy Co., Ltd

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ရန်ကုန်တိုင်းဒေသကြီး၊ တွံတေးခရိုင်၊ တွံတေးမြို့နယ်၊ တွံတေးတူးမြောင်းပိုင်မြေ ၊ ကွင်းအမှတ် (၁၂၄-က) ၊ ဦးပိုင်အမှတ် (CN-10) ၊
 လှေလမ်းကွင်း(မြောက်) ရှိ Golden Lace Daewoo Co. Ltd မှ ပေါင်းဆန်နှင့် အဆင့်မြင့် ဆန်ဖြူများ ထုတ်လုပ်ခြင်းနှင့် ဖြန့်ဖြူးရောင်းချခြင်း
 လုပ်ငန်းစီမံကိန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာ (Initial Environmental Examination - IEE) အပေါ် စိစစ်တွေ့ရှိချက်နှင့်
 သုံးသပ်အကြံပြုချက်များအား ပြန်လည်တင်ပြချက် (Comment Response Table)

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည်တင်ပြချက်	စာမျက်နှာ
၁။	အကျဉ်းချုပ်အစီရင်ခံစာ			
	<ul style="list-style-type: none"> • အကျဉ်းချုပ်အစီရင်ခံစာအားဖော်ပြထားခြင်း မရှိသည်ကို စိစစ်တွေ့ရှိရပါသည်။ • အစီရင်ခံစာ နိဒါန်းတွင် EMP ရေးသားသော အဖွဲ့၏ အကြောင်း အရာများ (ဆက်သွယ်ရန် ကုမ္ပဏီလီမိတက်၊ ဖုန်းနံပါတ်၊ ဝက်ဆိုဒ် နှင့် ပညာရပ်ဆိုင်ရာ အရည်အချင်းများ စသည် ဖြင့်) ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ • အစီရင်ခံစာ နိဒါန်းတွင် အဆိုပြု စီမံကိန်း လုပ်ငန်းပိုင်ရှင်၏ အကြောင်းအရာများ (ဆက်သွယ်ရန် ကုမ္ပဏီလီမိတက်၊ ဖုန်းနံ ပါတ်၊ ဝက်ဆိုဒ် စသည်ဖြင့်) ဖော်ပြထား သည် ို စိစစ်တွေ့ရှိ ရပါသည်။ 	<ul style="list-style-type: none"> • အကျဉ်းချုပ်အစီရင်ခံစာအား (မြန်မာ/ အင်္ဂလိပ်) နှစ်ဘာသာဖြင့် အောက်ပါအချက် များကို အကျဉ်းချုပ် ထည့်သွင်း ဖော်ပြ ပေးရန်- <ul style="list-style-type: none"> • စီမံကိန်းနှင့်သက်ဆိုင်သည့် အချက် အလက် များ၊ စီမံ ကိန်း၏ ရည်ရွယ် ချက်၊ စီမံကိန်း နောက်ခံ အကြောင်း အရာ၊ ရင်းနှီးမြှုပ်နှံမှု များ၊ စီမံကိန်း၏ ရည်ရွယ်ချက် တို့အား အကျဉ်းချုပ် ဖော်ပြရန်၊ • လေ့လာခဲ့သော အစားထိုးစီမံကိန်း၊ နှိုင်း ယှဉ်လေ့လာ ခြင်း၏ရလဒ်များ၊ အကြံပြု လိုသော အစားထိုး စီမံကိန်း များအကြောင်း ရှင်းလင်း ဖော်ပြချက် များနှင့် ယင်းတို့ အား ရွေးချယ်ရသည့် 	<ul style="list-style-type: none"> • ထည့်သွင်းရမည့် ခေါင်းစဉ် အလိုက် အကျဉ်းချုပ် အစီရင် ခံစာ(မြန်မာ/အင်္ဂလိပ်) နှစ်ဘာသာ အား အခန်း (၁) တွင် တင်ပြထားပါ သည်။ 	၁-၁ မှ ၁-၃၂

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<p>အကြောင်းအရင်းများကို ဖော်ပြပေးရန်၊</p> <ul style="list-style-type: none"> • စီမံကိန်းအဆိုပြုသူနှင့် တတိယအဖွဲ့အစည်း တို့၏ အချက်အလက်များကို အကျဉ်းချုပ် ဖော်ပြပေးရန်၊ လိုက်နာဆောင်ရွက်ရမည့် ဥပဒေ၊ နည်းဥပဒေ၊ မူဘောင် ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများနှင့် ပတ်သက်၍ အကျဉ်း ချုပ် ဖော်ပြပေးရန်၊ • လိုက်နာဆောင်ရွက်ရမည့် ဥပဒေ၊ နည်းဥပဒေ၊ မူဘောင် ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများနှင့် ပတ်သက်၍ အကျဉ်းချုပ် ဖော်ပြပေးရန်၊ • စီမံကိန်းအနီးဝန်းကျင်ရှိ သိသာထင်ရှား သည့် အကြောင်း အရာများ၊ လူမှုရေးဆိုင်ရာအချက်အလက်များကို အကျဉ်း ချုပ် ဖော်ပြပေးရန်၊ • စီမံကိန်းအနီးဝန်းကျင်ရှိ Baseline အချက်အလက်များ ကောက်ယူရာမှ ရရှိလာသည့် သိသာထင်ရှားသည့် သက်ရောက်မှုများကို ဖော်ပြရန်၊ 		

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<ul style="list-style-type: none"> ဆောင်ရွက်ခဲ့သည့် အများပြည်သူ သဘောထား ရယူခြင်းနှင့် ပြည်သူများ ပူးပေါင်း ပါဝင်ခြင်း လုပ်ငန်း များကို အကျဉ်းချုပ် ဖော်ပြပေးရန်၊ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် အကျဉ်းချုပ် (လျော့ပါးစေရေး နည်းလမ်းများအားအကောင် အထည်ဖော်ရန် ရန်ပုံငွေများ၊ EMP အကောင်အထည်ဖော်ရာတွင် စီမံကိန်း အဆိုပြုသူက စိုက်ထုတ်မည့် လူ့စွမ်း အား အရင်း အမြစ်များ၊ လုပ်ငန်းခွင်နှင့် လုပ်ငန်းပြင်ပတွင် စောင့် ကြပ်ကြည့် ရှုရမည့် စည်းကမ်း ချက်များ စသည်တို့ အပါအဝင်)၊ IEE အစီရင်ခံစာ၏ နိဂုံးချုပ်နှင့် အကြံပြုချက်များ ထည့်သွင်း ဖော်ပြရန်။ 		
၂။	ကတိကဝတ်			
	<ul style="list-style-type: none"> တင်ပြလာသောအစီရင်ခံစာတွင် ကတိကဝတ် များနှင့်ပတ်သက်၍ ဖော်ပြထားခြင်း မရှိသည်ကို စိစစ်တွေ့ ရှိရပါသည်- 	<ul style="list-style-type: none"> အစီရင်ခံစာတွင် အောက်ဖော်ပြပါ ကတိကဝတ်များ ပါဝင် သည့် ကတိပြုလွှာ 	<ul style="list-style-type: none"> စီမံကိန်းအဆိုပြုသူ၏ ပါဝင်ရမည့် ကတိ ကဝတ် ကတိပြုလွှာ အား အစီရင်ခံ 	<ul style="list-style-type: none"> အစီရင်ခံစာအစ တွင် တင်ပြထား ပါသည်။

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<p>ကို စီမံကိန်းအဆိုပြုသူမှ လက်မှတ် ရေးထိုး၍ ထည့်သွင်း ဖော်ပြပေးရန်-</p> <p>(က) ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းသည် တိကျခိုင်မာကြောင်း နှင့် ပြည့်စုံ ကြောင်း၊</p> <p>(ခ) ဤလုပ်ထုံးလုပ်နည်းအပါအဝင် သက်ဆိုင်ရာဥပဒေများ ကို တိကျစွာ လိုက်နာ၍ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ် ခြင်းကို ဆောင်ရွက်ထားကြောင်း၊</p> <p>(ဂ) စီမံကိန်းသည် ကနဦးပတ်ဝန်းကျင် ဆန်းစစ် ခြင်း အစီရင်ခံစာပါ ကတိ ကဝတ်၊ ပတ်ဝန်းကျင် ထိခိုက်မှု လျှော့ချ ရေးလုပ်ငန်းများနှင့် အစီအစဉ်များကို အပြည့်အဝ အစဉ်အမြဲ လိုက်နာ ဆောင်ရွက်မည် ဖြစ်ကြောင်း။</p>	<p>စာအစတွင် ထည့်သွင်း တင်ပြ ထားပါသည်။</p> <ul style="list-style-type: none"> • ထို့နည်းတူစွာ အဆိုပြု စီမံကိန်းဆိုင်ရာ ကနဦး ပတ်ဝန်း ကျင်ဆန်းစစ်ခြင်း အစီ ရင်ခံစာရှိ အခန်းများ အလိုက် စီမံကိန်းအဆိုပြုသူ ၏ ကတိကဝတ်များအား အခန်း ၂.၂.၁ တွင် တင်ပြ ထားပါသည်။ 	<ul style="list-style-type: none"> • ၂-၃ မှ ၂-၆
၃။	စီမံကိန်းအဆိုပြုသူနှင့် အစီရင်ခံစာပြုစုသည့် ကျွမ်းကျင်သူများ၏ အကြောင်းအရာဖော်ပြချက်များ			
	<ul style="list-style-type: none"> • အစီရင်ခံစာ စာမျက်နှာ(၁၃)တွင် IEE ရေးသား သောအဖွဲ့၏ အကြောင်းအရာများ(ဆက်သွယ် ရန် ကုမ္ပဏီလီမိတက်၊ ဖုန်းနံပါတ်၊ ဝက်ဆိုဒ်နှင့် ပညာ 	<ul style="list-style-type: none"> • အစီရင်ခံစာ နိဒါန်းတွင် IEE ရေးသားသော အဖွဲ့၏ ကျွမ်းကျင်သူ တစ်ဦးချင်း၏ အတွေ့အကြုံများကို ထည့်သွင်း ဖော်ပြ ပေးရန်၊ 	<ul style="list-style-type: none"> • IEE ရေးသားသော အဖွဲ့ ဖြစ်သော Environ နှင့် ပတ်ဝန်းကျင်ထိန်း သိမ်းရေး ဦးစီးဌာန၏ ကနဦးပတ်ဝန်း ကျင် ဆန်းစစ်ခြင်းအစီရင် 	<ul style="list-style-type: none"> • ၂-၇ မှ ၂-၁၀

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	ရပ်ဆိုင်းရာ အရည်အချင်းများ စသည်ဖြင့်) ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ <ul style="list-style-type: none"> • အစီရင်ခံစာ စာမျက်နှာ(၁၃)တွင် အဆိုပြု စီမံကိန်း လုပ်ငန်း ပိုင်ရှင်၏ အကြောင်းအရာများ (ဆက်သွယ်ရန် ကုမ္ပဏီလိပ်စာ၊ ဖုန်းနံပါတ်၊ ဝက်ဆိုဒ် စသည်ဖြင့်) ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ 		ခံစာ အပေါ် စိစစ် တွေ့ရှိချက်နှင့် သုံးသပ် အကြံပြုချက်များအား ပြန် လည် တင်ပြသည့် EnvCC အဖွဲ့၏ အချက် အလက်များအား အခန်း ၂-၃ တွင် တင်ပြထားပါသည်။	
၄။	မူဝါဒ၊ ဥပဒေနှင့် အဖွဲ့အစည်းဆိုင်ရာမူဘောင်			
	အစီရင်ခံစာအခန်း(၂) စာမျက်နှာ(၉) မှ(၂၀) ထိ စီမံကိန်းနှင့် သက်ဆိုင်သည့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ ဥပဒေနှင့်နည်းဥပဒေများ၊ အပြည်ပြည်ဆိုင်ရာနှင့် ဒေသတွင်း သဘောတူညီချက်များအား သက်ဆိုင်ရာ အခန်းကဏ္ဍများဖြင့် ယေဘုယျ ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ <ul style="list-style-type: none"> ▪ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော် ဖွဲ့စည်းပုံ အခြေခံဥပဒေ (၂၀၀၈) ▪ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ(၂၀၁၂) ▪ နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှုဥပဒေ (၂၀၁၂)နှင့်နည်းဥပဒေ ▪ မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်အမိန့်ကြော်ငြာစာ၊ အမှတ်(၁) (၂၀၁၃) 	စီမံကိန်းအဆိုပြုသူမှ မြန်မာနိုင်ငံရှိ တည်ဆဲ ဥပဒေ များ အားလုံးကို လိုက်နာ ရမည် ဖြစ်သော်လည်း အောက်ဖော်ပြပါ ဥပဒေများ၊ နည်းဥပဒေများထဲမှ လိုက်နာဆောင်ရွက် ရမည့်ပုဒ်မ၊ ပုဒ်မခွဲများ ကို အစီရင်ခံစာတွင် ဖြည့်စွက်ဖော်ပြရန်နှင့် အစီရင်ခံ စာပါ ဥပဒေများ၊ နည်းဥပဒေများအား လိုက်နာ ဆောင်ရွက် မည်ဖြစ်ကြောင်း ဖော်ပြရန် လိုအပ် ပါသည်- <ul style="list-style-type: none"> • ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေ (၂၀၁၄) • မြန်မာနိုင်ငံမီးသတ်တပ်ဖွဲ့ဥပဒေ(၂၀၁၅) 	<ul style="list-style-type: none"> • မူလတင်ပြပြီးနှင့် ဖြည့်စွက်တင်ပြရမည့် ဥပဒေ များ၊ နည်းဥပဒေများမှ လိုက်နာ ဆောင်ရွက်ရ မည့် ပုဒ်မ၊ ပုဒ်မခွဲများ အရ ထပ်မံ ဖြည့်စွက်၍ လိုက်နာဆောင်ရွက်မည်ဖြစ်ကြောင်းအား အခန်း (၃-၁) တွင် တင်ပြ ထား ပါသည်။ 	<ul style="list-style-type: none"> • ၃-၁ မှ ၃-၂၆

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	<ul style="list-style-type: none"> ▪ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများ(၂၀၁၅) ▪ မြန်မာနိုင်ငံ ဆန်စပါး အသင်းချုပ် ▪ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ(၂၀၁၅) ▪ ဓာတုပစ္စည်းများဘေးအန္တရာယ်မှ ကာကွယ် တားဆီးရေးဥပဒေ (မူကြမ်း) ▪ သစ်တော ဥပဒေ (၁၉၉၂) ▪ တောရိုင်းတိရစ္ဆာန်ကာကွယ်ရေးနှင့် သဘာဝ ဧရိယာများ ထိန်းသိမ်းစောင့်ရှောက်ရေးဥပဒေ (၁၉၉၄) ▪ အမျိုးသားအစားအသောက်ဥပဒေ (၁၉၉၇) ▪ ရေအရင်းအမြစ်နှင့်မြစ်ချောင်းများထိန်းသိမ်း ရေး ဥပဒေ(၂၀၀၆) ▪ လူမှုဖူလုံရေးဥပဒေ ▪ အလုပ်ရုံများအက်ဥပဒေ(၁၉၅၁) ▪ ပြည်ထောင်စုမြန်မာနိုင်ငံပြည်သူ့ကျန်းမာရေး ဆိုင်ရာဥပဒေ(၁၉၇၂) ▪ အလုပ်ခွင်ကျန်းမာရေးနှင့် ဘေးကင်းလုံခြုံရေး ဥပဒေ(၂၀၁၄) ▪ အနည်းဆုံးအခကြေးငွေဥပဒေ(၂၀၁၅) 	<ul style="list-style-type: none"> • လူမှုဖူလုံရေးဥပဒေ(၂၀၁၂) • စားသုံးသူ အကာအကွယ်ပေးရေးဥပဒေ(၂၀၁၄) • အလုပ်သမားအဖွဲ့အစည်းဥပဒေ (၂၀၁၁) • အလုပ်သမားရေးရာအငြင်းပွားမှုဖြေရှင်းရေးဥပဒေ (၂၀၁၂) • ဓာတုပစ္စည်းနှင့်ဆက်စပ်ပစ္စည်းများ အန္တရာယ်မှတားဆီးကာကွယ်ရေးဥပဒေ (၂၀၁၃) • သဘာဝဘေးအန္တရာယ်ဆိုင်ရာစီမံခန့်ခွဲမှုဥပဒေ (၂၀၁၃) • အခြားသက်ဆိုင်နိုင်သည့် ဥပဒေများ၊ နည်းဥပဒေများ ရှိပါက ဖော်ပြရန်၊ • အနည်းဆုံးအခကြေးငွေနှင့်ပတ်သက်၍ နောက်ဆုံး ထုတ်ပြန်ခဲ့သည့် အမိန့်ကြော်ငြာစာဖြင့် ဖော်ပြရန်၊ 		
၅။	စီမံကိန်းအကြောင်းအရာဖော်ပြချက်			

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	<ul style="list-style-type: none"> စီမံကိန်းအကြောင်းအရာ ဖော်ပြချက်အနေဖြင့် အခန်း (၃)၊ စာမျက်နှာ (၂၄)မှ (၃၇)အထိ စက်ရုံ တည်နေရာ၊ အကျယ်အဝန်း၊ တစ်နေ့ ထုတ်လုပ် နိုင်မှု ပမာဏ (၂၈၀)တန်၊ စီမံကိန်းတည်နေရာ ပြင်ဆင်မှု၊ ရာသီဥတု၊ ပင်လယ်ရေမျက်နှာပြင်အမြင့်၊ မိုးရေချိန်လက်မ၊ လေတိုက်နှုန်း၊ မြေဆီလွှာ အခြေအနေ၊ အဆောက်အဦ အရေအတွက်၊ ဆန်စက်လုပ်ငန်း ဆောင်ရွက်ပုံ အဆင့်ဆင့်၊ ဆန်စက်လုပ်ငန်း Flow Chart၊ ကုန်တင်/ ကုန်ချပြုလုပ်ရန် ဆိပ်ခံတံတား၊ စွမ်းအင်သုံးစွဲမှု အခြေအနေ၊ စပါးခွံ အသုံးပြု၍ စွမ်းအင်ထုတ် လုပ်မည့်အစီအစဉ်၊ သယ်ယူပို့ဆောင်ရေး၊ ရေ ရယူ သုံးစွဲမည့် အခြေအနေ၊ တစ်လစက် လည်ပတ်ရက် (၂၅)ရက်၊ ဆောက်လုပ်ရေး ကာလ ဝန်ထမ်း အင်အား (၁၂၀)ဦးနှင့် Operation ကာလ ဝန်ထမ်း အင်အား (၇၁)ဦး၊ တစ်နေ့ အလုပ်ချိန် စသည်တို့နှင့် ပတ်သက်၍ ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရ ပါသည်။ အစီရင်ခံစာ စာမျက်နှာ (၃၆)တွင် စီမံကိန်းကာလ အတွက် ဆောင်ရွက်မည့် အစီအစဉ်နှင့် တည် ဆောက်ရေး ကာလတွင် တည်ဆောက်ရေး ပြီးစီး 	<ul style="list-style-type: none"> စီမံကိန်းတည်နေရာ၊ ဆက်စပ်နေရာ များ ၊ အနီးစပ်ဆုံး မြစ် ချောင်းများ အပါအဝင် ဆက်စပ်နေရာအားလုံးကို ဖော်ပြထားသော Layout Map ဖြင့် ရှင်းလင်းစွာ ဖော်ပြ ပါရန်၊ စက်ရုံ၏ Process Design၊ လည်ပတ် ပုံများကို Schematic/ Cross Section Diagram များဖြင့် ဖော်ပြပေးပါရန်၊ ရင်းနှီးမြှုပ်နှံမှုငွေပမာဏကျပ်၊ စီမံ ကိန်း ကာလအတွက် အသုံးပြု သော စက်ယန္တရားများ စာရင်း တို့ကို ဖော်ပြ ပေးရန်၊ 	<ul style="list-style-type: none"> စီမံကိန်းတည်နေရာ၊ ဆက်စပ်နေရာများ ၊ အနီးစပ်ဆုံး မြစ် ၊ ချောင်း များအပါ အဝင် ဆက်စပ်နေ ရာအားလုံးကို ဖော်ပြထားသော Layout Mapအား အခန်း (၄-၂)၊ပုံ- ၄-၄ တွင် တင်ပြထား ပါသည်။ စက်ရုံ၏ Process Design၊ လည်ပတ်ပုံ Schematic/ Cross Section Diagram များအား အခန်း ၄-၅-၂၊ ပုံ (၄-၉) တွင် တင်ပြထားပါသည်။ ရင်းနှီးမြှုပ်နှံမှုငွေပမာဏ ကျပ်အား အခန်း (၄-၆) တွင် တင်ပြထားပါသည်။ စီမံကိန်း ကာလ အတွက် အသုံးပြု သော စက် ယန္တရားများ စာရင်းအား 	<ul style="list-style-type: none"> ၄-၁ မှ ၄-၂ ၄-၁၉ ၄-၂၄ ၄-၂၉ မှ ၄-၄၄

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	မည့်အချိန်များကို ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။	<ul style="list-style-type: none"> • ကုန်ကြမ်းသယ်ယူပို့ဆောင်ရေးဆိုင်ရာ အချက်အလက်များနှင့် အဆိုပါ လုပ်ငန်းကြောင့် ပတ်ဝန်းကျင်အပေါ် ထိခိုက်နိုင်မှု များ ကို ထည့်သွင်း ဖော်ပြရန်၊ • ကုန်ကြမ်းရယူမည့်အရင်းအမြစ်နှင့် ကုန် ကြမ်းသိုလှောင်ထားရှိမှုနှင့် ပတ်သက်၍ သိုလှောင်မည့် ပမာဏနှင့် ဆောင်ရွက်မည့် အစီအစဉ်ကို ထည့်သွင်းဖော်ပြရန်၊ • Diesel Generator (3) Nos အတွက် အသုံးပြုသွားမည့် ခန့်မှန်း လောင်စာ ဆီ ပမာဏ၊ သိုလှောင်ထားရှိမည့် 	<p>အခန်း (၄-၇-၅) တွင် တင်ပြထားပါသည်။</p> <ul style="list-style-type: none"> • ကုန်ကြမ်းသယ်ယူပို့ဆောင်ရေးနှင့်ပတ်သက်၍ ကုန်သည်များမှ ကားများ ဖြင့် ရန်ကုန်-တံတေး-မအူပင် ကား လမ်းမကြီးမှ စက်ရုံသို့ လက်ရောက် ရောင်းချခြင်း ဖြစ်ပါသည်။ • ကုန်ကြမ်းရယူမည့်အရင်း အမြစ်နှင့် ကုန် ကြမ်း သိုလှောင်ထားရှိမှုနှင့်ပတ် သက်၍ သိုလှောင်မည့် ပမာဏနှင့် ဆောင်ရွက် မည့် အစီအစဉ်အား အခန်း ၄-၇-၃ တွင် တင်ပြ ထားပါသည်။ • Diesel Generator (3) Nos အတွက် အသုံးပြု သွားမည့် ခန့်မှန်း လောင်စာဆီ ပမာဏ၊ 	<ul style="list-style-type: none"> • ၄-၂၈ • ၄-၂၅ မှ ၄-၂၇

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<p>အခြေအနေ များကို ဖြည့်စွက် ဖော်ပြ ပေးရန်၊</p> <ul style="list-style-type: none"> စပါးခွံမှ လျှပ်စစ်ဓာတ်အား ထုတ်လုပ် သည့်စက်ရုံ တည် ဆောက်ရန်အတွက် Schematic Diagram အား ဖော်ပြ ထားပြီး အဆိုပါ Plant တွင် ပါဝင် သည့် Water Treatment System အတွက် အသုံးပြုသည့် Chemical အမျိုးအစားများ၊ ပမာဏ၊ သိုလှောင် ထားရှိမှု အခြေ အနေ၊ ရယူသည့် အရင်းအမြစ်များကို ဖြည့်စွက် ဖော်ပြ ပေးရန်၊ စီမံကိန်း အကောင်အထည်ဖော် ဆောင်ရွက်မှုကြောင့် ထွက်ရှိ နိုင်သည့် စွန့်ပစ်ပစ္စည်း (အရည်၊ အစိုင်အခဲ) များနှင့် ပတ်သက်၍ တစ်နေ့ထွက်ရှိ မည့် ပမာဏကို ဖော်ပြပေးရန်၊ 	<p>သိုလှောင် ထားရှိသည့် အခြေအနေ များကို အခန်း (၄-၇-၂) တွင် တင်ပြ ထားပါသည်။</p> <ul style="list-style-type: none"> စပါးခွံမှ လျှပ်စစ်ဓာတ်အား ထုတ်လုပ် သည့်စက်ရုံအား ထည့်သွင်းဆောင်ရွက်ခြင်း မပြုတော့ပါကြောင်းအား တင်ပြအပ်ပါသည်။ စွန့်ပစ်ပစ္စည်း (အရည်၊ အစိုင်အခဲ) များနှင့် ပတ် သက်၍ တစ်နေ့ ထွက်ရှိ မည့် ပမာဏနှင့် စွန့်ပစ် မည့် နေရာကို အခန်း (၄-၈) တွင် တင်ပြ ထားပါ သည်။ အခန်း ၆-၅-၃ တွင် 	<ul style="list-style-type: none"> ၄-၄၅ မှ ၄-၄၇ ၆-၂၀ မှ ၆-၂၂

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<ul style="list-style-type: none"> • စွန့်ပစ်သည့် နေရာများကို ဖော်ပြပေးရန် (Layout Map များဖြင့်လည်း ဖော်ပြပေးရန်) • စီမံကိန်း၏ တည်ဆောက်ခြင်း၊ လုပ်ငန်းလည်ပတ်ခြင်း နှင့် ပိတ်သိမ်းသည့်ကာလများအတွက် စတင်/ ပြီးစီးမည့်ရက်များ၊ ကြာမြင့်မည့်ကာလများကို ခန့်မှန်း ဖော်ပြထားသော စီမံကိန်း အကောင်အထည်ဖော်မည့် အချိန်ဇယားအား ထည့်သွင်း ဖော်ပြပေးရန်၊ 	<p>ထွက်ရှိအမှိုက်အမျိုးအစား၊ ပမာဏနှင့် ထိခိုက်မှုဆန်းစစ်ခြင်း အား တင်ပြထားပါသည်။</p> <ul style="list-style-type: none"> • YCDC မှတဆင့် စွန့်ပစ်ပါသည်။ • စီမံကိန်း အကောင်အထည်ဖော်သည့် အချိန်ဇယားအား အခန်း (၄-၁၀) တွင် တင်ပြထားပါသည်။ 	<ul style="list-style-type: none"> • ၄-၄၈
	<ul style="list-style-type: none"> • အစီရင်ခံစာတွင် စီမံကိန်းလုပ်ငန်းအဆင့် တစ်ခုချင်းစီအလိုက် အခြားဆောင်ရွက်နိုင်သော နည်းလမ်းများနှင့် ပတ်သက်၍ ထည့်သွင်း ဖော်ပြထားခြင်းမရှိသည်ကို စိစစ်တွေ့ရှိရပါသည်။ 	<ul style="list-style-type: none"> • စီမံကိန်း အကောင်အထည်ဖော် ဆောင်ရွက်ရာတွင် အခြား ဆောင်ရွက်နိုင်သောနည်းလမ်းနှင့်ပတ်သက်၍ ထည့်သွင်းစဉ်းစားထားခြင်းရှိ/မရှိ ထည့်သွင်း ဖော်ပြရန်၊ 	<ul style="list-style-type: none"> • စီမံကိန်း အကောင်အထည်ဖော်ဆောင်ရွက်ရာတွင်အခြားဆောင်ရွက်နိုင်သော နည်းလမ်းနှင့်ပတ်သက်၍ 	<ul style="list-style-type: none"> • ၄-၄ မှ ၄-၅

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
			အခန်း (၄-၃) တွင် တင်ပြ ထားပါသည်။	
၆။	လက်ရှိပတ်ဝန်းကျင်အခြေအနေ			
	<ul style="list-style-type: none"> စက်ရုံစီမံကိန်း၏ လက်ရှိပတ်ဝန်းကျင် အခြေအနေများနှင့် ပတ်သက်၍ အစီရင်ခံစာ စာမျက်နှာ (၃၈)နှင့် (၃၉)တွင် မြေမျက်နှာသွင်ပြင်၊ လက်ရှိတည်ရှိဆဲ မြေအသုံးချမှု အခြေအနေ၊ တံတေးတူးမြောင်း အခြေအနေ၊ ရာသီဥတု၊ မိုးရေချိန်၊ အပူချိန်၊ မြေထု အခြေအနေ၊ ရေထုအခြေအနေ၊ မြေငလျင်အခြေ အနေ၊ ပင်လယ်ရေမျက်နှာပြင် အမြင့်တို့အား ဖော်ပြ ထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ အစီရင်ခံစာ စာမျက်နှာ(၄၂)မှ(၄၅)အထိ တံတေးမြို့ ပေါ်ရှိ လေထု အရည်အသွေး (PM10, PM2.5, SO2, NO2) တိုင်းတာမှု ရလဒ်များအား WHO Standard နှင့်နှိုင်းယှဉ် ဖော်ပြထားပြီး SO2 တိုင်းတာမှုရလဒ်သည် Guild line တန်ဖိုးထက် ကျော်လွန် နေကြောင်း ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ အစီရင်ခံစာ စာမျက်နှာ (၄၅)နှင့်(၄၆)တွင် တံတေးမြို့ ပေါ်ရှိ ဆူညံသံ တိုင်းတာမှု 	<ul style="list-style-type: none"> စက်ရုံစီမံကိန်း၏ အနီးဝန်းကျင်ရှိ လူမှုရေးပတ်ဝန်းကျင် အခြေအနေများဖြစ်သော လူမှုရေးဆိုင်ရာ အချက်အလက်များ၊စီးပွားရေးဆိုင်ရာ အချက်အလက်များကို ဖြည့်စွက် ဖော်ပြပေးရန်၊ လေထုအရည်အသွေးတိုင်းတာရာတွင် စီမံကိန်း ပတ်ဝန်းကျင်ရှိ နေရာများ၏ တိုင်းတာမှုရလဒ်များအား ထပ်မံ ဖြည့်စွက် ဖော်ပြပေးရန်၊ 	<ul style="list-style-type: none"> စက်ရုံစီမံကိန်း၏ အနီးဝန်းကျင်ရှိ ကျေးရွာများ ဖြစ်သော ထန်းတပင်၊ သံဖြူရုံနှင့် ကန်ပတ်ရိုးဆိုင်ရာ လူမှုစီးပွားအချက်အလက်များအား အခန်း (၅-၃) တွင် တင်ပြထားပါသည်။ မူလတင်ပြထားသည့် အစီရင်ခံစာတွင် လေထု အရည် အသွေးတိုင်းတာခြင်းအားစီမံကိန်း၏ မြောက်ဘက် လမ်းမကြီး တစ်ဘက်ခြမ်း ပတ်ဝန်းကျင် နေရာတွင် တိုင်းတာခဲ့ခြင်း ဖြစ်ပါသည်။ သို့ဖြစ်ပါ၍ စီမံကိန်းဧရိယာအတွင်း ထပ်မံတိုင်းတာထားရှိသည့် အခြေအနေအား အခန်း (၅- 	<ul style="list-style-type: none"> ၅-၃၁ မှ ၅-၃၃ ၅-၄ မှ ၅-၂၀

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	<p>ရလဒ်များအား NEQEG နှင့် IFC များ နှင့် နှိုင်းယှဉ်ဖော်ပြထားပြီး ညအချိန် တိုင်းတာ မှုရလဒ်သည် စံချိန်စံနှုန်းများထက် 15 dBA ကျော်လွန်နေကြောင်း ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။</p> <ul style="list-style-type: none"> • အစီရင်ခံစာ စာမျက်နှာ (၄၇) တွဲတေးတူးမြောင်း အတွင်းရှိရေ နှင့် မြေအောက်ရေတို့၏ ရေအရည်အသွေး တိုင်းတာမှုရလဒ် များကို WHO Standard နှင့် NEQEG တို့နှင့် နှိုင်းယှဉ်ဖော်ပြ ထားသည်ကို စိစစ်တွေ့ရှိရ ပါသည်။ • အစီရင်ခံစာ စာမျက်နှာ(၄၈)တွင် မြေဆီလွှာ အရည်အသွေးနှင့် ပတ်သက်၍ စီမံကိန်းဧရိယာ အတွင်းရှိ မြေဆီလွှာအခြေအနေအား တိုင်းတာ ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ • အစီရင်ခံစာ စာမျက်နှာ(၄၉)မှ(၅၇)အထိ သဘာဝ ပတ်ဝန်းကျင် အခြေအနေ၊ လူမှုစီးပွား ပတ်ဝန်း ကျင်နှင့် သက်ဆိုင်သည့် တွဲတေး မြို့နယ်နှင့် အနီးပတ်ဝန်းကျင်ရှိ လူဦးရေ၊ စာတတ်မြောက်မှု၊ စီပွားရေး အခြေအနေ၊ တစ်နှစ်ဝင်ငွေ၊ ဘဝ နေထိုင်မှုပုံစံ၊ အဆောက်အဦအခြေအနေ၊ လူမှုရေး 	<ul style="list-style-type: none"> • ဂေဟစနစ်အတွက် အခြေခံအချက် အလက်များအား ဖော်ပြရာတွင် စီမံကိန်းအနီးဝန်းကျင်ရှိ လက်ရှိတည်ရှိ နေသော တောရိုင်း တိရိစ္ဆာန်နှင့် အပင်များအား လေ့လာ ၍ ဖြည့်စွက် ဖော်ပြရန်၊ • စက်ရုံစီမံကိန်း၏ အနီးဝန်းကျင်ရှိ ယဉ်ကျေးမှုဆိုင်ရာ အစိတ် အပိုင်း ဖြစ်သော ဘာသာရေးဆိုင်ရာ အချက် အလက်များ၊ ရိုးရာဓလေ့များကို ဖြည့် စွက် ဖော်ပြပေးရန်၊ 	<p>၁-ရ) တွင် ဖြည့်စွက်တင်ပြ ထားရှိပါသည်။ ဆူညံသံ၊ ရေနှင့် မြေအရည် အသွေး အခြေအနေများအားလည်း ထပ်မံတိုင်းတာ တင်ပြထား ပါသည်။</p> <ul style="list-style-type: none"> • ဂေဟစနစ်နှင့်ပတ်သက်၍ အခြေခံအချက် အလက်များ အား ပြည့်စုံစွာဖြည့်စွက်၍ အခန်း (၅-၂) တွင် တင်ပြ ထား ပါသည်။ • စက်ရုံစီမံကိန်း၏ အနီး ဝန်းကျင်ရှိ ယဉ်ကျေးမှု ဆိုင်ရာ အစိတ် အပိုင်း ဖြစ်သော ဘာသာရေးဆိုင်ရာ အချက် အလက်များ၊ ရိုးရာ ဓလေ့များကို အခန်း (၅-၄) တွင် တင်ပြထားပါသည်။ 	<ul style="list-style-type: none"> • ၅-၂၁ မှ ၅-၃၁ • ၅-၃၈ မှ ၅-၄၁

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	ဆိုင်ရာအဖွဲ့အစည်းများမှ ထောက်ပံ့မှု အခြေအနေ၊ အခြေခံအဆောက်အအုံများဖြစ်သော ကျန်းမာရေး စောင့်ရှောက်မှု၊ ပညာရေးဆိုင်ရာ အချက်အလက် များ၊ စွန့်ပစ္စည်းစီမံခန့်ခွဲမှု၊ ရေနံနှင့် လျှပ်စစ်ရယူ သုံးစွဲမှု အခြေအနေ၊ သယ်ယူပို့ဆောင်ရေး အခြေအနေ၊ ဒေသခံပြည်သူများ၏ ကျန်းမာရေး ဆိုင်ရာ အချက်အလက်များဖြစ်သော မွေးဖွားနှုန်း၊ သေဆုံးနှုန်း၊ ဒေသခံများ ဖြစ်တတ်သော ရောဂါ များ စသည်တို့ကို ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိ ရပါသည်။			
၇။	ပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုများနှင့် လျော့နည်းစေရန် ဆောင်ရွက်မည့်လုပ်ငန်းများ			
	<ul style="list-style-type: none"> အစီရင်ခံစာ စာမျက်နှာ(၅၉)မှ (၇၃)အထိ တည်ဆောက်ရေးကာလနှင့် ပတ်သက်၍ မြေဆီလွှာနှင့် မြေအောက်ရေ ထိခိုက်နိုင်မှု၊ လေအရည်အသွေး၊ အမှုန်အမွှား ထုတ်လွှတ်မှုများနှင့်ပတ်သက်၍ ပြင်းထန်မှု အနည်းငယ်သာရှိကြောင်း ထိခိုက်မှု ဆန်းစစ်ခြင်း မက်ထရစ်ကို အသုံးပြုတွက်ချက်၍ ဖော်ပြထားပါသည်။ အစိုင် အခဲစွန့်ပစ်ပစ္စည်း ထွက်ရှိမှု တစ်ရက်လျင်(၁)တန်၊ အစားအစာ စွန့်ပစ်ပစ္စည်း ထွက်ရှိမှု တစ်ရက်လျင်(၅၄) ကီလိုဂရမ်၊ မိလ္လာ စွန့်ပစ်ပစ္စည်းထွက်ရှိမှု တစ်ရက်လျင် 	<ul style="list-style-type: none"> စပါးခွံသုံး လျှပ်စစ်ဓာတ်အား ထုတ်လုပ်သည့်စက်ရုံရှိ ဘွိုင်လာ မှ ထွက်ရှိလာသည့် အခိုးအငွေ့များကို Treatment ပြုလုပ်ရန် အတွက် လျှပ်စစ်စွမ်းအား 1MW အသုံးပြုကြောင်း ဖော်ပြ ထားရာ Treatment ပြုလုပ်သည့် နည်းစနစ်များကို ရှင်းလင်း ဖော်ပြရန်နှင့် ထွက်ရှိလာသည့် Flue Gas အခြေအနေများနှင့် ပတ်ဝန်းကျင်အပေါ် ထိခိုက်နိုင်မှုအား ဆန်းစစ် 	<ul style="list-style-type: none"> စပါးခွံသုံး လျှပ်စစ်ဓာတ်အား ထုတ်လုပ် သည့်စက်ရုံအား ဆောင်ရွက်ခြင်းမရှိတော့ပါကြောင်းအား တင်ပြအပ်ပါသည်။ 	

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	<p>(၃၈၀) လီတာ ဖြစ်ပါ ကြောင်း တွက်ချက် ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ တည်ဆောက်ရေးကာလမှ ထွက်ရှိလာသော အန္တရာယ်ရှိသော စွန့်ပစ်ပစ္စည်းများ၊ အန္တရာယ်မရှိသော အစိုင်အခဲ စွန့်ပစ်ပစ္စည်းများနှင့် အန္တရာယ်မရှိသော အရည် စွန့်ပစ်ပစ္စည်းများနှင့် ပတ်သက်၍ အလယ်အလတ် ပြင်းထန်နိုင်ကြောင်း၊ ဆူညံသံ၊ ဂေဟစနစ် အပေါ် ထိခိုက်နိုင်မှု အနည်းငယ်သာ ရှိနိုင်ကြောင်း၊ စွမ်းအင် သုံးစွဲမှုနှင့် ရေသုံးစွဲမှုတွင်လည်း အနည်းငယ်သာ ထိခိုက်နိုင် ကြောင်း၊ လူမှုစီးပွားအပေါ် ထိခိုက်နိုင်မှု၊ ဒေသခံ ပြည်သူများ၏ ဘေးကင်းလုံခြုံရေး အခြေအနေ၊ အလုပ်သမားများ၏ ဘေးကင်းလုံခြုံရေး အခြေအနေများကို ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။</p> <ul style="list-style-type: none"> • အစီရင်ခံစာ စာမျက်နှာ(၇၄)မှ(၈၄)အထိ လုပ်ငန်းလည်ပတ် ထုတ်လုပ်မှုကာလနှင့်ပတ်သက် လေအရည်အသွေး၊ ထိခိုက်နိုင်မှု အလယ်အလတ် ရှိပါကြောင်း၊ မြေဆီလွှာနှင့် မြေအောက်ရေ၊ အစားအစာ စွန့်ပစ်ပစ္စည်း ထွက်ရှိမှု တစ်ရက် လျှင် (၃၂) ကီလိုဂရမ်၊ မိလ္လာ စွန့်ပစ်ပစ္စည်းထွက်ရှိမှု တစ်ရက်လျှင် (၂၂၃) လီတာ ဖြစ်ပြီး စွန့်ပစ် 	<p>ရန်နှင့် ထိခိုက်မှု ရှိပါက လျော့ချမည့် နည်းလမ်းများကို ဖော်ပြပေးရန်၊</p> <ul style="list-style-type: none"> • စပါးခွံသုံး လျှပ်စစ်ဓာတ်အားထုတ်လုပ်သည့်စက်ရုံရှိ ဘွိုင်လာ တွင် ရေပမာဏ (75.5 m³) အား “Closed Loop” Cooling System ဖြင့် အသုံးပြုကြောင်း ဖော်ပြထားပြီး စာမျက်နှာ (၃၄)တွင် Wastewater Tank နှင့် Wastewater Treatment အခြေအနေများကို ဖော်ပြထားရာ စွန့်ထုတ်သည့် Wastewater များကို Treatment ပြုလုပ်သည့် နည်းစနစ် ၊ ထွက်ရှိမည့် ပမာဏ နောက်ဆုံး စွန့်ထုတ်သည့် ပမာဏနှင့် ပတ်ဝန်းကျင်အပေါ် ထိခိုက်နိုင်မှုအား ဆန်းစစ်ရန်နှင့် ထိခိုက်မှု ရှိပါက လျော့ချမည့် နည်းလမ်းများကို ဖော်ပြ ပေးရန်၊ • စက်ရုံမှထုတ်လွှတ်သည့် စွန့်ပစ်ပစ္စည်း (အရည်၊ အစိုင်အခဲ) သန့်စင်ရန် အသုံးပြုမည့်နည်းစနစ်ကို အသေးစိတ် ဖော်ပြရန်၊ 		

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည်တင်ပြချက်	စာမျက်နှာ
	<p>ပစ္စည်းများကြောင့် ထိခိုက်နိုင်မှု၊ ဆူညံသံ၊ ဂေဟစနစ်အပေါ် ထိခိုက်နိုင်မှု၊ စွမ်းအင်သုံးစွဲမှုနှင့် ရေသုံးစွဲမှုများနှင့် ပတ်သက်၍ ထိခိုက်နိုင်မှုများမှာ ပြင်းထန်မှု အနည်းငယ်သာလျှင် ရှိကြောင်း ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိ ရပါသည်။ အစီရင်ခံစာ စာမျက်နှာ(၈၄)မှ(၈၆)အထိ လူမှုစီးပွားအပေါ် ထိခိုက် နိုင်မှုနှင့် ပတ်သက်၍ ယာဉ်ယန္တရားများ သွားလာမှု၊ ဒေသတွင်း စီးပွားရေး၊ ကလေးလုပ်သားများ၊ ဒေသခံပြည်သူများ၏ ဘေးကင်းလုံခြုံရေးများတွင် ထိခိုက်နိုင်မှုမှာ ပြင်းထန်မှု မြင့်မားနိုင် ကြောင်းနှင့် ပြောင်းရွှေ့လုပ်သားများနှင့် အလုပ်သမား များ၏ ဘေးကင်းလုံခြုံရေးတို့တွင် ထိခိုက်မှုမှာ အလယ် အလတ် ပြင်းထန်မှု ရှိနိုင်ကြောင်း ဖော်ပြထား သည်ကို စိစစ်တွေ့ရှိရပါသည်။</p> <ul style="list-style-type: none"> • အစီရင်ခံစာ စာမျက်နှာ(၈၇)မှ (၈၉)အထိ စီမံကိန်း ပိတ်သိမ်းသည့်ကာလနှင့် ပတ်သက်၍ လေအရည်အသွေး၊ မြေဆီလွှာနှင့် မြေအောက်ရေ၊ စွန့်ပစ်ပစ္စည်းများ (အန္တရာယ်ရှိသော စွန့်ပစ် ပစ္စည်း၊ အရည် စွန့်ပစ်ပစ္စည်း၊ အစိုင်အခဲ စွန့်ပစ်ပစ္စည်း)၊ ဆူညံသံ၊ ဂေဟစနစ်၊ စွမ်းအင် အသုံးချမှု၊ လူမှုစီးပွား စသည့်တို့ အပေါ်တွင် ထိခိုက်နိုင်မှုများအား 	<ul style="list-style-type: none"> • စက်ရုံမှ အမှန်တကယ်ဆောင်ရွက်မည့် စွန့်ပစ်ပစ္စည်းစီမံ ခန့်ခွဲမှုစနစ် (Collection, Storage, Transportation, Treatment, Disposal) နှင့်ပတ်သက်၍ အသေးစိတ် ဖော်ပြ ရန်၊ 		

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	<p>ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။ ဒေသခံ ပြည်သူများ၏ ဘေးကင်းလုံခြုံရေးများတွင် ထိခိုက်နိုင်မှုမှာ ပြင်းထန်မှု အလယ် အလတ်ရှိ နိုင်ကြောင်းနှင့် အလုပ်သမားများ၏ ဘေးကင်း လုံခြုံရေးတွင် ထိခိုက်မှုမှာ အနည်းငယ်သာ ပြင်းထန်မှု ရှိနိုင်ကြောင်းနှင့် ယာဉ်ယန္တရားများ သွားလာမှုကြောင့် ထိခိုက်နိုင်မှုမှာ ပြင်းထန်မှု မြင့်မားနိုင်ကြောင်း ဖော်ပြထားသည်ကို စိစစ်တ ဖွဲ့့ရှိရပါသည်။</p> <ul style="list-style-type: none"> • တည်ဆောက်ရေးကာလအတွက် လျော့ချမည့် နည်းလမ်းများနှင့်ပတ်သက်၍ စာမျက်နှာ(၉၄)မှ (၁၀၁) အထိ ပတ်ဝန်းကျင် ထိခိုက်မှု လျော့ချရေး အစီအစဉ်ကို အဓိက ထိခိုက်နိုင်မှုများနှင့် လျော့ချ မည့် စီမံချက်များအား ဇယားဖြင့် ဖော်ပြ ထားသည်ကို စိစစ် တွေ့ရှိရပါသည်။ • လုပ်ငန်းလည်ပတ်ထုတ်လုပ်သည့် ကာလအတွက် လျော့ချမည့်နည်းလမ်းများနှင့် ပတ်သက်၍ စာမျက်နှာ (၁၀၅)မှ (၁၁၅)အထိ ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ များအတွက် ထိခိုက်မှုလျော့ချရေး အစီအစဉ်ကို အဓိက ထိခိုက်နိုင်မှုများနှင့် 			

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	<p>လျော့ချမည့် စီမံချက်တို့အား ဇယားဖြင့် ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။</p> <ul style="list-style-type: none"> စီမံကိန်း အလုပ်သမားများအား လုပ်ငန်းခွင်သုံး ကာကွယ်ရေးသုံးပစ္စည်းများ စီစဉ်ဆောင်ရွက်ပေးသွား မည်ဖြစ်ကြောင်း ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိ ရပါသည်။ 			
၈။	<p>• ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် စောင့်ကြပ်ကြည့်ရှုမည့်အစီအစဉ်</p>			
	<ul style="list-style-type: none"> အစီရင်ခံစာ စာမျက်နှာ (၉၂)၊ (၉၃)၊ (၁၀၂)၊ (၁၀၃)နှင့် (၁၀၄) တို့တွင် တည်ဆောက်ရေး ကာလနှင့် လည်ပတ် ထုတ်လုပ်ခြင်း ကာလများအတွက် ပတ်ဝန်းကျင်စီမံ ခန့်ခွဲမှုအစီအစဉ်ကို ဆောင်ရွက်မည့်အဖွဲ့အစည်း၊ လုပ်ငန်းတာဝန်များ၊ ကြည့်ရှုရန် တာဝန်ရှိသူများကို ဖော်ပြထားသော်လည်း ပြည့်စုံမှု မရှိကြောင်း စိစစ်တွေ့ရှိပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အား အကောင်အထည်ဖော် ဆောင်ရွက်ရန်အတွက် ခန့်မှန်းလျာထား ရုံပုံငွေ အသုံးစရိတ် အား ဖော်ပြထားခြင်း မရှိသည်ကို စိစစ်တွေ့ရှိရပါသည်။ 	<ul style="list-style-type: none"> ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်တွင် ဖော်ပြထားသော လုပ်ငန်းများအား လိုက်နာဆောင်ရွက်ခြင်း၊ တာဝန်ယူခြင်း၊ အစီရင်ခံခြင်း၊ ကြီးကြပ်ခြင်းနှင့် စောင့်ကြပ်ကြည့်ရှုခြင်းဆိုင်ရာ လုပ်ငန်းများအတွက် တာဝန်ယူဆောင်ရွက်မည့် ဌာနခွဲတွင် ပါဝင်သူ တစ်ဦးချင်းစီနှင့် ၎င်းတို့၏ သက်ဆိုင်ရာ တာဝန်များ၊ ရာထူးများအား ဖော်ပြ၍ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အား လုပ်ငန်း တစ်ခုချင်းစီအလိုက် တာဝန်ယူ ဆောင်ရွက်မည့် အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်များ စသည်တို့ကို ထည့်သွင်း ဖော်ပြရန်၊ 	<ul style="list-style-type: none"> ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အားဆောင်ရွက်ရန် စီမံကိန်းဆောင်းရွက်မည့် တည်ဆောက်ရေးကာလ၊ လုပ်ငန်းလည်ပတ်ရေးကာလများအလိုက်တာဝန်ယူဆောင်ရွက်မည့်သူများ၏ တစ်ဦးချင်းအလိုက် သက်ဆိုင်ရာ ရာထူးနှင့် တာဝန်များကို အခန်း ၇-၂နှင့် ၇-၃ တွင် တင်ပြထားရှိပါသည်။ 	<ul style="list-style-type: none"> ၇-၁ မှ ၇-၄ နှင့် ၇-၁၃ မှ ၇-၁၄

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<ul style="list-style-type: none"> • ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အား အကောင်အထည်ဖော် ဆောင်ရွက် ရန်အတွက် ခန့်မှန်းလျာထားရုံပုံငွေ အသုံးစရိတ် အား ဖြည့်စွက် ဖော်ပြ ပေးရန်၊ 	<ul style="list-style-type: none"> • ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီ အစဉ်အား အကောင်အထည် ဖော် ဆောင်ရွက်ရန်အတွက် ခန့်မှန်းလျာထားရုံပုံငွေ အသုံး စရိတ်အား အခန်း ၇-၃ တွင် ဖြည့်စွက် တင်ပြ ထားပါသည်။ 	<ul style="list-style-type: none"> • ၇-၁ မှ ၇-၂၇
	<ul style="list-style-type: none"> • စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်နှင့် ပတ်သက်၍ အစီရင်ခံစာတွင် ဖော်ပြထားခြင်း မရှိသည်ကို စိစစ် တွေ့ရှိရပါသည်။ 	<ul style="list-style-type: none"> • စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်ကို ဖော်ပြရာတွင် တည်ဆောက်ရေး ကာလ၊ လည်ပတ်ထုတ်လုပ်ခြင်း ကာလ နှင့် ပိတ်သိမ်းခြင်းကာလ တို့ အတွက် ကျန်မာရေးနှင့် လုပ်ငန်းခွင် ဘေးအန္တရာယ် ကင်းရှင်းရေး၊ လေ အရည်အသွေး၊ ဆူညံသံ၊ ရေအရည် အသွေး၊ မြေအရည်အသွေး၊ စွန့်ပစ် ပစ္စည်း (အစိုင်းအခဲ/ အရည်)၊ မီးဘေး အန္တရာယ်၊ ပတ်ဝန်းကျင်ဆိုင်ရာ စာရင်း စစ်များ နှင့်ပတ်သက်၍ စောင့်ကြပ် ကြည့်ရှုမည့်နေရာ၊ ခန့်မှန်း ကုန်ကျ စရိတ်၊ အကြိမ်ရေ၊ Parameter များကို အမျိုးသား ပတ်ဝန်းကျင် ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်း 	<ul style="list-style-type: none"> • စောင့်ကြပ်ကြည့်ရှုခြင်းအစီ အစဉ်အား ညွှန်ကြား ထား သည့်အတိုင်း အခန်း (၈) တွင် ပြန်လည်ဖြည့်စွက် တင်ပြ ထားပါသည်။ 	<ul style="list-style-type: none"> • ၈-၁ မှ ၈-၄

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<p>ညွှန်ချက်များနှင့် နိုင်ငံတကာ အဖွဲ့အစည်းများ၏ စံချိန်စံညွှန်း၊ သတ်မှတ်ချက်များနှင့် နှိုင်းယှဉ်၍ စောင့်ကြပ်ကြည့်ရှုသွားမည် ဖြစ်ကြောင်း ဖော်ပြပေးရန်၊</p> <ul style="list-style-type: none"> • စောင့်ကြပ်ကြည့်ရှုခြင်း အစီရင်ခံစာကို ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဦးစီးဌာနသို့ တင်ပြရန် လိုအပ်သဖြင့် အစီရင်ခံစာအား တင်ပြမည့်အစီအစဉ်ကို ဖော်ပြရန်၊ • ထိုအစီရင်ခံစာတွင် အောက်ပါ အချက်များပါဝင်ရမည်- <ul style="list-style-type: none"> ▪ လုပ်ငန်းခွင်တွင်း စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် စစ်ဆေးခြင်း ▪ အသေးအဖွဲ့ဖြစ်ရပ်များ၊ မတော်တဆမှုနှင့် အရေး ပေါ်ကိစ္စရပ်များအား အစီရင်ခံခြင်း ▪ လုပ်ဆောင်ချက်များကို ညွှန်းကိန်းများဖြင့် သတ်မှတ်တိုင်း 	<ul style="list-style-type: none"> • စောင့်ကြပ်ကြည့်ရှုခြင်း အစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန သို့ တင်ပြမည့် အစီအစဉ်ကို အခန်း ၈-၁-၂ တွင် တင်ပြထားပါသည်။ • ထိုအစီရင်ခံစာတွင် ပါဝင်ရမည့်အချက်များအား အခန်း(၈-၁-၂) တွင် ဖြည့်စွက် တင်ပြထားပါသည်။ 	<ul style="list-style-type: none"> • ၈-၅ • ၈.၅

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
		<p>တာခြင်းနှင့် ယင်းညွှန်းကိန်း များ အတိုင်း အရေးယူ ဆောင်ရွက်ခြင်း၊</p> <ul style="list-style-type: none"> စောင့်ကြပ်ကြည့်ရှုမည့်အစီအစဉ်တွင် ဆောင်ရွက် မည့် အဖွဲ့အစည်း/ဖွဲ့စည်းပုံတို့အား ထည့်သွင်း ဖော်ပြရန်၊ လေ့ကျင့်သင်တန်းပေးခြင်းအစီအစဉ်များ 		
၉။	• ဘေးအန္တရာယ်ကာကွယ်ရေးအစီအစဉ်			
	<ul style="list-style-type: none"> အစီရင်ခံစာ စာမျက်နှာ(၁၁၆)တွင် အရေးပေါ်အခြေအနေ တုန့်ပြန်မှုအစီအစဉ်နှင့်ပတ်သက်၍ အရေးပေါ်အခြေအနေ တုန့်ပြန်မှုအဖွဲ့ ဖွဲ့စည်း၍ သင်တန်းပို့ချပြီး အဖွဲ့၏ လုပ်ငန်းတာဝန်များ၊ အခန်းကဏ္ဍများနှင့် လျင်မြန်ထိရောက်စွာ တုံ့ပြန်ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း၊ ကျန်မာရေးအရေးပေါ်ကိစ္စများအတွက် ရှေ့ဦးသူနာပြုစုနည်းသင်တန်းများ ပို့ချပေး၍ ဆေးဝါးများ ထောက်ပံ့ပေးခြင်းနှင့် သာမန် ကျန်းမာရေး ကိစ္စများအတွက် ဆေးဝါးများ နှင့် ရှေ့ဦး သူနာပြုဆေး သေတ္တာများ လုံလောက်စွာနှင့် အသင့်ထားရှိပေးသွားမည် 	<ul style="list-style-type: none"> အရေးပေါ် အခြေအနေတုန့်ပြန်မှုအစီအစဉ်၊ ကျန်းမာရေးနှင့် ဘေးအန္တရာယ် ကင်းရှင်းရေး အစီအစဉ်၊ မီးဘေးအန္တရာယ် ကာကွယ်ရေးနှင့် ဓာတုပစ္စည်းများသိုလှောင်ခြင်း အစီအစဉ် များနှင့်ပတ်သက်၍ ဆောင်ရွက်မည့်လုပ်ငန်းစဉ်များ၊ စီမံ ဆောင်ရွက်ထားရှိမှု အခြေအနေ၊ လုပ်ငန်းတာဝန်များ ဖြည့်စွက်၍ ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း ဖော်ပြပေးရန်၊ 	<ul style="list-style-type: none"> အရေးပေါ် အခြေအနေ တုန့်ပြန်မှုအစီအစဉ်၊ ကျန်းမာရေးနှင့် ဘေးအန္တရာယ် ကင်းရှင်းရေး အစီအစဉ်၊ မီးဘေးအန္တရာယ် ကာကွယ်ရေး အစီအစဉ် များအား အခန်း ၇-၅ နှင့် ၇-၆ တွင် ဖြည့်စွက် တင်ပြထားရှိပါသည်။ ဓာတုဗေဒဆေးအနေဖြင့် ဆန်ပိုးကျရောက်ပါက 	<ul style="list-style-type: none"> ၇-၂၈

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	ဖြစ်ကြောင်း၊ မီးဘေးအန္တရာယ်အတွက် အဆောက်အဦများနှင့် အလုပ်နေရာများတွင် မီးသတ်ပိုက်များနှင့် Fire Alarm များ တပ်ဆင်ထားရှိမည်ဖြစ်ကြောင်း ထည့်သွင်း ဖော်ပြထားသော်လည်း အကြံပြုချက်များ အနေဖြင့် ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။		Aluminum Phosphid 56% Tablet ဖြင့်မှိုင်းတိုင်ခြင်းအား တတိယအဖွဲ့အစည်းဖြင့် ဆောင်ရွက်ပါသည်။	
၁၀။	• အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးခြင်း			
	• အစီရင်ခံစာ စာမျက်နှာ(၁၁၇)မှ (၁၂၃)အထိ အများပြည်သူနှင့် တိုင်ပင်ဆွေးနွေးခြင်းတွင် စီမံကိန်းဝန်းကျင်ရှိ ထန်းတပင်စုကျေးရွာ၊ သန်ဖြူယုံကျေးရွာ၊ ကန်ပက်ရိုးကျေးရွာများမှ ဒေသခံပြည်သူများကို ဖိတ်ကြား၍ စီမံကိန်းနှင့်ပတ်သက်၍ ဆွေးနွေး တိုင်ပင်မှုပြုလုပ်ခဲ့ခြင်းကို ကျင်ပခဲ့သည့်အချိန်၊ နေရာ၊ တက်ရောက်သည့်ဦးရေ၊ ဆွေးနွေးမှုရလဒ်များ၊ တောင်းဆိုချက်များကို ဖော်ပြ ထားသည်ကို စိစစ်တွေ့ရှိရပါသည်။	• စက်ရုံဝန်းကျင်ရှိအများပြည်သူ၏ ဆန္ဒသဘောထား ရယူရန်နှင့် အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးရာတွင် တက်ရောက်သည့် ဦးရေ၏ အသေးစိတ်စာရင်း၊ ဆွေးနွေး ပြောကြား ချက်၊ တောင်းဆိုချက်၊ ဆွေးနွေးမှုရလဒ်နှင့် ဆောင်ရွက်ပေးမည့် အစီအစဉ်တို့အား ဖော်ပြ၍ မှတ်တမ်းဓါတ်ပုံများ၊ အမေးအဖြေ ပုံစံများဖြင့် ပူးတွဲဖော်ပြပေးရန်	• သက်ရောက်ခံ ပြည်သူများ၏ Concerns အား ထပ်မံခိုင်မာစေရန် တွေ့ဆုံမှု ထပ်မံဆောင်ရွက်ခဲ့ပြီး အခန်း (၉) တွင် ဖြည့်စွက်တင်ပြ ထားရှိပါသည်။	• ၉-၁
၁၁။	• စီမံကိန်းကြောင့် ထိခိုက်ခံစားရသည့် ဒေသခံပြည်သူများအတွက် ဆောင်ရွက်ပေးမည့် ဖွံ့ဖြိုးရေးအစီအစဉ်			
	• အစီရင်ခံစာတွင် စီမံကိန်းကြောင့် ထိခိုက်ခံစားရသည့် ဒေသခံ ပြည်သူများအတွက် ဆောင်ရွက်ပေးမည့် ဒေသဖွံ့ဖြိုးရေး အစီအစဉ် များကို	• စီမံကိန်း အကောင်အထည်ဖော်ဆောင်ရွက်မှုကြောင့် ထိခိုက် ခံစားရသည့် ဒေသခံပြည်သူများအတွက်	• အခန်း ၉-၅-၅ တွင် တင်ပြထားပါသည်။	• ၉-၁၂ မှ ၉-၁၃

စဉ်	စိစစ်တွေ့ရှိချက်များ	သုံးသပ်အကြံပြုချက်များ	ပြန်လည် တင်ပြချက်	စာမျက်နှာ
	ဖော်ပြထားခြင်း မရှိသည်ကို စိစစ် တွေ့ရှိရပါ သည်။	ဆောင်ရွက်ပေးမည့် ဒေသဖွံ့ဖြိုးရေး အစီအစဉ် များကို ဖော်ပြပေးရန်၊		
၁၂။	• အထွေထွေ			
	<ul style="list-style-type: none">EIA Procedure အပိုဒ် ၁၀၈ အရ စီမံကိန်းအဆိုပြုသူသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်၏ ဇယားပါအတိုင်း စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာကို ဝန်ကြီးဌာနသို့ (၆) လတစ်ကြိမ် တင်ပြရန်၊ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ်(၃၇) အရ ကနဦး ပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အစီရင်ခံစာ(IEE) Soft copy ကို ပူးတွဲတင်ပြရန်၊ပြန်လည်ရေးဆွဲမည့် IEE အစီရင်ခံစာတွင် ယခုပေးပို့သော အကြံပြုချက် တစ်ခုချင်းစီအလိုက် ဖြေရှင်းချက်များကို အစီရင်ခံစာ၏ မည်သည့် အပိုင်းတွင် ရေးသားထားသည်ကို ဖော်ပြသည့် (Comment Response Table) ကို ဖော်ပြပေးရန်၊ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ် (၃၆)ပါ အစီအစဉ် အတိုင်း ရေးသားတင်ပြရန်၊	<ul style="list-style-type: none">လိုက်နာဆောင်ရွက်ပါမည်။ကနဦးပတ်ဝန်းကျင်ဆန်းစစ် ခြင်း အစီရင်ခံစာ(IEE) Soft copy ကို ပူးတွဲတင်ပြပါ သည်။ဤ Comment Response Table အား ပူးတွဲတင်ပြ ပါသည်။အစီအစဉ် အတိုင်း ရေးသား တင်ပြထားပါသည်။		

Golden Lace POSCO International Co., Ltd.

Date: 15th May 2025

Attn: Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation
Office No.(58), Ottrathiri Township
Nay Pyi Taw, Myanmar

Subject: Initial Environmental Examination Report in regard to the Rice Processing Plant Project (Twantay)

Dear Sir,

We refer to the captioned IEE, which were prepared and finalized by Environmental Compliance Consultancy Co., Ltd. in accordance with the Environmental Conservation Law, Rules and Procedures under the instructions of Ministry of Natural Resources and Environmental Conservation dated on February 27, 2015, and revised on November 5, 2017.


Intending to be legally bound hereby and financially liable to the Ministry of Natural Resources and Environmental Conservation hereunder, we:

Endorse and confirm to Ministry of Natural Resources and Environmental Conservation:

- a. the accuracy and completeness of the IEE,
- b. Confirm and undertake to Ministry of Natural Resources and Environmental Conservation that the EIAs have been prepared in strict compliance with applicable Environmental Conservation Law, Rules and Procedures including Environmental Impact Assessment Procedure: Paragraph 35 and 36 (2015), and other related laws and regulations for the type of project, and
- c. Confirm and undertake to Ministry of Natural Resources and Environmental Conservation that the project company established by **Golden Lace POSCO Int'l Co., Ltd.** in respect of the **Rice Processing Plant Project (Twantay)** shall at all times comply fully with: (i) any and all commitments and obligations as set second in the IEE and (ii) any and all plans and the various components thereof, including without limitation, impact avoidance, mitigation, and remediation measures, and with respect to both (i) and (ii), including but not limited to such commitments, obligations, plans and measures as relate to the development, construction, commissioning, operation and maintenance of the project, and any circumstance in which work done or to be done, or services performed or to be performed, in connection with the project's development, construction, commissioning, operation and maintenance is carried out or intended or required to be carried out by any contractor, subcontractor or other party.

The issuance of this confirmation and undertaking has been duly authorized by all necessary corporate actions and a copy of the resolution of the Board of Directors authorizing it and the power of attorney explicitly granting signing authorization to the individual who has signed below are attached as schedules hereto.

Sincerely yours.,


Park Kyoung Ho
Managing Director



■■■■■

Golden Lace POSCO International Co., Ltd.

Yangon Office : No.56, 5th Floor, Mahaland Building, Kabar Aye Pagoda Road, Yankin Township, Yangon, Myanmar.

Factory # 1 : No.(322/323), Kanaung Min Thar Gyi Road, Shwe Lin Ban Industrial Zone, Hlaing Thar Yar Township, Yangon, Myanmar.

Factory # 2 : Holding No. CN/10, Kwin No. 124-A, Hlay Lan Kwin Kalatan Village Tract, Twantay Township, Yangon Southern District, Yangon, Myanmar.



Date: 15th May 2025

Ref: 2502038_GLPI_Commitment_EnvCC

Attn: Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation
Office No. (58), Ottrathiri Township
Nay Pyi Taw, Myanmar

Subject: Initial Environmental Examination (IEE) Report in regards to the Rice Mill Project of Golden Lace POSCO INTERNATIONAL CO., LTD in Twantay Township, Yangon, Myanmar

Dear Sir,

We refer to the captioned IEE, which were finalized upon the comments of Environmental Conservation Department (ECD) by Environmental Compliance Consultancy Co., Ltd in accordance with the Environmental Conservation Law, Rules and Procedures under the instructions of Ministry of Natural Resources and Environmental Conservation dated on February 27, 2015, and revised on November 5, 2017.

Intending to be legally bound hereby and financially liable to the Ministry of Natural Resources and Environmental Conservation hereunder, we:

Endorse and confirm to Ministry of Natural Resources and Environmental Conservation

- a. The accuracy and completeness of the EIA,
- b. Confirm and undertake to Ministry of Natural Resources and Environmental Conservation that the IEE has been prepared in strict compliance with applicable Environmental Conservation Law, Rules and Procedures including Environmental Impact Assessment Procedure: Paragraph 35 (2015), and other related laws and regulations for the type of project,
- c. Comply fully with any and all commitments for Third-Party Organization.

The issuance of this confirmation and undertaking has been duly authorized by Environmental Compliance Consultancy Co., Ltd. who has signed below are attached as schedules hereto.

Sincerely yours,

Myat Mon Swe
Director/ Principle Consultant
Environmental Compliance Consultancy Co., Ltd.



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ACRONYMS AND ABBREVIATIONS

Name	Description
BOD	Biological Oxygen Demand
CO	Carbon monoxide
CO ₂	Carbon dioxide
COD	Chemical Oxygen Demand
CSR	Corporate Social Responsibility
CVL	Central Volcanic Line
dB(A)	Decibel (unit used to measure noise level)
DMH	Department of Meteorology and Hydrology
ECC	Environmental Conservation Certificate
ECD	Environmental Conservation Department
ECL	Environmental Conservation Law
EHS	Environmental Health & Safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERP	Emergency Response Plan
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
FIL	Foreign Investment Law
FSC	Forward Sales Contract
FTU	Formazin Turbidity Unit
GAD	General Administrative Department
GPS	Global Positioning System
IEE	Initial Environmental Examination
IFC	International Finance Cooperation
ILO	International Labor Organization
LED	Light-emitting Diode
M	Myanmar Farmers Association
MFSPEA	Myanmar Fertilizer, Seed and Pesticide Entrepreneurs Association
MIC	Myanmar Investment Commission
MIMU	Myanmar Information Management Unit
MOAI	Ministry of Agriculture and Irrigation

MONREC	Ministry of Natural Resources and Environmental Conservation
MOF	Ministry of Forestry
MPPA	Myanmar Raw rice /brown rice (white / parboiled) Producers Association
MRF	Myanmar Rice Federation
MRIA	Myanmar Rice Industry Association
MRMA	Myanmar Rice Processing Complexers Association
MRPTA	Myanmar Rice & Raw rice /brown rice (white / parboiled) Traders Association
NCEA	National Commission for Environmental Affairs
NTU	Nephelometric Turbidity Unit)
NO ₂	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
OHS	Occupational Safety and Health
PAP	Project Affected People
PM ₁₀	Particulate Matter less than 10 micron
PM _{2.5}	Particulate Matter less than 2.5 micron
PPE	Personal Protective Equipment
RSC	Rice Specialization Companies
SCADA	Supervisory Control and Data Acquisition
SIA	Social Impact Assessment
SO ₂	Sulphur dioxide
SS	Suspended Solids
TSP	Total Suspended Particulate
TSP	Trisodium Phosphate
TSS	Total Suspended Solids
UN	United Nations
UNREDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
WRUD	Water Resources Utilization Department
WTO	World Trade Organization

အစီရင်ခံစာ အကျဉ်းချုပ်

၁.၁ နိဒါန်း

ဤအစီရင်ခံစာသည် Golden Lace POSCO International Co., Ltd. ၏ ဆန်စက်လုပ်ငန်းအတွက် ရေးဆွဲထားသော ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination- IEE) အစီရင်ခံစာ ဖြစ်ပါသည်။ အဆိုပါ လုပ်ငန်းသည် ရန်ကုန်တိုင်းဒေသကြီး၊ တွံတေးမြို့နယ်တွင် တည်ရှိ၍ (၁၃.၈) ဧက ကျယ်ဝန်းပြီး တစ်နေ့လျှင် တန် (၁၈၀) ဖြင့် တနှစ်လျှင် တန် (၈၅,၀၀၀) ထုတ်လုပ်တင်ပို့သွားမည်ဖြစ်ပါသည်။

ဤလုပ်ငန်းနှင့်ပတ်သက်၍ ရန်ကုန်တိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ သဘောထားမှတ်ချက် တောင်းခံခဲ့ရာတွင် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination- IEE) ရေးဆွဲရန် ပြန်ကြားခဲ့ပါသည်။ အဆိုပါ သဘောထားမှတ်ချက် ပြန်ကြားလာခြင်းအရ Golden Lace POSCO International Co., Ltd.. မှ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အစီရင်ခံစာ ရေးသားရန် ENVIRON Myanmar Co. Ltd သို့ အလုပ်အပ်နှံခဲ့ပါသည်။ ENVIRON Myanmar Co. Ltd သည် ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာကို သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနမှ ပြဌာန်းထားသော ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လမ်းညွှန်ချက်များနှင့်အညီ ရေးသားပြုစုခဲ့ပါသည်။

ထိုသို့ရေးသားပြုစုထားသည့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာနှင့် ပတ်သက်၍ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ကနဦးတွေ့ရှိချက်နှင့် သုံးသပ်အကြံပြုချက်များအား Environmental Compliance Consultancy Co., Ltd မှ တာဝန်ယူ ပြင်ဆင်ပေးရန် လုပ်ငန်းအပ်နှံခဲ့ပါသဖြင့် ယခုအစီရင်ခံစာသည် ပြန်လည်ပြင်ဆင်တင်ပြခြင်း ဖြစ်ပါသည်။

၁.၂ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အားဆောင်ရွက်ရခြင်းရည်ရွယ်ချက်

ဤ IEE နှင့် သက်ဆိုင်ရာ Environmental Management Plan (EMP) ဆောင်ရွက်ရခြင်း၏ ရည်ရွယ်ချက်မှာ အဆိုပြုစီမံကိန်းနှင့် ၎င်း၏ဆက်စပ်လုပ်ငန်းများကို တည်ဆောက်ခြင်းနှင့် လည်ပတ်ခြင်းမှ ဖြစ်ပေါ်လာနိုင်သော အလားအလာရှိသော သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုပတ်ဝန်းကျင်ဆိုင်ရာ အကျိုးသက်ရောက်မှုများ၏ သဘောသဘာဝနှင့် အတိုင်းအတာကို သိရှိရန်နှင့် သက်ရောက်မှုများကို လျော့ပါးသက်သာစေမည့် အစီအမံများကို အကောင်အထည်ဖော်ရန် ဖြစ်ပါသည်။

၁.၃ စီမံကိန်းအကြောင်းအရာဖော်ပြချက်

Golden Lace POSCO International Co., Ltd.၏ ဆန်စက်လုပ်ငန်းသည် ရန်ကုန်တိုင်းဒေသကြီး၊ တွံတေးမြို့နယ်တွင် တည်ရှိပြီး (၁၃.၈) ဧက ကျယ်ဝန်း၍ တစ်နေ့လျှင် တန် (၁၈၀) ဖြင့် တနှစ်လျှင် တန် (၈၅,၀၀၀) ထုတ်လုပ်တင်ပို့ မည်ဖြစ်ပါသည်။ အဆိုပါ ကုမ္ပဏီ၏ ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်မှာ (၁၀၅၀၃၆၂၄၈) ဖြစ်ပါသည်။

စီမံကိန်းအနေဖြင့် အဟာရတန်ဖိုးနှင့် အရည်အသွေးပြည့်မီသည့် ဆန်ဖြူနှင့် ပြည်ပသို့ တင်ပို့မည့် အရည်အသွေးမြင့်ဆန်များကို ထုတ်လုပ်ရန် ရည်ရွယ်ဆောင်ရွက်ခြင်းဖြစ်ပါသည်။

စီမံကိန်းတစ်ခုလုံးတွင် ဆောက်လုပ်ရေးလုပ်ငန်း၊ ဆိပ်ခံတံတားလုပ်ငန်းနှင့် ကြိတ်ခွဲရေးလုပ်ငန်းစဉ်များ ပါဝင်ပါသည်။

စက်ရုံသည်အဓိကအားဖြင့် ဆန်ထုတ်လုပ်ခြင်းလုပ်ငန်း လုပ်ဆောင်သည့် Product Warehouse (၂) လုံး၊ Brown Rice Warehouse (၁)လုံး၊ Parboiled Brown Rice Warehouse (၁)လုံး၊ By-Product Warehouse (၂)လုံး၊ ဝန်ထမ်းအိမ်ယာ(၁)လုံး၊ စက်ရုံမန်နေဂျာ အိမ် (၂)လုံး၊ စားသောက်ရုံ (၁)လုံး၊ ရုံးခန်း (၁)လုံးနှင့် လုံခြုံရေး အဆောက်အအုံ (၃) လုံးတို့ဖြင့် အဓိက ဖွဲ့စည်းထား ပါသည်။

ဤလုပ်ငန်း၏အဓိကကုန်ကြမ်းမှာ ဆန်လုံးညို (Brown Rice) ဖြစ်ပြီး သန့်စင်ခြင်း၊ အရောင်တင်ခြင်း နှင့် ထွက်ကုန် အဖြစ် သတ်မှတ်ထုတ်ပိုးခြင်း လုပ်ငန်းစဉ်များ ပါဝင်ပါသည်။

ထွက်ရှိလာသော ကုန်ချောများအား ဥရောပနှင့် တရုတ်နိုင်ငံသို့ အဓိကတင်ပို့သွားမည် ဖြစ်ပါသည်။ လုပ်ငန်းလည်ပတ်ရန် စုစုပေါင်း စက်ပစ္စည်း အမျိုးအစား (၃၄၄) မျိုးအား အသုံးပြုသွားမည်ဖြစ်ပြီး ဝန်ထမ်း (၇၁) ဦးနှင့် တစ်ရက်လျှင် ၁၈နာရီမှ နာရီ(၂၀)ထိ၊ တစ်ပါတ်လျှင် (၆)ရက် ဖြင့် လုပ်ငန်းဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။ တစ်နှစ်လျှင် လျှပ်စစ် အသုံးပြုမှုအနေဖြင့် ၁,၃၀၉,၁၆၀ KWh ဖြစ်ပြီး အရေးပေါ်မီးစက် (၃)လုံး- (၁၂၇၅/၁၀၀/၂၅ KV) ထားရှိပါသည်။ တစ်ရက်လျှင် ရေအသုံးပြုမှုအနေဖြင့် ၆၀၀ m³ အသုံးပြု သွားမည်ဖြစ်၍ တစ်နှစ်လျှင် လောင်စာဆီ အသုံးပြုမှု အနေဖြင့် ၂၇၀ ဂါလံ အသုံးပြုသွားမည် ဖြစ်ပါသည်။ ၎င်းနှင့် ပတ်သက်သည့် အသေးစိတ် အကြောင်းအရာများကို အခန်း (၄) တွင် ဖော်ပြထားပါသည်။

၁.၄ စီမံကိန်းရင်းနှီးမြှုပ်နှံမှု

ဤလုပ်ငန်း၏ ရင်းနှီးမြှုပ်နှံမှုကာလမှာ နှစ် (၅၀) ဖြစ်၍ အမေရိကန် ဒေါ်လာ (၁၆,၆၁၂,၅၀၀) ဖြင့် ရင်းနှီးမြှုပ်နှံ ထားသော ပြည်တွင်းရှိ လုပ်ငန်းရှင်နှင့် ဖက်စပ်ဆောင်ရွက်သော နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု ဖြစ်ပါသည်။

၁.၅ အခြားနည်းလမ်းရွေးချယ်ခြင်း

စီမံကိန်းဧရိယာအနေဖြင့် ပြန်လည်နေရာချထားရေး၊ လျှပ်စစ်မီးရရှိရေး၊ ရေရရှိရေး၊ ကုန်ကြမ်းပစ္စည်း ရရှိရေး၊ သယ်ယူပို့ဆောင်ရေးများနှင့် ပတ်သက်၍ စိုးရိမ်စရာမရှိသည့် နေရာဖြစ်သဖြင့် စီမံကိန်းသည် သဘာဝ ပတ်ဝန်းကျင်နှင့် လူမှုဝန်းကျင်အရ တာဝန်ခံမှုရှိရမည်ဖြစ်ပြီး စီမံကိန်းအတွက် အကောင်းဆုံးရွေးချယ်မှု ဖြစ်ပါ သည်။

အဆိုပြုစီမံကိန်းသည် ပေါင်းစည်းထားသည့် လယ်ယာလုပ်ငန်းများမပါဝင်သဖြင့် ရိတ်သိမ်းချိန်နှင့် ရိတ်သိမ်းပြီးချိန် မှစ၍ လယ်သမားများထံမှ ရိက္ခာလုံခြုံစိတ်ချမှုနှင့် စပါးဝယ်ယူမှု အပါအဝင် စပါးတန်ဖိုး ကွင်းဆက် တစ်ခုလုံးကို လွှမ်းမိုးနိုင်မည်ဖြစ်ပါသည်။

အခြားနည်းလမ်းရွေးချယ်ရန် စဉ်းစားရမည့်အချက်တစ်ချက်အဖြစ် စွမ်းအင်သက်သာ၍ ရေရှည်တည်တံ့ ခိုင်မြဲသည့် ဆန်ပြုပြင်ထုတ်လုပ်ခြင်းနည်းပညာနှင့် သဘာဝပတ်ဝန်းကျင်ထိခိုက်မှု အနည်းဆုံးဖြစ်စေရန် သယံဇာတ အသုံးချမှုကို မြှင့်တင်ပေးနိုင်သည့် အလေ့အကျင့်များဖြစ်သော စွမ်းအင်သက်သာသည့် စက်ကရိယာ

များအသုံးပြုခြင်း၊ ရေကိုခြွေတာသည့်နည်းစနစ်များ၊ အမှိုက်စီမံခန့်ခွဲမှုဗျူဟာများကိုလည်း ထည့်သွင်း စဉ်းစားဆောင်ရွက်ရမည်ဖြစ်ပါသည်။

အဆိုပြုစီမံကိန်းအား အကောင်အထည်ဖော်ဆောင်ရွက်နိုင်ခြင်းမရှိပါက စီမံကိန်းမှ ရရှိနိုင်သည့် အောက်ဖော်ပြပါ အကျိုးကျေးဇူးများအား ရရှိနိုင်လိမ့်မည်မဟုတ်ပေ။

- စီမံကိန်း၏ဖွံ့ဖြိုးတိုးတက်မှုနှင့် လည်ပတ်မှုကာလအတွင်း ဒေသတွင်း အလုပ်အကိုင်ဖန်တီးနိုင်ခြင်း၊
- ဒေသတွင်း ကုန်သွယ်မှုနှင့် ပူးပေါင်းဆောင်ရွက်နိုင်မှုအလားအလာများဖန်တီးနိုင်ခြင်း၊
- ပြည်ထောင်စုနှင့် တိုင်းဒေသကြီးအတွင်း အခွန်ဝင်ငွေရရှိမှုနှင့် စီးပွားရေးဖွံ့ဖြိုးတိုးတက်မှု အလားအလာများ တိုးတက်ဖြစ်ပေါ်ခြင်း၊
- တုံ့တေးမြို့နယ်အတွင်း အခြေခံအဆောင်အအ်းများဖွံ့ဖြိုးတိုးတက်မှု အလားအလာများ ဖြစ်ထွန်းခြင်း၊

၁.၆ စီမံကိန်းအဆိုပြုသူ၏ အကြောင်းအရာ

Golden Lace POSCO International Co., Ltd. အနေဖြင့် မြန်မာနိုင်ငံတွင် ခေတ်မီနည်းပညာများကို ဆန်းသစ်တီထွင်အသုံးပြု၍ အရည်အသွေးမြင့် ဆန်များကို တင်ပို့ရောင်းချရန်၊ စပါးရိတ်သိမ်းချိန်လွန်ကာလ များတွင် ဆုံးရှုံးမှုကို တားဆီးရန် သင်တန်းများ ပံ့ပိုးပေးခြင်းနှင့် ထုတ်လုပ်မှုနည်းပညာများ ခေတ်မီအောင် ပေါင်းစပ်ခြင်းဖြင့် ထုတ်လုပ်မှုစွမ်းအား မြှင့်တင်ရန် ရည်ရွယ်၍ ဤဆန်စက်လုပ်ငန်းအား ဆောင်ရွက်ခြင်း ဖြစ်ပါသည်။

Golden Lace POSCO International Co., Ltd. မှ ဤအစီရင်ခံစာအပေါ် တာဝန်ရှိသူနှင့် ဆက်သွယ်ရန်မှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။

အမည်	- ဒေါ်တင်ထားဖုန်း
ရာထူး	- General Manager, HR & Admin Department
လိပ်စာ	- အမှတ်- ၅၆, (၅)လွှာ၊ မဟာလမ်းအဆောက်အအုံ၊ ကမ္ဘာအေးဘုရားလမ်း၊ ရန်ကင်းမြို့နယ်၊ ရန်ကုန်မြို့
ဖုန်းနံပါတ်	- + ၉၅ ၉၂၅၀၆၈၄၉၅၉
အီးလ်မေးလ်	- htp@gl-pi.com

၁.၇ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာဆောင်ရွက်သည့် တတိယအဖွဲ့အစည်း၏ အကြောင်းအရာ

Environmental Compliance Consultancy Co. Ltd (EncvCC) သည် ကနဦးပတ်ဝန်းကျင် ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်းများ လုပ်ငန်းလိုင်စင် အမျိုးအစား (က)- လိုင်စင်အမှတ် EIA-CO (A) 005/2024 ရရှိပြီးသည့် တတိယအဖွဲ့အစည်းတစ်ခု ဖြစ်ပြီး ဒေသတွင်းနှင့် နိုင်ငံတကာ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လမ်းညွှန်ချက်များ၊ လုပ်ထုံး

လုပ်နည်းများ၊ စီမံကိန်းဆိုင်ရာ ဥပဒေများနှင့် စည်းမျဉ်းစည်းကမ်းများအရ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအား ဆောင်ရွက်လျက်ရှိပါသည်။

Environmental Compliance Consultancy Co., Ltd. မှ ဤအစီရင်ခံစာအပေါ် တာဝန်ရှိသူနှင့် ဆက်သွယ်ရန်မှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။

အမည်	- ဒေါ်မြတ်မွန်ဆွေ
ရာထူး	- Principle Consultant
လိပ်စာ	- (၁) မ/၂၀၊ နိဗ္ဗိန္ဒလမ်း၊ နံသာကုန်းရပ်ကွက်၊ အင်းစိန်မြို့နယ်၊ ရန်ကုန်မြို့၊ (၂) အမှတ် (၅၆၁၁)၊ သစ်ခွ (၁) လမ်း၊ ဇေယျသိန္နီရပ်ကွက် ၊ ဥတ္တရသီရိမြို့နယ်၊ နေပြည်တော်
ဖုန်းနံပါတ်	- + ၉၅ ၉၄၂၀၁၁၁၉၀၂
အီးလ်မေးလ်	- myatmonswe@envccmyanmar.com , myatmonswe@gmail.com

၁.၈ လိုက်နာဆောင်ရွက်ရမည့် ဥပဒေ၊ နည်းဥပဒေ၊ မူဘောင်ဆိုင်ရာလုပ်ထုံးလုပ်နည်းများ

Golden Lace POSCO International Co., Ltd. ၏ ဆန်စက်လုပ်ငန်းနှင့်ပတ်သက်သည့် တည်ဆဲ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေနှင့် နည်းဥပဒေများ၊ အပြည်ပြည်ဆိုင်ရာ စံချိန်စံနှုန်းများနှင့် လမ်းညွှန်ချက်များ အပါအဝင် မူဝါဒနှင့် ဥပဒေရေးရာ မူဘောင်များမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။ ၎င်းနှင့်ပတ်သက်သည့် အသေးစိတ် အကြောင်းအရာများကို အခန်း (၃) တွင် တင်ပြထားပါသည်။

- မြန်မာနိုင်ငံ အမျိုးသား ပတ်ဝန်းကျင်ရေးရာမူဝါဒ (၂၀၁၉)
- မြန်မာနိုင်ငံရာသီဥတုပြောင်းလဲမှုဆိုင်ရာမူဝါဒ(၂၀၁၉)
- ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော် ဖွဲ့စည်းပုံအခြေခံ ဥပဒေ (၂၀၀၈)
- သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲမှုဥပဒေ (၂၀၁၃)
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၂)
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေများ (၂၀၁၄)
- ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း (၂၀၁၅)
- အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ(၂၀၁၅)
- ရေအရင်းအမြစ်နှင့် မြစ်ချောင်းများ ထိန်းသိမ်းရေးဥပဒေ (၂၀၀၆)
- တောရိုင်းတိရစ္ဆာန်နှင့် သဘာဝအပင်များကာကွယ်ရေးနှင့် သဘာဝနယ်မြေများ ထိန်းသိမ်းရေးဥပဒေ (၁၉၉၄)
- ဇီဝမျိုးစုံမျိုးကွဲနှင့် သဘာဝထိန်းသိမ်းရေးနယ်မြေများ ကာကွယ်စောင့်ရှောက်ခြင်းဆိုင်ရာဥပဒေ (၂၀၁၈)
- ယဉ်ကျေးမှုအမွေအနှစ်ဒေသများ ကာကွယ်ထိန်းသိမ်းရေးဥပဒေ (၁၉၉၈)

- ရှေးဟောင်းဝတ္ထုပစ္စည်းများ ကာကွယ်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၅)
- ရှေးဟောင်းအဆောက်အအုံများကာကွယ်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၅)
- မြန်မာနိုင်ငံ မီးသတ်တပ်ဖွဲ့ ဥပဒေ (၂၀၁၅)
- မော်တော်ယာဉ်ဥပဒေ (၂၀၁၅)
- ပြည်ထောင်စုမြန်မာနိုင်ငံ ပြည်သူ့ကျန်းမာရေးဆိုင်ရာ ဥပဒေ (၁၉၇၂)
- ကူးစက်ရောဂါများ ကာကွယ်နှိမ်နင်းရေးဥပဒေ (၁၉၉၅)
- လုပ်ငန်းခွင်ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ကျန်းမာရေးဆိုင်ရာဥပဒေ (၂၀၁၉)
- အလုပ်အကိုင်နှင့် ကျွမ်းကျင်မှု ဖွံ့ဖြိုးတိုးတက်ရေးဥပဒေ (၂၀၁၃)
- အလုပ်သမားရေးရာ အငြင်းပွားမှုဖြေရှင်းရေးဥပဒေ (၂၀၁၂)
- အလုပ်သမားလျော်ကြေးငွေအက်ဥပဒေ (၁၉၂၃၊ ပြင်ဆင်ခြင်း- ၁၉၅၅၊ ၁၉၅၇၊ ၂၀၀၅)
- အလုပ်သမားအဖွဲ့အစည်းဥပဒေ (၂၀၁၁)
- အနည်းဆုံးအခကြေးငွေဥပဒေ (၂၀၁၃)
- အခကြေးငွေပေးချေရေးဥပဒေ (၂၀၁၆)
- ခွင့်ရက်နှင့် အလုပ်ပိတ်ရက်အက်ဥပဒေ(၂၀၁၄)
- လူမှုဖူလုံရေးဥပဒေ (၂၀၁၂)
- တိုင်းရင်းသားလူမျိုးများ၏ အခွင့်အရေးကာကွယ်စောင့်ရှောက်သည့်ဥပဒေ (၂၀၁၅)
- ဆေးလိပ်နှင့် ဆေးရွက်ကြီးထွက်ပစ္စည်းသောက်သုံးမှုထိန်းချုပ်ရေးဥပဒေ (၂၀၀၆)
- ဓာတုပစ္စည်းနှင့် ဆက်စပ်ပစ္စည်းများအန္တရာယ်မှ တားဆီးကာကွယ်ရေးနည်းဥပဒေများ (၂၀၁၆)
- ဓာတုပစ္စည်းနှင့် ဆက်စပ်ပစ္စည်းများအန္တရာယ်မှ တားဆီးကာကွယ်ရေးဥပဒေ (၂၀၁၃)
- မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှု ဥပဒေ (၂၀၁၆)
- မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုနည်းဥပဒေများ (၂၀၁၇)
- နိုင်ငံခြား ရင်းနှီးမြှုပ်နှံမှုဥပဒေ (၂၀၁၂)
- ရန်ကုန်မြို့တော် စည်ပင်သာယာရေးဥပဒေ (၂၀၁၈)
- ပို့ကုန်သွင်းကုန်ဥပဒေ (၂၀၁၂)

၁.၉ ဆန်ပြုပြင်ထုတ်လုပ်ပုံအဆင့်ဆင့် (စီမံကိန်းလည်ပတ်သည့်အဆင့်)

ဆန်ပြုပြင်ထုတ်လုပ်ပုံအဆင့် (၈)ဆင့်ရှိပြီး အောက်ပါအတိုင်းဖြစ်ပါသည်။

(၁) ကုန်ကြမ်းပို့ဆောင်ခြင်း (Raw Feeding Section)- ဆန်ဖြူ သို့မဟုတ် ပေါင်းဆန် (par boiled rice) သို့ မဟုတ် ဆန်ဖြူကုန်ကြမ်း (white rice raw) အား သန့်စင်စက်သို့ ပို့ဆောင်ခြင်းဖြစ်ပါသည်။

(၂) **အမှိုက်သန့်စင်ခြင်း (Cleaning)**- သန့်စင်စက်၏ လေစုပ်စက်မှတစ်ဆင့် ပေါ့ပါးသောအမှိုက်များ၊ အမှုန်အမွှားများ အား ဖယ်ရှားပါသည်။

(၃) **သံစနှင့် ကျောက်ခဲအစများဖယ်ရှားခြင်း (Destoner Section)**- သန့်စင်ပြီး ဆန်ဖြူ သို့မဟုတ် ပေါင်းဆန် (par boiled rice) သို့ မဟုတ် ဆန်ဖြူကုန်ကြမ်း (white rice raw) တွင် ပါဝင်နိုင်သည့် သံတိုသံစများနှင့် ကျောက်ခဲများ အား Destoner စက်၏ တုန်ခါမှုနှင့်ဖယ်ရှားပေးပါသည်။

(၄) **ဆန်ဖွတ်ခြင်း (Whitening Section)**- သန့်စင်ပြီးသည့် ဆန်ကို ဖြူစင်အောင် ပွတ်တိုက်ခြင်း လုပ်ငန်းစဉ်ဖြစ်ပြီး ငွေရောင်အခွံနှင့် ဖွဲနုအလွှာကို ဖယ်ရှားခြင်းဖြင့် ဆန်၏ ကောင်းမွန်သောအသွင်အပြင်ကို ရရှိစေပါသည်။

(၅) **အရောင်တင်ခြင်း (Polishing Section)**- ဖွတ်ထားသော ဆန်ဖြူ သို့မဟုတ် ပေါင်းဆန် (par boiled rice) သို့ မဟုတ် ဆန်ဖြူကုန်ကြမ်း (white rice raw) ကို ပိုးသားကဲ့သို့ အရောင်ပြောင်အောင် ပွတ်တိုက်ရပါသည်။

(၆) **အဆင့်သတ်မှတ်ခြင်း (Grading Section)** - ဆန်ကွဲအကြီးနှင့်အသေးများအား ဖယ်ထုတ်ခြင်းဖြင့် ဆန်အမျိုးအစားများအား သတ်မှတ် အရွယ်အစားရရှိစေပါသည်။

(၇) **အရောင်ခွဲခြားခြင်း (Color Sorting Section)**- အရောင်ရှိသောဆန်များအား စက်ဖြင့်ဖယ်ထုတ်ခြင်းဖြင့် ဆန်ဖြူအချောထည်ရရှိအောင် ဆောင်ရွက်ခြင်းဖြစ်ပါသည်။

(၈) **ချိန်တွယ်ခြင်းနှင့် ထုတ်ပိုးခြင်း (Weighing and Packing)** - ဆန်ချောများအား အသင့် ရောင်းချရန်အတွက် အလေးချိန်သည့်စက်ဖြင့် သတ်မှတ်ချိန်တွယ်၍ ပြင်ပတွင် အပ်နှံဆောင်ရွက်ထားသည့် တံဆိပ်နှိပ်ခတ်ထားသည့် အိတ်များအတွင်း ထည့်သွင်း ထုတ်ပိုးခြင်းဖြစ်ပါသည်။

မို့၊ ပိုးမွှားနှင့် အနံ့အသက်တို့ကို ကာကွယ်ရန် ဆန်သိုလှောင်မှု အခြေအနေ- စီမံကိန်းမှ အသင့်ကုန်ချောဆန် (Ready Cargo) နှင့် ကုန်ကြမ်းဆန် (Rice Raw) များကို ကုန်သည်များထံမှ ဝယ်ယူပါသည်။ **အသင့် ကုန်ချောဆန်အား အိတ်လဲလှယ်သွတ်သွင်းရန်နှင့် ကုန်ကြမ်းဆန်များအား ပြုပြင်ထုတ်လုပ်ရန်** ကုန်သည်ထံမှ ပေးပို့လာသည့် အသင့်ကုန်ချောဆန် (Ready Cargo) နှင့် ကုန်ကြမ်းဆန် (Rice Raw) များကို ယာဉ်များပေါ်မှ သိုလှောင်ရုံသို့ သယ်ယူခြင်းမပြုမီ နမူနာများရယူပြီး အစိုဓာတ်ပါဝင်မှု ရာခိုင်နှုန်း (Moisture Content) ၁၄% နှင့် ၁၄% အောက်ရှိမရှိနှင့် ပိုးပါဝင်မှုရှိမရှိကို စက်ရုံ၏ အရည်အသွေးထိန်းညှိရေး (QC) မှ စစ်ဆေးပါသည်။ စစ်ဆေးချက်အရ အစိုဓာတ်မှာ ၁၄% နှင့် ၁၄% အောက်ရှိပြီး ပိုးပါဝင်မှုမရှိပါက ယာဉ်ပေါ်မှ သိုလှောင်ရုံသို့ သယ်ယူ ပါသည်။

ယာဉ်ပေါ်မှ သယ်ချစဉ် ဆန်တအိတ်ချင်းစီမှ နမူနာ ထပ်မံရယူပြီး အစိုဓာတ်နှင့် ပိုးပါဝင်မှုအား ထပ်မံစစ်ဆေးပါ သည်။ သတ်မှတ်ချက်နှင့် ကိုက်ညီပါက လက်ခံပြီး ကိုက်ညီမှု မရှိပါက ကုန်သည်ထံပြန်ပို့ပါသည်။ လက်ခံရရှိသော ဆန်များကိုအမျိုးအစားအလိုက် ပိုင်ပုံစနစ်ဖြင့်လက်ခံပါသည်။ ပိုင်ပုံအောက်ခံမှာ သစ်သားခုံများ ဖြစ်ပါသည်။ သိုလှောင်ထားသော ပိုင်ပုံမှ ဆန်အရည်အသွေးကို အပတ်စဉ် စစ်ဆေးပြီး လိုအပ်ပါက ပိုင်လိုက် ပြောင်းရွှေ့ခြင်း၊ ထက်အောက်လှန်ခြင်း၊ ပိုးတွေ့ပါက အဆိပ်ငွေ့ မှိုင်းတိုက်ဆေး (Aluminium Phosphid 56% Tablet) ဖြင့် ပိုးသတ်ခြင်းတို့ကို ဆောင်ရွက်ပါသည်။

၁.၁၀ စီမံကိန်းအနီးဝန်းကျင်ရှိ ပတ်ဝန်းကျင်နှင့် လူမှုဝန်းကျင်အခြေအနေ

စီမံကိန်းဧရိယာသည် မြေပြန့်လွင်ပြင်ဒေသဖြစ်ပြီး တွံတေးတူးမြောင်းဘေးတွင် တည်ရှိပါသည်။ တွံတေးတူးမြောင်းသည် ဧရာဝတီမြစ်နှင့် ရန်ကုန်မြို့ရှိ လှိုင်မြစ်ကို ဆက်သွယ်ထားပြီး ၂၂ မိုင် (၃၅ ကီလိုမီတာ) ရှည်လျား၍ မြန်မာနိုင်ငံ၏ စပါးကျိဖြစ်သည့် ရန်ကုန်နှင့် ဧရာဝတီမြစ်ဝကျွန်းပေါ်ဒေသတို့ကြား အတိုဆုံးနှင့် အလျင်မြန်ဆုံး ဝင်ရောက်နိုင်သည့် တူးမြောင်းဖြစ်ပါသည်။

စီမံကိန်းဧရိယာမြို့နယ်သည် ပူဇွန်၊ စွတ်စိုသော ရာသီဥတုရှိပြီး အမြင့်ဆုံးအပူချိန် (၃၀°C) နှင့် အနိမ့်ဆုံးအပူချိန်မှာ (၂၅°C) ဖြစ်ပါသည်။ တစ်နှစ်ပတ်လုံးမိုးရေချိန်အနေဖြင့် ၂၄၀ မှ ၄၃၀ မီလီမီတာ (၁- မှ ၁၇လက်မ)ထိ ရှိပါသည်။

မြန်မာနိုင်ငံတွင် ကြီးမားသည့် ပြတ်ရွှေ့ကြောများ တည်ရှိနေသော်လည်း စီမံကိန်းဒေသသည် ကြီးမားသော ငလျင်လှုပ်ခတ်မှုမှ ယနေ့ထိ ကင်းလွတ်လျက်ရှိပါသည်။ သို့ရာတွင် ၂၀၀၈ ခုနှစ်၊ မေလတွင် ပြင်းထန်သော နာဂစ် ဆိုင်ကလုန်းမုန်တိုင်းဒဏ်ကို ခံစားခဲ့ရပြီး မြန်မာနိုင်ငံ၏ သဘာဝဘေးကျရောက်မှုနှင့်အညီ ရေကြီးရေလျှံမှုများ ဖြစ်ပွားနိုင်သည်ကို တွေ့ရှိရပါသည်။

ဆန်စက်ရုံသည် ဆန်စပါးထုတ်လုပ်ခြင်းလုပ်ငန်းဖြစ်သော်လည်း စပါးမှ ထုတ်လုပ်ခြင်းမဟုတ်ဘဲ အသင့်ထုတ်ပိုးရောင်းချနိုင်သည့် ဆန်ဖြူနှင့် ကုန်ကြမ်းအဖြစ် ပေါင်းဆန်၊ ဆန်လုံးညို (Brown Rice) ကိုသာ ဝယ်ယူ၍ ဆန်ဖြူအသန့်ထုတ်လုပ်သည့်အတွက် စက်ရုံအတွင်းတွင် အမှုန်အမွှားများ၊ ဓာတ်ငွေ့များ ထွက်ရှိမှု နည်းပါးပြီး လုပ်ငန်း လည်ပတ်ရာတွင် လျှပ်စစ်ကိုသာ အဓိက အသုံးပြု သည့်အတွက် အန္တရာယ်ရှိသော အခိုးအငွေ့ ထွက်ရှိနိုင်မှုလည်း နည်းပါးနိုင်ကြောင်း လေ့လာ တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ စက်ရုံအတွင်း လေထုတိုင်းတာမှုအား ပြုလုပ်ခဲ့ခြင်း မရှိဘဲ စက်ရုံဝန်းကျင်တွင် တိုင်းတာခဲ့သော လေအရည်အသွေးရလဒ်များမှာ ဆာလ်ဖာဒိုင် အောက်ဆိုဒ်မှ လွဲ၍ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး ထုတ်လွှတ်မှု လမ်းညွှန်ချက်များ (NEQG) ရှိ သတ်မှတ်ချက်အတွင်း တည်ရှိသည်ကို တွေ့ရှိရပါသည်။

သို့ရာတွင် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ ကနဦးတွေ့ရှိချက်နှင့် သုံးသပ်အကြံပြုချက်အရ စက်ရုံအတွင်း လေထုတိုင်းတာမှုအား စက်ရုံဝင်းအတွင်း ထပ်မံတိုင်းတာရန် ညွှန်ကြားခဲ့ပါသဖြင့် တင်ပြချက်များအား ပိုမိုခိုင်မာစေရန်ရည်ရွယ်၍ လေအရည်အသွေးအား (၁-၅-၂၀၂၅) ရက်နေ့တွင် ထပ်မံတိုင်းတာခဲ့ရာတွင် လေအရည်အသွေးမှာ ဆာလ်ဖာဒိုင်အောက်ဆိုဒ်မှလွဲ၍ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေးထုတ်လွှတ်မှု လမ်းညွှန်ချက်များ (NEQG) ရှိ သတ်မှတ်ချက်အတွင်း တည်ရှိသည်ကို တွေ့ရှိရပါသည်။

ထိုသို့ဖြစ်ပွားခြင်းမှာ ဆာလ်ဖာဒိုင် အောက်ဆိုဒ်သည် လောင်စာလောင်ကျွမ်းမှုအတွင်း ဖြစ်ပေါ်တတ်သည်ဖြစ်ရာ စက်ရုံ၏တည်နေရာသည် ရန်ကုန်-မအူပင်လမ်းမကြီးနှင့် တွံတေးတူးမြောင်းကြားတွင် တည်ရှိသဖြင့် သွားလာရေးယာဉ်များနှင့် ရေယာဉ်များ၏ လောင်စာလောင်ကျွမ်းခြင်းနှင့် စက်ရုံပတ်လည်ရှိ လယ်ကွင်းများမှ ကောက်ရိုးမီးရှို့ခြင်းတို့မှ ထွက်ရှိလာခြင်း ဖြစ်နိုင်သည်ကို လေ့လာဆန်းစစ်ရပါသည်။

စီမံကိန်းလုပ်ဆောင်ချက်များကြောင့် ပတ်ဝန်းကျင်သို့ ထိခိုက်ညစ်ညမ်းစေသော ဆူညံသံမှ သက်ရောက်မှုရှိ/ မရှိ သိရှိစေရန် စက်ရုံအတွင်းရှိ ဆူညံသံများကို Digital Sound Level Meter ဖြင့် (၁-၅-၂၀၂၅) ရက်နေ့တွင်

ထပ်မံတိုင်းတာချက်များအရ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး ထုတ်လွှတ်မှု လမ်းညွှန်ချက်များ (NEQG) ရှိ သတ်မှတ်ချက်များမှ နေအချိန်တွင် ကျော်လွန်မှု မရှိသည်ကို တွေ့ရှိရသော်လည်း ညအချိန်တွင် သတ်မှတ်ချက် ထက် ၁၅ dBA ကျော်လွန်သည်ကိုတွေ့ရှိရပါသည်။ ထိုသို့ဖြစ်ပွားခြင်းမှာ စက်ရုံသည် ညအချိန်တွင် လည်ပတ်ခြင်းမရှိ သော်လည်း ပတ်ဝန်းကျင်တွင် သွားလာလျှက်ရှိသည် မော်တော်ယာဉ်များ၊ ဆိုင်ကယ်များနှင့် ရေယာဉ်များကြောင့် လည်းကောင်း၊ ပတ်ဝန်းကျင်ရှိ လယ်ယာမြေများတွင် ညအချိန် ကျက်စား လျှက်ရှိသည့် သတ္တဝါများ အထူးသဖြင့် ငှက်များအသံကြောင့် ဖြစ်နိုင်သည်ကို လေ့လာတွေ့ရှိရပါသည်။

စီမံကိန်း၏ မြေအရည်အသွေးဆိုင်ရာ အချက်အလက်များကို သိရှိနိုင်ရန်အတွက် စီမံကိန်းဧရိယာအတွင်း အနက် ၃ မီတာမှ ကောက်ယူခဲ့သည် မြေနမူနာအား သေချာစွာ ထုပ်ပိုး၍ စိုက်ပျိုးရေး၊ မွေးမြူရေးနှင့် ဆည်မြောင်း ဝန်ကြီးဌာန၊ ဆည်မြောင်းဦးစီးဌာန (၂၀၁၅) နှင့် မြေအသုံးချရေးဦးစီးဌာန (၂၀၂၅) ရှိ ဓာတ်ခွဲခန်းသို့ ပို့ဆောင်၍ မြေနမူနာ စမ်းသပ်ခြင်းကို ပြုလုပ်ခဲ့ရာ မြေဆီလွှာသည် စိုက်ပျိုးရေးအတွက် သင့်တော်သည့် အနေအထား အဆင့်တွင် တည်ရှိပြီး ပိုတက်ဆီယမ်ပါဝင်မှု အနည်းဆုံး ဖြစ်သည်ကို တွေ့ရှိရပါသည်။

စီမံကိန်း၏ ရေအရည်အသွေးဆိုင်ရာ အချက်အလက်များကို သိရှိနိုင်ရန်အတွက် မြေအောက်ရေ (Ground Water) နှင့် စွန့်ပစ်အရည် (Wastewater) ရေနမူနာများအား စက်ရုံ အတွင်းကောက်ယူခဲ့ပြီး ဆည်မြောင်းဦးစီးဌာန laboratory နှင့် Ecological Lab သို့ ၂၀၁၅ နှင့် (၁၅-၅-၂၀၂၅) တွင် ပို့ဆောင် စစ်ဆေးခဲ့သည့် တိုင်းတာရရှိခဲ့သော တူးမြောင်းရေနှင့် မြေအောက်ရေ အရည်အသွေး ရလဒ်များအရ (WHO Drinking Water Guideline Geneva 1993) Ammonia-Nitrogen (NH₃-N) နှင့် Turbidity သည် သတ်မှတ်ချက်ထက် ကျော်လွန်နေသည်ကို တွေ့ရှိရပြီး ကျန်ပါရာမီတာများမှာ စံချိန်စံညွှန်း အတွင်း ရှိသည်ကို တွေ့ရှိရပါသည်။

စီမံကိန်းဒေသ၏ ဇီဝဝန်းကျင်ဆိုင်ရာ အချက်အလက်များကို ထုတ်ဝေထားရှိသည့် သတင်းအချက်အလက် များနှင့် ပြည်သူလူထုနှင့်တွေ့ဆုံမေးမြန်းမှု၊ လေ့လာမှုများမှ လေ့လာဆန်းစစ်ချက်အရ အကျဉ်းချုပ်အား အောက်ပါ အတိုင်း လေ့လာတွေ့ရှိရပါသည်။

- (၁) အပင်မျိုးစိတ် စုစုပေါင်း (၄၁)မျိုးဖြစ်သော ဆေးဘက်ဝင်အပင် (Herb) (၄) မျိုး၊ နွယ်ပင် (၂)မျိုး၊ သစ်ပင်ငယ်မျိုး (၆)မျိုး၊ သစ်ပင်ကြီးမျိုး (၂၃) မျိုး၊ ဒြဲဖုတ်မျိုး (၅) မျိုးနှင့် ဝါးမျိုးစိတ် (၁) မျိုး အား တွေ့ရှိရပြီး အများစုမှာ ကာကွယ်ထိန်းသိမ်းရန် လိုအပ်သည့် မျိုးစိတ်များဖြစ်သည်ကို မတွေ့ရှိရဘဲ Endangered (EN) အနေဖြင့် ထန်းပင်များ ပေါက်ရောက်လျက်ရှိသည်ကို တွေ့ရှိရပါသည်။
- (၂) စီမံကိန်းဧရိယာအနီး နို့တိုက်သတ္တဝါမျိုးစိတ် (၄) မျိုး ဖြစ်သည့် Small Asian Mongoose၊ Crab eating Mongoose၊ Farm-coloured Mouseed နှင့် House Shrew တို့ကိုတွေ့ရှိရပြီး IUCN Red List (2024-2) အရ threatened species နှင့် endemic species များကို မတွေ့ရှိရပါ။
- (၃) ကုန်းနေ ရေနေနှင့် တွားသွားသတ္တဝါအဖြစ် ဖားမျိုးစိတ် (၁)မျိုး၊ အိမ်မြှောင်မျိုးစိတ် (၁)မျိုးနှင့် မြွေမျိုးစိတ် (၄)မျိုးအား တွေ့ရှိရပြီး IUCN Red List (2024-2) အရ threatened species နှင့် endemic species များကို မတွေ့ရှိရပါ။
- (၄) ငှက်မျိုးစိတ် (၁၉)မျိုးအား လေ့လာတွေ့ရှိရပြီး IUCN Red List (2024-2) အရ threatened species နှင့် endemic species များကို မတွေ့ရှိရပါ။

- (၅) တွေ့ရှိရသည့် လိပ်ပြာမျိုးစိတ် (၁၄)မျိုးအနက် IUCN red list (2024-2) အရ Peacock pansy (Junonia almanac) သည် least concern (LC) ဖြစ်သည်ကို တွေ့ရှိရပါသည်။
- (၆) ပုစဉ်းမျိုးစိတ်များအား စီမံကိန်းဧရိယာအတွင်း အများစုတွေ့ရှိရပြီး တွေ့ရှိရသော မျိုးစိတ် (၃)မျိုးမှာ IUCN Red List (2024-2) အရ threatened species နှင့် endemic species များ မဟုတ်ကြောင်း တွေ့ရှိရပါသည်။
- (၇) ငါးမျိုးစိတ် (၁၂)မျိုးခန့်လေ့လာတွေ့ရှိရသည့်အနက် IUCN Red List (2024-2) အရ အများစုမှာ least concern (LC) ဖြစ်သည်ကို တွေ့ရှိရပြီး threatened species နှင့် endemic species များကို မတွေ့ရှိရပါ။
- (၈) စီမံကိန်းနှင့် အနီးဆုံး ဘေးမဲ့ဧရိယာမှာ ရန်ကုန်မြို့၏ မြောက်ဘက်၊ မင်္ဂလာဒုံမြို့နယ်တွင် တည်ရှိသော လှော်ကား ဥယျာဉ် ဖြစ်ပြီး စီမံကိန်းမှ လုပ်ဆောင်ချက်များကြောင့် ထိခိုက်သက်ရောက်နိုင်မှုမရှိပါ။

စီမံကိန်းဧရိယာ၏ လူမှုဝန်းကျင်အခြေအနေနှင့် ပတ်သက်၍ အနီးရှိ ကုလားတန်ကျေးရွာအုပ်စုရှိ သံဖြူရုံ ကျေးရွာနှင့် ထန်းတပင်စုကျေးရွာနှင့် တကဟိုက်ကျေးရွာအုပ်စုရှိ ကန်ပတ်ရီးရွာတွင် လေ့လာတွေ့ရှိချက် အကျဉ်းချုပ်အား အောက်ပါအတိုင်း တင်ပြအပ်ပါသည်။

- (၁) မိသားစုဝင်များအဖြစ် (၂) ယောက်မှ (၄)ယောက်နှင့် (၄)ယောက်မှ (၈)ယောက်အထိရှိသည့် မိသားစု ဝင်မှာ ၄၀% စီရှိသည်ကိုတွေ့ရှိရပါသည်။
- (၂) အိမ်အများစုမှာ သံဖြူရုံ ကျေးရွာနှင့် ထန်းတပင်စုကျေးရွာတွင် ဝါးအိမ်အများစုကိုတွေ့ရပြီး ကန်ပတ်ရီးတွင်မူ သစ်သားအိမ်သည်အများစုဖြစ်ပြီး အုပ်ညှပ်အိမ်များကိုလည်း တွေ့ရှိရပါသည်။
- (၃) အိမ်အများစုတွင် ဆိုလာလျှပ်စစ်မီးကို သုံးစွဲလျက်ရှိပြီး ကန်ပတ်ရီးတွင် အများဆုံးသုံးစွဲသည်ကို လေ့လာတွေ့ရှိရပါသည်။ မော်တော်ဆိုင်ကယ်နှင့် စက်ဘီးအသုံးပြုပိုင်ဆိုင်မှုအနေဖြင့်လည်း ကန်ပတ်ရီး တွင်အများဆုံးတွေ့ရှိရပါသည်။ မိုဘိုင်းလ်ဖုန်းအနေဖြင့် လူတိုင်းကိုင်ဆောင်နိုင်ကြပါသည်။
- (၄) ချက်ပြုတ်ရန် ထင်းကို အဓိကအသုံးပြုပြီး မြေအောက်ရေကို သောက်သုံးရေအဖြစ် ရေတုံကန်နှင့် ရေတွင်းများမှ ထုတ်ယူသုံးစွဲလျက် ရှိပါသည်။
- (၅) စီမံကိန်းဧရိယာအနီး လူသားချင်းစာနာထောက်ထားမှုအကူအညီပေးနေသည့် ဘာသာရေးအဖွဲ့များ ဖြစ်သော Lutheran World Federation Myanmar၊ Karen Baptist Church နှင့် Danish Church Aid၊ UNICEF၊ PACT၊ Proximity Designs နှင့် PSI (MIMU Myanmar-3W Dashboard) တို့မှ ကူညီဆောင်ရွက်ပေးလျက်ရှိပါသည်။
- (၆) ဝင်ငွေရရှိသည့် စီးပွားရေးအခြေခံသည် ဆန်စပါးနှင့် ငှက်ပျော စိုက်ပျိုးခြင်းဖြစ်ပြီး အိမ်ဆိုင်လုပ်ငန်းများ (အထူးသဖြင့်- ဆိုင်ကယ်ပြင်ဆင်ခြင်း၊ သက်ကယ်အမိုးရက်လုပ်ခြင်း) မှလည်း ဝင်ငွေရရှိပါသည်။ ဝင်ငွေရရှိမှုမှာ တစ်နှစ်လျှင် ၃၀- ၁၀၀ သိန်းထိ ရှိကြပါသည်။ အဆိုပါ ရွာ (၃)ရွာအနက် ကန်ပတ်ရီးမှာ လယ်ယာလုပ်ငန်းမှ ရရှိသည့် စပါးအား ရိပ်သိမ်းခြွေလှေ့ပြီး ဆန်လုံးညှိအား ဆန်စက်များအား ရောင်းချ ခြင်းဖြင့် စီးပွားရေးအခြေခိုင်ကြသည်ကို တွေ့ရှိရပါသည်။
- (၇) ကျန်းမာရေးစောင့်ရှောက်မှုအနေဖြင့် ကျေးရွာဆေးပေးခန်းများကိုသာ အားထားရပြီး အရေးပေါ် အခြေအနေအတွက်မူ တွံတေးမြို့ရှိ အစိုးရမြို့နယ်ဆေးရုံများသို့ ပို့ဆောင်ဆေးကုသရလျက်ရှိပါသည်။

ပုဂ္ဂလိကဆေးခန်းအနေဖြင့် အနည်းငယ်ရှိသော်လည်း ဆရာဝန်ပြည့်စုံမှုမရှိသည်ကို လေ့လာတွေ့ရှိရပါသည်။ ကူးစက်ရောဂါအနေဖြင့် ယခင်က တီဘီရောဂါဖြစ်ပွားမှုများသော်လည်း ယခုအခါတွင်မူ မရှိသလောက် ဖြစ်ပွားခြင်းမရှိတော့သည့်အကြောင်းအား သိရှိရပါသည်။

- (၈) ပညာရေးအနေဖြင့် မူလတန်းကျောင်းတစ်ကျောင်းစီ ရှိသည်ကိုတွေ့ရှိရပြီး ဘုန်းတော်ကြီးကျောင်း ပညာသင်စနစ်ကိုလည်း လက်ခံကျင့်သုံးလျက်ရှိပါသည်။
- (၉) အမှိုက်စွန့်ပစ်ရန်သတ်မှတ်ဧရိယာအနေဖြင့် မရှိပဲ တွံတေးမြို့နယ် စည်ပင်သာယာရေးကော်မတီမှ လာရောက် သိမ်းဆည်းခြင်းအား ဆောင်ရွက်ပေးသည်ကို တွေ့ရှိရပါသည်။ များသောအားဖြင့် အမှိုက်များ အား မိမိအိမ်ဝင်းအတွင်းသာ မြေမြုပ်ခြင်း၊ မီးရှို့ခြင်းများအား ဆောင်ရွက်ကြပါသည်။
- (၁၀) လမ်းပန်းဆက်သွယ်ရေးအနေဖြင့် ရန်ကုန်-မအူပင်လမ်းနှင့် ရေကြောင်းလမ်းအား အသုံးပြုလေ့ရှိကြပါသည်။

ယဉ်ကျေးမှု အမွေအနှစ်အရ ဘောင်းဒေါ်ချိုင့်ကျောင်းတိုက်၊ ရွှေဆံတော်ဘုရားနှင့် တွံတေးတူးမြောင်း တို့မှာ စီမံကိန်းအနီး (၁၀) ကီလိုမီတာအတွင်းတည်ရှိသည်ကို လေ့လာတွေ့ရှိရပါသည်။

ယင်းပတ်ဝန်းကျင်ဆိုင်ရာ အချက်အလက်များနှင့် ဆက်စပ်လျက်ရှိသော အကြောင်းအရာများ၏ အသေးစိတ်ကို အခန်း (၅) တွင် ဖော်ပြထားပါသည်။

၁.၁၁ ဖြစ်နိုင်ချေရှိသည့် ထိခိုက်သက်ရောက်မှုအားဆန်းစစ်ခြင်း

စီမံကိန်းဆောင်ရွက်ခြင်းကြောင့် စီမံကိန်းဧရိယာနှင့် စီမံကိန်းအနီးပတ်ဝန်းကျင်ပေါ်တွင် ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝဗေဒပိုင်းဆိုင်ရာ၊ လူမှုစီးပွားဆိုင်ရာအားဖြင့် ပြောင်းလဲမှုများ ရှိလာနိုင်ပါသည်။ စီမံကိန်း အဆင့်ဆင့်နှင့် အချိန်ကာလအလိုက် (လည်ပတ်ခြင်းကာလနှင့်ဖျက်သိမ်းခြင်းကာလ)များတွင် ပတ်ဝန်းကျင်ဆိုင်ရာ အချက်အလက်များ ဖြစ်သော လေအရည်အသွေး၊ ရေအရည်အသွေး၊ မြေအရည်အသွေး၊ ဆူညံသံနှင့် တုန်ခါမှု၊ စွန့်ပစ်ပစ္စည်း (အစိုင်အခဲ၊ အရည်)၊ မီးဘေးအန္တရာယ်နှင့် ဝန်ထမ်းများကျန်းမာရေးနှင့် ဘေးအန္တရာယ် ကင်းရှင်းရေးများပေါ်တွင် လုပ်ငန်းဆောင်ရွက်ခြင်းကြောင့် စီမံကိန်း ပတ်ဝန်းကျင်နှင့် လူမှုရေးအပေါ်တွင် ကောင်းကျိုးနှင့် ဆိုးကျိုး သက်ရောက်မှုများကို ဖြစ်ပေါ်စေနိုင်ပါသည်။

လုပ်ငန်းဆောင်ရွက်ခြင်းကြောင့် ပတ်ဝန်းကျင်နှင့် လူမှုရေးအပေါ် ဖြစ်ပေါ်လာနိုင်သော သိသာထင်ရှားသည့် သက်ရောက်မှုများကို အကဲဖြတ် တိုင်းတာသည့် သတ်မှတ်ချက်ဘောင်များနှင့် ၎င်း၏ အတိုင်းအတာများ ဖြစ်သော ထိခိုက်မှုပမာဏ၊ ကြာချိန်၊ နေရာအကျယ်အဝန်းနှင့် အကြိမ်အရေအတွက် (ဖြစ်နိုင်ချေ) များကို အခြေခံ၍ လေ့လာဆန်းစစ်ခြင်းများ ပြုလုပ်ခဲ့ပါသည်။

စီမံကိန်းတည်ဆောက်ရေးလုပ်ငန်းများ ဆောင်ရွက်ပြီးစီး၍ လုပ်ငန်း လည်ပတ်လျက်ရှိပါသဖြင့် စီမံကိန်း အချိန်ကာလအလိုက် (လည်ပတ်ခြင်းကာလနှင့် ဖျက်သိမ်းခြင်းကာလ) လုပ်ငန်းလုပ်ဆောင်ချက်များကို အောက်ပါ အတိုင်း လေ့လာဆန်းစစ်ထားရှိပါသည်-

လည်ပတ်ခြင်းကာလ

လေအရည်အသွေး

- ကုန်ကြမ်းပစ္စည်းဖြစ်သော ဆန်လုံးညိုအား သယ်ယူသည့်အဆင့်နှင့် သန့်ရှင်းရေး ဆောင်ရွက်သည့် အဆင့်တွင် Rotary Shifter ၏ လှုပ်ရှားမှု၊ သန့်ရှင်းသည့်စက်၏ ရွေ့လျားတုန်ခါမှုနှင့် De-Stoner စက်နှင့် နောက်ဆုံးအဆင့် သန့်ရှင်းရေးဆောင်ရွက်သည့် Cleaner များမှ အမှုန်အမွှားများ ထွက်ရှိမှု၊
- ကြိတ်ခွဲစက်(Mill) ၏ လုပ်ငန်းစဉ်များဖြစ်သော Bucket Elevator ဖြင့် ရွေ့လျားခြင်း၊ ဆန်အဖြူ ဖွတ်ခြင်း၊အရောင်တင်ခြင်းနှင့် Length Grader တွင် ဆန်အဆင့်သတ်မှတ်ခြင်းများမှ ထုတ်လွှတ်မှု၊
- ဖွဲနု ကိုင်တွယ်ခြင်း၊ သယ်ဆောင်ခြင်း၊ သိုလှောင်ခြင်းမှ ထုတ်လွှတ်မှု၊
- မီးစက် လည်ပတ်ခြင်းမှ ထုတ်လွှတ်မှု၊
- လုပ်ငန်းသုံးယာဉ်များ သွားလာခြင်းမှ ထုတ်လွှတ်မှု၊

လုပ်ငန်းလည်ပတ်ချိန်တွင် လေအရည်အသွေးအား အဓိက ထိခိုက်သက်ရောက်နိုင်မှု(၃) မျိုးမှာ-

- (၁) ဆန်ထုတ်လုပ်ခြင်းအဆင့်ဆင့်မှ ထွက်ရှိလာသည့် အမှုန်အမွှား (PM10)- အလယ်အလတ်အဆင့်
- (၂) မော်တော်ယာဉ်များမှ ထုတ်လွှတ်မှု - အလယ်အလတ်အဆင့်
- (၃) အရံဒီဇယ်ဂျင်နရေတာမှ ထုတ်လွှတ်မှု- လျစ်လျူရှုထားနိုင်သည့်အဆင့်

ဆူညံသံ

လုပ်ငန်းလည်ပတ်ချိန်တွင် ဆူညံသံအနေဖြင့် အဓိက ထိခိုက်သက်ရောက်နိုင်မှု(၂) မျိုးမှာ-

- (၁) ဆန်ထုတ်လုပ်ခြင်းအဆင့်ဆင့်မှ ထွက်ရှိလာသည့် ဆူညံသံ- လျစ်လျူရှုထားနိုင်သည့်အဆင့်
- (၂) မော်တော်ယာဉ်များနှင့် ဒီဇယ်ဂျင်နရေတာမှ ထုတ်လွှတ်မှု - အလယ်အလတ်အဆင့်

မြေဆီလွှာနှင့် မြေအောက်ရေအရည်အသွေး

လုပ်ငန်းလည်ပတ်ချိန်တွင် မြေဆီလွှာနှင့် မြေအောက်ရေအရည်အသွေးအား ထိခိုက်နိုင်သည့် အဓိက ညစ်ညမ်းမှု ဖြစ်နိုင်ခြေ (၃) မျိုးမှာ-

- (၁) စက်ရုံဝန်ထမ်းများအနေဖြင့် နေ့စဉ်လုပ်ငန်းဆောင်တာများ လုပ်ဆောင်ခြင်းမှ စားကြွင်း စားကျန်များ၊ သန့်ရှင်းရေးသုံးရေများ ထွက်ရှိမှု- လျစ်လျူရှုထားနိုင်သည့်အဆင့်
- (၂) လောင်စာဆီ သိုလှောင်မှုမှ ယိုဖိတ်မှု- လျစ်လျူရှုထားနိုင်သည့်အဆင့်
- (၃) လုပ်ငန်းသုံးယာဉ်များနှင့် မီးစက်များမှ ဆီမတော်တဆ ဖိတ်စင်ခြင်း- လျစ်လျူရှုထားနိုင်သည့်အဆင့်

စွန့်ပစ်အမှိုက်နှင့် ရေဆိုး

လုပ်ငန်းလည်ပတ်ချိန်တွင် အဓိက ထိခိုက်သက်ရောက်မှုများမှာ-

- (၁) စက်ရုံဝန်ထမ်းများအနေဖြင့် နေ့စဉ်လုပ်ငန်းဆောင်တာများ လုပ်ဆောင်ခြင်းမှ စားကြွင်း စားကျန်များ- လျစ်လျူရှုထားနိုင်သည့်အဆင့်

- (၂) ဆန်စပါးသန့်ရှင်းရေးလုပ်ငန်းစဉ်မှ ရေဆိုးထွက်ရှိမှု- လျစ်လျူရှုထားနိုင်သည့်အဆင့်
- (၃) သန့်ရှင်းရေး သုံးရေနှင့် မိလ္လာရေဆိုးထွက်ရှိမှု - လျစ်လျူရှုထားနိုင်သည့်အဆင့်
- (၄) လောင်စာဆီ သိုလှောင်မှုမှ ယိုဖိတ်မှု- လျစ်လျူရှုထားနိုင်သည့်အဆင့်
- (၅) လုပ်ငန်းသုံးယာဉ်များနှင့် မီးစက်များမှ ဆီမတော်တဆ ဖိတ်စင်ခြင်း- လျစ်လျူရှုထားနိုင်သည့်အဆင့်

ဂေဟစနစ်

စီမံကိန်းဧရိယာတွင် သိသာထင်ရှားသော အပင်နှင့် သက်ရှိသတ္တဝါများနေထိုင်မှု မရှိသည့်ပြင် ကာကွယ်စောင့်ရှောက်ထားသည့် ဧရိယာများနှင့် ဝေးကွာသဖြင့် ဂေဟစနစ်အပေါ် သက်ရောက်မှုအား လျစ်လျူရှုထားနိုင်သည့်အဆင့်အဖြစ် သတ်မှတ်နိုင်ပါသည်။

လူမှုဝန်းကျင်အားသက်ရောက်မှုများ

လုပ်ငန်းလည်ပတ်ချိန်တွင် အဓိက ထိခိုက်သက်ရောက်မှုများမှာ-

- (၁) တစ်ပတ်လျှင် ထရပ်ကား စီးရေ (၂၀) မှ (၅၀) ထိ ကုန်းလမ်းမှ စက်ရုံသို့ ကုန်ကြမ်းများ ပို့ဆောင်ရန် ဝင်ရောက်ခြင်းနှင့် တွံတေးတူးမြောင်းမှ ထွက်ကုန်များအား ပို့ဆောင်သယ်ယူခြင်းအတွက် ယာဉ်ကြောပိတ်ဆို့မှု- အမြင့်ဆုံးအဆင့်
- (၂) ရွှေ့ပြောင်းလုပ်သားများ တိုးပွားလာမှု- အလယ်အလတ်အဆင့်
- (၃) ဒေသတွင်းစီးပွားရေးတိုးတက်မှု- အမြင့်ဆုံးအဆင့်
- (၄) ခလေးသူငယ်အလုပ်သမားတိုးပွားလာမှု- အမြင့်ဆုံးအဆင့်
- (၅) ဒေသတွင်းလုံခြုံမှုမရှိခြင်း- အမြင့်ဆုံးအဆင့်
- (၆) လုပ်ငန်းခွင် ဘေးအန္တရာယ်ကင်းရှင်းရေး- အလယ်အလတ်အဆင့်

ဖျက်သိမ်းခြင်းကာလ

ဖျက်သိမ်းခြင်းကာလအတွင်း အဓိက ထိခိုက်သက်ရောက်မှုများမှာ-

- စီမံကိန်းဖျက်သိမ်းခြင်းကာလအတွင်း အသုံးပြုသော အဆောက်အအုံဖျက်သည့် ယာဉ်၊ ယန္တရားများကြောင့် ပတ်ဝန်းကျင်ဆိုင်ရာ လေအရည်အသွေး ညစ်ညမ်းမှုများ ဖြစ်ပေါ်နိုင်ခြင်း - အလယ်အလတ်အဆင့်
- စက်ရုံဖျက်သိမ်းရာ၌ အသုံးပြုသော ယာဉ်များ၊ ပတ်ဝန်းကျင်နှင့် လိုက်လျောညီထွေ မရှိသော စက်ကိရိယာကြီးများကြောင့် ပတ်ဝန်းကျင်နှင့် အလုပ်သမားများအပေါ် ထိခိုက်မှုများ ဖြစ်ပေါ်နိုင်ခြင်း- အမြင့်ဆုံးအဆင့်
- အလုပ်သမား၊ ဝန်ထမ်းများ၏ နစ္စဓူဝ အလုပ်များမှ အမှိုက်များ၊ အညစ်အကြေးများ၊ ရေဆိုးများ ထွက်ရှိနိုင်ခြင်း- အလယ်အလတ်အဆင့်
- စက်ရုံဖျက်သိမ်းခြင်းမှ ရေဆိုးများ ထွက်ရှိနိုင်ခြင်းနှင့် စက်ရုံဖျက်သိမ်းသော စက်ပစ္စည်းများမှ လောင်စာဆီများ ယိုဖိတ်နိုင်ခြင်းမှ မြေဆီလွှာနှင့် မြေအောက်ရေညစ်ညမ်းခြင်း- အလယ်အလတ်အဆင့်

၁.၁၂ ထိခိုက်မှုများအား လျော့ချနိုင်မည့် အစီအစဉ်နှင့် ကြွင်းကျန်သက်ရောက်မှု

လည်ပတ်ခြင်းကာလ

- စက်ရုံလုပ်ငန်းခွင်အတွင်း အမှုန်အမွှားများ ထွက်ရှိမှုအား ထိန်းချုပ်နိုင်ရန် အမှုန်စုပ်စက် (Dust Collector)၊ လေမှုတ်ထုတ်သည့်စက် (Exhaust Fan) နှင့် လေသန့်စင်သည့်စက် (Roof Ventilator) များ တပ်ဆင်ခြင်း၊
- စက်ပစ္စည်းများအား ရေရှည်အသုံးပြုနိုင်ရန် ပြုပြင်ထိန်းသိမ်းခြင်း၊
- ဖုန်မှုန့်များထွက်ရှိသော စက်ရုံအဝင်လမ်းနေရာအား ရေဖြန်းခြင်း၊
- ဝန်ထမ်းများအား တစ်ကိုယ်ရည် ကာကွယ်ရေးသုံးကိရိယာများ တပ်ဆင်လုပ်ကိုင်စေခြင်း
- မိလ္လာစနစ်နှင့်ရေမြောင်းများကို ပုံမှန်သန့်ရှင်းရေးပြုလုပ်ခြင်းနှင့် ပုံမှန်စစ်ဆေးခြင်း၊
- ဂျင်နရေတာနှင့် လုပ်ငန်းသုံးယာဉ်များမှ ဆီများ ဖိတ်စင်မှု မရှိစေရန် ပုံမှန် စစ်ဆေးမှုများ ပြုလုပ်ခြင်း၊
- ဘေးပတ်ဝန်းကျင်သို့ ဆူညံသံနှင့် တုန်ခါမှုများ မဖြစ်ပေါ်စေရန် အဆိုပါ ဆူညံသံ ထွက်ရှိရာ နေရာများအား လုံခြုံစွာ ကာရံထားခြင်း၊
- ဆူညံသံများသော နေရာများတွင် လုပ်ကိုင်သော လုပ်သားများကို အလှည့်ကျ လုပ်ကိုင်စေခြင်း၊
- စက်ရုံဝင်းအတွင်း သစ်ပင်၊ ပန်းပင်များ စိုက်ပျိုးထိန်းသိမ်းခြင်း၊
- မီးသတ်ပေးစနစ်၊ မီးသတ်စနစ်၊ မီးသတ်ဆေးဘူးများ၊ အရေးပေါ်တံခါးပေါက်၊ လှေကား နှင့် အရေးပေါ် စုရပ်များအား ထားရှိပေးခြင်း၊
- မီးသတ်ဌာနနှင့်ဆက်သွယ်၍ စီမံကိန်းရှိဝန်ထမ်းများအား မီးဘေးအန္တရာယ်နှင့် မီးသတ်ခြင်းဆိုင်ရာ လုပ်ငန်းများအား လေ့ကျင့်ပေးခြင်း၊
- လုပ်သားများအား ပုံမှန်ကျန်းမာရေးစစ်ဆေးပေးခြင်း၊ ကျန်းမာရေး စောင့်ရှောက်မှုပေးခြင်း၊
- ဝန်ထမ်းများအား လုပ်ငန်းခွင်ဘေးအန္တရာယ်ကင်းရှင်းရေးဆိုင်ရာ သင်တန်းများအား စေလွှတ်၍ စက်ရုံတွင် ဆင့်ပွားသင်တန်းများပြုလုပ်ပေးခြင်း၊
- စက်ရုံတွင် စွန့်ပစ်ပစ္စည်းများအား ပြန်လည်အသုံးပြုနိုင်သောပစ္စည်း၊ စွန့်ပစ်ရန်ပစ္စည်းများနှင့် ဘေးအန္တရာယ်ရှိသော စွန့်ပစ်ပစ္စည်းများဟူ၍ ခွဲခြား စွန့်ပစ်ခြင်း၊ YCDC သန့်ရှင်းရေးဌာနအား အကြောင်းကြားပြီး သိမ်းဆည်းစေခြင်း၊

ဖျက်သိမ်းခြင်းကာလ

- ဖျက်သိမ်းရေး လုပ်ငန်းသုံးစက်များကို အသုံးမပြုစဉ်ကာလတွင် စက်ပိတ်ထား၍ ပတ်ဝန်းကျင်သို့ အခိုးအငွေ့ ထွက်ရှိမှုအား နည်းနိုင်သမျှနည်းအောင် ထိန်းချုပ် ဆောင်ရွက်ခြင်း၊
- လုပ်ငန်းသုံးယာဉ်များနှင့် စက်ပစ္စည်းများအား ပုံမှန်စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် ပြုပြင်ထိန်းသိမ်းခြင်း၊
- အမှုန်အမွှားများထွက်ရှိမှုနည်းပါးစေရန် စီမံကိန်းအတွင်း ရေဖြန်းခြင်း၊
- စွန့်ပစ်ပစ္စည်းများအား မီးရှို့ခြင်း မပြုလုပ်ခြင်း၊

- ဖျက်သိမ်းခြင်းကာလ၌ သွယ်ယူထားသော ပိုက်လိုင်းများကို စနစ်တကျ ပြန်လည်ဖြုတ်ယူခြင်းနှင့် ပြန်လည်အသုံးပြုစေခြင်း၊
- ဆူညံသံထွက်သောစက်၊ ပစ္စည်းကိရိယာများကို အသုံးမပြုချိန် ကြားကာလတွင် ပိတ်ထားရန်နှင့် ဆူညံမှုပြင်းထန်သည့်စက်၊ ကိရိယာများကို ယှဉ်ပြိုင်အသုံးပြုခြင်းတို့မှ အတတ်နိုင်ဆုံး ရှောင်ကြဉ် ဆောင်ရွက်ခြင်း၊
- မီးသတ်ဘူးများ၊ မီးသတ်ရေသိုလှောင်ကန်များ ထားရှိခြင်းနှင့် မီးဘေးအန္တရာယ် နှင့်ပတ်သက်သည့် ဆိုင်းဘုတ်များတပ်ဆင်ခြင်း၊
- လျှပ်စစ်ဝါယာကြိုးများအား ဂရုတစိုက်ဖြုတ်၍ သိမ်းဆည်းခြင်း၊
- သတိပေးဆိုင်းဘုတ်များ တပ်ဆင်ပေးခြင်းနှင့် တစ်ကိုယ်ရည်ကာကွယ်ရေး အသုံးအဆောင်ပစ္စည်းများ အသုံးပြုစေခြင်း၊
- အမှိုက်ပုံများထားရှိပေးခြင်းနှင့် သတ်မှတ်ထားသော ဧရိယာတွင်စွန့်ပစ်ခြင်း၊
- လုပ်ငန်းခွင်အတွင်း ယာယီယင်လုံအိမ်သာများ စနစ်တကျ တည်ဆောက်၍ လုံလောက်စွာ ထားရှိပေးခြင်း၊
- အရေးပေါ်သုံးဆေးဝါးများနှင့် ဆေးသေတ္တာများအား လက်လှမ်းမှီရာတွင် ထားရှိခြင်း၊
- ဝန်ထမ်းများအတွက် သောက်သုံးရေကို လုံလောက်စွာ ထားရှိပေးခြင်း၊
- ဖျက်သိမ်းရေး လုပ်ငန်းခွင်ရှိရိုးများ၊ လုပ်သားမိသားစုများမှ စွန့်ပစ်သော အမှိုက်များနှင့် မီးဖိုချောင် သုံးစွန့်ပစ်ပစ္စည်းများကို သင့်တော်သောနေရာတွင် စနစ်တကျစုပုံစွန့်ပစ်ခြင်း၊ ဖုံးအုပ်ထားခြင်းနှင့် အန္တရာယ်ရှိသော စက်မှု လုပ်ငန်းဆိုင်ရာ စွန့်ပစ်ပစ္စည်းများကို လုံခြုံစွာ ထုတ်ပိုး၍ သတ်မှတ်ထားသော နေရာများသို့ စနစ်တကျစွန့်ပစ်ခြင်း၊

၎င်းနှင့်ပတ်သက်သည့် အသေးစိတ် အချက်အလက်များနှင့် ကြွင်းကျန်သက်ရောက်မှုများကို အခန်း (၆) တွင် ဖော်ပြထားပါသည်။

၁.၁၃ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အကျဉ်းချုပ်

Golden Lace POSCO International Co., Ltd. ၏ ဆန်စက်လုပ်ငန်းအနေဖြင့် ပတ်ဝန်းကျင်စီမံ ခန့်ခွဲမှုအစီအစဉ်များတွင် အဓိကအားဖြင့် စက်ရုံလုပ်ငန်းကြောင့် ထိခိုက်နစ်နာနိုင်မှုများအား လျော့ပါးသက်သာ စေရေးကို အစဉ်တစိုက် အလေးပေး ဂရုပြု ဆောင်ရွက်သွားရမည် ဖြစ်သည့်အပြင် လုပ်ငန်း လုပ်ဆောင်ရာတွင် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်များကို လိုက်နာဆောင်ရွက်ရပါမည်။ ယင်းပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်တွင် အစီအစဉ် (၅) ခု ရေးဆွဲထားပါသည်။ ၎င်းတို့မှာ ပတ်ဝန်းကျင်ထိခိုက်မှု လျှော့ချရေး/ ကာကွယ်မှုအစီအစဉ်၊ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးမည့်အစီအစဉ်၊ ကျန်းမာရေးနှင့် ဘေးအန္တရာယ် ကင်းရှင်းရေး အစီအစဉ်၊ အရေးပေါ်အခြေအနေတုံ့ပြန်မှုအစီအစဉ်၊ ဝန်ထမ်းများအတွက် အသိပညာပေးနှင့် သင်တန်း အစီအစဉ်နှင့် လူမှုရေးဆိုင်ရာ တာဝန်ယူမှု အစီအစဉ်များ ဖြစ်ပါသည်။

Golden Lace POSCO International Co., Ltd. အနေဖြင့် ယင်းအစီအစဉ် များကို အကောင်အထည်ဖော် ဆောင်ရွက်ရန် လိုအပ်ပါသည်။ ထို့အပြင် အကောင်အထည်ဖော် ဆောင်ရွက်လျက် ရှိသည့် ယင်းအစီအစဉ်များ

ကိုလည်း ကြီးကြပ်ရန်နှင့် စောင့်ကြပ်ကြည့်ရှုရန် တာဝန်ရှိပါသည်။ ယင်းအစီအစဉ်များကို အကောင်အထည်ဖော် ဆောင်ရွက်ခြင်းအားဖြင့် လုပ်ငန်းလုပ်ဆောင်ခြင်းကြောင့် ဖြစ်ပေါ်နိုင်ခြေရှိသော ပတ်ဝန်းကျင်နှင့် လူမှုရေး အပေါ် ဆိုးကျိုးသက်ရောက်မှုများကို လျော့နည်းစေနိုင်မည် ဖြစ်ပါသည်။ စီမံကိန်း ဆောင်ရွက်သည့် တာဝန်ရှိသူများ အနေဖြင့်လည်း ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်များကို ပုံမှန်စစ်ဆေးခြင်း နှင့် စက်ရုံလည်ပတ်နေသည့်ကာလ တစ်လျှောက်လုံး ပုံမှန်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်းကို ပြုလုပ်သင့်ပါသည်။ ၎င်းနှင့်ဆက်စပ်လျက်ရှိသော အသေးစိတ် အကြောင်းအရာများကို အခန်း (၇) တွင် ဖော်ပြ ထားပါသည်။

၁.၁၄ အများပြည်သူသဘောထားရယူခြင်းနှင့် သတင်းအချက်အလက်ဖြန့်ဝေခြင်း

Environ Myanmar အနေဖြင့် အစီရင်ခံစာအားရေးဆွဲစဉ် စီမံကိန်းနှင့်သက်ဆိုင်သူများနှင့်တွေ့ဆုံဆွေးနွေးပွဲအား စီမံကိန်းဧရိယာ၏ မျက်နှာချင်းဆိုင်တွင်ရှိသည့် သံဖြူရုံကျေးရွာမှ ကျေးရွာခေါင်းဆောင်အိမ်တွင် ကျင်းပခဲ့ရာတွင် ပါဝင်ဆွေးနွေးခဲ့သည့် တက်ရောက်သူဦးရေ (၃၉) ဦးတက်ရောက်ခဲ့ပါသည်။

အဆိုပါတက်ရောက်သူများမှ ကန်ပတ်ရီး၊ ထန်းတပင်စုနှင့် သံဖြူရုံကျေးရွာများမှ အောက်ပါအချက်များအား ဆောင်ရွက်ပေးနိုင်ပါရန် တင်ပြခဲ့မှုအပေါ် Golden Lace POSCO International Co., Ltd. အနေဖြင့် ဆောင်ရွက် ပေးသွားမည်ဖြစ်ကြောင်း ပြန်လည်ပြောကြားခဲ့ပါသည်။

- (၁) ကျန်းမာရေးဆေးပေးခန်းတည်ဆောက်ပေးရန်၊
- (၂) သန့်ရှင်းသည့် သောက်သုံးရေများ ပံ့ပိုးပေးရန်၊
- (၃) လျှပ်စစ်ဓါတ်အားရရှိနိုင်ရေး ဆောင်ရွက်ပေးရန်၊
- (၄) ကျောင်းများအား ပြင်ဆင်၍ အဆင့်မြှင့်ပေးရန်၊

အဆိုပါ ၂၀၁၅ခုနှစ်တွင် ကျင်းပခဲ့သည့် တွေ့ဆုံဆွေးနွေးပွဲသို့ တက်ရောက်ခဲ့သည့် ပြည်သူများ၏ လက်မှတ် ရေးထိုးထားသည့် မှတ်တမ်းများအား တင်ပြနိုင်ခြင်းမရှိပါသဖြင့်လည်းကောင်း၊ Environmental Compliance Consultancy Co., Ltd (EnvCC) အနေဖြင့်လည်း ပြည်သူများ၏ တင်ပြချက်များအား ပိုမိုခိုင်မာစေရန်ရည်ရွယ်၍ (၁၅-၅-၂၀၂၅) ရက်နေ့တွင် ထပ်မံ၍ ကန်ပတ်ရီး၊ ထန်းတပင်စု၊ ကန်ဘွဲ့နှင့် သံဖြူရုံကျေးရွာများမှ ပြည်သူများနှင့် ဆန်စက်၏ အစည်းအဝေး ခန်းမတွင် တွေ့ဆုံမှုပြုလုပ်ခဲ့ပါသည်။ တက်ရောက်ခဲ့သည့် လူဦးရေမှာ (၁၇)ဦးဖြစ်ပါသည်။

ထိုသို့တွေ့ဆုံဆွေးနွေးရာတွင် တက်ရောက်လာသူပြည်သူများမှ အောက်ပါအချက်များအား ဆွေးနွေးခဲ့ကြပါသည်။

- (၁) တံတေးတူးမြောင်း၏ ရေအရည်အသွေးကောင်းမကောင်းသိလိုသဖြင့် စစ်ဆေးထားသည့် ရေအရည် အသွေးရလဒ်အရ ကောင်းမွန်ပြီး အန္တရာယ်မရှိပါကြောင်း ပြန်လည်ရှင်းလင်းတင်ပြခဲ့ပါသည်။
- (၂) ဆွေးနွေးမှုအပေါ်အရလည်းကောင်း၊ ဆန်စက်မှ တာဝန်ရှိသူများမှ ဆန်စက်လုပ်ငန်းစဉ်အဆင့်ဆင့်တွင် နိုင်ငံတကာ အဆင့်အတန်းနှင့်အညီ လုပ်သားများအား လုပ်ကိုင်စေခြင်း၊ လုံခြုံရေးနှင့် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးတွင်လည်း ဦးစားပေးအဆင့်အဖြစ် တာဝန်ယူလုပ်ကိုင်လျက်ရှိသည့်အပြင် မည်သည့် အန္တရာယ်ရှိသည့် အမှုန်နှင့် ရေဆိုးများအား တူးမြောင်းအတွင်း တိုက်ရိုက်စွန့်ပစ်ခြင်း မပြုသည့်အပြင်

ဒေသတွင်းစီးပွားရေးကို မြှင့်တင်နိုင်သည့်အတွက် စီမံကိန်းလုပ်ဆောင်ချက်နှင့် ပတ်သက်၍ မည်သည့် မကျေနပ်ချက်မှ မရှိပါကြောင်းအား ပြောကြားခဲ့ပါသည်။

(၂) Golden Lase POSCO International Co., Ltd. အနေဖြင့် CSR အစီအစဉ်အရ စီမံကိန်းအနီးဝန်းကျင်ရှိ စာသင်ကျောင်းများအား သန့်ရှင်းသည့် သောက်သုံးရေများနှင့် လျှပ်စစ်မီး ပံ့ပိုးပေးရန် တင်ပြခဲ့သည့်အပေါ် တာဝန်ခံမှု ကုမ္ပဏီ၏ တာဝန်ရှိသူများထံ ဆက်လက်တင်ပြ၍ ဆောင်ရွက် ပေးမည် ဖြစ်ပါကြောင်းအား ပြောကြားခဲ့ပါသည်။

သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနမှ ထုတ်ပြန်ထားရှိသည့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း (၂၀၁၅) အရ စီမံကိန်းနှင့် ပတ်သက်ဆက်နွှယ်သော ပြည်သူများနှင့် ဂေသဆိုင်ရာ အာဏာပိုင်များနှင့် ပုံမှန် ဆက်သွယ်ခြင်းဖြင့် သတင်းအချက်အလက်များ ထုတ်ဖော်ရာတွင် လွယ်ကူချောမွေ့စေရန် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ အတည်ပြုချက်ရရှိပြီးသည့် အစီရင်ခံစာမှ အကျဉ်းချုပ် (မြန်မာဘာသာဖြင့်) အား ဒေသခံများအား ဖြန့်ဝေပေးသွားမည့်အပြင် စီမံကိန်းလုပ်ဆောင်မှုကြောင့် ထိခိုက်ခံစားရမှုများအား ထုတ်ဖော်ဖြေရှင်းနိုင်ရန် သတင်းအချက်အလက်စင်တာတစ်ခုအား တည်ထောင်ပြီး ဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။

၁.၁၅ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေး အစီအစဉ်နှင့် ရံပုံငွေ

ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးအစီအစဉ်အကျဉ်းနှင့် ရံပုံငွေအား ဇယား ၁.၁ တွင် တင်ပြထားပါသည်။

ဇယား ၁.၁ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုရေးအစီအစဉ်အကျဉ်းနှင့် ရံပုံငွေ

တိုင်းတာမည့် နယ်ပယ်	တိုင်းတာမည့် အရည်အသွေးများ	တိုင်းတာမည့် နေရာ	တိုင်းတာမည့် အကြိမ်အရေအတွက်	နှစ်စဉ်ခန့်မှန်း အသုံးစရိတ် (ကျပ်)
လေအရည်အသွေး	NOx, SO2, PM2.5, PM10 and O2	<ul style="list-style-type: none"> ➤ Project area at 16°43'45.47"N, 96° 0'41.59"E ➤ Around the project area at 16°43'51.45"N, 96°0'41.96"E 	ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်)	၂,၀၀၀,၀၀၀
ဆူညံသံ	ဆူညံသံအဆင့် (dB (A) scale)	<ul style="list-style-type: none"> ➤ Project area at 16°43'51.45"N, 96°0'41.96"E 	ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်)	၁၀၀,၀၀၀
ရေထုအရည်အသွေး	Alkalinity (Alk), Magnesium (Mg ++), Sodium (Na+), Potassium (K+), Total Hardness (TH), Sulfate (SO4-), Chloride (Cl-), Iron (Fe), Dissolve Oxygen (DO), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), pH, Ammonia-Nitrogen (NH3-N), Turbidity, Salinity, Arsenic (As), Lead (Pb)	<p>တူးမြောင်းရေနှင့် မြေအောက်ရေ</p> <ul style="list-style-type: none"> ➤ Surface Water (Canal) at 16°43'40.81"N, 96° 0'42.03"E ➤ Groundwater at 16°43'45.59"N, 96° 0'31.94"E 	ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်)	၂,၄၀၀,၀၀၀

တိုင်းတာမည့် နယ်ပယ်	တိုင်းတာမည့် အရည်အသွေးများ	တိုင်းတာမည့် နေရာ	တိုင်းတာမည့် အကြိမ်အရေအတွက်	နှစ်စဉ်ခန့်မှန်း အသုံးစရိတ် (ကျပ်)
မြေအရည်အသွေး	pH, Salinity Electrical Conductivity, Cation Exchangeable Capacity, Potassium (Potash)	➤ Project area at 16°43'43.20"N, 96° 0'42.38"E	ောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်)	၅၀၀,၀၀၀
ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ကျန်းမာရေးဆိုင်ရာ ထိခိုက်မှု	လျှပ်စစ်အန္တရာယ်နှင့် မီးဘေး အန္တရာယ်	စီမံကိန်းဧရိယာအတွင်းရှိ မီးကြိုးများ ၎င်းတို့၏ ဆက်စပ်ပစ္စည်းများနှင့် မီးလောင်လွယ်သည့်နေရာများ	လစဉ်	၁,၀၀၀,၀၀၀
	မတော်တဆထိခိုက်မှု မှတ်တမ်းများ	စီမံကိန်းဧရိယာအတွင်းရှိ လုပ်ငန်းခွင်နေရာ	လစဉ်	

၁.၁၆ နိဂုံးနှင့် အကြံပြုချက်

စီမံကိန်းလုပ်ဆောင်မှုမှ ထိခိုက်သက်ရောက်မှုများအား ကြိုတင်ခန့်မှန်းခြင်းဖြင့် ထိခိုက်သက်ရောက်မှုများအား ရှောင်ရှားခြင်း၊ လျော့ချခြင်းများအား ဆောင်ရွက်နိုင်သဖြင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အရ လျော့ပါး သက်သာစေရေးအား အကောင်အထည်ဖော်ဆောင်ရွက်ခြင်း၊ ဆောင်ရွက်ထားရှိမှုအပေါ် အကဲဖြတ် စောင့်ကြပ် ကြည့်ရှုခြင်းဖြင့် စီမံကိန်းဖွံ့ဖြိုးတိုးတက်မှုအား ရေရှည်ဆောင်ရွက်နိုင်မည်ဖြစ်ပါသည်။

ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းဆိုင်ရာလေ့လာမှုမှ အကဲဖြတ်ထားရှိသည့် သက်ရောက်မှုအများစုသည် အနည်းငယ်သာဖြစ်ပြီး လျော့ပါးသက်သာစေရေးအစီအမံများကို အကောင်အထည်ဖော် ဆောင်ရွက်ခြင်းဖြင့် ထိခိုက်သက်ရောက်မှုများ လျော့နည်းသွားနိုင်မည်ဖြစ်ပါသည်။

စီမံကိန်းဆောင်ရွက်သူအနေဖြင့်လည်း စီမံကိန်းကာလတစ်လျှောက်တွင် ဖြစ်ပေါ်လာနိုင်မည့် စိုးရိမ်ပူပန်မှု များအား လျော့ပါးသက်သာစေရန် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအစီအမံများအား သေချာစေရပါမည်။

1. EXECUTIVE SUMMARY

1.1 Introduction

This report is an Initial Environmental Examination (IEE) report prepared for rice milling project of Golden Lace POSCO International Co., Ltd. The project is located in Twantay Township, Yangon Region, covering an area of (13.8) acres and will produce (180) tons per day and export (85,000) tons per year.

The Yangon Regional Environmental Conservation Department requested comments on this project and was asked to prepare an Initial Environmental Examination (IEE). Based on the comments, Golden Lace POSCO International Co., Ltd. commissioned ENVIRON Myanmar Co. Ltd to prepare an Initial Environmental Examination (IEE) report. ENVIRON Myanmar Co. Ltd prepared this Environmental Management Report in accordance with the Environmental Impact Assessment Guidelines set by the Ministry of Natural Resources and Environmental Conservation.

This report is a revised version of the report, which was commissioned by Environmental Compliance Consultancy Co., Ltd. to prepare the initial findings and recommendations of Environmental Conservation Department (ECD), Ministry of Natural Resources and Environmental Conservation (MoNREC).

1.2 Objectives of IEE

The purpose of this IEE and the associated Environmental Management Plan (EMP) is to determine the nature and extent of the potential environmental and social impacts that may arise from the construction and operation of the Rice Mill project and its associated activities, and to implement measures to mitigate those impacts.

1.3 Project Description

Golden Lace POSCO International Co., Ltd.'s rice mill is located in Twantay Township, Yangon Region, covering an area of (13.8) acres and produces (180) tons per day and export (85,000) tons per year. The company registration number of the company is (105036248).

The project aims to produce both white rice and high quality export rice, which is pre-treated to preserve nutritional values and quality.

As a whole, the establishment of the project consists of construction, jetty operation, and milling process.

The factory mainly consists of (2) Product Warehouses for rice processing, (1) Brown Rice Warehouse, (1) Parboiled Brown Rice Warehouse, (2) By-Product Warehouses, (1) Staff Housing, (2) Factory Manager Houses, (1) Canteen, (1) Office and (3) Security Buildings.

The main raw material of Rice Mill Process is Brown Rice, and Rice Processing Complex process consists of cleaning, polishing, and grading of the final rice product. The finished products will be mainly exported to Korea. A total of (344) types of equipment will be used to operate the business, and (71) employees will work from (18) to (20) hours per day, (6) days per week.

1.4 Investment for the Proposed Project

The investment period of this project is (50) years and the company is joint venture with local partner and its foreign investment amount is US\$ (16,612,500). The company is foreign direct investment company.

1.5 Alternatives of the Project

The project area is the best choice for the project as it is a place where there are no concerns about resettlement, electricity supply, water supply, raw material, and transportation, so the project must be environmentally and socially responsible.

The proposed project will cover the entire rice value chain, including food security and rice procurement from farmers, from harvest to post-harvest, as it does not involve integrated farming operations.

Sustainable and energy-efficient rice processing technologies involve adopting practices that reduce energy consumption, minimize environmental impact, and enhance resource utilization. These alternatives include energy-efficient motors and equipment, water-saving systems, green energy adoption, and waste management strategies.

If the proposed project is not implemented as “No Project”, the following benefits that could not be achieved from the project.

- Creation of local employment opportunities during the development and operation of the project;
- Creation of regional trade and cooperation opportunities;
- Increased tax revenue and economic development opportunities in the Union and Region;
- Development of infrastructure development opportunities in Twantay Township.

1.6 Presentation of the Project Proponent

With innovative use of modern technology, Golden Lace POSCO International Co., Ltd. produces high export quality rice. Its mission in Myanmar is to curb losses in rice industry's post-harvest stages and to boost productivity yield through the incorporation of providing trainings and modernizing production techniques.

The project proponent and contact details are as follows:

Contact person:	Ms. Tin Htar Phone
Position:	Admin & HR Manager, Golden Lace POSCO INTERNATIONAL CO., LTD
Address:	No. 56, 5 th Floor, Mahaland Building, Kabar Aye Pagoda Road, Yankin Township, Yangon, Myanmar
Phone:	+(95) 9250684959
Email:	htp@gl-pi.com

1.7 Presentation of Third-Party Organization and Experts

Environmental Compliance Consultancy Co. Ltd (EnvCC) is a third-party organization that has obtained an Organization License Type (A) - License No. EIA-CO (A) 005/2024 for conducting Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) in accordance with local and international environmental impact assessment guidelines, procedures, laws and regulations.

The contact details of Environmental Compliance Consultancy Co., Ltd (EnvCC) is as follow;

Contact Person: Daw Myat Mon Swe

Address: (1) No. 20, Neikbainda Street, Lanthit Road, Nanthar Gone Ward,
Insein Township, Yangon, Myanmar
(2) No. (5611), Thitkwa (1) Street, Zawantheikhti Ward,
Ottarathiri Township, Naypyitaw, Myanmar

Telephone: +95 (9) 420111902

Email: myatmonswe@envccmyanmar.com, myatmonswe@gmail.com

1.8 Policy, Legal and Institutional Framework

The policy and legal framework, including existing environmental laws and regulations, international standards and guidelines, related to the rice mill operations of Golden Lace POSCO International Co., Ltd. are as follows. Details are provided in Chapter (3).

- ◆ The National Environment Policy, 2019
- ◆ Myanmar Climate Change Policy, 2019
- ◆ The Constitution of the Republic of the Union of Myanmar, 2008
- ◆ Natural Disaster Management Law, 2013
- ◆ Environmental Conservation Law, 2012
- ◆ Environmental Conservation Rules, 2014
- ◆ Environmental Impact Assessment Procedure, 2015
- ◆ Environmental Quality (Emissions) Guidelines (EQEG), 2015
- ◆ Conservation of Water Resources and Rivers Law, 2006
- ◆ The Protection of Wildlife and Conservation of Natural Area Law, 1994
- ◆ The Conservation of Biodiversity and Protected Area Law, 2018
- ◆ The Protection and Preservation of Cultural Heritage Regions Law, 1998
- ◆ The Protection and Preservation of Antique Objects Law, 2015
- ◆ The Protection and Preservation of Ancient Monuments Law, 2015
- ◆ Myanmar Fire Force Law, 2015
- ◆ Motor Vehicle Law, 2015
- ◆ Public Health Law, 1972
- ◆ The Prevention and Control of Communicable Diseases Law, 1995

- ◆ Occupational Safety and Health Law (The Pyidaungsu Hluttaw Law No.8.2019) (not in force)
- ◆ Employment and Skill Development Law, 2013
- ◆ The Settlement of Labour Dispute Law, 2012
- ◆ The Workmen Compensation Act, 1923 (amended in 1955, 1957, 2005)
- ◆ Labour Organisation Law, 2011
- ◆ Minimum Wages Law (2013) , Notification No. 1/2024
- ◆ Payment of Wages Law, 2016
- ◆ Leaves and Holidays Act, 1951
- ◆ Social Security Law, 2012
- ◆ Law protecting Ethnic Right, 2015
- ◆ Control of Smoking and Consumption of Tobacco Product Law, 2006
- ◆ Prevention from Danger of Hazardous Chemical and Associated Materials Rule, 2016
- ◆ Prevention from Danger of Hazardous Chemical and Associated Materials Law, 2013
- ◆ Myanmar Investment Law, 2016
- ◆ Myanmar Investment Rules, 2017
- ◆ Foreign Investment Law (2012)
- ◆ Yangon City Development Law (2018)
- ◆ The Import and Export Law, 2012

1.9 Project Activities (Operation Phase)

Rice Processing Complex process consists of 8 steps as follow.

- 1) Raw Feeding Section: White rice or par boiled rice or white rice raw is transported to the cleaning machine.
- 2) Cleaning Section: Light carbage and dust / points are removed through the air intake of the cleaner machine.
- 3) Destoner Section: The Destoner machine vibrates to remove any iron particles and stones that may be present in cleaned white rice, parboiled rice, or raw white rice.
- 4) Whitening Section: The process of polishing that the cleaned rice to whiten it, removing the silvery layer and bran for giving the rice as a finer appearance.
- 5) Polishing Section: The white rice is polished to a silky white color.
- 6) Grading Section: By removing large and small broken rice, rice types are made to a specific standard size.
- 7) Color Sorting Section: The process of removing colored rice by machine produces white rice.
- 8) Weighing & Packing Section: The milled rice is weighed and packed into sealed bags ready for sale. (Packing marking printing work is made by outsource printing work.)

State of Rice Storage to Prevent Mold, Infection, and Odor: Before transporting RC and raw rice from the importer to the warehouse, samples are taken and checked by the factory QC to ensure that the moisture content is between 14% and 14% and that there are no pests.

According to the QC result, if the moisture is 14% or less and there are no pests, the product is transported to the storage facility by vehicle.

While unloading the truck, a sample is taken from each bag of rice and checked for moisture and bacteria. If it meets the specifications, it is accepted, and if it does not, it is returned to the supplier.

The rice received is accepted by the type of rice in a pallet system.

The pallets are supported by wooden pallets.

The quality of rice in the stored bins is checked weekly and if necessary, the bins are moved, turned upside down, and disinfected with fumigation (Aluminium Phosphide 56% Tablet) if pests are found.

1.10 Description of Surrounding Environmental and Social Conditions

The project area is a flat plain and is located next to the Twantay Canal which connects the Ayeyarwady River with the Hlaing River in Yangon. It is 22 miles (35 kilometers) long and is the shortest and fastest access canal between Yangon and the Ayeyarwady Delta, the rice belt of Myanmar.

The project area has a warm and humid climate with a maximum temperature of (30°C) and a minimum temperature of (25°C). The annual rainfall is 240 to 430 mm (1-17 inches).

Despite the presence of major fault lines in Myanmar, the project area has been relatively free from major earthquakes to date. However, it was hit by the severe Cyclone Nargis in May 2008, which is consistent with Myanmar's natural disaster risk profile and is prone to flooding.

Although the rice factory is a rice processing business, it is not made from Paddy, but rather from raw materials such as white rice which can be packaged and sold, raw rice (parboiled and brown rice). Therefore, the factory produces less dust and gas, and since it mainly uses electricity to operate, it is also found that the potential for hazardous fumes is low.

Therefore, although no air quality measurements were conducted inside the factory, the air quality results measured around the factory were found to be within the National Environmental Quality Emission Guidelines (NEQG), except for sulfur dioxide.

However, based on the initial findings and comments of the Environmental Conservation Department, an additional air sampling point within the rice mill were also conducted and found to be within the National Environmental Quality Emission Guidelines (NEQG) except for sulfur dioxide.

This is because sulfur dioxide is produced during fuel combustion, so the location of the rice mill is between the Yangon-Maubin Road and the Twantay Canal, so it is possible that it is emitted from fuel combustion by vehicles and boats, and from the burning of straw in paddy fields around the rice mill area.

To determine whether the project activities are causing environmental noise pollution levels inside the rice mil were measured in 2015 and 2025 using a Digital Sound Level Meter. It was

found that the noise levels did not exceed the National Environmental Quality Guidelines (NEQG) during the day, but exceeded the limits by 15 dBA at night.

It was found that this may be due to the noise of vehicles and boats moving around the area, even though the factory is not operating at night, and the sounds of animals, especially birds, that forage at night in the surrounding farmland.

To obtain information on the soil quality of the project, soil samples were collected from a depth of 3 meters within the project area. The samples were carefully packaged and transported to the laboratory at the Irrigation Department (2015) and Land Use Department (2025) of the Ministry of Agriculture, Livestock and Irrigation. Soil samples were tested and found to be in a suitable condition for agriculture and had a minimum potassium content.

To obtain information on the water quality of the project, samples of ground water and surface water were collected and sent to the Irrigation Department (2015) and Ecological laboratory (2025) for testing. The results of the measured canal water and ground water quality showed that Ammonia-Nitrogen (NH₃-N) and Turbidity were found to be above the limits (WHO Drinking Water Guideline Geneva 1993), while the remaining parameters were found to be within the standard.

Based on the analysis of published information, public interviews, and studies on the bio-environmental data of the project area, the following summary findings were obtained.

- (1) A total of 41 plant species were identified by the Literature survey. There are 4 species of herb, 2 species of climber or creeper, 6 species of small tree and 23 species of tree, 5 species of shrub and 1 species of bamboo were also founded. The palm trees were found to be growing as Endangered (EN).
- (2) 4 species of mammals 4 genera belonging to 4 families were identified in and around of the project area. There are Small Asian Mongoose, Crab eating Mongoose, Farm-coloured Mouseed and House Shrew were recorded by interviewed survey from local people. According to the IUCN Red List (2024-2), there was no threatened species and no endemic species in this area.
- (3) A total of 6 species of amphibian and reptile were identified through interviewed. There are 1 species of frog, 1 species of lizard and 4 species of snake. According to the IUCN red list (2024), there are no endemic species and no threatened species within the survey area.
- (4) A total of 21 bird species 19 genera belonging to 16 families were recorded in the project area. According to the IUCN red list of threatened species (2024-2), there are no endemic species in the survey area.
- (5) A total of 14 butterfly species to 11 genera 5 families are identified in the Project Area. According to the IUCN red list (2024-2), Peacock pansy (*Junonia almanac*) is least concern. There are no threatened species and no endemic species.
- (6) A total of 3 dragonfly species 3 genera 1 family were identified around the survey area.. According to the IUCN red list of threatened species, there was no threatened species and no endemic species.

- (7) A total of 12 fish species were identified within the survey area. There are no endemic species in the survey area.
- (8) The closest protected area to the project is the Hlawka Park located in Mingalardon Township, north of Yangon, and will not be affected by project activities.

The following is a summary of the findings of the study on the social environment of the project area in Thanbyuyun Village and Htantapinsu Village in the nearby Kaladan Village Tract, and Kanpatyo Village in the Takahait Village Tract.

- (1) It was found that families with (2) to (4) members and (4) to (8) members accounted for 40% of the total.
- (2) Most of the houses were made of bamboo in Thanbyuyun and Htantapinsu Villages, while in Kanpatyo village, most of the houses were made of wood and some were made of Brick with Wood.
- (3) Most Households use solar electricity, and it was found that the highest usage was in Kanpatyo. Motorcycles and bicycles were also found to be the most common in Kanpatyo. Mobile phones are available to everyone in those villages.
- (4) Firewood is mainly used for cooking, and groundwater is extracted from hand pump and wells for drinking.
- (5) Religious groups providing humanitarian assistance near the project area include Lutheran World Federation Myanmar, Karen Baptist Church and Danish Church Aid, UNICEF, PACT, Proximity Designs and PSI (MIMU Myanmar-3W Dashboard).
- (6) The main source of income is rice and banana cultivation, and there is also income from home-based activities (especially motorcycle repair and That Ke roof weaving). The annual income is 30-100 million baht. Among the three villages, Kanpatyoe has a strong economic base by harvesting and threshing the raw rice /brown rice (white / parboiled) obtained from farming and selling the brown rice to rice mills.
- (7) For health care, it is rely only on rural clinics, and in emergencies, people have to go to the government township hospitals in Twantay. There are a few private clinics, but they are not fully staffed with doctors and nurses. As for infectious diseases, the tuberculosis, which used to occur frequently in the past, is now almost non-existent.
- (8) In terms of education, there is one primary school and the monastery education system is also being adopted.
- (9) There is no designated area for waste disposal, and the Twantay Township Development Committee comes to collect it. Usually, people bury or burn waste in their own yards.
- (10) For transportation, they usually use the Yangon-Maubin Road and the waterway of Twantay Canal.

Cultural heritage sites such as Boungdawgyoke Monestery, Shwe San Taw Pagoda and Twantay Canal are located within (10) kilometers of the project.

Details of the environmental data and related issues are provided in Chapter (5).

1.11 Summary of the Identification of Potential Impact Assessment

The project implementation may result in physical, biological, and socio-economic changes to the project area and surrounding environment. The project may have positive and negative environmental and social impacts due to the work carried out on environmental factors such as air quality, water quality, soil quality, noise and vibration, waste (solid and liquid), fire hazard, and occupational health and safety at all project phases (operation and decommissioning).

The analysis was conducted based on the assessment and measurement parameters of the significant environmental and social impacts that may arise from the project activities and their dimensions, such as the magnitude, duration, area, and frequency (likelihood) of the impact.

Since the project construction work has been completed and the project is in operation, the following activities have been analyzed according to the project period (operation phase and decommissioning phase):

Operation Phase

Air Quality

- ◆ The Emission that perform during the transportation of the raw material (brown rice) to the cleaning stage at the movement of the Rotary Shifter with the vibration of the cleaning machine, the De-Stoner machine and the Cleaners.
- ◆ The Emission release by mill processes such as moving by Bucket Elevator, whitening (polishing) of rice, and discharging from Length.
- ◆ The Emission release by Handling, storing bran and discharging them selling to the local merchants for animal feeds.
- ◆ Emissions from generator operation.
- ◆ Emissions from vehicle traffic.

The three main sources of air quality impact during operations are:

- (1) Particulate matter (PM10) from rice processing - moderate
- (2) Emissions from vehicles - moderate
- (3) Emissions from auxiliary diesel generators - negligible

Noise Level

The two main noise impacts during operation are:

- (1) Noise from rice processing – Negligible
- (2) Emissions from vehicles and diesel generators – Moderate

Soil and Groundwater Quality

The three (3) main sources of contamination that could affect soil and groundwater quality during operation are:

- (1) Wastewater and sanitation discharges from daily operations by plant personnel - Negligible

- (2) Spillage from fuel storage - Negligible
- (3) Accidental oil spills from utility vehicles and generators – Negligible

Waste and Wastewater

The main impacts during operation are:

- (1) Wastewater from daily operations by factory workers - Negligible
- (2) Wastewater from rice cleaning process - Negligible
- (3) Kitchen water, wastewater and sewage - Negligible
- (4) Spillage from fuel storage - Negligible
- (5) Accidental oil spills from vehicles and generators – Negligible

Ecosystem

The project area does not have significant flora and fauna and is located far from protected areas, so the impact on the ecosystem can be considered negligible.

Social Impact

The main impacts during operation are:

- (1) Traffic congestion due to the (20) to (50) truck trips per week from the road to the factory to transport raw materials and the transportation of final products from the Twantay Canal - High Level
- (2) Increase in migrant workers - Medium Level
- (3) Local economic growth - High Level
- (4) Increase in child labor - High Level
- (5) Local insecurity - High Level
- (6) Occupational safety - Medium Level

Decommissioning Phase

The main impacts during the decommissioning period are:

- ◆ Potential environmental air Emission due to demolition vehicles and machinery used during the project decommissioning - Medium Level
- ◆ Potential impacts to environment and workers due to vehicles movement, environmentally unfriendly equipment used during the decommissioning phase - Highest Level
- ◆ Potential waste, debris, and wastewater from workers and employees - Medium Level
- ◆ Potential soil and groundwater pollution from the decommissioning of the factory and spillage of fuel from the decommissioning equipment - Medium Level

1.12 Description of Proposed Mitigation Measures and Residual Impacts

Operation Phase

- ◆ Installing dust collectors, exhaust fans, and roof ventilators to control dust emissions in the factory;
- ◆ Maintaining equipment for long-term use;
- ◆ Spraying access road with water;
- ◆ Provide employees with personal protective equipment (PPE);
- ◆ Regular cleaning and inspection of sewage systems and drains;
- ◆ Regular inspections to prevent oil spills from generators and vehicles;
- ◆ Safely enclose noise and vibration sources to prevent noise and vibration from being emitted into the surrounding area;
- ◆ Rotate workers working in noisy areas;
- ◆ Plant and maintain trees and shrubs in the factory yard;
- ◆ Install fire alarm systems, fire suppression systems, fire extinguishers, emergency exits, ladders, and emergency exits;
- ◆ Train project staff on fire safety and firefighting in coordination with the fire department;
- ◆ Regular health check-ups and health care for workers;
- ◆ Provide employees to occupational safety training and follow-up training at the factory;
- ◆ Separate waste materials into recyclable materials, disposable materials, and hazardous waste at the factory and report to the YCDC's Sanitation Department and have them collected.

Decommissioning Period

- ◆ Decommissioning equipment should be turned off when not in use to minimize emissions to the environment;
- ◆ Regular inspection and maintenance of vehicles and equipment;
- ◆ Water spraying within the project to minimize dust emissions;
- ◆ No burning of waste materials;
- ◆ Properly remove and reuse pipelines that have been removed during the dismantling period;
- ◆ Turn off noisy machines and equipment when not in use and avoid using noisy machines and equipment at the same time as much as possible.
- ◆ Provide fire extinguishers, fire water tanks, and install fire hazard signs.
- ◆ Carefully remove and store electrical wires,
- ◆ Install warning signs and use personal protective equipment,
- ◆ Provide garbage dumps and dispose of waste in designated areas,
- ◆ Properly construct and provide adequate temporary latrines in the workplace;
- ◆ Keep emergency medicines and first aid kits within reach;
- ◆ Provide adequate drinking water for employees;

- ◆ Disposal waste and kitchen waste from offices and staff houses in the workplace are systematically collected and disposed of in appropriate places, covered, and hazardous industrial waste is safely packaged and disposed of in designated areas.

Details about this and the residual effects are described in Chapter (6).

1.13 Summary of Environmental Management Plan

Golden Lace POSCO International Co., Ltd.'s rice mill must continuously focus on reducing potential impacts from its operations, and must also comply with environmental management plans in its operations. The Environmental Management Plan has five (5) plans: Environmental Impact Reduction/Prevention Plan, Environmental Monitoring Plan, Health and Safety Plan, Emergency Response Plan, Employee Awareness and Training Plan, and Social Responsibility Plan.

Golden Lace POSCO International Co., Ltd. is required to implement these programs. In addition, it is responsible for supervising and monitoring these programs that are being implemented.

By implementing these programs, it can be reduced the potential environmental and social impacts of project's activities. Project managers should also conduct regular reviews of environmental management plan and conduct regular monitoring throughout the plant's operational phase. Details related to this are provided in Chapter 7.

1.14 Public Consultation and Information Disclosure

Environ Myanmar held a Public Consultation Meeting (PCM) with project stakeholders during the preparation of the IEE report at the senior village leader's house in Than Phyu Yon village, which is located opposite the project area. Thirty-nine (39) participants participated in the discussion.

The participants from Kan Pat Yoe, Htan Ta Pin Su and Than Phyu Yon villages near by the project area reported that the following items could be provided, and Golden Lace POSCO International Co., Ltd. responded that it would be provided.

- (1) To build a local health clinic;
- (2) To provide clean drinking water;
- (3) To provide access to electricity, and
- (4) To renovate and upgrade schools.

Since the signed attendance of Participants who attended the public consultation meeting (PCM) held in 2015 were not available, Environmental Compliance Consultancy Co., Ltd (EnvCC) held another PCM at the Rice Mill Office with the project affected persons from of Kan Pat Yoe, Htan Ta Pin Su and then Phyu Yon villages aims to get the strengthen public concerns on 15-5-2025. The number of people who attended was (17).

During the meeting, the following points were discussed by the participants:

- a. For a question made to let know the water quality of the Twantay Canal was good or not by one of participants , answered that it was good and there is no harms according to the results of the water quality test.

- b. Based on the presentation about IEE study, rice mill officials have ensured that workers are employed in accordance with international standards at all stages of the rice milling process, and safety and environmental protection are also a top priority by no hazardous waste or wastewater is discharged directly into the canal, there were no complaints about the project's performance as it could boost the local economy.
- c. Golden Lace POSCO International Co., Ltd. stated that the CSR program of providing clean drinking water and electricity to schools near the project will be reported to the company's officials and implemented.

In accordance with the Environmental Impact Assessment Procedures (2015) issued by the Ministry of Natural Resources and Environmental Conservation, regular communication with the public and environmental authorities related to the project will be carried out to facilitate the disclosure of information and the Executive summary of the IEE report (in Myanmar Language) that has been approved by the Department of Environmental Conservation will be distributed to local residents. An information center will be established and operated to identify and resolve impacts caused by project activities.

1.15 Environmental Monitoring Plan and Budget

The Environmental Monitoring Plan and reserved funds are presented in Table 1-1.

Table 1-1 Environmental Monitoring Plan and reserved funds

Baseline	Parameters	Location of Sampling Point	Frequency of Sampling	Budget (Kyat)
Air Quality	NOx, SO2, PM2.5, PM10 and O2	<ul style="list-style-type: none"> ➤ Project area at 16°43'45.47"N, 96°0'41.59"E ➤ Around the project area at 16°43'51.45"N, 96°0'41.96"E 	6 monthly Monitoring Report to ECD	2,000,000
Noise Level	Noise Level (dB (A) scale)	<ul style="list-style-type: none"> ➤ Project area at 16°43'51.45"N, 96°0'41.96"E 	6 monthly Monitoring Report to ECD	1,000,000
Water Quality	Alkalinity (Alk), Magnesium (Mg ++), Sodium (Na+), Potassium (K+), Total Hardness (TH), Sulfate (SO4-), Chloride (Cl-), Iron (Fe), Dissolve Oxygen (DO), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), pH, Ammonia-Nitrogen (NH3-N), Turbidity, Salinity, Arsenic (As), Lead (Pb)	<p>တူးမြောင်းရေနှင့် မြေအောက်ရေ</p> <ul style="list-style-type: none"> ➤ Surface Water (Canal) at 16°43'40.81"N, 96°0'42.03"E ➤ Groundwater at 16°43'45.59"N, 96°0'31.94"E 	6 monthly Monitoring Report to ECD	2,400,000

Baseline	Parameters	Location of Sampling Point	Frequency of Sampling	Budget (Kyat)
Soil Quality	pH, Salinity, Electrical Conductivity, Cation Exchangeable Capacity, Potassium (Potash)	➤ Project area at 16°43'43.20"N, 96°0'42.38"E	6 monthly Monitoring Report to ECD	500,000
Occupational Health and Safety	Electrical and Fire Hazard	Electrical cables, their accessories and flammable areas within the project area	Monthly	1,000,000
	Accident	Workplace within the project area	Monthly	

1.16 Conclusion and Recommendation

By predicting the impacts of project activities, it is possible to avoid or mitigate impacts and by implementing mitigation measures according to the Environmental Management Plan, and monitoring and evaluating their implementation, the project development will be sustainable in the long term.

Most of the impacts assessed in the IEE study are minor and could be reduced by implementing mitigation measures.

The project developer must also ensure that environmental protection measures are in place to mitigate any concerns that may arise during the project period.

2. INTRODUCTION

Proposed Rice Processing Complex with the capacity of 280 tons per day falls in the category of Initial Environmental Examination (IEE) requirement as specified in the section of “Food and Beverage Manufacturing” from Appendix 1 of MONREC’s Environmental Impact Assessment (EIA) Procedure (2015). Hence, this document is prepared as an IEE pursuant to sections 15 and 16 of Chapter VII of the Environmental Conservation Act, 2012 and to section 10, 11, and 12 of Chapter II of EIA Procedure (2015). As instructed in the EIA Procedures (2015), this IEE identifies relevant key environmental factors of the project site and potential environmental impacts from the project and outlines an environmental management plan with mitigation measures.

The proponent, Golden Lace POSCO International Co., Ltd. (GLPI) has entrusted ENVIRON as an independent third party to conduct IEE for the project and the IEE report was submitted to the Environmental Conservation Department (ECD) for seeking IEE approval and subsequent permit from Myanmar Investment Commission (MIC) in 2015 and Environmental Compliance Consultancy Company Limited (EnvCC) has been commissioned by GLPI to update the Initial Environmental Examination (IEE) report for the outcomes of the comments by ECD’s assessment.

In general, this document covers:

- Overview of the proposed Rice Processing Complex;
- Description of the project implementation;
- Key environmental factors relevant to the project and
- Environmental impact assessment and management plan.

2.1 Objectives of Approach

The purpose of this IEE and relevant Environmental Management Plan (EMP) is to provide information on the nature and extent of potential environmental and social impacts arising from the construction and operation of the proposed project and its related activities, and to commit implementation of mitigation measures to minimize the impacts. It is hoped that this information will help MONERC and MIC on determining the project’s approval:

This report comprises specialists’ assessment of the potential impacts by the project on the environment (both in natural and social contexts). It highlights areas of particular concerns, receptors, and vulnerability. In addition, the report describes in-depth mitigation measures in EMP to address and minimize the impacts.

2.2 Presentation of the Project Proponent and Justification

The proposed Rice Processing Complex project is operated by a joint venture company formed by Daewoo International Corporation and Golden Lace Co. Ltd. Daewoo International Corporation is involved in trading including imports, exports and tripartite trade, IT, financing and operation of engineering procurement operation, and construction, as well as resource

development for industrial and agribusiness operations. With innovative use of modern technology, the company produces high export quality rice. Its mission in Myanmar is to curb losses in rice industry's post-harvest stages and to boost productivity yield through the incorporation of providing trainings and modernizing production techniques.

Started as a family business in 1957 and then, turned into a company in 2001, Golden Lace Co. Ltd., has emerged as one of the leading agri-business in Myanmar. It engages in production and sale of export quality rice and agricultural machineries. Its products have been known both in the regional markets and overseas. The company exported over 10,000 tons of processed rice during 2013-2014 fiscal year. Its chairman, Mr. Thaung Win has been serving as one of the executive members of Myanmar Rice Federation (MRF).

The proposed project is developed on 13.8 acres land and will have approximate production capacity of 280 tons per day – totalling 85,000 tons per year.

In accordance with criteria specified in MONREC's EIA Procedure's section of "Food and Beverage Manufacturing" from Appendix 1, the proposed project meets IEE requirement. Therefore, Golden Lace POSCO International Co., Ltd. appointed ENVIRON Myanmar to conduct IEE to comply with MONREC environmental standards and to fulfil Myanmar Investment Commission (MIC)'s regulation for obtaining approval and permit.

This IEE study for the existing Rice Processing Complex was been conducted by a joint venture company formed by Daewoo International Corporation and Golden Lace Co. Ltd. in 2015.

Due to the following history of Company Name Changes, the Golden Lace POSCO International Co., Ltd. (GLPI) is the project owner of this project since April 2019. The Changes of Company's Name approved by MIC is shown in **Appendix A**.

Table 2-1 History of Changes of Company Name and MIC Approved

Year	POSCO	GLPI	Remark
Up to February 2016	DAEWOO International Corporation		
March 2016	POSCO DAEWOO Corporation		
November 2016		Golden Lace DAEWOO Co., Ltd 28-11-2016	Shareholder: POSCO DAEWOO Corporation & Golden Lace Co., Ltd
March 2019	POSCO International Corporation 19-3-2019	Golden Lace POSCO International Co., Ltd 21-3-2019	MIC Approved 8-4-2019

The project proponent and contact details are as follows:

- Contact person: Ms. Tin Htar Phone
- Position: HR Manager,
Golden Lace POSCO INTERNATIONAL CO., LTD
- Address: No. 56, 5th Floor, Mahaland Building,
Kabar Aye Pagoda Road, Yankin Township,
Yangon, Myanmar
- Phone: +(95) 9250684959
- Email: http@gl-pi.com

2.2.1 Project Developer's Contractual and Commitments for Proposed Project

Outline Laws, regulations and standards shall be followed for environmental quality, safety and health, protection of sensitive areas, protection of endangered species, siting, and land use control at the international, national, and local levels.

Golden Lace POSCO International Co., Ltd will comply with the Environmental Conservation Law dated on March 30, 2012, Rules dated on June 5, 2014, and Procedures dated on December 29, 2015, National Environmental Quality (Emission) Guideline dated on April 22, 2015 and all necessary national and international standards Golden Lace POSCO International Co., Ltd. 's commitments are illustrated in Table 2-2.

According to Article (77) of the Environmental Impact Assessment Procedure, Golden Lace POSCO International Co., Ltd. shall issue the commitment for the accuracy and completeness of the IEE, that the IEE has been prepared in strict compliance with applicable laws including this Procedure, and that the Project will at all times comply fully with the commitments, mitigation measures, and plans in the IEE.

The copy of company's registration is demonstrated in **Appendix B**.

The signed commitment letter of Golden Lace POSCO International Co., Ltd. for the IEE is attached with report.

Table 2-2 GOLDEN LACE POSCO INTERNATIONAL CO., LTD.'s Commitment

No.	Brief Summary of the Commitments	Description of Commitments	Reference Chapter
1.	<ul style="list-style-type: none"> Authenticity, recognition and obligations 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the correctness of all the description being described. Golden Lace POSCO International Co., Ltd. commits to take any obligation and responsibility being described. 	Chapter 1: Executive Summary
2.	<ul style="list-style-type: none"> Authenticity, recognition and obligations 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the correctness of all the description being described for the context of the project. 	Chapter 2: Introduction
3.	<ul style="list-style-type: none"> Authenticity, recognition and obligations Commitment 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the correctness of all the description being described for the context of the project. Golden Lace POSCO International Co., Ltd. commits to comply the described environmental and social policies, existing environmental conservation laws and regulations, Myanmar's existing laws and regulations, policy and legal frameworks including national and international standards and guidelines, being explored in this report. Golden Lace POSCO International Co., Ltd. commits to comply policies which is prepared and undertaken by the government authorities for the state requirements. Golden Lace POSCO International Co., Ltd. abides by the terms and conditions, stipulations of special licenses, permits, and business operation certificates issued to them, including the rules, notifications, orders, and directives and procedures issued by the MIC and the applicable laws, terms and conditions of contract and tax obligations; Golden Lace POSCO International Co., Ltd. carries out in accordance with the stipulations of the relevant department if it is, by the nature of business or by other need, required to obtain any license or permit from the relevant Union Ministries government departments and governmental organizations, or to carry out registration; Golden Lace POSCO International Co., Ltd. abides by the applicable laws, rules, procedures and best standards practiced internationally for this investment so as not to cause damage, pollution, and loss to the natural and social environment and not to cause damage to cultural heritage; Golden Lace POSCO International Co., Ltd. takes responsibilities for its actions and omissions and those of its officers, employees, agents, representatives, and consultants employed, hired, or 	Chapter 3: Policy and Legal Framework

No.	Brief Summary of the Commitments	Description of Commitments	Reference Chapter
		<p>authorized by the company acting for or on behalf of the Project;</p> <ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. closes and discontinues the investment only after payment of compensation to employees in accordance with applicable laws for any breach of employment contracts, closure of investment, sale and transfer of investment, discontinuation of investment, or reduction of workforce; Golden Lace POSCO International Co., Ltd. supervises foreign experts, supervisors and their families, who employ in its investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar; Have the right to sue and to be sued in accordance with the laws; Pay effective compensation for loss incurred to the victim, if there is damage to the natural environment and socioeconomic losses caused by logging or extraction of natural resources which are not related to the scope of the permissible investment, except from carrying out the activities required to conduct investment in a Permit or an Endorsement. Ensure that all foreign employees apply for the proper work permit and visa through the Myanmar Investment Commission (MIC). Provide rights and benefits including but not limited to, leave, holidays, overtime pay, compensation and social security. Most of the relevant particulars are in the Myanmar Companies Act. Golden Lace POSCO International Co., Ltd. is responsible for, and shall fully and effectively implement, all requirements set forth in the Environmental Compliance Certificate (ECC), applicable Laws, the Rules, this Procedure and standards. According to the EIA Procedure, "A detailed decommissioning plan" is submitted before the start of decommissioning activities. 	
4	<ul style="list-style-type: none"> Correctness and acknowledgement 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the correctness of all the description being described. 	Chapter 4: Project Description
5	<ul style="list-style-type: none"> Correctness and acknowledgement 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the correctness of all the description being described. 	Chapter 5: Description of the Project Environment
6	<ul style="list-style-type: none"> Authenticity, recognition and obligations 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the correctness of all the description being described environmental and social impacts. 	Chapter 6: Anticipated Environmental and

No.	Brief Summary of the Commitments	Description of Commitments	Reference Chapter
			Social Impacts and Mitigation Measures
7	<ul style="list-style-type: none"> Authenticity, recognition and obligations Commitment 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges fully implement the Environmental Management Plan (EMP), all Project commitments, and conditions, and is liable to ensure that the Project comply fully with all applicable Laws, the Rules, this Procedure, the EMP, Project commitments and conditions when providing services to the Project; Golden Lace POSCO International Co., Ltd. acknowledges all the requirements to implement the Environmental Monitoring being explored and committed to undertake; Golden Lace POSCO International Co., Ltd. commits to undertake environmental and social performance monitoring and commits to submit the monitoring report in 6th Monthly to the Ministry as per schedules being explored in Environmental Management Plan. Golden Lace POSCO International Co., Ltd. acknowledges and committed to allocate the cost for the implementing of Environmental Monitoring. 	Chapter 7: Environmental Management Plan
8	<ul style="list-style-type: none"> Public consultation and Disclosure commitments 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the process for public consultation and commits to comply to undertake the methodologies being explored. Golden Lace POSCO International Co., Ltd. acknowledges all the process for disclosure and committed to comply to undertake as per those. 	Chapter 8: Public Consultation and Disclosure
9	<ul style="list-style-type: none"> Authenticity, recognition and obligations 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd. acknowledges all the description being described in Conclusion and Recommendation. 	Chapter 9: Conclusion and Recommendation

2.3 Presentation of the Environmental and Social Experts

The submitted IEE report to ECD for the proposed project was prepared by **ENVIRON Myanmar Co., Ltd** and all enquiries pertaining to the IEE study shall be directed to:

Contact Person: Dr. Flordeliz Guarin
Position: Technical Director and Principal,
ENVIRON Myanmar Co. Ltd
Address: 4th Floor, Building 17, MICT Park
Hlaing Township, Yangon, Myanmar
Telephone: +01 654914
Website: www.ramboll-environ.com

The team members involved in the preparation of the IEE and EMP are provided in.

Table 2-3 Key Environmental and Social Consultants for the Project of EnvCC

Name	Qualification	Responsibility
Joel Gonzales	<ul style="list-style-type: none">▪ Bachelor of Science in Biology (Major in Ecology)▪ NEBOSH National Diploma in Environmental Management▪ NEBOSH International General Safety Certificate	Senior Consultant
Josiah Bowles	<ul style="list-style-type: none">▪ M.Sc. in Water and Wastewater Engineering	Senior Consultant
Dr. Zin Mar Lwin	<ul style="list-style-type: none">▪ Ph.D in Environmental Science	Environmental Consultant
Mr. Htay Aung Pyae	<ul style="list-style-type: none">▪ M.Eng: Civil Engineering	Environmental Consultant
Ms. Khing Thwe Oo	<ul style="list-style-type: none">▪ M.Eng: Environmental Engineering and Management	Environmental Consultant
Ms. Kaythi Soe Myint	<ul style="list-style-type: none">▪ M.P.H Primary Health Care	Social and Health, Research
Mr. Min Zar Ni Aung	<ul style="list-style-type: none">▪ Bachelor of Mining Engineering	Field Survey Supervisor

Environmental Compliance Consultancy Company Limited (EnvCC) has been commissioned by Golden Lace POSCO International Co., Ltd to update the Initial Environmental Examination (IEE) report for the outcomes of the comments by ECD's assessment to submit as an updated IEE report to Environmental Conservation Department (ECD) of Ministry of Natural Resources and Environmental Conservation (MONREC) in order to inform the decision to award an Environmental Compliance Certificate.

EnvCC is a one of the Third Party Organizations in Myanmar and has been awarded the Third-Party License for Organization (**EIA-CO(A)005/2024**) under the Ministry of Natural Resources and Environmental Conservation (MONREC) since 30-7-2024 to provide the technical capabilities and best practices to solve the challenges of risks and safety through local and international EIA guidelines, procedures, project related laws and regulation, and stakeholders' satisfaction to deliver the right environmental solution. We are supervising to conduct the EIA, IEE, EMP, EMO and Due Diligence according to the Article 18 of Environmental Impact Assessment Procedure (2015) of Myanmar.

EnvCC commits to MONREC and ECD that the EMP has been prepared in strict compliance with applicable Environmental Conservation Law (2012), Environmental Conservation Rules (2014) and Environmental Impact Assessment Procedure (2015)'s clause (35) and (36), and other related laws and regulation for the type of project and the environmental impact plan is accurate and complete.

The commitment letter of EnvCC is illustrated with IEE Report.

The copies of company's registration, and Licenses of organization and experts are illustrated in **Appendix C and D**.

The contact details of Environmental Compliance Consultancy Co., Ltd (EnvCC) is as follow;

Contact Person:	Daw Myat Mon Swe
Address:	No. 20, Neikbainda Street, Lanthit Road, Nanthar Gone Ward, Insein Township, Yangon, Myanmar
Telephone:	+95 (9) 420111902
Email:	myatmonswe@envccmyanmar.com , myatmonswe@gmail.com

The key EnvCC environmental and social consultants that conducted the EMP Study are presented in Table 2-4 and CVs of the supporting members are described in **Appendix E**.

Table 2-4 Key Environmental and Social Consultants for the Project of EnvCC

No.	Project requirement	Name of Consultant	License Number/ Education	Expertise of Consultant	Responsibilities
Necessary Requirement of Expertise (6) for theproject					
1.	Air Pollution Monitoring	U Ye Myat Phone Hlaing	EIA-AC 114/2024	(1) Air Pollution Monitoring	Team Leader
2.	Air Pollution Prevention and Control	U Aung Zayer Wint	EIA-AC 008/2023	(1) Air Pollution Prevention and Control	
3.	Water Pollution Prevention, Control, Monitoring and Prediction of Impacts	U Chit Bo Bo Win	EIA-AC 118/2024	(1) Water Pollution Prevention, Control, Monitoring and Prediction of Impacts (2) Hydrology, Surface Water and Ground Water Conservation	
4.	Social Study and Analysis	Daw Myat Mon Swe	EIA-C 018/2023	(1) Social Study and Analysis (2) General Environmental Management (3) Environmental Quality Monitoring (Air, Water, Soil)	
5.	Solid Waste and Hazardous Waste Management	Daw Soe Moe Nwe	EIA-C 030/2023	(1) Social Study and Analysis (2) Ecology and Biodiversity (3) Solid Waste and Hazardous Waste Management	
6.	Risk Assessment and Hazard Management	U Arker Phyo	EIA-C 059/2024	(1) Risk Assessment and Hazard Management	
Other Expertise Involved					
1.	Ecology and Biodiversity	Daw Than Than Htay	EIA-C 045/2023	(1) Ecology and Biodiversity	
2.	(1) Meteorology, Air Quality Assessment and Forecast	Dr. Phyo Thu Aung	EIA-AC 092/2024	(1) Meteorology, Air Quality Assessment and Forecast	

No.	Project requirement	Name of Consultant	License Number/ Education	Expertise of Consultant	Responsibilities
	(2) Water Pollution Prevention, Control, Monitoring and Prediction of Impacts			(2) Water Pollution Prevention, Control, Monitoring and Prediction of Impacts	
3.	Legal Study and Analysis	Daw Ei Ei Win Myat	EIA-AC 065/2023	(1) Legal Study and Analysis	
4.	(1) Geological Assessment (2) Land Use	U Aung Nyein Myat	EIA-AC 013/2023	(1) Geological Assessment (2) Land Use	
5.	Health	Dr. Hein Lin Aung	EIA-AC 052/2023	(1) Health	
6.	Archaeology and Cultural Heritage	U Than Htut	EIA-AC104/2024	(1) Archaeology and Cultural Heritage	

Supporting Member (2)

No.	Expertise	Name	Education	Responsibilities
1.	Air Pollution Prevention and Control	U Aung Kaung Myat	<ul style="list-style-type: none"> • Master of Science and Engineering (Environmental Planning and Management) • Post-graduate Diploma (Environmental Planning and Management) • BE (Port and Harbor Engineering), • Post-graduate Diploma (Civil Service Management) 	
2.	Solid Waste and Hazardous Waste Management	Daw Aye Chan Wyutyi	<ul style="list-style-type: none"> • Master of Science and Engineering (Environmental Planning and Management) • Post-graduate Diploma (Environmental Planning and Management) • BE (Naval Architecture & Ocean Engineering), • Post-graduate Diploma (Civil Service Management) 	

3. POLICY AND LEGAL FRAMEWORK

This section reviews the policy and legal framework of Myanmar and structures set up to protect the environment, as well as ongoing activities that are intended to promote sustainable development and environmental protection in Myanmar.

3.1 Myanmar Legislation Relevant to the Project

3.1.1 *National Commission for Environmental Affairs–(Also known as Environmental Conservation Committee) and MONREC*

The National Commission for Environmental Affairs (NCEA) was formed in 1990 and it was chaired by the Minister of Foreign Affairs until 2005. In 2005 the NCEA was transferred to the Minister of Forestry (MoF), which assumed the role of the NCEA chairperson and was later renamed as Ministry of Environmental Conservation and Forestry (MONREC). The state objectives of now MONREC include setting environmental standards, creating environmental policies for using natural resources and laying down rules and regulations to prevent pollution, as well as to create short and long term environmental policies that balance between environmental conservation and long overdue economic developments.

MONREC has drafted EIA rules and regulations pending approval by the Parliament, to complement the Environmental Conservation Law of 2012. EIA rules and regulations were enacted in June 2014.

The National Commission for Environmental Affairs (NCEA) was formed in 1990 and was chaired by the Minister of Foreign Affairs until 2005. In 2005 the NCEA was transferred under the Minister of Forestry (MOF), which assumed the role of the NCEA chairperson and later it changed the name to Ministry of Environmental Conservation and Forestry (MONREC). The stated objectives

of MONREC include setting environmental standards, creating environmental policies for using natural resources and laying down rules and regulations to control pollution, as well as to create short and long term environmental policies which balance between environmental conservation and long overdue developments for the country.

To complement the Environmental Conservation Law promulgated in 2012, MONREC has drafted the “Environmental Impact Assessment Procedure and ESIA Guidelines” which are currently pending approval by the government. Thus, the ESIA study for the project has been conducted in line with the 6th draft of the EIA Procedure.

3.1.2 *National Environmental Legislation*

There are currently several laws and regulations related to environmental protection in Myanmar. Most are old environmental laws for which enforcement was spread over many ministries without a centralized environmental regulatory agency until 2011. The authority of the Ministry of Natural Resources and Environmental Conservation (MONREC) (Former: Ministry of Environment, Conservation, and Forestry) was established in September 2011 as

the focal and coordinating agency for the overall environmental management including monitoring and auditing based on the Environmental Conservation Law 2012.

The environmental legislations and regulations considered relevant to the Rice Processing Complex are presented below.

Table 3-1 Myanmar Legislation and Relevance to Project

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
ENVIRONMENTAL LEGISLATION		
The National Environment Policy, 2019	Section 7	<p>This Policy builds on Myanmar's 1994 National Environmental Policy and reaffirms its core values:</p> <p>(a) The wealth of the nation is its people, its cultural heritage, its environment and its natural resources.</p> <p>(b) It is the responsibility of the State and every citizen to preserve our natural resources in the interests of present and future generations.</p> <p>(c) Environmental protection should always be the primary objective in seeking development.</p> <p>In order to meet the visions, the Government of the Republic of the Union of Myanmar adopts the following 23 National Environmental Policy principles as the guiding framework for achieving: a clean environment and healthy, functioning ecosystems; sustainable economic and social development; and the mainstreaming of environmental protection and management:</p>
Myanmar Climate Change Policy, 2019	Section 12	<p>This is established with the vision to be a climate-resilient, low carbon society that is sustainable, prosperous and inclusive, for the wellbeing of present and future generations.</p> <p>There clearly set-up a guiding principle for</p> <ul style="list-style-type: none"> ■ Sustainable development ■ Precaution ■ Prevention ■ Environmental integrity ■ Shared responsibility and cooperation ■ Inclusiveness ■ Good governance ■ Climate justice and equity ■ Gender equality and women's empowerment

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
The Constitution of the Republic of the Union of Myanmar, 2008	Article 37 (a)(b) , 45, 390	<p>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.</p> <p>The Project Proponent commits to comply as these three Articles in the Constitution provide a basis for legalising and institutionalising environmental health impact assessment and social impact assessment. There stipulates that:</p> <ul style="list-style-type: none"> ■ 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; The Union shall enact necessary law to supervise extraction and utilization of State owned natural resources by economics forces; ■ The Union shall protect and conserve natural environment. ■ Every citizen has the duty to assist the Union in carrying out the following matters: <ul style="list-style-type: none"> (a) preservation and safeguarding of cultural heritage; (b) environmental conservation; (c) striving for development of human resources; (d) protection and preservation of public property.
Natural Disaster Management Law, 2013	Section 15 (a, b, f)	<p>The Project Proponent commits to comply with the following:</p> <p>15. In areas prone to natural disasters, the following are among the preparedness activities that must be planned and carried out before a natural disaster strikes:</p> <ul style="list-style-type: none"> (a) Identifying areas prone to natural disasters, preparing a natural disaster risk assessment and developing emergency response plans; (b) Providing public awareness of natural disaster knowledge, establishing early warning systems, providing training and conducting exercises for search and rescue operations; (f) Collecting and storing the minimum necessary emergency food, relief supplies, and rehabilitation materials for each type of natural disaster in order to provide ready assistance;
Environmental Conservation Law, 2012	Section 7(o), 14,15, 29	<p>The Project Proponent commits to comply with the following:</p> <ul style="list-style-type: none"> ■ That MONREC has the right to manage a proponent to (1) provide compensation for environmental impact and contribute funds, (2) the need for prior permission from MONREC for businesses that have been

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>categorized for potentially causing impact on the environment and (3) the right to issuing permit with terms and conditions relating to environmental conservation.</p> <ul style="list-style-type: none"> ■ To treat, emit, discharge and deposit substances which cause pollution in the environment in accordance with stipulated environmental quality standards. ■ That the owner or occupier of any business, material or place which causes a point source of pollution must 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 must be arranged to dispose the wastes in accordance with environmentally sound methods. <p>To not violate any prohibition contained in the rules, notifications, orders, directives and procedures under the Environmental Conservation Law.</p>
Environmental Conservation Rules, 2014	Rule 69(a) (b)	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ Not to emit, cause to emit, dispose, by any means, the pollutants and the hazardous waste or material (stipulated as such under the Law) at any place which may affect the public directly or indirectly. ■ Not to damage the ecosystem and the natural environment due to such system, except for carrying out with the permission of MONREC in the interest of the people.
Environmental Impact Assessment Procedure, 2015	Section 87, 102(a)(b), 103, 104, 105, 106, 107, 108, 110, 113, 115, 117	<p>The EIA Procedure sets out the procedures for completing an IEE, EIA and/or EMP in Myanmar. This includes information on project categorisation, responsibilities of project developers and ministries, EIA review, monitoring and auditing, amongst other issues.</p> <p>The Project Proponent commits to bear full legal and financial responsibility:</p> <ul style="list-style-type: none"> ■ For their actions and omissions and those of its contractors, subcontractors, officers, employees, agents, representatives, and consultants employed, hired, or authorised by the Project acting for or on behalf of the Project, in carrying out work on the Project; and ■ To support programs for livelihood restoration and resettlement in consultation with the PAPs, related government agencies, and organizations and other concerned persons for all Adverse Impacts until PAPs have achieved socio-economic stability at a level not lower than that in effect prior to the commencement of the Project.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>For EMP, the Project Proponent commits:</p> <ul style="list-style-type: none"> ■ to implement the EMP, all Project commitments, and conditions, ■ to ensure that all contractors and subcontractors of the Project comply fully with all applicable Laws, the Rules, this Procedure, the EMP, Project commitments and conditions when providing services to the Project. ■ Responsible for, and to fully and effectively implement the requirements set forth in ECC, applicable Laws, Rules, EIA Procedure and standards. ■ Project commitments and conditions when providing services to the Project and inform the Ministry with detailed information as to the proposed project's potential adverse impacts. <p>For monitoring and reporting, Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To notify and identify in writing to the Ministry, providing detailed information as to the proposed Project's potential Adverse Impacts. ■ To engage in continuous, proactive, and comprehensive self-monitoring of the Project and activities related thereto, all Adverse Impacts, and compliance with applicable laws, the Rules, this EIA Procedure, standards, the ECC, and the EMP during all phases of the Project (pre-construction, construction, operation, decommissioning, closure and post-closure). ■ To notify and identify in writing to the Ministry for any breaches of his obligations or other performance failures or violations of the ECC and EMP as soon as reasonably possible and in any event, in respect of any breach which would have a serious impact or where the urgent attention of the Ministry is or may be required, to undertake within not later than twenty-four (24) hours, and in all other cases within seven (7) days of the Project Proponent becoming aware of such incident. ■ To submit monitoring reports to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMP, or periodically as prescribed by the Ministry. ■ To publically disclose the monitoring report within ten (10) days of completing a monitoring report and the information to be included. ■ To make a monitoring report as contemplated in Article 108 and Article 109 in accordance with the EMP schedule, (except as may relate to National Security concerns) publicly available on the Project's website, at public meeting places (e.g. libraries, community halls) and at the Project offices within ten (10) days of completing

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ To submit a digital copy of a monitoring report within ten (10) days of receiving such request via email or as may otherwise be agreed upon with the requestor for the request of any organisation or person. <p><i>For the purposes of monitoring and inspection, the event of emergency,</i> the Project Proponent commits to</p> <ul style="list-style-type: none"> ■ Grant the ministry and/or its representatives, at any time during normal working hours, access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed; ■ Grant, from time to time as and when the Ministry may reasonably require, the Ministry access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed. ■ Grant full and immediate access to the Ministry at any time as may be required by the Ministry in the event of an emergency, or where, in the opinion of the Ministry, there is or may exist a violation or risk of violation of the compliance by the Project with all applicable environmental and social requirements. ■ Ensure that the Ministry's rights of access can extend to access by the Ministry to the Project's contractors and subcontractors. ■ For the Conditions and Revisions to Conditions prescribed in Environmental Compliance Certificate, the Project Proponent commits to commence the implementation of the Project in accordance with the conditions attached to the ECC and including the EMP, within such time as may be prescribed by the Ministry upon receipt of the written approval from the relevant authority.
Environmental Quality (Emissions) Guidelines (EQEG), 2015	Section 1.1, 1.2, 1.3, 1.4	The Project Proponent commits to comply with the EQEG and its emission standards for air, noise, and effluent discharges for sector specific operations. The Project Proponent considers this emissions standard in its environmental management plan.
Conservation of Water Resources and Rivers Law, 2006	Section 10, 11(a), 19	<p>The Project Proponent commits to comply prohibitions for the following activities:</p> <ul style="list-style-type: none"> ■ No person shall anchor the vessels where vessels are prohibited from anchoring in the rivers and creeks. ■ No person shall dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ No one shall dispose of any substance into the river creek that may cause damage to waterway or change of watercourse from the bank or vessel.
The Protection of Wildlife and Conservation of Natural Area Law, 1994	Section 15, 31, 35, 36,37,39	<ul style="list-style-type: none"> ◆ The Project Proponent commits to comply the stipulations: <ul style="list-style-type: none"> a) To protect wildlife or protected wildlife plant species. (15) b) To pay a fine if PTGE kills, hunts, wounds, or raises a seasonally protected wildlife species without permission during the close season. (31) ◆ The Project Proponent commits the following acts (35): <ul style="list-style-type: none"> a) Hunting without a license; b) Violation of any condition of the hunting license; c) Farming protected and seasonally protected wildlife species without permission for commercial purposes; d) Causing water and air pollution, causing damage to a watercourse or poisoning water; e) Possession or disposal of pollutants or mineral wastes in a protected area. ◆ The Project Proponent commits the following acts (36): <ul style="list-style-type: none"> a) Killing, hunting or wounding a protected wildlife species or seasonal protected wildlife species without permission; possessing selling, transportation or transferring such wildlife or any par there of; b) Removing, collecting or destroying in any manner any protected wild plant within the designated area without permission; c) Destroying ecosystems or any natural setting in the protected area. ◆ The Project Proponent commits the following acts (37): <ul style="list-style-type: none"> a) Killing, hunting or wounding a completely protected wildlife species without permission; possessing selling, transportation or transferring such wildlife or any par there of;

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>b) Exporting without the recommendation of the Director General a completely protected wild plant species or any part thereof.</p> <p>◆ The Project Proponent commits to follow the stipulations: (39)</p> <p>a) To compensate the value of the loss and damage to the Forest Department,</p> <p>b) To be confiscated the wild animal, wild plants and parts thereof involved in the commission of the offence and hand over the same to the Forest Department.</p> <p>To be confiscated the vehicles/ vessels, animals and other machinery and implements involves in the commission of the offense.</p>
The Conservation of Biodiversity and Protected Area Law, 2018	Section 39 (d) (e)	<p>The Project Proponent commits to comply the stipulation that there may be charge with fine or imprisonment or both if guilty of:</p> <ul style="list-style-type: none"> ■ Using dynamite or explosive chemicals, electrocuting, destroying water flow or poisoning water, intentionally pollutes the soil, water, air in the conservation area; ■ Disposing or handling chemical waste and poisoning materials in the conservation area.
Socio-Economic Legislation		
The Protection and Preservation of Cultural Heritage Regions Law, 1998	Section 13, 15, 22	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To apply for prior permission and must abide by provisions of existing laws for certain land-based construction works. ■ To comply the stipulation to the person desirous of carrying out construction works to abide by the provisions of other existing laws and apply in accordance with the stipulations to the Department to obtain prior permission under this law. ■ To conform to conditions prescribed by the Ministry of Culture for buildings in cultural heritage region.
The Protection and Preservation of	Section 12, 13	Project Proponent commits to comply the stipulation:

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
Antique Objects Law, 2015		<ul style="list-style-type: none"> ■ For person who finds any object which has no owner or custodian, needs to inform the relevant Ward or village-tract administrator if he knows or it seems reasonable to assume that the said object is an antique object. ■ For a procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation
The Protection and Preservation of Ancient Monuments Law, 2015	Section 12, 13, 15, 20	<p>Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For a person who finds an ancient monument over one hundred years old under the water or above ground to promptly inform the relevant Ward or Village-Tract Administrative Office. ■ For procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation. ■ To apply prior permission from the Department before implementing <ol style="list-style-type: none"> (a). Extending towns, wards and villages; (b). Constructing or extending or repairing new buildings including hotels, factories and residential buildings or fencing or extending a fence; (c). Digging to search petroleum, natural gas, gem or mineral, piping petroleum and natural gas, constructing factories, connecting national grid, constructing communication tower, constructing or extending infrastructures such as road, bridge, airfield, irrigation and embankment; (d). Connecting underground electric cable, communication cable and other underground works; (e). Digging or extending wells, lakes, cannels and ponds; (f). Gold sieving, digging, burning bricks, digging well, lake, creek, ditch, gully, pit digging, refilling, level ling, mining, quarry, gravel digging and unearth sand, removing the mounds and hills which can damage the physical feature of the land; (g). Placing and fencing ancient monuments in a private compound and area; (h). Constructing a building which is not consistent with the terms and conditions stipulated according to the region by the Ministry near and at the surrounding of an ancient monument. ■ For prohibitions not to damage to an ancient monument within the specified area without a written prior permission by carrying out:

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> (a). Taking photo, video, film or copying and modelling an ancient monument stipulated as a listed ancient monument for commercial purposes; (b). Using machines which causes vibration within the specified place of an ancient monument and running various types of vehicles; (c). Cultivating, gardening, breeding, fencing by blocking nearby an ancient monument or doing any other act which can affect an ancient monument; (d). Emission of gas such as hot-air balloon which can affect an ancient monument; (e). Landing and taking off and, flying airplane and helicopter which can directly or indirectly affect an ancient monument; (f). Discarding chemical substance and rubbish which can affect an ancient monument and the environment.
Myanmar Fire Force Law, 2015	Section 25	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans. ■ To comply the stipulations for the factory, workshop, highway bus, airport, jetty, hotel, motel, guest house, collective-owned building, market, work-site or business exposed to fire hazard of the owner or manager; <ul style="list-style-type: none"> (a). Not fail to form a reserve fire brigade (b). Not fail to provide materials and apparatuses for fire safety; in conformity with the directive of the Fire Services Department.
Motor Vehicle Law, 2015	Chapter 1, 2(v)	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For reducing environmental pollution caused by motor vehicles ■ For the right of the Department to issue directives, the standards, guidelines for the purposes of importing, manufacturing, assembling, maintaining to be safe in accident and environment conservation. ■ To take actions to conserve the green environment and the reduction in pollution of air, water, land and noises caused by motor vehicles.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
Public Health Law, 1972	Section 3, 5	<p>The Project Proponent commits to cooperate with the authorized person or organization in line with the stipulations:</p> <ul style="list-style-type: none"> ■ To abide by any instruction or stipulation for public health. ■ To accept any inspection, anytime, anywhere if it is needed.
The Prevention and Control of Communicable Diseases Law, 1995	Section 3(a), 9, 11	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For the Department of Health to carry out immunisations and health education activities related to communicable diseases ■ For all responsible persons to prepare report for an outbreak of a communicable disease to the nearest Health Officer. ■ For Health Officer to undertake investigations and medical examinations to prevent the control the spread of Principal Epidemic Disease.
Occupational Safety and Health Law (The Pyidaungsu Hluttaw Law No.8.2019) (not in force)	Section 12 (a)(b)	<p>The Project Proponent take the responsibility prescribed for Employers to:</p> <p>(a) Appoint the occupational safety and health responsible person in order to closely inspect for the safe and health of workers as per types of business defined by Ministry of Labour, Immigration and Population.</p> <p>(b) Organize the Safety and Health Committee in accordance with the stipulations of the Ministry including the equal numbers of representative from employees and employers for the purposes to implementing the working environment, which is in safe and healthy for the business where the number of workers are not less than the number stipulated by the Ministry. In this case, the committee is formed for the considerations of occupational safety and health for women as per nature of the workplace.</p>
Employment and Skill Development Law, 2013	Section 5, 14, 15, 30	<p>The Project Proponent commits to comply the stipulation</p> <ul style="list-style-type: none"> ■ For the agreement, training and probation period as prescribed in: <ol style="list-style-type: none"> 1. If the employer has appointed the employee to work for an employment, the employment agreement shall be made within 30 days. But it shall not be related with government department and organization for a permanent employment.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>2. If pre training period and probation period are stipulated before the appointment the said trainee shall not be related with the stipulation of sub-section (1).</p> <ul style="list-style-type: none"> ■ For particulars to be included in the employment agreement: <ol style="list-style-type: none"> 1. the type of employment; 2. the probation period; 3. wage, salary; 4. location of the employment; 5. the term of the agreement; 6. working hour; 7. day off, holiday and leave; 8. overtime; 9. meal arrangement during the work hour; 10. accommodation; 11. medical treatment; 12. ferry arrangement to worksite and travelling; 13. regulations to be followed by the employees; 14. if the employee is sent to attend the training, the limited time agreed by the employee to continue to work after attending the training; 15. resigning and termination of service; 16. termination of agreement; 17. the obligations in accord with the stipulation of the agreement; 18. the cancellation of employment agreement mutually made between employer and employee; 19. other matters; 20. specifying the regulation of the agreement, amending and supplementing;

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>21. Miscellaneous.</p> <ul style="list-style-type: none"> ■ For the worksite regulations contained in the employment agreement to be in compliance with any existing law and the benefits of the employee not to be less than those of the any existing law. (a). For the employment agreement, the Ministry can issue the notification for paying the stipulated compensation to the employee by the employer, if the work is completed earlier than the stipulated period or the whole work or any part of it have to be terminated due to unexpected condition or the work has to be terminated due to various conditions. (b). For the employment agreement made under sub-section (a) to be related with daily wage workers, piece rate workers who are appointed temporarily in the government department and organization. (c). For the worksite regulations and benefits contained in the employment agreement mutually made between the employer and employee or among the employees to be amended as necessary, in accord with the existing law. (d). For the employer to send a copy of the employment agreement made between the employer and employee, to the relevant employment and labour exchange office within the stipulated period and to get the approval of it. (e). For the employment agreement made before the enforcement of this law has to be confirmed up to the end of the term of the original agreement. ■ To carry out the training program in accordance with the work requirement in line with the policy of the skill development team to develop the skill relating to the employment for the workers who are proposed to appoint and working at present. ■ To carry out the training for each work or compounding the work individually or group-wise by opening on-job training, training systematically at worksite, sending outside training and training by using information technology system, for arranging the training program to enhance the employment skill of the workers; ■ For appointing the youths of 16 years as apprentices, to arrange the training for technology relating to the employment systematically in accord with the regulations prescribed by the skill development team. ■ For the employer of the industry and service business to put in to the fund monthly as put in fees without fail for the total wages of the subordinates and the supervisors' salary for not less than 0.5%;

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ To put in money paid under sub-section (a) not to be deducted from the wage and salary of the employees.
The Settlement of Labour Dispute Law, 2012	Section 38, 39, 40, 51	<p>The Project Proponent commits to comply:</p> <ul style="list-style-type: none"> ■ Not to fail to negotiate and coordinate in respect of a complaint within the prescribed period without sufficient cause ■ Not to alter the conditions of service of workers involved in disputes prior to investigation by tribunals ■ For no party to strike or lock-out without negotiation, conciliation and arbitration by Arbitration Body. For the employer if commits acts without sufficient cause, to be liable to pay full compensation to workers as determined by Arbitration Body or Tribunal.
The Workmen Compensation Act, 1923 (amended in 1955, 1957, 2005)	Section 3	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For the payment by certain classes of employers to their workmen of compensation for injury by accident. ■ For the liability for compensation of employer's, amount of compensation, compensation to be paid when due and penalty for default, method of calculating wages, review, commutation of half-monthly payments, payment of a lump sum amount, distribution of compensation, compensation not to be assigned, attached or charged, notice and claim, power to require from employers statements regarding fatal accidents, reports of fatal accidents and serious bodily injuries, medical examination, contracting, remedies of employer against stranger, compensation to be first charge on assets transferred by employer, special provisions relating to masters and seamen. ■ For any updating for revising the monetary amount as per the amendment law.
Labour Organisation Law, 2011	Section 17, 18, 19, 20, 21, 22	<p>This Law was enacted, to protect the rights of the workers, to have good relations among the workers or between the employer and the worker, and to enable to form and carry out the labour organizations systematically and independently.</p> <p>Project Proponent commits to comply the stipulations as their mentions:</p> <ul style="list-style-type: none"> ■ That Labour Organisations are free to organise and negotiate workers' rights if not meeting labour laws. ■ That Labour Organisations may demand re-appointment of worker if cause of dismissal is related to labour organisation membership or activities or not conform to labour laws. ■ That Labour Organisations have the right to send representatives to conciliation tribunals.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ That Labour Organisations have the right to participate and discuss workers' rights and interests with government and employers ■ That Labour Organisation has the right to participate in collective bargaining in accordance with labour laws. ■ That Labour Organisation may take collective actions in accordance with the relevant procedures, regulations and law.
Minimum Wages Law (2013) , Notification No. 1/2024	Section 12 (a-e), 13 (a-g)	<p>This Law was enacted to meet with the essential needs of the workers, and their families, who are working at the commercial, production and service, agricultural and livestock breeding businesses and with the purpose of increasing the capacity of the workers and for the development of competitiveness.</p> <p>The minimum wage of (6800) kyats was set on (9-8-2024) by Notification No. 1/2024.</p> <p>Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For the employer not to pay wage less than the minimum wage stipulated, do not have the right to deduct any other wage ■ For the employer to inform rates of minimum wage relating to the business, allow the entry and inspection of the inspection officer, give the sick worker holiday for medical treatment in accord with stipulation and give holiday for the matter of funeral of the family of worker without deducting from the minimum wage.
Payment of Wages Law, 2016	Section 3, 4, 5, 7 (ii), 8, 9, 10, 14	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ That salaries are to be paid at the end of the month or, depending on the size of the employing enterprise, between 5-10 days before the end of the month. The employer is permitted and required to withhold income tax and social security payments. Other deductions, e.g. for absence, may only be withheld in accordance with the law. ■ For the employer (a) to pay for salary either Myanmar Kyats or Foreign Cash permitted by National Bank of Myanmar. When delivery the salary (b) If the employer needs to pay the other opportunities or advantages, he can pay cash together with other materials according employee's attitude. ■ For finishing the contract, employer need to pay the salary (not more than one month) to employees. For the permanent worker, need to pay per monthly. If more than 100 employees, need to pay within the 5 days from

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>the end of month. If fire the employees, need to pay salary within two days after fire. When employee dies due to the accident, need to pay money as an insurance to employee's family within two days.</p> <ul style="list-style-type: none"> ■ For the employer to report to the Department with evidence of payment at later date agreed with the employee if the employer has difficulties to pay wages on time because of significant events (e.g. natural disaster). ■ For the employer to deduct expense which are allowance for accommodation and ferry service arranged by the employer, meal allowance, electricity charges, water service charges and income taxes liable to be paid by workers and cash paid in excess under mistake, which are not included in the expression of wages under this Law and not to deduct from the wages of the worker except the deduction as per Section 7. ■ For any deducting from the salary due to the employees' absence, the total cut salary not to be more than 50 % of his salary. ■ For overtime work, to allow the presiding overtime rate as set by the Law.
Leaves and Holidays Act, 1951	Section 4	<p>The Project Proponent commits to comply with the stipulations:</p> <ul style="list-style-type: none"> ■ For employee to be granted to pay public holidays as announced by the Government in the Myanmar Gazette. On average, Myanmar has 26 public holidays per year, depending on the date of the variable holidays. ■ For additional rules to apply in accordance with other laws, such as the Social Security Law (2012) for employees contributing to the Social Security Fund. ■ To grant earned leave with average wages or average pay for a period of ten consecutive days by his employer during the subsequent period of twelve months to every employee who has completed a period of twelve months continuous service.
Social Security Law, 2012	Section 11 (a)(b), 15(a), 16 (a), 18(b), 48(a), 49(a)(b), 51(a)(b), 53(a), 54(a)(b), 75	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For compulsory registration for social security system and benefits, the following establishments can be applied if they employ minimum number of workers and above determined by the Ministry of Labour in co-ordination with the Social Security Board:

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> i. Production industries doing business whether or not they utilize mechanical power or a certain kind of power, works of production, repairing or services, or engineering works, mills, warehouses, establishments; ii. Government departments, Government organizations and regional administrative organizations doing business; iii. Development organizations; iv. Financial organizations, v. Companies, associations, organizations and their subordinate departments and branch offices doing business; vi. Shops, commercial establishments, public entertaining establishments; vii. Government departments and Government organizations doing business or transport businesses owned by regional administrative body, and transport businesses carried out with the permission of such department, body or in joint venture with such department or body; viii. Construction works carried out for a period of one year and above under employment agreement; ix. Works carried out with foreign investment or citizen investment or joint ventured businesses; x. Works relating to mining and gemstone contained in any existing law; xi. Works relating to petroleum and natural gas contained in any existing law; xii. Ports and out-ports contained in any existing law; xiii. Works and organizations carried out with freight handling workers; xiv. Ministry of Labour and its subordinate departments and organizations; xv. Establishments determined by the Ministry of Labour from time to time, in co-ordination with the Social Security Board and with the approval of the Union Government; that they shall be applied with the provisions of compulsory registration for Social Security System and benefits contained in this Law. <p>■ For provisions of compulsory registration under sub-section (a) to continue to be applied by this Law even though any of the following situations occurs if it continues to carry out such work:</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> i. Carrying out work by employing under stipulated minimum number of workers but more than one worker; ii. Changing the employer or changing the type of business. ■ For the Social security fund, to include the funds for health and social care, family assistant, invalidity benefit, superannuation benefit and survivors' benefit, unemployment benefit, other social security fund for social security system of compulsory registration and contribution stipulated by the Ministry of labour, other social security fund and social security housing plan fund. ■ For arranging insurance for the workers to enable to enjoy social security benefits by contributing to the social security fund. ■ For the employer to deduct contributions to be paid by worker from his wages together with contribution to be paid by him and pay to the social security fund and in such case he can incur the expense. ■ For the employer to effect insurance by registering for employment injury benefit insurance system contained in section 45 at the relevant township social security office and pay contribution to employment injury benefit fund in accord with stipulations in order that workers applied to provisions of compulsory registration may obtain the employment injury benefits. ■ For the inapplicability to the Workmen's compensation act. ■ For the employer (a) to pay contribution monthly to Employment Injury Benefit Fund at the rates stipulated under section 50. Moreover, he shall also bear the expenses for paying as such; (b) to pay defaulting fee stipulated under section 88, in addition to the contribution if fails to contribute after effecting insurance for employment injury benefit. ■ For the employers and workers (a) to co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment; ■ For the employer (a) to report to the relevant township social security office immediately if a serious employment accident occurs to his insured worker. There shall not be any delay without sufficient cause to report as such. (b) A team of officers and other staff who inspect the establishments, if it is found out the

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>employment injury, death, and contracting disease, shall report to the relevant township social security office in accord with the stipulations.</p> <ul style="list-style-type: none"> ■ For keeping records of work.
Law protecting Ethnic Right, 2015	Section 5	<p>The Project Proponent commits to comply the stipulations</p> <ul style="list-style-type: none"> ■ For the Equal right between the Ethnic living in Myanmar. It enacted that if an ethnic loose the right, he can complain to the Regional or State Government to get the equal chance and find the equal right. ■ That project matters shall be informed, coordinated and undertaken in consultation with ethnic groups if projects are in areas with ethnic groups.
Control of Smoking and Consumption of Tobacco Product Law, 2006	Section 9	<p>The Project Proponent commits comply the stipulations to:</p> <ul style="list-style-type: none"> ■ (a) keep the caption and mark referring that it is a non-smoking area at the place mentioned in section 6 in accordance with the stipulations. ■ (b) arrange the specific place where smoking is allowed as mentioned in section 7, and keep the caption and mark also referring that it is a specific place where smoking is allowed, in accordance with the stipulations. ■ (c) supervise and carry out measures so that no one shall smoke at the non-smoking area. ■ (d) accept the inspection when the supervisory body comes to the place for which he is responsible.
SECTOR SPECIFIC / DEVELOPMENT		
Prevention from Danger of Hazardous Chemical and Associated Materials Rule, 2016	Section 61 (a)	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For organizations and licence holders who store the chemical and related substances to abide by the following facts for safety: <ul style="list-style-type: none"> (a). Installing the fire protection system in building to be stored in accordance with prescribed provisions of the Department of Fire Brigade and being the building, which is constructed to correspond for storing the chemical and related substances; (b). Sticking the warning sign according to hazard class, and keeping the safety equipment at the stored places;

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>(c). Storing only after checking certainly to the chemical and related substances which are kept completely with the pictogram, and packing system by the importers and possessors;</p> <p>To be safe, the user of chemical and related substances shall:</p> <ul style="list-style-type: none"> ■ Use only the registered restricted or conditional chemical and related substances; ■ Not use the unregistered, without labelled, unknown, damaged or expired chemical and related substances.
Prevention from Danger of Hazardous Chemical and Associated Materials Law, 2013	Section 8, 13, 20, 22, 15, 16, 17, 23, 27	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For Any person, who wants to do the business of chemical and associated materials, to apply to the central body for the acquisition of the license, attached with the management plan for the environmental conservation in accord with the stipulations”. ■ For License holder to apply to the central supervising body in accord with the stipulation for the relevant chemicals and associated materials using for his chemicals and associated materials business” for a certificate. ■ For the registered certificate holder to abide by the regulations contained in the registered certificate and shall follow the order and directives issued from time to time by the central supervising body”. ■ For the duties and powers of the central supervising board. ■ For the requirements: <ul style="list-style-type: none"> (a). Before works, license holder to be inspected by the relevant supervising and inspection team for safety and machinery/equipment check and (b). The persons who are discharging the duty to be asked to attend foreign training or preventative trainings conducted by government departments and organizations. ■ For License holders to <ul style="list-style-type: none"> (a). Follow the license regulations, (b). Follow directives on safe handling and shall ask workers to strictly follow (c). Shall provide necessary safety equipment and issue free personal protective equipment to workers, (d). Provide training in occupational safety (e). Determine the hazard to the environment, people and animals

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>(f). Provide fit for work medical check-up and keep records</p> <p>(g). Send permission letter to Department of Township Administration if the chemicals and associated material are permitted to store</p> <p>(h). Acquire in advance guidance and agreement from fire service department if using inflammable materials or explosives</p> <p>(i). Transport only the permitted amount of chemicals in accordance with prescriptive stipulations</p> <p>(j). Obtain approval of central supervising body if transporting chemical and associated material from the permitted region to any other region</p> <p>(k). Abide and operate in accordance with related environmental laws to avoid impacts and damage to the environment.</p> <ul style="list-style-type: none"> ■ For the license holder to have insurance in accordance with stipulations in case of compensation is required for losses related to people, animals and environment. ■ For the registered certificate holder shall apply again for using chemical which are not in the registered list. ■ For the license holder to <ul style="list-style-type: none"> (a). Classify the hazard level of chemicals and related substances in advance (b). Show Material Safety Data Sheet and warning signage (c). Provide safety equipment, personal protective equipment and training on their use (d). Possess, transport, store, use and discharge chemicals and related materials in accordance with stipulations, not import or export chemicals and related materials banned by the central supervising board.
Myanmar Investment Law, 2016	Section (50)(d),(51), (65),	<p>The Project Proponent commits to comply with:</p> <ul style="list-style-type: none"> ■ The stipulation to register the land lease contract at the office of Registry of Deeds in accordance with the Registration Act. ■ To mention appointment, replacement, providing employment of staff and workers, ensuring to comply the entitlements and rights in the labour laws and rules, settling dispute regarding human rights issues.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ The stipulation: <ul style="list-style-type: none"> (a). To respect and comply with the customs, traditions, and traditional culture of the ethnic groups; (e). To inform to the Commission if natural mineral resources or antique objects are found that are not related to the investment permitted; (f). Not to make any significant alteration of topography or elevation of the land on which is entitled to lease or to use, without the approval of the Commission; (g). To abide by applicable laws, rules, procedures and best standards practiced internationally for this investment so as not to cause damage, pollution, and loss to the natural and social environment and not to cause damage to cultural heritage; (h). To list and keep proper records of books of account and financial statement and necessary financial matters relating to the investments performed by permit or endorsement in accordance with internationally and locally recognised accounting standards; (i). To close and discontinue the investment only after the payment of compensation to employees in accordance with applicable laws for any breach of employment contracts, closure of investment, sale and transfer of investment, discontinuation of investment, or reduction of workforce; (j). To pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directive and so forth during the period of suspension of investment for a credible reason; (k). To pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease or death due to the work; (l). To supervise foreign experts, supervisors and their families, who employ in their investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar; (m). To respect and comply with the labour laws; (n). To have the right to sue and to be sued in accordance with the laws; (o). To pay effective compensation for loss incurred to the victim, if there are damage to the natural environment and socioeconomic losses caused by logging or extraction of natural resources which are

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>not related to the scope of the permissible investment, except from carrying out the activities required to conduct investment in a permit or an endorsement;</p> <p>(p). To allow the Commission to inspect in any places, when the Commission informs the prior notice to inspect the investment;</p> <p>(q). To take in advance permit or endorsement of the Commission for the investments, which need to obtain prior approval under the Environmental Conservation Law and the procedures of environmental impact assessment, before undertaking the assessment, and shall submit the situation of environmental and social impact assessment to the Commission along the period of activities of the investments which obtained permit or endorsement of the Commission.</p>
Myanmar Investment Rules, 2017	Section 202, 203, 206, 212,	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To comply with all terms and conditions in the permit and other applicable laws when the investment is carried out. ■ To fully assist while negotiating with the Authority for settling the grievances of the local community that have been effected due to Investments. ■ To appoint expert foreigner as senior manager, technical and operational expert or advisor according to subsection (a) of the section 51 of the Law. ■ To obtain the permit or tax exemption or relief, to ensure the relevant insurance out of the following types of the insurance at any insurance business entitled. To carry out insurance business within the Union based on the nature of the business: Property and Business Interruption Insurance; Engineering Insurance; Professional Liability Insurance; Bodily Injury Insurance; Marine Insurance; or Workmen Compensation Insurance; Life Insurance; Fire Insurance.
The Foreign Investment Law (2012)	Section 17	<p>The Project Proponent follows:</p> <p>(a) abiding by the existing Laws of the Republic of the Union of Myanmar;</p> <p>(b) performing the business activities by incorporating a company under the existing Laws of the Republic of the Union of Myanmar by investor ;</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>(c) abiding by the provisions of this Law, terms and conditions contained in the rules, procedures, notifications, orders, directives and permits issued under this Law;</p> <p>(d) using the land which he is entitled to lease or use in accord with the terms and conditions stipulated by the Commission and those contained in the agreement;</p> <p>(e) carrying out to sub-lease and mortgage the land and building which are allowed to carry out business under the permit, transfer the shares and the business to any other person for such investment business within the term of the business only with the approval of the Commission;</p> <p>(f) making no alteration of topography or election of the land obviously on which he is entitled to lease or use without the approval of the Commission;</p> <p>(g) informing immediately to the Commission if natural mineral resources or antique objects and treasure trove which are not related to the permitted business and not included in the original contract are found above and under the land on which he is entitled to lease or use continuing to carry out business on such land if the Commission allows, and transferring and carrying out to the substituted place which is selected and submitted by the investor if the permission of continuing to carry out is not obtained;</p> <p>(h) carrying out not to cause environmental pollution or damage in accord with existing laws in respect of investment business;</p> <p>(i) in case of a foreign company, if all of the shares are absolutely sold and transferred to any foreigner or any citizen, registering the transfer of share in accord with the existing law only after returning the permit with the prior permission of the Commission;</p> <p>(j) in case of a foreign company, if some of its shares are absolutely sold and transferred to any foreigner or any citizen, registering the transfer of share in accord with the existing law only after obtaining the prior approval of the Commission;</p> <p>(k) carrying out the systematic transfer of high technology relating to the business which are carried out by the investor to the relevant enterprises, departments or organizations in accord with the contract.</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
The Yangon City Municipal Law (Second Amendment by State Administration Council Law No. 25/2021)	Summary	<ul style="list-style-type: none"> ♦ The Project Proponent commits to comply the stipulation: <ul style="list-style-type: none"> • Disposal of waste at designated places. • Disposal of sewage by authority concern.
The Import and Export Law, 2012	Section 7	The Project Proponent, as a license holder, commits to comply not to violate the conditions contained in the license.

3.2 Relevant International Conventions and Guidelines

3.2.1 International Conventions

Myanmar is a signatory to the international conventions listed in Table 3-2, which will have relevance to the Project.

Table 3-2 International Conventions of Relevance to the Project

Legislation	Relevance to the Project	Ratification Status (in Myanmar)
Vienna Convention for the Protection of the Ozone Layer 1988 and Montreal Protocol on Substances that Deplete the Ozone Layer 1989	The Project may use or generate ozone depleting substances.	Accession 16 th Sep 1998 (Vienna) & Accession 24 th Nov 1993 (Montreal)
United Nations Framework Convention on Climate Change 1992 (UNFCCC) and Kyoto Protocol 1997	The Project's operation will form part of Myanmar's total emissions output.	Entered in force 23 rd Feb 1995 (UNFCCC) and 16 th Feb 2005 (Kyoto Protocol)
Workmen's Compensation (Accidents) Convention 1925	The Project has risks to occupational health and safety.	Entered in force 16 th February 1956
Workmen's Compensation (Occupational Diseases) Convention 1925 and its Revision 1934	The Project has risks to occupational health and safety.	Entered in force 30 th Sept 1927; Revision entered in force 17 th May 2016

3.2.2 Good International Industry Practice Guidelines

GOLDEN LACE POSCO INTERNATIONAL CO., LTD. will undertake the Project activities in a manner guided by good international industry practice (GIIP). Applicable guidelines also considered for the Project include:

- International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (2012) and
- World Bank Group (WBG) EHS General Guidelines (2007)

3.3 Project Environmental and Social Standards

In December 2015, the National Environmental Quality (Emissions) Guidelines (EQEG) was rolled out. The EQEG provide the basis for regulation and control of noise and air emissions and effluent discharges from projects in order to prevent pollution and protect the environment and public health. These Guidelines are noted to be the same as that recommended by the IFC General EHS Guidelines (2007) (World Bank Group, 2007).

The standards as taken from the EQEG are provided in **Error! Reference source not found..**
The Project will comply with these standards.

3.3.1 Air Quality Standard

Table 3-3 National Environmental Quality (Emission) Guidelines

Parameter	Averaging period	Guideline value in $\mu\text{g}/\text{m}^3$
Sulfur dioxide(SO ₂)	24-hour	20
	10 minute	500
Nitrogen dioxide (NO ₂)	1-year	40
	1-hour	200
Particulate Matter PM ₁₀	1-year	20
	24-hour	50
Particulate Matter PM _{2.5}	1-year	10
	24-hour	25
Ozone	8-hourly daily maximum	100

Source: National Environmental Quality (Emission) Guidelines, 2015.

3.3.2 Waste Water Effluent Standards

Wastewater effluent standards from the National Environmental Quality (Emission) Guidelines (2015) are illustrated in Table 3-4.

Table 3-4 Wastewater Effluent Quality Standards

No	Parameter	Allowable Rate	Unit	Notes
1.	BOD (5 days at 20°C)	50	Mg/L	Depending on quality of waste discharging point
2.	Total Suspended Solids	50	Mg/L	
3.	Ammonia	10	Mg/L	
4.	pH Value	6 - 9	-	
5.	Sulfide (as HS)	1	Mg/L	
6.	Cyanide (as HCN)	0.1	Mg/L	
7.	Oil and grease	10	Mg/L	
8.	ChemicalOxygen Demand	250	Mg/L	
9.	Iron	3.5	Mg/L	
10.	Phenols and cresols	0.5	Mg/L	
11.	Total coliform bacteria	400	100 mL	
12.	Zinc	2	Mg/L	

No	Parameter	Allowable Rate	Unit	Notes
13.	Chromium	0.5	Mg/L	
14.	Arsenic	0.1	Mg/L	
15.	Copper	0.5	Mg/L	
16.	Mercury	0.01	Mg/L	
17.	Cadmium	0.1	Mg/L	
18.	Selenium	0.1	Mg/L	
19.	Lead	0.1	Mg/L	
20.	Nickel	0.5	Mg/L	
21.	Temperature	3	°C	At the edge of the established mixing zone

Source: National Environmental Quality (Emission) Guidelines, 2015.

3.3.3 Noise Quality Standard

With the progress in the development of the National Environmental Quality (Emission) Guidelines, noise quality assessment has to meet the guidelines' value to be in compliance with MOECAP's IEE requirements. The guidelines' value for noise levels are shown in Table 3-5. The limits prescribe the requirement for noise impacts not to exceed these levels or result in a maximum increase in background levels of 3 dB at the nearest offsite sensitive receiver.

Table 3-5 National (Myanmar) Environmental Quality (Emission) Guidelines Noise Level

Receptor	One Hour, LAeq (dBA)	
	Daytime	Night-time
Residential/ Institutional/ Educational	55	45
Industrial/ Commercial	70	70

Source: National Environmental Quality (Emission) Guidelines, 2015

3.4 GOLDEN LACE POSCO INTERNATIONAL CO., LTD. 's Environmental and Social Policies

3.4.1 Project Developer's environmental Policy, Frameworks and Standard Guidelines

3.4.1.1 Environmental Policy and Framework

Golden Lace POSCO International Co., Ltd. (GLPI) has an environmental Policy for health, safety and environment and includes as follow;

- ◆ GLPI focuses on enabling business operation to be improved in an environmentally responsible manner and aim to minimal environmental Impact.

- ◆ GLPI is applicable in achieving its goals by all employees and managers regardless of cooperate hierarchy, suppliers who individually and collectively are responsible for performance across the business vale chain.
- ◆ GLPI's environmental policy may result in disciplinary action, up to and including dismissal, contracted personnel who fail to comply with this policy may have their contract terminated, not renewed, or be subject to other appropriate actions.
- ◆ GLPI reserves the right to amend or update the policy as required from time to time.

The Framework for Environmental Conservation of GLPI including responsibilities is.

- ◆ Responsibilities for environmental performance are visible throughout the company, with clarity for line management accountability. The Health, Social and Environment (HSE) Department and its working group are committed to embed a responsible culture instilling environmental best practices, develop management plans to monitor impacts, and minimize any adverse impact from the operation of project.

3.4.1.2 Environmental and Social Standard Guideline of Project Proponent

Golden Lace POSCO International Co., Ltd. (GLPI) complies the following standards and guidelines during the construction, operation and decommissioning phases and implement procedures to manage the environmental and social performance of the Project.

- National Environmental Quality (Emission) Guidelines, Myanmar (2015),
- Performance Standards on Environmental and Social Sustainability of IFC (2012),
- Waste Management Facilities of IFC's Environmental Health, and Safety Guidelines (2007), and
- Water and Sanitations of IFC's Environmental Health, and Safety Guidelines (2007),

3.4.1.3 Health and Safety Policy

GOLDEN LACE POSCO INTERNATIONAL CO., LTD. 's Health and Safety Policy is described in **Appendix F**.

4. PROJECT DESCRIPTION

This section provides a description of the Proposed Project.

4.1 Project Background

The proposed project is developed on 13.8 acres land and will have approximate production capacity of 280 tons per day – totalling 85,000 tons per year. In accordance with criteria specified in MOECAP's EIA Procedure's section of "Food and Beverage Manufacturing" from Appendix 1, the proposed project falls in the category of Initial Environmental Examination (IEE) requirement as specified in the section of "Food and Beverage Manufacturing" from Appendix 1 of MONREC's Environmental Impact Assessment (EIA) Procedure (2015) which states that mill capacity of less than 300 tons/day is required to conduct an IEE.

Hence, this document is prepared as an IEE pursuant to sections 15 and 16 of Chapter VII of the Environmental Conservation Act, 2012 and to section 10, 11, and 12 of Chapter II of EIA Procedure. As instructed in the EIA Procedures (2015), this IEE identifies relevant key environmental factors of the project site and potential environmental impacts from the project and outlines an environmental management plan with mitigation measures.

4.2 Project Location with AOI

The project site is located approximately 8 miles north-east of Twantay Township in Yangon Region. The site is on the bank of Twantay canal to the west of Yangon – Twantay highway connecting Hlaing Tharyar Township to Twantay. It is around 1 hr drive from Hlaing Tharyar Township or 30 mins drive from Twantay to reach the project site. Figure 4-1 shows the project area in regional map. There is no residential housing and no industry in the vicinity but they can be anticipated with the initiation of the industrial estate establishment.

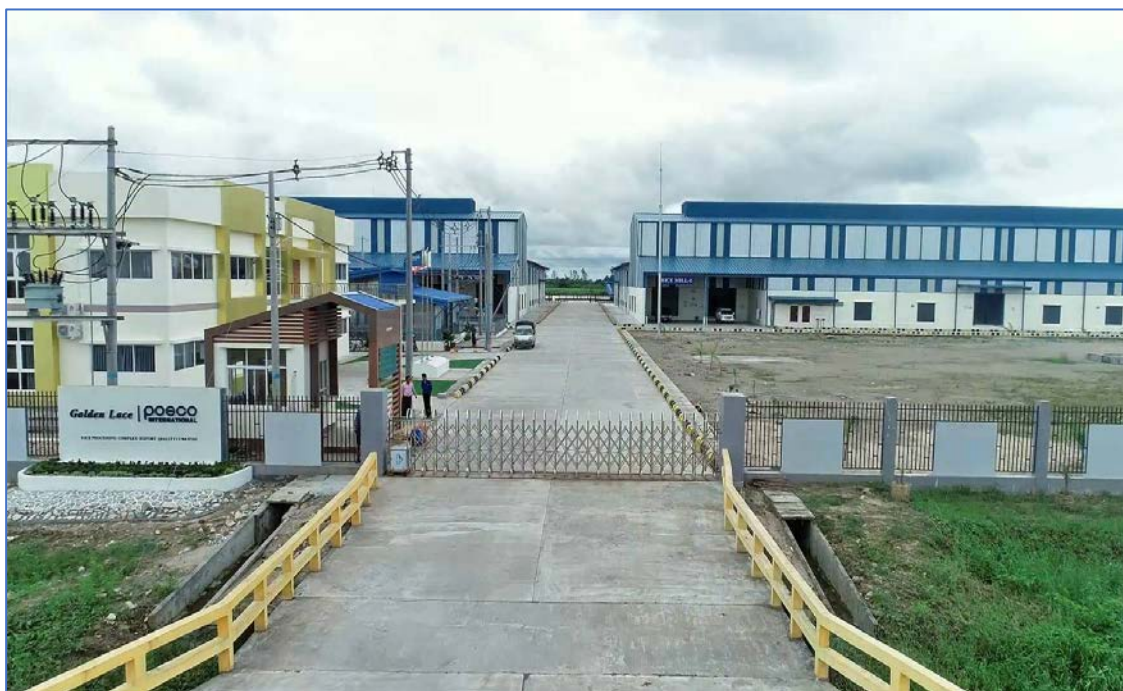


Figure 4-1 Rice Processing Complex of GLPI



Figure 4-2 Overview from Twantay Canal Side



Figure 4-3 Surrounding Environment of Project Area

The surrounding 5 Km radius area is set up for the Area of Influence (AOI) because of the only raw rice /brown rice (white / parboiled) field around the site as shown in Figure 4-3, Figure 4-4. Figure 4-6 shows the project area and Figure 4-6 demonstrates the location of project area in administrative map.

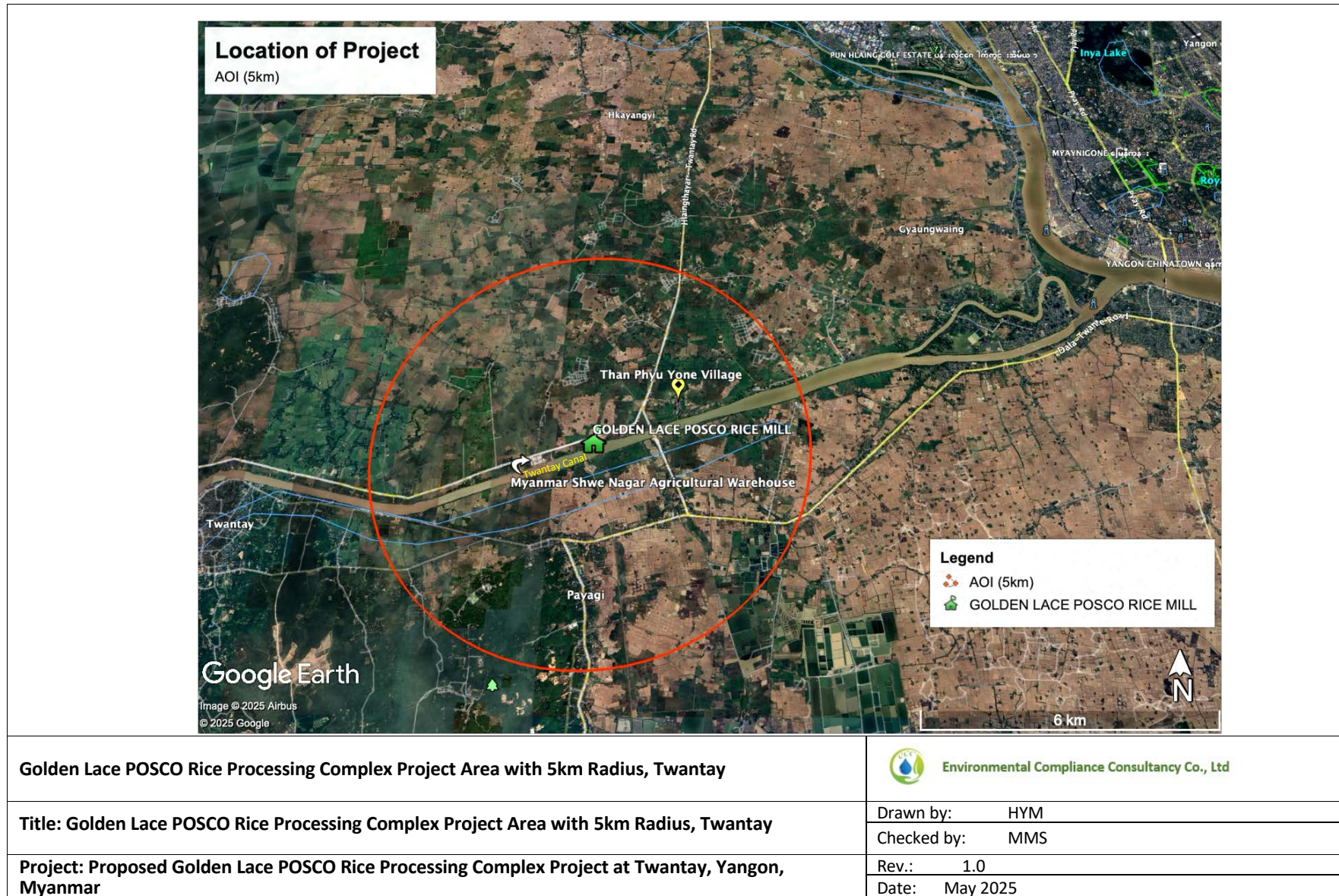


Figure 4-4 Golden Lace POSCO Rice Processing Complex Project Area With 5km Radius, Twantay

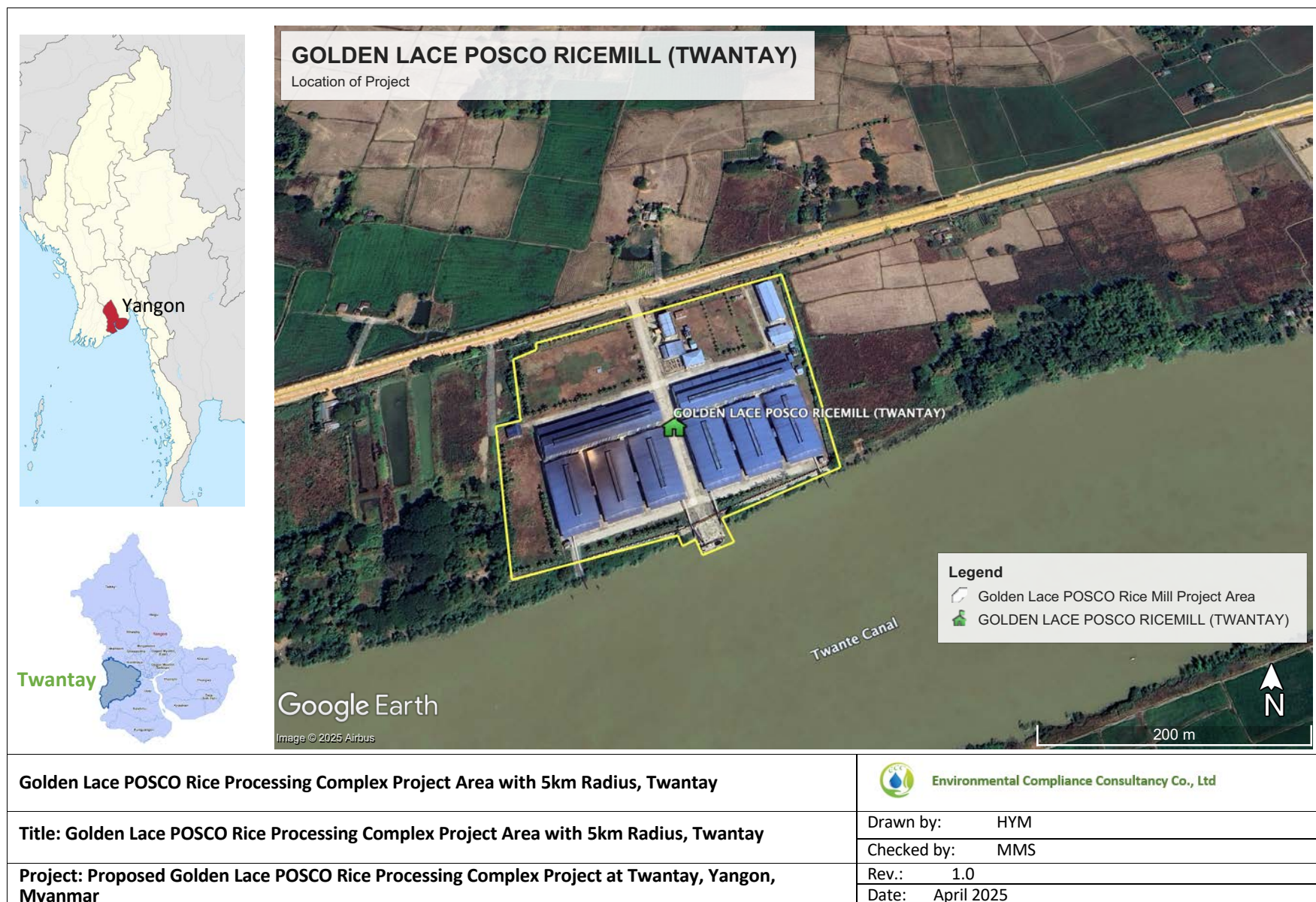


Figure 4-5 Golden Lace POSCO Rice Processing Complex Project Area In Twantay, Yangon

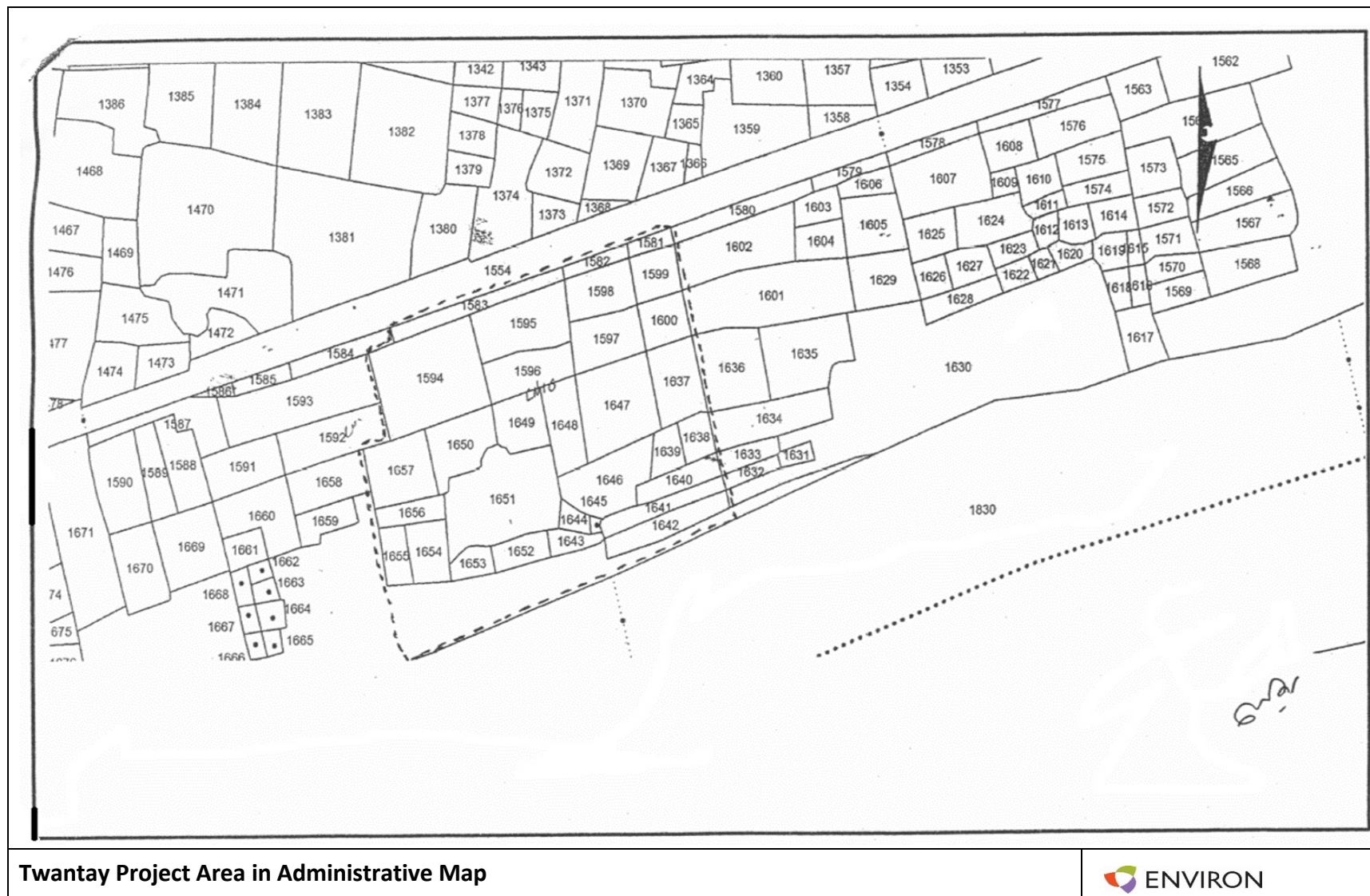


Figure 4-6 Project Area in Administrative Map

4.3 Alternatives of Project

In terms of alternative, such area which does not need to take into account the resettlement issue, and no concerns about electricity, availability of water and transport system to reach the main Yangon-Twantay highways and Twantay channel.

The project site is located approximately 8 miles north-east of Twantay Township in Yangon Region. The site is on the bank of Twantay canal to the west of Yangon – Twantay highway connecting Hlaing Tharyar Township to Twantay, and specifically situated near by raw rice /brown rice (white / parboiled) fields. There is no residential housing and no industry in the vicinity but they can be anticipated with the initiation of the industrial estate establishment.

Therefore, generally the impact on public is not much significant and hence that location was selected for the proposed project.

The buildings in the complex would adopt the features of the sustainable buildings mentioned below as much as possible in order to be environmentally responsible and resource efficient.

- a) Energy efficient through the natural lighting, and ventilation;
- b) Efficient use of water through recycling and water harvesting by Rain Water Tank;
- c) Non-toxic material in-door environment;
- d) Use of recycle/recyclable materials; and
- e) Efficient waste utilization and disposal.

The project will also include waste management plan and emergency response plan.

The public consultation will also be carried out and the concerns, opinions and suggestions of the public would be taken into consideration for CSR programs, and developing the Environmental Management Plan.

Therefore, the project would be environmentally as well as socially accountable and this area is the best option for the proposed project.

Alternatives to the proposed Rice Processing Complex project could not include other agricultural ventures like integrated rice complexes to encompass the entire rice value chain from pre-harvest, harvest, and post-harvest activities including farm mechanization, ensuring food safety and traceability because of purchasing raw rice /brown rice (white / parboiled) from farmers.

4.3.1 Alternatives for Sustainable and Energy-efficient Rice Processing Technologies

Sustainable and energy-efficient rice processing technologies involve adopting practices that reduce energy consumption, minimize environmental impact, and enhance resource utilization. These alternatives include energy-efficient motors and equipment, water-saving systems, green energy adoption, and waste management strategies.

4.3.2 No Project Options

The “no project” alternative would mean either, the substitution of the project with an alternative eligible project, or continued reliance on on-farm facilities.

Instead of canceling the proposed Rice Processing Complex project, several alternatives could be considered. These include scaling back the project, modifying the project's scope, or exploring alternative business models. For example, a smaller mill with a limited capacity could be built initially, or the project could focus on a specific type of rice or a niche market.

If the proposed project is not implemented, economic benefits generated by the project would not be gained. Benefits loss would include:

- ◆ Employment generation and project expenditures during the development and operation of the project;
- ◆ Potential loss/slowdown of trade and cooperation;
- ◆ Loss of revenue for the Union and regional governments;
- ◆ Potential loss of infrastructure upgrading in the Twantay Area;
- ◆ Potential slowdown in the economic development of Yanogn Region.

4.4 Project Overview

Details of the environmental setting around the Rice Processing Complex site and relevant information of key project functions is tabulated in Table 4-1.

Table 4-1 Environmental Setting of the Site

No.	Particulars	Details
1	Location	
	Town/Village	Twantay
	District	Twantay
	Region	Yangon
	Project Area	13.8 Acres
	Area Lot No.	No. 124-Ka Plot No. (CN-10) Hlay Lan Quin (North) Yangon Region
2	Latitude	16°43'45.02"N
3	Longitude	96° 0'41.80"E
4	Elevation Above Mean Sea Level (MSL)	7.6m
5	Climatic conditions per Meteorological Department	
	Weather	Tropical monsoon climate with short
	Average Temperature	Typically varies from 19°C to 37°C
	Average Temperature	27.4°C
	Precipitation	109.73 inches
	Average Annual Wind Speed	4.2 km/h
	Relative Humidity	73.4%
6	Present Land Used at the Proposed site	Agricultural
7	Nearest Highway/Road	Yangon – Ma-U-Bin Highway

No.	Particulars	Details
8	Nearest Village	Social component of this report describes this information.
9	Nearest Town	Twantay (15 Km south-west) Kha-Naung-To (10 Km east)
10	Nearest River	Hlaing River (10 Km north-west) Ayeyarwaddy River (20 Km
11	Schools and Hospitals	None within 5 Km radius
12	Hills/Valleys	None within 5 Km radius
13	Archaeologically important places	None within 5 Km radius
14	Nearest Place of Tourist/Religious Importance	None within 5 Km radius
15	Ecologically Sensitive Areas (National Parks/Wildlife Sanctuaries/ Bio-Sphere	None within 5 Km radius
16	Reserved/Protected forests within 10 Km	None
17	List of Industries in the Region	Agriculture, Livestock and Fishery
18	Topography of the Plant Site	Plain landscape
19	Nature of Soil	Silty-Clay
20	Major Crop in the Study Area	Raw rice /brown rice (white /

Table 4-2 Information of Key Project Functions

Project	Technical Features	Manufacturer	Purpose/ Function
Jetty	One Jetty	Myanmar Port Authority	Receiving and shipping raw materials and final products
Generators	4 Nos. backup diesel generator (2 No. of 1275 KVA/ each of 100KVA and 25KVA)	USA and China	Generating electricity for whole plant
Mills	280 ton per day capacity		Running raw rice /brown rice (white / parboiled) mill

4.5 Project Activities

The project aims to produce both white rice and high quality export rice, which is pre-treated to preserve nutritional values and quality. Milling untreated raw rice /brown rice (white / parboiled) produces white rice or raw rice. Pre-treated raw rice /brown rice (white / parboiled) , also known as parboiled rice or converted rice is milled to obtain high quality export rice.

Raw rice /brown rice (white / parboiled) are purchase from merchants.

As a whole, the establishment of the project consists of construction, jetty operation, electricity generation, and milling process.

4.5.1 Construction Activities

The layout and land use design for the construction phase of the Rice Processing Complex project in Twantay regions are illustrated in Figure 4-7.

The construction phase of this project consists of 23 components as shown below;

1. Security Houses (3 – numbers)
2. Recreation Center
3. Toilet
4. Product Warehouse – No.2
5. Brown Rice Warehouse- No.1
6. Parboiled Brown Rice Warehouse -N0. 1
7. Product Warehouse – No.2
8. Rain Water Tanks
9. Rice Powder Plant
10. By-Product Warehouse – No.2
11. Power House
12. By-Product Warehouse – No.1
13. Car Parking
14. Office
15. Agricultural Service Center
16. Canteen
17. Staff Housing
18. Overhead Water Tank
19. House for Factory Manager
20. House for Deputy Factory Manager

The project proponent is in charge of managing construction plans and activities and implementing relevant measures including monitoring and reporting from the environmental management plan (EMP) (as shown in Chapter 7).

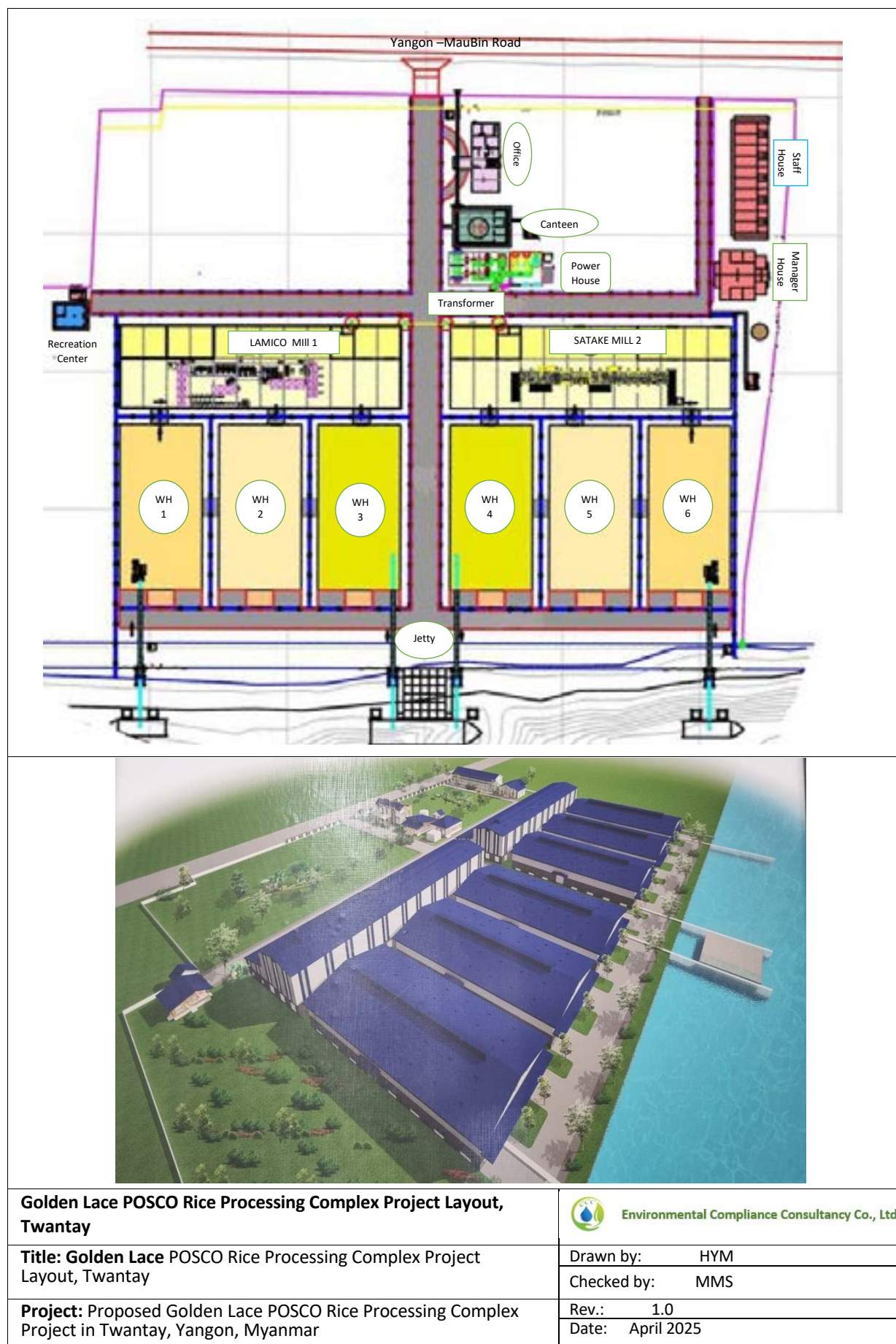


Figure 4-7 Layout Plan of Proposed Project

Project Components are shown in **Error! Reference source not found..**



Office



Mill#1 LAMICO Line (1/2)



Mill#1 LAMICO Line (2/2)



Mill#2 SATAKE Line (1/2)



Mill#2 SATAKE Line (1/2)



Elevator no. 1 & Feeding Tank



Elevator no. 2

LIMICO



Cleaner



Elevator no. 3



Destoner



Elevator No. 4



Elevator No. 5 & Thickness Grader 1 & 2



Whitener 1 & Elevator 6



Whitener 2 & Elevator 7



Whitener 3 & Elevator 8



Whitener 4 & Elevator 9



Elevator 10 & Rotary sifter



Elevator 11 & Tempering Tank



Elevator 12 & Polisher 1



Elevator 13 & Polisher 2



Elevator 14 & Polisher 3 & 4



Elevator 15 & Auto Weigher



Elevator 16 & Rotary sifter



Length Grader 1 & 2 & 3



Auto Weigher



Stake. Colorsorter. 1



Tai Ho. Colorsorter. 2

SATAKE Line



Elevator 1



Whitener 1A,1B



Whitener 2A,2B



Whitener 3A,3B



Rotary shifter 1&2



Polisher 1A,1B



Polisher 2A,2B



Length Grader 1,2,3



Colour Sorter



Jetty and Conveyer



Transformer



Power House



Power House



Power House



Staff & Manager house



Canteen



Water Storage Tank



Water Purification Plant



Underground Water Pump and Tank



Fire Extinguisher



Waste Bin Area



Temporary Waste Disposal Area



Toilet



Smoking Area

Figure 4-8 Project Components

4.5.2 *Operatioin Activities*

Rice Processing Complex process consists of 8 Steps in the rice processing plant .

- 1) Raw Feeding Section
- 2) Cleaning Section
- 3) Destoner Section
- 4) Whitening Section
- 5) Polishing Section
- 6) Grading Section
- 7) Color Sorting Section
- 8) Weighing & Packing Sectio

Raw Feeding Section

The white rice raw / brown rice (white or parboiled) are feeding to cleaner by passing through elevators & conveyor of raw feeding section

Cleaning Section

At Cleaner, while the introduced raw rice / Brown Rice (white / parboiled) are passing through the suction air stream , light garbage , dust & point are removed to dust catching chamber by air stream force. By doing so, raw rice / Brown rice (white/parboiled) are cleaned.

Destoner Section

The cleaned raw rice / Brown Rice (white/parboiled) come out from Cleaner is pass through the Destoner by means of Elevator. During the time of cleaned raw rice /Brown rice (white/parboiled) are passing through the Destoner, the iron pieces /scrub contained in cleaned raw rice /Brown Rice (white/parboiled) are sharply separated & kept separately by means of Vibration force of Destoner. The Cleaned & Iron free raw rice /brown rice (white /parboiled) are ready for whitening.

Whitening Section

After Destoner process, the cleaned brown rice must be introduced to the whitening stages. There are three stages or four stages of whitening machines are installed at whitening section. The top layer of the brown rice must be removed by passing through the whitening machine, the said bran layer must be removed by abrasive surface of the whitener cone and whitener sieve.

For the case of the cleaned rice, whitening process must be not required due to white rice is removing bran layer. From whitening machine, the bran layers are removed as a fine powder, it may be removed by suction air and collected and the bran catching room. After passing through the whitener, the white rice and broken rice mixture is occurred and said mixture must be pass through the rotary shifter for removing the smallest size of the broken.

Broken rice produced isn't make rice powder . It is normally export & direct local sale.

Polishing Section

The whitened rice or whitened par boiled rice, white rice raw must be pass through the polishing section for getting silky rice grain or silky par boiled rice grain. There are 2 or 3 stages of polishing machines are installed. By passing through the polisher, the produced bran must be taken by suction air and collected in the bran room. The produced products from polisher are a mixture of whole carnal head rice and assorted broken rice or white rice or par boiled rice.

Grading Section

The mixture received from the polishing section is mixture of whole kernel head rice, big broken, large and small broken. As per specification of the finished good, mostly whole kernel head rice and big broken are required for mixing. The other are not required for the finished good. Therefore, rice grading section is required for removing large broken and small broken from the mixture of the polished product. The mixture produced product received from polisher are introduced into the rotary sifter for grading such as whole carnal, head rice, big broken, large broken respectively. The received of the whole carnal, head rice, big broken, large broken are separately collected into the separate tanks.

Color Sorting

The major function of color sorting machine is for removing coloring rice such as dark grain, dead grain and yellow and red grain etc. The whole carnal head rice and big broken are mixed by proportionate mixture and introduce into the color sorter. As per function of the color sorter, the white rice or par boiled rice doubled polished sortexed are received as finished goods.

Weighing and Packing

The finished good received from color sorter are introduced into the weighing and packing machine for getting ready cargo for the sale.

Packing marking printing work is made by out source printing work.

The flow diagram of complete Rice Processing Complex process is illustrated in Figure 4-9.

Production Process

Bron Rice (white rice) & Brown Rice (Par boiled)

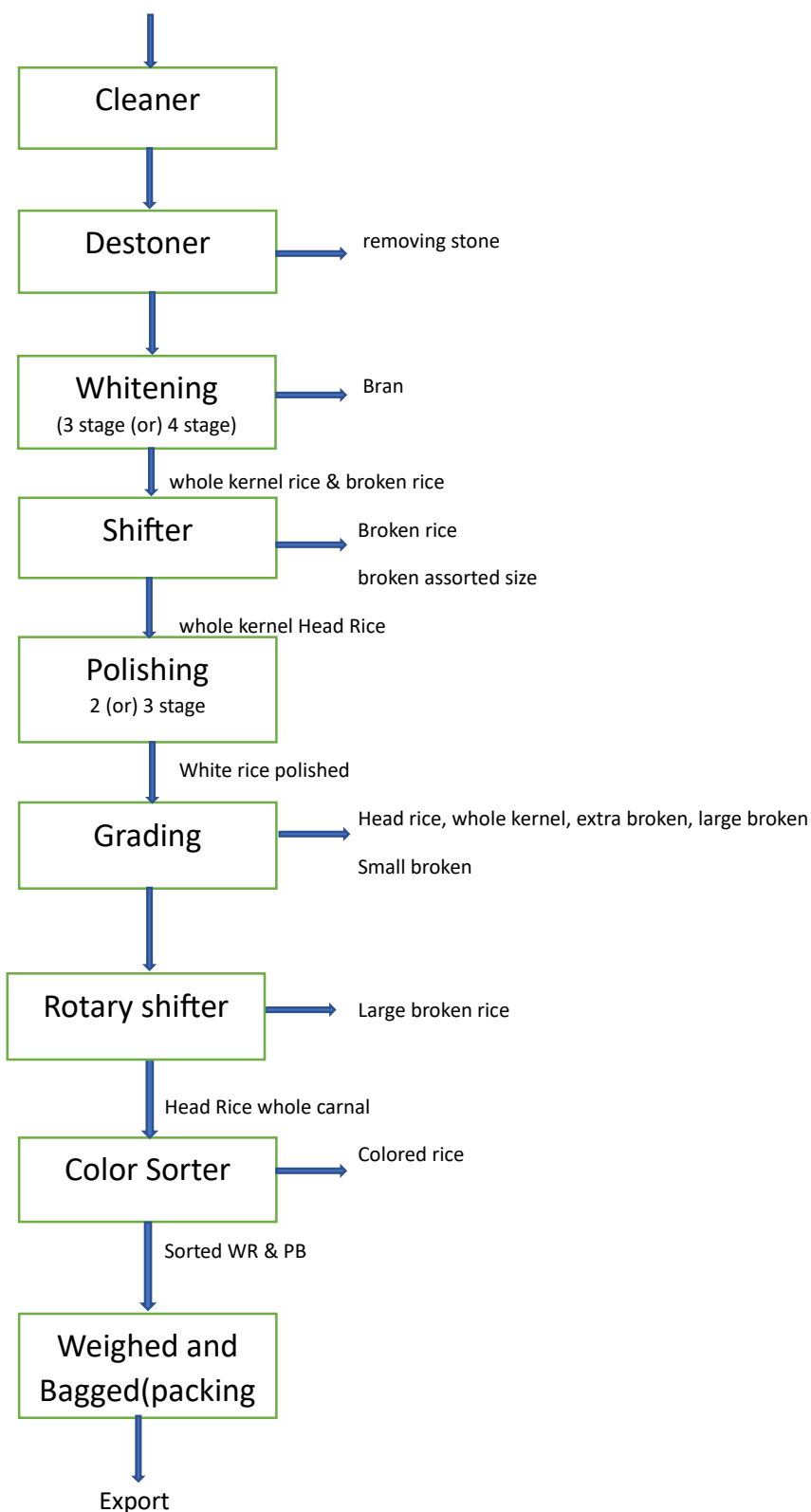


Figure 4-9 The flow diagram of complete Rice Processing Complex process

4.5.3 State of Rice Storage to Prevent Mold, Infection, and Odor

Before transporting RC and raw rice from the importer to the warehouse, samples are taken and checked by the factory QC to ensure that the moisture content is between 14% and 14% and that there are no pests.

According to the QC result, if the moisture is 14% or less and there are no pests, the product is transported to the storage facility by vehicle.

While unloading the truck, a sample is taken from each bag of rice and checked for moisture and bacteria. If it meets the specifications, it is accepted, and if it does not, it is returned to the supplier.

The rice received is accepted by the type of rice in a pallet system. The pallets are supported by wooden pallets.

The quality of rice in the stored bins is checked weekly and if necessary, the bins are moved, turned upside down, and disinfected with Aluminum Phosphid 56% Tablet if pests are found.

The Material Safety Data Sheet of Aluminum Phosphid 56% Tablet is shown in **Appendix G**.

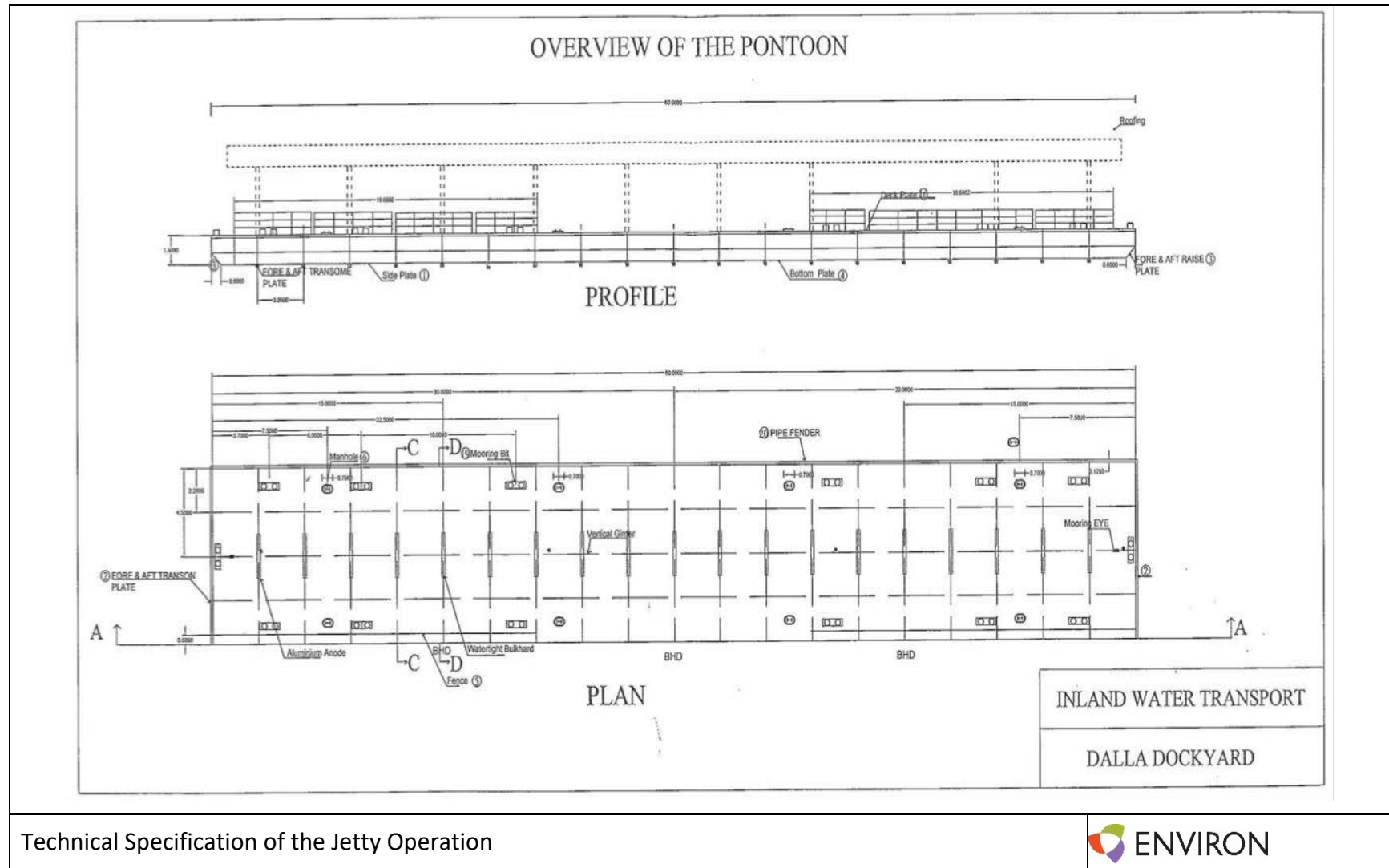


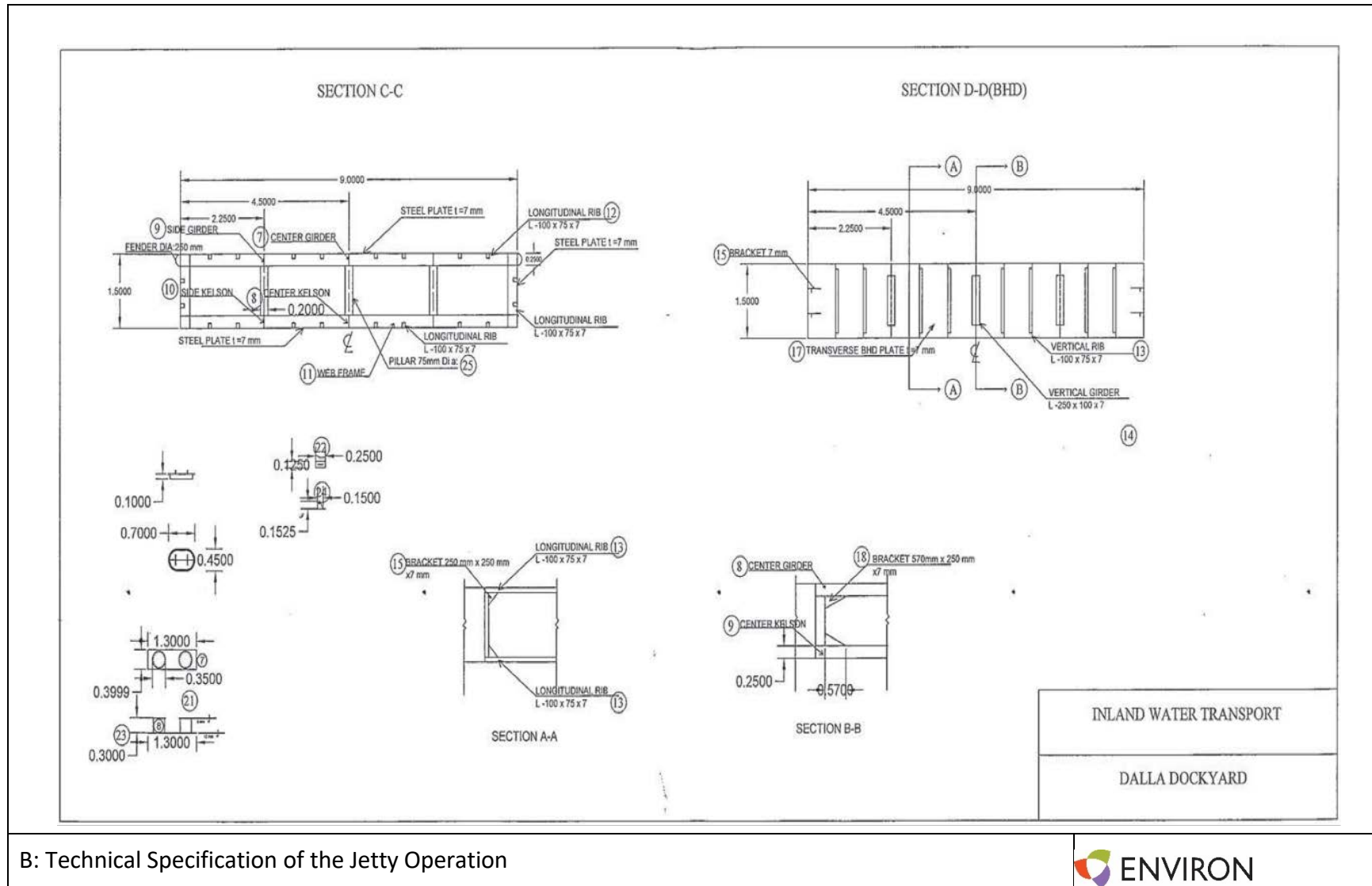
Figure 4-10 Aluminum Phosphide 56% Tablet

4.5.3.1 Jetty Operation

For receiving raw materials and shipping finished products by water ways, a Caisson Type floating jetty is employed in the project and therefore, private jetty operation is incorporated into the Rice Processing Complex operation. Each floating jetty, 20m x 8m x 10 m in dimension, is stationed in Twantay Canal and can handle estimated maximum allowable load of 20 tons.

Technical specification of the jetty is shown in Figure 4-11. As primary shipping method for both raw materials and final products is waterway, extensive use of jetty is expected.





Bill of Quantity for Pontoon									
Sr.	Description	Thk.	Dimension	Quantity	Sub-Total	Total (T)	Unit Price	Total Cost	
1	Side Plate	7mm	1.5 m x 60 m	2	180.00 m ²				
2	Fore & Aft transome Plate	7mm	0.9 m x 9 m	2	16.20 m ²				
3	Fore & Aft Bottom Raise Plate	7mm	0.7 m x 9 m	2	12.60 m ²				
4	Bottom Plate	7mm	58.8 m x 9 m	1	529.20 m ²				
5	Fence					As requirement.			
6	Menhole	7mm	0.7 m x 0.45 m	8	2.52 m ²				
7	Center Girder	7mm	60 m x 0.35 m	1	21.00 m ²				
8	Center Kelson	7mm	60 m x 0.35 m	1	21.00 m ²				
9	Side Girder	7mm	60 m x 0.35 m	2	21.00 m ²				
10	Side Kelson	7mm	60 m x 0.35 m	2	21.00 m ²				
11	Web Frame	7mm	20 m x 0.30 m	16	96.00 m ²				
12	Longitudinal RIB	7mm	60 m x 0.175 m	20	210.00 m ²				
13	Vertical RIB(BHD)	7mm	1.5 m x 0.175m	40	10.50 m ²				
14	Vertical Girder(BHD)	7mm	1 m x 0.35 m	15	5.25 m ²				
15	Bracket (Side Long)	7mm	(0.25 m x 0.25 m)/2	192	6.00 m ²				
16	Deck Plate	8mm	60 m x 9 m	1	540.00 m ²				
17	Transverse BHD	8mm	1.5 m x 9 m	3	40.50 m ²				
18	Bracket (Long: Kel.)	7mm	(0.57 m x 0.25 m)/2	16	1.14 m ²				
19	Ballast	Ø300 mm	0.3 m	28	8.40 m				
20	Fender	Ø250 mm	138/2 m	1	69.00 m				
21	Ballast Top Plate	8mm	0.35 m x 0.35 m	28	3.43 m ²				
22	Eye Base Plate	8mm	0.25 m x 0.125 m	2	0.06 m ²				
23	Ballast Base Plate	12 mm	1.30 m x 0.39 m	14	7.10 m ²				
24	Eye Piece	12mm	0.15 m x 0.125 m	2	0.04 m ²				
25	Pillar	Ø75 mm	1 m x 7mm	48	48.00 m				
	Welding Electrode	3.2mm		5	T				
	Oxygen	bottle		350	Bot:				
	Propone	viss		180	Viss				
	Paint	gals		60	Gal:				
	Construction Labour Charges								
	Painting Labour Charges								
	Launching Labour Charges								

C: Technical Specification of the Jetty Operation



Figure 4-11 Technical Specification of the Jetty Operation

4.6 Investment for the proposed Project

The investment period of this project is (50) years and the company is joint venture with local partner and its foreign investment amount is US\$ (16,612,500). The company is foreign direct investment company.

The Investment of the whole project is presented in following table.

Table 4-3 Investment value of the project

Particular	USD
Cash	3,535,531
Machineries & equipment	2,076,969
Construction materials	2,045,422
Plant & Machinery	4,832,678
General machinery	1,207,000
Electrical Work	2,914,900
Land (Rental Fee)	0
Building	0
	16,612,500

4.7 Project Supply



4.7.1 Electricity Supply

The project relies on self-power supply generated from National Grid (Average Unit: 8,000 kWh per month) and 4 backup diesel generators (Gensets).

The Specification of the Twantay OLTC Voltage Transformer (on load) is presented in Table 4-4.

Table 4-4 Specification of the Twantay OLTC Voltage Transformer (on load)

No.	Description	Information
1	Brand (Transformer)	Hitachi (Japan & Myanmar)
2	Type of Transformer	On Load Tap Changer Transformer (OLTC)
3	Purchased from	Through Khin Maung Nyunt Trading Limited.
4	Installation by	Hitachi Soe Electric & Machinery Co., Ltd.

No.	Description	Information
5	Installed date	2017~18
6	KVA	1500 KVAx2Nos (OLTC Transformer)
7	Price	Over 400 million kyats (Approx; as per some quotation)
8	Contract with	Khin Maung Nyunt Trading Limited.
9	Connection	1500 KVA  Satake Line and 1500 KVA  Lamico Line
10	Function	<ul style="list-style-type: none"> ♦ OLTC stands for On-load tap changer which is used in Transformer to regulate the output voltage. ♦ OLTC is installed inside the transformer main tank. It is operated by a Drive mechanism which is connected to OLTC through a tie rod. ♦ Generally, the Drive mechanism is mounted on the outside body of the Transformer. Based on the requirement of output voltage, OLTC operates by the drive mechanism in a manual or automatic way through AVR (Automatic Voltage Regulating). ♦ Generally in Power Transformer, AVR relay is used in RTCC (Remote Tap Changer Control) panel. As per the command of AVR relay, the OLTC operates to change the voltage to raise or lower direction.
11	Delay Time (in TT)	10 Sec (To change the voltage to raise or lower direction.)
12	Type	Oil Type (Need to replace OLTC oil when its come to every 10,000 tapping times.)
13	Oil Replacement History at TT	Dec-2021, Nov-2023

The monthly electricity demand for the year 2023 and 2014 is shown in Table 4-5. The specification of 4 Gensets are described in Table 4-6.

Table 4-5 Monthly Electricity Demand of Operation Phase

YEAR	2023	2024
Month	Unit (kWh)	Unit (kWh)
Jan	149,900	160,840

YEAR	2023	2024
Month	Unit (kWh)	Unit (kWh)
Feb	155,430	126,940
Mar	201,540	123,020
Apr	70,550	54,760
May	42,120	119,130
Jun	56,000	93,610
Jul	8,440	131,130
Aug	9,070	161,500
Sep	18,760	102,060
Oct	33,540	94,850
Nov	133,050	59,660
Dec	108,730	81,660
Total	987,130	1,309,160

Table 4-6 The Gensets' Specification

Particular	Specification		
Name	1275 KVA	100 KVA	25 KVA
Fuel	Diesel	Diesel	Diesel
Brand Name	Caterpillar	Caterpillar	Airman
Country Org	USA	USA	China
Country Manufacture	USA	USA	China
No. of Unit	2 Nos.	1 Nos	1 Nos

4.7.2 Fuel Supply and Storage

The monthly diesel usage for the electricity supply by 4 gensets is 18 gal per month and the monthly fuel demand for the year 2023 and 2014 is shown in Table 4-7.

Table 4-7 Monthly Fuel supply for the Electricity Supply by Generator

YEAR	2023	2024
Month	Unit (Gal)	Unit (Gal)
Jan	6.0	25.0
Feb	10.0	10.0

YEAR	2023	2024
Month	Unit (Gal)	Unit (Gal)
Mar	15.0	5.0
Apr	15.0	-
May	56.4	5.0
Jun	-	5.0
Jul	5.0	25.0
Aug	-	20.0
Sep	18.0	-
Oct	21.0	55.0
Nov	10.0	40.0
Dec	5.0	80.0
Total	161.4	270

The fuel Storage area is Stainless Steel Base Building with L(8')xW(4') and the location of the Fuel Storage Area is demonstrated in Figure 4-12. The normal Storage Capacity is 400 gal with 8 drums.



Figure 4-12 Location of Fuel Storage Area

4.7.3 Use of Materials, Resources and Storage

By the process of the Rice Mill, it is only involves removing the bran and germ layers from the raw material as brown rice gain through cleaning, Whiting and polishing, and grading of the final rice product.

Raw materials (Brown rice gain) are bought at factory from merchants around the area of Twantay Township and other area near by via Twantay -Maubin Road and waterway of Twantay canal. Then, it is weighed using weighbridges and hauled by truck tipplers and cranes to storage in Warehouses.

There are 6 warehouse in Twantay Rice Mill. 2 warehouse (1 and 6) are being used for the storage of raw materials (Brown rice), 2 warehouse (3 and 4) are kept to store the final products and 2 warehouse (2 and 5) are for by-products' storage. The storage capacity of each warehouse is 2500 MT (50000 Bags / 50kg (or) 110.5 lb).



Figure 4-13 Receiving and shipping raw materials and final products

4.7.4 Water Supply

Water from the canal becomes common water source and it is used about 600 m³ of water/day. A water recycling complex is built. The system of water collection, cooling and reuse is installed for the constant reuse of water to minimise water usage from canal.

One deep tube well installed within project area is intended for domestic supply. Possibility to drill water from the earth with the installation of a bore well is also be looked at so as to use water drawn from this bore well in the domestic water supply. Also a system of rainwater collection is installed so as to supply the plant's water requirements.

Daily water consumption is projected at 0.4 m³/day for domestic uses (drinking and sanitation).

4.7.5 Machinery and Equipment

The List of Machinery and Equipment using for Operation Phase of Rice Processing Complex is presented in Table 4-8.

Table 4-8 List of Machinery and Equipment using for Operation Phase

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
1	TT-M-Rechopper-001	Receiving hopper	Receiving hopper	1	Nos
2	TT-M-Bckeleva-001	Bucket Elevator , E1	Bucket Elevator , E1	1	Nos
3	TT-M-Tank-001	Feeding Hopper Tank	Feeding Hopper Tank (5)qty	1	Nos
4	TT-M-Betconv-001	Belt Conveyor-1	Belt Conveyor-1	1	Nos
5	TT-M-Betconv-002	Belt Conveyor-2	Belt Conveyor-2	1	Nos
6	TT-M-Bckeleva-002	Bucket Elevator , E2	Bucket Elevator , E2	1	Nos
7	TT-M-AutoWeigher-001	Auto-Weigher-1	Weight:900 Kg Dimension (LxWxH)mm (2120x1900x4850)mm Power: 0.1 Kw Capacity : (15)TPH on raw rice /brown rice (white / parboiled) Model: AW15	1	Nos
8	TT-M-Cle-001	Cleaner	Weight:1350 Kg Dimension (LxWxH)mm (3056x2452x3780)mm Power: 2x065 Kw Capacity : (40-45)TPH on raw rice /brown rice (white / parboiled) Model:PCV 450	1	Nos
9	TT-M-Bckeleva-003	Bucket Elevator , E3	Bucket Elevator , E3	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
10	TT-M-Tank-002	Destoner Tank	Destoner Tank	1	Nos
11	TT-M-Destoner-001	DE-STONER	Weight:966 Kg Dimension (LxWxH)mm (2188x2456x2214)mm Power: (0.75+0.68*2) Kw Capacity : (10-15)TPH on raw rice /brown rice (white / parboiled) Model: DS150	1	Nos
12	TT-M-Bckelewa-004	Bucket Elavator , E4	Bucket Elavator , E4	1	Nos
13	TT-M-Tank-003	Thickness Tank	Thickness Tank	1	Nos
14	TT-M-L-grader-001	Thickness Grader 1	Weight:835 Kg Dimension (LxWxH)mm (1910x1010x3020)mm Power: (0.75+0.1) Kw Capacity : (5-6)TPH on raw rice /brown rice (white / parboiled) Model: TG3.6	1	Nos
15	TT-M-L-grader-002	Thickness Grader 2	Weight:835 Kg Dimension (LxWxH)mm (1910x1010x3020)mm Power: (0.75+0.1) Kw Capacity : (5-6)TPH on raw rice /brown rice (white / parboiled) Model: TG3.6	1	Nos
16	TT-M-Bckelewa-005	Bucket Elevator , E5	Bucket Elevator , E5	1	Nos
17	TT-M-Tank-004	Whitener-1 Tank	Whitener-1 Tank	1	Nos
18	TT-M-Whitener-001	Rice Whitener-1	Weight:3460Kg Dimension (LxWxH)mm (2420x1160x2890)mm Power: (94) Kw Capacity : (9-10)TPH on brown rice Model: RW100	1	Nos
19	TT-M-Bckelewa-006	Bucket Elevator , E6	Bucket Elevator , E6	1	Nos
20	TT-M-Tank-005	Whitener-2 Tank	Whitener-2 Tank	1	Nos
21	TT-M-Whitener-002	Rice Whitener-2	Weight:3460Kg Dimension (LxWxH)mm (2420x1160x2890)mm Power: (74) Kw Capacity : (9-10)TPH on brown rice Model: RW100	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
22	TT-M-Bckeleva-007	Bucket Elevator , E7	Bucket Elevator , E7	1	Nos
23	TT-M-Tank-006	Whitener-3 Tank	Whitener-3 Tank	1	Nos
24	TT-M-Whitener-003	Rice Whitener-3	Weight:3460Kg Dimension (LxWxH)mm (2420x1160x2890)mm Power: (74) Kw Capacity : (9-10)TPH on brown rice Model: RW100	1	Nos
25	TT-M-Bckeleva-008	Bucket Elevator, E8	Bucket Elevator, E8	1	Nos
26	TT-M-Tank-007	Whitener-4 Tank	Whitener-4 Tank	1	Nos
27	TT-M-Whitener-004	Rice Whitener-4	Weight:3460Kg Dimension (LxWxH)mm (2420x1160x2890)mm Power: (74) Kw Capacity : (9-10)TPH on brown rice Model: RW100	1	Nos
28	TT-M-Bckeleva-009	Bucket Elevator, E9	Bucket Elevator, E9	1	Nos
29	TT-M-Rsifter-001	Rotary Shifter-1	Weight:1950Kg Dimension (LxWxH)mm (2480x1894x2390)mm Power: (2.2) Kw Capacity : (10-12)TPH on rice Model: RS100-HMC	1	Nos
30	TT-M-Bckeleva-010	Bucket Elevator, E10	Bucket Elevator, E10	1	Nos
31	TT-M-Tank-008	Tempering Tank	Tempering Tank (3)qty	1	Nos
32	TT-M-Betconv-003	Belt Conveyor-3	Belt Conveyor-3	1	Nos
33	TT-M-Blower Fan-001	Blower Fan(For Cooling)	Blower Fan(For Cooling)	1	Nos
34	TT-M-Bckeleva-011	Bucket Elevator, E11	Bucket Elevator, E11	1	Nos
35	TT-M-Tank-009	Polisher-1 Tank	Polisher-1 Tank	1	Nos
36	TT-M-Polisher-001	Rice Polisher-1	Weight:1850Kg Dimension (LxWxH)mm (2370x1100x3220)mm Power: (148.5) Kw Capacity : (8-10)TPH on rice Model: RP80A	1	Nos
37	TT-M-Bckeleva-012	Bucket Elevator, E12	Bucket Elevator, E12	1	Nos
38	TT-M-Tank-010	Polisher-2 Tank	Polisher-2 Tank	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
39	TT-M-Polisher-002	Rice Polisher-2	Weight:1850Kg Dimension (LxWxH)mm (2370x1100x3220)mm Power: (126.5) Kw Capacity : (8-10)TPH on rice Model: RP80A	1	Nos
40	TT-M-Bckelewa-013	Bucket Elevator, E13	Bucket Elevator, E13	1	Nos
41	TT-M-Tank-011	Polisher-3 Tank	Polisher-3 Tank	1	Nos
42	TT-M-Polisher-003	Rice Polisher-3A	Weight:1470Kg Dimension (LxWxH)mm (1970x1040x2970)mm Power: (106.5) Kw Capacity : (4-5)TPH on rice Model: RP50A	1	Nos
43	TT-M-Polisher-004	Rice Polisher-3B	Weight:1470Kg Dimension (LxWxH)mm (1970x1040x2970)mm Power: (106.5) Kw Capacity : (4-5)TPH on rice Model: RP50A	1	Nos
44	TT-M-Polisher Pump-001	Water Pump-1 (For Polisher)	Water Pump-1 (For Polisher)	1	Nos
45	TT-M-Polisher Pump-002	Water Pump-2 (For Polisher)	Water Pump-2 (For Polisher)	1	Nos
46	TT-M-Polisher Pump-003	Water Pump-3 (For Polisher)	Water Pump-3 (For Polisher)	1	Nos
47	TT-M-Polisher Pump-004	Water Pump-4 (For Polisher)	Water Pump-4 (For Polisher)	1	Nos
48	TT-M-Bckelewa-014	Bucket Elevator, E14	Bucket Elevator, E14	1	Nos
49	TT-M-AutoWeigher-002	Auto-Weigher-2	Weight:900 Kg Dimension (LxWxH)mm (2120x1900x4850)mm Power: 0.1 Kw Capacity : (15)TPH on raw rice /brown rice (white / parboiled) Model: AW15	1	Nos
50	TT-M-Bckelewa-015	Bucket Elevator, E15	Bucket Elevator, E15	1	Nos
51	TT-M-Rsifter-002	Rotary Shifter-2	Weight:1950Kg Dimension (LxWxH)mm (2480x1894x2390)mm Power: (2.2) Kw Capacity : (10-12)TPH on	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
			rice Model: RS100HMSC		
52	TT-M-Bckeleva-016	Bucket Elevator, E16	Bucket Elevator, E16	1	Nos
53	TT-M-L-grader-003	Length Grader-1	Weight:5800Kg Dimension (LxWxH)mm (4844x2940x5184)mm Power: (3x2.2) Kw Capacity : (7-8)TPH on rice Model: LG7A.6	1	Nos
54	TT-M-L-grader-004	Length Grader-2	Weight:5800Kg Dimension (LxWxH)mm (4844x2940x5184)mm Power: (3x2.2) Kw Capacity : (7-8)TPH on rice Model: LG7A.6	1	Nos
55	TT-M-L-grader-005	Length Grader-3	Weight:5800Kg Dimension (LxWxH)mm (4844x2940x5184)mm Power: (3x2.2) Kw Capacity : (7-8)TPH on rice Model: LG7A.6	1	Nos
56	TT-M-Bckeleva-017	Bucket Elevator, E17	Bucket Elevator, E17	1	Nos
57	TT-M-Bckeleva-018	Bucket Elevator, E18	Bucket Elevator, E18	1	Nos
58	TT-M-Bckeleva-019	Bucket Elevator, E19	Bucket Elevator, E19	1	Nos
59	TT-M-Bckeleva-020	Bucket Elevator, E20	Bucket Elevator, E20	1	Nos
60	TT-M-AutoWeigher-003	Auto-Weigher-3	Weight:900 Kg Dimension (LxWxH)mm (2120x1900x4850)mm Power: 0.1 Kw Capacity : (15)TPH on raw rice /brown rice (white / parboiled) Model: AW15	1	Nos
61	TT-M-Bckeleva-021	Bucket Elevator, E21	Bucket Elevator, E21	1	Nos
62	TT-M-Tank-012	Mixing Tank	Mixing Tank	1	Nos
63	TT-M-Betconv-004	Quantitative Belt Conveyor-1	Quantitative Belt Conveyor-1	1	Nos
64	TT-M-Betconv-005	Quantitative Belt Conveyor-2	Quantitative Belt Conveyor-2	1	Nos
65	TT-M-Betconv-006	Quantitative Belt Conveyor-3	Quantitative Belt Conveyor-3	1	Nos
66	TT-M-Betconv-007	Quantitative Belt Conveyor-4	Quantitative Belt Conveyor-4	1	Nos
67	TT-M-Betconv-008	Belt Conveyor-4	Belt Conveyor-4	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
68	TT-M-Bckeleva-022	Bucket Elevator, E22	Bucket Elevator, E22	1	Nos
69	TT-M-Tank-013	Color Sorter-1 Tank	Color Sorter-1 Tank	1	Nos
70	TT-M-Csorter-001	Color Sorter-1	Color Sorter-1	1	Nos
71	TT-M-Tank-014	Color Sorter-2 Tank	Color Sorter-2 Tank	1	Nos
72	TT-M-Csorter-002	Color Sorter-2	Color Sorter-2	1	Nos
73	TT-M-Betconv-009	Quantitative Belt Conveyor	Quantitative Belt Conveyor	1	Nos
74	TT-M-Bckeleva-023	Bucket Elevator, E23	Bucket Elevator, E23	1	Nos
75	TT-M-Bckeleva-024	Bucket Elevator, E24	Bucket Elevator, E24	1	Nos
76	TT-M-Bckeleva-025	Bucket Elevator, E25	Bucket Elevator, E25	1	Nos
77	TT-M-Bckeleva-026	Bucket Elevator, E26	Bucket Elevator, E26	1	Nos
78	TT-M-Cle-002	Cleaner	Weight:460 Kg Dimension (LxWxH)mm (2225x1100x2437)mm Power: 1.5Kw Capacity : (12-15)TPH on raw rice /brown rice (white / parboiled) Model: PCV120A	1	Nos
79	TT-M-Betconv-010	Belt Conveyor-5	Belt Conveyor-5	1	Nos
80	TT-M-Tank-015	Packing Tank	Packing Tank (4)qty	1	Nos
81	TT-M-Pkweigher-001	Packing Weigher Small-1	Weight:470Kg Dimension (LxWxH)mm (1800x1000x2355)mm Power: (0.2) Kw Capacity : 500 bags/hr Model: AW 500	1	Nos
82	TT-M-Pkweigher-002	Packing Weigher Small-2	Weight:470Kg Dimension (LxWxH)mm (1800x1000x2355)mm Power: (0.2) Kw Capacity : 500 bags/hr Model: AW 500	1	Nos
83	TT-M-Pkweigher-003	Packing Weigher Small-3	Weight:260Kg Dimension (LxWxH)mm (1285x850x2355)mm Power: (0.2) Kw Capacity : 500 bags/hr Model: PW 500B	1	Nos
84	TT-M-Pkweigher-004	Packing Weigher Small-4	Weight:260Kg Dimension (LxWxH)mm (1285x850x2355)mm Power: (0.2) Kw	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
			Capacity : 500 bags/hr Model: PW 500B		
85	TT-M-Betconv-011	Belt Conveyor Small-1	Belt Conveyor Small-1	1	Nos
86	TT-M-Betconv-012	Belt Conveyor Small-2	Belt Conveyor Small-2	1	Nos
87	TT-M-Betconv-013	Belt Conveyor Small-3	Belt Conveyor Small-3	1	Nos
88	TT-M-Betconv-014	Belt Conveyor Small-4	Belt Conveyor Small-4	1	Nos
89	TT-M-Sewingmachine-001	Sewing Machine-1	Sewing Machine-1	1	Nos
90	TT-M-Sewingmachine-002	Sewing Machine-2	Sewing Machine-2	1	Nos
91	TT-M-UPS-001	UPS 1	UPS 1	1	Nos
92	TT-M-UPS-002	UPS 2	UPS 2	1	Nos
93	TT-M-Suction Fan-001	Suction Fan-1	Suction Fan-1	1	Nos
94	TT-M-Rotary Valve-001	Cyclone +Rotary Valve(Air Lock)-1	Cyclone +Rotary Valve(Air Lock)	1	Nos
95	TT-M-Suction Fan-002	Suction Fan-2	Suction Fan-2	1	Nos
96	TT-M-Rotary Valve-002	Cyclone +Rotary Valve(Air Lock)-2	Cyclone +Rotary Valve(Air Lock)	1	Nos
97	TT-M-Suction Fan-003	Suction Fan-3	Suction Fan-3	1	Nos
98	TT-M-Rotary Valve-003	Cyclone +Rotary Valve(Air Lock)-3	Cyclone +Rotary Valve(Air Lock)	1	Nos
99	TT-M-Suction Fan-004	Suction Fan-4	Suction Fan-4	1	Nos
100	TT-M-Rotary Valve-004	Cyclone +Rotary Valve(Air Lock)-4	Cyclone +Rotary Valve(Air Lock)	1	Nos
101	TT-M-Suction Fan-005	Suction Fan-5	Suction Fan-5	1	Nos
102	TT-M-Rotary Valve-005	Cyclone +Rotary Valve(Air Lock)-5	Cyclone +Rotary Valve(Air Lock)	1	Nos
103	TT-M-Suction Fan-006	Suction Fan-6	Suction Fan-6	1	Nos
104	TT-M-Rotary Valve-006	Cyclone +Rotary Valve(Air Lock)-6	Cyclone +Rotary Valve(Air Lock)	1	Nos
105	TT-M-Suction Fan-007	Suction Fan-7	Suction Fan-7	1	Nos
106	TT-M-Rotary Valve-007	Cyclone +Rotary Valve(Air Lock)-7	Cyclone +Rotary Valve(Air Lock)	1	Nos
107	TT-M-Suction Fan-008	Suction Fan-8	Suction Fan-8	1	Nos
108	TT-M-Rotary Valve-008	Cyclone +Rotary Valve(Air Lock)-8	Cyclone +Rotary Valve(Air Lock)	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
109	TT-M-Suction Fan-009	Suction Fan-9	Suction Fan-9	1	Nos
110	TT-M-Rotary Valve-009	Cyclone +Rotary Valve(Air Lock)-9	Cyclone +Rotary Valve(Air Lock)	1	Nos
111	TT-M-Suction Fan-010	Suction Fan-10	Suction Fan-10	1	Nos
112	TT-M-Rotary Valve-010	Cyclone +Rotary Valve(Air Lock)-10	Cyclone +Rotary Valve(Air Lock)	1	Nos
113	TT-M-Suction Fan-011	Suction Fan-11	Suction Fan-11	1	Nos
114	TT-M-Rotary Valve-011	Cyclone +Rotary Valve(Air Lock)-11	Cyclone +Rotary Valve(Air Lock)	1	Nos
115	TT-M-Suction Fan-012	Suction Fan-12	Suction Fan-12	1	Nos
116	TT-M-Rotary Valve-012	Cyclone +Rotary Valve(Air Lock)-12	Cyclone +Rotary Valve(Air Lock)	1	Nos
117	TT-M-Betconv-015	Screw Conveyor	Screw Conveyor	1	Nos
118	TT-M-Bckeleva-027	Bucket Elevator, E27	Bucket Elevator, E27	1	Nos
119	TT-M-Bckeleva-028	Bucket Elevator, E28	Bucket Elevator, E28	1	Nos
120	TT-M-Rsifter-003	Rotary Shifter-3(Bran)	Weight:950Kg Dimension (LxWxH)mm (1911x1628x2100)mm Power: (1.5) Kw Capacity : (6-8)TPH on rice Model: RS60B	1	Nos
121	TT-M-AirCom-001	Air Compressor+Dryer 1	Air Compressor+Dryer 1	1	Nos
122	TT-M-AirCom-002	Air Compressor+Dryer 2	Air Compressor+Dryer 2	1	Nos
123	TT-M-Betconv Motor-001	Up & Down Motor	Up & Down Motor	1	Nos
124	TT-M-Betconv-016	Up/Down Belt Conveyor(4m)	Up/Down Belt Conveyor(4m)	1	Nos
125	TT-M-Betconv-017	Up/Down Belt Conveyor(14m)	Up/Down Belt Conveyor(14m)	1	Nos
126	TT-M-Betconv-018	Belt Conveyor(23m)	Belt Conveyor(23m)	1	Nos
127	TT-M-Betconv-019	Belt Conveyor(8m)	Belt Conveyor(8m)	1	Nos
128	TT-M-Rechopper-002	Receiving hopper	Receiving hopper	1	Nos
129	TT-M-Bckeleva-029	Bucket Elevator, E29	Bucket Elevator, E29	1	Nos
130	TT-M-Cle-003	Cleaner	Weight:460 Kg Dimension (LxWxH)mm (2225x1100x2437)mm Power: 1.5Kw Capacity : (12-15)TPH on raw rice /brown rice	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
			(white / parboiled) Model: PCV120A		
131	TT-M-Bckelewa-030	Bucket Elevator, E30	Bucket Elevator, E30	1	Nos
132	TT-M-Platform-001	Platform Scale-1	Platform Scale-1	1	Nos
133	TT-M-Platform-002	Platform Scale-2	Platform Scale-2	1	Nos
134	TT-M-Centrifugal Fan-001	Centrifugal Fan	Centrifugal Fan	1	Nos
135	TT-M-Rotary Valve-013	Cyclone +Rotary Valve(Air Lock)-13	Cyclone +Rotary Valve(Air Lock)	1	Nos
136	TT-M-AirCom-003	Compressor	Compressor	1	Nos
137	TT-M-Betconv Motor-002	Up & Down Motor	Up & Down Motor	1	Nos
138	TT-M-Betconv-020	Up/Down Belt Conveyor(4m)	Up/Down Belt Conveyor(4m)	1	Nos
139	TT-M-Betconv-021	Up/Down Belt Conveyor(14m)	Up/Down Belt Conveyor(14m)	1	Nos
140	TT-M-Betconv-022	Belt Conveyor(6m)	Belt Conveyor(6m)	1	Nos
141	TT-M-Betconv-023	Belt Conveyor(10.5m)	Belt Conveyor(10.5m)	1	Nos
142	TT-M-Betconv-024	Belt Conveyor(14.5m)	Belt Conveyor(14.5m)	1	Nos
143	TT-M-Betconv-025	Counting&Weigher Conveyor	Counting&Weigher Conveyor	1	Nos
144	TT-M-Betconv-026	Slopping Belt Conveyor(10m)	Slopping Belt Conveyor(10m)	1	Nos
145	TT-M-Betconv-027	Belt Conveyor(3m)	Belt Conveyor(3m)	1	Nos
146	TT-M-Betconv-028	Belt Conveyor(10m)	Belt Conveyor(10m)	10	Nos
147	TT-M-Betconv-029	Belt Conveyor(5m)	Belt Conveyor(5m)	1	Nos
148	TT-M-Betconv-030	Belt Conveyor(45°)	Belt Conveyor(45°)	1	Nos
149	TT-M-Betconv-031	Belt Conveyor(90°)	Belt Conveyor(90°)	2	Nos
150	TT-M-Betconv-032	Belt Conveyor(10m)	Belt Conveyor(10m)	2	Nos
151	TT-M-Betconv-033	Belt Conveyor(5m)	Belt Conveyor(5m)	1	Nos
152	TT-M-Betconv-034	Belt Conveyor(45°)	Belt Conveyor(45°)	1	Nos
153	TT-M-Betconv-035	Belt Conveyor(90°)	Belt Conveyor(90°)	1	Nos
154	TT-M-Metaldetector-001	Metal sorter SMDS100(1)	Metal sorter SMDS100(1)	1	Nos
155	TT-M-Rechopper-003	Receiving hopper	Receiving hopper	1	Nos
156	TT-M-Bckelewa-031	Bucket Elevator - E1	Bucket Elevator	1	Nos
157	TT-M-Tank-016	Feeding Hopper Tank	including (5)qty	1	Nos
158	TT-M-ChainConv-001	Chain Conveyor-1	Chain conveyor	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
159	TT-M-ChainConv-002	Chain Conveyor-2	Chain conveyor	1	Nos
160	TT-M-Bckeleva-032	Bucket Elevator - E2	Bucket Elevator	1	Nos
161	TT-M-Tank-017	Flow Scale-1 Tank	Flow Scale-1 Tank	1	Nos
162	TT-M-AutoWeigher-004	Auto-Weigher-1	Flow Scale	1	Nos
163	TT-M-Bckeleva-033	Bucket Elevator - E3	Bucket Elevator	1	Nos
164	TT-M-Tank-018	Cleaner Tank	Cleaner Tank	1	Nos
165	TT-M-Cle-004	Cleaner	Milling Separator	1	Nos
166	TT-M-Bckeleva-034	Bucket Elevator - E4	Bucket Elevator	1	Nos
167	TT-M-Tank-019	Destoner Tank	Destoner Tank	1	Nos
168	TT-M-Destoner-002	DE-STONER	Gravity Separator	1	Nos
169	TT-M-AutoWeigher-005	Auto-Weigher-2	Flow Scale	1	Nos
170	TT-M-Bckeleva-035	Bucket Elevator - E5	Bucket Elevator	1	Nos
171	TT-M-Tank-020	Thickness Greader Tank	Thickness Greader Tank	1	Nos
172	TT-M-L-grader-006	Thickness Grader	Thickness grader	1	Nos
173	TT-M-Bckeleva-036	Bucket Elevator - E6	Bucket Elevator	1	Nos
174	TT-M-Tank-021	Rice Whitener-1A Tank	Rice Whitener-1A Tank	1	Nos
175	TT-M-Whitener-005	Rice Whitener-1A	Rice Whitener-1A	1	Nos
176	TT-M-Tank-022	Whitener-1B Tank	Whitener-1B Tank	1	Nos
177	TT-M-Whitener-006	Rice Whitener-1B	Rice Whitener-1B	1	Nos
178	TT-M-Bckeleva-037	Bucket Elevator - E7	Bucket Elevator	1	Nos
179	TT-M-Tank-023	Rice Whitener-2A Tank	Rice Whitener-2A Tank	1	Nos
180	TT-M-Whitener-007	Rice Whitener-2A	Rice Whitener-2A	1	Nos
181	TT-M-Tank-024	Rice Whitener-2B Tank	Rice Whitener-2B Tank	1	Nos
182	TT-M-Whitener-008	Rice Whitener-2B	Rice Whitener-2B	1	Nos
183	TT-M-Bckeleva-038	Bucket Elevator - E8	Bucket Elevator -E8	1	Nos
184	TT-M-Tank-025	Rice Whitener-3A Tank	1.8 ton Tank	1	Nos
185	TT-M-Whitener-009	Rice Whitener-3A	Rice Whitener-3A	1	Nos
186	TT-M-Tank-026	Rice Whitener-3B Tank	1.8 ton Tank	1	Nos
187	TT-M-Whitener-010	Rice Whitener-3B	Rice Whitener-3B	1	Nos
188	TT-M-ChainConv-003	Chain Conveyor-3	Chain conveyor	1	Nos
189	TT-M-Bckeleva-039	Bucket Elevator - E9	Bucket Elevator -E9	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
190	TT-M-Rsifter-004	Rotary Shifter-1	Rotary Shifter-1	1	Nos
191	TT-M-Rsifter-005	Rotary Shifter-2	Rotary Shifter-2	1	Nos
192	TT-M-Bckeleva-040	Bucket Elevator -E10	Bucket Elevator -E10	1	Nos
193	TT-M-Tank-027	Tempering Tank	including (3)qty	1	Nos
194	TT-M-ChainConv-004	Chain Conveyor-4	Chain conveyor	1	Nos
195	TT-M-ChainConv-005	Chain Conveyor-5	Chain conveyor	1	Nos
196	TT-M-Bckeleva-041	Bucket Elevator -E11	Bucket Elevator -E11	1	Nos
197	TT-M-Tank-028	Polisher Tank 1A	Sub tank	1	Nos
198	TT-M-Polisher-005	Rice Polisher-1A	Rice Polisher	1	Nos
199	TT-M-Tank-029	Polisher Tank 1B	Sub tank	1	Nos
200	TT-M-Polisher-006	Rice Polisher-1B	Rice Polisher	1	Nos
201	TT-M-Bckeleva-042	Bucket Elevator -E12	Bucket Elevator -E12	1	Nos
202	TT-M-Tank-030	Polisher Tank 2A	Polisher Tank 2A	1	Nos
203	TT-M-Polisher-007	Rice Polisher-2A	Rice Polisher	1	Nos
204	TT-M-Tank-031	Polisher Tank 2B	Polisher Tank 2B	1	Nos
205	TT-M-Polisher-008	Rice Polisher-2B	Rice Polisher	1	Nos
206	TT-M-Bckeleva-043	Bucket Elevator -E13	Bucket Elevator -E13	1	Nos
207	TT-M-Tank-032	Auto-Weigher-3 Tank	Sub tank	1	Nos
208	TT-M-AutoWeigher-006	Auto-Weigher-3	Flow scale	1	Nos
209	TT-M-Bckeleva-044	Bucket Elevator -E14	Bucket Elevator	1	Nos
210	TT-M-Rsifter-006	Rotary Shifter-3	Rotary Sifter	1	Nos
211	TT-M-Rsifter-007	Rotary Shifter-4	Rotary Sifter	1	Nos
212	TT-M-ChainConv-006	Chain Conveyor-6	Chain conveyor	1	Nos
213	TT-M-ChainConv-007	Chain Conveyor-7	Chain conveyor	1	Nos
214	TT-M-ChainConv-008	Chain Conveyor-8	Chain conveyor	1	Nos
215	TT-M-Bckeleva-045	Bucket Elevator -E15	Bucket Elevator	1	Nos
216	TT-M-EqualySpl-001	Equaly Splitter	Equaly splitter	1	Nos
217	TT-M-L-grader-007	Length Grader-1to9	Length Grader-1to9 (9 qty)	9	Nos
218	TT-M-Bckeleva-046	Bucket Elevator -E16	Bucket Elevator -E16	1	Nos
219	TT-M-Bckeleva-047	Bucket Elevator -E17	Bucket Elevator -E17	1	Nos
220	TT-M-Bckeleva-048	Bucket Elevator -E18	Bucket Elevator -E18	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
221	TT-M-Tank-033	Mixing Tank	including (3)qty	1	Nos
222	TT-M-Weight Scale-001	Weight Scale(SLS20CC)	Weight Scale(SLS20CC) (3)qty	3	Nos
223	TT-M-ChainConv-009	Chain Conveyor-9	Chain conveyor	1	Nos
224	TT-M-Bckeleve-049	Bucket Elevator -E19	Bucket Elevator	1	Nos
225	TT-M-Tank-034	Color Sorter-1 Tank	Color Sorter-1 Tank	1	Nos
226	TT-M-Csorter-003	Color Sorter-1	Optical sorter	1	Nos
227	TT-M-Tank-035	Color Sorter-2 Tank	Color Sorter-2 Tank	1	Nos
228	TT-M-Csorter-004	Color Sorter-2	Optical sorter	1	Nos
229	TT-M-Bckeleve-050	Bucket Elevator -E20	Bucket Elevator -E20	1	Nos
230	TT-M-Bckeleve-051	Bucket Elevator -E21	Bucket Elevator -E21	1	Nos
231	TT-M-ChainConv-010	Chain Conveyor-10	Chain conveyor	1	Nos
232	TT-M-Metaldetector-001	Metal detector	Metal sorter SMDS100(1)	1	Nos
233	TT-M-Bckeleve-052	Bucket Elevator -E22	Bucket Elevator -E22	1	Nos
234	TT-M-ChainCon-011	Chain Conveyor-11	Chain Conveyor-11	1	Nos
235	TT-M-Sieve Seperator-001	Sieve Separator(4Nos)	Sieve Separator(4Nos)	4	Nos
236	TT-M-Tank-036	Packing Tank	Packing Tank (4)qty	1	Nos
237	TT-M-SAutoPacker-001	Semi-Auto Packer-1	Semi-Auto Packer-1 (2)qty	1	Nos
238	TT-M-SAutoPacker-002	Semi-Auto Packer-2	Semi-Auto Packer-2 (2)qty	1	Nos
239	TT-M-SAutoPacker-003	Semi-Auto Packer-3	Semi-Auto Packer-3	1	Nos
240	TT-M-SAutoPacker-004	Semi-Auto Packer-4	Semi-Auto Packer-4	1	Nos
241	TT-M-Sewingmachine-003	Sewing Machine-1	Sewing Machine-1	1	Nos
242	TT-M-Sewingmachine-004	Sewing Machine-2	Sewing Machine-2	1	Nos
243	TT-M-Betconv-036	Belt Conveyor Small-1	Belt Conveyor Small-1	1	Nos
244	TT-M-Betconv-037	Belt Conveyor Small-2	Belt Conveyor Small-2	1	Nos
245	TT-M-Tank-037	Chip Tank	Chip Tank	1	Nos
246	TT-M-Tank-038	Immature Tank	Immature Tank	1	Nos
247	TT-M-Tank-039	Reject Tank	Reject Tank	1	Nos
248	TT-M-AirCom-004	Compressor with dryer(Fusheng)	Air compressor & Dryer	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
249	TT-M-AirCom-005	Compressor with dryer(Hitachi)	Compressor	1	Nos
250	TT-M-Pneublower-001	Pneumatic Blower-01	Pneumatic Blower-01	1	Nos
251	TT-M-Pneublower-002	Pneumatic Blower-02	Pneumatic Blower-02	1	Nos
252	TT-M-Pneublower-003	Pneumatic Blower-03	Pneumatic Blower-03	1	Nos
253	TT-M-Pneublower-004	Pneumatic Blower-04	Pneumatic Blower-04	1	Nos
254	TT-M-Pneublower-005	Pneumatic Blower-05	Pneumatic Blower-05	1	Nos
255	TT-M-Air Lock-001	Air Lock	Air lock-01	1	Nos
256	TT-M-Air Lock-002	Air Lock	Air lock-02	1	Nos
257	TT-M-Air Lock-003	Air Lock	Air lock-03	1	Nos
258	TT-M-Air Lock-004	Air Lock	Air lock-04	1	Nos
259	TT-M-Air Lock-004	Air Lock	Air lock-05	1	Nos
260	TT-M-UPS-003	UPS 1	smart UPS6 Kva	1	Nos
261	TT-M-UPS-004	UPS 2	smart UPS6 Kva	1	Nos
262	TT-M-Suction Fan-013	Suction Fan-1	Suction fan	1	Nos
263	TT-M-Rotary Valve-014	Cyclone +Rotary Valve(Air Lock)-1	Cyclone +Rotary Valve(Air Lock)	1	Nos
264	TT-M-Suction Fan-014	Suction Fan-2	Suction fan	1	Nos
265	TT-M-Rotary Valve-015	Cyclone +Rotary Valve(Air Lock)-2	Cyclone +Rotary Valve(Air Lock)	1	Nos
266	TT-M-Suction Fan-015	Suction Fan-3	Suction Fan	1	Nos
267	TT-M-Rotary Valve-016	Cyclone +Rotary Valve(Air Lock)-3	Cyclone +Rotary Valve(Air Lock)	1	Nos
268	TT-M-Suction Fan-016	Suction Fan-4	Suction fan	1	Nos
269	TT-M-Rotary Valve-017	Cyclone +Rotary Valve(Air Lock)-4	Cyclone +Rotary Valve(Air Lock)	1	Nos
270	TT-M-Suction Fan-017	Suction Fan-5	Suction fan	1	Nos
271	TT-M-Rotary Valve-018	Cyclone +Rotary Valve(Air Lock)-5	Cyclone +Rotary Valve(Air Lock)	1	Nos
272	TT-M-Suction Fan-018	Suction Fan-6	Suction fan	1	Nos
273	TT-M-Rotary Valve-019	Cyclone +Rotary Valve(Air Lock)-6	Cyclone +Rotary Valve(Air Lock)	1	Nos
274	TT-M-Suction Fan-019	Suction Fan-7	Suction fan	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
275	TT-M-Rotary Valve-020	Cyclone +Rotary Valve(Air Lock)-7	Cyclone +Rotary Valve(Air Lock)	1	Nos
276	TT-M-Betconv Motor-003	Up & Down Motor	Up & Down Motor	1	Nos
277	TT-M-Betconv-038	Up/Down Belt Conveyor(4m)	Up/Down Belt Conveyor(4m)	1	Nos
278	TT-M-Betconv-039	Up/Down Belt Conveyor(14m)	Up/Down Belt Conveyor(14m)	1	Nos
279	TT-M-Betconv-040	Belt Conveyor(23m)	Belt Conveyor(23m)	1	Nos
280	TT-M-Rechopper-004	Receiving hopper	Receiving hopper	1	Nos
281	TT-M-Bckelewa-053	Bucket Elevator -E23	Bucket Elevator-1	1	Nos
282	TT-M-Cle-005	Cleaner-1	Cleaner-1	1	Nos
283	TT-M-Cle-006	Cleaner-2	Cleaner-2	1	Nos
284	TT-M-Bckelewa-054	Bucket Elevator -E24	Bucket Elevator	1	Nos
285	TT-M-Pkweigher-005	Packing Weigher(pWM60J)	Packing weigher	2	Nos
286	TT-M-Centrifugal Fan-002	Centrifugal Fan	Suction fan	1	Nos
287	TT-M-Rotary Valve-021	Cyclone +Rotary Valve(Air Lock)-8	Cyclone +Rotary Valve(Air Lock)	1	Nos
288	TT-M-Rotary Valve-022	Cyclone +Rotary Valve(Air Lock)-9	Cyclone +Rotary Valve(Air Lock)	1	Nos
289	TT-M-Rotary Valve-023	Cyclone +Rotary Valve(Air Lock)-10	Cyclone +Rotary Valve(Air Lock)	1	Nos
290	TT-M-Betconv Motor-004	Up & Down Motor	Up & Down Motor	1	Nos
291	TT-M-Betconv-041	Up/Down Belt Conveyor(4m)	Belt conveyor (Up Down)	1	Nos
292	TT-M-Betconv-042	Up/Down Belt Conveyor(14m)	Up/Down Belt Conveyor(14m)	1	Nos
293	TT-M-Betconv-043	Belt Conveyor(3m)	Belt Conveyor(3m)	1	Nos
294	TT-M-Betconv-044	Belt Conveyor(10.5m)	Belt Conveyor(10.5m)	1	Nos
295	TT-M-Betconv-045	Belt Conveyor(14.5m)	Belt Conveyor(14.5m)	1	Nos
296	TT-M-Betconv-046	Counting&Weigher Conveyor	Counting&Weigher Conveyor	1	Nos
297	TT-M-Betconv-047	Slopping Belt Conveyor(10m)	Mobile belt conveyor (10m)	1	Nos
298	TT-M-Betconv-048	Belt Conveyor(3m)	Belt Conveyor(3m)	1	Nos
299	TT-M-Betconv-049	Belt Conveyor(10m)	Belt Conveyor(10m)	1	Nos
300	TT-M-Betconv-050	Belt Conveyor(5m)	Belt Conveyor(5m)	1	Nos
301	TT-M-Betconv-051	Belt Conveyor(90°)	Belt Conveyor(90°)	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
302	TT-M-Alarm Horn and Light-001	Level indicator of Silo	Level indicator of Silo (alarm horn and light)	1	Nos
303	TT-M-PLC Touch Panel & MCC-001	PLC touch panel & MCC	PLC touch panel & MCC	1	Nos
304	TT-M-Installation-001	Control panel,electric cable	Control panel,electric cable	1	Nos
305	TT-M-Installation-002	Supervise collecting system	Supervise collecting system	1	Nos
306	TT-M-Installation-003		Spout materials	1	Nos
307	TT-M-Installation-004		Ducting materials	1	Nos
308	TT-M-Installation-005		Water & air pipe	1	Nos
309	TT-M-Installation-006		Electrical Installation Air Compressor	1	Nos
310	TT-M-Installation-007		Lamico Additional Work	1	Nos
311	TT-M-Engine-001	Engine 6.5HP	Engine 6.5HP	1	Nos
312	TT-M-Motor Pump-001	Motor Pump	Motor Pump	1	Nos
313	TT-M-Pallet Truck-001	Pallet Truck	Pallet Truck 3Ton	3	Nos
314	TT-M-Generator-001	CAT-1275KVA Generator(1)	Generator/1275 KVA	1	Nos
315	TT-M-Generator-002	CAT-1275KVA Generator(2)	Generator/1275 KVA	1	Nos
316	TT-M-Generator-003	Generator/100 KVA Diesel Generator	Generator/100 KVA Diesel Generator	1	Nos
317	TT-M-Generator-004	Generator/25 KVA Generator	Generator/25 KVA Generator	1	Nos
318	TT-M-Transformer-001	Transformer/1500 KVA	Transformer/1500 KVA	1	Nos
319	TT-M-Dweight-001	Digital Weight Scale	Digital Weight Scale 150Kg 15' x 19'	3	Nos
320	TT-M-Dweight-011	Digital Weight Scale	Digital Weight Scale CENTRA 150Kg 15' x 19'	7	Nos
321	SLB-M-Dweight-002	Digital Weight Scale	Digital Weight Scale Size-9 4"x4" 3Ton	-	Nos
322	TT-M-hopper-001	Hopper	Hopper	1	Nos
323	TT-M-Pump-001	Marquis Submersible Pump	Marquis Submersible Pump	1	Nos
324	TT-M-Pump-002	Marquis Submersible Pump	Marquis Submersible Pump	1	Nos
325	TT-M-Brush Cutter-01	HondaBrush Cutter (4-Stroke)	HondaBrush Cutter (4-Stroke)	1	Nos

Sr No.	Assets Master ID	Bar Code Item Name	PARTICULAR & MODEL	QTY	A/U
326	TT-M-Exhaust Fan-001	Exhaust Fan	Exhaust Fan (1000mm x 1000 mm) 10 pcs	10	Nos
327	TT-M-Lab test_L-grader-001	Length grader	Length grader - TG150	1	Nos
328	TT-M-Lab test_L-DEQ-001	Dividing equipment - DAR2	Dividing equipment - DAR2	1	Nos
329	TT-M-Lab test_Moisture Meter-001	Moisture Meter	Moisture Meter	2	Nos
330	TT-M-Lab test_Moisture Tester-001	Moisture Tester	Grain Moisture Meter	1	Nos
331	TT-M-Lab test_Grainscanner-001	Grain Scanner	Grain Scanner	1	Nos
332	TT-M-lab test_TestingHusker-001	Testing Husker	Testing Husker	1	Nos
333	TT-M-lab test_TestingWhitener-001	Testing Whitener	Whitener(Test Milling)	1	Nos
334	TT-M-lab test_Milling Meter-001	Milling Degree(Milling Meter)	Milling Degree(Milling Meter)	1	Nos
335	TT-M-lab test_Grain Scope-001	Grain Scope	Grain Scope	1	Nos
336	TT-M-lab test_Grain Scale-001	Gram Scale	Gram Scale	2	Nos
337	TT-M-Lab test_L-grader-002	Length grader	Length grader	1	Nos
338	TT-M-lab test_Thermometer-001	Water-Proof Thermometer	Water-Proof Thermometer	1	Nos
339	TT-M-lab test_Electric Balance-001	Electric Balance	Electric Balance	1	Nos
340	TT-M-Handsewing-002	Sewing Machine (Small size)	Sewing Machine (Small size)	2	Nos
341	TT-M-Handsewing-001	Sewing Machine (Big size)	Sewing Machine (Big size)	1	Nos
342	TT-M-Motor Pump-001	Motor Pump	for RO Machine	1	Nos
343	TT-M-Pressure Pump-001	TT-M-Pressure Pump	Pressure Pump	1	Nos
344	TT-M-Csoriter-002	Color Sorter-2	TAIHO Color Sorter	1	Nos

4.8 Generation of Waste and Management

4.8.1 Standard Procedure of Waste Management

Scope: The objective of this Standard Operating procedure is for applying to all waste disposal activities of Rice Mill of GLPI.

Purpose: The purpose of this procedure is to understand all employees and ensure proper handling and disposal of waste from maintenance activities.

This procedure covers for collecting, storing and disposing domestic solid waste, food waste and waste oil.

Responsibility: Management team is responsible for working with employees to keep these procedures up to date and to revise as needed. Managers are responsible for their employees including engineers and workers ensure compliance with this procedure. Managers have to train their employees in the proper disposal of waste materials to prevent spills of potential pollutants into environment. Managers are responsible for ensuring training is conducted with the most recent version of Standard Operation Procedure.

Health, Safety and Environment Engineer is responsible for develop, implement and maintain the waste management procedure in compliance, to maintain waste disposal document record.

Personnel performing the job responsibility must follow the procedure correctly and ensure the type of waste and need to dispose at the designated location and also responsible if any leakage, missing cover of waste.

Waste is collected and separated according to its classification and collected in dedicated containers if this deemed necessary.

Waste Handling: Handling of waste is to be carried out to minimize risk to human health and to the environment.

Waste Disposal Procedure:

Domestic waste (food waste & etc.)

- Give instruction to cleaning worker how to be handling domestic waste like as) food waste to avoid health hazard.
- Pack properly with garbage bag avoid opening by cats and dogs.
- Food waste bag to be kept in container that showing label on it.
- Collect food waste bag by truck and dispose at YCDC (Yangon City Development Committee) garbage bin allocated outside of the plant area.

Chemical waste

- There is no Chemical Waste because of the Aluminum Phosphide 56% insecticide is used as fumigation of Phosphine gas at enclosed area (Warehouse).

Wastewater

- There is no wastewater from mill and warehouse.
- There is only domestic (office and kitchen) discharged water.

Waste Oil

- Educate to staffs safe handling waste oil as per safe data sheet (SDS).
- Waste oil to be store in steel drum and capped properly.
- Use proper PPE to store waste oil into drums and always be are full not to contact with eyes.
- Store at designated area and put label on drum showing type of waste oil before selling out to waste oil buyer.
- Apply necessary approval from management before selling out.
- After got approval, contact to waste oil buyer for selling.

Record

All disposal for industrial waste through YCDC shall be recorded properly to check the proper handling of waste and shall be maintained for five (5) years to prove full compliance this procedure strictly.

Estimated Volume of Solid Waste

- (1) Damaged rice bag: Store in Temporary storage area of mill and sell to local merchant weekly. It is mostly a few bags.
- (2) Small broken rice, bran layer and germ by Cleaning of Brown Rice: Store in Temporary storage area of mill and sell to local merchant weekly. It is mostly 80-100 Bags per week.
- (3) Kitchen and office Waste : Temporary store in different waste bins for Biological waste, Plastic Bottles, Paper waste and discharge allocated outside of the factory through YCDC daily. It is mostly 6 plastic garbage bag per day.
- (4) Wastewater from septic tank is discharged by YCDC when it is nearly full.
- (5) Waste oil from the rice processing machine, general and automobiles: Store in Fuel storage house temporarily and sell to local marchants monthly. It is about 1 drum.

The drainage Layout plan of the Factory is demonstrated in Figure 4-14. There are 3 final discharge points with two ways of discharge to Cannel and one is to the common drange system sideby of main Yangon- Maubin road. It is almost drained of run off water and rain water.

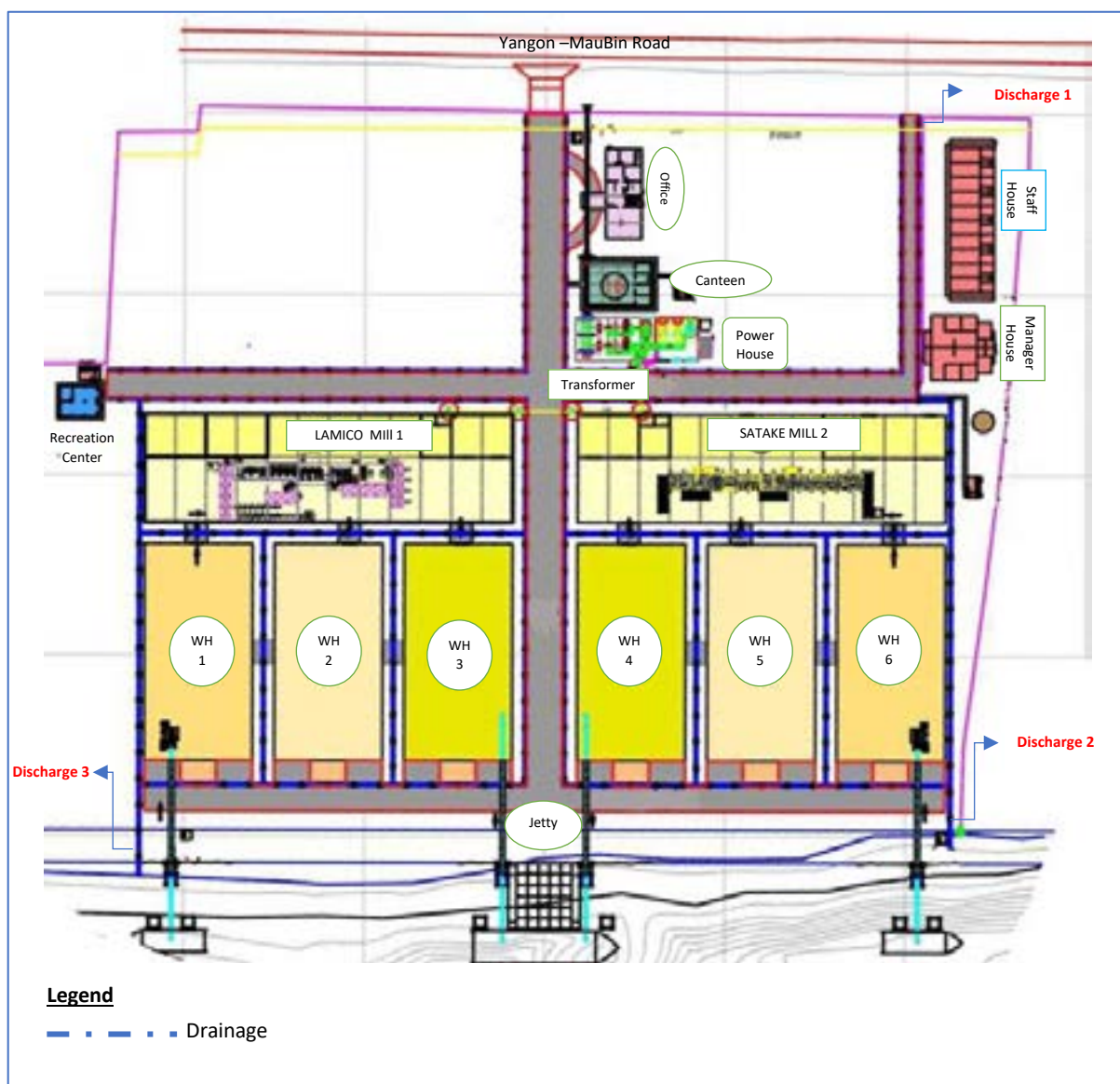


Figure 4-14 Drainage System at Rice Mill (Twantay)

4.9 Workforce

The initial construction phase will begin with 20 crew and will gradually increase to 120 personnels over the course of the construction. The construction period is 24 months.

During the operation, the following are the staff required in each category:

Table 4-9 Staff During Operations Phase

Sr. No	Category	Number
1	Drivers	5
2	Electrical Engineers	3
3	Mechanical Engineers	3
4	Production Staff	10
5	Manual Labour	40

Sr. No	Category	Number
6	Administration Staff	10
Total		71

There is a total of 71 personnels working for the project during operations but workload is divided depending on the shift schedule and work requirements (where practicable). The following table shows the allocation for manpower of the plant.

During the operational phase of the project the following general working shifts in are mentioned in the table below.

Table 4-10 Personnel and Work Schedule

Number of Personnel	Work Schedule
Office Staff/ Personnel	8am – 5pm for 5 working days (Monday to Friday)
Production Personnel (engineers, technicians, maintenance and operators) Workers	Three 8 hour shifts Mondays to Saturdays, 25 days a month

4.9.1 Working Hours

The factory is expected to operate Mondays to Saturdays for approximately 18 hours to 20 hours per day, 25 days per month. On Sundays, the factory would not operate and only repairs to machinery and product sales would be undertaken.

4.10 Project Schedule

The project is constructed and is envisaged that the construction period was 24 months after mobilization on site. The project construction was commenced in May 2016. The schedule of the project activities is mentioned for the entire project as shown below:

Table 4-11 Tentative Project Execution Schedule

No.	Project Stages	2016				2017				2018	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Engineering Design										
	Conceptual Design										
	Final Design										
2	Field / Site Investigation										
3	Permits Acquisition										
4	Site clearance										
5	Procurement and Approval										
	Subcontractor Services										
	Equipment Procurement										
6	Construction										
	Civil works										

5. DESCRIPTION OF THE PROJECT ENVIRONMENT

This section describes the environmental conditions of the proposed site and surrounding before the commencement of the project activities. This section address the physical, biological and social aspects of the surrounding environment.

5.1 Physical Environment

The physical environment consists of existing land pattern of the project site, geology and geomorphology, soils, groundwater, surface water, meteorology and climate. The existing condition of each of these components of the physical environment is discussed based on the information obtained from secondary sources.

5.1.1 Topography and Existing Land Pattern

Overwhelmingly flat plain landscape constitutes entire project site and the surroundings. The site is approximately 12 m higher above the mean sea level. Located beside Yangon-Maubin highway and Twantay canal, the project area does not have any inhabitant and has only been used as agricultural land. Under the ownership of Department of Irrigation and Water Resources (DIWR) as a result of land acquisition for the canal project many years ago, local farmers hold land tenure for agricultural purposes. The project legally and fairly executed land acquisition with the concessions of both the DIWR and the righteous farmers with the tenure.

5.1.2 Twantay Canal

Connecting Ayeyarwaddy River and Hlaing River in Yangon, 22 Mile (35 Km) Twantay Canal provides the shortest and quickest access between Yangon and the Ayeyarwaddy Delta region, the Paddy bowl of Myanmar. Year round busy waterway navigation and transportation activities can be observed in the canal.

Due to the lack of conservation efforts and proper maintenance, siltation causes the canal to become shallower and narrower over the years. In 2010, efforts to widen the mouth of the canal by 600 feet (180 m) was carried out. However, plans to place concrete embankments have been on hold and the navigational difficulties remain unsolved.

5.1.3 Climate and Precipitation

Monsoon climate pattern is prevalent in the project area. The whole day with heavy rain is very common in the wet season, starting from mid-May to late October. In addition to wet season, hot season and cooler period are also usual in the region. The region sees temperature variations ranging from 25°C (77°F) in cooler season and the upper 30's C (lower 100's F) in hotter months.

It receives average annual rainfall between 240 to 430 mm (or 10 to 17 inches) in accordance with the information obtained from Climate-Data.Org and Metrological Department.

5.1.4 Geology

Overlain by recent thick alluvium layer from Ayeyarwaddy River, three fundamental soil types (meadow gleyey clay soils, meadow swampy soils, and saline gleyey soils) (Delta Alliance, 2013) can be seen in the area.

5.1.5 Hydrology and Hydrodynamic Regime

The project site is located in very hydric delta region. Twantay Canal connects one of the downstream tributaries of Ayeyarwaddy River with Hlaing River. Hlaing River merges with Bago River before forming Yangon River and flowing into the Gulf of Mataban. Tributaries of Ayeyarwaddy River also flow into the Indian Ocean through the Gulf of Mataban. As Ayeyarwaddy River sees diurnal tide, Twantay Canal experiences tidal changes. Salt water intrusion is not unusual in the region. Maximum flow in rivers occurs in Monsoon between July and August and the minimum flow is observed in February and March. Most waterways in the area are un-engineered natural water courses. 21 miles long Twantay Canal serves as the primary waterway linking Yangon to the western parts of the delta. Ranges of depth to groundwater table differ from 20 meters near the project site to 50 meters farther inland.

In May 2008, severe cyclone named Nargis devastated the delta region and left 2.4 million people affected and over a hundred and thirty thousand people dead (Ministry of Social Welfare, Relief, and Resettlement, 2012). Flood disaster is not a stranger in the flood prone delta in accordance with the Hazard Profile of Myanmar.

5.1.6 Seismicity

Being located on Alpide Belt, one of the two main earthquake belts, earthquake-prone Myanmar is exposed to bigger earthquakes. Well-known and seismologically active Sagaing Fault and some unnamed major faults are located in western Myanmar according to the Hazard Profile of Myanmar. Most earthquakes Myanmar experienced are shallow focus earthquakes, which tend to be more destructive compared to the intermediate ones of the same magnitude, explained in Hazard Profile of Myanmar.

Despite Myanmar's existence on major active faults, the project region has been largely spared from significant major earthquakes. Figure 5-1 shows the seismicity of Yangon region (Data Source – ANSS earthquake catalog, 1963 – 2009)

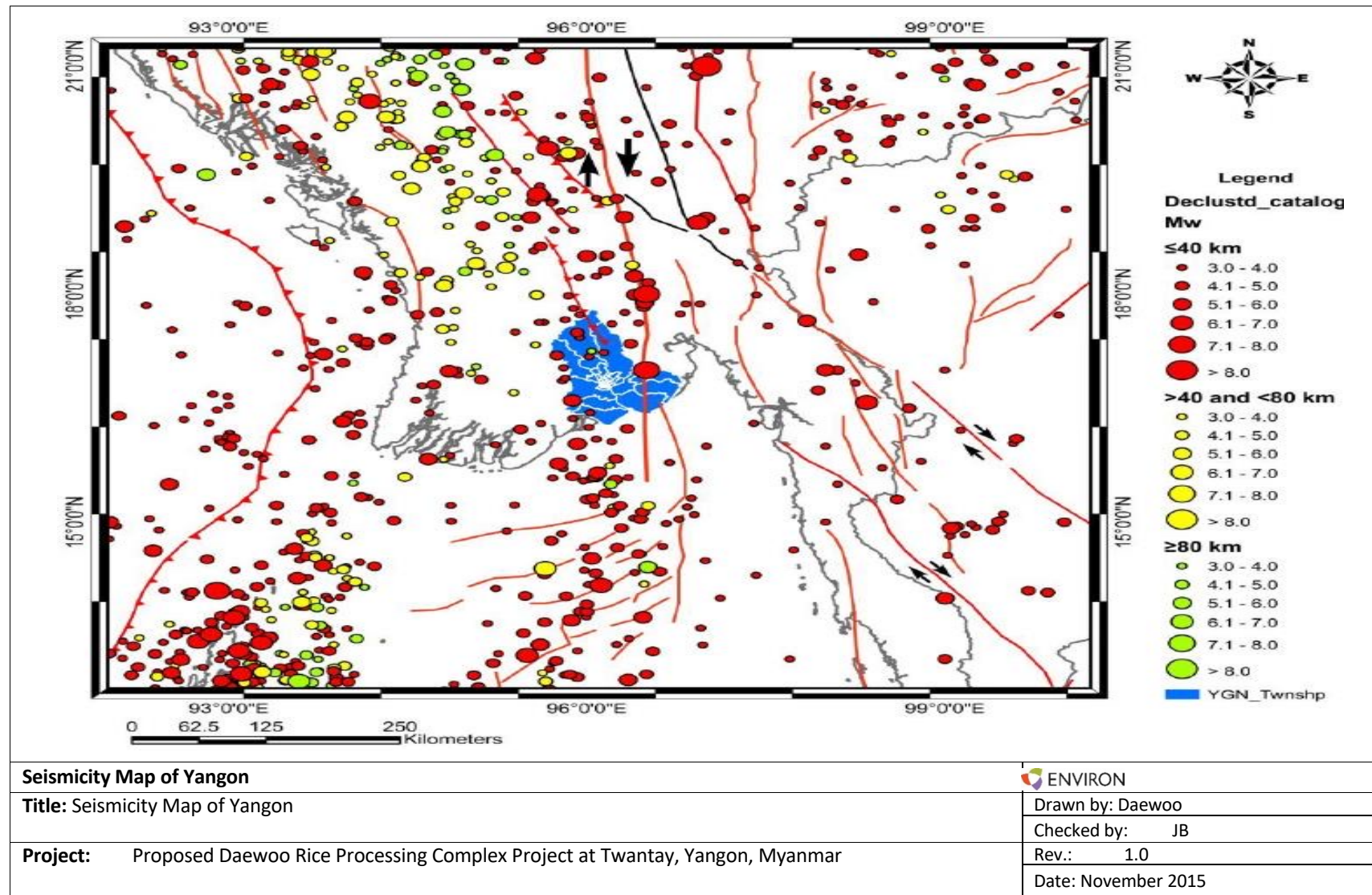


Figure 5-1 Seismicity Map of Yangon

5.1.7 Baseline Ambient Air Quality Assessment

In the absence of reliable baseline ambient air quality records for Twantay region, ENVIRON conducted the baseline air quality monitoring in May 2015. ENVIRON planned and conducted air and noise quality baseline data surveys in line with the IFC-EHS Guidelines.

5.1.7.1 Methodologies

Baseline air quality monitoring was conducted at an adjacent location of the project site.. The air quality sampling averaging times followed WHO Standards requirements and measured the levels of PM₁₀, PM_{2.5}, NO₂ and SO₂. The sampling time for each pollutant were set at:

- 24 hours for PM₁₀, PM_{2.5},
- 24 hour for NO₂ and
- 24 hours for SO₂.

Ozone, which is also specified in WHO Standards, is excluded in the monitoring as it is a secondary pollutant and not directly the result of emission from the project. Ozone is the product of many natural chemical and photochemical reactions in combination with nitrogen oxides and volatile organic compounds from all emission sources in the atmosphere.

An E sampler, manufactured by MetOne, was used to sample PM₁₀ and PM_{2.5}. The E-Sampler is a nephelometer hence implementing a light scatter sensor. An Aeroqual S500 was used to monitor NO_x and SO₂, Aeroqual S500 is a portable gas sensor mounting gas sensitive semiconductors (GSS) heads.

Simple active sampling method, using air sampling pump to pull air through a filter, was employed in the air quality monitoring. Unlike passive sampling, simple active sampling is independent of wind speed and it enables verification for quality and reliability of the results. In this application, the results were organized in a data base and then, statistical analysis were performed.

Noise level examinations were coincided with air quality monitoring studies. An Extech sound level meter was employed for 24 consecutive hours at the monitoring location. The location was randomly selected to be representative to noise sensitive receivers in and around the project site. The degree of effects from the noise level and duration of noise exposure were analysed using the empirical data obtained from the monitoring.

5.1.7.2 Quality Control

In order to ensure the integrity of the assessment results, quality control measures were introduced. ENVIRON employed instruments with valid factory calibration certificates. Regular maintenance and random leak check procedures were conducted throughout the operation of each equipment. All activities related to the assessment operations and interruptions if any were recorded and the sampling points were marked with GPS.

To compute hourly and daily averages from the ambient air quality results, the lower detection limit values (LDL) reported in Table 12 were used for data analysis. Values under the detection limit have been substituted by 50% of LDL.

Table 5-1 Lower Detection Limit Values

Species	Lower Detection limit
PM 10	0.001 mg/m ³
PM 2.5	0.001 mg/m ³
SO ₂	0.01 ppm
NO ₂	0.01 ppm

5.1.7.3 Sampling Area

In this study, samples were collected at a location 85 meters outside of the northern project boundary and beside Yangon- Maubin Highway in 2015. **Figure 5-10** illustrates the locations including water quality and soil sample sites of Rice Processing Complex Project in Twantay. Table 5-2 shows the GPS Coordinates of the sampling site.

The major sources of air pollutants from the region are anthropogenic activities including agriculture and transportation. At monitoring site, the air quality and noise instruments were placed in open space area to monitor air quality and noise levels.

(6) Air Sampling around the Project Area in 19-5-2015

Table 5-2 GPS Coordinates Points of Air Sampling Sites (Around the Project Area)

Site	Latitude	Longitude
Twantay (Around the project Area) (2015)	16°43'51.45"N	96° 0'41.96"E



Figure 5-2 Baseline Ambient Air Data Collection around Project Area (2015)

5.1.7.4 Sampling Plan

Ambient air quality of the site was analysed by E sampler and Aeroqual S500. E-sampler was used for PM2.5 and PM10 alternatively. The 24 hour continuous sampling was carried out. Table 5-3 shows the sampling schedule for Twantay Rice Processing Complex project. Calibration Certificates of E sampler and Aeroqual S500 are shown in **Appendix G**.

Table 5-3 Air Quality Sampling Baseline During Summer Season

Sampling Parameter	Sampling Periods
PM10	19 May, 2015 to 20 May, 2015
PM2.5	20 May, 2015 to 21 May, 2015
NO2	19 May, 2015 to 20 May, 2015
SO2	20 May, 2015 to 21 May, 2015

5.1.7.5 Meteorological Data

The meteorological data for the sampling periods including air temperature, relative humidity, sea level atmospheric pressure, visibility, wind speed and rainfall were obtained from the website Weather Underground. A summary of the meteorological data is shown in Table 5-4.

Table 5-4 Weather Conditions During the Air Quality Sampling Periods

2015	Temp. (°F)	Relative Humidity (%)	Sea Level Pressure (in)	Visibility (mi)	Wind Speed (mph)	Rainfall (in)
May 19	83	94	30	4	5	Rain
May 20	81	89	30	4	5	Rain
May 21	80	91	30	4	4	Rain
May 22	78	95	30	4	4	Rain

Source: <http://www.wunderground.com>

(7) Air Sampling in the Project Area in 1-5-2025 to 4-5-2025

However, based on the initial findings and comments of the Environmental Conservation Department, an additional air sampling point within the rice mill were also conducted.

Site	Latitude	Longitude
Twantay (In the project Area) (2025)	16°43'45.47"N	96° 0'41.59"E
Twantay (Around the Project Area) (2025) - Same as the survey area in 2015	16°43'51.45"N	96° 0'41.96"E



Figure 5-3 Baseline Ambient Air Data Collection within and around the Project Area (2025)

5.1.7.6 Sampling Plan

Ambient air quality of the site was analysed by Haz-Scanner. The 24 hour continuous sampling was carried out. Table 5-5 shows the sampling schedule for inside area of project.

Table 5-5 Air Quality Sampling Baseline in Project Area

Sampling Parameter	Sampling Periods
PM10	1 May 2025 to 4 May 2025
PM2.5	
NO2	
SO2	

5.1.7.7 Meteorological Data

The meteorological data for the sampling periods including air temperature, relative humidity, sea level atmospheric pressure, visibility, wind speed and rainfall were obtained from the website Weather Underground. A summary of the meteorological data is shown in Table 5-6.

Table 5-6 Weather Conditions During the Air Quality Sampling Periods

2025	Temp. (°F)	Relative Humidity (%)	Sea Level Pressure (in)	Visibility (mi)	Wind Speed (mph)	Rainfall (in)
1 May	87	89	30	4	5	-

2025	Temp. (°F)	Relative Humidity (%)	Sea Level Pressure (in)	Visibility (mi)	Wind Speed (mph)	Rainfall (in)
2 May	86	85	30	4	5	-
3 May	85	85	30	4	6	-
4 May	88	90	30	4	5	-

Source: <http://www.wunderground.com>

5.1.7.8 Baseline Air Quality Monitoring Outcome

The average values of ambient gaseous levels of all air quality monitoring for 24 hours are shown in Table 5-7. According to the survey results, the average 24-hour period for PM_{2.5} and PM₁₀ concentrations is within the National Environmental Quality (emission) Guideline. 24-hour concentrations of NO₂ are not controlled by the applied standard. However, the concentration of NO₂ was referred to by the one-hour standard in NEQG.

According to the hourly results, the concentration of PM₁₀, PM_{2.5}, NO₂ were lower than the applied standard within the Project Area. On the other hand, SO₂ concentrations was higher than guideline (20 µg/m³) around the Project Area near by Main Road.

This is because sulfur dioxide is produced during fuel combustion, so the location of the rice mill is between the Yangon-Maubin Road and the Twantay Canal, so it is possible that it is emitted from fuel combustion by vehicles and boats, and from the burning of straw in the raw rice /brown rice (white / parboiled) fields around the rice mill area. Air Quality Results are presented in **Appendix H**.

Table 5-7 shows the comparison of air pollutant with NEQE / WHO standard.

Table 5-7 Comparison of Air Pollutant with WHO Standard

Site	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
	24 hour Average	24 hour Average	24 hour Average	1 hour Maximum
Results				
Around the Project Area (2015)	2	4	43	52
Around the project area (2025)	2	4	38	48
In the Preproject Area (2025)	10	20	20	65
WHO / NEQE Guideline Ambient Standard				
Guideline	50	25	20	200

5.1.8 Baseline Noise Level Assessment

Baseline noise level assessment was conducted simultaneously with the air quality survey. Noise level assessment locations and schedules were similar to the air quality survey as well.

5.1.8.1 Noise Sampling Area

The noise monitoring campaign was conducted at representative noise sensitive receiver near the project area in 2015 and 2025, and within the Project Area in 2025. The monitoring point was located approximately at the same location of the air receptor.

Table 5-8 GPS coordinates points of Noise Sampling Site (2015)

Site	Latitude	Longitude
Noise Sampling Point (2015)	16°43'51.45"N	96°0'41.96"E
In the project Area (2025)	16°43'45.47"N	96° 0'41.59"E
Around the Project Area (2025) Same as the survey area in 2015	16°43'51.45"N	96° 0'41.96"E

5.1.8.2 Noise Sampling Plan

The noise level monitoring schedule in the year 2015 and 2015 is shown in following table. **Appendix I** show the calibration certificates of Extech noise measurement devise.

Table 5-9 Ambient Noise Level Sampling Schedule

Parameter	Twantay
Day Time (7:00 -22:00)	19 June 2015 and 1 May 2025
Night Time (22:00- 7:00)	20 June 2015 and 2 May 2025



Figure 5-4 Baseline Ambient Noise Data Collection Around the Project Area (2015)



Figure 5-5 Baseline Ambient Noise Data Collection within and around the Project Area (2025)

5.1.8.3 Meteorological Data

The meteorological data for the sampling periods including air temperature, relative humidity, sea level atmospheric pressure, visibility, wind speed, and rainfall were obtained from the website Wunderground <http://www.wunderground.com>. A summary of the meteorological data is provided in the air quality section in the previous section.

5.1.8.4 Baseline Noise Quality level Finding

Two periods of twelve hours continuous noise level monitoring were conducted to compare with the NQEG limits for day and night.

- ◆ All ambient noise levels around the project area for night levels were found exceed the noise level guidelines for industrial and commercial spaces in 2015 and 2025.
- ◆ However, day time noise level was increased from 55 to 62.3 dBA by the Rain during the sampling time may have added background noise on the noise level reading in 2015 and there was no rain in the survey period in 2025 .
- ◆ The noise level within the Project Area in May 2025 was found that both day and night levels were over the standard of Residential and Commercial area.

The Noise Level results are illustrated in **Appendix J**.

Table 5-10 Comparison of Noise Level to NQEG Guideline

Duration	Unit (dBA)	NQEG Guideline	
		Residential/ Institutional/ Educational	Industrial/ Commercial
Around Project Area (2015)			
Day (7:00-22:00)	55	55	70
Night (10pm-7am)	60	45	70
Around Project Area (2025)			
Day (7:00-22:00)	62.3	55	70
Night (10pm-7am)	72	45	70
Within Project Area (2025)			
Day (7:00-22:00)	71.8	55	70
Night (10pm-7am)	55.2	45	70

5.1.9 Baseline Water Quality

To obtain representative baseline water quality in the absence of regular water quality monitoring data, one sample from a groundwater tube well and another from Twantay Canal were collected in 2015 and 2025, and then analysed in a reliable laboratory. The results of the water quality monitoring are presented in **Appendix K and L**. The results were compared against WHO Guidelines for Drinking Water Quality Standard – Fourth Edition (2011) and NEQE Guideline (2015).

Visual monitoring of surface and groundwater resources within 5km radius of the study area in 2015 have been carried out in the preliminary assessment for the water environment and in projecting the anticipated impacts of the proposed project. The purpose of this study is to:

- Assess the state of water quality
- Project impacts on water quality by this project and related activities, and
- Identify appropriate mitigation me

5.1.9.1 Methodology

Cross-sectional visual survey and random sample collection methods were undertaken.

The monitoring scheme was governed by:

- Drainage pattern
- Location of major water bodies
- Location of residential areas representing different activities/likely impact areas, and
- Likely areas, which can represent baseline water quality conditions.

A groundwater sample from a tube well and a surface water samples from the canal beside the site were examined during the study period. Physico-chemical, heavy metals and bacterial characteristics were analysed in order to forecast the effects of industrial and other activities on surface and ground water quality. The samples collection and analysis were executed in accordance with the procedures specified in 'Standard Methods for the Examination of Water and Wastewater' published by American Public Health Association (2005).

The water samples were collected on **2nd June 2015**, **2nd May 2025** prior to the commencement of the construction and operation. Samples for laboratory analysis were collected in polyethylene carboys that prevent light penetration. Samples for bacteriological analysis were collected in sterilised glass bottles. Selected physico-chemical and bacteriological parameters have been analysed for projecting the existing water quality status in the study area. Parameters like temperature, Dissolved Oxygen (DO), and pH were measured at the time of sample collection.

The sampling of the wastewater quality at the discharge point was not available due to the lack of discharged wastewater in that study period (2025).

Water Sampling Location

Table 5-11 GPS coordinates points of water sampling sites

Site	Latitude	Longitude
June 2015		
Sample 1 (Surface Water)	16°43'40.81"N	96° 0'42.03"E

Site	Latitude	Longitude
Sample 2 (Ground Water)	16°43'45.59"N	96° 0'31.94"E
May 2025		
Sample 1 (Surface Water)	16°43'40.81"N	96° 0'42.03"E
Sample 2 (Ground Water)	16°43'45.59"N	96° 0'31.94"E



Figure 5-6 Baseline Groundwater Water Sample collection in Project Area (2015 & 2025)



Figure 5-7 Baseline Twantay Canal Water Sample collection in Project Area (2015 & 2025)

5.1.9.2 Baseline Water Quality Findings

Primary water source in the vicinity to project area is from tube well. The residents living near by the side of proposed mill make use of the groundwater for agricultural and other domestic purposes. Therefore, a tube well sample in the Project area was included in the samples. Canal water was analyzed during the baseline data collection survey in the year 2015 and 2025.

Ground Water's result: The Alkalinity of ground water was only found that higher than the standard of drinking water quality. The content of Sodium, Chloride and Turbidity of Ground Water was decreased form 2015 and it is still in the standard quality.

Canal Water's result: The Iron Concentration of Canal water (5.69 mg/l) was increased as 4 times from 2015 and it is over the standard of drinking water quality. Ammonia-Nitrogen (NH₃-N)'s content of canal water is decreased to within the standad.

The content of Turbidity of Canal Water was decreased form 2015 (816 NTU to 528 NTU) and it is still exceed the standard quality of 20 NTU.

The results from the laboratory analysis are presented in the following Table and **Appendix H**.

Table 5-12 Laboratory Water Analysis Results

Sr. No	Parameters	Unit	2015		2025		Drinking Water Quality Standard (2014)
			Sample 1 (Canal Water)	Sample 2 (Ground Water)	Sample 1 (Canal Water)	Sample 2 (Ground Water)	
1	Alkalinity (Alk)	mg/l	120.02	920.15	122.5	850.16	200
2	Magnesium (Mg ++)	mg/l	5.86	15.64	6.5	10.4	30
3	Sodium (Na+)	mg/l	12.3	261.5	12.5	100.4	200
4	Potassium (K+)	mg/l	4.0	21.0	5.0	25.0	-
5	Total Hardness (TH)	mg/l	80	128	112.5	145	500
6	Sulfate (SO4-)	mg/l	25.94	0.48	34.5	0.3	400
7	Chloride (Cl-)	mg/l	16.31	757.07	45.5	210	600
8	Iron (Fe)	mg/l	1.20	0.20	5.69	0.18	0.5 – 1.5
9	Dissolve Oxygen (DO)	mg/l	7.6	7.6	5.25	2.3	-
10	Chemical Oxygen Demand (COD)	mg/l	44.9	12.1	57.1	ND	125
11	Biochemical Oxygen Demand (BOD)	mg/l	18.0	5.0	2.5	1.2	-
12	pH		7.56	7.73	8.29	6.19	6.5 – 8.5

Sr. No	Parameters	Unit	2015		2025		Drinking Water Quality Standard (2014)
			Sample 1 (Canal Water)	Sample 2 (Ground Water)	Sample 1 (Canal Water)	Sample 2 (Ground Water)	
13	Ammonia-Nitrogen (NH ₃ -N)	mg/l	10.8	3.64	0.10	0.5	10
14	Turbidity	NTU	816	34	528	2	20
15	Salinity	%	0.00	0.15	2.0	0.00	Nil
16	Arsenic (As)	mg/l	0.008	0.000	0.003	0.000	0.05
17	Lead (Pb)	ppb	0.001	0.000	ND	0.000	0.05
18	Total Coliform (E.Coli) Number of Colonies per 100ml	MPN	-	-	ND	ND	0

5.1.10 Baseline Soil Status

The only soil data available to make feasibility assessment for the project was based on the strata found in boreholes drilling at the project site in 2015 and 2025. Characteristics of the topsoil consists of loose, yellowish brown, sandy silt, loose yellowish brown silty fine sand, and trace of alluvial silt and clay that extends to the depths of 5 to 10 feet (1.5 to 3 m). Topsoil is underlain by sandy silts and silty sands. This soil type was consistently found to the maximum investigated depth of 164 feet (50 m). High water and mud losses were observed during drilling between 60 to 80 feet (20 to 25 m) depth suggesting the existence of isolated thin layers of open deposit layer of silt and clay.

The composition of soil at the depth of 3 m was sent to a laboratory. The soil analysis was carried out at the lab run by the Department of Irrigation (DOI). Table 5-13 shows the location coordinates of the soil sample.

Table 5-13 GPS coordinates points of soil sampling site

Site	Latitude	Longitude
Within the Project Area (2015/ 2025)	16°43'43.20"N	96° 0'42.38"E



Figure 5-8 Baseline Soil Sample collection in Project Area (Before Construction Phase, 2015)



Figure 5-9 Baseline Soil Sample collection in Project Area (Operation Phase, 2025)

The laboratory result of Soil Quality (2015) and (2025) is shown in **Appendix M** and **Appendix N** and the DOI's standard soil classification is used as a guideline for assessing soil status.

Soil colour variation between black and brown was observed. Clayey texture, a typical feature of "Delta Plains", was predominant. The result pH of 7.14 indicated the neutral state of soil in accordance with the DOI's classification. Average level of electrical conductivity could be concluded with the result of 0.1199 dS/m. The level up to 1 is classified as "average" by DOI meaning the soil is suitable for agriculture in this aspect. The Potassium result of 113.39 mg/kg showed the minimal content of potassium in the soil. Based on the analysis, the soil could be concluded as moderately fertile at the sampling period.

Table 5-14 Standard of soil classification

Sr. No	Soil Test	2015	2025	Classification
1.	pH	7.14	8.26	<4.5 Extremely acidic 4.51- 5.00 Very strongly acidic 5.01-5.50 Slightly acidic 5 5.51-6.00 moderately acidic 6.01-6.50 slightly acidic 6.51-7.30 Neutral 7.31-7.80 slightly alkaline 7.81-8.50 moderately alkaline 8.51-9.0 strongly alkaline > 9.01 very strongly alkaline

Sr. No	Soil Test	2015	2025	Classification
2.	Salinity Electrical Conductivity ($\mu\text{mho/cm}$) 1 deci-Siemen/meter (dS/m) = 1 mmhos/cm (640 $\mu\text{mho/cm}$ = 1 ppm)	0.1199	0.18	Upto 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops (sensitive to salts)
3.	Cation Exchangeable Capacity (meg/100g)	6.49	-	Light colored sands 3-5 Dark colored sands 10-20 Light colored silt loam 10-20 Dark colored loams 15-25 Dark colored silty clay 30-40 Organic soils 50-100
4.	Potassium (Potash)	113.39	-	0 -120 very less 120-180 less 181-240 medium 241-300 average 301-360 better >360 more than sufficient
5.	Moisture (%)cupper (ppm)	-	1.08	
6.	Total Nitrogen (%)	-	0.12	
7.	Zn (ppm)	-	0.3204	
8.	Iron (ppm)	-	10.9592	
9.	Lead (ppm)	-	ND	
10.	Cadmium (ppm)	-	0.001	
11.	Chromium (ppm)	-	ND	
12.	Mercury (ppm)	-	ND	

Note: ND – Not Detected

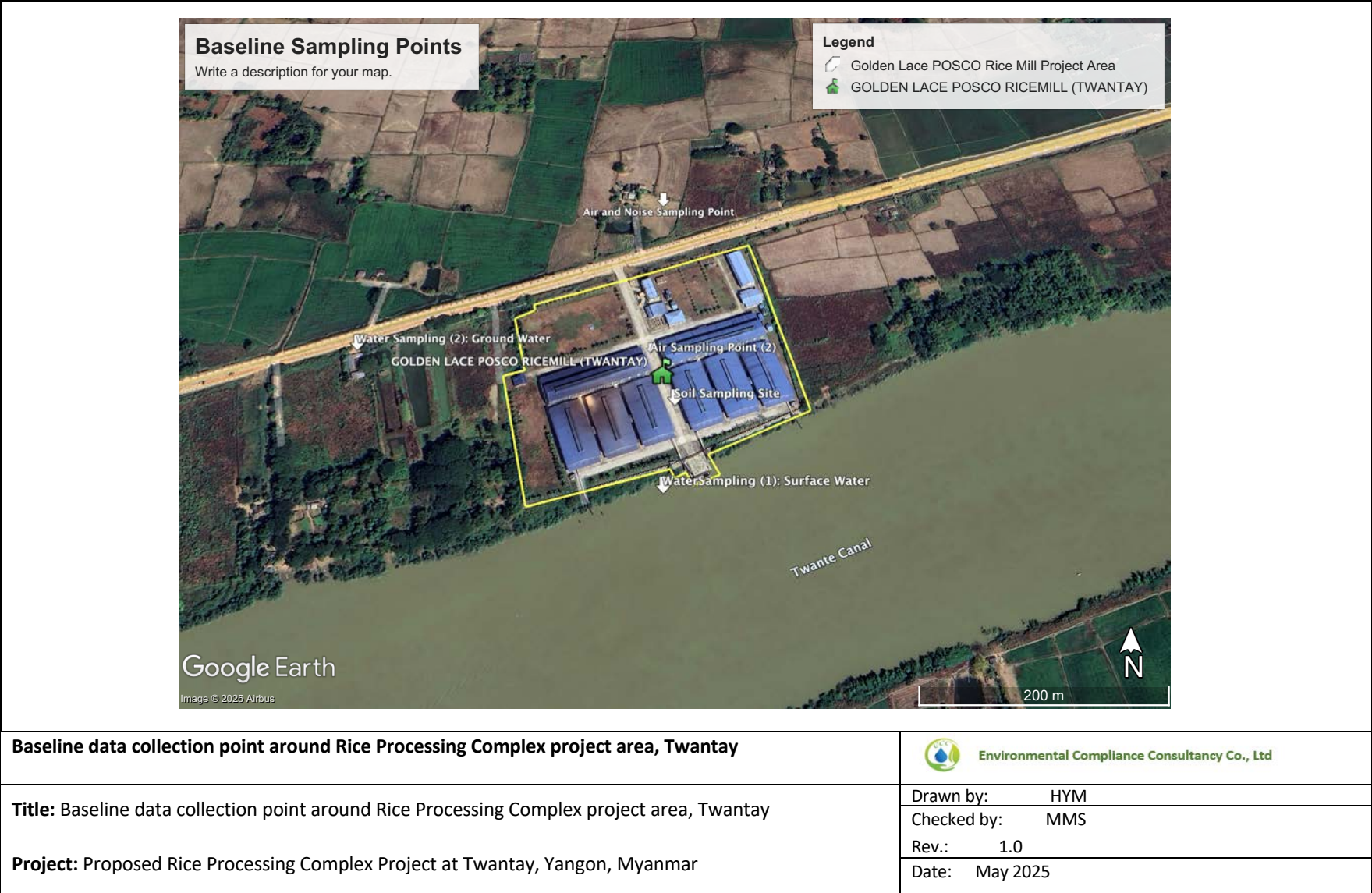


Figure 5-10 Baseline data collection point around Rice Processing Complex project area, Twantay

5.2 Natural Environment

Information related to natural environment of the project region was obtained from desktop data of existing secondary and already published data. Natural environment covers biodiversity of the region, ecological setting, and socio-economic environment.

The objectives of the survey are:

- To identify vertebrate (mammals, birds, reptiles, fishes and amphibians) and invertebrate (butterflies, dragonflies and damselflies) in survey area.
- To identify species of flora and forest types on vicinity of the proposed project sites.
- To provide information on the nature and extent of potential environmental impacts arising from the construction and operation of the proposed project.
- To set up environmental monitoring plans and mitigation measure for project area concern with biodiversity conservation and sustainable use of ecosystem services.

5.2.1 Methodology and Approaches

The methodologies used in biodiversity surveys are described below.

a) Desktop Study

Publicly available sources of information were analyzed to build an outline of known and likely ecological values for the Study Area. Aerial imagery was used to build a more complete spatial understanding of the pattern of vegetation communities and human uses on the site and to map access routes and internal tracks. In addition, ecologists with experience in the Study Area were consulted where possible to obtain information about species known to be present or previously recorded from the site, and other ecological values considered by them to be relevant.

b) Interview and Literature survey

The secondary data was also surveyed by interviewing local residents at Public Consultation and literature reviewing. In the interview survey to identify the names of plants and animals existing in and around the area. Also, the past situation of flora and fauna, and the change in biodiversity and ecosystem in the area were interviewed for examination.

5.2.2 Habitat

For decades, human activities and inhabitation have been growing more in the project area. No ecologically or biologically sensitive site has been found in the project area. Existing ecological condition is depicted below.

Faunal Resources: With the increased human inhabitation and activities and lack of conservation mechanisms and practices, ecological degradation continues to be a serious concern.

Ecological Setting: The site identified for the project has very little ecological significance and the place has been turned into agricultural area long ago. For many years, Twantay area has been known for agricultural activities, mainly rice farming. Thinly populated trees of mostly *Delbergia*, *Acacia*, and *Eucalyptus* are found along the roads and the canal. Different types of bushes that provide covers, shelters, and ecological niches for rodents, lizards, and various types of birds are commonly found in the area. The river belt is beyond degradation and therefore, no tree population of ecological or economic importance is present. The edge vegetation includes mostly grasses, primarily *Typha angustata*, *Saccharum spontaneum*, *Saccharum munja*, *Tammarix aphylla*, etc.

In and around the project area, there are two major habitat types were observed namely agricultural land and some extent of cultivated trees.

Twantay Township in Yangon features diverse flora, including a notable increase in dwarf coconut plantations. The area also cultivates various crops, such as raw rice /brown rice (white / parboiled) , corn, sesame, groundnut, and vegetables. Additionally, there are extensive areas of mangroves and sand dunes with trees along the coast. There is not any intact forest in survey area.



Figure 5-11 Dwarf coconut plantation



Figure 5-12 Raw rice /brown rice (white / parboiled) Field along Twantay-Maubin Road

5.2.2.1 Flora

A total of 41 plant species were identified by the Literature survey. There are 4 species of herb, 2 species of climber or creeper, 6 species of small tree and 23 species of tree, 5 species of shrub and 1 species of bamboo were also founded. Identified plant species list is presented in Table 5-15.

Table 5-15 List of plant species recorded in the Survey area

No.	Family Name	Species Name	Common Name/ Myanmar Name	Habitat	IUCN Status
1	Acanthaceae	<i>Acanthus ebracteatus</i>	Khaya	Shrub	LC
2	Amaranthaceae	<i>Alternanthera nodiflora</i>	Kanaphaw	Herb	LC
3	Anacardiaceae	<i>Mangifera indica</i>	Thayet	Tree	NE
4	Areaceae	<i>Areca catechu</i>	Kunthi-pin	Small Tree	NE
5	Areaceae	<i>Nypa fruticans</i>	Dani	Tree	LC
6	Areaceae	<i>Borassus flabellifer</i>	Htan	Tree	EN
7	Areaceae	<i>Cocos nucifera</i>	Ohn	Tree	NE
8	Asclepiadaceae	<i>Calotropis procera</i>	Mayo	Shrub	NE
9	Asteraceae	<i>Chromolaena odorata</i>	Bizat	Shrub	NE
10	Balsaminaceae	<i>Impatiens balsamina</i>	Dan-pan	Herb	NE
11	Bignoniaceae	<i>Oroxylum indica</i>	Kyaung-sha	Tree	NE
12	Caesalpiniaceae	<i>Senna siamea</i>	Mezali	Tree	NE
13	Caesalpiniaceae	<i>Tamarindus indica</i>	Magyi	Tree	NE
14	Caricaceae	<i>Carica papaya</i>	Thinbaw	Small Tree	DD
15	Casuarinaceae	<i>Casuarina equisetifolia</i>	Pinle-kabwe	Tree	NE
16	Combretaceae	<i>Terminalia catappa</i>	Banda	Tree	NE
17	Convolvulaceae	<i>Ipomoea batatas</i>	Kazun	Climber/ Creeper	NE
18	Cucurbitaceae	<i>Cephalandra indica</i>	Kinmon	Climber/ Creeper	NE
19	Caesalpiniaceae	<i>Cassia fistula</i>	Ngu	Tree	NE
20	Euphorbiaceae	<i>Cephalocroton discolor</i>	Pilaw-pinan-u- ywethla	Tree	NE
21	Euphorbiaceae	<i>Phyllanthus niruri</i>	Kyet-tha-hin	Shrub	NE
22	Fabaceae	<i>Pterocarpus macrocarpus</i>	Padauk	Tree	NE
23	Fabaceae	<i>Sesbania grandiflora</i>	Paukpan-byu	Small Tree	NE
24	Lythraceae	<i>Lagerstromia speciosa</i>	Pyinma	Tree	NE
25	Meliaceae	<i>Azadirachta indica</i>	Tama	Tree	NE
26	Mimosaceae	<i>Mimosa pudica</i>	Htikayon	Herb	NE
27	Mimosaceae	<i>Albizia lebbek</i>	Kokko	Tree	NE
28	Mimosaceae	<i>Leucaena leucocephala</i>	Bawsagaing	Tree	NE
29	Mimosaceae	<i>Acacia auriculiformis</i>	Malaysia-padauk	Tree	LC
30	Moraceae	<i>Ficus religiosa</i>	Bawdi-nyaung	Tree	NE
31	Moringaceae	<i>Moringa oleifera</i>	Dan-da-lun	Tree	NE
32	Mysaceae	<i>Musa sapientum</i>	Nget-pyaw	Herb	NE
33	Myrtaceae	<i>Eucalyptus camaldulensis</i>	U-ca-lit	Tree	NE

No.	Family Name	Species Name	Common Name/ Myanmar Name	Habitat	IUCN Status
34	Myrtaceae	<i>Eugenia praetermissa</i>	Thabye	Tree	NE
35	Myitaceae	<i>Psidiuns guajava</i>	Malaka	Small Tree	LC
36	Poaceae	<i>Arundo donax</i>	Kyu	Grass	LC
37	Rhamnaceae	<i>Ziziphusjuba</i>	Zi	Tree	NE
38	Rubiaceae	<i>Morinda angustifolia</i>	Yeyo	Small Tree	NE
39	Rubiaceae	<i>Ixora coccineo</i>	Ponna yeik	Shrub	NE
40	Sapindaceae	<i>Aryteralittoralis</i>	Lamu	Small Tree	LR/LC
41	Steruliaceae	<i>Scaphium scaphigerum</i>	Mohbin	Tree	NE

NE = Not Evaluated

LR/LC = Lower Risk/Least Concerned

Conservation Status of Important Species: In the investigation of flora around the vicinity of the proposed project area, there is one plant species *Borassus flabellifer* (Htan) listed in Endangered (EN) but this species is not included in Myanmar IUCN Red List (Plant Species of IUCN Red List in Myanmar announced by Forest Department).



Figure 5-13 *Borassus flabellifer* (Htan)

5.2.3 Terrestrial Fauna

5.2.3.1 Mammal

Secondary data was also collected from villagers by the interview and Literature survey method was conducted to supplement the data. Some questions were asked of local people who have knowledge about lists of terrestrial mammal species.

4 species of mammals 4 genera belonging to 4 families were identified in and around of the project area. There are Small Asian Mongoose, Crab eating Mongoose, Farm-coloured Mouseed and House Shrew were recorded by interviewed survey from local people.

According to the IUCN Red List (2024-2), there was no threatened species and no endemic species in this area.

Table 5-16 List of mammal species

No.	Family Name	Species Name	Common Name	IUCN Status	Remarks
1	Soricidae	<i>Suncus murinus</i>	House Shrew	LC	Interview
2	Muridae	<i>Mus cervicolor</i>	Farm-coloured Mouse	LC	Interview
3	Hespestidae	<i>Herpestes urva</i>	Crab eating Mongoose	LC	Interview
4	Hespestidae	<i>Herpestes javanicus</i>	Small Indian Mongoose	LC	Interview

LC=Least Concerned



Figure 5-14 *Suncus murinus*

5.2.3.2 Herpetofauna

Herpetofauna surveys were conducted by Interviews with local people were conducted to collect secondary data.

A total of 6 species of amphibian and reptile were identified through interviewed. There are 1 species of frog, 1 species of lizard and 4 species of snake. 1 species of frog belonging to family Hylidae. One species of lizard belonging to family Agamidae and 4 species of snake belonging to families Colubridae, Viperidae and Elapidae. According to the IUCN red list (2024), there are no endemic species and no threatened species within the survey area.

Table 5-17 List of amphibian and reptile species

No.	Family Name	Species Name	Common Name	IUCN Status	Remarks
1	Agamidae	<i>Calotes Versicolor</i>	Garden Fence Lizard	NE	Observed
2	Colubridae	<i>Ptyas mucosa</i>	Indian Rat Snake	NE	Interviewed
3	Viperidae	<i>Daboia russelii</i>	Russell's Viper	LC	Interviewed
4	Elapidae	<i>Naja kaouthia</i>	Monocled Cobra	LC	Interviewed
5	Colubridae	<i>Xenochrophis piscator</i>	Chequered Keelback Water Snake	LC	Interviewed
6	Hylidae	<i>Polypedatesleucomystax</i>	Common Flying Frog	LC	Interviewed

NE=Not Evaluated, LC=Least Concerned



Figure 5-15 *Calotes Versicolor* (Garden Fence Lizard)

5.2.3.3 Birds

Secondary data was also collected from villagers by the interview and Literature survey method was conducted to supplement the data.

A total of 21 bird species 19 genera belonging to 16 families were recorded in the project area. The families Ardeidae, Columbidae, Falconidae and Dicruridae are very common in the proposed project area. According to the IUCN red list of threatened species (2024-2), there are no endemic species in the survey area.

Table 5-18 List of bird species

No.	Family Name	Species Name	Common Name	IUCN Status
1	Ardeidae	<i>Ardeola bacchus</i>	Chinese pond-heron	LC
2	Ardeidae	<i>Egretta garzetta</i>	Little Egret	LC
3	Sturnidae	<i>Acridotheres tristis</i>	Common myna	LC
4	Ramphastidae	<i>Megalaima haemacephala</i>	Coppersmith Barbet	LC
5	Alcedinidae	<i>Halcyon smyrnensis</i>	White- throated Kingfisher	LC
6	Meropidae	<i>Merops orientalis</i>	Little green bee-eater	LC
7	Cuculidae	<i>Centropus sinensis</i>	Greater Coucal	LC
8	Apodidae	<i>Cypsiurus balasinensis</i>	Asian Palm-Swift	LC
9	Columbidae	<i>Streptopelia chinensis</i>	Spotted Dove	NE
10	Columbidae	<i>Streptopelia tranquebarica</i>	Red collared Dove	LC
11	Columbidae	<i>Columba livia</i>	Rock Pigeon	LC
12	Corvidae	<i>Corvus splendens</i>	House Crow	LC
13	Laniidae	<i>Lanius cristatus</i>	Brown Shrike	LC
14	Coraciidae	<i>Coracias benghalensis</i>	Indian Roller	LC
15	Falconidae	<i>Passer domesticus</i>	House sparrow	LC
16	Ardeidae	<i>Bubuchus coromandus</i>	Eastern cattle Egret	LC
17	Estrildidae	<i>Lonchura atricapilla</i>	Black headed munia	LC
18	Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	LC
19	Dicruridae	<i>Dicrurus macrocercus</i>	Black Drongo	LC
20	Dicruridae	<i>Dicrurus leucophaeus</i>	Ashy Drongo	LC
21	Pycnonotidae	<i>Pycnonotus cafer</i>	Red-vented Bulbul	LC

NE=Not Evaluated, LC=Least Concerned



Figure 5-16 *Streptopelia chinensis* (Spotted Dove)



Figure 5-17 *Lonchura atricapilla* (Black headed munia)



Figure 5-18 *Passer domesticus* (House Sparrow)

5.2.3.4 Insects (Butterfly and Dragonfly)

A total of 14 butterfly species to 11 genera 5 families are identified in the Project Area. These included one species one genera of papilionidae, 5 species 4 genera of pieridae, 5 species 3 genera of Nymphalidae, 1 species 1 genera of lycaenidae and 2 species 2 genera of Hesperidae. The most occurrence of family Nymphalidae are very common in the study area. According to the IUCN red list (2024-2), Peacock pansy (*Junonia almanac*) is least concern. There are no threatened species and no endemic species.

Table 5-19 List of butterfly species in the study area

No.	Family Name	Species Name	Common Name	IUCN Status
1	Papilionidae	<i>Papilio demoleus</i>	Lime Butterfly	NE
2	Pieridae	<i>Catopsilia pomona</i>	Mottled Emigrant	NE
3	Pieridae	<i>Catopsilia pyranthe</i>	Mottled Emigrant	NE
4	Pieridae	<i>Leptosia nina</i>	Psyche	NE
5	Pieridae	<i>Delias hyparete</i>	Painted Jezebel	NE
6	Pieridae	<i>Eurema hecabe</i>	Common Grass Yellow	NE
7	Nymphalidae	<i>Danaus chrysippus</i>	Plain Tiger	NE
8	Nymphalidae	<i>Danaus genutia</i>	Common Tiger	NE
9	Nymphalidae	<i>Melanitis leda</i>	Common Evening Brown	NE
10	Nymphalidae	<i>Juonia atlites</i>	Grey Pansy	NE
11	Nymphalidae	<i>Junonia almana</i>	Peacock Pansy	LC
12	Lycaenidae	<i>Curetis acuta</i>	Acute Sunbeam	NE
13	Hesperiidae	<i>Potanthus omaha</i>	Lesser Dart	NE
14	Hesperiidae	<i>Borbo cinnara</i>	Formosan Swift	NE

NE=Not Evaluated, LC=Least Concerned

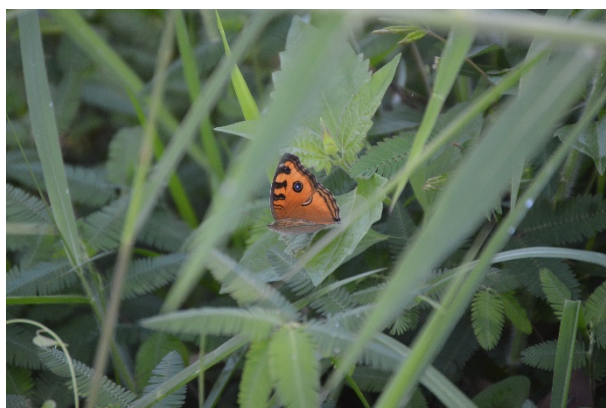


Figure 5-19 *Junonia almana* (Peacock Pansy)

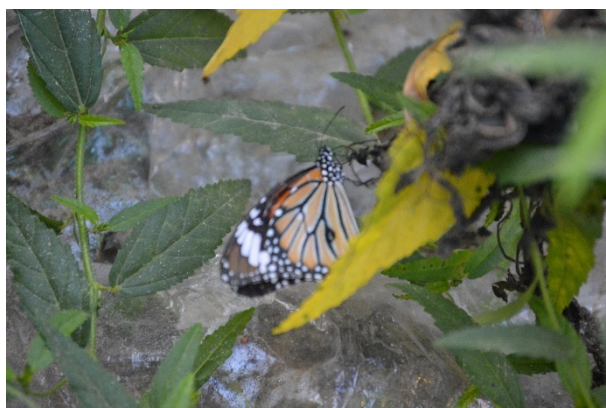


Figure 5-20 *Danaus genutia* (Common Tiger)

5.2.3.5 Dragonfly

A total of 3 dragonfly species 3 genera 1 family were identified around the survey area. All species same the family Libellulidae. Dragonfly species are common in the study area. According to the IUCN red list of threatened species, there was no threatened species and no endemic species.

Table 5-20 List of dragonfly species around the survey area

No.	Family Name	Species Name	Common Name	IUCN Status
1	Libellulidae	<i>Neurothemis tullia</i>	Pied Raw rice /brown rice (white / parboiled) Skimmer	LC
2	Libellulidae	<i>Orthetrum sabina</i>	Green Marsh Hawk	LC
3	Libellulidae	<i>Brachythemis contaminata</i>	Ditch Jewel	LC

LC=Least Concerned



Figure 5-21 *Brachythemis contaminata* (Ditch Jewel)

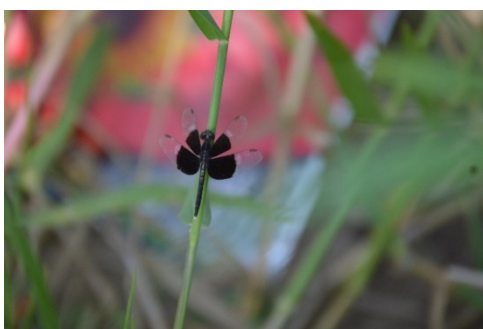


Figure 5-22 *Neurothemis tullia* (Pied Raw rice /brown rice (white / parboiled) Skimmer)



Figure 5-23 *Orthetrum sabina* (Green Marsh Hawk)

5.2.4 Fish

A total of 12 fish species were identified within the survey area. The recorded fish families were Channidae, Cyprinidae, Bagridae, Anabantidae, Latidae. According to the IUCN red list (2024-2), the most common of fish species are least concerned and data deficient, but there are no endemic species in the survey area.

Table 5-21 List of fish species

No.	Family Name	Species Name	Common Name	IUCN Status
1	Cichlidae	<i>Oreochromis niloticus</i>	Tilapia	LC
2	Clupeidae	<i>Tenuulosa ilisha</i>	Hilsa	LC
3	Channidae	<i>Channa striata</i>	Common snakehead	NE
4	Latidae	<i>Lates calcarifer</i>	Seabass	LC
5	Sciaenidae	<i>Otolithoides pama</i>	Croaker	DD
6	Anabantidae	<i>Anabas testudineus</i>	Climbing perch	LC
7	Bagridae	<i>Mystus vittatus</i>	Dwarf catfish	LC
8	Eugnathostomata	<i>Osteichthyes</i>	Bony fish	LC
9	Cyprinidae	<i>Puntius chola</i>	Swamp barb	LC
10	Cyprinidae	<i>Puntius ticto</i>	Ticto barb	LC
11	Cyprinidae	<i>Catla catla</i>	Catla	LC
12	Cyprinidae	<i>Cirrhinus mrigala</i>	Mrigal	LC

DD=Data Deficient, LC=least Concerned



Figure 5-24 *Oreochromis niloticus* (Tilapia)



Figure 5-25 *Mystus vittatus* (Dwarf catfish)

5.2.4.1 Protected Area

The nearest protected area to the project is the Hlawga Wildlife Park located to the north of Yangon city. It is also known as Hlawga Wildlife Park. The Hlawga Wildlife Park, with an area of 1542 acres (624 ha), has a fenced core area of 808 acres (327 ha). It is situated in Mingaladon Township of Yangon Division, in the northern part of Yangon City. The eastern part of the park is bordered by the Yangon Pyay Road, the southern part by Hlawga Forest Reserve, the western part by raw rice /brown rice (white / parboiled) fields, and the northern part by Pe-Nwe-GoneVillage.



Figure 5-26 Hlawga Wildlife Park

5.3 Socio-Economic Environment

5.3.1 Methodology and Objectives

The significant receptors of the project development were determined to be Htan Ta Pin, Than Hpyu Yon and Kan Pat Yoe villages. Htan Ta Pin Su is the host village for the project. Than Hpyu Yon Village is 2100 meters in north-east direction of the project site. Kan Pat Yoe Village is 2200 meters in south-west direction of the project site. It is important to understand the existing demographic factors, socio-economic determinants, social organization, socio-political context and needs and values of the local communities to accurately predict the potential social impacts of a project on the identified receptors. The following methods were applied to conceptualize the existing social environment in the project area:

Methodology

- | | |
|---------------|---|
| Desktop study | ◆ Consultation with Myanmar baseline datasets from Myanmar Information Management Unit (MIMU) |
| Field study | ◆ Surveys and questionnaires |

The baseline data collection questionnaire consisted of 31 questions and the distribution of the questions in the questionnaire can be seen in Figure 5-27. Random sample selection method was used in selecting candidates for the information gathering questionnaire.

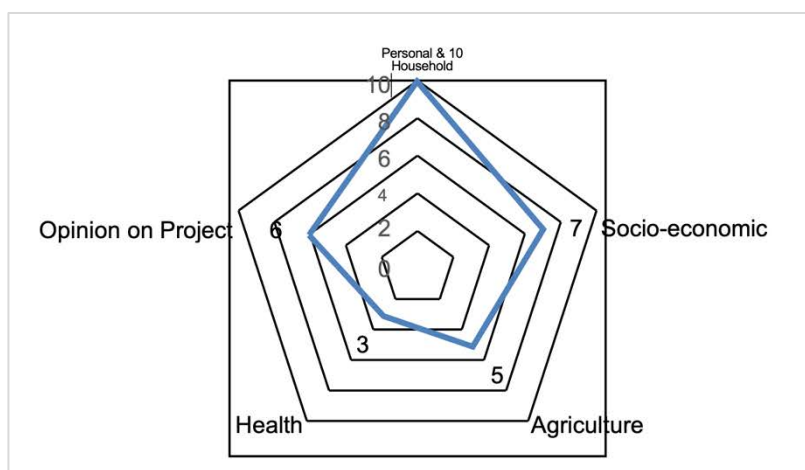


Figure 5-27 Distribution of question categories in the baseline data collection questionnaire

5.3.2 Population Dynamics

Twantay Township: In 2014, Twantay Township had a population of 226,836. The population was comprised of 111,251 males (49.0%) and 115,585 females (51.0%).

The township's area is 724.9 square kilometers, resulting in a population density of 312.9 persons per square kilometer. The urban population percentage was 19.0%.

The population density of Twantay Township is 314.7 Person per Square kiolometer.

There is 8 Wards and 65 village Tracts in Twantay Township and no. of private housholds is 51,602 with 4.3 persons mean household size.

19.4% is Female-Headed Households.

The nearest village tracts of the project area' s are illustrated as follow.

Ku Lar Tan Village Tract: Consists of 4 villages – Ku Lar Tan, Thone Eai, **Than Hpyu Yon** and **Htan Ta Pin Su**. The village tract's area is 13.47 square kilometers (5.2 square miles). According to the 2014 township profile, its total population is 3487 residing in 593 households. The male to female ratio of the village tract is 95.79%.

Ta Ka Hleit Village Tract: Consists of 5 villages – Ta Ka Hleit, **Kan Pat Yoe**, Shan Ta Lin, Se Hnit Maing Tar Kone and Se Thone Maing Tar Kone. Its area is 17.85 square kilometers (6.89 square miles). According to the 2014 township profile, its total population is 3,722 occupying 774 households. The male to female ratio of the village tract is 97.35%.

The socio-economic survey was conducted in **Than Hpyu Yon, Htan Ta Pin Su and Kan Pat Yoe villages near by the project area.**

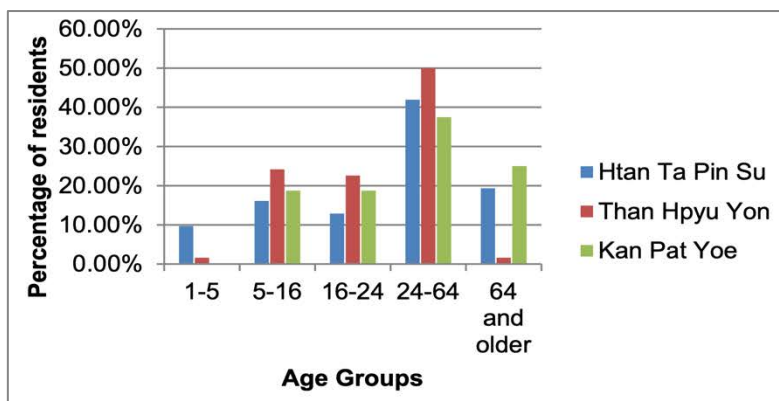


Figure 5-28 Age distribution of the villages selected for the field study

5.3.3 Socio-economic Attributes

Literacy: The overall literacy rate of Twantay was 94.5% in 2014 with higher literacy rate among males than females Figure 5-29. Most of the study respondents received primary level education from public schools Figure 5-30. The proportion of the study respondents that received primary, middle and high school education reflects the township's 2013-2014 academic year's student distribution as shown in Figure 5-31 even though monastic school education receives more popularity among the study respondents.

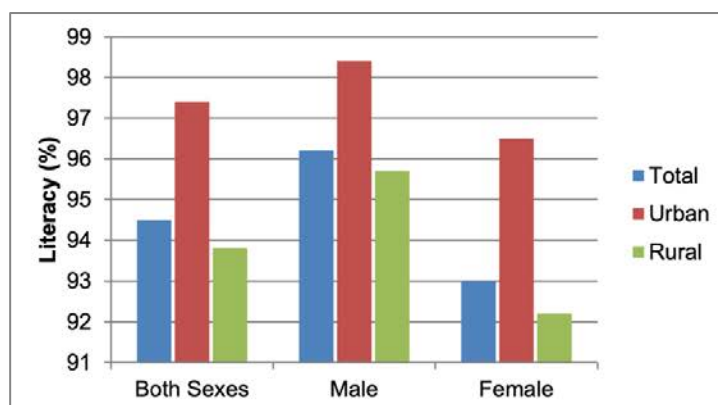


Figure 5-29 literacy among the residents of Twantay Township

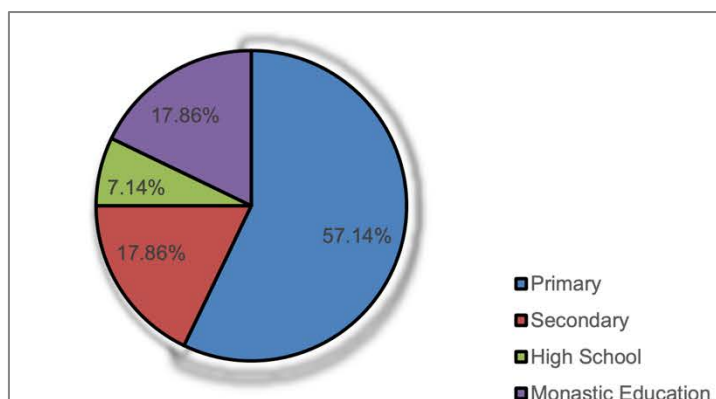


Figure 5-30 Education levels of the study respondents

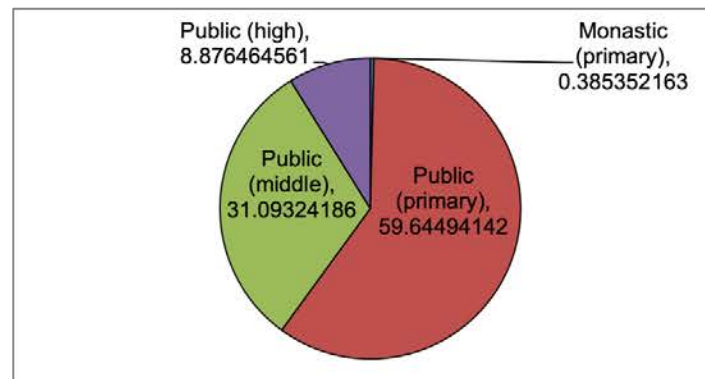


Figure 5-31 Distribution of students registered at Twantay Township schools 2013-2014

Economy: Most of the township residents were private employees or self-employed and children as young as ten years are observed in the workforce. Most of the study respondents were involved in agri-business. The major crops were monsoon rice, summer rice, variety of beans, sunflower and betel leaf. Livestock farming was also prevalent among the study respondents but only in small scale. In 2010-2011 fiscal year, the income per capita was 734,224 kyats with almost 67% of the study respondents making between 100,000 to 200,000 kyats per month Figure 5-32.

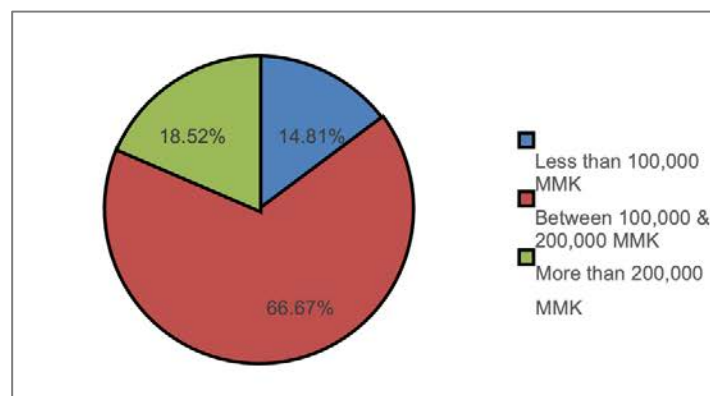


Figure 5-32 Income distribution among the respondents of survey study

5.3.4 Lifestyle

Family size: On average, there were four members in each respondent's family. 80% of the family sizes were evenly split between families with 2-4 members and those with 6-8 members Figure 5-33. According to 2014 census, 19.4% of the households were female headed.

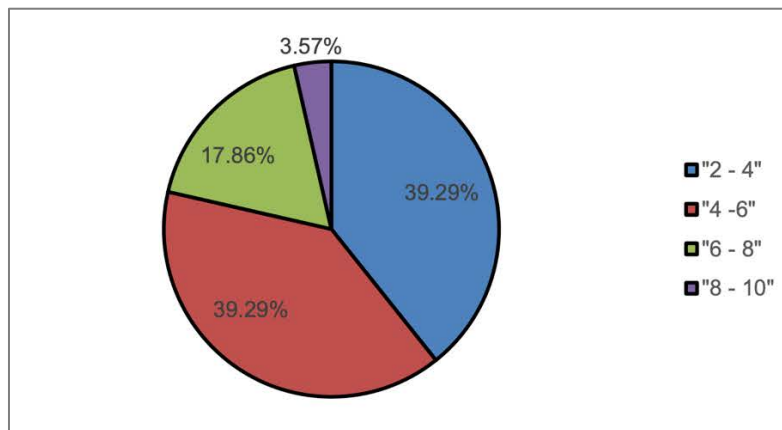


Figure 5-33 Distribution of family sizes among the study respondents

Housing: Most of the houses in Htan Ta Pin Su and Than Phyu Yon were made of bamboo stem while wooden houses were more common in Kan Pat Yoe. Concrete houses were found only in Kan Pat Yoe only Figure 5-34 .

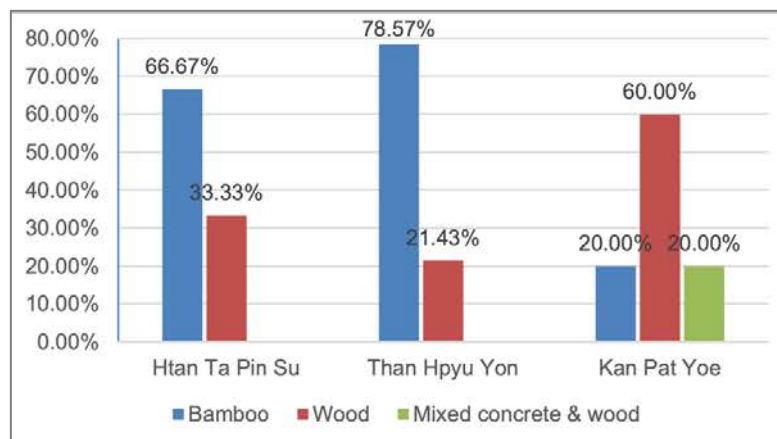


Figure 5-34 Types of houses owned among the field study respondents



Figure 5-35 Type of Houses of villages around the Project Area

Household goods: Almost every family of the study respondents owned at least one mobile phone. Respondents from Than Hpyu Yon and Kan Pat Yoe seemed to own more household goods than those from Htan Ta Pin Su (Figure 5-36).

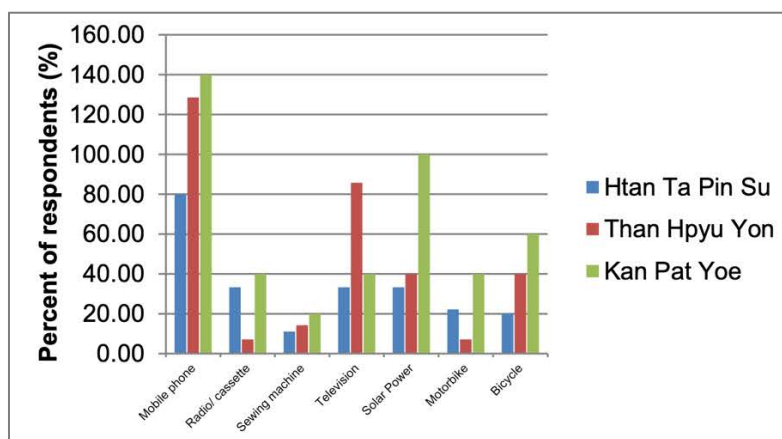


Figure 5-36 Household goods owned by the respondents of the field study

Utilities and waste management: The study respondents mainly used firewood for cooking. Domestic lighting comes from solar power, candle-light or kerosene-lamps. Surface water was used for drinking and other domestic needs while ground water was used for other domestic needs only. By 2011 all the urban and rural households have 100% coverage of sanitary latrines Figure 5-37. No domestic waste management system exists in the area.

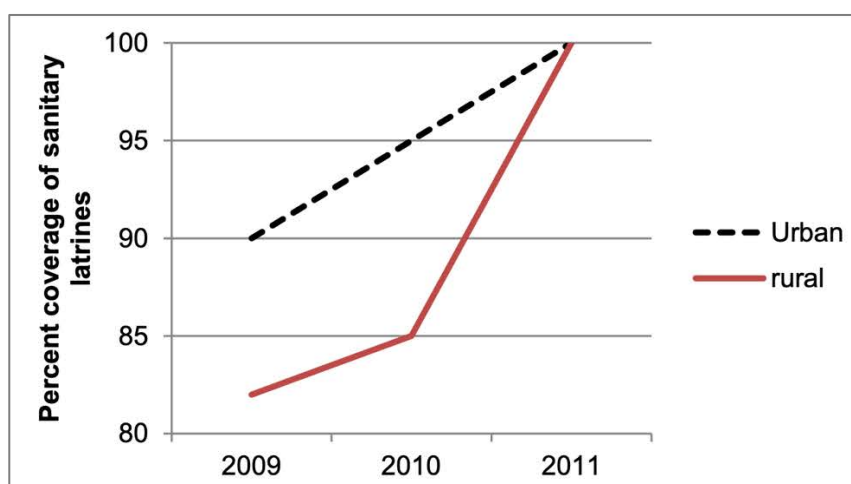


Figure 5-37 Percent coverage trend of sanitary latrines in Twantay Township over the course of three years

Social organizations: Religious groups providing humanitarian assistance are active in Twantay Township. Lutheran World Federation Myanmar has implemented 216 out of 560 projects in Twantay. Karen Baptist Church and Danish Church Aid are also present in the township. Other unaffiliated organizations in the area include UNICEF, PACT, Proximity Designs and PSI (MIMU Myanmar-3W Dashboard).

5.3.5 Public Infrastructures

Health services: There is one township hospital, two station hospitals, six rural health centers, twenty seven sub health centers and one maternal and child health center with 37 midwives, 10 nurses and 8 physicians in Twantay Township.

Schools: In 2013-2014 academic year, there were a hundred and ninety three primary schools with 1044 teachers, fourteen middle schools with 307 teachers and six high schools with 168 teachers and a monastic school providing primary education.

Waste management: There are no designated places for disposal of domestic wastes.

Water and electricity: Even though government gridlines cover parts of Twantay Township, state funded electricity is not available at the project site. No domestic water distribution system is available at the project location either.

Transportation: The north bank of Twantay can be accessed via Yangon-Maubin Road. The south bank can be reached via Dala-Twantay Road. No railway network exists in Twantay Township. Twantay Canal can be used for transportation to Yangon.

5.3.6 Community Health

Birth: The crude birth rate (the total number of live births per year per 1,000 people) of Twantay Township was 13.2 in 2009.

Mortality: In general, maternal, infant and under five mortality rates were on the fall since 2009. However, the infant and under five mortality rates rebounded after 2010 possibly due to Cyclone Nargis. Moreover, infant and under five mortality rates were significantly higher than maternal mortality rates Figure 5-38. The crude death rate (total number of deaths per year per 1,000 people) of Twantay Township was 3.6 in 2009.

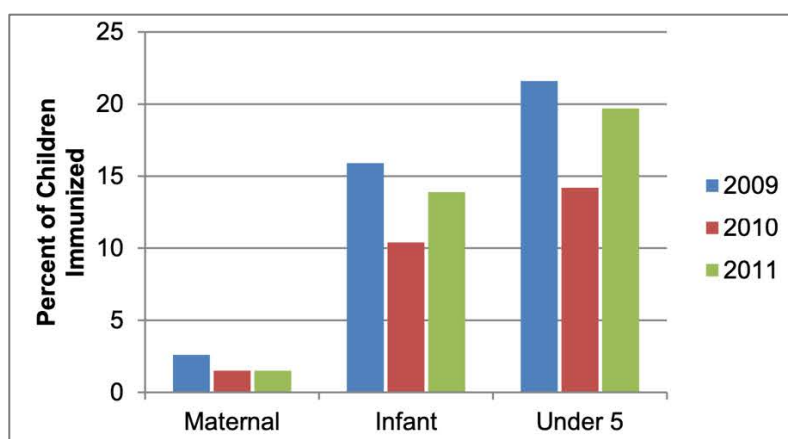


Figure 5-38 Maternal, infant and under five mortality rates in Twantay Township

Family planning: In 2009, 68.9% of pregnant women received antenatal care of at least one visit, 96% of pregnant women received full immunization against tetanus and 57% of the births received attendance by a trained personnel. Moreover, contraceptive prevalence rate in 2009 was 60%. Family planning data for 2010 and 2011 are not available.

Child immunization: Children from the township are immunized against hepatitis B, diphtheria, pertussis, tetanus, polio, measles and tuberculosis Figure 5-39. A significant drop in children hepatitis B immunization rate was observed in 2011.

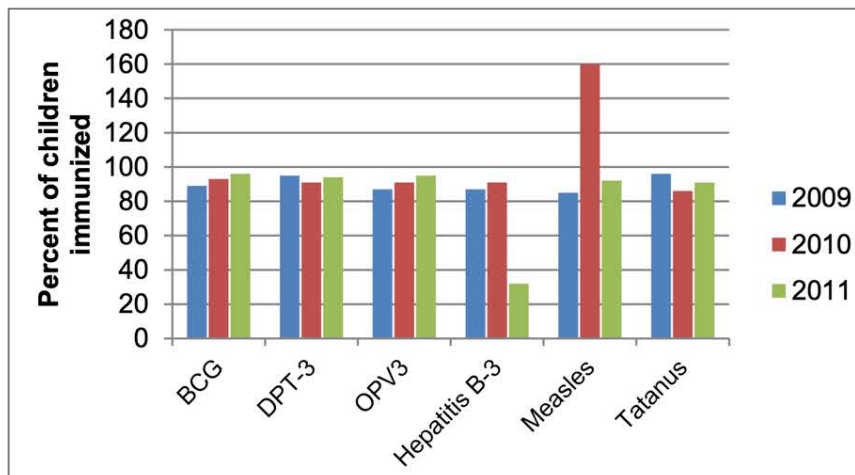


Figure 5-39 %of children in Twantay immunized against certain common infectious diseases

Nutrition: Rates of malnutrition in 2009 and 2011 were consistent in Twantay Township. Percentages of malnutrition were very high in Figure 5-40.

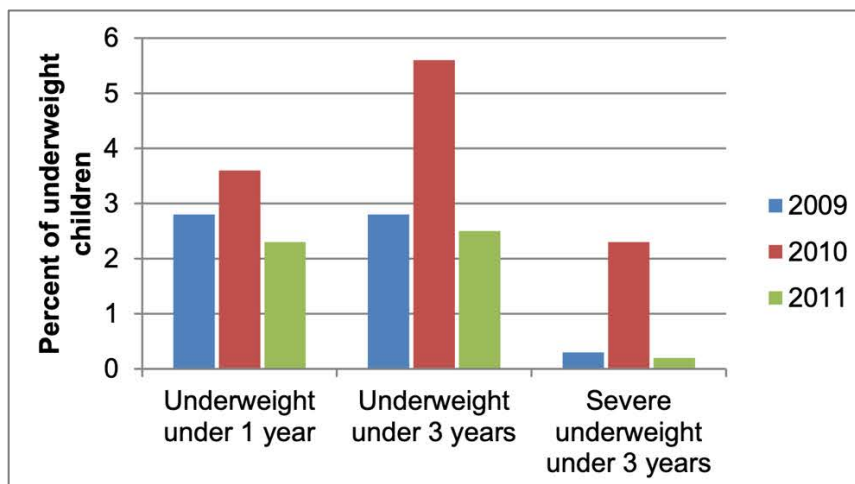


Figure 5-40 Malnutrition among children in Twantay Township

Communicable diseases: In 2011, there were 23.21 incidences of tuberculosis and 8.36 incidences of malaria per 1,000 people. In fact new case detection rate for tuberculos is rebounded after a significant fall in 2010 with the rates being 26.16% in 2009, 11.12% in 2010 and 13.65% in 2011 respectively.

5.4 Cultural Heritage

Twantay Township in the Yangon Region of Myanmar boasts a rich cultural heritage, primarily centered around its ancient Mon-era pagodas and the remnants of old cities. Notable features include the Shwesandaw Pagoda (also known as Kyaikkaytha in Mon) and the Sapagan Pagoda, which is uniquely preserved in its original Mon-style brick structure. The

area also features ancient stupas, city walls, and terracotta kilns, reflecting its history as a significant Mon settlement.

Key Cultural Heritage Sites and Features in Twantay Township are as follow.

- **Shwesandaw Pagoda (Kyaikkaytha Pagoda):**

The principal pagoda of Twantay, it is a revered site for local residents and believed to contain strands of Gautama's hair and its name means Golden Hair Relic.

- **Sapagan Pagoda:**

A unique, well-preserved Mon-era pagoda with a distinctive brick architecture, dating back to the 18th and 19th centuries.

- **Ancient Mon Cities:**

Twantay was part of a network of ancient Mon cities, including Dala, Kawhmu, and Kungyangon, which are now preserved as cultural heritage sites.

- **Maungte Stupa:**

An ancient stupa built by King Anawratha in San village, located on the feeder road between Twantay and Kawhmu.

- **Naungtaya Pagoda:**

A pagoda built during the reign of Hsinphyushin Banyar Oo Min, known for its stone inscription in Pali and Mon languages.

- **Twantay Canal:**

The longest man-made canal in Myanmar, constructed by the British in 1881, it provides a waterway between the Ayeyarweddy and Yangon rivers.

- **Glaze Research Museum:**

A museum dedicated to the preservation and study of glazed artifacts discovered in ancient kilns, located in Nyaungtaga village.

- **Twantay Tawkyeetan (Old City of Dala):**

A site with palace mounds, ancient stupas, and glaze kilns, offering insights into the area's history and architectural styles.

- **Baungdawgyoke Monastery:**

A monastery known for its pagodas, including a replica of the Mahabodhi Temple.

Around the Project area, Boungdawgyole Monestery, Shwesandaw Pagoda and Twantay canel are located as following figures.



Figure 5-41 Shwesandaw Pagoda



Figure 5-42 Boudawgyoke Monastery



Figure 5-43 Twantay Canel

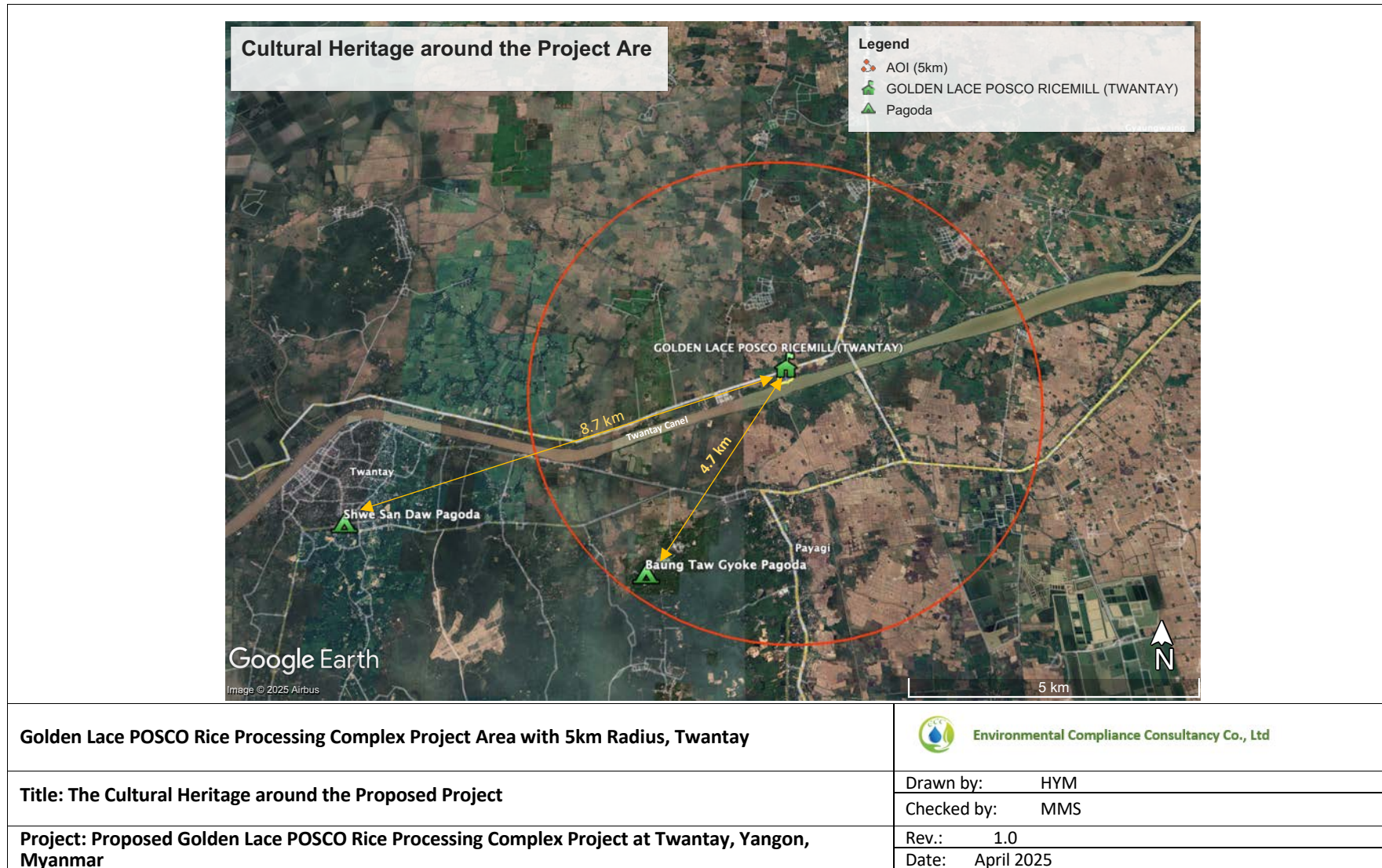


Figure 5-44 Cultural Heritage around the Proposed Project Area

6. ANTICIPATED ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

6.1 Introduction

The discussions on impact analysis of the project are then divided to identify and analyze the potential impacts of the construction, operational and decommissioning phases of the proposed Daewoo Rice Processing Complex Project. For each parameter individual impact analysis conclusions are provided under the title 'Impact Summary'. Finally, when necessary, mitigation measures are presented mainly where moderate to major adverse impacts are identified in order to minimize as much as practically possible the negative impacts. Furthermore discussion is provided regarding the significance of the residual impacts.

Environmental Impacts can be expected from both construction and operational phase of the project.

The topics assessed are briefly explained below:

1. **Soil and Groundwater Quality** – Risks for soil and groundwater contamination are examined.
2. **Air Quality** – Existing and future sources of air pollution are identified and analysed with respect to the current and predicted future air quality of the facility.
3. **Noise and Vibrations**– Noise and vibrations from construction/installation activities and operational activities are focused upon, with reference to other existing and autonomous noise sources.
4. **Waste Management** – The proper application of waste reduction, reuse, recovery, and recycling practice are considered.
5. **Ecology** – Direct and secondary ecological impacts are examined for the terrestrial ecosystems close to the ricemill plot.
6. **Socio-cultural** – Applicable direct and secondary impacts are brought forward and assessed with respect to accepted principles of social welfare.

Other topics discussed in the succeeding chapters include the following:

7. **Legal Compliance** – Applicable to compliance to existing labour laws
8. **Natural Resource Use** – Impacts from use of natural resources and energy are assessed.
9. **Traffic** – Impact to the traffic condition of the area and its immediate vicinity is assessed.

6.2 Impact Assessment

The impact assessment will cover activities from construction, operation and decommissioning phase of the project. Actual construction has not been commenced yet for the project.

The impacts are calculated or described without mitigation. Mitigation measures that reduce such impacts are described in a separate section (6).

6.3 The Impact Assessment Matrix

The assessment of impact significance for this IEE is based on four criteria: magnitude, permanence, reversibility and cumulative impact. The table below explains each of the criteria and the scaling method to be used.

Table 6-1 Categories for impact significance

Impact Parameters		
Spatial Scale	Temporal Scale	Impact Intensity
Site	Short term	Negligible
1	1	1
Limited	Medium term	Minor
2	2	2
Area	Long term	Moderate
3	3	3
Regional	Multi year	Serious
4	4	4

* Before each number place + if the impact would be beneficial

Table 6-2 Categories of severity

Scores	Severity Rating
1-8	Impact of low severity (negligible impact)
9-27	Impact of moderate severity (moderate impact)
28-64	Impact of high severity (major impact)

6.4 Construction Phase Impact Assessment

6.4.1 Soil & Groundwater

The main potential sources of pollution that may affect the quality of the soil and groundwater include the following;

6.4.1.1 Fuel Tank and Diesel Generator

Self power generation using a diesel turbine is relied upon during the construction period as the power supply from Yangon Electricity Company will not be available. The capacity of the generator is determined on a per need basis. Spill prevention mechanisms is put in place to minimize spillage while filling diesel fuel tank. Spill response procedures and reporting will also be followed in order to protect contamination of groundwater aquifer.

6.4.1.2 Paints and Thinner

During the construction phase, activities would include painting of building, tanks and other structures. Spills of paint and thinner may occur during the painting works. Paints may also leak during its storage if the container is damaged. When this happens, spills and leaks may leach through the stone layer to the soil and potentially onto the groundwater. If a proper storage place is not provided for the paints and thinner, spill and leak may directly leach to the soil and can contaminate both soil and groundwater.

Impact Summary

The main impact to the soil and groundwater during the construction phase is the potential spill and leak from the storage and use of paints and thinner and fuel from the generator for construction equipment..

Considering all the discharges leading to the potential contamination to the soil and groundwater during construction, the unmitigated impact is assessed as follows;

Table 6-3 Impact Significance for Soil And Groundwater During Construction Phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Spills/leak from stored fuel and diesel generator.	1	1	2	Impact of low severity (negligible impact)
Spills/leak from paints / thinner	1	1	2	Impact of low severity (negligible impact)

However, with the adoption of appropriate mitigating measures provided during the construction phase, the impact could be reduced to as low as reasonably possible (ALARP). Mitigating measures for the soil and groundwater impacts are discussed in section 6 of this IEE report.

6.4.2 Air Quality

The potential sources of air pollution during construction phase are:

- Combustion emissions from heavy construction equipment, vehicles;
- Dust from soil disturbances (e.g. earthworks) and vehicle movement;
- Release of fine particles and gas during cutting and welding activities; and
- VOC emissions from stored diesel, paint and thinners.

6.4.2.1 Combustion Emissions

The main source of air pollution is from the utilization of machineries and construction vehicles that generate combustion emissions like NO_x, SO_x, CO, CO₂ etc. Carbon dioxide (CO₂) is one of the Greenhouse gases (GHG) which can contribute to the Global warming phenomenon. The various sources of emissions are described below.

6.4.2.2 Emission from Generator

For construction activities, it is assumed that generators are mainly used to supply the power requirements of construction equipment (e.g. cranes, welding machine). During its operation, the generator will release combustion emissions due to the consumption of diesel fuel. Expected emissions include NO_x, CO, SO_x and other hydrocarbons.

A 500 KVA back up diesel generator is in place in order to ensure that the operations of the Rice Processing Complex go unhampered in case of breakdown / maintenance of the National Grid Line.

To calculate, the Australian National Pollutant Inventory Emission estimation technique manual for Combustion engines Version 3.0 June 2008 was used as basis of calculating emissions for stationary engines.

$$E_i = P \times Ophrs \times EF_i \times (100-ER / 100) \quad \text{Equation 2}$$

Where:

E_i = Emission of substance i for a specific engine type (kg/day)

P = Average rated engine power (kW)

= 450 kw

$Ophrs$ = Vehicle operating hours (h/day)

= 8 hours/day

EF_i = Emission factor of substance

= 0.25

ER = Emission reduction efficiency for substance

= 25%

i = Substance I (-)

Table 6-4 Estimated Emission from Stationary Sources in an Eight (8) Hour Day for Construction Phase

Substance	Power (KW)	Averag Operating hours (h/day)	Emission factor (kg/kWh)	Efficiency Rating	Emissions (kg/d)
Carbon monoxide	450	8	0.0033	0.25	8.91
Oxides of nitrogen	450	8	0.0079	0.25	21.33
Particulate matter	450	8	0.00043	0.25	1.161
Total volatil organic	450	8	0.00038	0.25	1.026

It should be noted that the construction activities are temporary in nature. Thus, impact to the ambient air is considered not significant. Short term, localized impacts may be experienced during this period especially if the generator set is not regularly maintained and uses high sulphur content fuel.

6.4.2.3 Emission from Vehicles and Heavy Construction Equipment

Another source of combustion emissions during the construction phase are combustion emission from heavy vehicles like trucks and moving cranes. The transport of workers to and from the site; transport of materials and other resources (e.g. water) will add to the overall emissions. The emissions from vehicles will depend on various factors like the chemical composition of the fuel used (e.g. Sulfur content), the load of the vehicle, the engine condition (whether properly maintained or not) and the speed at which the vehicle is travelling. The assumed number of fuel trucks coming into the site is estimated to be 10 trucks per day. It is expected that the road transports will produce combustion related emissions like, NO_x, SO_x and PM₁₀ emissions. The potential emissions from the delivery trucks are calculated as shown below:

- Estimated number of delivery trucks is 10 per day: coming in for the transportation of raw materials to the construction site;
- The cumulative operating hours of the 10 trucks is estimated to be 8 hrs a day;
- Assumed engine power of the vehicle engine is 250kW.

Hence the emission of pollutant can be computed as follow (ref: Equation 4, Emission Estimation Technique Manual for Combustion Engines Version 2.2):

$$E = P \times \text{Ophrs/year} \times \text{Load Factor} \times \text{Emission factor of the pollutant} \quad \text{Equation 3}$$

Where:

P = average rated engine power (KW)

Ophrs = Operating hours

Load factor for the off-highway truck is 0.50 (ref: Emission Estimation Technique Manual for Combustion Engines Version 2.2 by National Pollutant Inventory).

Table 6-5 Estimated emission data for combustion vehicles

Pollutant	Emission Factor in kg/kWh	Power, kW	Operating hours / day	Load factor	Emission rate in kg / day	Total Emissins*
CO	0.0047	250	1	0.5	4.70	2.76
NO _x	0.0109	250	1	0.5	10.00	13.63
SO ₂	0.00119	250	1	0.5	1.19	0.18
PM ₁₀	0.000673	250	1	0.5	0.67	0.06
VOCs	0.0005	250	1	0.5	0.50	0.03

*Assumption: 10 vehicles entering the facility, operating hours is 8 hours/ day.

Table 6-5 presents the estimated emission over an hour period. It is estimated that combustion emission from vehicles and equipment is higher during the expansion / construction phase as compared to the operational phase; as there is more vehicles coming into the site. It should be

noted that these emissions are temporary in nature and air quality will return to normal levels when the expansion / construction phase is finished.

6.4.2.4 Dust Emissions

Dust emissions from the construction / installation activities will have an intense localized effect during construction activities especially during months of adverse meteorological conditions (e.g. strong wind). The main sources of dust emissions during the construction phase are the earthworks like:

- Ground excavation works;
- Site leveling;
- Compaction;
- Piling, and;
- Vehicle movement.

Construction dust, classified as PM10 - particulate matter less than 10 microns in diameter, invisible to the naked eye, can be carried away over large distances over a long period of time. It is expected that this dust emission is high during the facility construction period (6 months).

6.4.2.5 Emissions from Cutting/ Welding Activities

Welding and cutting is done as part of construction activities resulting in the release of fumes and particulate matters into the air. The following are the types of welding techniques available:

- Metal inert gas (MIG), commonly known as gas metal arc welding (GMAW);
- Tungsten inert gas (TIG), also known as gas tungsten arc welding (GTAW);
- Flux cored arc welding (FCAW); and
- Shielded metal arc welding (SMAW)

Most of the above welding techniques utilize consumable electrodes except for TIG. TIG is a manual welding process that uses a non-consumable electrode made of tungsten, an inert or semi-inert gas mixture (e.g. Argon) and a separate filler material.

During welding, emissions in the form of fumes are released into the immediate environment. The elemental composition of the fumes varies with the electrode type and with the work piece composition. The USEPA stated in the 1990 Clean Air Act Amendment that hazardous metals released in welding fumes include manganese (Mg), nickel (Ni), chromium (Cr), cobalt (Co) and lead (Pb). Gas phase pollutants are also generated during welding operations, but little information is available on quantifying these pollutants. Known gaseous pollutants (including “greenhouse gases”) include carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), and ozone (O₃). The actual emissions from welding depend not only on the process and the electrode type, but also on the base metal material, voltage current, arc length, shielding gas and travel speed.

Impact Summary

The main impact on the air quality during the construction is identified as combustion related emissions from vehicles; dust from vehicle movement; fumes generated during welding and VOC emissions during the painting activities. It is usually difficult to assign exact amount of emissions during the construction phase due to the temporary (short term) nature of the activities.

Considering all the emissions leading to air pollution during construction, the unmitigated impact is assessed as follows;

Table 6-6 Impact significance of air quality during construction phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Combustion emissions from generator, heavy construction equipment, vehicles.	1	1	2	Impact of low severity (negligible impact)
Dust emissions from soil disturbances (e.g. earthworks) and vehicle movement.	1	1	2	Impact of low severity (negligible impact)
Release of fine particles and gas during cutting and welding activities.	1	1	2	Impact of low severity (negligible impact)
VOC emissions from stored paint and thinners.	1	1	2	Impact of low severity (negligible impact)

With this assessment, mitigation measures are recommended to be implemented during construction to avert the adverse effects in the air quality from the construction activities.

6.4.3 Waste

6.4.3.1 Solid Waste

During the construction phase the common waste generated are lumber, steel scrap, cardboard, plastics, glass and other packaging, general rubbish, metals, plaster, tar waste, wood products, concrete, asphalt paving, roofing, gypsum boards; rock, and soil and fines (US EPA: Construction and Demolition Materials, 2008).

In order to assess the impacts resulting from construction waste generation, an estimate of the total amount of construction waste has been made based on waste generation factors. Based on the data from the USEPA, a typical new construction generates an average of 3.9 pounds of waste per square foot of building area, which is equivalent to 19.06 kg/m² of total built up area (USGBC

White Paper Planning for Construction Waste Reduction, 2005). Applying this factor to the proposed project with a total built-up area of approximately 37,850 m², the total weight of construction waste can be estimated as follows:

$$\begin{aligned}\text{Total Weight} &= 37,850 \text{ m}^2 \times 19.06 \text{ kg/m}^2 \\ &= 721 \text{ tons}\end{aligned}$$

$$\begin{aligned}\text{Total Waste per Day} &= (721 \text{ tons} / 24 \text{ months}) \times (1 \text{ month} / 30 \text{ days}) \\ &= 1 \text{ ton} / \text{day}\end{aligned}$$

The density of construction waste varies depending on the construction technique, construction materials and usage, and other variables. According to available technical references, the typical density of compacted loose refuse could be between 235 and 350 kg/m³ (Tchobanoglous et al., 1993). For a more conservative estimate, the higher value has been used in the calculation, as follows:

$$\begin{aligned}\text{Total Volume} &= 1000 \text{ kg} / 350 \text{ kg/m}^3 \\ &= 2.86 \text{ m}^3\end{aligned}$$

According to the Institute for Global Environmental Strategies (IGES), the daily average waste generation (collected) in Yangon City is 1,670 tons for 2011 - 2012. According to the same report, it shows that, approximately 10% of all the solid wastes generated in the City account for the other types of waste (which can include the construction waste) (existing waste classification is Organic, Plastic and others waste). Calculating the percentage from Yangon's solid waste production:

$$1670 \text{ tons} \times 0.10 = 167 \text{ tons}$$

Therefore, the total quantity of construction wastes estimated in the construction of the Rice Processing Complex is 1 ton per day, represents only 0.59% of the other waste generated compared to that in Yangon's other waste on a daily basis. It is noted that the construction waste will not be generated over a long period of time, and as such the increased pressure on the landfill and with reuse of waste materials including excavated soil, total waste generated is negligible.

6.4.3.2 Food Waste

To quantify the food waste generation construction, a factor of 1.5 lb. (0.45kg)/ employee / day (Source: California Department of Resources Recycling and Recovery (CalRecycle) Website: Estimated Solid Waste Generation Rates for Commercial Establishments 2009) was used as reference. The calculation is shown below.

$$\begin{aligned}\text{Estimated food Waste} &= 0.45\text{kg/ employee per day} \times 120 \text{ employees} \\ &= 54 \text{ kg/day}\end{aligned}$$

6.4.3.3 Sewage

Sewage was computed semi-quantitatively based on the common flush-toilet using only 0.42 US gallons (1.5 litres) of water per flush. An assumption of 2 toilet flushing per employee was used for calculation of the sewage generation per day, as detailed below.

Basis: 120 construction workers

$$\begin{aligned}\text{Total Estimated Sewage waste} &= 1.5\text{liters/toilet flush} \times 2 \text{ toilet flush/day} \times 120 \text{ construction} \\ &\text{workers} \\ &= 360 \text{ liters / day}\end{aligned}$$

For sludge composition in sewage waste, the factor of 0.11 kg/ employee (T. Hicks 2007: 2nd Ed. Handbook of Civil Engineering Calculation) and sludge density of 721 kg/ m³ (SI Metric Website: www.simetric.co.uk) was used as reference.

$$\begin{aligned}\text{Sludge in Sanitary Waste} &= 0.11 \text{ kg/ worker} \times 120 \text{ workers} \times 1/ 721 \text{ kg/ m}^3 \\ &= 0.02 \text{ m}^3 \text{ per day or 20 liters per day}\end{aligned}$$

$$\begin{aligned}\text{Total Sewage} &= \text{Total Estimated Sewage waste} + \text{Sludge in Sanitary} \\ &\text{Waste} \\ &= 360 \text{ liters} + 20 \text{ liters} \\ &= 380 \text{ liters per day}\end{aligned}$$

6.4.3.4 Hazardous Waste

The hazardous waste may represent significant risk to human health and environment if managed improperly. Adequate handling, temporary storage and disposal are required to reduce threat to human health and to prevent potential contamination of the soil/groundwater. A proper waste management protective measure needs to be taken in order to minimize impact on environment. Typical construction hazardous waste stream contains:

- Clean-up materials (such as rags);
- Resins and paints;
- Drums, containers and tins with remains of hazardous substances;
- Roofing cement;
- Adhesives; and
- Machinery lubricants, and caulk.

6.4.3.5 Post Construction Waste

After construction is completed, wastes such as unused cement, cement bags, concrete, empty containers, etc is generated at the construction site. It is difficult to calculate the amount of construction wastes, debris, etc generate at the site since some contractors can recycle or recover some of these wastes to be used elsewhere. If these wastes are not removed from site or not

properly disposed, these wastes could create nuisance to the nearby residential and commercial areas.

Impact Summary

The unmitigated impact with regards to wastes generation during the construction of the Rice Processing Complex is considered to be as follows.

Table 6-7 Impact Significance of Construction Waste

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Disposal of hazardous waste (paints, sewage, etc.)	3	3	2	Impact of moderate severity (moderate impact)
Disposal of non-hazardous solid waste	3	3	2	Impact of moderate severity (moderate impact)
Disposal of non-hazardous liquid waste	3	3	2	Impact of moderate severity (moderate impact)

With this assessment, mitigation measures are recommended to be implemented during construction activities in section 6.

6.4.4 Noise

It is expected that construction phase of the project will generate high noise levels due to the movement of the vehicles and use of or operation of construction equipment. The main activities that influence the noise level during the construction phase are the usage of machineries, heavy equipment, earthworks (e.g. pilling, compacting) and cutting and welding activities.

6.4.4.1 Equipment Noise Levels

To analyse the impacts due to the noise generated from the construction of the proposed facility, the noise levels generated by representative equipment and activities are given in the table below:

Table 6-8 Typical noise levels of the construction equipment

Source	Specification	Sound Level dB (A)
Compactor	Typical, at 50 feet from source	90*
Bulldozer	Measured at the operator's ear	87*
Backhoe	Measured at the operator's ear	85*
Portable welder	Measured at the operator's ear	84*
Excavator	Measured at the operator's ear	80*
Dump Truck	Measured at the operator's ear	78*
Mobile crane	Measured at the operator's ear	78*

Source	Specification	Sound Level dB (A)
Vehicles / Trucks	Typical, at 50 feet from source	76**
Generator	Typical, at 50 feet from source	72*

*Source: Probable Noise Levels of Common Construction Tools, July 2005.

<http://staff.washington.edu/rneitzel/commontools.pdf>

**Source: A similar study is used as a reference (Reference:

www.portoflosangeles.org/EIR/ChinaShipping/DEIR/3.11_Noise.pdf)

It is apparent from that construction activities (see Table 30) in general will reach noise level of 70-90 dB(A) if you are measuring within 50 feet from the source. At this level, the noise will slightly exceed the standard stipulated by the National Environmental Quality (Emission) Guidelines (Final Draft) 2015 of 70 dB (A) on commercial and industrial areas.

For further analysis, the noise attenuation that is provided below to project the noise level produced by each of the construction machineries as it travels through the ambient air. The noise level is decreased by 6 dB (A) for every doubling of the distance away from the source of noise (HSE UK, 2010).

Table 6-9 Noise Attenuation During Construction Phase

Construction Noise Source	Sound Level dB (A)	Distance, m. Away from the Source								Specification
		1	2	4	8	16	32	64	128	
Bulldozer	87	87	81	75	69	63	57	51	45	Measured at the operator's ear
Backhoe	85	85	79	73	67	61	55	49	43	Measured at the operator's ear
Portable welder	84	84	78	72	66	60	54	48	42	Measured at the operator's ear
Excavator	80	80	74	68	62	56	50	44	38	Measured at the operator's ear
Dump Truck	78	78	72	66	60	54	48	42	36	Measured at the operator's ear
Mobile crane	78	78	72	66	60	54	48	42	36	Measured at the operator's ear

Table 6-10 Noise attenuation during construction phase (50ft from Source)

Construction Noise	Sound Level dB (A)	Distance, m, away from the Source								Specification
		50	52	54	58	66	82	114	178	
Compactor	90	90	84	78	72	66	60	54	48	Typical, at 50 feet from source
Vehicles/Trucks	76	76	70	64	58	52	46	40	34	Typical, at 50 feet from source
Generator	72	72	66	60	54	48	42	36	30	Typical, at 50 feet from source

As apparent from the table above, the noise perceived is significantly decreased at about 30m from the site. Take for example the noise from the bulldozer. At the site where it is used during construction, the noise level would be 87 dB(A). However, using the factor set by HSE UK, the noise projected at about 32 m from the source is only 57 dB(A) which is already within the standard set by the National Environmental Quality (Emission) Guidelines (Final Draft) 2015.

Impact Summary

It is apparent that elevated noise level may be experienced by adjacent areas during the construction phase of the project. Impact of the noise condition is shown as follows;

Table 6-11 Impact Significance of Noise Quality During Construction Phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Usage of high noise level generating equipment/ machine	1	1	2	Impact of low severity (negligible impact)

This is perceived as low severity (negligible impact) lasting only until the end of the construction phase. Mitigating measures to reduce noise level during the construction phase is discussed in section 6.

6.4.5 Ecology

The site selected for the implementation of the Rice Processing Complexing factory in Twantay District has little ecological significance, and the existing land use at the beginning of the project includes raw rice /brown rice (white / parboiled) field. The site also presents different types of bushes that can shelter rodents and lizards or serve as ecological niche for various types of birds.

The project site is a green field with no more remnants of the original tropical forest. It has been modified to agricultural habitats, urban areas with exotic and endemic trees, canal and roads with side plantations of Delbergia and Acacia. The project site has only few strands of trees, mostly eucalyptus. The riverine belt is badly degraded and has no tree population of ecological or economic importance, except some old banyan trees that should be preserved. The edge vegetation includes mostly grasses, primarily *Typha angustata*, *Saccharum spontaneum*, *saccharum munja*, *Tammarix aphylla*. No rare species of both plants and animals are found onsite. Impact assessment rating shown below:

Table 6-12 Impact Significance (Ecology)

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Impacts to existing Flora and Fauna	1	1	1	Impact of low severity (negligible impact)

6.4.6 Resource Use

It is assumed that the project will have a high demand for electricity for its 8 hr construction schedule to provide electric power to the offices, to light up the construction site and to supply power for construction equipment. In addition, a high volume of fuel is necessary to transport materials, for fuel driven equipment and for the generator use. A diesel generator is used as the primary provider of power to the construction site therefore will not compete or use existing power lines.

Water is utilized for construction activities for drinking and domestic use (e.g. sanitation) however it is the contractor's responsibility to make the arrangements for providing for safe water supply during construction. Other resources that is utilized for the project are rocks, sand and other materials which is locally sourced within the Yangon or the other regions within Myanmar.

Table 6-13 Impact Significance of Resources Use

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Requirement for Electricity	1	1	1	Impact of low severity (negligible impact)
Water use requirement	3	1	2	Impact of low severity (negligible impact)

6.4.7 Socio-economic

6.4.7.1 Vehicle movement

Only land transportation is used for the transportation of construction supplies to the project area. About 10 trucks per day are expected to and from the project area. The project site is on Yangon-Maubin road about 1.2 km east of Twantay Bridge. The project expects to hire about 71 employees that can be local or from nearby villages.

No significant increase in onland traffic congestion is envisioned as traffic is very light in Twantay area. However, employees from nearby villages will still need to commute to the project site thus contributing to the traffic.

6.4.7.2 Local economy

Over the course of six months, the total job opportunities created by the mill is 71. Employment priority is reserved for peoples from the neighboring villages.

Consequently, local economy is expected to boom during the construction phase of the project. Businesses can expect increased number of customers due to the mill's employees' basic needs such as meals and personal hygiene products. The project proponent will likely turn to the local

stores for basic supplies such as stationery, construction materials and other commodities. The new job opportunities created by the project will raise the socio-economic status of the area.

6.4.7.3 Child labor

About 38.20% of Twantay Township residents were under 14 years old. Moreover, most of the township households earn between 100k-200k kyats per month and the residents mostly finished primary education.

As the mill hires the construction work force, child labor can become an issue if no proper regulation exists. This is due to the high percentage of under 14 population, low household income and high dropout rate from school in the area. Moreover, because of the increased economic activity in the region, local businesses will likely seek cheap child labor. However, because of the low number of employment that the mill creates during the construction phase as well as an expected moderate increase in the local economy, the issue of child labor will not be an impact of high severity in the construction phase.

6.4.7.4 Community safety

During the construction phase, trucks and other motorized vehicles will operate for transportation of construction supplies. Moreover, the construction activities will produce air and water pollutants. Additionally, residents from nearby villages will commute to the project site for job.

Since there are no playgrounds or parks in the project area, it is very likely that children will play on the roads and streets, putting them at risk of traffic accidents. Furthermore, pollution of ecosystem by lead, benzene and other hazardous compounds if released to the environment at significant amounts can affect the health local communities. However, there are no indications that this is likely to occur. Moreover, the influx of commuters to the project area can put children at risk of human trafficking and child abuse.

6.4.7.5 Occupational safety

General construction activities such as mechanical and electrical work will occur during the construction phase of the project as well as working at height in some instances.

Even though injuries are inevitable in workplaces but the severity varies on the type of work performed and the availability of protective equipment. Construction events during the dry and hot season can expose workers to heat shock. During the wet season, workers are prone to slipping and electrical injuries. Chemical and physical hazards will also be present at the work site. Loud noises from the construction work can have hearing impact on the workers.

Impact summary

The following table is the impact summary for the construction phase:

Table 6-14 Impact Summary for Construction Phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Vehicle movement	2	2	2	Impact of low severity (negligible impact)
Local economy	2	2	3	Impact of moderate severity (moderate impact)
Child labor	2	2	2	Impact of low severity (negligible impact)
Community safety	2	2	3	Impact of moderate severity (moderate impact)
Occupational safety	2	2	4	Impact of moderate severity (moderate impact)

6.5 Operational Phase Impact Assessment

The environmental aspects considered in operational phase are air quality, soil and groundwater, waste, noise, socio-economic, socio-cultural and ecology.

6.5.1 Air Quality

6.5.1.1 Fugitive Emissions

In Rice Processing Complexs fugitive emissions are generated from various sections during handling of raw rice /brown rice (white / parboiled), cleaning & milling of raw rice /brown rice (white / parboiled) , handling, storage of bran and disposal of bran due to various activities in the mills. The following are the areas where fugitive emissions from the operation of the Rice Processing Complex:

6.5.1.2 Fugitive Emission during handling of raw rice /brown rice (white / parboiled) from Unloading to cleaner

- During Unloading of raw rice /brown rice (white / parboiled) (cutting open the Gunny bags and releasing Raw rice /brown rice (white / parboiled)
- At different stages of lifting and discharging of raw rice /brown rice (white / parboiled) rice through bucket elevator
- Transfer points (belt to belt; belt to elevator; elevator to cleaner)
- Storage Bins (emissions from Raw rice /brown rice (white / parboiled) is discharged by Bucket Elevator)
- Locations of free fall of raw rice /brown rice (white / parboiled) (fine dust getting airborne due to free fall)

6.5.1.3 Fugitive Emission during Cleaning of raw rice /brown rice (white / parboiled)

- During pre-cleaning (mostly in Rotary Drums- fines separated due to movement and free fall of Raw rice /brown rice (white / parboiled))
- During raw rice /brown rice (white / parboiled) cleaning in raw rice /brown rice (white / parboiled) cleaner/ vibrating screen (due to rigorous movement of raw rice /brown rice (white / parboiled) , fines are generated)
- De-stoner machines (fines get extracted)
- Final cleaning in Raw rice /brown rice (white / parboiled) cleaners (fines are extracted out).

6.5.1.4 Fugitive Emissions during Milling of raw rice /brown rice (white / parboiled)

- At different stages of lifting and discharging of raw rice /brown rice (white / parboiled) /rice through bucket elevator (fines get airborne due to movement, fall of Raw rice /brown rice (white / parboiled) / Rice)
- During polishing of rice (fines are generated due to polishing)
- During grading of rice in rice grader (fines carried along with rice)

6.5.1.5 Emission from the fumigation to infected rice bag

The fumigation of Aluminium Phosphide 56% Tablet rice bag if pests are found can emitted and that impact to harm of the health of workers.

6.5.1.6 Emission from power generations

Diesel Generator

3 back up diesel generators are in place in order to ensure that the operations of the Rice Processing Complex go unhampered in case of lack of electricity.

To calculate, the Australian National Pollutant Inventory Emission estimation technique manual for Combustion engines Version 3.0 June 2008 was used as basis of calculating emissions for stationary engines.

$$E_i = P \times \text{Ophrs} \times EF_i \times (100-ER / 100)$$

Equation 2

Where:

E_i =Emission of substance i for a specific engine type (kg/day)

P =Average rated engine power (kW)
= 450 kw

Ophrs =Vehicle operating hours (h/day)
= 8 hours/day

EF_i =Emission factor of substance
= 0.25

ER =Emission reduction efficiency for substance
= 25%

i =Substance i (-)

Table 6-15 Estimated Emission Stationary in an Eight (8) Hour Operations

Substance	Power (KW)	Average Operating hours (h/day)	Emission factor (kg/kWh)	Efficiency Rating	Emissions (kg/d)
Carbon monoxide	450	8	0.0033	0.25	8.91
Oxides of nitrogen	450	8	0.0079	0.25	21.33
Particulate matter 10.0 µm	450	8	0.00043	0.25	1.161
Total volatile organic compounds	450	8	0.00038	0.25	1.026

it should also be noted that the diesel generator is used only if the power requirement of the Rice Processing Complex increases.

Thus, impact to the ambient air is considered not significant. Short term, localized impacts may be experienced during this period especially if the generator set is not regularly maintained and uses high sulphur content fuel.

6.5.1.7 Vehicular emissions

Another potential sources of air quality impact during the operation of the Rice Processing Complex facility, include vehicle emissions from the delivery trucks for raw materials as well as final product to be delivered to clients. Depending on the amount of materials required, the number of delivery trucks will vary. The total production capacity of the Rice Processing Complex is approximately 280 tons per day Provided that the capacity of the heavy goods vehicle (HGV) be higher than 25 tons. This will depend on the demand of the customer and the delivery of the raw rice /brown rice (white / parboiled) rice schedule.

To calculate, the Australian National Pollutant Inventory Emission estimation technique manual for Combustion engines Version 3.0 June 2008 was used as basis of calculating emissions for heavy goods vehicle (HGV) that is used to transport the raw rice /brown rice (white / parboiled) rice into the Rice Processing Complex and the processed rice out to customers.

$$E_i = P \times \text{Ophrs} \times \text{LF} \times \text{EF}_i \quad \text{Equation 4}$$

Where:

- E_i = Emission of substance i for a specific engine type (kg/day)
 P = Average rated engine power (kW)
 = 260kw
 OpHrs = Vehicle operating hours (h/day)
 = 8 hours/day
 LF = Load factor utilised in facility operations for equipment type (-)
 = 6.8 kg/m³
 EF_i = Emission factor of substance
 = 0.25i, for given engine and fuel type (kg/kWh)
 i = Substance i (-)

Table 6-16 Estimated Emission of Heavy Goods Vehicle (HGV)

Substance	Power (KW)	Average Operating hours (h/day)	Emission factor (kg/kWh)	Load Factor	Emissions (kg/d)	Onsite Emissions (1 hour on average) (kg)
Carbon monoxide	260	8	6.81	0.25	3541.2	442.65
Oxides of nitrogen	260	8	23	0.25	11960	1495
Particulate matter 10.0 µm	260	8	1.8	0.25	936	117
Total volatile organic compounds	260	8	1.8	0.25	936	117

Transportation inside the Rice Processing Complex facility would include the use of forklifts which is necessary to transport materials within the site. The estimated amount of emission is shown in Table 6-16 above. These however are relatively lower in comparison to the traffic load of the nearby road where hundreds of vehicles emit, NO_x, SO_x, and PM₁₀, the contribution of the Rice Processing Complex operations, related traffic and forklift usage emissions are therefore considered minimal.

Impact Summary

The main air quality impact for the proposed Rice Processing Complex are as follows;

- Fugitive emissions from Rice Processing Complexing operations (PM₁₀)

- Emissions from vehicles
- Emissions from back up diesel generator.

The magnitude of the impact is localized, however the amount of fugitive emissions may be significant if not suitably mitigated. The diesel generator is used only if the power requirement of the Rice Processing Complex increases or when the lack of Electricity from National Grid.

Emissions from the vehicles is not be significant as the vehicles will only be on site as soon as the rice raw rice / brown rice (white / parboiled) / processed rice is delivered / collected from the Rice Processing Complex therefore is temporary. The summary of impact is shown in the table below. Recommended measures are described in Section 7.

Table 6-17 Impact Summary for the Operations Phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Fugitive emissions from Rice Processing Complexing operations (PM10)	1	3	3	Impact of moderate severity (moderate impact)
Emissions from delivery vehicles (HGV)	3	2	2	Impact of moderate severity (moderate impact)
Emissions from back up diesel generator.	1	1	2	Impact of low severity (negligible impact)
Emission from the fumigation to infected rice bag	1	1	1	Impact of low severity (negligible impact)

6.5.2 Soil & Groundwater

The main potential sources of pollution that may affect the quality of the soil and groundwater include:

- leaks and spills from the backup generator and fuel tank;
- spills from the use of cleaning materials used; and
- Storm water/rainwater.

6.5.2.1 Fuel Tank and Diesel Generator

During the operations phase, a backup diesel generator is installed in order to ensure that during the maintenance / breakdown if the Rice Processing Complex will need additional power supply, the backup diesel generator is able to provide for it.

The diesel generator will have the capacity of 500 KVA and the diesel storage tank for operations has not been finalized by the proponent as of the time of the IEE.

During this phase, spill may occur when the diesel tank is refilled. Fuel may leak from certain portion of the generator and leach to the soil and potentially onto the groundwater. Spills and leaks may leach to the underlying soil and may potentially impact on the groundwater. When rain occurs, the impact of leaked fuel would be even greater as the rainwater would facilitate leaching of the fuel through the soil profile and down to the groundwater.

6.5.2.2 Machines

Machines and equipment is used for the Rice Processing Complex operations. If spills of oil and grease from the machine areas are left unattended and not regularly cleaned, then spills on the concrete floor may have the potential to contaminate the soil and groundwater.

6.5.2.3 Storm Water

Some places in Myanmar experience the occurrence of flood as a result of heavy rains in the mountain areas that flow into the flat lower terrain, making some areas serve as catch basin. However, these are intermittent and occur occasionally particularly during the start and / or end of the winter season.

Impact Summary

Potential soil and groundwater contamination is an issue if the storage area is not made impervious. Severity is estimated to be moderate if not mitigated. Oil spills and leaks from vehicles are considered to present minor impact. Limited number of vehicles is expected onsite.

Table 6-18 Impact summary from oil spills and leaks by vehicles

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Leaks and spills from the backup generator and fuel tank	1	3	2	Impact of low severity (negligible impact)
Spills from the use of cleaning materials used	1	1	1	Impact of low severity (negligible impact)
Storm water/rainwater.	1	1	1	Impact of low severity (negligible impact)

6.5.3 Waste

The following table are the waste streams coming from the Rice Processing Complex operations.

Table 6-19 Waste streams coming from the Rice Processing Complex operations

Waste Water	Solid Waste
Rice Processing Complexing	
<i>Waste water from raw rice /brown rice (white / parboiled) cleaning</i>	The light empty grain, mud balls, dust and soil Un-hulled Raw rice /brown rice (white / parboiled) Small Broken Rice Bran layer and Germ Large Broken Rice Rice with Mole, Yellowish and Darker Color Rice
Diesel Generator	
<i>Waste Oil</i>	<i>Clean-up materials (such as rags); Drums, containers and tins with remains of diesel containers</i>
Office and Administrative offices	
<i>Cleaning water and Black water</i>	MSW (food waste, office waste etc.)

6.5.3.1 Solid Waste from operations

Of these wastes, bran from the milling operations wastes are by far the largest. However, this is used as fuel to run the biomass power plant that is set up. Therefore only waste from the power generation is present, since this process is intrinsically safe and fuel is organic the impact to the soil and groundwater is negligible. All solid waste shall be disposed of suitably, waste may be disposed through an accredited third party waste contractor or to another company that will use the waste as raw materials.

6.5.3.2 Waste water from raw rice /brown rice (white / parboiled) cleaning

Water used for soaking the rice raw rice /brown rice (white / parboiled) , if not properly managed could result in water pollution and odor nuisance to local community. Entry of untreated wastewater in large amount can increase the “nutrients” on the receiving body of water. Wastewater treatment may be considered prior to disposal thereto.

6.5.3.3 Sewage

In the construction phase, sewage generation was estimated to be 380 Liters per day. Less sewage generation is anticipated as the number of total staff is 71 during the operation phase. Sewage was computed semi-quantitatively based on the common flush-toilet using only 0.42 US gallons (1.5 litres) of water per flush. An assumption of 2 toilet flushing per employee was used for calculation of the sewage generation per day, as detailed below.

Basis: 71 workers during operations

Total Estimated Sewage waste = 1.5 liters / toilet flush × 2 toilet flush / day × 71
Construction Workers
= 213 liters / day

For sludge composition in sewage waste, the factor of 0.11 kg/ employee (T. Hicks 2007: 2nd Ed. Handbook of Civil Engineering Calculation) and sludge density of 721 kg/ m³ (SI Metric Website: www.simetric.co.uk) was used as reference.

$$\begin{aligned}\text{Sludge in Sanitary Waste} &= 0.11 \text{ kg/ worker} \times 71 \text{ workers} \times 1/ 721 \text{ kg/ m}^3 \\ &= 0.01 \text{ m}^3 \text{ per day or 10 liters per day} \\ \text{Total Sewage} &= \text{Total Estimated Sewage waste} + \text{Sludge in} \\ &\quad \text{Sanitary Waste} = 213 \text{ liters} + 10 \text{ liters} \\ &= 223 \text{ liters per day}\end{aligned}$$

The wastewater produced is stored in a septic tank for collection once the tank is full. This is collected and disposed by an accredited waste management contractor.

6.5.3.4 Hazardous Waste

The hazardous waste may represent significant risk to human health and environment if managed improperly. Adequate handling, temporary storage and disposal are required to reduce threat to human health and to prevent potential contamination of the soil/groundwater. A proper waste management protective measure needs to be taken in order to minimize impact on environment. Typical construction hazardous waste stream contains

- Clean-up materials (such as rags);
- Drums, containers and tins with remains of diesel containers; and
- Machinery lubricants.

6.5.3.5 Food Waste

To quantify the food waste generation during operation, a factor of 1.5 lb. (0.45kg)/ employee /day (Source: California Department of Resources Recycling and Recovery (CalRecycle) Website: Estimated Solid Waste Generation Rates for Commercial Establishments 2009) was used as reference. The calculation is shown below.

In operation phase:

$$\begin{aligned}\text{Estimated food Waste} &= 0.45\text{kg/ employee per day} \times 71 \text{ employees} \\ &= 32 \text{ kg/day}\end{aligned}$$

Impact Summary

The unmitigated impact with regards to wastes generation during the operation of the Rice Processing Complex is considered to be as follows;

Table 6-20 Impact significance of waste generation during Rice Processing Complex operation phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Solid Waste	1	2	1	Impact of low severity (negligible impact)
Waste water from raw rice /brown rice (white / parboiled) cleaning	1	2	1	Impact of low severity (negligible impact)
Sewage Water	1	1	1	Impact of low severity (negligible impact)
Hazardous Waste	1	2	2	Impact of low severity (negligible impact)
Food Waste	1	1	1	Impact of low severity (negligible impact)

With this assessment, mitigation measures are recommended to be implemented during operation activities in section 7.

6.5.4 Noise

The reprocessing plant will have an automated system to produce an estimated 280 tons of processed rice per day.

There is no significant noise during operations as all machines are electrical powered which are placed in enclosed areas.

The proponent will comply with the noise requirements set by the relevant the ministry.

Impact Summary

The unmitigated impact with regards to noise generation during the operation of the Rice Processing Complex is considered to be as follows;

Table 6-21 Impact significance of noise quality during Rice Processing Complex operation phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Noise from Milling Operations	1	2	1	Impact of low severity (negligible impact)
Noise from Power generators	1	2	1	Impact of low severity (negligible impact)

6.5.5 Ecology

The introduction of this Rice Processing Complex will have a minor impact to the ecology of the area where the proposed Rice Processing Complex is located. The area is devoid of any significant fauna and floral population.

Air emissions shall be transient and limited within the Rice Processing Complex as the area is far from sensitive receptors. Particulate matter (PM10) is controlled as the proposed Rice Processing Complex is a closed system wherein PM10 is limited to within the plot.

Impact Summary

The unmitigated impact towards the ecological aspect during the operation of the Rice Processing Complex is considered to be as follows;

Table 6-22 Impact significance of ecological aspect during Rice Processing Complex operation phase

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Ecology	1	2	2	Impact of low severity (negligible impact)

6.5.6 Resource Use

This Rice Processing Complex will require at most 2500 KW /day of electricity from the national power grid when available.

6.5.7 Socio-economic

6.5.7.1 Vehicle movement

About 20-50 trucks will operate per week for the transportation of mill supplies; 10-15, for the distribution of products. There is no estimate available for the number of vessels that is commuting at the jetties.

Since land transportation in the area is usually light, no significant increase in traffic congestion is expected for roads and streets in project area. However, people from the neighboring villages are expected to join the operational phase workforce making minimal increase in daily commuting traffic possible. A moderate increase of traffic in Twantay Canal could occur due to the narrow breadth of the canal as well as the existing traffic.

6.5.7.2 In-migration

Approximately 71 people are expected to join the mill's operational phase workforce. The employment is primarily offered to the local residents. On the other hand, the mill's raw materials will come from Twantay area as well as from the delta region.

Consequently, a moderate influx of migrant population to the project location is expected due to the low country GDP, high demand for jobs, and the project site's proximity to a major metropolitan area despite the difficulty to commute to the area and the relatively small number

of direct employment created by the company. Moreover, as the people from the delta region commute frequently to the area, the booming local economy will invite in-migrants to start businesses in the region. As a result conflict among the in-migrants and the local communities, increased crime rates and competition among businesses can occur.

6.5.7.3 Local economy

Approximately people are expected to join the mill's operational phase workforce. The employees can be both local and in-migrants. The mill's raw materials will come from Twantay area as well as from the delta region.

As a result, the increase in employment among the local communities will raise the overall socio-economic status of the region. Moreover, local farmers and dealers in the area will receive competitive rates for their products as monopoly of the rice industry in the area is reduced. Currently only small shops and street vendors exist in the vicinity of the project area. This is highly likely to change as the mill starts operating. The area will experience influx of frequent commuters and in-migrants that will depend on the local businesses for their basic needs such as meals, snacks and personal care supplies. Vehicles coming to the area will need to be maintained increasing business opportunities for the mechanics and vehicle equipment stores in the area.

6.5.7.4 Child labor

About 38.20% of Twantay Township residents were under 14 years old. Moreover, most of the township households earn between 100K-200k kyats and the residents mostly finished primary education.

As the mill hires the operational phase work force, child labor can become an issue if no proper regulation exists. This is due to the high percentage of under 14 population, low household income and high dropout rate from school in the area. Moreover, because of the increased economic activity in the region, local businesses will likely seek cheap child labor. The issue of child labor is expected to be an impact of high severity during the operational phase due to the large size of workforce needed, the booming economy in the region and the mill's dependency on suppliers and dealers from both Twantay Township and the delta region.

6.5.7.5 Community safety

During the operation phase, an increased number of trucks and motorized vehicles will operate on the streets and roads in the project area. Vessel traffic in the canal will also increase. Crime rate in the project area has the likelihood of increasing due to the influx of frequent commuters and in-migrants in the area. The mill will produce emissions such as particulate matters, noxious gases and leaks of oils, a small amount of hazardous chemicals and nonhazardous domestic solid wastes. This can affect the health of the nearby community.

As there are no designated playground and parks in the project area, it is very likely that children will play on the neighborhood streets and roads, putting them at risk of traffic accidents. The project will not employ any hazardous substances and has proper chemical handling and spill

management procedures so the likelihood of the community being exposed to any hazardous chemical is unlikely.

6.5.7.6 Occupational safety

The four major components of the project during the operational phase are mill operation, jetty operation, electricity generation and water treatment for milling process. The project expects to employ 71 persons during the operational phase.

Firstly, mill operation produces particulate matters that can adversely affect the respiratory system of the employees. Another is the heavy lifting such as transportation of rice bags can deteriorate the workers' musculoskeletal health. Working on the jetties poses risks such as slipping especially during the wet season. During the hot and dry season, workers can suffer from heat shock. The handling of corrosive chemicals need careful practice or expose the workers to serious or even fatal injuries.

Rice Processing Complexes have a history of dust cloud explosion. Stringent safety measures is put in place to prevent the occurrence of such incidents.

Impact Summary

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Vehicle movement	4	4	3	Impact of high severity (high impact)
In-migration	2	4	3	Impact of moderate severity (moderate impact)
Local economy	4	4	4	Impact of high severity (high impact)
Child labor	4	4	3	Impact of high severity (high impact)
Community safety	4	4	4	Impact of high severity (high impact)
Occupational safety	1	4	4	Impact of moderate severity (moderate impact)

6.5.8 Decommissioning Phase

At present the Rice Processing Complexing facility has not been constructed, but will commence construction and eventual operations after all of the legal requirements and permits are met. If it is assumed that the life span of the Rice Processing Complex may be 25- 50 years, then at the end of the 25- 50 year period, the owner may either refurbish or decommission it.

If for any reason it is decided that the company will not continue with the operations of the Rice Processing Complex, then the proponent will decide to convert it to another business that is feasible. The following sections identify the potential impacts that decommissioning could create.

It should be noted that as part of the decommissioning / dismantling phase Proponent would appoint a contractor that has experience in the dismantling of an agro-industrial facility (as the Rice Processing Complex is fully automated). This contractor would abide by all relevant local and national guidelines with regard to decommissioning practices and where necessary would apply international best practice. At all times, they would report to Project Proponent, who would monitor their compliance. This would enable Proponent to ensure that decommissioning was performed with minimal contamination to the environment and in the safest way possible. A decommissioning environmental management plan must be prepared indicating the disposal and management of demolition wastes from the building and other related structures.

6.5.9 Air Quality

During the decommissioning phase it is unlikely that activities would result in significant impacts to the air environment. Given the current activities performed at the facility there are no areas where there could be the potential for release of harmful particles. However, if the diesel fuel tank used as fuel for backup generators are not handled correctly there could be the potential for release of gas/fumes into the atmosphere.

There would be an increase in the vehicle movements during the decommissioning phase compared to the number of vehicle movements during the operational phase. However, the increase is only temporary and short term. Thus, the impact to the ambient air quality would also be short term and insignificant.

6.5.10 Soil & Groundwater

Decommissioning of the backup generator and the removal of the diesel fuel tank for the generator has the potential to result in accidental spills. The removal of oil tanks and any liquid containers could also result in accidental spills. These spills may filter through the soil and could be carried to the groundwater.

6.5.11 Waste

6.5.11.1 Hazardous Waste

At the time of decommissioning there is the potential that Project Proponent would have empty, part full or full oil containers which would have to be disposed of or sold as per waste guidelines. Any part of the area that had become contaminated would also have to be remediated and any contaminated material would have to be disposed of following Best Practice and in accordance with the MONREC's regulations.

6.5.11.2 *Liquid Waste*

It is unlikely that the decommissioning phase will result in the generation of significant amounts of liquid wastes. It is not expected that there would be cleaning performed with water.

6.5.11.3 *Solid Waste*

At the time of decommissioning, solid waste from the offices would probably be generated in the form of paper and stationery, boxes, packaging materials, used pens, and junk or old furniture. In addition, any damaged furniture may be disposed of. Scrap metal kept stored within the site may also be disposed of.

Aside from office wastes, significant amount of solid wastes may also be generated if Proponent decides to demolish their built structures or buildings. Solid wastes such as broken concrete blocks and steel reinforcements are generated. Along with bulk concrete slabs, finer debris and dusts will also be produced during demolition.

6.5.12 *Noise*

Demolition work for workshop sheds and office building has the potential to generate moderate to high levels of noise from the demolition activities and the movement of machineries (e.g. trucks and cranes). It can be expected that the noise during demolition is significantly greater than noise generated during the operational phase by Rice Processing Complex activities or from trucks visiting the facility. However, it should be noted that the noise level during demolition is noncumulative, which means it is only temporary and short term lasting during the demolition/decommissioning phase.

6.5.13 *Ecology*

It is unlikely that the decommissioning of the facility would have any impact on the ecology of the site or the immediate surrounding area. The site is devoid of any ecological significance and by decommissioning the facility this will not be changed. Should the proponent leave the site they may offer the site for lease to other companies that will undertake activities that should be compatible to the designated land use. During the interval between the completion of the decommissioning of the proponent and the construction of the new venture, birds and other local wildlife may roam the area and a short term use of habitat will result.

6.5.14 *Resource Use*

The actual decommissioning activities are unlikely to use much higher amounts of electricity and water than used during normal daily operations at the facility. Taking into consideration that decommissioning works is performed only during daytime; the projected amount of electricity consumption for equipment would be minimal. It is possible that the decommissioning activities is mostly manually performed by workers of the appointed contractors.

Water is utilized for drinking and domestic use (e.g. sanitation) however it is the contractor's responsibility to make the arrangements for providing for safe water supply during decommissioning phase.

After the decommissioning of the proponent, the demand for water is less due to the loss in the demand from the decommissioned facility. Similarly the electricity/power consumption is reduced with the closing down of the facility at the end of its life.

6.5.15 Socio-economic

6.5.15.1 Local economy

At the end of the operation phase, the mill will stop purchasing products from the farmers and dealers. As a result, the number of people commuting to the area will fall significantly. Eventually, the mill will stop employing the whole project workforce.

The significant fall in demand of whole rice grains and parboiled rice due to the mill closure will adversely affect the local farmers and dealers' income. Other rice buyers will lower the purchasing price because of the lack of competition in the area. Moreover, 71 employees from the mill will lose income due to unemployment. Additionally, businesses in the area will expect a drop in the number of customers as less people travel to the area.

6.5.15.2 Community and occupational safety

Crimes related to unemployment can happen during the decommissioning phase. However, the extent is expected to be moderate to insignificant due to the low population density of the region. Hazards at work during the phase include personal injury, inhalation of toxic materials, electrocution, fire, explosion, fall from heights, crushing, machinery tipping/rolling, noise and trips/slips/falls. Dust cloud explosion may affect the households closest to the mill should this happen.

Impact summary

Impact	Spatial Scale	Temporal Scale	Impact Intensity	Severity
Vehicle movement	4	4	3	Impact of high severity (high impact)
Community safety	2	2	4	Impact of moderate severity (moderate impact)
Occupational safety	1	2	4	Impact of low severity (negligible impact)

7. ENVIRONMENTAL MANAGEMENT PLAN

Proper implementation of a comprehensive Environmental Management plan (EMP) will ensure that the proposed Rice Processing Complex meet regulatory and operational performance (technical) criteria. This section describes the modalities provided in the project for the implementation of the proposed mitigation measures to its potential negative impacts. It proposes the institutional responsibilities for the implementation of the mitigation measures, the implementation indicators, the time frame for monitoring and follow-up and also budget for the implementation activities.

7.1 Objectives of the Environmental Management Plan

The purpose of the Environmental Management Plan for the construction and operations of the Daewoo Rice Processing Complex is to ensure that sufficient procedural measures are in place to reduce associated adverse impacts to acceptable or manageable levels. This environmental management plan aims at recommending improvements to management structures and procedures to ensure that future management recognizes the impacts assessed in this IEE.

7.1.1 *Environmental Management Plan for Construction Phase*

Construction Environmental Management Plan (CEMP) provides specific environmental guidance for the construction phase of a project.

The intention of the CEMP is to ensure that activities borne from the construction phase of the project are managed and mitigated in order to ensure that the impacts is within applicable local and international standards. Table 46 below shows the construction environmental management plan for the proposed Twantay Rice Processing Complex complex.

7.2 Construction Environmental Management Plan (CEMP) Framework

The proposed organizational structure for the construction of the proposed project is shown in the diagram below. The arrows indicate the proposed communication channels throughout the execution of the construction phase between Management, its contractors and subcontractors.

7.3 Overall Budget for Implementing the EMP

The overall estimated budget for the implementation of the mitigation measures is around 10,000,000 Kyat per year (including around 5,000,000 Kyat for environmental monitoring plan and 5,000,000 Kyat for implementing sub-plans). The cost of implementing the EMP is difficult to quantify as many of the mitigation measures to be adopted for the EMP are linked to the overall operational cost of the Project.

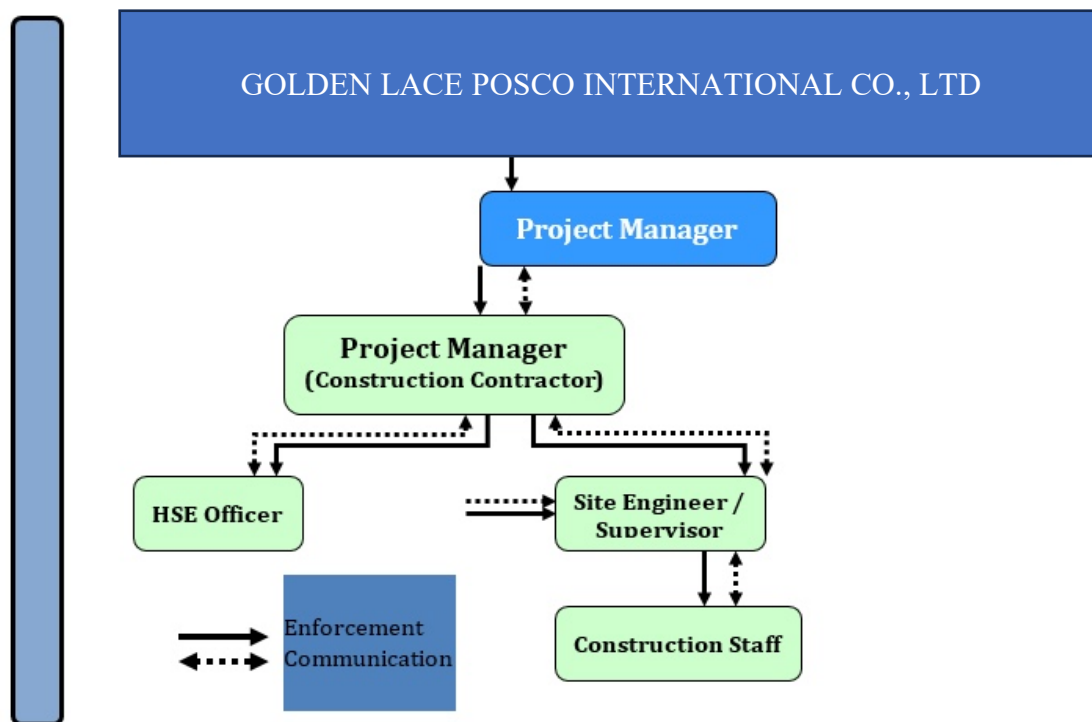


Figure 7-1 Organizational structure for construction phase

It is recommended that all environmentally relevant internal communication throughout construction phase duration be carried out according to this structure to ensure its effectiveness. Environmental aspects of the project is communicated through regular meetings.

It is recommended that all personnel working throughout the construction of the Rice Processing Complex (regular staff and contractors) should strictly follow the roles and responsibilities described in Table 7-1.

Table 7-1 Roles and Responsibilities for Construction Phase

Role	Recommended Environmental Responsibilities
Mill Manager (Rice Processing Complex)	<ul style="list-style-type: none"> Overall responsibility for environmental performance during construction of the proposed project; Overall responsibility for enforcement of environmental measures and compliance with all legal regulations; Perform regular audits of the construction site; Communicate environmental aspects of the project with contractors management; Follow up any major incident or non-compliances with the contractors HSE Officer Review the contractor's monthly Environmental Report.

Role	Recommended Environmental Responsibilities
	<ul style="list-style-type: none"> Review and approve the updates on the Construction Environmental Management Plan (CEMP). Make sure that all environmental aspects considered in the IEE are covered in the CEMP.
Construction Contractor	
Project Manager	<ul style="list-style-type: none"> Overall responsibility for contractor and supplier environmental performance on site; Communicate environmental aspects of the project with the Rice Processing Complex Management Allocate sufficient resources to ensure compliance and effectiveness of CEMP; Review the reports of any environmental issues that may arise; Ensure that any complaints are addressed immediately and the same to be communicated to the Client within 24 hours of receiving the complaint; Ensure all employees, subcontractor employees and visitors under HSE orientation on safety awareness; Carry out document control and review of monthly Environmental Report, audit reports, incident reports and community complaints; Pass onto the Client the monthly Environmental Report.
HSE Officer	<ul style="list-style-type: none"> Responsible for environmental performance in the site for day to day basis; Prepare, implement, manage, review and update the CEMP; Ensure CEMP complies with local requirements, relevant international regulations and International Best Standards, and measures suggested in this document; Check CEMP compliance with legal requirements on a regular basis; Perform audits on a regular basis according to monitoring checklist approved by the Client that complies with all relevant legislation and policies; Ensure environmental meetings are held on a regular basis; Communicate and advise the project manager and subcontractor of all environmental aspects; Produce and implement corrective action plans for any incident and non-compliance to remediate the issue. The plan should include actions to prevent incidents or non-compliance in the future. If environmental damage has occurred adequate steps for rehabilitation need to be included; Maintain a register of all environmental complaints, incidents and non-compliances. This should provide the date, a brief description of complaint/incident/non-compliance and any corrective actions taken; Coordinate with Local Environmental Authorities and accompany on visits to the site; Develop and implement environmental training/awareness;

Role	Recommended Environmental Responsibilities
	<ul style="list-style-type: none"> Produce a monthly Environmental report for the Client, detailing compliance, any incidents and non-compliances, any alterations in the CEMP or mitigation measures. Pass the report to the project manager for review.
Engineers	<ul style="list-style-type: none"> Undergo environmental training; Understand environmental procedures and environmental aspects relevant to construction activities; Report to the Site Manager/ HSE Officer all incidents and non-compliances; Ensure that CEMP is followed and adhered to by the subcontractor /construction staff.
Construction Staff	<ul style="list-style-type: none"> Undergo environmental training; Understand environmental procedures and environmental aspects relevant to activities; In case of any accident or non-compliance report to Contractor's Project Manager / Site Engineers; and Comply with the CEMP.

Table 7-2 Environmental Management Plan Measures for the Construction Phase

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
Noise Management Plan					
Impairment of hearing capacity due to the exposure to high noise levels (Occupational Health)	<ul style="list-style-type: none"> No noisy activity to be carried out during night-time. Ensure proper PPE to be provided for the workers; Turn off the engines of heavy machinery when not in use; Provide noise reduction muffs for the equipment with high noise levels; Conduct audiometric test for the workers who continuously work in the high noise level areas (contractors). 	<p>The Site Engineer will:</p> <ul style="list-style-type: none"> Ensure that noise level meet guidelines and if necessary put in place noise control measures. Ensure the PPEs provided are sufficient/ appropriate for the particular work. No unnecessary blowing of horns at anytime. 	<ul style="list-style-type: none"> Before construction commences all the Preventive measures should be in place. During the construction phase the use of PPE should be practiced. 	<ul style="list-style-type: none"> None PPEs are in stock 	<ul style="list-style-type: none"> Estimated budget allocation for noise level Management Plan is already included in EMPs.
Waste Management Plan					
Material Solid Waste/Hazardous Waste	<ul style="list-style-type: none"> Segregation of hazardous waste from solid waste shall be performed; The waste in a dedicated area with all bins 	<p>The Site Engineer will:</p> <ul style="list-style-type: none"> Liaise with the hazardous waste contractor and check the tip receipts. 	<ul style="list-style-type: none"> Entire construction period 	<ul style="list-style-type: none"> Cost of collectio of normal waste skips by local waste management company (6 cubic meters skips) 	<ul style="list-style-type: none"> Estimated budget allocation for Waste Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	<p>securely covered Dispose the wastes immediately;</p> <ul style="list-style-type: none"> Compile trip receipts from the waste contractor once a month to ensure that they are disposing of the waste correctly. 	<ul style="list-style-type: none"> Produce the log template for checking the waste disposal compliance. Perform the visual inspection of the waste containers and complete the relevant log. The logs are the proof that the inspections have been performed. 			
Water Quality	<ul style="list-style-type: none"> Vegetated swales and storm water management drains will offer separation to disturbed or exposed soil Grey water (spent water from washing and shower) and water used for wheel washing is recycled after removing sediments. Primary treatment may be used to treat the grey water. 	<ul style="list-style-type: none"> Ensure that all storm drain are cleared of debris so as to ensure free flow of water. All grey water is reused, where practicable. Ensure that all septic tanks' capacity are adequate and impervious to leaks. 	<ul style="list-style-type: none"> Entire construction period 	<ul style="list-style-type: none"> Negligible as it is part of the construction cost. 	<ul style="list-style-type: none"> Estimated budget allocation for Water Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	<ul style="list-style-type: none"> Septic tanks and soakage pits is constructed having adequate capacity Conducting regular training, monitoring, and inspection scheme together with keeping track of water uses minimizes wastes and leaks from faulty connections and faucets Remaining sludge is disposed as instructed by the environmental regulations. 	<ul style="list-style-type: none"> Ensure regular visual checks for any leaks that may be present. Ensure that waste management plan is implemented. 			
Air Quality Management					
Emissions from Vehicles and equipment usage	<ul style="list-style-type: none"> Ensure proper working condition of the delivery trucks entering the area; Use only low sulfur fuel for the vehicles and equipment; 	<p>The Site Engineer will:</p> <ul style="list-style-type: none"> Ensure proper working condition of vehicles. Report the incidents to the Project Manager if any. Weekly inspect the site and the Housekeeping of 	<ul style="list-style-type: none"> During construction 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Estimated budget allocation for Air Quality Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
		the area.			
Particulate and toxic gas emissions from cutting and welding activities	<ul style="list-style-type: none"> Make sure proper personal protective equipment like face masks and goggles are used while working. 	<p>The Site Engineer will:</p> <ul style="list-style-type: none"> Make sure that safe working conditions are provided for the workers; Assure the provision of proper PPE for the workers; Report the incidents if any. <p>The Project Manager will:</p> <ul style="list-style-type: none"> Inspect and evaluate all the safety aspect of the welding; Ensure the PPE provided are appropriate for the activity and meets the standards specifically 	<ul style="list-style-type: none"> During welding operations 	<ul style="list-style-type: none"> Cost of PPE for welding 	<ul style="list-style-type: none"> Estimated budget allocation for Air Quality Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
		<p>mentioned for the activities.</p> <ul style="list-style-type: none"> Keep record of all the incidents and maintenance history of the equipment. 			
Dust from soil disturbances (e.g. earthworks) and vehicle movement.	<ul style="list-style-type: none"> Apply dust suppression by spraying water to the project site, especially in areas where the excavation is carried out. Ensure that dust are localized and will not affect the adjacent areas where sensitive receptors are located. Dust suppression can be done using water trucks. Cover stockpiles of sand, soil and similar material or surround them with wind breaks. Cover trucks hauling dirt and debris to 	<ul style="list-style-type: none"> Ensure that regular dust suppression activities are performed on a regular basis. Ensure that all trucks hauling soil are adequately protected. 	<ul style="list-style-type: none"> Throughout the construction phase 	<ul style="list-style-type: none"> Cost of Water and rent of trucks. 	<ul style="list-style-type: none"> Estimated budget allocation for Air Quality Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	reduce spillage on to paved roads surface or have adequate free board to prevent spillage.				
Soil and Ground Water					
Spills/ leaks from Fuel Equipment and Vehicles	<ul style="list-style-type: none"> Ensure only well maintained equipment and vehicles used for the construction / installation phase. Daily inspection of the project site and completion of logs. Bunds or liners under Fuelstorage tanks (if present) 	<p>The Site Engineer will:</p> <ul style="list-style-type: none"> Perform the visual inspections and complete the relevant log. The logs are the proof that the inspections have been performed; Complete the incident report should any leak occur. 	<ul style="list-style-type: none"> During Construction 	<ul style="list-style-type: none"> Cost of Collection of Hazardous waste collection 	<ul style="list-style-type: none"> Estimated budget allocation for Soil and Water Quality Management Plan is already included in EMPs.
Oils and Lubricants	<ul style="list-style-type: none"> Daily visual inspection of storage areas for leaks from containers, completion of log; Daily visual inspection for incorrectly stored containers, completion of log; Ensure containers only stored in designated 	<p>The Project Manager will:</p> <ul style="list-style-type: none"> Maintain all the records of the logs; Inspect weekly the storage areas for the assurance of the spill/leak proof system; 	<ul style="list-style-type: none"> During Construction 		<ul style="list-style-type: none"> It is included in the investment budget.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	<p>areas, completion of log;</p> <ul style="list-style-type: none"> Ensure empty / full containers are only stored in designated areas, completion of log; Ensure the stored wastes (e.g. empty / used paints and thinner) are properly collected and handled by the authorized personnel daily. 	<ul style="list-style-type: none"> Make sure proper housekeeping is done throughout the site. 			
Soil erosion and sediment control	<ul style="list-style-type: none"> Careful planning process with regards to establishing work zones, defining phases of construction, and exercise minimize soil disturbance during the construction. Enhance Construction management procedures involving scheduling of earth removal and developing the sequence and 	<ul style="list-style-type: none"> Ensure that all work schedule are defined and phased. Construction management procedures shall be developed before the start of the work. Ensure that all silt fences are strategically 	<ul style="list-style-type: none"> Before the start of construction, and where required, throughout the construction phase. 	<ul style="list-style-type: none"> Materials for silt fences and labor cost. 	<ul style="list-style-type: none"> It is included in the investment budget.

Potential Impact	Proposed Mitigating Measures	Role and Responsibility of Construction Contractor	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	<p>methods or optimum soil protection plans.</p> <ul style="list-style-type: none"> ▪ Silt fences is strategically placed in order to minimize surface runoffs especially during the monsoon season. ▪ Where practicable, topsoil is saved and used as backfill later. 	installed around the construction site.			

7.4 Operational Environmental and Social Management Plan

The organizational structure for the operational phase is shown in Figure 7-2 below. The following table presents the roles mentioned in the organizational diagram with the operational hierarchy in the organization. Table 7-3 is the Environmental Management Plan and Measures for the Operations Phase while is the Social Management Plan and Measures for the Operations Phase.

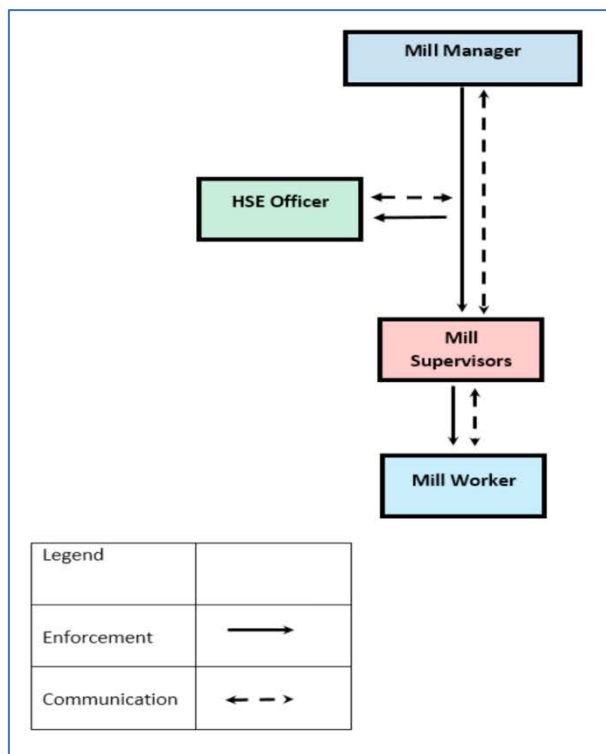


Figure 7-2 Proposed Organization Structure for the Operational Phase

Table 7-3 Roles and Responsibilities for Operations Phase

Role	Recommended Environmental Responsibilities
Mill Manager (Rice Processing Complex)	<ul style="list-style-type: none"> Overall responsibility for environmental performance during operations of the proposed project; Overall responsibility for enforcement of environmental measures and compliance with all legal regulations; Perform regular audits of the Rice Processing Complex operations; Follow up any major incident or non-compliances with the HSE Officer Review the monthly Environmental Report. Review and approve the updates on the Operations Environmental Management Plan (OEMP). Make sure that all environmental aspects considered in the IEE are covered in the OEMP.
Mill Supervisors	<ul style="list-style-type: none"> Undergo environmental training; Understand environmental procedures and environmental aspects relevant to operational activities; Report to the HSE Officer all incidents and non-compliances; Ensure that OEMP is followed and adhered to by all staff.
Mil Workers	<ul style="list-style-type: none"> Undergo environmental training; Understand environmental procedures and environmental aspects relevant to activities; In case of any accident or non-compliance report to Mill supervisors / HSE officer and Comply with the OEMP
HSE Officer	<ul style="list-style-type: none"> Responsible for environmental performance in the site for day to day basis; Prepare, implement, manage, review and update the CEMP;

Role	Recommended Environmental Responsibilities
	<ul style="list-style-type: none"> ▪ Ensure CEMP complies with local requirements, relevant international regulations and International Best Standards, and measures suggested in this document; ▪ Check CEMP compliance with legal requirements on a regular basis; ▪ Perform audits on a regular basis according to monitoring checklist approved by the Client that complies with all relevant legislation and policies; ▪ Ensure environmental meetings are held on a regular basis; ▪ Communicate and advise the project manager and subcontractor of all environmental aspects; ▪ Produce and implement corrective action plans for any incident and non-compliance to remediate the issue. The plan should include actions to prevent incidents or non-compliance in the future. If environmental damage has occurred adequate steps for rehabilitation need to be included; ▪ Maintain a register of all environmental complaints, incidents and non-compliances. This should provide the date, a brief description of complaint/incident/non-compliance and any corrective actions taken; ▪ Coordinate with Local Environmental Authorities and accompany on visits to the site; ▪ Develop and implement environmental training/awareness; ▪ Produce a monthly Environmental report for the Client, detailing compliance, any incidents and non-compliances, any alterations in the CEMP or mitigation measures. Pass the report to the project manager for review.

Table 7-4 Environmental Management Plan and Measures for the Operations Phase

Potential Impact	Proposed Mitigating Measures	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
Air Quality				
Fugitive emissions from Rice Processing Complexing operations (PM10)	<ul style="list-style-type: none"> Ensure that the whole milling plant is suitably covered to limit / prevent the windblown dusts / PM10 from dispersing Regular housekeeping / cleaning should be performed in order to remove dust that have accumulated within the plant. Fugitive emission control system shall be installed in in areas where the source of the fugitive emissions has been identified. The fugitive emission control should be adequate in order to control the release of the fugitive emissions to the receiving environment. <p>The following are the areas where control is required:</p> <ul style="list-style-type: none"> Unloading and Conveying Section, Raw rice /brown rice (white / parboiled) rice cleaning Section, Milling Section 	<ul style="list-style-type: none"> Before operating the mills 	<ul style="list-style-type: none"> Included as part of engineering design 	<ul style="list-style-type: none"> Estimated budget allocation for Air Quality Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
Emissions from delivery High Goods Vehicles (HGV)	<ul style="list-style-type: none"> All trucks transporting raw rice /brown rice (white / parboiled) , bran and milled rice should be well maintained and should be in good running condition. All trucks carrying raw rice /brown rice (white / parboiled) from suppliers and milled rice to clients should properly cover the material to prevent wind whipping. 	<ul style="list-style-type: none"> During Operations 	<ul style="list-style-type: none"> Minimal this is part of the prequalification requirement as third-party transport contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Air Quality Management Plan is already included in EMPs.
Emissions from back up diesel generator	<ul style="list-style-type: none"> Ensure suitable maintenance of diesel generators. Ensure that maintenance records are available on site when required for audit. 	<ul style="list-style-type: none"> During operation 	<ul style="list-style-type: none"> Minimal cost as this is part of the prequalification requirement as third -party contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Air Quality Management Plan is already included in EMPs.
Soil and Groundwater				
Leaks and spills from the backup generator and fuel tank	<ul style="list-style-type: none"> Ensure that equipment that is used have no oil/fuel leaks. If any machines/vehicles/equipment are found to have any leaks they should not be used. No maintenance (where practicable) of equipment should be performed onsite that can potentially 	<ul style="list-style-type: none"> During operations 	<ul style="list-style-type: none"> Minimal cost as this is part of the prequalification requirement as third - party contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Water Quality Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	contaminate the soil and groundwater.			
Spills from the use of cleaning materials used.	<ul style="list-style-type: none"> The storage of fuel should be in a dedicated area provided with drip trays / bund walls with impermeable flooring. Containment in case of a spill should be in place. 	<ul style="list-style-type: none"> During operations 	<ul style="list-style-type: none"> Minimal cost as this is part of the prequalification requirement as third-party contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Water Quality Management Plan is already included in EMPs.
Storm water/rainwater.	<ul style="list-style-type: none"> Good and adequately maintained drainage to facilitate run-off and minimize the likelihood of flooding 	<ul style="list-style-type: none"> Before operations 	<ul style="list-style-type: none"> Included as part of engineering design 	<ul style="list-style-type: none"> Estimated budget allocation for Water Quality Management Plan is already included in EMPs.
Waste				
Solid Waste	<ul style="list-style-type: none"> Ensure sufficient number of proper sanitary facilities provided for employees. The sewage should be collected and disposed by an approved contractor. Wastes produced from the office areas, e.g. paper waste, should be recycled if possible; 	<ul style="list-style-type: none"> During operations 	<ul style="list-style-type: none"> Minimal cost as this is part of the prequalification requirement as third-party contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Waste Management Plan is already included in EMPs.

Potential Impact	Proposed Mitigating Measures	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	<ul style="list-style-type: none"> Wastes in general in the facility should be properly segregated for easier collection and disposal Ensure that all trash containers in the mill are properly sealed at all times to prevent waste being blown and scattered. Adopt the 4 Rs of waste management: Reduce, Reuse, Recover and Recycle. Reducing the amount of waste will result in savings for the company in terms of the resources to be used in disposing the wastes. By recovering, reusing and recycling, additional savings with materials is realized. 			
Wastewater from raw rice /brown rice (white / parboiled) rice cleaning	<ul style="list-style-type: none"> Recycle where practicable all wastewater produced from the milling operations 	<ul style="list-style-type: none"> Before operations and within operations phase 	<ul style="list-style-type: none"> Minimal as this is included as part of the training cost. 	<ul style="list-style-type: none"> Estimated budget allocation for Wastewater Management Plan is already included in EMPs.
Sewage Water	<ul style="list-style-type: none"> Ensure that septic tanks capacity are adequate to store sewage waste. 	<ul style="list-style-type: none"> Before operations 	<ul style="list-style-type: none"> Included as part of engineering design 	<ul style="list-style-type: none"> Estimated budget allocation for Wastewater Management Plan is

Potential Impact	Proposed Mitigating Measures	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
				already included in EMPs.
Hazardous Waste	<ul style="list-style-type: none"> Ensure segregation of hazardous waste from non- hazardous waste. Ensure that all hazardous was containers are suitably stored and labelled. Ensure that disposal of hazardous was is as per local environmental requirement. 	<ul style="list-style-type: none"> During operations 	<ul style="list-style-type: none"> Minimal cost as this is part of the prequalification requirement as third -party contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Waste Management Plan is already included in EMPs.
Food Waste	<ul style="list-style-type: none"> Food wastes and food containers should be properly disposed to prevent pest infestation of the area (flies, rats, etc.) Suitable disposal of all food waste materials. Ensure that only accredited contractors will dispose of all waste materials. 	<ul style="list-style-type: none"> During operations 	<ul style="list-style-type: none"> Minimal cost as this is part of the prequalification requirement as third -party contractor. 	<ul style="list-style-type: none"> Estimated budget allocation for Waste Management Plan is already included in EMPs.
Noise				
Noise from Milling Operations	<ul style="list-style-type: none"> All noise producing machineries / equipment (particularly the milling 	<ul style="list-style-type: none"> During operations 	<ul style="list-style-type: none"> Included as part of engineering design 	<ul style="list-style-type: none"> Estimated budget allocation for Noise Level Management

Potential Impact	Proposed Mitigating Measures	Time table for implementation	Cost of the mitigation measure	Financial Guarantee
	<p>machineries) is properly maintained to reduce noise levels.</p> <ul style="list-style-type: none"> ▪ Vehicular trips should be performed only during daylight hours in order to limit the impacts of any increased noise generated on external receptors and for future occupancy of neighbouring plots; ▪ Implement noise reduction measures (e.g. enclosure for the mills, provision of plot boundary walls) if noise level exceeds 70 dB (A) at the fence line. ▪ Employees working near high noise equipment should be equipped with earplugs or earmuffs. ▪ Regular medical hearing ability test should be done for the employees working near the high noise level equipment. ▪ Consultation with nearb residential areas if extreme levels of noise are predicted 			Plan is already included in EMPs.

Table 7-5 Social Management Plan

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
Operational phase (The project construction is estimated to be completed by mid 2018 and the operation phase will begin immediately after that)					
In-migration	<ul style="list-style-type: none"> Employment preference is given to the local residents 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will develop a local hiring plan 	<ul style="list-style-type: none"> 6 months before the beginning of the employment of the operational workforce 	<ul style="list-style-type: none"> Cost of developing the local hiring plan 	<ul style="list-style-type: none"> Estimated budget allocation for Social Management Plan is already included in EMPs.
	<ul style="list-style-type: none"> Build capacity of the local communities to be suited for the operational phase employment needs 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR and CSR teams will develop the capacity building programs 	<ul style="list-style-type: none"> 6 months before the beginning of the employment of the operational phase workforce 	<ul style="list-style-type: none"> Cost of providing the capacity building programs 	<ul style="list-style-type: none"> To be included in the CSR budget by 2% of Project Profit.
	<ul style="list-style-type: none"> Develop staff housing for the migrant workers to prevent shortage of housing in the project area Reinforce non-tolerance policy for disrespecting the local culture and norms and a transparent system of investigating the problems 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics team will evaluate the housing situation in the project area and collaborate with the HR and construction teams to determine the capacity of the staff housing Golden Lace POSCO International Co., Ltd 	<ul style="list-style-type: none"> During the construction phase, at the beginning of the operational phase and annual monitoring of the housing situation in the project area 6 months before the start of the operational phase 	<ul style="list-style-type: none"> Cost of evaluation of the local housing situation and construction of the staff housing None 	<ul style="list-style-type: none"> Estimated budget allocation for Social Management Plan is already included in EMPs. None

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
		HR team will develop non-tolerance policy and collaborate with the CGM committee and the local police force to investigate the grievances			
Decommissioning, closure and post-closure					
Decline of the local economy	<ul style="list-style-type: none"> Support employment Support programs for the current and recently unemployed employees 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will assist the affected employees to get new jobs 	<ul style="list-style-type: none"> Starting from 6 months before the end of the operational phase and throughout the decommissioning phase 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> To be included in the CSR budget by 2% of Project Profit.
	<ul style="list-style-type: none"> Provide financial support for skill improvement trainings for those who cannot find immediate job placement 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR and CSR teams will collaborate to provide financial support 	<ul style="list-style-type: none"> 6 months after the beginning of the decommissioning phase 	<ul style="list-style-type: none"> Cost of the skill improvement trainings 	<ul style="list-style-type: none"> To be included in the CSR budget by 2% of Project Profit.
	<ul style="list-style-type: none"> Assist business partners to look for alternative markets for their goods and services 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics teams will identify the alternative markets 	<ul style="list-style-type: none"> Starting from 6 months before the end of operational phase 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
		and supervise the business partners			
Valid throughout the project					
Improvement of the local economy	<ul style="list-style-type: none"> Inform the public on the goods and services in demand and build capacity of the local communities to form business partnerships with the project proponent 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics and CSR teams will collaborate to perform public information disseminations and support capacity building programs 	<ul style="list-style-type: none"> 6 months before the beginning of each project phase and at the time of starting the project phases 	<ul style="list-style-type: none"> Cost of public dissemination sessions and establishing the capacity building program for business development 	<ul style="list-style-type: none"> To be included in the CSR budget by 2% of Project Profit.
	<ul style="list-style-type: none"> Develop short term skill training programs and provide financial support for prospective workers to obtain relevant trainings for skilled work 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics and CSR teams will collaborate to develop training and financial support for training programs 	<ul style="list-style-type: none"> 6 months before the beginning of each project phase 	<ul style="list-style-type: none"> Cost of the training and financial support programs 	<ul style="list-style-type: none"> To be included in the CSR budget by 2% of Project Profit.
	<ul style="list-style-type: none"> Identify local sources for the goods and supplies in demand 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics team will perform the survey of the merchants and the service 	<ul style="list-style-type: none"> 6 months before the start of each project phase and quarterly update of the initial survey findings 	<ul style="list-style-type: none"> Cost of the initial survey and the quarterly updates for each project phase 	<ul style="list-style-type: none"> It is included in the investment.

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
		providers in the project area			
	<ul style="list-style-type: none"> Employment preference is given to the local residents 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will develop a local hiring plan 	<ul style="list-style-type: none"> 6 months before the beginning of the employment for each project phase 	<ul style="list-style-type: none"> Cost of developing the local hiring plan 	<ul style="list-style-type: none"> It is included in the investment.
Child labor	<ul style="list-style-type: none"> Include the Union and the corporate child labor policies in the HR policy 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will review the Union and corporate child labor policies 	<ul style="list-style-type: none"> 6 months before the beginning of the employment of each project phase 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> Request copies of the government ID, birth certificate or clearance from local administrative to confirm the age of the job applicants 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will request the documents at the time of submitting the applications and keep the records 	<ul style="list-style-type: none"> At the time of employment for each project phase 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
	<ul style="list-style-type: none"> Develop non-tolerance policy on child labor for the business partners 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics team will audit the workforce of the business partners quarterly 	<ul style="list-style-type: none"> At the beginning of each project phase and quarterly afterwards 	<ul style="list-style-type: none"> Cost of auditing the business partners' workforce 	<ul style="list-style-type: none"> It is included in the investment.

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
		without any prior notification			
Community safety	<ul style="list-style-type: none"> Develop community health and safety plan and fire emergency plan in accordance with the Union and corporate policies 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics team will develop the plans be collaborating with the relevant departments in each project phase 	<ul style="list-style-type: none"> 6 months before the beginning of each project phase 	<ul style="list-style-type: none"> Cost of the formation of the plans and consultations with third party experts as needed 	<ul style="list-style-type: none"> It is included in the investment.
	<ul style="list-style-type: none"> Develop community health and safety pla and fire emergency plan in accordance with the Union and corporate policies Reinforce the capacity of the local police and firefighting teams 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics team will develop the plans by collaborating with the relevant departments in each project phase Golden Lace-Daewo logistics and CS teams will collaborate with the appropriate agencies and provide financial support 	<ul style="list-style-type: none"> 6 months before the beginning of each project phase 6 months before the beginning of each project phase 	<ul style="list-style-type: none"> Cost of the formation of the plans and consultations with third-party experts as needed Costs related to reinforcing the local police and firefighting teams 	<ul style="list-style-type: none"> It is included in the investment. To be included in the CSR budget by 2% of Project Profit.

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
Occupational safety	<ul style="list-style-type: none"> Develop occupational health and safety (OHS) plan in accordance with the Union, corporate and ILO policies 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will collaborate with the relevant departments in each project phase to develop the OHS plan 	<ul style="list-style-type: none"> 6 months before the beginning of each project phase 	<ul style="list-style-type: none"> Cost of developing the OHS plan 	<ul style="list-style-type: none"> It is included in the investment.
	<ul style="list-style-type: none"> Develop OHS training module and appoint a OHS trainer 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd HR team will develop the training module and provide OHS training quarterly 	<ul style="list-style-type: none"> 3 months before the beginning of each project phase for development of OHS training module at the beginning of each project phase and quarterly for OHS training 	<ul style="list-style-type: none"> Cost of developing the OHS training module and providing OHS trainings 	<ul style="list-style-type: none"> It is included in the investment.
Vehicle movement	<ul style="list-style-type: none"> Develop employee carpooling system Develop a procurement plan to manage the traffic in and out of the mill 	<ul style="list-style-type: none"> Golden Lace POSCO International Co., Ltd logistics and HR teams will collaborate for the details of the carpool program 	<ul style="list-style-type: none"> 2 months before the construction phase begins and quarterly evaluation of the carpool program for effectiveness 2 months before each project phase 	<ul style="list-style-type: none"> Initial cost of the vehicles and regular costs for vehicle operations and maintenance Cost of developing raw material procurement plan 	<ul style="list-style-type: none"> It is included in the investment. To be included in the CSR budget by 2% of Project Profit.

Potential Impact	Proposed Mitigating Measures	Relevant personnel and responsibilities	Time table for implementation	Cost of the Mitigation measure	Financial Guarantee
		<ul style="list-style-type: none"> Golden Lace POSCO logistics team will supervise the raw material suppliers according to the procurement plan Golden Lace POSCO International Co., Ltd logistics team will manage the traffic related to each project phase according to the procurement plan 	begins and quarterly assessment of the traffic in and out of the mill for effectiveness	and quarterly assessments	

7.5 Contingency/Emergency Response Plan

Contingency planning is necessary for accidents occurring during operation phases of development. The main components of a contingency plan include measures to prevent accidents that would result in the predicted impacts; the proponent's response and clean-up if there is an accident; and the organization and training of personnel to implement preventive measures and respond if there is an accident. Among the measures to be instituted, these will include at the minimum:

7.5.1 Medical Emergencies

An adequate clinic or trained first-aid personnel can be assigned to provide medicines and treat minor wounds and ailments at the Rice Processing Complex. A complete first –aid kit should be readily available and accessible at all times.

7.5.2 Emergency Response Teams

An emergency response team can be organized, trained, and deployed to implement the necessary remedial measures. The team should be equipped with appropriate communication equipment and first -aid kits to effectively respond to future emergencies. Coordination with the local emergency response department/s is undertaken to establish and designate the appropriate responsibilities and roles of the members and to organize an effective and speedy response team.

7.6 Fire Management Plan

The Fire Management Plan is designed to prevent damage caused by fire in the factory premises and to extinguish the fire quickly and easily in the event of a fire.

Fire extinguishers and hoses are strategically located within the site and within the buildings. The appropriate fire alarms is also be strategically located inside the buildings in case of fire.

The Fire Management Plan is attached in **Appendix O**.

7.7 Biodiversity Management Plan

The impacts from the loss of habitat during the operation phase are predominately related to the accidental release of chemicals and oil through Canal Water. However, the habitat on site is classed as Natural Habitat as a no-net-loss of biodiversity value.

In terms of environmental management measures to reduce impacts on biodiversity, the following activities will be carried out:

- Reducing the flow rate of surface water discharge to canal in Rainy season to reduce the alteration of vegetation of fencing area at operation phase;
- Protection and management of fish habitats and fish resources around the project area and replanting only the original species in restoration activities; and
- Replantation for occupied forest areas as compensation.

7.8 Disaster Management Plan (Flooding)

A disaster management plan for the Twantay Rice Mill which is near the Twantay Channel should focus on flood preparedness and response. This includes elevating storage areas, implementing early warning systems, and establishing evacuation procedures. Additionally, this plan should address potential impacts from other river-related hazards like erosion and water contamination.

7.8.1 Flood Preparedness

- **Elevate Storage:** Raise rice storage areas (warehouses, etc.) using dunnage, pallets, or other methods to minimize flood damage.
- **Early Warning System:** Implement a system to monitor river levels and receive timely alerts about potential flooding.
- **Evacuation Plan:** Develop clear evacuation routes and procedures for personnel and valuable equipment.
- **Sandbagging/Barriers:** Have sandbags or other barriers readily available to reinforce vulnerable areas.
- **Backup Power:** Ensure a reliable backup power source for critical operations during floods.
- **Secure Equipment:** Secure or relocate machinery and equipment susceptible to flood damage.

7.8.2 River-Related Hazards:

- **Erosion Control:** Implement measures to prevent riverbank erosion that could impact the mill's infrastructure.
- **Water Quality Monitoring:** Establish a system for monitoring water quality and ensuring it remains suitable for processing.
- **Alternative Water Source:** Identify and prepare an alternative water source in case the river becomes contaminated or unusable.
- **Drainage:** Ensure proper drainage to prevent waterlogging around the mill during heavy rainfall.

7.8.3 Response and Recovery:

- **Emergency Supplies:** Stockpile essential supplies like first-aid, food, and water for emergency situations.
- **Communication Plan:** Establish clear communication channels for coordinating with emergency services and personnel.
- **Post-Disaster Assessment:** Conduct thorough assessments after a disaster to identify damage and prioritize repairs.

- **Training and Drills:** Conduct regular training and drills for all staff to ensure they understand the plan and their roles.
- **Insurance:** Ensure adequate insurance coverage to mitigate financial losses from disaster-related damage.

7.8.4 Additional Considerations:

- **Collaboration:** Coordinate with local authorities, emergency services, and other relevant organizations.
- **Environmental Impact:** Consider the potential environmental impact of the mill's operations and develop mitigation strategies, especially related to water discharge and waste management.
- **Government Regulations:** Adhere to all relevant government regulations and guidelines related to disaster preparedness and environmental management.

8. ENVIRONMENTAL AND SOCIAL MONITORING

Monitoring is a means of verifying the effectiveness of the management and mitigation measures contained within the management plans listed above. Key objectives of the monitoring process are to:

- Confirm effectiveness of management and mitigation measures;
- Ensure compliance with Applicable Standards (Myanmar National Environmental Quality (Emissions) Guidelines and other applicable mentioned in chapter 3-9);
- Monitoring the status of, and impacts on, identified sensitive receptors;
- Provide an early warning that any of the control measures or practices are failing to achieve their desired performance and ensure changes can be implemented to remedy these practices;
- Determine whether environmental and social changes are attributable to Project activities, or as a result of other activities or natural variation; and
- Provide a basis for continual review and improvements to Project design and execution.

8.1.1 *Performance Indicators and Monitoring Schedule*

Physical, biological and social environmental management components of particular significance have been identified as performance indicators. A comprehensive monitoring plan for each performance indicator has been prepared for all phases of the Project and is presented in below Table.

This includes the tentative parameters to be measured, methods to be utilised, sampling locations, frequency of measurements, detection limits and responsibilities for implementation and supervision.

Table 8-1 Environmental and Social Monitoring Subplan with Budget

Monitoring Parameter	Monitoring indicator	Monitoring Location	Monitoring Method	Frequency	Responsibility	Cost at Operation Phase (Kyats)	Remarks
Air Quality *	NO _x , SO ₂ , PM _{2.5} , PM ₁₀ and O ₂ (Same parameters of baseline survey)	1) Project area at 16°43'45.47"N, 96° 0'41.59"E 2) Around the project area at 16°43'51.45"N, 96°0'41.96"E	Real-time monitoring system	6 monthly	GLPI Factory Manager or Third Party	2,000,000	
Water Quality *	Check compliance with Myanmar National Environmental Quality (Emissions) Guidelines for site runoff and wastewater discharges (Same parameters of baseline survey) Alkalinity (Alk), Magnesium (Mg ++), Sodium (Na+), Potassium (K+), Total Hardness (TH), Sulfate (SO ₄ -), Chloride (Cl-), Iron (Fe), Dissolve Oxygen (DO), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), pH, Ammonia-Nitrogen (NH ₃ -N), Turbidity,	(1) Surface Water (Canal) at 16°43'40.81"N, 96° 0'42.03"E (2) Groundwater at 16°43'45.59"N, 96° 0'31.94"E	Standard analytical methods	6 monthly	GLPI Factory Manager or Third Party	2,400,000	

Monitoring Parameter	Monitoring indicator	Monitoring Location	Monitoring Method	Frequency	Responsibility	Cost at Operation Phase (Kyats)	Remarks
	Salinity, Arsenic (As), Lead (Pb)						
Noise level*	dBA	Project area at 16°43'51.45"N, 96°0'41.96"E	Sound level meter meeting standard	6 monthly	GLPI Factory Manager or Third Party	100,000	
Soil Quality*	Check Compliance with described in EMP (Same parameters of baseline survey) pH, Salinity Electrical Conductivity, Cation Exchangeable Capacity, Potassium (Potash)	Project area at 16°43'43.20"N, 96°0'42.38"E	Standard analytical methods of Laboratories	6 monthly	GLPI Factory Manager or Third Party	500,000	
Inspection of Mitigation Compliance	General compliance with mitigation measures presented in the EMP of IEE.	All structural sites and facility sites and their surroundings	Visual inspection of all active work areas and inspection of records, and	6 monthly	GLPI Factory Manager	500,000	

Monitoring Parameter	Monitoring indicator	Monitoring Location	Monitoring Method	Frequency	Responsibility	Cost at Operation Phase (Kyats)	Remarks
			consultation with the people				
Public and Occupational health and safety (Clinic, medical doctor, first aid, PPE, awareness training)	Outbreak of epidemic disease in the village, site area, Number of workers reporting sickness, no of workers injured, Number of fatal incidents etc.	Project area and villages around the project	Direct observation, consultation with local people/com-munities and health officers, managers of camps and operational workforce, health care facilities of the Staff camps and sites.	Monthly	GLPI Factory Manager	1,000,000	Under CSR
Monitoring report to ECD				6 monthly		500,000	
Total Monitoring Cost for 6 monthly						7,000,000	

*Monitoring locations for those parameters should be the same of baseline survey.

8.1.2 Reporting Mechanism for Environmental and Social Monitoring Program

A robust reporting system will provide the Project with the necessary feedback mechanisms to ensure quality and timely implementation of the works. The reporting system will provide a mechanism to ensure that the measures proposed in the Project's IEE are implemented.

Prior to the commencement of operations, GLPI will finalise the format and frequency for reporting on the status and progress of environmental and social monitoring. The format will be designed to meet all the compliance conditions associated with the National requirements.

As per the EIA procedure (Notification No (616/2015) Chapter 9 Section 108), the Project Proponent shall submit monitoring reports to the MONREC on a frequency prescribed (at least every six (6) months).

8.1.3 Institutional Setting and Implementation Arrangements

GLPI is committed to providing resources essential to the implementation and control of the IEE. Resources include the appropriate human resources and specialized skills.

8.1.3.1 Operation Phase

The operation team of GLPI will be responsible for implementation of the associated mitigation measures during the operation phase. GLPI's staff, specifically the Safety and Environmental Department Head, will monitor the implementation of these mitigation measures. As for the construction phase, this will be achieved through implementation reviews conducted by the Safety and Environmental Department Head by various means including weekly operation meetings, review of operation log book, monthly and other operation reports etc. The documentation, reporting and communication requirements will be the same as those for the construction phase as presented above.

8.1.4 Update the Monitoring Plan

This Monitoring Plan will be updated, revised and reviewed internally on a regular basis to ensure its effectiveness in monitoring the environmental and social performance of the Project. The IEE of the Project will be reviewed on an annual basis.

Furthermore, in the event of an unanticipated impact and design change with respect to the Project standards (including National and International requirements), the IEE would be updated as necessary.

9. PUBLIC CONSULTATION AND DISCLOSURE

9.1 Introduction

Golden Lace POSCO International Company Limited is establishing a Rice Processing Complex in Htan Ta Pin Su Village, Ku Lar Tan Village Tract, Twantay Township, Yangon Region (96°0'41.272"E, 16°43'45.126"N). The project proponent is constructing twenty three structures over the course of 24 months with workforce up to 120 members. After the construction, the mill is operating with 71 employees. The operation phase of the project includes Rice Processing Complexing and jetty operation. The main purposes of conducting the public consultation are:

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

Chapter IV, section 7(m) of Environmental Conservation Law requires any development work in Myanmar to conduct environmental and social impact assessment (ESIA) before receiving permission from Myanmar Investment Commission. Since public consultation is one of the essential components of (ESIA), the following public consultation seminar was conducted for the Rice Processing Complex project.

9.2 Methodology and Approach

The significant receptors of the project development are determined to be Htan a Pin, Than Hpyu Yon and Kan Pat Yoe villages. Htan Ta Pin is the host village for this project. Than Hpyu Yon village is (2100) meters far from the project site in north-east direction, and Kan Pat Yoe village is (2200) meters far from the project site in south-west direction. The following methods were performed to assess the social impact of the project on the local communities:

Table 9-1 Methods to Assess the Social Impact

Information gathering	Public consultation
Questionnaires and surveys	Conferences/ Seminars

Random sample selection method was used to choose participants for the information gathering questionnaire. The questionnaire is provided in **Appendix P**.

9.3 Summary of Consultation Activities Undertaken

9.3.1 Public Consultation was done by Environ

Dr. Win Maung facilitated the public consultation meeting for forty five minutes followed by collection of baseline data by the members of EMC assessment team and the observers from Environ Co., Ltd.

The following is the detailed schedule of the public consultation meeting:

Date: 3rd Jul 2015 (Friday)

Time: 8:45 AM – 10:45 AM

8:45 – 9:30 AM (disclosure of project information and consultation with the public)

9:30 – 10:45 AM (baseline data collection survey/questionnaire and key informant interview simultaneously)

Place: House of a senior villager at opposite side of the project site

Participants: 39 persons with 29 interested villagers from above three villages, 3 Representatives of project proponent, 2 observers from Environ Co., Ltd., and 5 members of assessment team from EMC.

Table 9-2 Request for Services and Goods for Regional Development

No.	Participant's Name	Representative Village	Suggested Fact	Concerned Sector
1	U Mya Aye	Kan Pat Yoe	Establish rural health center	Health
2	U Sein Chit	Than Hpyu Yon	Improved access to clean water	Health & living quality
3	U Moe	Kan Pat Yoe	Improved access to electricity	Living Quality
4	U Hla Tin	Htan Ta Pin Su	Improved access to electricity	Living Quality
5	U Tint Lwin	Kan Pat Yoe	Renovate schools	Education
6	U Myint Lwin	Than hpyu Yon	Establish a school	Education
7	Daw Ohn Yi	Than Hpyu Yon	Improved access to clean water	Health and living quality
8	U Htay Win	Htan Ta Pin Su	Improved access to clean water	Health & living quality

9.3.2 Public Consultation was done for updating of environmental and social concerns

An **updated consultation meeting** was held at Meeting Hall of Rice Processing Complex in Twantay Township with various relevant stakeholders from Than Phyu Yon village, Htan Ta Pin Su village, Kan Pat Yoe village and Kan Be village around of the project area and staffs of Rice Mill.

The Presentation Materials are described in **Appendix Q**.

9.3.2.1 Public Consultation Meeting

Date: 15.5.2025 (Thursday)

Time: 13:00 to 15:00 pm

Location: Meeting hall of Rice Processing Complex in Twantay Township

Number of participants: Total (17)

Meeting Agenda-

- 1) Meeting Announcement for opening ceremony;
- 2) Explanation about Golden Lace POSCO International Co., Ltd. Daw Tin Htar Phone, HR Manager of Golden Lace POSCO International Co., Ltd;
- 3) Explanation about Project Description, Alternatives and current conditions of Rice Mill by U Lwin Phyo, Factory Manager of Rice Processing Complex (Twantay);
- 4) Explanation about Environmental Compliance Consultancy Co., Ltd by Daw Myat Mon Swe, Principal Consultant of Environmental Compliance Consultancy Co., Ltd;
- 5) Daw Myat Mon Swe explained continuously about the Laws and guidelines to be followed, type of Project and size specification, the purpose of the environmental impact assessment and the stages of the impact assessment, area of Influence for impact assessment, some of baseline survey results conducted in and around of project;
- 6) Discussion section to review of the questions asked by the participants and get comments and advises.
- 7) Announcement of ending the meeting.

Consultation Activities:

On the presentation of the project activities including impacts analysis and the results of baseline survey, participants discussed about their concerns on environmental point of view for water quality and CSR Programme to provide for Rural Health Care and Education.

The results of the Public Consultation meeting expressed concerns and suggestion are described in the following Meeting minutes and answered officially to all questions of all participants by GLPI and EnvCC.

Minutes of the meeting, Documentary photos of the meeting, and the participants' list of the meeting are described as follows. The recorded list of participants is illustrated in **Appendix R**.

Table 9-3 Meeting Minutes

No.	Comments of Participants	Responses
1)	U Thet Maung asked: - the measurement of water sample of Twantay canal is good or any harms in canal water?	Daw Myat Mon Swe, Principle consultant of EnvCC answered: - Due to the water sample of general raw water of Twantay canal, any harms as Standard was found.
2)	U Myint Oo Maung said that there is nothing complaints for the responsibilities of the Rice Mill because of the Job opportunities given with international standardized facilities at working area. Due to the safety priority and standardization for environmental conservation point of view, there is no hazards waste and wastewater to disclose to the canal water. According to the promoting of local trading for the brown rice gain and bran, it is promoted to the local business.	Daw Tin Htar Phone (HR Manager) from GLPI remarked that opinion with thanks.
2)	Daw Hnin Wai Phyo said that the promoting of the facilities of schools of villages nearby the project area such as Improved access to electricity and drinking water should be included in CSR Programme of GLPI.	- Noted by GLPI

Documentary photos of the meeting



Recording of list of participants

Documentary photos of the meeting



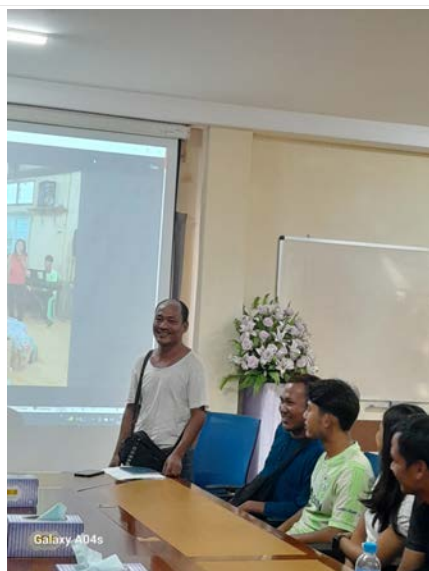
Participants at PCM



Presented by Daw Tin Htar Phone (HR Manager) from
GLPI



Presented by Daw Myat Mon Swe (Principle Consultant)
from EnvCC



Discussed by U Thet Maung



Commented by U Myint Oo Maung

Documentary photos of the meeting



Commented by Daw Hnin Wai Phyo



Discussed by Daw Tin Htat Phone and Daw Myat Mon Swe

Detail List of Participants

No.	Name	Position	Organization/ Address
Public			
1	Ma May Tha Zin Maung	Clark	Staff Quarter, Than Phyu Yon Village
2	U Myint Oo Maung	Maintainance	Staff Quarter, Than Phyu Yon Village
3	U Nay Lin oo	Store Keeper	Than Phyu Yon Village
4	U Myo San	Car Driver	Kan Pat Yoe Village
5	U Aye Min Htwe	Forklist Driver	Twantay
6	U Thet Maung	Warehouse Keeper	Staff Quarter, Than Phyu Yon Village
7	U Min Naing	Q.C.	Than Phyu Yon Village
8	U Kyaw Thiha	Forklist Driver	Kan Be Village
9	Daw Hnin Wai Phyo	Company Staff (Finance)	Than Phyu Yon Village
10	Daw Moe Thuzar Myint	Company Staff (Finance)	Staff Quarter, Than Phyu Yon Village
11	Daw Mya Thandar	Company Staff (HR)	Staff Quarter, Than Phyu Yon Village
12	U Thein Min Zaw	Store Clark	Than Phyu Yon Village
Golden Lace POSCO International Co., Ltd			
13	U Wai Lin Than	Manager	Admin and HR Department
14	Daw Tin Htar Phone	HR Manager	Admin and HR Department
15	U Lwin Phyo	Factory Manager	Management
Environmental Compliance Consultancy Co. Ltd			
16	Daw Myat Mon Swe	Principal Consultant	Environmental Compliance Consultancy Co. Ltd

No.	Name	Position	Organization/ Address
17	U Ko Ko Latt	Manager	Environmental Compliance Consultancy Co. Ltd

The original document for the recorded list of participants is illustrated in **Appendix N**.

The Socio-economic and Health Survey conducted in group discussion held with Factory Manager and local people. Some documentary photos of group discussion are illustrated as follows.

Socio-economic and Health Survey



9.4 Results of the Consultations

9.4.1 The locals' Attitudes Towards the Rice Processing Complex Project Development

An overwhelming percentage of the survey participants felt positive about benefits that the Rice Processing Complex project will bring. Figure 9-1 without posing any negative impacts to the local communities.

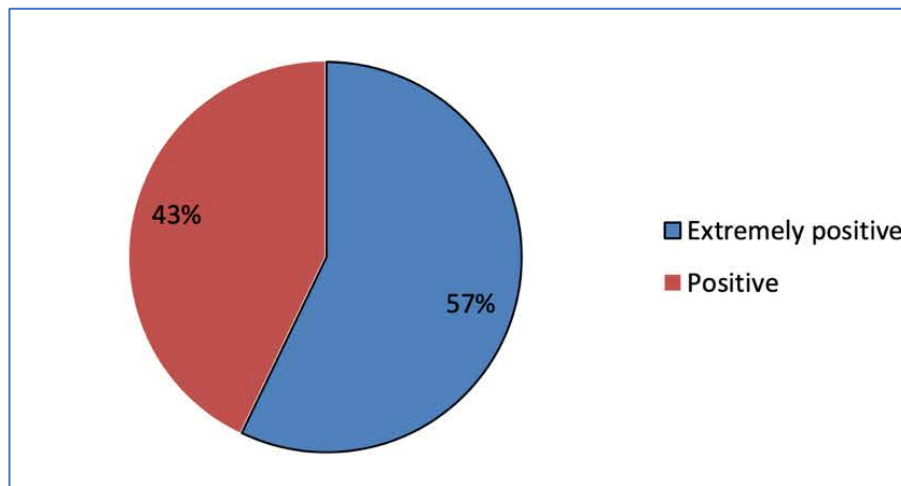


Figure 9-1 Attitudes of the survey respondents towards the Rice Processing Complex project

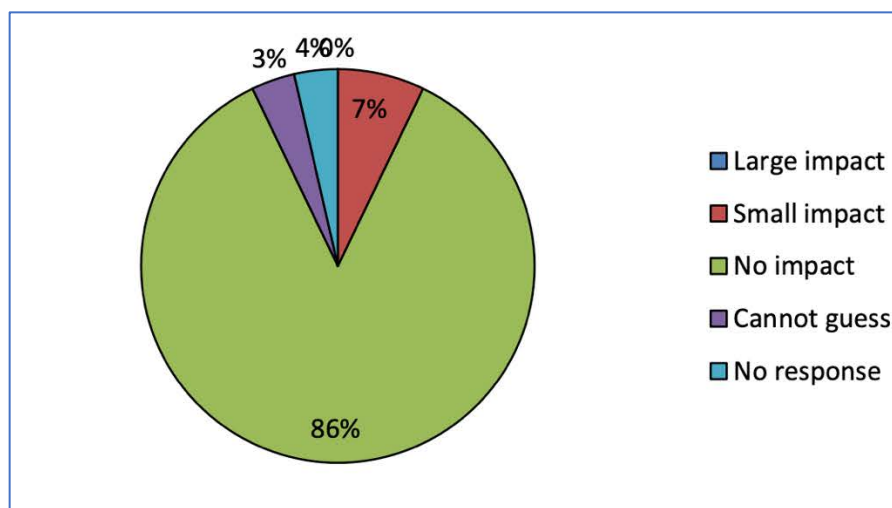


Figure 9-2 The survey respondents' perception on the negative impacts that the Rice Processing Complex projects will have on the local communities

9.5 Further Consultations

9.5.1 Objectives of the Consultations During All Project Phases

9.5.1.1 Operational phase

Since the operational phase is the longest of all the project phases, the impacts are more diverse long term. Therefore, the project proponent should use operational phase public consultations as a process to identify the adverse environmental and social impacts of the sugar mill project on the local communities that could be overlooked by the project proponent otherwise. In doing so, the project proponent is able to address the public concerns effectively and ensure a good relationship between the local communities and the project proponent.

9.5.1.2 Decommissioning, closure and post-closure phase

During this phase, the project proponent should use public consultations mainly to leave a footprint of responsible conduct of business. Instead of neglecting the turmoil in the public due to the significant changes, the project proponent should collaborate with the local communities to mitigate the adverse social impacts as much as possible, maintaining safety, security and stability of the local communities.

9.5.2 Consultation Committee(s)

9.5.2.1 Project liaison committee

A project liaison committee that will ensure that communication with all stakeholders is effectively maintained during the construction, operation and decommissioning/ closure/post closure phases. Figure 9-3 describes the structure of the project liaison committee.

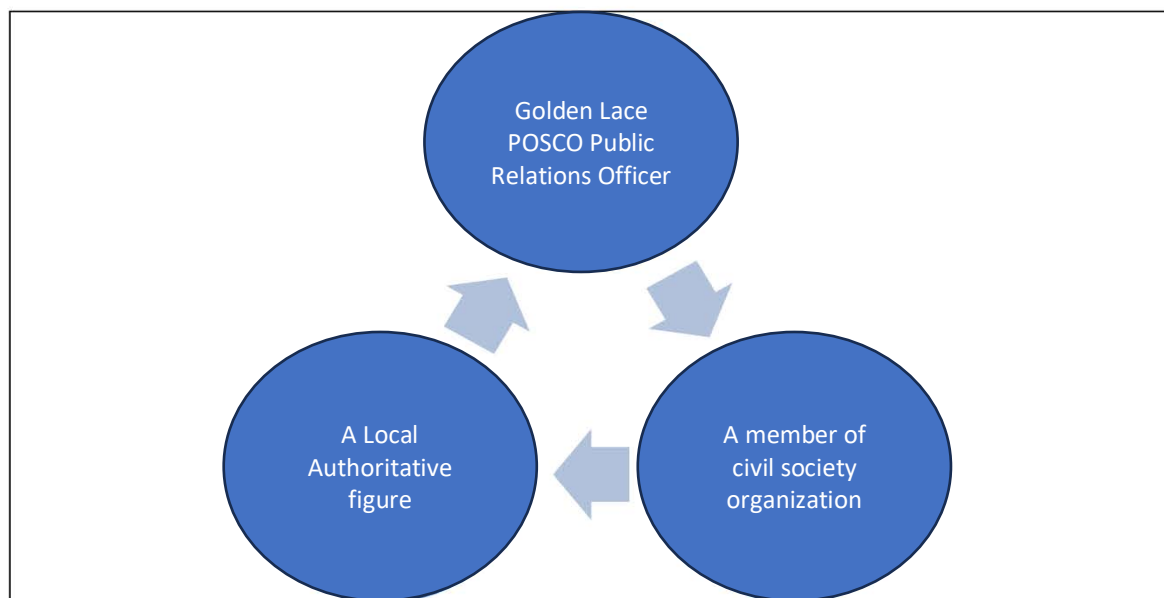


Figure 9-3 Structure of the project liaison committee

9.5.2.2 Complaints and grievances mechanisms committee

The purpose of the committee is to help resolve environmental and social issues, and especially any complaints and grievances coming from the public and in particular the affected population. Figure 9-4 provides the structure of the Community Grievance Mechanism (CGM) committee. The CGM committee coordinator, the local authoritative figure and the CSO member in the committee are all appointed by the public and rotated annually.

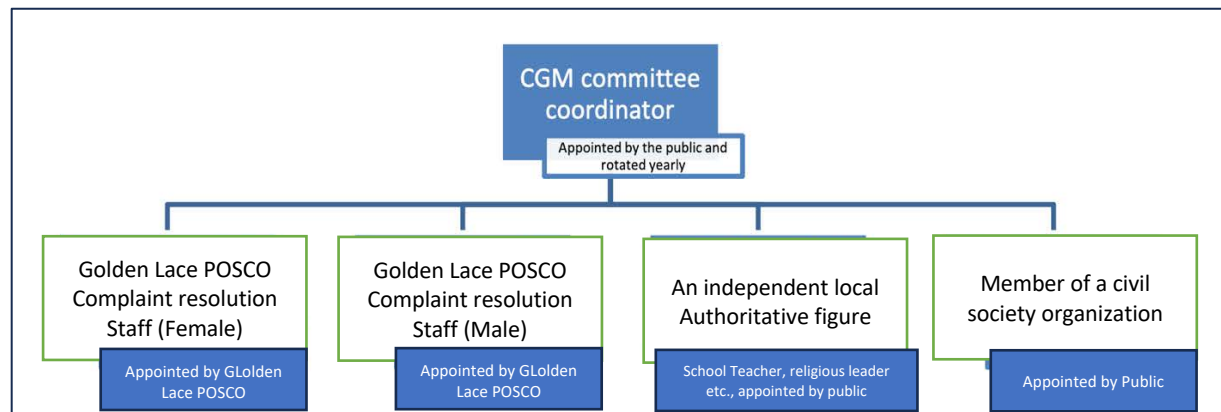


Figure 9-4 Structure of the complaint and grievance mechanism committee

9.5.3 Complaints and Grievances Mechanisms (CGM)

According to the EIA Procedure of Myanmar, MONREC requires that the project proponent describes a mechanism to receive and respond to public complaints and grievances called Community Grievance Mechanism (CGM). The purpose of CGM is for the local communities to express their concerns on the adverse environmental and social impacts caused by the project. CGM consists of six distinct steps as follows:

9.5.3.1 Receiving and registering grievance

- Multiple channels is available for the local communities to express their concerns
- This could be by consulting with a network of people designated by the project proponent such as religious leaders, police officers, local administrative officers, representatives from civil society organizations and company officials. At least 75% of the people in the network should be independent of the company. The designated individuals is able to record the written or oral accounts on a simple form that is forwarded to the CGM committee for further action.
- Another channel would be submitting the complaint via CGM boxes where written complaints can be deposited.
- Moreover, complainants should be able to talk with a designated complaint-resolution staff consisting of both male and female employees that record complaints both in person meetings or via phone on a simple form to be forwarded to the CGM committee, discuss the complainants' situation and explore possible approaches for resolution.
- Submission of complaints is convenient, free of threats and can be anonymous or self-identified.

9.5.3.2 Screening for eligibility

- The complaint is directly or indirectly related to the project.
- The complaint is complete and written legibly.
- The complaint is in the scope of issues that CGM is authorized to address; i.e., it is not an issue that is more appropriate to be addressed by other company and community procedures.

- If a complaint is determined to be ineligible for not fulfilling the described criteria above, the CGM committee will inform the decision and the reasons for the rejection to the complainant or the public.

9.5.3.3 Assessing the grievance

- At this stage, the CGM team will gather information about the case and develop ways on how the complaint is resolved;
- The CGM team will determine who will conduct the assessment such as the appropriate company staff or department;
- It will also encourage a company member to engage in direct conversation with the complainants or possible affected people according to the complaint to gain first hand understanding of the issue;
- The CGM team will then identify the parties involved in the issue, clarify the issues and concerns raised by the complaint, gather the opinions of other relevant stakeholders and explore the various approaches for settlement;
- The seriousness of the complaint is determined based on the gravity of the allegation, the potential impact on an individual's or a group's welfare and safety and the public profile of the issue;
- In exploring ways for settlement, the CGM team will involve the complainant and the possible affected people in making decisions.

9.5.3.4 Determining a resolution approach

The four grievance resolution approaches are:

- The company proposes a resolution;
- The community and the company decides a resolution together;
- The community and the company defer to a third party to decide and
- The community and the company utilize traditional or customary practices.

9.5.3.5 Formulating and implementing a response and settling the issue

- The project liaison committee or the individual responsible for complaint assessment accompanied by the CGM coordinator will respond to the complainant or the public.
- The response will consider the complainant's view about the process of settlement. It may suggest an approach to settle an issue or offer a preliminary settlement.
- In formulating a response, the CGM team will facilitate a meeting with the relevant company manager and the complainant or the possible affected people. A neutral third party facilitator can be appropriate in some instances. If the proposed response is accepted by the complainant or the affected people, the complaint is successfully resolved. Otherwise, the group will try to reach a mutually acceptable agreement.

9.5.3.6 Tracking and monitoring of the resolution

- The severity of an issue determines whether to alert senior management and the seniority of management oversight needed;

- There is assurance that a specific person is responsible for overseeing each grievance from receipt and registration to implementation;
- The resolution is provided timely;
- All the concerned personnel and stakeholders is informed about the status of the case and the progress being made towards resolution;
- The company's response outcomes is documented;
- The stakeholders' opinions is recorded;
- Whether additional research or consultation with the parties involved will also be determined
- Implementation of any settlement will be monitored to ensure timeliness and comprehensiveness

9.5.4 Disclosure

According to the EIA guideline of Myanmar, MONREC requires that the project proponent releases the following information to the public in Burmese and English and written in non-technical terms so as to be easily understood by the population. Moreover, regular contact with the district and local authorities will help ensure the information is disseminated to the local population. To facilitate disclosure of information, it is recommended that a dedicated information center be established within the study area and near the affected people.

- Construction activities;
- Recruitment policies and job opportunities;
- Supplier opportunities;
- Transport and traffic in the project area, including road access restrictions/diversions;
- Health and safety awareness programs;
- Environmental and social issues;
- Local worker training;
- Workers' accommodations camp management, including codes of conduct for workers;
- Complaints and grievances process.

9.5.5 Corporate Social Responsibility (CSR) Policy

Golden Lace POSCO INTERNATIONAL Co., Ltd has a CSR policy for ensuring strict compliance by company directors, and personnel specifically to:

- ◆ Contribute to the sustainable development of communities through active stakeholder engagement and communication.
- ◆ Maintain high ethical standards and support transparency in all project activities.

The CSR activities are being conducted twice per a year by 2% of profits in accordance with the guidelines set by the Myanmar Investment Committee.

The CSR Program of the Golden Lace POSCO INTERNATIONAL Co., Ltd from 2022 to 2024 is described in.

Table 9-4 Contributed CSR for Community Development by Golden Lace POSCO INTERNATIONAL Co., Ltd (Kyat)

Year	AhNhaing Mae	flood victims in Bago
2022	1,845,700	2,000,000
2023	2,168,869	
2024	2,311,748	
Total	6,326,317	2,000,000



Figure 9-5 Donation Record to the Ah Nhaing Mae Orphanage

10. CONCLUSION AND RECOMMENDATIONS

10.1 Conclusions

There is tremendous potential for the Rice market arising from the development of modern Rice Processing Complex in the region, mainly through wholesale merchants at Twantay and Maubin. By setting up a Modern Rice Processing Complex with this large capacity, the farmers could increase their sales, export quality rice could be produced and local community could benefit from the project's outcomes. The broken rice, rice bran could be sold in domestic market. Rice powder could be produced by milling broken rice so that it could not be wasted or devalued as reject. Overall the mill will ensure food security both within and outside Twantay. Rice bran also could be sold to units manufacturing fodder. Therefore the project may raise local livelihood by supplying animal feeds for livestock industry in the region.

This Initial Environmental Examination (IEE) has assessed the potential environmental impacts of the proposed Rice Processing Complex Project. The proposed project does not pose significant negative impacts on physical environment due to size of the project and its land use.

There are no adverse impacts predicted on air quality and fugitive dust emission, disturbances to existing landscapes and the amounts generated can be contained and mitigated through mitigation measures.

The impacts from construction and operation of the mill are predictable and manageable. Impacts can be either avoided, minimized or compensated. The Environmental Management Plan (EMP) covers all aspects of project proponent's construction and development.

The implementation of the project will provide significant contribution to uplift the socioeconomic condition of local people with the incentive in agricultural production through the support of the facility and its services. Based on the analysis of benefits and assessments of implementing mitigation measures, the proposal is very relevant for implementation.

10.2 Recommendations

Present study found that most of the impacts identified and evaluated by the IEE study are insignificant and that can be further minimized through the implementation of mitigation measures. Hence this IEE study is sufficient and no EIA study is necessary as per EIA Procedure 6th Draft 2014. However, it shall be recommended that the project proponent shall be responsible for periodic monitoring and shall ensure mitigations measures for following concerns which is developed throughout the operation period of the mill: Rice Processing Complexing dust and emission from the milling generators' land and waterway traffic used by marketers and their vehicles noise caused by milling machines chimney smoke.

The proposed jetties in the mill operation have lower potential to trigger congestion in the canal waterway and interferences to the other vessels manoeuvring in the canal. Therefore equal transportation mode share between land and waterway for raw rice /brown rice (white / parboiled) receiving and dispatching finished goods is recommended. This will halve future congestion on the existing Yangon-Maubin- Patheingyi highway and traffic volume in Twantay waterway is avoided.

The current EMP is further reviewed and modified by engineering team of project proponent prior to the construction and even during the construction period should there be observations recorded on new issues that need to be addressed. The project proponent, Golden Lace POSCO International Co. Ltd., is advised institutionalization of environmental compliance monitoring and capacity building of project.

11. REFERENCES

- ◆ EIA Procedure 2015, MONREC,
- ◆ ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT ON TWANTAY CANAL IMPROVEMENT PROJECT IN YANGON, MYANMAR, Directorate of Water Resources and Improvement of River Systems Ministry of Transport and Communication, The Republic of the Union of Myanmar, August 2019
- ◆ TECHNICAL GUIDE NO.2 RICEPROCESSING, Satnet Agro-Processing Section, Sustainable Agriculture Trainers Network (SATNET) “Guidelines for (1) siting of rice shellers/millers; (ii) handling and storage of rice husk and (iii) handling, storage and disposal of ash generated in boiler using husk as fuel”. Central Pollution Control Board (CPCB), Ministry of Environment & Forests. www.cpcb.nic.in
- ◆ Waste Minimization in Parboiled Rice Mill Units – Andhra Pradesh Pollution Control Board Publication, April **2005**.
(www.appcb.ap.nic.in/cpc/Bulletin_123_Parboiled_final.pdf)
- ◆ Rice Processing Complexing Manual- International Rice and Research Institute, Manila, Phillipines, **2006**
- ◆ Probabilistic seismic hazard assessment for Yangon Region, Myanmar; Myo Thant. Department of Geology, University of Yangon Myanmar.
- ◆ Vulnerability and Resilience Assessment Ayeyarwaddy Delta, Myanmar; Delta Alliance Report.

12. APPENDIXES

APPENDIX A: MIC'S APPROVAL OF COMPANY 'S NAME CHANGE



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်

၂၀၁၇ ခုနှစ် ဇန်နဝါရီလ ၁၁ ရက်စွဲပါ ခွင့်ပြုမိန့်အမှတ် ၁၂၂၁/၂၀၁၇ တွင် ပြင်ဆင်ချက်

၂၀၁၉ ခုနှစ် ဧပြီလ ၂၆ ရက်နေ့တွင် ကျင်းပခဲ့သော မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှု ကော်မရှင်၏
၆/၂၀၁၉ ကြိမ်မြောက် အစည်းအဝေး ဆုံးဖြတ်ချက်အရ ပေါင်းဆန်၊ အဆင့်မြင့်ဆန်ဖြူနှင့်
ဆန်နှင့်သက်ဆိုင်သော ထုတ်ကုန်များ ကြိတ်ခွဲထုတ်လုပ်ရောင်းချခြင်းလုပ်ငန်း (စက်ရုံအမှတ်-၁)
ဆောင်ရွက်လျက်ရှိသော ကုမ္ပဏီအမည်အား Golden Lace Daewoo Company မှ Golden
Lace Posco International Company Limited သို့ ပြောင်းလဲပြင်ဆင်လိုက်သည်။

(ဗ) မြန်မာနိုင်ငံတွင်ဖွဲ့စည်းမည့်ကုမ္ပဏီအမည် GOLDEN LACE POSCO
INTERNATIONAL COMPANY LIMITED


ဥက္ကဋ္ဌ (ကိုယ်စား)

(မြသူဇော၊ တွဲဖက်အတွင်းရေးမှူး)
၆

ရက်စွဲ၊ ၂၀၁၉ ခုနှစ် မေလ ၂ ရက်
နေရာ၊ ရန်ကုန်မြို့

APPENDIX B: COPY OF COMPANY REGISTRATION OF GOLDEN LACE POSCO INTERNATIONAL CO., LTD.



ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်
Certificate of Incorporation

GOLDEN LACE POSCO INTERNATIONAL CO., LTD.
Company Registration No. 105036248

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ
GOLDEN LACE POSCO INTERNATIONAL CO., LTD.
အား ၂၀၁၆ ခုနှစ် နိုဝင်ဘာလ ၂၈ ရက်နေ့တွင်
အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ
အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that
GOLDEN LACE POSCO INTERNATIONAL CO., LTD.
was incorporated under the Myanmar Companies Act 1914 on 28
November 2016 as a Private Company Limited by Shares.


ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ
Registrar of Companies
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
Directorate of Investment and Company Administration



Former Registration No. 784FC/2016-2017(YGN)

APPENDIX C: COPY OF COMPANY'S REGISTRATION OF ENVCC



ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်
Certificate of Incorporation

ENVIRONMENTAL COMPLIANCE CONSULTANCY COMPANY LIMITED
Company Registration No. 126296460

မြန်မာနိုင်ငံကုမ္ပဏီများဥပဒေ ၂၀၁၇ အရ
ENVIRONMENTAL COMPLIANCE CONSULTANCY COMPANY LIMITED
အား ၂၀၂၀ ခုနှစ် ဇူလိုင်လ ၆ ရက်နေ့တွင်
အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ
အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့်ပြုလိုက်သည်။

This is to certify that
ENVIRONMENTAL COMPLIANCE CONSULTANCY COMPANY LIMITED
was incorporated under the Myanmar Companies Law 2017 on 6 July
2020 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ
Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
Directorate of Investment and Company Administration



APPENDIX D: COPIES OF THIRD-PARTY ORGANIZATION LICENSE AND EXPERTS OF ENVCC



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ

The Government of the Republic of the Union of Myanmar

သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန

Ministry of Natural Resources and Environmental Conservation

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန

Environmental Conservation Department

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (အဖွဲ့အစည်း)

Environmental Impact Assessment License (Organization)

Environmental Compliance Consultancy Co., Ltd ၊ ကုမ္ပဏီမှတ်ပုံတင်အမှတ်-၁၂၆၂၉၆၄၆၀ အား အကြံပေး အဖွဲ့အမျိုးအစား(က) အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်းလုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေး လိုက်သည်။

It is hereby issued that **Environmental Compliance Consultancy Co., Ltd** ၊ Registration No. 126296460 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Consulting Organization Type (A)** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လိုင်စင်နံပါတ် License Number	: EIA-CO(A)005/2024
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 30-7-2024
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 29-7-2027





(သိန်းတိုး)

ညွှန်ကြားရေးမှူးချုပ်

Golden Lace POSCO International Co., Ltd

Page 12-5



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation



ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)

Environmental Impact Assessment License (Individual)

ဦးရဲမြတ်ဘုန်းလှိုင်၊ ၁၂/သကတ(နိုင်)၁၈၀၁၆၆ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ်အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံး လုပ်နည်းနှင့် အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။

It is hereby issued that U Ye Myat Phone Hlaing, 12/ThaKaTa(N)180166 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Associate Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-



The areas of expertise, eligible to be conducted, are as follows:

1. လေထုညစ်ညမ်းမှုစောင့်ကြပ်ကြည့်ရှုခြင်း (Air Pollution Monitoring)
- 2.
- 3.
- 4.
- 5.

လိုင်စင်နံပါတ် License Number	: EIA-AC 114/2024
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 2-10-2024
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 1-10-2027



(သိန်းတိုး)
ညွှန်ကြားရေးမှူးချုပ်
✓ ၈ ၃

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)

ဦးအောင်ဇေယျာဝင်း၊ ၁၂/မရက(နိုင်)၁၅၄၃၈၀ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံး လုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။



It is hereby issued that U Aung Zayar Wint, 12/MaRaKa(N)154380 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an Associate Consultant under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

1. ဂေဟစနစ်နှင့် ဇီဝမျိုးစုံမျိုးကွဲ (Ecology and Biodiversity)
2. လေထုညစ်ညမ်းမှု ကြိုတင်ကာကွယ်ခြင်းနှင့် ထိန်းချုပ်ခြင်း (Air Pollution Prevention and Control)
- 3.
- 4.
- 5.

လိုင်စင်နံပါတ် License Number	: EIA-AC 008/2023
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 1-12-2023
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 30-11-2026



(သိန်းတိုး)

ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)



ဦးချစ်ဘိုဘိုဝင်း၊ ၁၂/လမန(နိုင်)၁၄၃၃၂၀ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ်အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်းလုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။

It is hereby issued that U Chit Bo Bo Win, 12/LaMaNa(N)143320 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Associate Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

- ရေထုညစ်ညမ်းမှုကြိုတင်ကာကွယ်ခြင်း၊ ထိန်းချုပ်ခြင်း၊ စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့်ထိခိုက်မှုကြိုတင်ခန့်မှန်းခြင်း (Water Pollution Prevention, Control, Monitoring and Prediction of Impacts)
- ဇလဗေဒ၊ မြေပေါ်ရေနှင့် မြေအောက်ရေထိန်းသိမ်းခြင်း (Hydrology, Surface Water and Ground Water Conservation)
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-

လိုင်စင်နံပါတ် License Number

ထုတ်ပေးသည့် ရက်စွဲ Date of Issue

ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry

: EIA-AC 120/2024

: 31-10-2024


: 30-10-2027






(သိန်းတိုး)

ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)



ဒေါ်မြတ်မွန်ဆွေ၊ ၁၂/အစန(နိုင်)၀၂၉၆၁၆ အား အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့် အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။



It is hereby issued that **Daw Myat Mon Swe, 12/AhSaNa(N)029616** has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

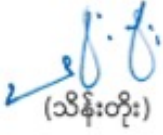
လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

- လူမှုရေးဆိုင်ရာ လေ့လာခြင်းနှင့် သရုပ်ခွဲဆန်းစစ်ခြင်း (Social Study and Analysis)
- အထွေထွေပတ်ဝန်းကျင်စီမံခန့်ခွဲခြင်း (General Environmental Management)
- ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး(လေ/ရေနှင့် မြေ) များအား စောင့်ကြပ်ကြည့်ရှုခြင်း (Environmental Quality Monitoring (Air, Water and Soil))
-
-

လိုင်စင်နံပါတ် License Number	: EIA-C 018/2023
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 1-12-2023
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 30-11-2026





(သိန်းတိုး)

ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)

ဒေါ်စိုးမိုးနွယ်၊ ၉/၀၈/၂၀၁၄ (နိုင်) ၁၆၁၉၄၅ အား အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့် အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။

It is hereby issued that **Daw Soe Moe Nwe, 9/WaTaNa(N)161945** has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

1. လူမှုရေးဆိုင်ရာ လေ့လာခြင်းနှင့် သရုပ်ခွဲဆန်းစစ်ခြင်း (Social Study and Analysis)
2. ဂေဟစနစ်နှင့် ဇီဝမျိုးစုံမျိုးကွဲ (Ecology and Biodiversity)
3. စွန့်ပစ်အစိုင်အခဲနှင့် ဘေးအန္တရာယ်ရှိ စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲခြင်း (Solid Waste and Hazardous Waste Management)
- 4.
- 5.


လိုင်စင်နံပါတ် License Number	: EIA-C 030/2023
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 1-12-2023
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 30-11-2026






(သိန်းတိုး)

ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)



ဦးအာကာဖြိုး၊ ၁၂/အုကတ(နိုင်)၁၈၅၆၃၇ အား အကြံပေးပုဂ္ဂိုလ်အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။



It is hereby issued that U Arkar Phyo, 12/AuKaTa(N)185637 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.


လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

1. ဘေးအန္တရာယ်ရှိမှု ဆန်းစစ်ခြင်းနှင့် ဘေးအန္တရာယ်စီမံခန့်ခွဲခြင်း (Risk Assessment and Hazard Management)
- 2.
- 3.
- 4.
- 5.



လိုင်စင်နံပါတ် License Number	: EIA-C 059/2024
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 29-2-2024
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 28-2-2027



(သိန်းတိုး)

ညွှန်ကြားရေးမှူးချုပ်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)

ဒေါ်သန်းသန်းဌေး၊ ၁၂/ဥကတ(နိုင်)၁၆၁၄၄၆ အား အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်
ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှု
ဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်
အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။



It is hereby issued that Daw Than Than Htay, 12/OuKaTa(N)161446 has fulfilled the requirements for
obtaining an Environmental Impact Assessment License to conduct as an Consultant under the
Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental
Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources
and Environmental Conservation.


လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

1. ဂေဟစနစ်နှင့် ဇီဝမျိုးစုံမျိုးကွဲ (Ecology and Biodiversity)
- 2.
- 3.
- 4.
- 5.

လိုင်စင်နံပါတ် License Number	: EIA-C 045/2023
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 29-12-2023
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 28-12-2026



(သိန်းတိုး)
ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department



ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)

ဒေါက်တာဖြိုးသူအောင်၊ ၉/မသန(နိုင်)၁၁၇၄၂၈ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံး လုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။

It is hereby issued that **Dr. Phyo Thu Aung, 9/MaThaNa(N)117428** has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Associate Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

1. မိုးလေဝသနှင့် လေအရည်အသွေးဆန်းစစ်ခြင်းနှင့် ကြိုတင်ခန့်မှန်းခြင်း (Meteorology, Air Quality Assessment and Forecast)
2. ရေထုညစ်ညမ်းမှု ကြိုတင်ကာကွယ်ခြင်း၊ ထိန်းချုပ်ခြင်း၊ စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် ထိခိုက်မှု ကြိုတင်ခန့်မှန်းခြင်း (Water Pollution Prevention, Control, Monitoring and Prediction of Impacts)

- 3.
- 4.
- 5.

လိုင်စင်နံပါတ် License Number

: EIA-AC 092/2024

ထုတ်ပေးသည့် ရက်စွဲ Date of Issue

: 30-4-2024

ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry

: 29-4-2027



(သိန်းတိုး)
ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)



ဦးအောင်ငြိမ်းမြတ်၊ ၁၃/တကန(နိုင်)၂၀၃၂၄၈ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာလုပ်ထုံး လုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။
It is hereby issued that U Aung Nyein Myat, 13/TaKaNa(N)203248 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an Associate Consultant under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-
The areas of expertise, eligible to be conducted, are as follows:



1. ဘူမိဆိုင်ရာ ဆန်းစစ်လေ့လာခြင်း (Geological Assessment)
2. မြေအသုံးချမှု (Land Use)
- 3.
- 4.
- 5.

လိုင်စင်နံပါတ် License Number	: EIA-AC 013/2023
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 1-12-2023
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 30-11-2026





(သိန်းတိုး)
ညွှန်ကြားရေးမှူးချုပ်



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)

ဒေါက်တာဟိန်းလင်းအောင်၊ ၁၂/စခန(နိုင်)၀၆၄၈၈၁ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာလုပ်ထုံး လုပ်နည်းနှင့်အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။

It is hereby issued that Dr.Hein Lin Aung, 12/SaKhaNa(N)064881 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an Associate Consultant under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-
The areas of expertise, eligible to be conducted, are as follows:

1. ကျန်းမာရေး (Health (Impact Studies and Analysis))

2.

3.



4.

5.

လိုင်စင်နံပါတ် License Number : EIA-AC 052/2023

ထုတ်ပေးသည့် ရက်စွဲ Date of Issue : 1-12-2023

ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry : 30-11-2026



(သိန်းတိုး)
ညွှန်ကြားရေးမှူးချုပ်

Golden Lace POSCO International Co., Ltd

Page 12-15



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
The Government of the Republic of the Union of Myanmar
သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
Ministry of Natural Resources and Environmental Conservation
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
Environmental Conservation Department
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)
Environmental Impact Assessment License (Individual)



ဦးသန်းထွဋ်၊ ၁၂/ပဇာ(နိုင်)၀၀၇၀၄၉ အား တွဲဖက်အကြံပေးပုဂ္ဂိုလ် အဖြစ် လုပ်ကိုင်ဆောင်ရွက်ရန် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ငန်းလိုင်စင်ကို ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆန်းစစ်ခြင်း ပြုလုပ်သည့် တတိယပုဂ္ဂိုလ် သို့မဟုတ် အဖွဲ့အစည်း လုပ်ငန်းလိုင်စင်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့် အညီ ဤဝန်ကြီးဌာန၏ အတည်ပြုချက်ဖြင့် ထုတ်ပေးလိုက်သည်။

It is hereby issued that U Than Htut, 12/PaZaTa(N)007049 has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Associate Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

၁. ရှေးဟောင်းသုတေသနနှင့် ယဉ်ကျေးမှုအမွေအနှစ်(Archaeological and Cultural Heritage)
- ၂.
- ၃.
- ၄.
- ၅.

လိုင်စင်နံပါတ် License Number : EIA-AC 104/2024
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue : 31-8-2024
တုန့်ဆုံးသည့် ရက်စွဲ Date of Expiry : 30-8-2027





(သိန်းတိုး)
အကြံပေးရေးမှူးချုပ်
✓ ၂၀၂၄.၀၈.၃၁

APPENDIX E: CVS OF SUPPORTING MEMBERS OF ENVCC

Aung Kaung Myat

Consultant

(Air Pollution Control, Noise and Vibration)



(6) years of experiences in environmental surveying and analyzing of physical and chemical characteristic (air, water, noise, vibration, soil, sediments, ground water and traffic control), participating in social surveying and biodiversity surveying as assistant consultant and also capable for liaising with governmental departments for the environmental related projects and EIA, IEE and EMP by the requirements of Myanmar Environmental Impact Assessments Procedure and National Environmental Quality (Emission) Guideline, IFC Standards, WHO Standard, JICA Guidelines, Environmental, Health, Safety and Social-EHSS Safeguard Screening.

EDUCATION

- Master of Science and Engineering (Environmental Planning and Management) Yangon Technological University (YTU), Myanmar (2016-2017)
- Post-graduate Diploma (Civil Service Management) Central Institute of Civil Service Academy, Upper Myanmar (2019)
- Bachelor of Engineering (Port and Harbor Engineering), Myanmar Maritime University (MMU) Myanmar (2009-2014)
- Post-graduate Diploma (Environmental Planning and Management) Yangon Technological University (YTU), Myanmar (2015-2016)

EMPLOYMENT

- Senior Consultant, Environmental Compliance Consultancy Co., Ltd. (ECC), (July 2020 to now) www.envccmyanmar.com
- Environmental Specialist, Yooshin JV (GMS Project ADB), (August 2020 – February 2021)
- Environmental Consultant (Freelance), Environmental, Social and Legal Consulting Group, (March 2020 - July 2020)
- Staff Officer, Environmental Conservation Department (Ministry of Natural Resources and Environmental Conservation), (May 2019 - February 2020)
- Junior Environment Expert (Project Based), Myanmar KOEI International Ltd, (April 2017 – April 2019)
- Project Assistant (Freelance), Hydro-Informatics Center (HIC), (June 2015 - June 2016)
- Study Guide & Teacher, Success Education and Training Center, (March 2008 - March 2017)

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

- Member of Myanmar Engineering Society (MES)

FIELDS OF COMPETENCE

- Environmental Impact Assessment (EIA)
- Initial Environmental Examination (IEE)
- Environmental Management Plan (EMP)
- Environmental Monitoring
- Stakeholder Engagement
- Occupational Health and Safety

TRAINING

- Air Modelling:
- Building Acoustics and Noise Control
- Safety Supervisor Certificate (Global Enchanting Safety and Management Training Center)
- Occupational Safety & Health Orientation (Global Enchanting Safety and Management Training Center)

LANGUAGES

Myanmar, English

CONTACT DETAILS

No.13, Padonmar Road, South Myoma Quarter, Thanlyin Township, Yangon, Myanmar

Mobile: +95 (0) 9254037027

Email: aungkaungmyat@envccmyanmar.com
aungkaungmyat.envcc@gmail.com

KEY PROJECTS' EXPERIENCE

OFFSHORE AND ONSHORE

- **Environmental Monitoring Report for YETAGUN (Offshore) Production Activities (2023):** Updating of the EMP report of YETAGUN Production Facilities written up by Environmental Recourses Management (ERM) as ECD's comments.
- **Environmental Monitoring Report for YETAGUN (Onshore) Production Activities (2023):** Updating of the EMP report of YETAGUN Production Facilities written up by Environmental Recourses Management (ERM) as ECD's comments.
- **Environmental Monitoring Report (Update) for Shwe Field Development for POSCO International (2023):** Updating of the EMP report written up by Environmental Recourses Management (ERM) as ECD's comments.
- **Environmental and Social Due Diligence for YETAGUN Onshore (Pipeline Operation Centre-POC), Petronas, (2022).** The role was for environmental performance.
- **Environmental and Social Performance Review for YETAGUN Offshore Petronas, (2022).** The role was for environmental performance.

POWER

- **EMP for 50MW Gas Power Plant Project (2023-ongoing Project),** Hlawga, Mingalardon Township, Yangon Region, Conducting environmental baseline survey, stakeholder engagement and facilitation meeting.
- **ESIA for Paung Daw Gyi Hydropower Project 22 MW, Dawei, Pan Theingi (2022-ongoing).** ESIA for Hydropower in Dawei including Baseline monitoring, Traffic Survey and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **IEE for Upper Ye Hydropower Project 10 MW, Ye, South-East General Energy and Power Co., Ltd. (2022-ongoing).** IEE for Hydropower in Ye including Baseline monitoring, Traffic Survey and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **Environmental Monitoring for the renovation of Combine Cycle Power Plant Project, Yangon, MKI (November 2018 – February 2019)** Environmental Monitoring for the renovation of Combine Cycle Power Plant in Yangon (Tharkata). The work includes Baseline data surveying for environmental assessment and current situations of the power plant.



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BRIDGE CONSTRUCTION

- **Vibration level Monitoring for Bago Bridge II Project, Yangon, MKI (2018).** The role was supporting as a Site In charge for vibration level monitoring that is required for ESIA study.

INFRASTRUCTURE

- **IEE for Fuel Station Project, Yangon, Brighter Energy Retail Co., Ltd. (2021-ongoing).** IEE for Fuel Station in Yangon (Insein) including Baseline monitoring, Traffic Survey and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **IEE for Fuel Station Project, Yangon, Brighter Energy Retail Co., Ltd. (2021-ongoing).** IEE for Fuel Station in Yangon (Htauk Kyant) including Baseline monitoring, Traffic Survey and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **Greater Mekong Sub-region Highway Modernization Project (Detail Design Phase), Yangon, Yooshin (August 2020-February 2021):** Environmental specialist for assisting and supporting the International Environmental Specialist and also prepare and conduct the environmental monitoring compliance with IEE and assisting and providing the trainings.
- **Greater Yangon Water Supply Improvement Project Phase II, Yangon, YCDC, TECI (JICA Loan Project) (October 2018 – April 2019):** As a national environmental expert, responsible for documentation, site surveying, preparing documents, liaison between client (governmental organizations) and contractors as National consultant for the implementation of the project and also, reviewing and commenting to the reports prepared by third party for EIA report and submitted to ECD and cooperation and in-charging for drone survey along the project area. Minimize the impact on the existing land use through careful investigation in the planning process, investigate the status of land ownership for appropriate alteration of land use in the planning process, minimize the number of affected persons in the process of planning and designing, and prepare the Resettlement Action Plan (RAP) if a large number of the affected persons are identified in order to minimize the impact of land acquisition according to JICA, World Bank Operational Policy and Host Country Laws and Policy relevance with land acquisition. Identify, interview, process cases identified for resettlement, provide counselling to Project Affected Persons (PAPs) individually or group discussion, monitor activities for resettlement and dealing with Grievance mechanism, Compensation Process according to RAPs. Maintain regular contact and close communication with PAPs and timely reported about their requests and issues to PMU and respond feedbacks to them accordance with procedures, policy and laws.
- **Environmental Monitoring for Eco-smart city project, Yangon, MKI (January 2019 - February 2019)** Working as an environmental expert, conducting baseline surveying, analysis and preparing the monitoring report.
- **Tide Level survey in Thilawa SEZ project, Yangon, MKI (October 2018)** Conducting baseline surveying of environmental assessment (especially tide level at four points) near the project area and analyzing and reporting to the client about the current situation.
- **Thilawa New Port Extension Phase II project, Yangon, MKI (October 2018 – November 2018)** The role as an environmental in-charge for water quality sampling, analysis and biodiversity survey and participation in IEE report preparation.



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- **Environmental Management Plan (EMP) for the renovation of school Project, Yangon, MKI (August 2018)** The role was an environmental expert for site surveying, Data Collection and EMP report preparation for the renovation of school in Yangon region.
- **Environmental Monitoring for a serviced apartment Project, Yangon, MKI (August 2018)** Working as site in charge for baseline surveying of ambient environment such as air, water and noise and vibration and soil quality analysis for Environmental Impact Assessment (EIA) study of a serviced apartment in Yangon Region.
- **Traffic Volume Survey for the health-care centre Project, Yangon, MKI (June 2018)** Supervising traffic volume survey and analysis for Environmental Impact Assessment (EIA) study as a environmental expert.
- **Yangon Circular Railway Improvement Project (F.S), Yangon, MKI/NK (2016-2017)** The role was an environmental surveyor for Baseline surveying such as air quality, noise and vibration survey and analysis for F.S.

INDUSTRIES

- **Environmental Monitoring and reports preparation for Thilawa SEZ (A & B), Yangon, MKI (April 2017 – April 2019)** Environmental Monitoring during Operational of Thilawa Special Economic Zone (SEZ) (Zone A) and Environmental Monitoring during Construction of Thilawa SEZ (Zone B) and preparing monitoring reports according to the EIA report of Zone A and Zone B respectively. The results of Environmental Monitoring are announced to the Public at the website of the Thilawa SEZ developer.
- **Environmental & Social (monitoring & surveying) for Thilawa SEZ (Locator), Yangon, MKI (April 2017 – April 2019):** Environmental Monitoring during Operational of locators in Thilawa Special Economic Zone (SEZ-A) according to the EIA report of locators in SEZ and new EIA reports preparation. Cooperating and presenting about the related project at the Public Consultation Meetings (PCMs) and discussing and consulting to the project affected persons and stakeholders, collecting their comments and responding their feedbacks binding on EIA reports.
- **Garment factory, Inland Port, Fuel Terminal, Yangon, Environmental, Social and Legal Consulting Group (March 2020 - July 2020).** The role was a Local Consultant of environment including client liaison, Social and environmental baseline and impact assessment and preparation of the EIA/IEE Reports to local Myanmar requirements.
- **Environmental Monitoring at Beverage factory Project, Yangon, MKI (July 2018)** Supervising for water sampling and preparing monitoring report for the beverage factory.

WORKED AT GOVERNMENT BODIES AND OTHERS

- **Environmental Impact Assessment Division (ECD), Nay Pyi Taw, Environmental Conservation Department (Ministry of Natural Resources and Environmental Conservation) (May 2019 – February 2020)** As a staff officer, take responsible for reviewing and commenting on EIA, IEE, EMP, RAP and other reports. liaison between clients/ proponents for projects of EIA process and other meetings held by or related with EIA sector and responsible as a counter-part for the training supported by international organizations.
- **PROJECT ASSISTANCE AT HYDRO INFORMATICS CENTER (HIC), Yangon, (June 2015 – June 2016)** According to the role of project

assistant at the HIC office, supporting office works and Young Water Professional (YWP) training program. The project is for assisting excursions of the HIC department and YWP field trips and also assisting the meetings of HIC members with the government officer and NGOs and public consulting meetings organized by the Advisory Group (AG) of the National Water Resources Committee (NWRC).

- **Study on existing Solid Waste Management (SWM) System in YTU campus, Yangon, Yangon Technological University (YTU) (January 2017 – June 2017)** preparing the systematic SWM system for YTU campus to become campus area will be clean and hygienic and reduce the volume of waste and determine the ways of final disposal than the dumping within campus.
- **A study of sedimentation characteristics at the confluence of Yangon, Pazundaung Creek and Bago River, Yangon, Myanmar Maritime University (MMU) (June 2013 – January 2014)** Responsible as a field surveyor of Yangon River, Bago River and Pazundaung Creek (ebb and flood tide) for spring and neap tide conditions. Estimating the sediment particle sizes, sediment concentration (g/l) and salinity to determine the sediment discharge rate of these three rivers. This study can provide the useful data for future research related to the improvement of Yangon River access channel.
- **Ports and Terminals in Yangon Division (Myanmar Port Authority branches, Botahaung Warehouse, Warden port, Myanmar International Terminal Thilawa, Asia World Port Terminal), Yangon, Myanmar Port Authority (MPA) & Myanmar Maritime University (MMU) (September 2010 – November 2012)** Responsible as a researcher to coordinate with management team for the studying the existing design and develop Port & Terminal operation and Port & Harbour projects.
- **Teaching and Training for High School Students, Yangon, Success Education and Training Center) (March 2008 – March 2017)** Responsible for guiding the students not only about their school's subjects with practically through internet or observations through surrounding atmosphere but also their ethics and moral to be a good person and to become successful in their futures.





ရန်ကုန်နည်းပညာတက္ကသိုလ်

အင်ဂျင်နီယာသိပ္ပံမဟာဘွဲ့

..... ဦးဝင်း ဖြိုင် ၏ သား/ညီမိမိ အောင်အောင်ကောင်းမြတ် အား
အင်ဂျင်နီယာသိပ္ပံမဟာဘွဲ့ (..... ပါမောက္ခချုပ်)
ကို အပ်နှံချီးမြှင့်လိုက်သည်။

MAY 2017

နိုင်ငံသားစိစစ်ရေးကတ်ပြားအမှတ် ၁၂/သကနု/၂၆၇၁၈၉
ဘွဲ့ရမှတ်ပုံတင်အမှတ် 28527



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ဇော်ကွန်းထိန်း
ရန်ကုန်နည်းပညာတက္ကသိုလ်
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ပါမောက္ခချုပ်
ရန်ကုန်နည်းပညာတက္ကသိုလ်
.....

ရက်စွဲ၊ ၂၀၁၈ ခု မလ္လာ လ ၁၀ ရက်



ရန်ကုန်နည်းပညာတက္ကသိုလ်

ဘွဲ့လွန်ဒီပလိုမာ

..... ဦးဝင်းမြိုင် ၏ သား/အမီး မောင်အောင်မောင်မြင့် အား
ဘွဲ့လွန်ဒီပလိုမာ (ပတ်ဝန်းကျင်ထိခိုက်မှုမှီခိုမှုစုံစမ်းချက်)
ကို အပ်နှံခြင်းဖြင့်လိုက်သည်။ ဒီပလိုမာ
MAY 2016

နိုင်ငံသားစိစစ်ရေးကတ်ပြားအမှတ် ၁၂/၁၁၈၃ (၁၁၈၃) ၁၈၈၀၈၉
ဘွဲ့ရမှတ်ပုံတင်အမှတ် 28313



ဝင်းဝင်း
ဇော်ကွန်းထိန်း

ရန်ကုန်နည်းပညာတက္ကသိုလ်

Myint Aung
ပါမောက္ခချုပ်

ရန်ကုန်နည်းပညာတက္ကသိုလ်

ရက်စွဲ: ၂၀၁၇ ခု မတ် လ ၁၈ ရက်

Myanmar Maritime University



The University has this day conferred the Degree of

BACHELOR OF ENGINEERING

.Port & Harbour Engineering

upon Mq Aung Kaung Myat

son/daughter of U Win Hlaing

National Registration Number 12/Thalana (N) 105109

Graduate Registration Number 2160



M. M. Win Shein

Registrar

Myanmar Maritime University



Rector

Myanmar Maritime University

Date : 8-2-2014

မြန်မာနိုင်ငံရေကြောင်းပညာတက္ကသိုလ်



အင်ဂျင်နီယာဘွဲ့.

.....ဦးဝင်းလျှိုင်..... ၏သား/သမီး

.မောင်အောင်ကောင်းမြတ် အား

အင်ဂျင်နီယာဘွဲ့. (.ဆိပ်ကမ်းအင်ဂျင်နီယာ.....)

ကို အပ်နှံချီးမြှင့်လိုက်သည်။

နိုင်ငံသားစိစစ်ရေးကော်မရှင်အမှတ်

၁၂/သလန(နိုင်)၁၀၅၁၀၉

ဘွဲ့ရမှတ်ပုံတင်အမှတ်

....၂၁၆၀.....

မောင်ကုန်းထိန်း

မောင်ကုန်းထိန်း

မြန်မာနိုင်ငံရေကြောင်းပညာတက္ကသိုလ်

ပါမောက္ခချုပ်

မြန်မာနိုင်ငံရေကြောင်းပညာတက္ကသိုလ်

နေ့စွဲ၊ ၁-၂-၂၀၁၄







Aye Chan Wutyee

Senior Consultant



(5) years of experiences in environmental surveying and analyzing of physical and chemical characteristic (air, water, noise, vibration, soil, sediments, ground water and traffic control), participating in social surveying and biodiversity surveying as assistant consultant and also capable for liaising with governmental departments for the environmental related projects and EIA, IEE and EMP by the requirements of Myanmar Environmental Impact Assessments Procedure and National Environmental Quality (Emission) Guideline, IFC Standards, WHO Standard, JICA Guidelines, Environmental, Health, Safety and Social-EHSS Safeguard Screening.

EDUCATION

- Bachelor of Engineering (Naval Architecture & Ocean Engineering), Myanmar Maritime University (MMU) Myanmar (2009-2014)
- Post-graduate Diploma (Environmental Planning and Management) Yangon Technological University (YTU), Myanmar (2015-2016)
- Master of Science and Engineering (Environmental Planning and Management) Yangon Technological University (YTU), Myanmar (2016-2017)
- Post-graduate Diploma (Civil Service Management) Central Institute of Civil Service Academy, Upper Myanmar (2019)

EMPLOYMENT

- Consultant, Environmental Compliance Consultancy Co., Ltd. (ECC), (July 2020 to now) www.envccmyanmar.com
- Environmental and Social Consultant (Freelance), Environmental, Social and Legal Consulting Group, (March 2020 - July 2020)
- Staff Officer, Environmental Conservation Department (Ministry of Natural Resources and Environmental Conservation), (May 2019 - February 2020)
- Junior Environmental and Social Expert (Project Based), Myanmar KOEI International Ltd, (April 2017 – April 2019)
- Project Assistant (Freelance), Myanmar Environment Sustainable Conservation-MESC, (June – October 2016)
- Project Assistant, Hydro-Informatics Center (HIC), (June 2015 - June 2016)
- Study Guide & Teacher, Success Education and Training Center, (March 2008 - March 2017)

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

- Member of Myanmar Engineering Society (MES)

FIELDS OF COMPETENCE

- Environmental Impact Assessment (EIA)
- Initial Environmental Examination (IEE)
- Environmental Management Plan (EMP)
- Environmental Monitoring
- Stakeholder Engagement
- Occupational Health and Safety

TRAINING

- MS Word, MS Excel, MS PowerPoint, Internet and Email (i-office) (KMD)
- NK-GIAS (MES, Nippon Koei Co., Ltd. Japan)
- AutoCAD (Future Engineering Generation)
- ICT Training Course (Central Institute of Civil Service Academy)
- Safety Supervisor Certificate (Global Enchanting Safety and Management Training Center)
- Occupational Safety & Health Orientation (Global Enchanting Safety and Management Training Center)

LANGUAGES

Myanmar, English



Environmental Compliance Consultancy Co., Ltd

CONTACT DETAILS

No.616, Min Latwar Road, 12th Quarter, East Dagon Township, Yangon, Myanmar

Mobile: +95 (0) 9451567101

Email: ayechanwutyee@envccmyanmar.com
ayechanwutyee.envcc@gmail.com

KEY PROJECTS' EXPERIENCE

OFFSHORE AND ONSHORE

- **Environmental Impact Assessment Report for Exploration Drilling in Offshore Block M-15 of CFG Co, Ltd (2023-ongoing)**, ESIA for Offshore Drilling Project in Kyauk Phyu, Rakhine State including Waste Impact Assessment and Social Impact Assessment to ensure it meets Myanmar national EIA Procedure and International standards.
- **Environmental Impact Assessment Report for Shwe Field Phase -4 Development for POSCO International (2023-ongoing)**, ESIA for Offshore Drilling Project in Kyauk Phyu, Rakhine State including Waste Impact Assessment and Social Impact Assessment to ensure it meets Myanmar national EIA Procedure and International standards.
- **Environmental Monitoring Report for YETAGUN (Offshore) Production Activities (2023)**: Updating of the EMP report of YETAGUN Production Facilities written up by Environmental Recourses Management (ERM) as ECD's comments.
- **Environmental Monitoring Report for YETAGUN (Onshore) Production Activities (2023)**: Updating of the EMP report of YETAGUN Production Facilities written up by Environmental Recourses Management (ERM) as ECD's comments.
- **Environmental Monitoring Report (Update) for Shwe Field Development for POSCO International (2023)**: Updating of the EMP report written up by Environmental Recourses Management (ERM) as ECD's comments.
- **Environmental and Social Due Diligence for YETAGUN Onshore (Pipeline Operation Centre-POC), Petronas, (2022)**. The role was for environmental performance.
- **Environmental and Social Performance Review for YETAGUN Offshore Petronas, (2022)**. The role was for environmental performance.

POWER

- **EMP for 50MW Gas Power Plant Project (2023)**, Hlawga, Mingalardon Township, Yangon Region, Team leader for Social Impact Assessments.
- **ESIA for Paung Daw Gyi Hydropower Project 22 MW, Dawei, Pan Theingi (2022-2023)**. ESIA for Hydropower in Dawei including social assessment, Traffic Survey, waste

management and documentation to ensure it meets Myanmar national EIA Procedure and National standards.

- **IEE for Upper Ye Hydropower Project 10 MW, Ye, South-East General Energy and Power Co., Ltd. (2022-ongoing).** IEE for Hydropower in Ye including social assessment, Traffic Survey, waste management and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **IEE for Fuel Station Project, Yangon, Brighter Energy Retail Co., Ltd. (2021-ongoing).** IEE for Fuel Station in Yangon (Insein) including social assessment, Traffic Survey, waste management and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **IEE for Fuel Station Project, Yangon, Brighter Energy Retail Co., Ltd. (2021-ongoing).** IEE for Fuel Station in Yangon (Htauk Kyant) including social assessment, Traffic Survey, waste management and documentation to ensure it meets Myanmar national EIA Procedure and National standards.

INFRASTRUCTURE

- **Implementation of Yangon Solid Waste Management Master Plan (Phase 1), Yangon, YCDC, TECI (JICA Loan Project) (November 2018 – April 2019):** The role as an environmental and social expert (national) for arranging appointment with government official, documentation and liaison between government and third party, site surveying to final disposal sites in Yangon area and Yangon Waste to Energy Plant as well as data collection and analysis for the solid waste collection, sorting, transportation and disposal system in Yangon region.
- **Thilawa New Port Extension Phase II project, Yangon, MKI (October 2018 – November 2018)** The role was an environmental in-charge for water quality sampling, analysis and biodiversity survey and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **Environmental Monitoring and EIA report preparation for a serviced apartment Project, Yangon, MKI (August 2018 – February 2019)** Conducting the social survey, analysing environmental qualities monitoring and documentation to ensure it meets Myanmar national EIA Procedure and National standards as an environmental and social expert.
- **Yangon Circular Railway Improvement Project (F.S), Yangon, MKI/NK (2016-2017)** The role was an environmental surveyor for Baseline surveying and analysing (air quality, noise and vibration) for F.S survey report.
- **MAX Myanmar Cement Project (EIA), Lei Way, Naypyitaw Council Area (2016)** The role was a Freelance environmental surveyor for Baseline Survey for Ambient Air Quality, Water Quality, Noise and vibration.

INDUSTRIES

- **Environmental Monitoring and reports preparation for Thilawa SEZ (A & B), Yangon, MKI (April 2017 – April 2019)** Environmental Monitoring during Operational of Thilawa Special Economic Zone (SEZ) (Zone A) and Environmental Monitoring during Construction of Thilawa SEZ (Zone B) and preparing monitoring reports according to the EIA report of Zone A and Zone B respectively. The results of Environmental Monitoring are announced to the Public at the website of the Thilawa SEZ developer.
- **Environmental & Social (monitoring & surveying) for Thilawa SEZ (Locator), Yangon, MKI (April 2017 – April**

2019): Environmental Monitoring during Operational of locators in Thilawa Special Economic Zone (SEZ-A) according to the EIA report of locators in SEZ and new EIA reports preparation. Cooperating and presenting about the related project at the Public Consultation Meetings (PCMs) and discussing and consulting to the project affected persons and stakeholders, collecting their comments and responding their feedbacks binding on EIA reports.

- **Garment factory, Inland Port, Fuel Terminal, Yangon, Environmental, Social and Legal Consulting Group (March 2020 - July 2020).** The role was a Local Consultant of environment including client liaison, Social and environmental baseline and impact assessment and documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **Environmental Monitoring EMP report preparation for Beverage factory Project, Yangon, MKI (July 2018 - December 2018)** Working as an environmental and social expert for water sampling and monitoring of water quality, questionnaire surveying to the staffs and relevant officers of the factory, documentation to ensure it meets Myanmar national EIA Procedure and National standards.
- **EMP for Instant Coffee Mix and Tea Mix Manufacturing Project, Yangon (Dagon Seik Kan), MKI (October 2017 - January 2018)** Conducting social survey with team and documentation to ensure it meets Myanmar national EIA Procedure and National standards.

WORKED AT GOVERNMENT BODIES AND OTHERS

- **Planning, GIS and Statistics Division (ECD), Nay Pyi Taw, Environmental Conservation Department (Ministry of Natural Resources and Environmental Conservation) (May 2019 – February 2020)** The role was a Staff Officer arranging the meetings and workshops with international organizations and relevant governmental organizations and supporting the data to Central Statistical Organization (CSO) for the implementation of National Indicator Framework (NIF). Responsible for the collection of working progresses from each division at ECD, organizing and reporting National Planning Annually, Six-monthly and Three-monthly reports to the MONREC and supporting the National Environmental Conservation and Climate Change Central Committee (NECCCCC) and the meetings of the Working Committee related to the policy, laws, by-laws, procedures and standards.
- **Project assistance at Hydro Informatics Center (HIC), Yangon, (June 2015 – June 2016)** According to the role of project assistant at the HIC office, supporting office works and Young Water Professional (YWP) training program. The project is for assisting excursions of the HIC department and YWP field trips and assisting the meetings of HIC members with the government officer and NGOs and public consulting meetings organized by the Advisory Group (AG) of the National Water Resources Committee (NWRC).
- **Study on the composting of food wastes project in YTU, Yangon, Yangon Technological University (YTU) (January 2017 – June 2017)** Data collection and analysis of the food wastes generation for the YTU Campus and compost these food wastes by two types (Pit and In-vessel). Analysing the nutrient results for the two types of composts at the laboratory of Land Use Division, Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation. Comparing the qualities of two types of composts by sowing plants. Recommending for the food waste composting methods in



Environmental Compliance Consultancy Co., Ltd

PAGE 2 OF 3


YTU Campus which one is more rapidly decomposes and produces less foul smell and odour.

- **Firefighting tugboat modelling and stabilization design project, Yangon, Myanmar Maritime University (MMU) (June 2013 – January 2014)** Responsible as a surveyor for site visiting and studying about the functions and structure of firefighting tugboat, auto CAD drawing based on the structural data and sampling with prototype model in the towing tank to analyse the stability of firefighting tug boat.
- **Thein Phyu Dockyard in Yangon Division, Yangon, Department of Maritime Administration (DMA) & Myanmar Maritime University (MMU) (September 2010 – November 2012)** Responsible for the studying is to get practical knowledge in Ship Design and Construction, Maintenance and Repair of Ship Construction and Systems, Operation System and Handling Management of Shipyard.
- **Teaching and Training for High School Students, Yangon, Success Education and Training Center) (March 2008 – March 2017)** Responsible for guiding the students not only about their school's subjects with practically through internet or observations through surrounding atmosphere but also their ethics and moral to be a good person and to become successful in their futures.




Environmental Compliance Consultancy Co., Ltd

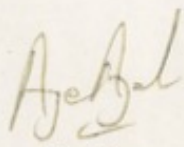
PAGE 3 OF 3

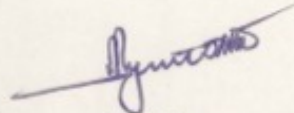

YANGON TECHNOLOGICAL UNIVERSITY
Master of Science (Engineering)

The degree of Master of Science (Engineering) (*Environmental Planning and Management*)
is awarded to *MAY 2017*
Ma Aye Chak Wutye son/ daughter of *Li Than Htay*

Citizenship Scrutiny Card No. *12/2282 Ya (Naiing) 008144*
Graduate Registration No. *28526*





Registrar


Rector

Yangon Technological University

Yangon Technological University

Date: *10 MAR 2018*




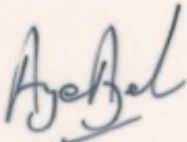
YANGON TECHNOLOGICAL UNIVERSITY

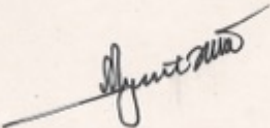
Postgraduate Diploma

The Postgraduate Diploma (*Environmental Planning and Management*)
is awarded to *MAY 2016*
Ma Aye Chan Wutyeen, son/daughter of *U Than Htay*.....

Citizenship Scrutiny Card No. *12/ Da Ba Ya (Noing) 008144*.....
Graduate Registration No. *28314*.....




Registrar


Rector

Yangon Technological University
Yangon Technological University

18 MAR 2017
Date:

Myanmar Maritime University



The University has this day conferred the Degree of

BACHELOR OF ENGINEERING

...Naval Architecture...

upon Ma Aye Chan Wutyee

son/daughter of U.Than.Htay....

National Registration Number

12/Dagaya.(N)008144

Graduate Registration Number

2016.....



M.M. Lin Shwin
Registrar

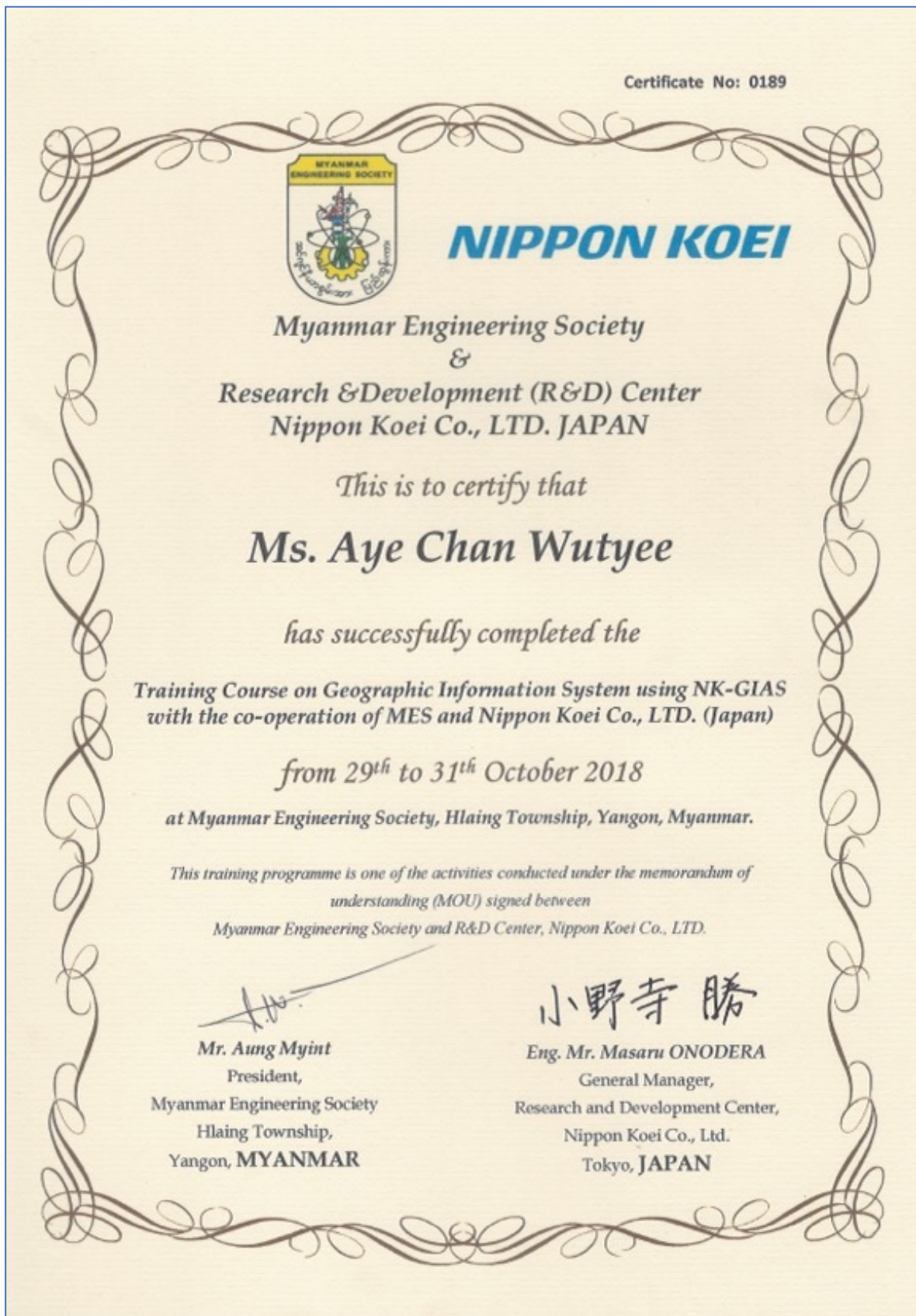
Myanmar Maritime University

Rector

Myanmar Maritime University

Date : 8-2-2014







GLOBAL ENCHANTING

Safety and Management Training Centre

Cert No:YSS 115 3809 2020

Global Enchanting Safety & Management Training Centre

Certificate of Achievement

is Proudly Granted to:



AYE CHAN WUTYEE (12/DaGaYa(N)008144)

for successfully completing the training course for
Certified **Safety Supervisor Course** from
25-06-2020 to 28-06-2020 covering the following subjects:

1. Fundamental of Safety Concept
2. Understanding of Safety Signage
3. Duties and Responsibilities of a Safety Supervisor
4. Workplace Common Hazards
5. Fundamental of Risk Assessment
6. Personal Protective Equipments
7. Permit to Work System
8. Accident Investigation & Accident Reporting
9. Emergency Preparedness

Khin Swe Win Ko
Managing Director
Global Enchanting Safety & Management
Training Centre

Paing Aung Chit
Assistant Training Manager
Global Enchanting Safety & Management
Training Centre



100 ISO 9001:2015 Certified Standard
Certificate No: 03 0004

APPENDIX F: HEALTH AND SAFETY POLICY OF GOLDEN LACE POSCO INTERNATIONAL CO., LTD.

Health and Safety Policy

POSCO INTERNATIONAL, as a corporate citizen building a better future together, values 'health and safety' as the foremost priority in conducting its business, and therefore all its employees and stakeholders commit themselves to the following actions.

1. Prioritization of health and safety

We put health and safety first in making business decisions and ensure a clear understanding of, and thorough compliance with, applicable laws and company regulations in the areas of health and safety.

2. Creation of healthy workplace and continuous improvement

We preemptively identify and mitigate risks to create a healthy workplace and continuously improve our health and safety management system for the well-being of all our employees and stakeholders.

3. Proactive participation and communication

We establish an autonomous safety culture on the basis of proactive participation and communication, and build a health and safety cooperative system through mutual growth activities for relevant contractors.

27th January, 2023

Jeong Tak

Vice-Chairman, POSCO INTERNATIONAL Corporation



APPENDIX G: MSDS OF ALUMINUM PHOSPHIDE 56% TB



UPI CROPSCIENCE CO., LTD.

Add: C-312 Hi-tech Information Plaza, No.8 Huatian Road,
Huayuan, Tianjin City, 300384 P.R. China.

Tel: +86 22 23707836 Fax: +86 22 23707631

<http://www.upicrop.com>

MATERIAL SAFETY DATA SHEET

Aluminum phosphide 56% TB

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Aluminum phosphide 56% TB
Chemical Name:	aluminium phosphide
Type:	Insecticide
Molecular formula:	AlP
Company:	UPI CROPSCIENCE CO., LTD.
Address:	C-312 Hi-Tech Information Plaza No.8 Huatian Road Huayuan Tianjin City 300384 P.R. China.

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS	CAS NO.	CONTENT, %
Aluminum phosphide	20859-73-8	56.0
Inert ingredient	-	44.0

SECTION 3: HAZARDS IDENTIFICATION

Inhalation: Exposure to low levels causes malaise, ringing in the ears, fatigue, nausea, and pressure in the chest which is relieved by removal to fresh air. Exposure to high concentrations can be fatal.

Skin contact: May irritate skin

Eye contact: Dust may irritate the eyes.

Ingestion: Toxic if swallowed



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<http://www.upicrop.com>

SECTION 4: FIRST AID MEASURES

Inhalation: Affected persons should be immediately removed from the contaminated area into the open air and given oxygen treatment. Apply artificial respiration using a respirator if the patient is not breathing. DO not apply mouth to mouth resuscitation.

Skin contact: If powder or granules get on skin or clothing brush or shake material off clothes in a well ventilated area. Allow clothes to aerate in a well ventilated area prior to laundering. Do not leave contaminated clothing in occupied and/or confined areas. Wash contaminated skin thoroughly with soap and water.

Eye contact: If dust from product gets into the eyes flush with plenty of water. Get medical attention.

Ingestion: Do not use mouth-to- mouth resuscitation. Place patient in a flat position and allow to rest. Do NOT administer any milk, butter, oils (e.g. castor oil) or alcohol.

First Aid Facilities: Provide washing facilities in the workplace.

Symptoms: Symptoms of phosphine poisoning include nausea, fatigue, a feeling of oppression in the chest, headaches, and stomach pains.

Medical attention: If a patient has swallowed aluminium phosphide he/she may be emitting toxic phosphine gas. First aid and medical staff should take precautions against exposure to phosphine emitted by such a patient. Do not administer mouth-to-mouth resuscitation - use other forms of resuscitation.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media: Suffocate flames with sand, carbon dioxide or dry extinguishing powder. Do NOT use water on metal phosphide fires.

Hazards from combustion products: Fires involving phosphine or metal phosphides will produce phosphoric acid

Precautions for fire fighters: Wear full protective clothing and self-contained breathing apparatus. Contain firefighting water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

If possible, dispose of spilled product by use according to the label. Freshly spilled material which has not been contaminated with water or foreign matter may be replaced into original containers. Punctured containers may be temporarily repaired using aluminium tape. If the age of the spill is unknown, or the material has been contaminated with soil, debris, water etc., gather up the spillage into small open buckets having a capacity no larger than 4.5 litres. Do



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not add more than about 1 to 1.5 kg to a bucket. If on-site wet deactivation is not feasible, transport the uncovered buckets in open vehicles to a suitable area. Wear gloves when handling product. Respiratory protection may be required during clean-up of spilled material. If the concentration of hydrogen phosphide is unknown, approved self-contained breathing apparatus must be worn. Small amounts of spillage, from about 4 - 8 kg may be spread out over the ground in an open area to be deactivated by atmospheric moisture. Alternatively the material may be wet deactivated as described in disposal information.

SECTION 7: HANDLING AND STORAGE

Handling: Keep out of reach of children.

Storage: Store away from food, drink or animal feeding stuffs. Store below 30 degrees C. Keep away from heat or moisture. Do not store in buildings inhabited by humans or domestic animals. Do not allow water or other liquids to contact product. Do not pile up large quantities of product during fumigation or disposal. Once exposed, do not confine product or otherwise allow hydrogen phosphide concentrations to exceed the LEL. Open containers only in the open air. Do not open in a flammable atmosphere. Phosphine in the head space of containers may flash upon exposure to atmospheric oxygen.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Testing for residual phosphine gas is recommended prior to entry to fumigated premises. Very dangerous. Product can kill if swallowed. Product releases dangerous phosphine gas slowly in moist air and immediately if wet. Can kill if inhaled. Do not inhale vapour. Avoid contact with eyes and skin. Do not inhale dust. Open container in the open air. Keep away from water and liquids. Use entire contents in one operation; if not possible, seal thoroughly with waterproof adhesive tape or air-tight closure.

Personal protective equipment: Respiratory Protection - full-face mask with approved canister for phosphine may be worn at concentrations up to 15 ppm. At levels above this, or when phosphine concentration is unknown, self-contained breathing apparatus or equivalent must be worn.

Protective Clothing - Wear gloves when handling the product.

Eye Protection - None required.

Ventilation - Local ventilation is generally adequate to reduce hydrogen phosphide levels in fumigated premises to below the TLV/TWA. Exhaust fans may be used to speed the aeration of silos, warehouses, shipholds, containers, etc.



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When opening the container and using the product wear elbow-length PVC gloves. If dispensing by hand wear full facepiece respirator with combined dust and gas cartridge or supplied air respirator.

Industrial hygiene: Avoid contact with eyes or skin. Clean working clothes and protective equipment with soap and water. When space fumigating in enclosed areas (eg rooms, warehouses) wear protective clothing specified. Wash hands after use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Tablets
Color	: Greyish
Flammability	: Not flammable
Explosivity	: Not explosive
Tablets Weight (Gram)	: 3.0 ± 0.1 g/tablet
Solubility	: Insoluble in most of the solvents; decompose in acid and in water.

SECTION 10: STABILITY AND REACTIVITY

Chemical stability: Product is stable to most chemical reactions, except for hydrolysis.

Hazardous polymerisation: Hazardous polymerisation will not occur.

Conditions to avoid: Moist air

Incompatible materials: Avoid contact with water and oxidising agents.

Hazardous decomposition products: It will react with moist air, liquid water, acids and some other liquids to produce toxic and flammable hydrogen phosphide gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ for rats >25 mg/kg.

Acute percutaneous: LD₅₀ for rats >1800 mg/kg

Skin irritation: irritation to skin, Rabbit

Eye irritation: irritation to eyes, Rabbit

Inhalation LC₅₀ (4 h) for rats >38.9 ppm.

Skin sensitization: Skin sensitizer to guinea pigs.

SECTION 12: ECOTOXICOLOGY INFORMATION

The following information is for active ingredient, Phosphide

Fish: LC₅₀ (96 h) for rainbow trout 9.7×10^{-3} ppm.



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Daphnia: EC₅₀ (24 h) 0.2 mg/l

SECTION 13: DISPOSAL CONSIDERATION

Wet deactivation: Deactivating solution is prepared by adding low sudsing detergent to water in a drum or other suitable container. A 2% solution or 4 cups of detergent to 130 litres is suggested. The container should be filled with deactivating solution to within a few centimetres of the top.

The product is added slowly to the deactivating solution and stirred so as to thoroughly wet all the product. this should be carried out in the open air and respiratory protection may be required. no more than 20-25 kg of product should be added to 70 litres of solution Allow the mixture to stand, with occasional stirring, for about 36 hours. The resultant slurry will then be safe for disposal. Dispose of the slurry or deactivated material, with or without preliminary decanting, at a landfill or other suitable site approved by local authorities.

SECTION 14: TRANSPORT INFORMATION

IMDG Code:

Shipping Name: ALUMINIUM PHOSPHIDE

Hazard Class: 6.1

UN Number: 1397

Packing Group: I

IATA DGR:

Shipping Name: ALUMINIUM PHOSPHIDE

Hazard Class: 6.1

UN Number: 1397

Packing Group: I

ADR:

Shipping Name: ALUMINIUM PHOSPHIDE

Hazard Class: 6.1

UN Number: 1397

Packing Group: I

SECTION 15: REGULATORY INFORMATION

Follow local regulations.



UPI CROPSCIENCE CO., LTD.

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SECTION 16: OTHER INFORMATION

The information contained in the Material Safety Data Sheet is correct to the best of our knowledge at the date of issue. It is intended as a guide for the safe use, handling, disposal, storage and transportation and is not intended as a warranty or as a specification. The information relates only to the product specified and may not be suitable for combinations with other materials or in processes other than those specifically described herein.

UPI

APPENDIX H: CALIBRATION CERTIFICATES OF E SAMPLER AND AEROQUAL S500

 Aeroqual Limited 109 Valley Road, Mount Eden, Auckland, New Zealand Phone: +64-9-623 3013 Fax: +64-9-623 3012 www.aeroqual.com				
Calibration Certificate No. 6979				
Calibration Date: 14 Jan 2015 10:04				
Model:	Sulphur Dioxide 0-10 ppm			
Serial No: ESO-1301154-004				
Environmental Conditions				
Temperature	24.7	°C		
Relative Humidity	48.1	%		
Measurements				
Calibration Standard /ppm	0.00	4.94	0.00	0.00
AQL Sensor (Mean) /ppm	0.00	4.95	0.00	0.00
AQL Sensor (Std. Dev) /ppm	0.000	0.006	0.000	0.000
*The Mean and Standard Deviation are calculated from three consecutive readings.				
Calibration Standard				
The Aeroqual sensor is calibrated against a certified UV fluorescence analyser.				
QC Approval:		Farid Yanes		
Date:		14 Jan 2015		

APPENDIX I: AIR QUALITY RESULT (2025)



ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း
Ecological Laboratory

စိမ်းလန်းအသိမြေဖွံ့ဖြိုးတိုးတက်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)



Reference Number/ စာအမှတ်: EL-R/446

Date / နေ့စွဲ: 22 May, 2025

Air Analysis Report (လေတိုင်းတာ စစ်ဆေးမှု အစီအရင်ခံစာ)

Air Analysis Info / လေတိုင်းတာမှု အချက်အလက်

လေတိုင်းသည့်နေရာ Sample site:	ဆန်စက်ရုံအနီးဝန်းကျင်	လေနမူနာအမှတ်စဉ် Sample I.D.	464
နေရာ (မြို့နယ်) Location (township)	ဆန်စက်စီမံကိန်း (တုံတေး)	လက်တီတွဒ် Latitude	16°43'52.45"N
		လောင်ဂျီတွဒ် Longitude	96° 0'41.96"E
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	ရန်ကုန်တိုင်းဒေသကြီး	နည်းစဉ် Method	Hz-Scanner (EPAS)
		စက်တည်အမြင့်(မေမြေပြင်မှ) Station height (above ground)	Ground
တိုင်းတာလိုသူ အမည် Name of customer:	Golden Lace POSCO International Co., Ltd	စတင်တိုင်းတာသည့်ရက် log on time (Date,Time)	3-5-2025 12:11 PM
တိုင်းတာသည့်နေ့စွဲ Air Sampling Testing Date	3-5-2025	တိုင်းတာပြီးသည့်အချိန် log off time (Date,Time)	4-5-2025 12:11 PM
ဆက်သွယ်ရန် လိပ်စာ/ဖုန်း Contact Address/phone	-	တိုင်းတာမှု ကြာချိန် Logging Duration (hours)	24 hr

Air Testing Result / လေထုတိုင်းတာစစ်ဆေးမှုအရလဒ်

စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period	ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period
၁	နိုက်ထရိုဂျင်ဒိုင်အောက်ဆိုဒ် Nitrogen dioxide	65	μg/m³	1 year	*40 μg/m³	1-year
			μg/m³	hour	* 200 μg/m³	1-hour
၂	Particulate matter PM ₁₀	2	μg/m³	24 year	*20 μg/m³	1-year
			μg/m³	hours	* 50 μg/m³	24-hour
၃	Particulate matter PM _{2.5}	4	μg/m³	24 year	* 10 μg/m³	1-year
			μg/m³	hours	* 25 μg/m³	24 hours
၄	ဆာလဖာဒိုင်အောက်ဆိုဒ် Sulfur Dioxide	38	μg/m³	10 min	* 500 μg/ m³	10 minutes
			μg/m³	24 hours	* 20 μg/m³	24-hour
၅	အိုဇုန်း Ozone	35.00	μg/m³	8 year	* 100 μg/m³	8 Hour Daily
			μg/m³	hours		Maximum
၆	ကာဗွန်မိုနောက်ဆိုဒ် Carbon monoxide	0.04	mg/m³	24 year	** 20 mg/m³	8 Hour
			mg/m³	hours		

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(ခေတ်ခွဲခန်း၏ စာဖြင့်ရေးသားသောသဘောတူညီချက်မရရှိပါက အခြားသူတို့အနေဖြင့် ထပ်မံဖော်ပြခြင်း၊ ပြုတ်ယူအသုံးပြုခြင်း၊ မိတ္တူကူးခြင်းမပြုရ)

No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.

Telephone: +95 9407496078

Website: <http://www.ecolabmyanmar.org> Email: aclab.2022@gmail.com



ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း Ecological Laboratory



စိမ်းလန်းအိမ်ခြေဖွံ့ဖြိုးတိုးတက်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)

စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period		ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period
၇	အပူချိန် Temperature	29.44	°C		hour		
			°C	24	hours	NG	-
၈	လေတိုက်နှုန်း Wind Speed	9.65	Kph		hour		
			Kph	24	hours	NG	-
၉	လေတိုက်ရာအရပ် Wind Direction	251.0	Deg		hour		
			Deg	24	hours	NG	-
၁၀	စိုထိုင်းဆ Relative Humidity	85	RH%		hour		
			RH%	24	hours	NG	-

* Myanmar Environmental Quality Emission Guideline 2015


NG= No Guideline

** Japan Standard

မှတ်ချက်။ ။ တိုင်းတာသည့်ကြာချိန်သည် သတ်မှတ်စံနှုန်းအချိန်ထက်နည်းပါက အများဆုံးတိုင်းတာခဲ့သည့်အချိန်၏ ပျမ်းမျှရလဒ်ကိုသာဖော်ပြထားပါသည်။ သတ်မှတ်စံနှုန်းအချိန်ထက် ပိုမိုတိုင်းတာထားသောအရည်အသွေးများအတွက် သတ်မှတ်အချိန် ပျမ်းမျှရလဒ်များ၏


တိုင်းတာထွက်ချက်သူ

Analyzed by


Kyaw Thu Sein
Mobile Lab Technician
Ecological Laboratory
ALARM

စစ်ဆေးသူ

Checked by


Dr. Aye Win
Laboratory In-Charge
Ecological Laboratory
(ALARM)

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စဉ် No.	အရည်အသွေး Parameter	ရလဒ် Results	ယူနစ် Unit	ပျမ်းမျှကာလ Avg. Period		ထုတ်လွှတ်မှုစံနှုန်း Guideline Value	ပျမ်းမျှကာလ Avg. Period
၇	အပူချိန် Temperature	30.55	°C	24	hour		
			°C		hours	NG	-
၈	လေတိုက်နှုန်း Wind Speed	8.046	Kph	24	hour		
			Kph		hours	NG	-
၉	လေတိုက်ရာအရပ် Wind Direction	251.0	Deg	24	hour		
			Deg		hours	NG	-
၁၀	စိုထိုင်းဆ Relative Humidity	90	RH%	24	hour		
			RH%		hours	NG	-

* Myanmar Environmental Quality Emission Guideline 2015

NG= No Guideline


** Japan Standard

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တိုင်းတာတွက်ချက်သူ
Analyzed by

စစ်ဆေးသူ
Checked by


Kyaw Thu Sein
Mobile Lab Technician
Ecological Laboratory
ALARM


Dr. Aye Mye Win
Laboratory In-Charge
Ecological Laboratory
(ALARM)

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APPENDIX J: CALIBRAATION CERTIFICATE OF NOISE LEVEL SAMPLER

EXTECH
INSTRUMENTS

ISO 9001 Certified

FLIR Commercial Systems, Inc. • 9 Townsend West • Nashua, NH 03063

Certificate of Calibration

Certificate Number: 122130
Document Number: 86667

Customer Details:
Customer Name: ENVIRON MYANMAR CO. LTD

Instrument Details:

Manufacturer:	EXTECH INSTRUMENTS	Calibration Date:	December 16, 2014
Description:	SOUND LEVEL METER	Calibration Due:	December 16, 2015
Model Number:	407780A	Cal. Interval:	12 MONTHS
Serial Number:	Z325183	As Received:	NEW
Equip. ID Number:	N/A		


Environmental Details:
Temperature: 21 Deg. +/- 5 C
Relative Humidity: 40 % +/- 15 %

Procedures Used:
Calibration Procedure: EICM407780A-CP

Certification

Extech Instruments certifies that the instrument listed above meets the specifications of the manufacturer at the completion of its calibration. Standards used are traceable to the National Institute of Standards and Technology (NIST), or have been derived from accepted values, natural physical constants, or through the use of the ratio method of self-calibration techniques. Methods used are in accordance with ISO 10012-1 and ANSI/NCSL Z540-1-1994. This certificate is not to be reproduced other than in full, except with prior written approval of Extech Instruments Corporation. All the calibration standards used have an accuracy ratio of 4:1 or better, unless otherwise stated.


Technicians Notes:
Technician: TERI KING

Approved By: 

Page 1 of 3

For calibration service, E-mail: repair@extech.com


APPENDIX K: NOISE LEVEL RESULTS



ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း

Ecological Laboratory

စိမ်းလန်းအသိမြှင့်တင်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)



Noise Analysis Info / အသံတိုင်းတာမှု အချက်အလက်

အသံတိုင်းသည့်နေရာ Sample site:	ဆန်စက်ရုံအနီးဝန်းကျင်	နမူနာအမှတ်စဉ် Sample I.D	141	
နေရာ (မြို့နယ်) Location (township)	ဆန်စက်စီမံကိန်း (တွဲတေး)	လက်တီတွဒ် Latitude	16°43'52.45"N	
		လောင်ဂျီတွဒ် Longitude	96° 0'41.96"E	
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	ရန်ကုန်တိုင်းဒေသကြီး	နည်းစဉ် Method	BENETECH Digital Sound Level Meter	
တိုင်းတာလိုသူ အမည် Name of customer:	Golden Lace POSCO International Co., Ltd	စတင်တိုင်းတာသည့်ရက် (နေ့၊အချိန်) log on time (Date,Time)	3-5-2025	12:11 PM
တိုင်းတာသည့်နေ့စွဲ Sampling Testing Date	3-5-2025	တိုင်းတာပြီးသည့်အချိန် (နေ့၊အချိန်) log off time (Date,Time)	4-5-2025	12:11 PM
ဆက်သွယ်ရန် လိပ်စာ/ဖုန်း Contact Address/phone	-	တိုင်းတာမှု ကြာချိန် Logging Duration (hours)	24 hr	

Noise Testing Results /အသံတိုင်းတာစမ်းသပ်ချက်အဖြေ

Testing Time	Testing Results (One Hour Average)	Guideline Value (NEQG)*		
Day - Time	Unit – dBA	One Hour LAeq (dBA)**		
7:00-8:00	55.13	Receptor	Day-time 07:00- 22:00 (10:00-22:00 for Public holidays)	Night Time 22:00- 07:00 (22:00-10:00 for Public holidays)
8:00-9:00	59.00			
9:00-10:00	61.12			
10:00-11:00	61.80			
11:00-12:00	63.16	Residential, Institutional Educational	55	45
12:00-13:00	70.00			
13:00-14:00	70.07			
14:00-15:00	71.80			
15:00-16:00	71.19			
16:00-17:00	69.10			
17:00-18:00	62.16	Industrial, Commercial	70	70
18:00-19:00	57.16			
19:00-20:00	55.19			
20:00-21:00	54.18			
21:00-22:00	53.44			
Day-Time Average (LAeq)	62.3			

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(ခရီးခွဲခန်း၏ စာဖြင့်ရေးသားသောသတောကူညီချက်မရရှိပါက အစီရင်ခံစာကို အပြည့်အစုံမှလွှဲ၍ တစ်စိတ်တစ်ပိုင်း ဖြတ်ယူအသုံးပြုခြင်း၊ မိတ္တူယူခြင်းမပြုရပါ။)

No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.

Telephone: +95 9407496078

Website: <http://www.ecolabmyanmar.org> Email: aclab.2022@gmail.com



ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း Ecological Laboratory



စိမ်းလန်းအသိမြှင့်တင်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)


Testing Time	Testing Results (One Hour Average)	Guideline Value (NEQG)*		
Night - Time	Unit – dBA	One Hour LAeq (dBA)**		
22:00-23:00	61.30	Receptor	Day-time 07:00- 22:00 (10:00-22:00 for Public holidays)	Night Time 22:00- 07:00 (22:00-10:00 for Public holidays)
23:00-24:00	67.11			
00:00-1:00	70.00			
1:00-2:00	76.00			
2:00-3:00	77.00	Residential, Institutional Educational	55	45
3:00-4:00	78.11			
4:00-5:00	79.00			
5:00-6:00	79.99	Industrial, Commercial	70	70
6:00-7:00	61.49			
Night-Time Average (LAeq)	72.00			

*Myanmar Environmental Quality Emission Guideline 2015

**Equivalent continuous sound level in decibels

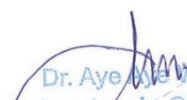
တိုင်းတာတွက်ချက်သူ

Analyzed by


Kyaw Thu Sein
Mobile Lab Technician
Ecological Laboratory
ALARM

စစ်ဆေးသူ

Checked by


Dr. Aye Aye Win
Laboratory In-Charge
Ecological Laboratory
(ALARM)

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(ဇယားခွဲခန်း၏ ဇယားရေးသားသောသူတို့၏ချက်ချင်းပေးအပ်ရန်မလိုအပ်ဘဲ ပြန်လည်ထုတ်ဝေခြင်း၊ ပြုပြင်ဆင်ခြင်ခြင်း၊
No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.
Telephone: +95 9407496078
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Noise Analysis Info / အသံတိုင်းတာမှု အချက်အလက်

အသံတိုင်းတာနေရာ Sample site:	ဆန်စက်ရုံဝင်း	နမူနာအမှတ်စဉ် Sample I.D	140	
နေရာ (မြို့နယ်) Location (township)	ဆန်စက်စီမံကိန်း (တွံတေး)	လက်တီတွဒ် Latitude	16°43'45.47"N	
		လောင်ဂျီတွဒ် Longitude	96° 0'41.59"E	
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	ရန်ကုန်တိုင်းဒေသကြီး	နည်းစဉ် Method	BENETECH Digital Sound Level Meter	
တိုင်းတာလိုသူ အမည် Name of customer:	Golden Lace POSCO International Co., Ltd	စတင်တိုင်းတာသည့်ချိန် (နေ့၊အချိန်) log on time (Date,Time)	1-5-2025	12:11 PM
တိုင်းတာသည့်နေ့ရက် Sampling Testing Date	1-5-2025	တိုင်းတာပြီးသည့်အချိန် (နေ့၊အချိန်) log off time (Date,Time)	2-5-2025	12:11 PM
ဆက်သွယ်ရန် လိပ်စာ/ဖုန်း Contact Address/phone	-	တိုင်းတာမှု ကြာချိန် Logging Duration (hours)	24 hr	

Noise Testing Results /အသံတိုင်းတာစမ်းသပ်ချက်အဖြေ

Testing Time	Testing Results (One Hour Average)	Guideline Value (NEQG)*		
Day - Time	Unit – dBA	One Hour LAeq (dBA)**		
7:00-8:00	62.17	Receptor	Day-time 07:00- 22:00 (10:00-22:00 for Public holidays)	Night Time 22:00- 07:00 (22:00-10:00 for Public holidays)
8:00-9:00	71.34			
9:00-10:00	73.6			
10:00-11:00	73.84			
11:00-12:00	75.97			
12:00-13:00	74.94	Residential, Institutional Educational	55	45
13:00-14:00	71.68			
14:00-15:00	72.86			
15:00-16:00	72.69			
16:00-17:00	72.57			
17:00-18:00	72.34	Industrial, Commercial	70	70
18:00-19:00	72.36			
19:00-20:00	77.34			
20:00-21:00	69.45			
21:00-22:00	63.58			
Day-Time Average (LAeq)	71.8			

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No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.
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Ecological Laboratory

စိမ်းလန်းအိမ်ခြေခွံ့ပြီးတိုးတက်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)




Testing Time	Testing Results (One Hour Average)	Guideline Value (NEQG)*		
Night - Time	Unit – dBA	One Hour LAeq (dBA)**		
22:00-23:00	55.2	Receptor	Day-time 07:00- 22:00 (10:00-22:00 for Public holidays)	Night Time 22:00- 07:00 (22:00-10:00 for Public holidays)
23:00-24:00	55.2			
00:00-1:00	55.1			
1:00-2:00	55.18			
2:00-3:00	55.1	Residential, Institutional Educational	55	45
3:00-4:00	63.0			
4:00-5:00	64.2			
5:00-6:00	69.0	Industrial, Commercial	70	70
6:00-7:00	70.2			
Night-Time Average (LAeq)	55.2			

*Myanmar Environmental Quality Emission Guideline 2015

**Equivalent continuous sound level in decibels

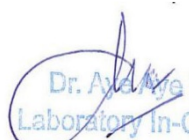
တိုင်းတာတွက်ချက်သူ

Analyzed by


Kyaw Thye Sein
Mobile Lab Technician
Ecological Laboratory
ALARM


စစ်ဆေးသူ

Checked by


Dr. Aye Aye Win
Laboratory In-Charge
Ecological Laboratory
(ALARM)

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No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.
Telephone: +95 9407496078
Website: <http://www.ecolabmyanmar.org> Email: aclab.2022@gmail.com

APPENDIX L: LABORATORY WATER ANALYSIS RESULTS (2015)

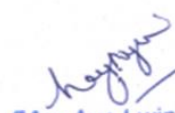


The Republic of the Union of Myanmar
Ministry of Agriculture and Irrigation
Irrigation Department
Survey and Investigation Branch
Soil Survey Section
Soil and Water Analytical Laboratory

Location -DAEWOO Rice Mill Project, Sample-1,
Twant e canal Water

Date = 15.6.2015

Sr No	Test Items	Symbols	Results
1	Alkalinity	Alk	120.02 mg/l
2	Magnesium	Mg ⁺⁺	5.86 mg/l
3	Sodium	Na ⁺	12.3 mg/l
4	Potassium	K ⁺	4.0 mg/l
5	Total Hardness	TH	80 mg/l
6	Sulphate	SO ₄ ⁼	25.94 mg/l
7	Chloride	Cl ⁻	16.31 mg/l
8	Iron	Fe	1.20 mg/l
9	Dissolved Oxygen	DO	7.6 mg/l
10	Chemical Oxygen Demand	COD	44.9 mg/l
11	Biochemical Oxygen Demand	BOD	18.0 mg/l
12	pH	pH	7.56
13	Ammonia-Nitrogen	NH ₃ -N	10.8 mg/l
14	Turbidity	Turb	816 NTU
15	Salinity	Sal	0.00 %
16	Arsenic	As	0.008 ppb
17	Lead	Pb	0.001 ppb


 (May Aye Lwin)
 Staff Officer (Lab)
 Soil Survey Section
 Survey and Investigation Branch
 Irrigation Department
 Yangon



The Republic of the Union of Myanmar
Ministry of Agriculture and Irrigation
Irrigation Department
Survey and Investigation Branch
Soil Survey Section
Soil and Water Analytical Laboratory

Location -DAEWOO Rice Mill Project, Sample-2, Surface Water
Well Depth-80 ft

Date = 15.6.2015

Sr No	Test Items	Symbols	Results
1	Alkalinity	Alk	920.15 mg/l
2	Magnesium	Mg ⁺⁺	14.64 mg/l
3	Sodium	Na ⁺	261.5 mg/l
4	Potassium	K ⁺	21.0 mg/l
5	Total Hardness	TH	128 mg/l
6	Sulphate	SO ₄ ⁼	0.48 mg/l
7	Chloride	Cl ⁻	757.07 mg/l
8	Iron	Fe	0.20 mg/l
9	Dissolved Oxygen	DO	7.6 mg/l
10	Chemical Oxygen Demand	COD	12.1 mg/l
11	Biochemical Oxygen Demand	BOD	5.0 mg/l
12	pH	pH	7.73
13	Ammonia-Nitrogen	NH ₃ -N	3.64 mg/l
14	Turbidity	Turb	34 NTU
15	Salinity	Sal	0.15 %
16	Arsenic	As	0.000 ppb
17	Lead	Pb	0.000 ppb

May Aye Lwin
(May Aye Lwin)
Staff Officer (Lab) 6
Soil Survey Section
Survey and Investigation Branch
Irrigation Department
Yangon

APPENDIX M: LABORATORY WATER ANALYSIS RESULTS (2025)



ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း
Ecological Laboratory



စိမ်းလန်းအသိမြှင့်တင်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)
No.121, Corner of Shu Khin Thar Street & 7 Street, (3) Block, South Oakkalapa Township, Yangon.Tel: - 09-407496078

စာအမှတ်/Reference Number: EL(M)-R/1270

နေ့စွဲ / Date: 22 May, 2025

ဓာတ်ခွဲစစ်ဆေးမှု အစီအရင်ခံစာ / Laboratory Analysis Report

နမူနာအမည် / Sample Profile

နမူနာအမည် / Sample Name	Sample (1) Cannel Water	နမူနာအမှတ် / Sample ID.	1270
နေရာ (မြို့နယ်) Location (township)	Twante Township	လက်တီတွဒ် Latitude	16°43'40.81"N
		လောင်ဂျီတွဒ် Longitude	96° 0'42.03"E
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	Yangon Region		
ပေးပို့သူအမည် / Sender Name	U Aung Kyaw Zin Latt	နမူနာကောက်ချိန် (နေ့နာရီ) Sampling Time (Date,Time)	1-5-2025 09:15 AM
အဖွဲ့အစည်း / Organization	Golden Lace POSCO International Co., Ltd		
ဆက်သွယ်ရန် / Contact	09796921149	နမူနာရောက်ရှိချိန် (နေ့နာရီ) Arriving Time (Date,Time)	1-5-2025 13:00 PM

(This laboratory analysis report is based solely on the sample submitted by the customer)

(ဤဓာတ်ခွဲစစ်ဆေးမှုအစီအရင်ခံစာသည်ပေးပို့သူမှပို့ဆောင်ခဲ့သည့်နမူနာကိုသာအခြေခံထားပါသည်။)

Analysis Result / စမ်းသပ်ချက်အဖြေ

စဉ် Sr.	အရည်အသွေးညွှန်းကိန်း Quality Parameter	ရလဒ် အဖြေ Results	နည်းစဉ် Method	စံသတ်မှတ်ချက် Drinking Standard	မှတ်ချက် Remark
1	Total Plate count (CFU /100ml)		Total plate count method	0	
2	Total Coliform count (MPN/100ml) (Presumption test)	ND	Most Probable Number method	0	
3	Total faecal coliform count (MPN/100ml) (Presumption test)		Most Probable Number method	0	
4	Total Coliform count (CFU/100ml) (Confirm test)		Eosin Methyl blue agar plate test	0	
5	Complete test for coliform bacteria		Gram staining test	-	
6	Total Coliform count (CFU/ml)		3M Plate count method	0	
7	Total <i>E. coli</i> count (CFU/ml)		3M Plate count method	0	

Note: The target sample needs to test some additional test to confirm total coliform and total faecal coliform

တိုင်းတာတွက်ချက်သူ
Tested

May Zaw

Research Assistant
ALARM

စစ်ဆေးပြီး
Check by

May Myat Nyein

Research Assistant
ALARM

တာဝန်ခံ
Approved by

Ni tar Nwe

Research Scientist
ALARM

ALARM Ecological Laboratory

Water Testing Result Report



Report Number: EL-WR-25-02350

Date: May 22, 2025

Client Information	Sample Information
Client Name : Golden Lacc POSCO International Co., Ltd	Sample ID : 10558
Organization : -	Sample Name : Sample 1
Client ID : -	Sample Type / Source : Surface Water (Twante Canal)
Registration Date & Time : 1-5-2025, 13:00 PM	Sampling Date & Time : 1-5-2025, 9:15 AM
Contact : U Aung Kyaw Zin Latt	Sample Location : Twante Township
E - Mail : -	Latitude : 16°43'40.81"N
Testing Purpose : IEE (Revise Report)	Longitude : 96° 0'42.03"E

Testing Results

*This laboratory analysis report is based solely on the sample submitted by the client unless client took our sampling service.
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Sr.	Quality Parameters	Results	Units	Drinking Standards	Remarks
1	Alkalinity	122.5	mg/L	200	Normal
2	Magnesium	6.5	mg/L	30	-
3	Sodium	12.5	mg/L	200	-
4	Potassium	5.0	mg/L	-	-
5	Total Hardness	112.5	mg/L	500	-
6	Sulphate	34.5	mg/L	400	-
7	Chloride	45.5	mg/L	600	-
8	Iron ⁷	5.69	mg/L	0.5-1.5	-
9	Dissolve Oxygen	5.25	mg/L	-	-
10	COD ³	57.1	mg/L	125	-
11	BOD ⁶	2.5	mg/L	-	-
12	pH	8.29	-	6.5-8.5	-
13	Ammonia-Nitrogen	0.10	mg/L	10	-
14	Turbidity	528	NTU	20	Not Clear
15	Salinity	2.0	%	-	-
16	Arsenic ⁸	0.003	Mg/L	0.05	-
17	Lead ⁷	ND	ppb	0.05	-

"ND" = Not Detected

"LOD" = Lower limit of detection

" - " = No Reference Standard

Tested by	Checked by	Approved by
Daw May Myat Khine Lab Technician II Ecological Laboratory ALARM	Daw Lin Myat Aung Lab. Technician I Ecological Laboratory ALARM	Dr. Aye Aye Win Laboratory In-Charge Ecological Laboratory (ALARM)

No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.

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Website: <http://www.ecolabmyanmar.org> Email: aclab.2022@gmail.com



ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း Ecological Laboratory



စိမ်းလန်းအိမ်မြေဖွံ့ဖြိုးတိုးတက်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)
No.121, Corner of Shu Khin Thar Street & 7 Street, (3) Block, South Oakkalapa Township, Yangon.Tel: - 09-407496078

စာအမှတ်/Reference Number: EL(M)-R/1271

နေ့စွဲ / Date: 22 May, 2025

ဓာတ်ခွဲစစ်ဆေးမှု အစီအရင်ခံစာ / Laboratory Analysis Report

နမူနာရာဇဝင် / Sample Profile

နမူနာအမည် / Sample Name	Sample (2) Ground Water	နမူနာအမှတ် / Sample ID.	1271
နေရာ (မြို့နယ်) Location (township)	Twante Township	လက်တီတွဒ် Latitude	16°43'45.59"N
		လောင်ဂျီတွဒ် Longitude	96° 0'31.94"E
နေရာ (တိုင်းပြည်နယ်) Location (Region / state)	Yangon Region		
ပေးပို့သူအမည် / Sender Name	U Aung Kyaw Zin Latt	နမူနာကောက်ချိန် (နေ့နာရီ) Sampling Time (Date,Time)	1-5-2025 10:30 AM
အဖွဲ့အစည်း / Organization	Golden Lace POSCO International Co., Ltd		
ဆက်သွယ်ရန် / Contact	09796921149	နမူနာရောက်ရှိချိန် (နေ့နာရီ) Arriving Time (Date,Time)	1-5-2025 13:00 PM

(This laboratory analysis report is based solely on the sample submitted by the customer)

(ဤဓာတ်ခွဲစစ်ဆေးမှုစီရင်ခံစာသည်ပေးပို့သူမှပို့ဆောင်ခဲ့သည့်နမူနာကိုသာအခြေခံထားပါသည်။)

Analysis Result / စစ်ဆေးရက်အဖြေ

စဉ် Sr.	အရည်အသွေးညွှန်းကိန်း Quality Parameter	ရလဒ် အဖြေ Results	နည်းစဉ် Method	စံသတ်မှတ်ချက် Drinking Standard	မှတ်ချက် Remark
1	Total Plate count (CFU /100ml)		Total plate count method	0	
2	Total Coliform count (MPN/100ml) (Presumption test)	ND	Most Probable Number method	0	
3	Total faecal coliform count (MPN/100ml) (Presumption test)		Most Probable Number method	0	
4	Total Coliform count (CFU/100ml) (Confirm test)		Eosin Methyl blue agar plate test	0	
5	Complete test for coliform bacteria		Gram staining test	-	
6	Total Coliform count (CFU/ml)		3M Plate count method	0	
7	Total <i>E. coli</i> count (CFU/ml)		3M Plate count method	0	

Note: The target sample needs to test some additional test to confirm total coliform and total faecal coliform

တိုင်းတာတွက်ချက်သူ

Tested

May Zaw

Research Assistant
ALARM

စစ်ဆေးပြီး

Check by

May Myat Nyein

Research Assistant
ALARM

တာဝန်ခံ

Approved by

Ni tar Nwe

Research Scientist
ALARM

ALARM Ecological Laboratory

Water Testing Result Report



Report Number: EL-WR-25-02351

Date: May 22, 2025

Client Information	Sample Information
Client Name : Golden Lase POSCO International Co., Ltd	Sample ID : 10560
Organization : -	Sample Name : Sample 2
Client ID : -	Sample Type / Source : Ground Water
Registration Date & Time : 1-5-2025, 13:00 PM	Sampling Date & Time : 1-5-2025, 10:30 AM
Contact : U Aung Kyaw Zin Latt	Sample Location : Twante Township
E - Mail : -	Latitude : 16°43'45.59"N
Testing Purpose : IEE (Revise Report)	Longitude : 96° 0'31.94"E

Testing Results

*This laboratory analysis report is based solely on the sample submitted by the client unless client took our sampling service.
This report shall not be reproduced except in full, without written approval of the laboratory*

Sr.	Quality Parameters	Results	Units	Drinking Standards	Remarks
1	Alkalinity	850.16	mg/L	200	Normal
2	Magnesium	10.4	mg/L	30	-
3	Sodium	100.4	mg/L	200	-
4	Potassium	25.0	mg/L	-	-
5	Total Hardness	145	mg/L	500	-
6	Sulphate	0.3	mg/L	400	-
7	Chloride	210	mg/L	600	-
8	Iron ⁷	0.18	mg/L	0.5-1.5	-
9	Dissolve Oxygen	2.3	mg/L	-	-
10	COD ³	ND	mg/L	125	-
11	BOD ⁶	1.2	mg/L	-	-
12	pH	6.19	-	6.5-8.5	-
13	Ammonia-Nitrogen	0.5	mg/L	10	-
14	Turbidity	3	NTU	20	Not Clear
15	Salinity	0.00	%	-	-
16	Arsenic ⁸	0.000	Mg/L	0.05	-
17	Lead ⁷	ND	ppb	0.05	-

"ND" = Not Detected

"LOD" = Lower limit of detection

" - " = No Reference Standard

Tested by	Checked by	Approved by
 Daw May Myat Khine Lab. Technician II Ecological Laboratory ALARM	 Daw Lin Myat Aung Lab. Technician I Ecological Laboratory ALARM	 Dr. Aye Aye Win Laboratory In-Charge Ecological Laboratory (ALARM)

No-121, Conner of Shu Khin Thar Street and (7) Street, 3 Block, South Okkalapa Township, Yangon.

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ALARM Ecological Laboratory

Water Testing Result Report



Laboratory Testing Methods		
Index	Instrument / Method	References / Descriptions
1	pH Meter	Electrode method (Approved by EPA, ISO, ASTM), Hanna electrode meter Certified by 2014 EMS, Certified by QMS
2	DO Meter	Electrochemical probe method, Dissolved Oxygen Probe Measurement (Approved by EPA, ISO, ASTM) Horiba DO electrode certified with IP67 standards and measures
3	SpectroDirect Methods	Lovibond brand reagent testing methods, precision of the methods are identical to the precision specified in the standard literature of AWWA and ISO
4	TDS Meter	Electrode method (Approved by EPA, ISO, ASTM), Hanna electrode meter Certified by 2014 EMS, Certified by QMS
5	Conductivity Meter	Electrode method, conductivity cell (Approved by EPA, ISO, ASTM), Hanna electrode meter Certified by 2014 EMS, Certified by QMS
6	BOD Testing Method	Method 405.1, USEPA Method for Chemical Analysis of Water and Waste water
7	Atomic Adsorption Spectrophotometer	Shimadzu AA-6200, which is based on the Japan Water Standard Testing Method also approved by EPA and ASTM
8	Arsenic Test Kit	Lovibond brand Arsenic Test kit certified by DIN ISO 1997/ Follow Procedure: Meets WHO requirements:
9	Liquid-Liquid Partition Gravimetric Method	Test Method for Oil and Grease (Solvent Extractable Substances) in Water (EPA 1664) by using n-Hexane

Standards References		
Index	Standard Names	References
a	WHO Standard for Drinking Water (2011)	Guidelines for Drinking-water Quality 4rd edition, World Health Organization, 2011.
b	US EPA Drinking Water Standard 2018	2018 Edition of the Drinking Water Standards and Health Advisories, EPA 822-F-18-001, Office of Water, USEPA, Washington, DC, March 2018
c	Myanmar National Drinking Water Quality Standard	Myanmar National Standard Department, Department of Research and Innovation, Ministry of Education
d	Myanmar Emission Guideline (2015)	National Environmental Quality (Emission) Guidelines, Order No. (613/2015) MOICAR, 2015, December 29.
*	At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity; when the zone is not defined, use 100 meters from the point of discharge.	

Quality Parameters Descriptions

pH: Although pH usually has no direct impact on consumers, it is one of the most important operational water quality parameters. Water generally becomes more corrosive with decreasing pH; however, excessively alkaline water also may be corrosive. **Temperature:** will have an impact on the acceptability of a number of other inorganic constituents and chemical contaminants that may affect taste. High water temperature enhances the growth of microorganisms and may increase problems related to taste, odor, color and corrosion. **Color:** Drinking water should ideally have no visible color. Color in drinking water is usually due to the presence of colored organic matter (primarily humic and fuvic acids) associated with the humus fraction of soil. Color is also strongly influenced by the presence of iron and other metals, either as natural impurities or as corrosion products. It may also result from the contamination of the water source with industrial effluents and may be the first indication of a hazardous situation. **Turbidity:** Turbidity in water is caused by suspended particles or colloidal matter that obstructs light transmission through the water. It may be caused by inorganic or organic matter or a combination of the two. Microorganisms (bacteria, viruses and protozoa) are typically attached to particulates, and removal of turbidity by filtration will significantly reduce microbial contamination in treated water. **Total Dissolved Solid (TDS):** The total of all dissolved mineral constituents, usually expressed in milligrams per liter. The concentration of dissolved solids may affect the taste of water. Water that contains more than 1,000 mg/L is unsuitable for many industrial uses. Some dissolved mineral matter is desirable, otherwise the water would have no taste. The dissolved solids concentration commonly is called the water's salinity and is classified as follows: Fresh, 0-1,000 mg/L; slightly saline, 1,000-3,000 mg/L; moderately saline, 3,000-10,000 mg/L; very saline, 10,000-35,000 mg/L; and briny, more than 35,000 mg/L. **Total Suspended Solid (TSS):** Both organic and inorganic particles of all sizes can contribute to the suspended solids concentration. These solids include anything drifting or floating in the water, from sediment, silt and sand to plankton and algae. TSS are particles that are larger than 2 microns found in the water column. Anything smaller than 2 microns (average filter size) is considered a dissolved solid. **Total Solid:** Total solids are dissolved solids plus suspended solids in water. **Conductivity:** Conductivity is nothing but the measure of the capability of water to pass the flow of electric current. This ability of conductance is said to be directly proportional to the concentration of the ions present in the water. **Chloride:** Large concentrations increase the corrosiveness of water and, in combination with sodium, give water a salty taste. **Hardness:** Related to the soap-consuming characteristics of water, results in formation of scum when soap is added. May cause deposition of scale in boilers, water heaters, and pipes. Hardness contributed by calcium and magnesium, bicarbonate and carbonate mineral species in water is called carbonate hardness; hardness in excess of this concentration is called noncarbonate hardness. Water that has a hardness less than 61 mg/L is considered soft; 61-120 mg/L, moderately hard; 121-180 mg/L, hard; and more than 180 mg/L, very hard. **Dissolved Oxygen:** Required by higher forms of aquatic life for survival. Depletion of dissolved oxygen in water supplies can encourage the microbial reduction of nitrate to nitrite and sulfate to sulfide.

It can also cause an increase in the concentration of ferrous iron in solution. **Biological/Chemical Oxygen Demand (BOD & COD):** BOD is similar in function to chemical oxygen demand (COD), in that both measure the amount of organic compounds in water. However, COD is less specific, since it measures everything that can be chemically oxidized, rather than just levels of biologically active organic matter. **Aluminum:** No known necessary role in human or animal diet. Nontoxic in the concentrations normally found in natural water supplies. Elevated dissolved aluminum concentrations in some low pH waters can be toxic to some types of fish. **Manganese:** Causes gray or black stains on porcelain, enamel, and fabrics. Can promote growth of certain kinds of bacteria that clog pipes and wells. **Sodium & Potassium:** Large concentrations may limit use of water for irrigation and industrial use and, in combination with chloride, give water a salty taste. Abnormally large concentrations may indicate natural brines, industrial brines, or sewage. **Zinc:** Essential and beneficial in metabolism; its deficiency in young children or animals will retard growth and may decrease general body resistance to disease. Seems to have no ill effects even in fairly large concentrations (20,000-40,000 mg/L), but can impart a metallic taste or milky appearance to water. Zinc in drinking water commonly is derived from galvanized coatings of piping. **Iron:** Forms rust-colored sediment; stains laundry, utensils, and fixtures reddish brown. Objectionable for food and beverage processing. Can promote growth of certain kinds of bacteria that clog pipes and well openings. **Arsenic:** is toxic. A cumulative poison that is slowly excreted. Can cause nasal ulcers; damage to the kidneys, liver, and intestinal walls; and death. Recently suspected to be a carcinogen. **Chlorine:** Chlorine is added to water supplies to kill bacteria. Short term exposure to chlorine comes primarily from bathing and other activities that use hot water rather than from drinking. Short term exposure irritates the eyes and lungs, and within 15 minutes of exposure victims experience coughing, shortness of breath and headaches. Regular exposure to chlorine in the home has been associated with asthma and other respiratory diseases. **Cyanide:** Cyanide is highly acutely toxic. It is detoxified in the liver by first-pass metabolism following oral exposure. As a consequence, exposure to a dose spread over a longer period, through a day, for example, will result in lower toxicity, or higher tolerance, than the same dose given in a single bolus dose. **Nitrite:** Commonly formed as an intermediate product in bacterially mediated nitrification and denitrification of ammonia and other organic nitrogen compounds. An acute health concern at certain levels of exposure. Nitrite typically occurs in water from fertilizers and is found in sewage and wastes from humans and farm animals. Concentrations greater than 1.0 mg/L, as nitrogen, may be injurious when used in feeding infants. **Nitrate & Nitrite-N:** Concentrations greater than local background levels may indicate pollution by feedlot runoff, sewage, or fertilizers. Concentrations greater than 10 mg/L, as nitrogen, may be injurious when used in feeding infants. **Phosphorus & ortho-phosphate:** Dense algal blooms or rapid plant growth can occur in waters rich in phosphorus. A limiting nutrient for eutrophication since it is typically in shortest supply. Sources are human and animal wastes and fertilizers. **Ammonia:** Plant nutrient that can cause unwanted algal blooms and excessive plant growth


when present at elevated levels in water bodies. Sources include decomposition of animal and plant proteins, agricultural and urban runoff, and effluent from waste-water treatment plants. **Lead:** A cumulative poison, toxic in small concentrations. Can cause lethargy, loss of appetite, constipation, anemia, abdominal pain, gradual paralysis in the muscles, and death. **Copper:** Essential to metabolism; copper deficiency in infants and young animals results in nutritional anemia. Large concentrations of copper are toxic and may cause liver damage. Moderate levels of copper (near the action level) can cause gastro-intestinal distress. **Cadmium:** A cumulative poison; very toxic. Not known to be either biologically essential or beneficial. Believed to promote renal arterial hypertension. Elevated concentrations may cause liver and kidney damage, or even anemia, retarded growth, and death. **Nickel:** Very toxic to some plants and animals. Toxicity for humans is believed to be very minimal. **Sulfide:** The "rotten egg" odor of hydrogen sulfide is particularly noticeable in some ground waters and in stagnant drinking water in the distribution system, as a result of oxygen depletion and the subsequent reduction of sulfate by bacterial activity. Sulfide is oxidized rapidly to sulfate in well-aerated or chlorinated water, and hydrogen sulfide levels in oxygenated water supplies are normally very low. **Sulfate:** Sulfates of calcium and magnesium form hard scale. Large concentrations of sulfate have a laxative effect on some people and, in combination with other ions, give water a bitter taste. **Alkalinity:** A measure of the capacity of unfilled water to neutralize acid. In almost all natural waters alkalinity is produced by the dissolved carbon dioxide species, bicarbonate and carbonate. **Phenol:** The presence of phenol in drinking water probably results from using contaminated surface water or groundwater as a source. Its presence in groundwater is probably the result of release to soil, often industrial releases or leachate from waste dumps, and the subsequent leaching of phenol through the soil to the groundwater. Chlorophenols are present in drinking water as a result of the chlorination of phenols, as by products of the reaction of hypochlorite with phenolic acids, as biocides or as degradation products of phenoxycarboxides. IARC has classified 2,4,6-trichlorophenol in Group 2B (possibly carcinogenic to humans). **Boron:** Essential to plant growth, but may be toxic to crops when present in excessive concentrations in irrigation water. Sensitive plants show damage when irrigation water contains more than 670 µg/L and even tolerant plants may be damaged when boron exceeds 2,000 µg/L. The recommended limit is 750 µg/L for long-term irrigation on sensitive crops. **Fluoride:** To produce signs of acute fluoride intoxication, minimum oral doses of about 1 mg of fluoride per kilogram of body weight were required. Concentrations above this guideline value (1.5 mg/L) carry an increasing risk of dental fluorosis and that progressively higher concentrations lead to increasing risks of skeletal fluorosis. **Oil & Grease:** Organic toxic waste (oil) and grease (OGG) causes ecological damages for aquatic organisms, plant, animal, and equally, mutagenic and carcinogenic for human being. They discharge from different sources to form a layer on water surface that decreases dissolved oxygen.

~~~ Thank you so much for using our testing services ~~~

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APPENDIX N: THE LABORATORY RESULT OF SOIL QUALITY (2015)



**The Republic of the Union of Myanmar**  
**Ministry of Agriculture and Irrigation**  
**Irrigation Department**  
**Survey and Investigation Branch**  
**Soil Survey Section**  
**Soil and Water Analytical Laboratory**  
**Yangon.**

Location ; DAEWOO Rice Mill Project, Soil Sample, Soil Depth (1)m.  
Twante plant area (Water Pond) Date; 15.6.2015

| Sr No | Test Items                   | Symbols           | Results      |
|-------|------------------------------|-------------------|--------------|
| 1     | pH                           | pH                | 7.14         |
| 2     | Electrical Conductivity      | EC <sub>1:5</sub> | 0.1199 dS/m  |
| 3     | Cation Exchangeable Capacity | CEC               | 6.49 cmol/kg |
| 4     | Potassium                    | K <sup>+</sup>    | 113.39 mg/kg |

  
 (May Aye Win)  
 Staff Officer (Lab) S  
 Soil Survey Section  
 Survey and Investigation Branch  
 Irrigation Department  
 Yangon

APPENDIX O: THE LABORATORY RESULT OF SOIL QUALITY (2025)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ  
စိုက်ပျိုးရေး၊ မွေးမြူရေးနှင့် ဆည်မြောင်းဝန်ကြီးဌာန  
စိုက်ပျိုးရေးဦးစီးဌာန  
(မြေအသုံးချရေးဌာနခွဲ)  
ရန်ကုန်မြို့



စာအမှတ်-ခခ- (၂)(၁) / ၂၀၂၅-၂၀၂၆ ( ၆၂ )

နေ့စွဲ၊ ၂၀၂၅ ခုနှစ်၊ မေလ ( ၂၀ ) ရက်

အကြောင်းအရာ။ မြေဓာတ်ခွဲစမ်းသပ်မှုအခြေအနေအထား

ရည်ညွှန်းချက်။ Environmental Compliance Consultancy Co., Ltd မှ (၁.၅.၂၅)

နေ့တွင် ပေးပို့သော နမူနာ။

အထက်အကြောင်းအရာပါ ကိစ္စနှင့်ပတ်သက်၍ ရည်ညွှန်းစာဖြင့် ပေးပို့  
လာသော မြေဓာတ် (၁ - မျိုး) အား ဓာတ်ခွဲစစ်ဆေးပြီးဖြစ်၍ ဓာတ်ခွဲတွေ့ရှိချက်  
အခြေအနေအထားကို ဤစာနှင့် အတူ ပူးတွဲပေးပို့ပါသည်။

( ဒေါက်တာသန္တာညီ )

ဒုတိယညွှန်ကြားရေးမှူး

ဓာတ်ခွဲခန်းတာဝန်ခံ

မြေအသုံးချရေးဌာနခွဲ

၂၅





DEPARTMENT OF AGRICULTURE ( LAND USE )  
SOIL ANALYTICAL DATA AND SOIL INTERPRETATION OF RESULTS

Environmental Compliance Consultancy Co., Ltd (1-5-2025)

Division - Yangon Region

Sheet No. 1

Project Name- Seed Factory (IEE)

Sr N S.1/2025

Golden Lace POSCO International Co., Ltd

| Sr No. | Sample | Soil Analytical Data |                           |                                    |           | Soil Interpretation of Results |     |         |
|--------|--------|----------------------|---------------------------|------------------------------------|-----------|--------------------------------|-----|---------|
|        |        | Moisture %           | pH<br>Soil:Water<br>1:2.5 | EC<br>(mS/cm)<br>Soil:Water<br>1:5 | Total N % | pH                             | EC  | Total N |
| 1.     | S-1    | 1.08                 | 8.26                      | 0.2                                | 0.12      | Moderately Alkaline            | Low | Low     |

( ဒေါက်တာသန္တာညီ )  
ဒုတိယညွှန်ကြားရေးမှူး  
ဓာတ်ခွဲခန်းတာဝန်ခံ  
မြေအသုံးချရေးဌာနခွဲ  
၂၇



DEPARTMENT OF AGRICULTURE ( LAND USE )  
SOIL ANALYTICAL DATA AND SOIL INTERPRETATION OF RESULTS  
Environmental Compliance Consultancy Co., Ltd (1-5-2025)

Division - Yangon Region

Sheet No. 1

Project Name- Seed Factory (IEE)

Sr N S.1/2025

Golden Lace POSCO International Co., Ltd

| Sr No. | Sample | Zinc (Zn) ppm | Copper (Cu) ppm | Iron (Fe) ppm | Lead (Pb) ppm | Cadmium (Cd) ppm | Chromium (Cr) ppm | Mercury (Hg) ppm |
|--------|--------|---------------|-----------------|---------------|---------------|------------------|-------------------|------------------|
| 1.     | S-1    | 0.3204        | -               | 10.9592       | ND            | 0.001            | ND                | ND               |

မှတ်ချက်။ ။ မြေနေမှုနာဓါတ်ခွဲအဖြေများအရ အန္တရာယ်ရှိ ဓာတ်ကြွင်းဖြစ်သော Cadmium (Cd) ပါဝင်မှုသည် စိုက်ပျိုးမြေတွင် ပါဝင်သင့်သည့်  
MPL (Maximum permissible Limit) ထက်မကျော်လွန်ပါ။ (Ref : FAO, WHO)

( ဒေါက်တာသန္တာညီ )  
ဒုတိယညွှန်ကြားရေးမှူး  
ဓာတ်ခွဲခန်းတာဝန်ခံ  
မြေအသုံးချရေးဌာနခွဲ

APPENDIX P: FIRE MANAGEMENT PLAN

ကန့်သတ်

Golden Lace POSCO Int'l Co., Ltd.

Twantay Rice Processing Complex

မီးဘေး အန္တရာယ်ကြိုတင် ကာကွယ်ရေးစီမံချက်

ဆန်စက်ရုံ

တွံတေးမြို့

2022

၂၀၂၂ ပြည့်နှစ် - ဒီဇင်ဘာလ ၁၉ ရက်

ကန့်သတ်

## ကန့်သတ်

### နိဒါန်း

၁။ Golden Lace POSCO International Rice Processing & Export Company ၏ တံတေးစက်ရုံ သည်ရန်ကုန် တောင်ပိုင်းခရိုင်၊ တံတေးမြို့နယ်၊ လှေလှမ်းကွင်း၊ ကုလားတန်း သုံးအိမ် ကျေးရွာအုပ်စု၊ တံတေး မအူပင်သွား ကားလမ်းမဘေးတွင် တည်ရှိပါသည်။ ကျွန်တော်တို့၏ တံတေးဆန်စက်ရုံကို ပန်ထမ်းအင်အား (၃၄)မန်ဖြင့် လုပ်ကိုင်လျက်ရှိပါသည်။ စက်ရုံပန်းအတွင်း၌လည်း ရပ်ဝေးမှ လာရောက် အလုပ်လုပ်ကိုင်သော ပန်ထမ်းများ သွားရေးလာရေး အခက်အခဲရှိပါသဖြင့် စက်ရုံအနေဖြင့် လူနေအဆောင် (၂)ထပ် အဆောင် နှင့် မန်နေဂျာများနေထိုင်ရာအဆောင်များ ထားရှိပါသည်။ အဆောင်နေ ပန်ထမ်း မိသားစုဝင်များသည် မိမိနေထိုင်ရာ အခန်းတွင် ချက်ပြုတ်စားသောက်ရသည်များရှိပါသည်။ သို့ပါ၍ ရုတ်တရက်ဆိုသလိုလျှပ်စစ်သုံးစွဲရာမှ လည်းကောင်း၊ ထမင်းချက်ဆောင်မှ လည်းကောင်း မီးဘေးအန္တရာယ် ကျရောက်နိုင်ပါသဖြင့် မီးဘေးအန္တရာယ် ကြိုတင်ကာကွယ်တားဆီးရေး လုပ်ငန်းများကို ပန်ထမ်းများ အနေဖြင့် စနစ်တကျ ဆောင်ရွက်သွားနိုင်ရေးအတွက် ဤစီမံချက်ကို ရေးဆွဲရခြင်းဖြစ်ပါသည်။

### ရည်ရွယ်ချက်

၂။ ကျွန်တော်များကုမ္ပဏီအနေဖြင့် တံတေးမြို့နယ်အတွင်းရှိ ဒေသခံပြည်သူများ အလုပ်အကိုင်ရရှိပြီး စားဝတ်နေရေး အဆင်ပြေစွာ နေထိုင်နိုင်ရေးအတွက် တာဝန်ရှိသည်ဟုခံယူဆောင်ရွက်ရန် အကြီးအကဲ၏ လမ်းညွှန်ချက်များနှင့် အညီ စက်ရုံပန်းအတွင်း မီးလောင်ခြေပျက်စီးဆုံးရှုံးမှုများ မဖြစ်ပေါ်စေရေးနှင့် မီးဘေး အန္တရာယ်ကြုံတွေ့ပါက အချိန်တိုတိုနှင့် အလွယ်တကူ မီးငြိမ်းသတ်နိုင်စေရန် ကြိုတင်ကာကွယ် မီးငြိမ်းသတ်နိုင် စေရန် ရည်ရွယ်ပါသည်။

### လုပ်နည်း

၃။ (က) အကြမ်းဖျင်းစီမံချက် - အောက်ပါအတိုင်းအပိုင်း(၃)ပိုင်းခွဲခြားဆောင်ရွက်ပါမည်။

- (၁) ကြိုတင်ကာကွယ်ခြင်း
- (၂) မီးလောင်စဉ် ဆောင်ရွက်ခြင်း
- (၃) မီးငြိမ်းသတ်ပြီးနောက်ဆောင်ရွက်ခြင်း

#### (ခ) အသေးစိတ်စီမံချက်

- (၁) ကြိုတင်ကာကွယ်ခြင်း - မီးဘေးအန္တရာယ်ကြိုတင်ကာကွယ်ခြင်းကို ထိရောက်စွာ ဆောင်ရွက် နိုင်ပါက မီးဘေးအန္တရာယ်ကင်းဝေးစေသည့် အဓိကအကြောင်းရင်းဖြစ်သည့်အတွက် အလေးထား ဆောင်ရွက်သွားရန်လိုအပ်ပါသည်။

## ကန့်သတ်

ကန့်သတ်

(၂) မီးလောင်မှုဖြစ်ပေါ်စေနိုင်သည့် အခြေအနေများ

(၁) ပတ်ဝန်းကျင်ရှိ မီးဘေးအန္တရာယ်ဖြစ်ပေါ်နိုင်မှုအခြေအနေများ

(ကက) မသမာသူအဖျက်အမှောက်သမားများမှ မီးရှို့လာနိုင်ခြင်း။

(ခခ) အဆောင်သူများ လျှပ်စစ်မီးသုံးစွဲခြင်းမှ မီးလောင်ကျွမ်းနိုင်ခြင်း။

(ဂဂ) စက်ရုံထမင်းချက်ဆောင်မှ မီးလောင်ကျွမ်းနိုင်ခြင်း။

(၂) စက်ရုံအတွင်း မီးလောင်မှုဖြစ်ပွားစေနိုင်သည့် အကြောင်းရင်းများ။

(ကက) စက်ရုံရှိဒေါင်အတွင်းသိုလှောင်ပစ္စည်းများမှ မီးလောင်ကျွမ်းနိုင်ခြင်း။

(ခခ) စက်ရုံအတွင်း အသုံးပြုသော ဂါယာကြိုးများမှ ဂါယာလျှော့ ဖြစ်ပြီး မီးလောင်  
ကျွမ်းနိုင်ခြင်း။

(ဂ) ပညာပေးခြင်း

(၁) ဝန်ထမ်းများအား မီးသတ်သင်တန်းများ၊ မီးသတ်ကာကွယ်ရေးပစ္စည်းများ မည်ကဲ့သို့ သုံးစွဲရမည်ကို  
သင်ကြားပြသပေးခြင်း။

(၂) ဝန်ထမ်းများနှင့် ဖြတ်သန်းသွားလာသူများ မြင်သာသည့် နေရာတွင် မီးသတ်ပေးဆိုင်းဘုတ်များ  
ထင်ရှားစွာရေးသား ချိတ်ဆွဲထားခြင်း။

(၃) ဝန်ထမ်းများ၏ရုံးခန်း၊ အဆောင်များတွင် ချက်ပြုတ်ရေးနှင့် မီသုန်းစွဲမှု စနစ်တကျရှိစေရေး စစ်  
ဆေးကြပ်မတ်ပြီး အချိန်ကန့်သတ်ပေးခြင်း။

(၄) အခါအားလျော်စွာထုတ်ပြန်သော မီးဘေးဆိုင်ရာ ညွှန်ကြားချက်များကို စက်ရုံဝန်ထမ်းများအနေဖြင့်  
နားလည်လိုက်နာဆောင်ရွက်ရန် သတိပေးနှိုးဆော်ခြင်း။

(ဃ) ကြိုတင်ပြင်ဆင်ခြင်း

(၁) စက်ရုံ၊ မီးစက်ခန်းနှင့် လူနေဆောင်တို့တွင် မီးသတ်ဆေးဘူး(၆၂)ပူး၊ မီးချိတ်(၁၀)ချောင်း၊  
မီးကပ်(၁၀)ချောင်း၊ သံပုံး၊ ရေပုံးထားရှိခြင်း။

(၂) စက်ရုံအတွင်း ရေ(၃၁၆၀၀)ဂါလံဆန် အုတ်ကန် (၄)ကန်အား ရေအမြဲအသင့်ရှိစေခြင်း။

ကန့်သတ်

ကန့်သတ်

(၃) မီးချိတ်၊ မီးကပ်၊ မီးရိုက်တုတ်များနှင့် ရိုက်ပုတ်ငြိမ်းသတ်နည်း၊ ရေကိုပုံးဖြင့် စနစ်တကျလက်ဆင့်ကမ်း သယ်ယူငြိမ်းသတ်ခြင်းတို့ကို ဟောပြောပို့ချ၊ သရုပ်ပြလက်တွေ့ သင်ကြားမှုများ၊ မြို့နယ်မီးသတ်ဌာနနှင့် ညှိနှိုင်း၍ ကြိုတင်လေ့ကျင့်ဆောင်ရွက်သွားခြင်း။

(၄) မီးလောင်နိုင်သည့် စွန့်ပစ်ပစ္စည်းများအား စနစ်တကျစွန့်ပစ်စေခြင်းနှင့် ရှင်းလင်းထားခြင်း။

(၅) လျှပ်စစ်ဝါယာကြိုးများ၊ မီးချောင်း၊ မီးလုံး၊ ပန်ကာမီးခလုတ်များ၊ စသည်တို့ကို ကျွမ်းကျင်လျှပ်စစ် ဝန်ထမ်းများနှင့် စစ်ဆေးပြီး ဟောင်းနွမ်းပျက် စစ်ဆေးပြီး ဟောင်းနွမ်းပျက်စီးနေမှုများကို အမြန်ဆုံးဖယ်ရှား အစားထိုးအသစ်လဲလှယ်ခြင်း။

(၆) မီးဘေးအန္တရာယ်ကြုံပါက ဦးစားပေးသယ်ယူရန်အတွက် အရေးကြီးစာရွက်စာတမ်းများထားရှိသည့် ဗီရို သေတ္တာတွင် ဦးစားပေးအဆင့်သတ်မှတ်၍ စာကပ်ထားခြင်း။

(၇) မီးဘေးအန္တရာယ်ကြုံပါက အကူအညီရရှိစေရေးအတွက် ဆက်သွယ်သတင်းပို့ရမည့် မြို့နယ်မီးသတ် ဦးစီးဌာနနှင့် အထက်ဌာန ဖုန်းနံပါတ်များကို သိသာထင်ရှားအောင် ရေးသားချိတ်ဆွဲထားခြင်း။

(၈) မီးဘေးလုံခြုံရေး မီသတ်(၃)ဦးတို့အား ကွပ်ကဲရေးအဖွဲ့၊ မီးငြိမ်းသတ်ရေးအဖွဲ့၊ ပစ္စည်းသယ်ယူရေး အဖွဲ့များ စသည်ဖြင့်ဖွဲ့စည်းပြီး တာဝန်များသတ်မှတ်ပေးထားခြင်း။

(ဃ) စစ်ဆေးကြပ်မတ်ခြင်း

(၁) စက်ရုံပန်းအတွင်း မသမာသူများဝင်ရောက်မှု မရှိစေရေးအတွက် သေချာစွာ စစ်ဆေးမေးမြန်းပြီး လူစိမ်း၊ ဧည့်သည်များအား တာဝန်ရှိသူ၏ ခွင့်ပြုချက်ရရှိမှသာ ဝင်ရောက်စေခြင်း။

(၂) တာဝန်မှူးများချထားပြီး စစ်ဆေးရေးကိတ်များ နေ့စဉ်စစ်ဆေးရေးမှတ်တမ်းစာအုပ်ထားရှိပြီး လိုက်လံစစ် ဆေးခြင်း၊ စစ်ဆေးချိန်ကို မှတ်ချက်ပြု ဆိုင်းထိုးခြင်း။

(၃) မီးဘေးကြိုတင်ကာကွယ်ရေးအတွက် ဇာတ်တိုက်သရုပ်ပြသခြင်းအား ( ၃ လ ) တွင် တစ်ကြိမ် စုပေါင်း လေ့ကျင့်ဆောင်ရွက်ခြင်း။

(၂) မီးလောင်စဉ်ဆောင်ရွက်ခြင်း။ မီးလောင်ကျွမ်းမှုဖြစ်ပွားပါက ဖွဲ့စည်းတာဝန်ပေးထားသော အဖွဲ့များ သည်အောက်ပါအတိုင်းအသီးသီး ဆောင်ရွက်ရမည်။

(က) ကွပ်ကဲမှုအဖွဲ့။ အဖွဲ့ခေါင်းဆောင် ဦးကျော်ဇေယျ ဦးစီးသည့် ဝန်ထမ်း ( ၃ )ဦးပါဝင်သည့် ကွပ်ကဲမှုအဖွဲ့သည် အရေးပေါ်မီးသတ်၊ ဗဟိုမီးသတ်အဖွဲ့၊ မြို့နယ် မီးသတ်တပ်ဖွဲ့များသို့ သတင်းပို့ အကူအညီ တောင်းခံခြင်း၊ အရေးကြီးစာရွက်စာတမ်းများနှင့် ရုံးသုံးပစ္စည်းများအား စုစည်းထိန်းသိမ်းခြင်း၊ အခြားအဖွဲ့ များအား အမိန့်ပေးခြင်း၊ ကွပ်ကဲခြင်းများဆောင်ရွက်ရပါမည်။

ကန့်သတ်



ကန့်သတ်

- |                  |                  |
|------------------|------------------|
| (၁) ဦးကဏ္ဍဇယေ    | အဖွဲ့ခေါင်းဆောင် |
| (၂) ဦးဇေယျာဖြိုး | အဖွဲ့ဝင်         |
| (၃) ဦးသက်မောင်   | အဖွဲ့ဝင်         |

(ခ) မီးငြိမ်းသတ်ရေးအဖွဲ့။ အဖွဲ့ခေါင်းဆောင် ဦးကောင်းသီဟ ဦးစီးသည့် ဝန်ထမ်း (၅)ဦးပါဝင်သည့် မီးငြိမ်းသတ်ရေးအဖွဲ့သည် မီးသတ်ဆေးပူး၊ သံပုံး၊ ရေပုံးများနှင့် မီးချိတ်၊ မီးကပ်များ သယ်ယူပြီး မီးလောင်သည် နေရာ သို့ သွားရောက်ငြိမ်းသတ်ရပါမည်။

- |                   |                  |
|-------------------|------------------|
| (၁) ဦးကောင်းသီဟ   | အဖွဲ့ခေါင်းဆောင် |
| (၂) ဦးညီညီဇော်    | အဖွဲ့ဝင်         |
| (၃) ဦးကျော်လွင်ဦး | အဖွဲ့ဝင်         |
| (၄) ဦးနုလေသူဦး    | အဖွဲ့ဝင်         |
| (၅) ဦးကျော်ဇေယျ   | အဖွဲ့ဝင်         |

(ဂ) ပစ္စည်းသယ်ယူရေးအဖွဲ့။ အဖွဲ့ခေါင်းဆောင်ဦးလဦးဇေယျာတုန့် ဦးစီးသည့် ဝန်ထမ်း (၅)ဦး ပါဝင်သည့် ပစ္စည်းသယ်ယူသည့် အဖွဲ့သည် စက်ရုံအတွင်းရှိ စက်ပစ္စည်းများအား မီးလွတ်ရာသို့ ရွှေ့ပြောင်းခြင်း၊ အရေးကြီးစာရွက်စာတမ်းများထားရှိသည့် ဗီရိုသေတ္တာများအား ရွှေ့ပြောင်းသယ်ယူခြင်း၊ မီးလောင်မှု ပိုမိုဖြစ်ပေါ်စေနိုင်သည့် ဓာတ်ဆီပုံးများအား လွတ်ကင်းရာသို့ သယ်ယူခြင်းတို့ကို ဆောင်ရွက်ပါမည်။

- |                     |                  |
|---------------------|------------------|
| (၁) ဦးလဦးဇေယျာတုန့် | အဖွဲ့ခေါင်းဆောင် |
| (၂) ဦးဇော်မင်း      | အဖွဲ့ဝင်         |
| (၃) ဦးအေးမင်းထွေး   | အဖွဲ့ဝင်         |
| (၄) ဦးရဲညွန့်       | အဖွဲ့ဝင်         |
| (၅) ဦးစိုးလင်း      | အဖွဲ့ဝင်         |

(ဃ) ကူညီထောက်ပံ့ရေးအဖွဲ့။ အဖွဲ့ခေါင်းဆောင် ဦးလှထက်ဦး ဦးဆောင်သော ဝန်ထမ်း( ၅ )ဦးအဖွဲ့သည် မီးငြိမ်းသတ်ရေးအဖွဲ့အတွက် လိုအပ်သောရေ၊ သံပုံး၊ ပစ္စည်းကိရိယာများဖြည့်ဆည်းပံ့ပိုးခြင်း၊ မီးသတ်တပ်ဖွဲ့များ၏

ကန့်သတ်

### ကန့်သတ်

လိုအပ်ချက်များကို ဖြည့်ဆည်းဆောင်ရွက်ပေးခြင်း၊ အခြားနေရာများသို့ မီးမကူးအောင်ရေဖျန်းပေးခြင်းများ ဆောင်ရွက်ပါမည်။

(၁) ဦးလှထက်ဦး အဖွဲ့ခေါင်းဆောင်

(၂) ဦး ကျော်ဇယျာ အဖွဲ့ဝင်

(၃) ဦးဝဏ္ဏဦး အဖွဲ့ဝင်

(၄) ဦးအေးမင်း အဖွဲ့ဝင်

(၅) ဦးထွန်းတင်ဝေ အဖွဲ့ဝင်

(၃) မီးငြိမ်းသတ်ပြီးနောက် ဆောင်ရွက်ခြင်း

(က) ဒဏ်ရာရရှိသူများ ရှိ/မရှိ စစ်ဆေး၍ ရှိပါက ဆေးရုံသို့ ပို့ဆောင်ခြင်း။

(ခ) မီးလောင်ကျွမ်းမှုကြောင့် ပျက်စီးဆုံးရှုံးမှုများအား စစ်ဆေးစာရင်းကောက်ယူခြင်း။

(ဂ) မီးလောင်ကျွမ်းမှုများထဲမှ အသုံးပြုနိုင်သေးသည့် ပစ္စည်းများအား ရွေးချယ်သယ်ယူခြင်း။

(ဃ) မီးလွတ်ရာသို့ ရွှေ့ပြောင်းခဲ့သော ပစ္စည်းများအား ပြန်လည်နေရာချထားခြင်း။

(င) မီးကြွင်းမီးကျန်မရှိစေရေး အသေးစိတ်စစ်ဆေးခြင်း။

(စ) လူ၊ ပစ္စည်း လျော့နည်းဆုံးရှုံးပျက်စီးမှု အခြေအနေကို အထက်ဌာနများသို့ အချိန်နှင့် တပြေးညီ အစီရင်ခံတင်ပြခြင်း။

(၄) စစ်ဆေးခြင်း

စက်ရုံအတွင်း မီးဘေးကြိုတင်ကာကွယ်ရေးစီမံချက်များ ရေးဆွဲပြီး လိုက်နာဆောင်ရွက်ရမည့်အပြင် သက်ဆိုင်ရာတာဝန်ရှိသူများအနေဖြင့် အောက်ပါအတိုင်း အခါမလပ်စစ်ဆေးဆောင်ရွက်သွားရန် လိုအပ်ပါသည်။

(က) ကြီးကြပ်ကွပ်ကဲရေးအဖွဲ့မှ နေ့စဉ်စစ်ဆေးခြင်း

(၁) စက်ရုံရှိ မီးသတ်ဝန်ထမ်းများ လက်တွေ့မီးငြိမ်းသတ်ရေး လေ့ကျင့်ခန်းများကို အရှိန်အဟုန် မပြတ် လေ့ကျင့်ဆောင်ရွက်သွားရန်။

(၂) မီးလောင်လွယ်သည့် အမှိုက်သရိုက်၊ ချုံနွယ်များကို သန့်ရှင်းရေးအဖွဲ့ဖွဲ့၍ နေ့စဉ်သန့်ရှင်းရေး ဆောင်ရွက်ရန်။

### ကန့်သတ်

ကန့်သတ်

(၃) စက်ရုံအတွင်း အချိန်ပြည့် ကင်းလှည့်စစ်ဆေးရန်။

(၄) စက်ရုံအတွင်း ခွင့်ပြုထားသည့်နေရာမှအပ ဆေးလိပ်သောက်ခြင်းကို ကြပ်တည်းစွာ တားမြစ်ရန်။

(၅) မီးဘေးကြိုတင်ကာကွယ်ရေး ဆောင်ရွက်ထားမှုကို စစ်ဆေးပေးရန်နှင့် အကြံဉာဏ်ကောင်းများတောင်းခံနိုင်ရေးအတွက် မြို့နယ်မီးသတ်တပ်ဖွဲ့နှင့် ဆက်သွယ်ဆောင်ရွက်ရန်။

(ခ) အထက်အဖွဲ့အစည်းအဆင့်ဆင့်မှ အခါအားလျော်စွာ စစ်ဆေးခြင်း

(၁) အထက်အဖွဲ့အစည်းအဆင့်ဆင့်မှ အခါအားလျော်စွာစစ်ဆေးခြင်း

(၂) ရေကန်များအား အစဉ်အမြဲရေအပြည့်ရှိစေရေး ဆောင်ရွက်ထားရှိရန်

(၃) မီးသတ်ပွိုင့်များတွင် သံပုံးများ၊ ရေပုံးများ၊ မီးချိတ်၊ မီးကပ်များနှင့် မီးသတ်ဆေးဘူးများအား စနစ်တကျထားရှိရန်

(၄) မီးသတ်ဆေးဘူးများအား အသင့်သုံးစွဲနိုင်ရန် မြင်သာသော နေရာများတွင် ချိတ်ဆွဲထားရန်

(၅) စက်ရုံမီးဘေးကြိုတင်ကာကွယ်ရေး ဆောင်ရွက်ထားမှုများကို စစ်ဆေးပေးရန်နှင့် အကြံဉာဏ်များတောင်းခံနိုင်ရေးအတွက် မြို့နယ်မီးသတ်တပ်ဖွဲ့များနှင့် ဆက်သွယ်ဆောင်ရွက်ရန်

(၆) လျှပ်စစ်ပိုင်းဆိုင်ရာ ချို့ယွင်းမှုကြောင့် မီးဘေးအန္တရာယ်မဖြစ်ပေါ်စေရန် လျှပ်စစ်ဝန်ထမ်းများအား သတိပေးပြောကြားရန်

(၇) အရေးပေါ်ဆက်သွယ်နိုင်မည့် မီးသတ်တပ်ဖွဲ့များ၊ မြို့နယ်အုပ်ချုပ်ရေးမှူး၊ မြန်မာနိုင်ငံ ရဲတပ်ဖွဲ့ဌာနဆိုင်ရာများ၏ ဖုန်းနံပါတ်များကို မြင်သာသောနေရာတွင် ရေးသားထားရန်

(၈) မီးဘေးအန္တရာယ် ကင်းရှင်းစေရေး ညွှန်ကြားချက်များကို အခါမလပ်ထုတ်ပြန်ညွှန်ကြားရန်၊ လိုက်နာမှု ရှိ/မရှိ စစ်ဆေးရန်

(၅) ဆက်သွယ်ရေး

မီးလောင်မှုအားအချိန်နှင့် တပြေးညီ သံချောင်းခေါက် အချက်ပေးခြင်း၊ သက်ဆိုင်ရာမီးသတ်တပ်ဖွဲ့များသို့ အကြောင်းကြားခြင်း၊ ရုံးဖုန်းများဖြင့် အကြောင်းကြားဆက်သွယ်ခြင်းတို့ကို ဆောင်ရွက်ပါမည်။

(က) အရေးပေါ်မီးသတ်တပ်ဖွဲ့ ၁၉၁

(ခ) ဗဟိုမီးသတ်တပ်ဖွဲ့ ၂၅၂ ၀၁၁ / ၂၅၂ ၀၂၂

(ဂ) တွံတေးမီးသတ်တပ်ဖွဲ့ ၀၄၅-၅၀၄၄၄ / ၀၉-၄၂၂၈၇၁၅၁၆

ကန့်သတ်

ကန့်သတ်

(ဃ) စက်ရုံတာဝန်ခံဖုန်း

၀၉-၇၈၈၂၅၈၆၂၂/၀၉-၂၅၂၃၈၉၁၉၁

နိဂုံး

(၆) စက်ရုံအတွင်း တာဝန်ရှိသူများအားလုံးသည် မီးကို သတိရှိရှိဖြင့် မီးဘေးရှောင် မလောင်ခင်တား၊ သင့်ကြောင့်မီးမလောင်ပါစေနှင့် ဆိုသော ဆောင်ပုဒ်များကို နှလုံးသွင်းပြီး မီးဘေးအန္တရာယ်မှ ကင်းဝေးစေရန် အတွက် အားလုံးတွင် တာဝန်ကိုယ်စီရှိကြပါသည်။

နိုင်ငံပိုင်အရင်းအနှီးများ၊ ပုဂ္ဂလိကပိုင်အရင်းအနှီးများ မီးကြောင့် ဆုံးရှုံးမှုမဖြစ်စေရန်၊ မီးဘေးလုံခြုံရေး စီမံချက်အား လိုက်နာသွားကြရန် လိုအပ်ပါသည်။

စီမံချက်ပါ အချက်အလက်များနှင့် တာဝန်များကို သက်ဆိုင်ရာ ပန်ထမ်းများနှင့် စက်ရုံပန်ထမ်းများအားလုံးမှ အပြည့်အဝလိုက်နာဆောင်ရွက်ပြီး မီးဘေးအန္တရာယ် ကြိုတင်ကာကွယ်ရေးလုပ်ငန်းများကို စဉ်ဆက်မပြတ် သတိပေးနှိုးဆော်ခြင်းများပြုလုပ်ပါက မီးဘေးအန္တရာယ်ကင်းမည်ဖြစ်ပါသည်။

စက်ရုံရှိ မီးဘေးကာကွယ်ရေး အထောက်အကူပြုပစ္စည်းများစာရင်း

| စဉ် | အမျိုးအမည်             | ယူနစ် | အရေအတွက် | မှတ်ချက်               |
|-----|------------------------|-------|----------|------------------------|
| ၁   | မီးသတ်ဆေးဘူး           | လုံး  | ၆၄       |                        |
| ၂   | မီးချိတ်               | ခု    | ၁၀       |                        |
| ၃   | မီးကပ်                 | ခု    | ၁၀       |                        |
| ၄   | ရေစုပ်စက်              | လုံး  | ၂        |                        |
| ၅   | ရေပိုက်                | ခွေ   | ၃        | ၁၀၀ မီတာ               |
| ၆   | ရေအောက်ပိုက် ငုပ်တိုင် | ခု    | ၀        |                        |
| ၇   | ရေအုတ်ကန်              | လုံး  | ၃        | ရေဂါလံ...၁၀၀၀၀.....ဆံ့ |
| ၈   | ရေအုတ်ကန်              | လုံး  | ၁        | ရေဂါလံ...၁၆၀၀.....ဆံ့  |

Golden Lace POSCO Int'l Co., Ltd.

Twantay Rice Processing Factory

ကန့်သတ်

## APPENDIX Q: SOCIOECONOMIC QUESTIONNAIRE

### Socio-Economic, Health and Environment Key Formant Data Baseline and Attitude Survey IEE for Rice Processing Complex in the Twantay Township, Yangon Region of Myanmar (Village Key Information Interview)

#### Introduction

The purpose of this questionnaire is to collect general socio economic information and to obtain your perception and understanding for Initial Environmental Examination for Rice Processing Complex in Twantay.

Environmental Compliance Consultancy Co., Ltd is planning to conduct Social Impact Assessment survey to update the existing IEE report.

The survey will be focus on gaining Key information and attitude of 3 villages information on the population statics, Identification of key local community and stakeholder rights, Community history, indigenous communities, culture and key events that have shaped economic and social development, Community and institutional structures and resources, Local business and industry content, Local land use patterns, Health and community wellbeing, Livelihoods, Access to physical and social infrastructure, Interests of vulnerable groups (tribal/ethnic minority groups, women headed households, economically vulnerable households, etc.) and Gender and equity issues.

#### I. KEY INFORMATION IDENTIFICATION

|   |                                     |                          |
|---|-------------------------------------|--------------------------|
| 1 | Village Tract -----                 | <input type="checkbox"/> |
| 2 | Village                             |                          |
| 1 | Htan Ta Pin                         | <input type="checkbox"/> |
| 2 | Than Hpyu Yon                       | <input type="checkbox"/> |
| 3 | Kan Pat Yoe                         | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
|   |                                     | <input type="checkbox"/> |
| 3 | GPS Coordinate -----                | <input type="checkbox"/> |
| 4 | Key Information Sample Number ----- | <input type="checkbox"/> |
|   | Name of Key Informant -----         | <input type="checkbox"/> |
|   | Name of Respondent -----            | <input type="checkbox"/> |

|                 |                        |
|-----------------|------------------------|
| Date of Visits: | ____ / ____ / 25       |
| Enumerator:     | ____ Supervisor: _____ |

Enumerator's Remark: \_\_\_\_\_

Supervisor's Remark: \_\_\_\_\_

**Section A: Information of the respondent**

|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|---------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---|---------------------------|---|-----|---|------------------------|---|----------------------|---|---------------------|---|---------------------|---|----------|---|------------------------|---|---|---|
| A-1                       | Name of Representative of Key Information             | .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| A-2                       | Telephone No                                          | .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| A-3                       | Titles of Key Informant<br>(Multiple answers allowed) | <table border="1"> <tr><td>Village leader</td><td>1</td></tr> <tr><td>Member of village council</td><td>2</td></tr> <tr><td>CSO</td><td>3</td></tr> <tr><td>Village school teacher</td><td>4</td></tr> <tr><td>Village health staff</td><td>5</td></tr> <tr><td>Village women group</td><td>6</td></tr> <tr><td>Village youth group</td><td>7</td></tr> <tr><td>Villager</td><td>8</td></tr> <tr><td>Other (Specified).....</td><td>9</td></tr> </table> | Village leader | 1 | Member of village council | 2 | CSO | 3 | Village school teacher | 4 | Village health staff | 5 | Village women group | 6 | Village youth group | 7 | Villager | 8 | Other (Specified)..... | 9 | 1 | □ |
| Village leader            | 1                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Member of village council | 2                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| CSO                       | 3                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Village school teacher    | 4                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Village health staff      | 5                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Village women group       | 6                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Village youth group       | 7                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Villager                  | 8                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
| Other (Specified).....    | 9                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |
|                           |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9              |   |                           |   |     |   |                        |   |                      |   |                     |   |                     |   |          |   |                        |   |   |   |

**Section B: Population Statics**

|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------|------------------|----------|----------|---|---------|---|------------------------|---|---------|---|-----|-----|------------------------|---|--|--|-----|--|
| B-1                    | Population (Total) | Male                                                                                                                                                                                                                                                                                                                         | Female     | B-2  | No. of Household |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        | Question           | Majority                                                                                                                                                                                                                                                                                                                     | Population | Skip | Response         |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| B-3                    | Ethnicity          | <table border="1"> <tr><td>Bamar</td><td>1</td></tr> <tr><td>Kayin</td><td>2</td></tr> <tr><td>Kachin</td><td>3</td></tr> <tr><td>Kayar</td><td>4</td></tr> <tr><td>Chin</td><td>5</td></tr> <tr><td>Rakhine</td><td>6</td></tr> <tr><td>Mon</td><td>7</td></tr> <tr><td>Other (Specified).....</td><td>8</td></tr> </table> | Bamar      | 1    | Kayin            | 2        | Kachin   | 3 | Kayar   | 4 | Chin                   | 5 | Rakhine | 6 | Mon | 7   | Other (Specified)..... | 8 |  |  | □□□ |  |
| Bamar                  | 1                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Kayin                  | 2                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Kachin                 | 3                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Kayar                  | 4                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Chin                   | 5                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Rakhine                | 6                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Mon                    | 7                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Other (Specified)..... | 8                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    | Majority                                                                                                                                                                                                                                                                                                                     | Population | HH   | Skip             | Response |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| B-4                    | Religion           | <table border="1"> <tr><td>Buddhism</td><td>1</td></tr> <tr><td>Christian</td><td>2</td></tr> <tr><td>Hinduism</td><td>3</td></tr> <tr><td>Animism</td><td>4</td></tr> <tr><td>Other (Specified).....</td><td>5</td></tr> </table>                                                                                           | Buddhism   | 1    | Christian        | 2        | Hinduism | 3 | Animism | 4 | Other (Specified)..... | 5 |         |   |     | □□□ |                        |   |  |  |     |  |
| Buddhism               | 1                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Christian              | 2                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Hinduism               | 3                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Animism                | 4                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
| Other (Specified)..... | 5                  |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |
|                        |                    |                                                                                                                                                                                                                                                                                                                              |            |      |                  |          |          |   |         |   |                        |   |         |   |     |     |                        |   |  |  |     |  |

**Section C: Identification of key local community and stakeholder rights**

| Question               | Response categories                  | Skip                                                                                                                                                                                                                                                           | Response       |   |                  |   |              |   |                    |   |                        |   |  |   |
|------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---|------------------|---|--------------|---|--------------------|---|------------------------|---|--|---|
| C-1                    | Who make decisions in the community? | <table border="1"> <tr><td>Village leader</td><td>1</td></tr> <tr><td>Religious Leader</td><td>2</td></tr> <tr><td>Elder People</td><td>3</td></tr> <tr><td>Small group leader</td><td>4</td></tr> <tr><td>Others (Specify) .....</td><td>5</td></tr> </table> | Village leader | 1 | Religious Leader | 2 | Elder People | 3 | Small group leader | 4 | Others (Specify) ..... | 5 |  | □ |
| Village leader         | 1                                    |                                                                                                                                                                                                                                                                |                |   |                  |   |              |   |                    |   |                        |   |  |   |
| Religious Leader       | 2                                    |                                                                                                                                                                                                                                                                |                |   |                  |   |              |   |                    |   |                        |   |  |   |
| Elder People           | 3                                    |                                                                                                                                                                                                                                                                |                |   |                  |   |              |   |                    |   |                        |   |  |   |
| Small group leader     | 4                                    |                                                                                                                                                                                                                                                                |                |   |                  |   |              |   |                    |   |                        |   |  |   |
| Others (Specify) ..... | 5                                    |                                                                                                                                                                                                                                                                |                |   |                  |   |              |   |                    |   |                        |   |  |   |

**Section D: Community history**

| Question         | Majority                                      | Response                                                                                                                                                                                             | Skip          | Response |                  |   |                        |   |      |   |       |   |                         |  |   |
|------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|------------------|---|------------------------|---|------|---|-------|---|-------------------------|--|---|
| D-1              | Year of village founded                       |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| D-2              | Natural Water Resources in village habitation | <table border="1"> <tr><td>River</td><td>1</td></tr> <tr><td>Creek</td><td>2</td></tr> <tr><td>Stream</td><td>3</td></tr> <tr><td>Pond</td><td>4</td></tr> <tr><td>Lake</td><td>5</td></tr> </table> | River         | 1        | Creek            | 2 | Stream                 | 3 | Pond | 4 | Lake  | 5 | Describe the name ..... |  | □ |
| River            | 1                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Creek            | 2                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Stream           | 3                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Pond             | 4                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Lake             | 5                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| D-3              | Distance from village (mile)                  | <table border="1"> <tr><td>River</td><td>1</td></tr> <tr><td>Stream</td><td>2</td></tr> <tr><td>Dam</td><td>3</td></tr> <tr><td>Pond</td><td>4</td></tr> </table>                                    | River         | 1        | Stream           | 2 | Dam                    | 3 | Pond | 4 | ..... |   | □                       |  |   |
| River            | 1                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Stream           | 2                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Dam              | 3                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| Pond             | 4                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| D-4              | Protect Area designated by government         | <table border="1"> <tr><td>National Park</td><td>1</td></tr> <tr><td>National Reserve</td><td>2</td></tr> </table>                                                                                   | National Park | 1        | National Reserve | 2 | Describe the name..... |   | □    |   |       |   |                         |  |   |
| National Park    | 1                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |
| National Reserve | 2                                             |                                                                                                                                                                                                      |               |          |                  |   |                        |   |      |   |       |   |                         |  |   |

\*\* INDICATE THE QUESTION HAS SKIP (=>)



|      | Question                                                                                | Majority                                                                                                                                                |                                                 | Response                                           | Skip            | Response                                                                                            |
|------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------|
|      |                                                                                         | <i>Historical Building/ Temple</i><br><i>Cultural heritage</i>                                                                                          | 3<br>4                                          | Describe the name .....<br>Describe the name ..... | If no<br>=> D-7 |                                                                                                     |
| D-5  | Are those historical site and cultural heritage adequately protected?                   | Yes<br>No                                                                                                                                               | 1<br>2                                          |                                                    |                 | <input type="checkbox"/>                                                                            |
| D-6  | Instance of Disaster in village, please mention year and how it affected the community  | Yes<br>No                                                                                                                                               | 1<br>2                                          | If yes, please describe<br>.....<br>.....          |                 | <input type="checkbox"/>                                                                            |
| D-7  | Are there any areas that you think are very important for wild plants (Flora)?          | Yes<br>No                                                                                                                                               | 1<br>2                                          | If yes, please describe<br>.....<br>.....          |                 | <input type="checkbox"/>                                                                            |
| D-8  | Are there any areas nearby that you think are very important for wild animal (Fauna)?   | Yes<br>No                                                                                                                                               | 1<br>2                                          | If yes, please describe<br>.....<br>.....          |                 | <input type="checkbox"/>                                                                            |
| D-9  | Is conservation of wildlife habitat important for you?                                  | No<br>A little<br>Moderate<br>High important<br>Very important                                                                                          | 1<br>2<br>3<br>4<br>5                           |                                                    |                 | <input type="checkbox"/>                                                                            |
| D-10 | Have you notice any changes to air quality as long as you have been in the community?   | Improved<br>Declined<br>No change                                                                                                                       | 1<br>2<br>3                                     |                                                    | 2=>D-11         | <input type="checkbox"/>                                                                            |
| D-11 | Cause of change in air quality?                                                         | Industry<br>Livestock-industry<br>Brush-burning<br>Forest Fire<br>Others (Specify) .....                                                                | 1<br>2<br>3<br>4<br>5                           |                                                    |                 | <input type="checkbox"/>                                                                            |
| D-12 | Have you notice any changes to water quality as long as you have been in the community? | Improved<br>Declined<br>No change                                                                                                                       | 1<br>2<br>3                                     |                                                    | 2=>D-13         | <input type="checkbox"/>                                                                            |
| D-13 | Cause of change in water quality?                                                       | Industry<br>Livestock-industry<br>Brush-burning<br>Forest Fire<br>Others (Specify) .....                                                                | 1<br>2<br>3<br>4<br>5                           |                                                    |                 | <input type="checkbox"/>                                                                            |
| D-14 | Has the climate changed since you have been living in the area?                         | Warmer<br>Cooler<br>Unchanged                                                                                                                           | 1<br>2<br>3                                     |                                                    | 2/3<br>=>D-13   | <input type="checkbox"/>                                                                            |
| D-15 | Is the local climate changed to be?                                                     | Wetter<br>Drier                                                                                                                                         | 1<br>2                                          |                                                    |                 | <input type="checkbox"/>                                                                            |
| D-16 | What other projects did you experience before?                                          | No experience<br>Road/Railway<br>Bridge<br>Dam<br>Industrial projects<br>Oil and Gas<br>Hydro power<br>Windfarm<br>Solar farm<br>Others (Specify) ..... | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10 |                                                    | If no<br>=> E   | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| D-17 | How did affect your community?                                                          | No affect<br>Positive<br>Negative                                                                                                                       | 1<br>2<br>3                                     |                                                    |                 | <input type="checkbox"/>                                                                            |
| D-18 | Have you received compensation from any                                                 | Yes<br>No                                                                                                                                               | 1<br>2                                          |                                                    |                 | <input type="checkbox"/>                                                                            |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

|      | Question                                  | Majority                                             |             | Response | Skip             | Response                 |
|------|-------------------------------------------|------------------------------------------------------|-------------|----------|------------------|--------------------------|
|      | previous development project?             |                                                      |             |          |                  |                          |
| D-19 | Were you satisfied with the compensation? | Yes<br>No                                            | 1<br>2      |          | If no<br>=> D-20 | <input type="checkbox"/> |
| D-20 | Why you did not satisfy on compensation?  | Communication<br>Price<br>Grievance Mechanism System | 1<br>2<br>3 |          |                  | <input type="checkbox"/> |

Section E. Indigenous communities

| Question | Response categories                                                              | Skip        | Response                 |
|----------|----------------------------------------------------------------------------------|-------------|--------------------------|
| E-1      | Indigenous Group (HH)<br>Yes<br>No                                               | 1<br>2      | <input type="checkbox"/> |
| E-2      | If yes, describe the name and HH                                                 | /           |                          |
| E-3      | Language of communication<br>Owned language<br>Burmese<br>Others (Specify) ..... | 1<br>2<br>3 | <input type="checkbox"/> |

Section F. Culture and key events that have shaped economic and social development

| Question | Response categories                                                                                                                                                                  | Skip                       | Response                                  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------|
| F-1      | What are the most important cultural traditions in your community?<br>Language/ Literature<br>Custom<br>Taboo<br>Festival<br>Temples/ archaeological sites<br>Others (Specify) ..... | 1<br>2<br>3<br>4<br>5<br>6 | <input type="checkbox"/>                  |
| F-2      | Percentage of adult can speak Myanmar language                                                                                                                                       |                            |                                           |
| F-3      | Percentage of adult can read documents in Myanmar language                                                                                                                           |                            |                                           |
| F-4      | Percentage of literacy in the village                                                                                                                                                |                            |                                           |
| F-5      | Education level (%)<br>Technical or college/ University<br>Finish High School<br>Finish Middle School<br>Finish Primary School<br>Primary (Part)<br>No Schooling                     | 1<br>2<br>3<br>4<br>5<br>6 | .....<br>.....<br>.....<br>.....<br>..... |
| F-6      | Credit facilities<br>Family<br>Friends/ neighbor<br>Licensed creditor<br>Bank<br>Saving group<br>Others (Specify) .....                                                              | 1<br>2<br>3<br>4<br>5<br>6 | <input type="checkbox"/>                  |
| F-7      | Interest rate (%)<br>.....% per (year/month)<br>No Interest                                                                                                                          | 1<br>2                     | <input type="checkbox"/>                  |

Section G. Community and institutional structures and resources

| Question | Response categories                                                                                                                                                                                                                     | Skip                       | Response                 |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------|
| G-1      | <b>Community assistance:</b> Are there any projects concerning on the community development project by Domestic and/ or International Organization in the village<br>Name of the project<br>Name of the organization<br>Type of Project | 1<br>2<br>3                | .....<br>.....           |
| G-2      | <b>Social group support</b><br>Youth group<br>Fishing Farm Group<br>Farming Group<br>Hunter group<br>Community group<br>Religious group                                                                                                 | 1<br>2<br>3<br>4<br>5<br>6 | <input type="checkbox"/> |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

| Question |                                                                                            | Response categories                                                                                                                                                       | Skip                            | Response                                                                                            |
|----------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------|
|          |                                                                                            | Low interest Micro Credit<br>Others (Specify) .....                                                                                                                       | 7<br>8                          |                                                                                                     |
| G-3      | <b>Community Grievance Mechanism:</b><br>Information disclosure system in the village?     | Radio<br>Television<br>Public address system<br>Newspaper<br>Notice<br>Meeting in the community<br>Others (Specify) .....                                                 | 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| G-4      | What kind of grievance situation arises for the community?                                 | Compensation<br>Communication<br>Community grievance settlement<br>Others (Specify) .....                                                                                 | 1<br>2<br>3<br>4                | <input type="checkbox"/> <input type="checkbox"/>                                                   |
| G-5      | How are these grievance settled?                                                           | Inform to the Client<br>Inform to the related department<br>Inform to the village leader<br>Inform to the CSO<br>Inform to the Religious leader<br>Others (Specify) ..... | 1<br>2<br>3<br>4<br>5<br>6      | <input type="checkbox"/> <input type="checkbox"/>                                                   |
| G-6      | What is the role of village level institution/ organization in addressing these grievance? | Village leader<br>Related Department<br>CSO<br>Religious leader<br>Others (Specify) .....                                                                                 | 1<br>2<br>3<br>4<br>5           | <input type="checkbox"/> <input type="checkbox"/>                                                   |
| G-7      | Who are considered as vulnerability in the village?                                        | Poor<br>Disable<br>Old people (>70 years)<br>Widow<br>Woman headed<br>Others (Specify) .....                                                                              | 1<br>2<br>3<br>4<br>5<br>6      | <input type="checkbox"/> <input type="checkbox"/>                                                   |
| G-8      | What are the support system (if any) to help these people                                  |                                                                                                                                                                           |                                 |                                                                                                     |

Section H. Local business and industry content

| Question |                                                                                                                                                          | Response categories                                                                                                                                                                                                         | Skip                                                        | Response                                                                                                                                  |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| H-1      | What are the key industries in this village? Please indicate up to three of them from the one with the biggest % of involvement by the community member? | Agriculture (Small Scale)<br>Peasant farming<br>Fishing<br>Livestock rearing Retail<br>Manufacturing with handcraft<br>Public service<br>Not particular industry. Most people work in nearby town<br>Others (Specify) ..... | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8                        | 1 <sup>st</sup><br><input type="checkbox"/><br>2 <sup>nd</sup><br><input type="checkbox"/><br>3 <sup>rd</sup><br><input type="checkbox"/> |
| H-2      | Production (Yield per acre)                                                                                                                              | Lowland Rice<br>Upland Rice<br>Peas and beans<br>Peanut<br>Sesame<br>Battle Nut<br>Rubber<br>Eucalyptus<br>Teak<br>Cashew Nut<br>Oil Palm<br>Others (Specify) .....                                                         | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>.....<br>.....<br>.....<br>.....<br>.....<br>.....                                  |
| H-3      | Type of Livestock (Number)                                                                                                                               | Buffalo<br>Cow<br>Goat                                                                                                                                                                                                      | 1<br>2<br>3                                                 |                                                                                                                                           |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

| Question |                                                           | Response categories                                                                                                           |                                              | Skip         | Response                 |
|----------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------|--------------------------|
|          |                                                           | <i>Pig</i><br><i>Poultry</i><br><i>Horse</i><br><i>Others (Specify) .....</i>                                                 | <i>4</i><br><i>5</i><br><i>6</i><br><i>7</i> |              | <input type="checkbox"/> |
| H-4      | Type of Non Timber Forest Product (NTPF)                  | <i>Bamboo</i><br><i>Wood</i><br><i>Bamboo Shoot</i><br><i>Others (Specify) .....</i>                                          | <i>1</i><br><i>2</i><br><i>3</i><br><i>4</i> | If no<br>=>I | <input type="checkbox"/> |
| H-5      | Estimate Amount of NTFP collected by a HH (Viss per year) |                                                                                                                               |                                              |              |                          |
| H-6      | How often NTFP are collected?                             | <i>Regular Basic ( at least 2 days per week)</i><br><i>Sometime</i><br><i>Seasonal basic</i><br><i>Others (Specify) .....</i> | <i>1</i><br><i>2</i><br><i>3</i><br><i>4</i> |              | <input type="checkbox"/> |

Section I. Local land use patterns

| Question |                                                | Response categories         | Skip | Response |
|----------|------------------------------------------------|-----------------------------|------|----------|
| I-1      | Village Total Land Area (acre)                 |                             |      | .....    |
| I-2      | Allocated Land Area (acre)                     | Residential                 | 1    | .....    |
|          |                                                | Public Building             | 2    | .....    |
|          |                                                | Religious Building          | 3    | .....    |
|          |                                                | Agriculture                 | 4    | .....    |
|          |                                                | Forest                      | 5    | .....    |
|          |                                                | Others (Specify) .....      | 6    |          |
| I-3      | Average Agriculture land per household acre/HH |                             |      |          |
| I-4      | Household own                                  | Agricultural Land           | 1    | .....    |
|          |                                                | Garden Land                 | 2    | .....    |
|          |                                                | Forest                      | 3    | .....    |
|          |                                                | No Land                     | 4    | .....    |
| I-5      | Agricultural land use certificate              | Issued Certificate (%)      | 1    | .....    |
|          |                                                | In Process of certified (%) | 2    | .....    |
|          |                                                | No Certificate (%)          | 3    | .....    |
|          |                                                | Type of Certificate         | 4    | .....    |
| I-6      | Major Cultivated Crops (Food Crops)            | Lowland Rice                | 1    | □□□      |
|          |                                                | Upland Rice                 | 2    |          |
|          |                                                | Oil seed                    | 3    |          |
|          |                                                | Vegetable                   | 4    |          |
|          |                                                | Peas and beans              | 5    |          |
|          |                                                | Pulses                      | 6    |          |
|          |                                                | Maize                       | 7    |          |
|          |                                                | Wheat                       | 8    |          |
|          |                                                | Betal nut/ leave            | 9    |          |
|          |                                                | Peanut                      | 10   |          |
|          |                                                | Fruits                      | 11   |          |
|          |                                                | Toddy                       | 12   |          |
|          |                                                | Other(Specified) .....      | 13   |          |
| I-7      | Plantation (Acre)                              | Rubber                      | 1    | .....    |
|          |                                                | Eucalyptus                  | 2    | .....    |
|          |                                                | Teak                        | 3    | .....    |
|          |                                                | Cashew Nut                  | 4    | .....    |
|          |                                                | Oil Palm                    | 5    |          |
|          |                                                | Other(Specified) .....      | 6    |          |
| I-8      | Garden land (Acre)                             | Flowers                     | 1    |          |
| I-9      | Agricultural/farming production (%)            | Self consumption            | 1    | .....    |
|          |                                                | Selling in the market       | 2    | .....    |
| I-10     | Distance of land from home (mile)              |                             |      |          |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

Section J. Health and community wellbeing

| Question | Response categories                                                                                                                                                                                                                                                                                                                                                                                    | Skip                                                              | Response                                                                                                                                     |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| J-1      | What health services are available to the village<br><i>Hospital</i><br><i>Clinic</i><br><i>Health center</i><br><i>Village Nurse</i><br><i>Midwife</i><br><i>Other (Specified) .....</i>                                                                                                                                                                                                              | 1<br>2<br>3<br>4<br>5<br>6                                        | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>                 |
| J-2      | Distance of Village (mile)<br><i>Hospital</i><br><i>Clinic</i><br><i>Health center</i><br><i>Village Nurse</i><br><i>Midwife</i><br><i>Other (Specified) .....</i>                                                                                                                                                                                                                                     | 1<br>2<br>3<br>4<br>5<br>6                                        | <input type="text"/><br><input type="text"/><br><input type="text"/><br><input type="text"/><br><input type="text"/><br><input type="text"/> |
| J-3      | Identify the diseases which is main challenges<br><i>Diarrhea</i><br><i>Malaria</i><br><i>Respiratory tract infection (Cold/ Cough)</i><br><i>Cholera</i><br><i>Tuberculosis</i><br><i>HIV/AIDS</i><br><i>Guinea Worm</i><br><i>Sexually transmitted Infection</i><br><i>High blood Pressure</i><br><i>Skin rash/itched</i><br><i>Other (Specified) .....</i>                                          | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11             | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>                 |
| J-4      | Serious diseases are out-braked in the past year<br><i>Diarrhea</i><br><i>Malaria</i><br><i>Respiratory tract infection (Cold/ Cough)</i><br><i>Cholera</i><br><i>Tuberculosis</i><br><i>Guinea Worm</i><br><i>Sexually transmitted Infection</i><br><i>High blood Pressure</i><br><i>Skin rash/itched</i><br><i>HIV/AIDS</i><br><i>Syphilis</i><br><i>Hepatitis</i><br><i>Other (Specified) .....</i> | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13 | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>                 |
| J-5      | Knowledge sharing for sexual health transferred to youth/Women<br><i>Yes</i><br><i>No</i>                                                                                                                                                                                                                                                                                                              | 1<br>2                                                            | <input type="checkbox"/>                                                                                                                     |
| J-6      | Providing of family planning services for women<br><i>Yes</i><br><i>No</i>                                                                                                                                                                                                                                                                                                                             | 1<br>2                                                            | <input type="checkbox"/>                                                                                                                     |
| J-7      | Way of birth delivery<br><i>Home based through traditional nurse</i><br><i>Midwife</i><br><i>Institutional delivery in the hospital</i><br><i>Other (Specified) .....</i>                                                                                                                                                                                                                              | 1<br>2<br>3<br>4                                                  |                                                                                                                                              |

Section K. Livelihoods

| Question | Response categories                                                                                                                                                                                                                                                                                                                                                                                    | Skip                                                  | Response                 |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------|
| K-1      | Source of main income<br><i>Agriculture (Lowland rice cultivation)</i><br><i>Agriculture (Upland rice cultivation)</i><br><i>Agriculture (Vegetation)</i><br><i>Garden</i><br><i>Plantation</i><br><i>NTFP(Non-Timber Forest Product)</i><br><i>Small scale trading (Shops, stalls)</i><br><i>Transportation</i><br><i>Government service</i><br><i>Factory work</i><br><i>Casual Labor/ Temporary</i> | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11 | <input type="checkbox"/> |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

| Question |                                                                                           | Response categories                                                                                                               | Skip                                         | Response                         |
|----------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------|
|          |                                                                                           | Collecting NTFP<br>Industry<br>Handicraft<br>Livestock rearing<br>Private Company<br>Fishing<br>Hunting<br>Other(Specified) ..... | 12<br>13<br>14<br>15<br>16<br>17<br>18<br>19 |                                  |
| K-2      | Average income per year (MMK)                                                             | Total village income<br>Income per capita<br>Income per capita of vulnerable people<br>Income of wealthiest people                | 1<br>2<br>3<br>4                             | .....<br>.....<br>.....<br>..... |
| K-3      | % of HH with regular income                                                               |                                                                                                                                   |                                              |                                  |
| K-4      | Is there a definition of economically better off, medium, sufficient and poor by village? | Yes<br>No                                                                                                                         | 1<br>2                                       | <input type="checkbox"/>         |
| K-5      | List of definition?                                                                       | Economically better off<br>Medium<br>Sufficient and poor                                                                          | 1<br>2<br>3                                  | <input type="checkbox"/>         |

Section L. Access to physical and social infrastructure

| Question |                                                                                                        | Response categories                                                                                                                                                                                                                                             | Skip                            | Response                                                    |
|----------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------|
| L-1      | Education Infrastructure (Number)                                                                      | Nursery<br>Primary School<br>Middle School<br>High School<br>Technical or college/ University<br>Vocational<br>Other(Specified) .....                                                                                                                           | 1<br>2<br>3<br>4<br>5<br>6<br>7 | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>..... |
| L-2      | Health Infrastructure                                                                                  | Hospital<br>Clinic<br>Rural Health Center<br>Local Midwife<br>Other(Specified) .....                                                                                                                                                                            | 1<br>2<br>3<br>4<br>5           | .....<br>.....<br>.....<br>.....<br>.....                   |
| L-3      | Access to Road Facilities                                                                              | No road (reaching all the way to the village)<br>Rough Track (Bullock Cart or walking only)<br>Accessible by trawllargee but not car/trucks<br>Accessible by car/trucks in dry season only<br>Accessible by car/ truck in all seasons<br>Other(Specified) ..... | 1<br>2<br>3<br>4<br>5<br>6      | □□□□                                                        |
| L-4      | What is the distance from the village road to the main road to central district                        |                                                                                                                                                                                                                                                                 |                                 |                                                             |
| L-5      | Is the National Grid-line Electricity available in this village?                                       | Yes<br>No                                                                                                                                                                                                                                                       | 1<br>2                          | 2=>L-6<br><input type="checkbox"/>                          |
| L-6      | Are there any alternative?                                                                             | Private Generator<br>Community Generator<br>Alternative Energy (Specified) .....<br>Other(Specified) .....                                                                                                                                                      | 1<br>2<br>3<br>4                | 1=>L-7<br>2=>L-7<br>3=>L-7                                  |
| L-7      | Is the alternative electricity in this village enough for multi-purpose (e.g. pump or engine for well) | Yes<br>No                                                                                                                                                                                                                                                       | 1<br>2                          | <input type="checkbox"/>                                    |
| L-8      | Electrification (%)                                                                                    | National Grid<br>Private Generator<br>Community Generator<br>Renewable Energy (Specified) .....<br>Other (Specified) .....                                                                                                                                      | 1<br>2<br>3<br>4<br>5           | .....<br>.....<br>.....<br>.....<br>.....                   |
| L-9      | Water supply (%)                                                                                       | Public Tap water<br>Tube Well                                                                                                                                                                                                                                   | 1<br>2                          | .....<br>.....                                              |

\*\* INDICATE THE QUESTION HAS SKIP (=>)



| Question |                                                                                | Response categories                                                                                                                                                                                                                      | Skip               | Response                                                    |
|----------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------|
|          |                                                                                | <i>Mountain Water</i> 3<br><i>River or stream</i> 4<br><i>Rain water collection</i> 5<br><i>Dam/pond</i> 6<br><i>Private water supply</i> 7<br><i>Independent pipe shame</i> 8<br><i>No source</i> 9<br><i>Other(Specified) .....</i> 10 |                    | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>..... |
| L-10     | Quality of water of main source                                                | <i>Bad</i> 1<br><i>Good</i> 2                                                                                                                                                                                                            |                    | <input type="checkbox"/>                                    |
| L-11     | Does your village have water management committee?                             | <i>Yes</i> 1<br><i>No</i> 2                                                                                                                                                                                                              | 1=>L-11<br>2=>L-12 | <input type="checkbox"/>                                    |
| L-12     | Name of the water management committee and established year                    |                                                                                                                                                                                                                                          |                    | .....<br>.....                                              |
| L-13     | What is the reason that your village does not have water management committee? |                                                                                                                                                                                                                                          |                    |                                                             |
| L-14     | Source of energy for cooking (%)                                               | <i>Electricity</i> 1<br><i>Wood</i> 2<br><i>Charcoal</i> 3<br><i>Gas</i> 4<br><i>Other (Specified) .....</i> 5                                                                                                                           |                    | .....<br>.....<br>.....<br>.....<br>.....                   |
| L-15     | Market price of land and assets (MMK)                                          | <i>Agricultural land/ acre</i> 1<br><i>Residential land / (40x60 feet)</i> 2<br><i>Other (Specified) .....</i> 3                                                                                                                         |                    | .....<br>.....                                              |
| L-16     | Price of tree                                                                  | <i>Teak</i> 1<br><i>Rubber</i> 2<br><i>Oil Palm</i> 3<br><i>Banana</i> 4<br><i>Coconut</i> 5<br><i>Other (Specified) .....</i> 6                                                                                                         |                    | .....<br>.....<br>.....<br>.....<br>.....                   |
| L-17     | Other Facility                                                                 | <i>Seed Bank</i> 1<br><i>Cyclone shelter</i> 2<br><i>Grocery Shop</i> 3<br><i>Pharmacy</i> 4<br><i>Post office</i> 5<br><i>Bank</i> 6<br><i>Information center</i> 7<br><i>Other (Specified) .....</i> 8                                 |                    | □□□□□                                                       |
| L-18     | Market                                                                         | <i>Everyday market</i> 1<br><i>Weekly market(for basic provision)</i> 2<br><i>Monthly market (for trad)</i> 3<br><i>Occasional market</i> 4<br><i>Other (Specified) .....</i> 5                                                          |                    | <input type="checkbox"/>                                    |

Section M. Interests of vulnerable groups (tribal/ethnic minority groups, women headed households, economically vulnerable households, etc.)

| Question |                                                                                                                                 | Response categories                                                                                                                                                                          | Skip | Response                                  |
|----------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------|
| M-1      | Vulnerable Group HH                                                                                                             | <i>Tribal/ Ethnic minority group</i> 1<br><i>Economically vulnerable</i> 2<br><i>Women headed</i> 3<br><i>Disabled</i> 4<br><i>Elderly (&gt;70 yrs)</i> 5<br><i>Other(Specified) .....</i> 6 |      | .....<br>.....<br>.....<br>.....<br>..... |
| M-2      | Is there a definition of vulnerable household by community?<br>(definition : less income than regular income, Not having enough | <i>Yes</i> 1<br><i>No</i> 2                                                                                                                                                                  |      |                                           |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

| Question                                                                                                                           | Response categories | Skip | Response                 |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------|------|--------------------------|
| food, Living in Temporary house, landless, Lack of adequate clothing, not capable of meeting educational expenses and health care) |                     |      | <input type="checkbox"/> |

Section N. Gender and equity issues

| Question                                                                           | Response categories                                                                                                                      | Skip                       | Response                                                                                            |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------|
| N-1 Do you think men and women are equal opportunities?                            | Yes<br>No<br>Not known                                                                                                                   | 1<br>2<br>3                | <input type="checkbox"/>                                                                            |
| N-2 Population (Number)                                                            | Total<br>Women Voter<br>Widow<br>Marriage<br>Single                                                                                      | 1<br>2<br>3<br>4<br>5      | .....<br>.....<br>.....<br>.....<br>.....                                                           |
| N-3 Woman headed HH                                                                |                                                                                                                                          |                            |                                                                                                     |
| N-4 What role do women play in the community?                                      | Local Leadership<br>Political member<br>Parliament member<br>Community leadership<br>Other(Specified) .....                              | 1<br>2<br>3<br>4<br>5      | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| N-5 How many women are?                                                            | Local Leadership<br>Political member<br>Parliament member<br>Community leadership<br>Women Associations/ group<br>Other(Specified) ..... | 1<br>2<br>3<br>4<br>5<br>6 | .....<br>.....<br>.....<br>.....<br>.....<br>.....                                                  |
| N-6 Average hours of daily schedule?                                               | Domestic chore<br>Agriculture task<br>Going to market<br>Community development<br>Religion task<br>Other(Specified) .....                | 1<br>2<br>3<br>4<br>5<br>6 | .....<br>.....<br>.....<br>.....<br>.....<br>.....                                                  |
| N-7 Decision making of women rather than man                                       | Marriage<br>Children<br>Other family issue<br>Other (Specified) .....                                                                    | 1<br>2<br>3<br>4           | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| N-8 How to solve dispute between man and wife?                                     | Relative<br>Village leader<br>Religion leader<br>Other (Specified) .....                                                                 | 1<br>2<br>3<br>4           | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| N-9 Main problem faced by women                                                    | Living standard/infrastructure<br>Economic issue<br>Health issue<br>Gender issue<br>Education issue<br>Other (Specified) .....           | 1<br>2<br>3<br>4<br>5<br>6 | <input type="checkbox"/>                                                                            |
| N-10 Are there any difference of access of formal education between man and woman? | No different<br>More chance for man<br>More chance for woman<br>No chance for woman                                                      | 1<br>2<br>3<br>4           | <input type="checkbox"/>                                                                            |
| N-11 Quality of life                                                               | Good<br>Average<br>Bad                                                                                                                   | 1<br>2<br>3                | <input type="checkbox"/>                                                                            |
| N-12 Main health problem                                                           | Man rather than woman<br>Woman rather than man                                                                                           | 1<br>2                     | <input type="checkbox"/>                                                                            |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

| Question |                                                                          | Response categories                                                                                                                                                                                                                                                                                                                                                   | Skip                                                                    | Response        |
|----------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------|
| N-13     | Main health problem faced by woman                                       | <i>Abortion</i><br><i>Diarrhea</i><br><i>Malaria</i><br><i>Respiratory tract infection (Cold/ Cough)</i><br><i>Cholera</i><br><i>Tuberculosis</i><br><i>Guinea Worm</i><br><i>Sexually transmitted Infection</i><br><i>High blood Pressure</i><br><i>Skin rash/itched</i><br><i>HIV/AIDS</i><br><i>Syphilis</i><br><i>Hepatitis</i><br><i>Other (Specified) .....</i> | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14 | □□□             |
| N-14     | Smoking                                                                  | <i>Man rather than woman</i><br><i>Woman rather than man</i>                                                                                                                                                                                                                                                                                                          | 1<br>2                                                                  | □               |
| N-15     | Drinking Alcohol                                                         | <i>Man rather than woman</i><br><i>Woman rather than man</i>                                                                                                                                                                                                                                                                                                          | 1<br>2                                                                  | □               |
| N-16     | Main problem of Health care available                                    | <i>Distance</i><br><i>Long queues</i><br><i>Opening hour</i><br><i>Condition of hospital/clinic</i><br><i>Medical supply</i><br><i>Cost</i><br><i>Other (Specified) .....</i>                                                                                                                                                                                         | 1<br>2<br>3<br>4<br>5<br>6<br>7                                         | □□□             |
| N-17     | Role of woman in traditional agriculture's activities                    | <i>Engaged as paid farm worker</i><br><i>Land preparation</i><br><i>Buying of seed and fertilizer</i><br><i>Sowing</i><br><i>Weeding</i><br><i>Harvesting</i><br><i>Winnowing and packaging</i><br><i>Taking to the market for sale</i><br><i>Managing finance</i><br><i>Other (Specified) .....</i>                                                                  | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10                         | □□□□            |
| N-18     | Equal chance of ownership over land and properties between man and woman | Yes<br>No                                                                                                                                                                                                                                                                                                                                                             | 1<br>2                                                                  | □               |
| N-19     | Equal wages between male and female workers                              | Yes<br>No                                                                                                                                                                                                                                                                                                                                                             | 1<br>2                                                                  | If no => 0<br>□ |
| N-20     | Wages for Man and women for agricultural activities                      | <i>Man</i><br><i>Woman</i>                                                                                                                                                                                                                                                                                                                                            | 1<br>2                                                                  | .....<br>.....  |

Section O. Project Information

| Question |                                                                               | Response categories                                                                                                                                                                                                                 | Skip                            | Response |
|----------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------|
| O-1      | What is the most positive impact of the project that you anticipate?          | <i>Unaware</i><br><i>Increase employment</i><br><i>Increase annual income</i><br><i>Improve living condition</i><br><i>Improve transportation/ infrastructure</i><br><i>Improve environment</i><br><i>Compensation for land use</i> | 1<br>2<br>3<br>4<br>5<br>6<br>7 | □□□□     |
| O-2      | Do you agree with the project development?                                    | Yes<br>No<br>Not sure                                                                                                                                                                                                               | 1<br>2<br>3                     | □□       |
| O-3      | What are the most negative impacts of the project that you are concern about? | <i>Unaware</i><br><i>Transport and infrastructure</i><br><i>Negative social environment</i>                                                                                                                                         | 1<br>2<br>3                     |          |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

| Question | Response categories                                                                                                                                                                                                     | Skip                                      | Response |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------|
|          | <i>House damaged</i><br><i>Increased cost</i><br><i>Environmental pollution</i><br><i>Safety</i><br><i>Damaged environment</i><br><i>Employment/income disruption</i><br><i>Crime</i><br><i>Other (Specified) .....</i> | 4<br>5<br>6<br>7<br>8<br>9<br>10<br>11    | □□□□     |
| O-4      | Are you concern about outside people coming to your community to work in the project?                                                                                                                                   | 1<br>2<br>3                               | □        |
| O-5      | What is the priority development initiative for your community?                                                                                                                                                         | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 | □□□□     |
| O-6      | Idea for mitigation measure for impacts                                                                                                                                                                                 |                                           |          |

Section P. Perception on Impact of the project

|     |                                  | Very negative | Negative | Slightly negative | No effect | Slightly positive | Positive | Very positive |
|-----|----------------------------------|---------------|----------|-------------------|-----------|-------------------|----------|---------------|
|     |                                  | 1             | 2        | 3                 | 4         | 5                 | 6        | 7             |
| P-1 | The effect on physical Resources |               |          |                   |           |                   |          |               |
| 1   | Soil quality                     |               |          |                   |           |                   |          |               |
| 2   | Surface water quality            |               |          |                   |           |                   |          |               |
| 3   | Ground water quality             |               |          |                   |           |                   |          |               |
| 4   | Air quality                      |               |          |                   |           |                   |          |               |
| 5   | Noise                            |               |          |                   |           |                   |          |               |
| P-2 | Effect on biological Resources   |               |          |                   |           |                   |          |               |
| 6   | Forestry and conservation area   |               |          |                   |           |                   |          |               |
| 7   | Agriculture/ Farming area        |               |          |                   |           |                   |          |               |
| 8   | Fauna                            |               |          |                   |           |                   |          |               |
| 9   | Flora                            |               |          |                   |           |                   |          |               |
| 10  | Pasture                          |               |          |                   |           |                   |          |               |
| P-3 | Human Effect                     |               |          |                   |           |                   |          |               |
| 11  | Local fishery                    |               |          |                   |           |                   |          |               |
| 12  | Local livestock                  |               |          |                   |           |                   |          |               |
| 13  | Local vegetation                 |               |          |                   |           |                   |          |               |
| 14  | Local industry                   |               |          |                   |           |                   |          |               |
| 15  | Local transportation             |               |          |                   |           |                   |          |               |
| 16  | Local price                      |               |          |                   |           |                   |          |               |
| 17  | Recreation                       |               |          |                   |           |                   |          |               |
| 18  | Increase of food price           |               |          |                   |           |                   |          |               |
| 19  | Market in the area               |               |          |                   |           |                   |          |               |
| 20  | Local economy                    |               |          |                   |           |                   |          |               |
| P-4 | Effect on quality of life        |               |          |                   |           |                   |          |               |
| 21  | Housing                          |               |          |                   |           |                   |          |               |
| 22  | Health                           |               |          |                   |           |                   |          |               |
| 23  | Education                        |               |          |                   |           |                   |          |               |
| 24  | Spiritual                        |               |          |                   |           |                   |          |               |

\*\* INDICATE THE QUESTION HAS SKIP (=>)

|     |                                            | Very negative | Negative | Slightly negative | No effect | Slightly positive | Positive | Very positive |
|-----|--------------------------------------------|---------------|----------|-------------------|-----------|-------------------|----------|---------------|
|     |                                            | 1             | 2        | 3                 | 4         | 5                 | 6        | 7             |
| 25  | Safety                                     |               |          |                   |           |                   |          |               |
| 26  | Increase of Crime                          |               |          |                   |           |                   |          |               |
| 27  | Family structure                           |               |          |                   |           |                   |          |               |
| 28  | Job opportunities                          |               |          |                   |           |                   |          |               |
| 29  | Income                                     |               |          |                   |           |                   |          |               |
| 30  | Scenery                                    |               |          |                   |           |                   |          |               |
| 31  | Local culture                              |               |          |                   |           |                   |          |               |
| 32  | Increased influx of the people in the area |               |          |                   |           |                   |          |               |
| P-5 | Effect on Cultural Heritage                |               |          |                   |           |                   |          |               |
| 33  | Religious building                         |               |          |                   |           |                   |          |               |
| 34  | Cemetery                                   |               |          |                   |           |                   |          |               |
| 35  | Historical building/site                   |               |          |                   |           |                   |          |               |

Section Q. Any special observation from the village

\*\* INDICATE THE QUESTION HAS SKIP (=>)

## APPENDIX R: PRESENTATION MATERIALS

### Golden Lace POSCO INTERNATIONAL Co., Ltd



Environmental Compliance Consultancy Co., Ltd. (EnvCC)

ဆန်စက်လုပ်ငန်းဆိုင်ရာ  
ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း(IEE)

အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးခြင်း

### ဆွေးနွေးတင်ပြမည့် အကြောင်းအရာများ

- ❖ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) ပြုလုပ်ရခြင်း၏ ရည်ရွယ်ချက်။
- ❖ စီမံကိန်းနှင့် အဓိကသက်ဆိုင်သော ဥပဒေမူဘောင်များ တင်ပြခြင်း။
- ❖ စီမံကိန်းဆိုင်ရာအကြောင်းအရာများကို တင်ပြခြင်း။
- ❖ ပတ်ဝန်းကျင်ဆိုင်ရာ အချက်အလက်များကို လေ့လာခြင်းနှင့် တွေ့ရှိချက်များကို တင်ပြခြင်း။
- ❖ စီမံကိန်းကြောင့် ပတ်ဝန်းကျင်အပေါ် အကျိုးသက်ရောက်မှုများအား အကဲဖြတ် ဆန်းစစ်ခြင်းနှင့် သက်ရောက်မှု လျှော့ချခြင်း အစီအစဉ်များကို တင်ပြခြင်း။
- ❖ နိဂုံးချုပ် ခြုံငုံသုံးသပ်ချက်။



## ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း ပြုလုပ်ရခြင်း၏ရည်ရွယ်ချက်

- ❖ အဆိုပြုစီမံကိန်းကြောင့် ဖြစ်ပေါ်နိုင်သော ပတ်ဝန်းကျင် နှင့် လူမှုရေးဆိုင်ရာ သက်ရောက်ထိခိုက်မှုများကို ခန့်မှန်းအကဲဖြတ်၍ ဆိုးကျိုးသက်ရောက်မှုလျှော့ချရေး အစီအစဉ်များ ရေးဆွဲနိုင်ရန်။
- ❖ စီမံကိန်းဧရိယာနှင့် စီမံကိန်းအနီးဝန်းကျင်တွင် ပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေးတိုင်းတာမှုများ ပြုလုပ်ပြီး ရရှိလာသည့် ရလဒ်များကို အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု)လမ်းညွှန်ချက်များ (၂၀၁၅) ဖြင့် နှိုင်းယှဉ်၍ လိုအပ်သော ပတ်ဝန်းကျင်ထိခိုက်မှု လျော့ပါးရေး အစီအစဉ်များ စီမံဆောင်ရွက်နိုင်ရန်။
- ❖ အများပြည်သူနှင့် တိုင်ပင်ဆွေးနွေးခြင်းများ ပြုလုပ်ပြီး အကြံပြုချက်သဘောထားများကို ရယူနိုင်ရန်။

၄

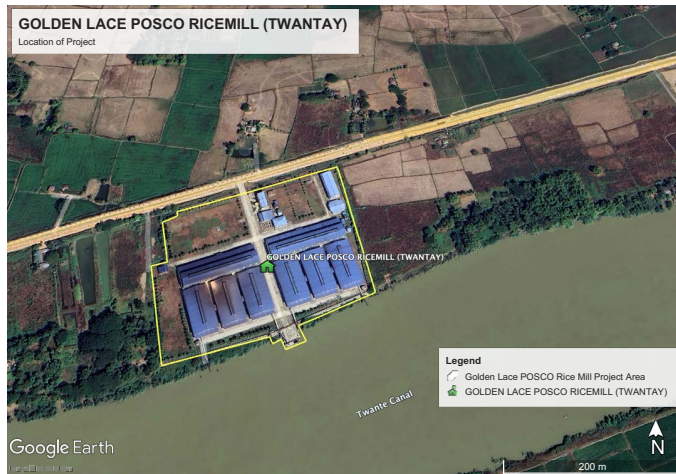
စီမံကိန်းနှင့် အဓိကသက်ဆိုင်သော  
ဥပဒေ မူဘောင်များ

## စီမံကိန်းနှင့်အဓိကသက်ဆိုင်သောဥပဒေ မူဘောင်များ

- ❖ မြန်မာနိုင်ငံ အမျိုးသားပတ်ဝန်းကျင်ရေးရာ မူဝါဒ (၅ ရက်၊ ဇွန်လ၊ ၂၀၁၉ ခုနှစ်)
- ❖ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဥပဒေ (၃၀ ရက်၊ မတ်လ၊ ၂၀၁၂ ခုနှစ်)
- ❖ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး နည်းဥပဒေများ (၅ ရက်၊ ဇွန်လ၊ ၂၀၁၄ ခုနှစ်)
- ❖ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း (၂၉ ရက်၊ ဒီဇင်ဘာလ၊ ၂၀၁၅ ခုနှစ်)
- ❖ အမျိုးသားသောက်သုံးရေ အရည်အသွေးစံချိန်စံညွှန်း (၂၀၁၉-မူကြမ်း)
- ❖ အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ (၂၉ ရက်၊ ဒီဇင်ဘာလ၊ ၂၀၁၅ ခုနှစ်)

## စီမံကိန်းအကြောင်းအရာများ

## စီမံကိန်းတည်နေရာ



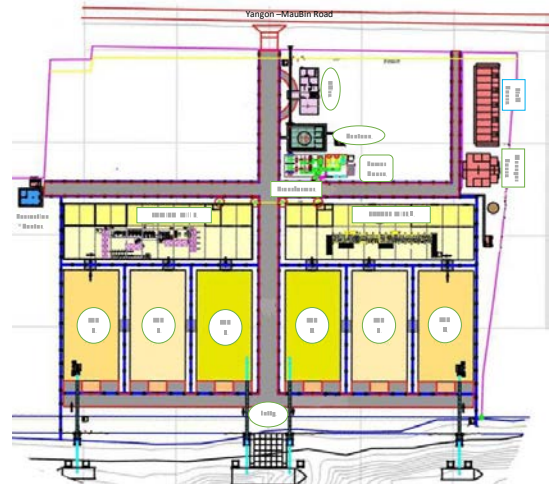
- ရန်ကုန်တိုင်းဒေသကြီး၊ တွံတေးမြို့နယ်အတွင်း ရန်ကုန်-မအူပင်လမ်းမပေါ်တွင် တည်ရှိပါသည်။
- မြောက်လတ္တီတွဒ် ၁၆° ၄၃' ၄၅.၂"၊ အရှေ့လောင်ဂျီတွဒ် ၉၆° ၀' ၄၁.၈၀" ကြားတွင် တည်ရှိပါသည်။
- စုစုပေါင်းမြေဧရိယာမှာ (၁၃.၈) ဧက ဖြစ်ပါသည်။

### စီမံကိန်းတည်နေရာ

## စီမံကိန်း အကြောင်းအရာ အကျဉ်းချုပ်

|                      |                                                                                                                                           |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| စီမံကိန်းအမည်        | Golden Lace POSCO INTERNATIONAL Company Limited ၏ ဆန်စက်လုပ်ငန်း                                                                          |
| ထုတ်လုပ်မှု          | တစ်ရက်လျှင် တန် (၁၈၀) ကျဖြင့် တစ်နှစ်လျှင် (၈၅,၀၀၀) တန်                                                                                   |
| လုပ်ငန်းအမျိုးအစား   | ဆန်စက်လုပ်ငန်း                                                                                                                            |
| ဆက်သွယ်ရန်           | ဒေါ်ထားတင်ဖုန်း                                                                                                                           |
| ဖုန်းနံပါတ်          | ၀၉-၂၅၀၆၈၄၉၅၉                                                                                                                              |
| ကုန်ကြမ်း            | Brown Rice                                                                                                                                |
| ထုတ်ကုန်             | ဆန်ဖြူ၊ အဆင့်မြင့် ပေါင်းဆန်                                                                                                              |
| ဝန်ထမ်းဦးရေ          | (၇၁) ဦး                                                                                                                                   |
| ရင်းနှီးမြှုပ်နှံမှု | အမေရိကန်ဒေါ်လာ ၁၆,၆၁၂,၅၀၀                                                                                                                 |
| စီမံကိန်းလုပ်ငန်း    | <ul style="list-style-type: none"> <li>ဆောက်လုပ်ရေးလုပ်ငန်း</li> <li>ဆိပ်ခံတံတားလုပ်ငန်း</li> <li>ကြိုတင်ခွဲရေးလုပ်ငန်းစဉ်များ</li> </ul> |

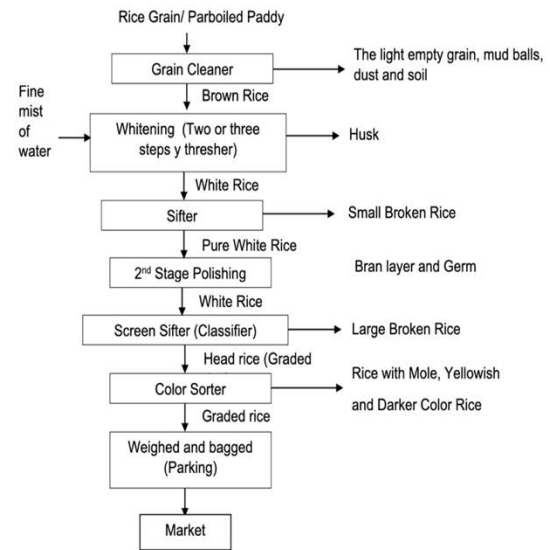
## ဆန်စက်၏ တည်ဆောက်မှု အစီအစဉ်



## ဆန်စက်အဆောက်အဦများ



## ကုန်ထုတ်လုပ်ပုံ အဆင့်ဆင့်



## ရေအသုံးပြုမှု

- ❖ တံတေးတူးမြောင်းမှ ရေကို အဓိကအားဖြင့် ဘျိုလ်လာအအေးခံစနစ်တွင် အသုံးပြုပြီး တစ်ရက်လျှင် ၆၀၀ m<sup>3</sup> ခန့်သုံးစွဲပါသည်။
- ❖ ရေကို ပြန်လည်အသုံးပြုသည့်စနစ်အား ဆောင်ရွက်ခြင်းဖြင့် ရေကို မြွေတာသုံးစွဲလျက်ရှိပါသည်။
- ❖ ဝန်ထမ်းများနှင့် အထွေထွေအသုံးပြုရန်အတွက် မြေအောက်ရေကို ထုတ်ယူသုံးစွဲ၍ တစ်နေ့လျှင် ၀.၄ m<sup>3</sup> ခန့်သုံးစွဲပါသည်။
- ❖ မိုးရေဆောင်းသုံးစွဲခြင်းအားလည်း ဆောင်ရွက်ပါသည်။

## လျှပ်စစ်စွမ်းအင် အသုံးပြုမှုများ

- ❖ လုပ်ငန်းလည်ပတ်ရန်အတွက် လျှပ်စစ်ဓါတ်အားကို လျှပ်စစ်ဓါတ်အား လိုင်းမှ ၁၅၀၀ ကေစီအေ ထရန်စဖော်မာ ၂ လုံးဖြင့် ချိတ်ဆက်ကာ လုပ်ငန်းလည်ပတ်သည့် နေရာများတွင် သုံးစွဲပါသည်။
- ❖ ၁၂၇၅ ကေစီအေ (၂)လုံး၊ ၁၀၀ နှင့် ၂၅ ကေစီအေ စုစုပေါင်း မီးစက် ၄ လုံးကို အရေးပေါ် အခြေအနေနှင့် လျှပ်စစ်ဓါတ်အား ပြတ်တောက်ချိန်တွင် အသုံးပြုရန် အရန်ထားရှိပါသည်။



## လောင်စာအသုံးပြုမှု

- အသုံးပြုသည့် လောင်စာမှာ ပရီမီယံဒီဇယ်ကိုသာ အသုံးပြုပါသည်။
- လုပ်ငန်းလိုအပ်ချက်အရ ဒီဇယ်ကို မီးစက်တွင် အသုံးပြုရန်အတွက် စည်ပိုင်း (၈)လုံးဖြင့် စုစုပေါင်း သိုလှောင်နိုင်သည့် ၄၀၀ ဂါလံဆန်သည့် ၈'x၄'အရွယ်အစားရှိ Stainless Steel အခြေခံဆောက်လုပ်ထားသည့် သိုလှောင်ရုံတွင် စနစ်တကျ ထားရှိပါသည်။
- အသုံးပြုမှု ပမာဏမှာ တစ်လလျှင် ပျမ်းမျှအားဖြင့် ၁၈၀၀ ဂါလံခန့် သုံးစွဲလျက်ရှိပြီး ထိုပမာဏမှာ လျှပ်စစ်ဓါတ်အား ရရှိမှုအပေါ် မူတည်၍ ပြောင်းလဲမှု ရှိပါသည်။



## မီးဘေးအန္တရာယ် ကင်းရှင်းမှုအတွက် စီစဉ်ထားရှိမှု

စက်ရုံရှိ မီးဘေးကာကွယ်ရေး အထောက်အကူပြုပစ္စည်းများစာရင်း

| စဉ် | အမျိုးအမည်             | ယူနစ် | အရေအတွက် | မှတ်ချက်               |
|-----|------------------------|-------|----------|------------------------|
| ၁   | မီးသတ်ဆေးဘူး           | လုံး  | ၆၄       |                        |
| ၂   | မီးချိတ်               | ခု    | ၁၀       |                        |
| ၃   | မီးကပ်                 | ခု    | ၁၀       |                        |
| ၄   | ရေစုပ်စက်              | လုံး  | ၂        |                        |
| ၅   | ရေပိုက်                | ခွေ   | ၃        | ၁၀၀ မီတာ               |
| ၆   | ရေအောက်ပိုက် ငုပ်တိုင် | ခု    | ၀        |                        |
| ၇   | ရေအုတ်ကန်              | လုံး  | ၃        | ရေဂါလံ...၁၀၀၀၀.....ဆုံ |
| ၈   | ရေအုတ်ကန်              | လုံး  | ၁        | ရေဂါလံ...၁၆၀၀.....ဆုံ  |

## စီမံကိန်းမှ ဝန်ထမ်းများအတွက် စီစဉ်ထားရှိမှု



ဝန်ထမ်းနှင့် မန်နေဂျာ အိမ်ယာများ



Canteen

## စွန့်ပစ်ရေထွက်ရှိခြင်းနှင့် စီမံခန့်ခွဲမှု

ဘိုလ်လာအအေးခံစနစ်မှ ထွက်ရှိရေ

- ❖ ဘိုလ်လာအအေးခံရေအား လုပ်ငန်းစဉ်တွင် ပြန်လည်အသုံးပြုပါသည်။

ဝန်ထမ်းသုံးစွန့်ပစ်ရေများ

- ❖ ဝန်ထမ်းများမှ သန့်ရှင်းရေးအတွက် အသုံးပြုရာမှ စွန့်ပစ်ရေ နှင့် သန့်စင်ခန်းများမှ မိလ္လာရေဆိုးများ ထွက်ရှိသည်ကို တွေ့ရပါသည်။
- ❖ မိုးရေ၊ လက်ဆေးရေနှင့် အထွေထွေစွန့်ပစ်ရေများအား စီမံကိန်း အတွင်း သွယ်တန်းထားသော ရေနုတ်မြောင်း မှတစ်ဆင့် ရန်ကုန်-မအူပင်လမ်းမကြီးဘေး စည်ပင်နေ့တော်မြောင်းအတွင်းသို့ စွန့်ထုတ်ပါသည်။
- ❖ သန့်စင်ခန်းများမှ ထွက်ရှိလာသော စွန့်ပစ်ရေဆိုးများအား မိလ္လာကန် များဖြင့် သန့်စင်၍ အနည်အနှစ်များအား ခြောက်လ တစ်ကြိမ် စည်ပင်နှင့် ချိတ်ဆက်၍ စွန့်ပစ်ပါသည်။

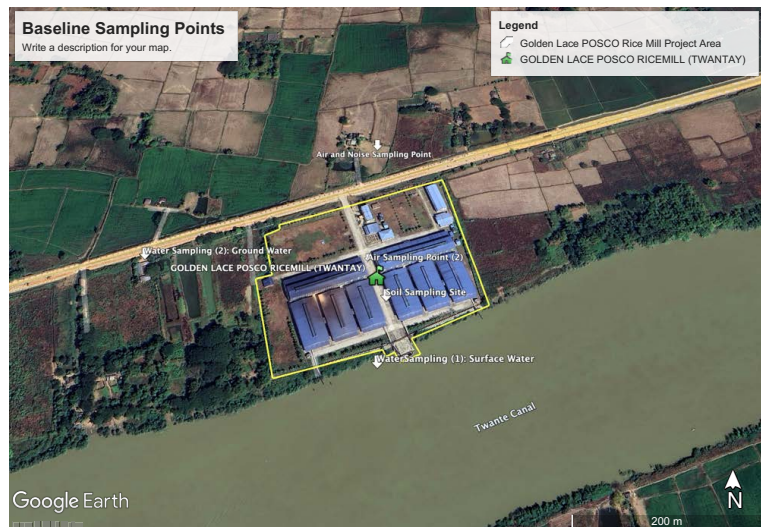
## စွန့်ပစ်အမှိုက်ထွက်ရှိခြင်းနှင့် စီမံခန့်ခွဲမှု

- အိမ်တွင်းစွန့်ပစ်ပစ္စည်း (အစားအစာစွန့်ပစ်ပစ္စည်းနှင့် စသည်တို့) အမှိုက်ပုံးဖြင့်ခွဲခြား၍ စနစ်တကျ ထုပ်ပိုးပြီး အမှိုက်အိတ်များကို စုဆောင်းပြီး စက်ရုံအပြင်ဘက်တွင် YCDC (ရန်ကုန်မြို့တော် စည်ပင် သာယာရေး ကော်မတီ) မှ ထားရှိသည့် အမှိုက်ပုံးတွင် စွန့်ပစ်ပါသည်။
- အန္တရာယ်ဖြစ်စေသည့် ဓာတုအမှိုက်များနှင့် ရေဆိုးများ ထွက်ရှိခြင်းမရှိပါ။
- စွန့်ပစ်ဆီများအား စတိုးပုံးတွင် သိုလှောင်ထားရှိ၍ ဒေသခံများထံရောင်းချပါသည်။

## ပတ်ဝန်းကျင်ဆိုင်ရာ အခြေခံ အချက်အလက်များ တင်ပြခြင်း

### ပတ်ဝန်းကျင်အရည်အသွေးတိုင်းတာသည့်နေရာများ

- ❖ မြေအရည်အသွေးတိုင်းတာခြင်း
- ❖ လေထုအရည်အသွေး တိုင်းတာခြင်း
- ❖ ရေထုအရည်အသွေး တိုင်းတာခြင်း
- ❖ ဆူညံသံ တိုင်းတာခြင်း



## လေထုအရည်အသွေး တိုင်းတာခြင်း



- ❖ လေထုအရည်အသွေးတိုင်းတာခြင်းကို စီမံကိန်းဧရိယာ အတွင်း မြောက်လတ္တီတွဒ် ၁၆° ၄၃' ၄၅.၄၇"၊ အရှေ့ လောင်ဂျီတွဒ် ၉၆° ၀' ၄၁.၅၉" တွင် မေလ၊ ၂၀၂၅ ခုနှစ်တွင် ၂၄ နာရီကြာ နှင့် စီမံကိန်း အနီးဝန်းကျင် ၁၆° ၄၃' ၅၁.၄၅"၊ အရှေ့ လောင်ဂျီတွဒ် ၉၆° ၀' ၄၁.၉၆" တွင် မေလ၊ ၂၀၁၅ ခုနှစ် ၂၄ နာရီကြာ တိုင်းတာရရှိသည့် လေအရည်အသွေး ရလဒ်များကို အမျိုးသား ပတ်ဝန်းကျင် ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ (၂၀၁၅) နှင့် နှိုင်းယှဉ်ရာတွင် ဆာလ်ဖာဒိုင် အောက်ဆိုဒ်မှ လွဲ၍ သတ်မှတ်ချက်အတွင်း ရှိသည်ကို တွေ့ရပါ သည်။
- ❖ ထိုသို့ ဖြစ်ပွားခြင်းမှာ ဆာလ်ဖာဒိုင်အောက်ဆိုဒ်သည် လောင်စာ လောင်ကျွမ်းမှု အတွင်း ဖြစ်ပေါ်တတ်သည်ဖြစ်ရာ စက်ရုံ၏တည်နေရာသည် ရန်ကုန်-မအူပင်လမ်းမကြီးနှင့် တွဲတေးတူးမြောင်းကြားတွင် တည်ရှိသဖြင့် သွားလာရေး ယာဉ်များနှင့် ရေယာဉ်များ၏ လောင်စာလောင်ကျွမ်းခြင်းနှင့် စက်ရုံပတ်လည်ရှိ လယ်ကွင်းများမှ ကောက်ရိုးမီးရှို့ခြင်းတို့မှ ထွက်ရှိလာခြင်း ဖြစ်နိုင်သည်ကို လေ့လာဆန်းစစ်ရပါသည်။

## ဆူညံသံတိုင်းတာခြင်း



- ❖ အသံဆူညံမှုကို စီမံကိန်း အနီးဝန်းကျင် ၁၆° ၄၃' ၅၁.၄၅"၊ အရှေ့ လောင်ဂျီတွဒ် ၉၆° ၀' ၄၁.၉၆" တွင် မေလ၊ ၂၀၁၅ ခုနှစ်တွင် နေ့အချိန်နှင့် ညအချိန် ဟူ၍ (၂) ချိန်ခွဲ၍ တိုင်းတာခဲ့ပါသည်။
- ❖ စီမံကိန်းလုပ်ဆောင်ချက်များကြောင့် ပတ်ဝန်းကျင်သို့ ထိခိုက်ညစ်ညမ်းစေသော ဆူညံသံမှ သက်ရောက်မှု ရှိ/ မရှိ သိရှိစေရန် စက်ရုံအတွင်းရှိ ဆူညံသံများကို Digital Sound Level Meter ဖြင့် တိုင်းတာ ချက်များအရ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး ထုတ်လွှတ်မှု လမ်းညွှန်ချက်များ (NEQG) ရှိ သတ်မှတ်ချက်များမှ နေ့အချိန်တွင် ကျော်လွန်မှု မရှိသည်ကို တွေ့ရှိရသော်လည်း ညအချိန်တွင်မူ သတ်မှတ်ချက် ထက် ၁၅ dBA ကျော်လွန်သည်ကိုတွေ့ရှိရပါသည်။
- ❖ ထိုသို့ဖြစ်ပွားခြင်းမှာ စက်ရုံသည် ညအချိန်တွင် လည်ပတ်ခြင်းမရှိသော်လည်း ပတ်ဝန်းကျင်တွင် သွားလာလျှက်ရှိသည် မော်တော်ယာဉ်များ၊ ဆိုင်ကယ်များနှင့် ရေယာဉ်များကြောင့်လည်းကောင်း၊ ပတ်ဝန်းကျင်ရှိ လယ်ယာမြေများတွင် ညအချိန် ကျက်စားလျက်ရှိသည့် သတ္တဝါများ အထူးသဖြင့် ငှက်များအသံကြောင့် ဖြစ်နိုင် သည်ကို လေ့လာတွေ့ရှိရပါသည်။

## ရေအရည်အသွေး တိုင်းတာခြင်း



❖ ရေထုအရည်အသွေး တိုင်းတာခြင်းကို စီမံကိန်းဧရိယာအတွင်း လက်ရှိ အခြေအနေကို အလိုလျောက် တိုင်းတာဖော်ပြသည့် စက်ဖြင့် တိုင်းတာခြင်းအပြင် ဓါတ်ခွဲခန်းတွင်စစ်ဆေးရန် စီမံကိန်းမှ ရေနမူနာကို ရယူခဲ့ပါသည်။

| စဉ် | အမျိုးအစား         | တည်နေရာ         |                   |
|-----|--------------------|-----------------|-------------------|
|     |                    | မြောက်လတ္တီတွဒ် | အရှေ့လောင်ဂျီတွဒ် |
| ၁။  | တွံတေးတူးမြောင်းရေ | ၁၆° ၄၃' ၄၀.၈၁"  | ၉၆° ၀' ၄၂.၀၃"     |
| ၂။  | မြေအောက်ရေ         | ၁၆° ၄၃' ၄၅.၅၉"  | ၉၆° ၀' ၃၁.၉၄"     |

❖ တိုင်းတာရရှိခဲ့သော တူးမြောင်းရေနှင့် မြေအောက်ရေ အရည်အသွေး ရလဒ်များအရ (WHO Drinking Water Guideline Geneva 1993) Ammonia-Nitrogen (NH<sub>3</sub>-N) နှင့် Turbidity သည် သတ်မှတ်ချက် ထက် ကျော်လွန်နေသည်ကို တွေ့ရှိရပြီး ကျန်ပါရာမီတာများမှာ စံချိန်စံညွှန်း အတွင်း ရှိသည်ကို တွေ့ရှိရပါသည်။

စီမံကိန်းကြောင့် ပတ်ဝန်းကျင် ထိခိုက်မှု  
အကဲဖြတ်ဆန်းစစ်ခြင်း

## စီမံကိန်းလည်ပတ်စဉ်ကာလ ကောင်းကျိုး/ဆိုးကျိုးသက်ရောက်နိုင်ချေများ



စီမံကိန်းကြောင့် ပတ်ဝန်းကျင် ထိခိုက်မှုကို  
လျော့ချရမည့်အစီအစဉ်များ



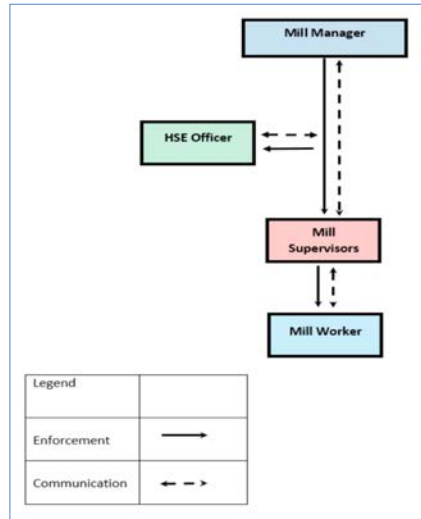
## ပတ်ဝန်းကျင်နှင့် လုပ်ငန်းခွင်ဆိုင်ရာ သက်ရောက်မှုကို လျှော့ချရမည့်အစီအစဉ်များ (လည်ပတ်ခြင်းကာလ)

- စက်ရုံလုပ်ငန်းခွင်အတွင်း အမှုန်အမွှားများ ထွက်ရှိမှုအား ထိန်းချုပ်နိုင်ရန် အမှုန်စုပ်စက် (Dust Collector)၊ လေမှုတ်ထုတ်သည့်စက် (Exhaust Fan) နှင့် လေသန့်စင်သည့်စက် (Roof Ventilator) များ တပ်ဆင်ခြင်း၊
- စက်ပစ္စည်းများအား ရေရှည်အသုံးပြုနိုင်ရန် ပြုပြင်ထိန်းသိမ်းခြင်း၊
- ဖုန်မှုန့်များထွက်ရှိသောနေရာအား ရေဖြန်းခြင်း၊
- ဝန်ထမ်းများအား တစ်ကိုယ်ရည် ကာကွယ်ရေးသုံးကိရိယာများ တပ်ဆင်လုပ်ကိုင်စေခြင်း၊
- မိလ္လာစနစ်နှင့်ရေမြောင်းများကို ပုံမှန်သန့်ရှင်းရေးပြုလုပ်ခြင်းနှင့် ပုံမှန်စစ်ဆေးခြင်း၊
- ကွန်ကရစ်တံခွန်နှင့် လုပ်ငန်းသုံးယာဉ်များမှ ဆီများ ဖိတ်စင်မှု မရှိစေရန် ပုံမှန် စစ်ဆေးမှုများ ပြုလုပ်ခြင်း၊
- ဘေးပတ်ဝန်းကျင်သို့ ဆူညံသံနှင့် တုန်ခါမှုများ မဖြစ်ပေါ်စေရန် အဆိုပါ ဆူညံသံ ထွက်ရှိရာ နေရာများအား လုံခြုံစွာ ကာကွယ်ခြင်း၊
- ဆူညံသံများသော နေရာများတွင် လုပ်ကိုင်သော လုပ်သားများကို အလှည့်ကျ လုပ်ကိုင်စေခြင်း၊
- စက်ရုံဝင်းအတွင်း သစ်ပင်၊ ပန်းပင်များ စိုက်ပျိုးထိန်းသိမ်းခြင်း၊
- မီးသတိပေးစနစ်၊ မီးသတ်စနစ်၊ မီးသတ်ဆေးဘူးများ၊ အရေးပေါ်တံခါးပေါက်၊ လေ့ကျင့် နှင့် အရေးပေါ် စုရပ်များအား ထားရှိပေးခြင်း၊
- မီးသတ်ဌာနနှင့်ဆက်သွယ်၍ စီမံကိန်းရှိဝန်ထမ်းများအား မီးဘေးအန္တရာယ်နှင့် မီးသတ်ခြင်းဆိုင်ရာ လုပ်ငန်းများအား လေ့ကျင့်ပေးခြင်း၊
- လုပ်သားများအား ပုံမှန်ကျန်းမာရေးစစ်ဆေးပေးခြင်း၊ ကျန်းမာရေး စောင့်ရှောက်မှုပေးခြင်း၊
- ဝန်ထမ်းများအား လုပ်ငန်းခွင်ဘေးအန္တရာယ်ကင်းရှင်းရေးဆိုင်ရာ သင်တန်းများအား စေလွှတ်၍ စက်ရုံတွင် ဆင့်ပွားသင်တန်းများပြုလုပ်ပေးခြင်း၊
- စက်ရုံတွင် စွန့်ပစ်ပစ္စည်းများအား ပြန်လည်အသုံးပြုနိုင်သောပစ္စည်း၊ စွန့်ပစ်ရန်ပစ္စည်းများနှင့် ဘေးအန္တရာယ်ရှိသော စွန့်ပစ်ပစ္စည်းများဟူ၍ ခွဲခြား စွန့်ပစ်ခြင်း၊
- YCDC သန့်ရှင်းရေးဌာနအား နေ့စဉ်အကြောင်းကြားပြီး သိမ်းဆည်းစေခြင်း၊

## ပတ်ဝန်းကျင်နှင့် လုပ်ငန်းခွင်ဆိုင်ရာ သက်ရောက်မှုကို လျှော့ချရမည့်အစီအစဉ်များ (ဖျက်သိမ်းခြင်းကာလ)

- ဖျက်သိမ်းရေး လုပ်ငန်းသုံးစက်များကို အသုံးမပြုစဉ်ကာလတွင် စက်ပိတ်ထား၍ ပတ်ဝန်းကျင်သို့ အခိုးအငွေ့ ထွက်ရှိမှုအား နည်းနိုင်သမျှနည်းအောင် ထိန်းချုပ် ဆောင်ရွက်ခြင်း၊
- လုပ်ငန်းသုံးယာဉ်များနှင့် စက်ပစ္စည်းများအား ပုံမှန်စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် ပြုပြင်ထိန်းသိမ်းခြင်း၊
- အမှုန်အမွှားများထွက်ရှိမှုနည်းပါးစေရန် စီမံကိန်းအတွင်း ရေဖြန်းခြင်း၊
- စွန့်ပစ်ပစ္စည်းများအား မီးရှို့ခြင်း မပြုလုပ်ခြင်း၊
- ဖျက်သိမ်းခြင်းကာလ၌ သွယ်ယူထားသော ဝိုက်လှိုင်းများကို စနစ်တကျ ပြန်လည်ဖြုတ်ယူခြင်းနှင့် ပြန်လည်အသုံးပြုစေခြင်း၊
- ဆူညံသံထွက်သောစက်၊ ပစ္စည်းကိရိယာများကို အသုံးမပြုချိန် ကြားကာလတွင် ပိတ်ထားရန်နှင့် ဆူညံမှုပြင်းထန်သည့်စက်၊ ကိရိယာများကို ယှဉ်ပြိုင်အသုံးပြုခြင်းတို့မှ အတတ်နိုင်ဆုံး ရှောင်ကြဉ် ဆောင်ရွက်ခြင်း၊
- မီးသတ်ဘူးများ၊ မီးသတ်ရေသိုလှောင်ကန်များ ထားရှိခြင်းနှင့် မီးဘေးအန္တရာယ် နှင့်ပတ်သက်သည့် ဆိုင်းဘုတ်များတပ်ဆင်ခြင်း၊
- လျှပ်စစ်ဝါယာကြိုးများအား ဂရုတစိုက်ဖြုတ်၍ သိမ်းဆည်းခြင်း၊
- သတိပေးဆိုင်းဘုတ်များ တပ်ဆင်ပေးခြင်းနှင့် တစ်ကိုယ်ရည်ကာကွယ်ရေး အသုံးအဆောင်ပစ္စည်းများ အသုံးပြုစေခြင်း၊
- အမှိုက်ပုံများထားရှိပေးခြင်းနှင့် သတ်မှတ်ထားသော ဧရိယာတွင်စွန့်ပစ်ခြင်း၊
- လုပ်ငန်းခွင်အတွင်း ယာယီယင်လုံအိမ်သာများ စနစ်တကျ တည်ဆောက်၍ လုံလောက်စွာ ထားရှိပေးခြင်း၊
- အရေးပေါ်သုံးဆေးဝါးများနှင့် ဆေးသေတ္တာများအား လက်လှမ်းမှီရာတွင် ထားရှိခြင်း၊
- ဝန်ထမ်းများအတွက် သောက်သုံးရေကို လုံလောက်စွာ ထားရှိပေးခြင်း၊
- ဖျက်သိမ်းရေး လုပ်ငန်းခွင်ရှိရိုးများ၊ လုပ်သားမိသားစုများမှ စွန့်ပစ်သော အမှိုက်များနှင့် မီးဖိုချောင် သုံးစွန့်ပစ်ပစ္စည်းများကို သင့်တော်သောနေရာတွင် စနစ်တကျစုစုပုံစုစုပစ်ခြင်း၊ ဖုံးအုပ်ထားခြင်းနှင့် အန္တရာယ်ရှိသော စက်မှု လုပ်ငန်းဆိုင်ရာ စွန့်ပစ်ပစ္စည်းများကို လုံခြုံစွာ ထုတ်ပို့၍ သတ်မှတ်ထားသော နေရာများသို့ စနစ်တကျစွန့်ပစ်ခြင်း၊

ပတ်ဝန်းကျင်၊ ဘေးအန္တရာယ်ကင်းရှင်းရေးအဖွဲ့နှင့် ကျန်းမာရေးဆိုင်ရာ တာဝန်ယူမည့် အဖွဲ့အစည်း



လူမှုအကျိုးတူပူးပေါင်းပါဝင်မှု (CSR) အစီအစဉ်များ



| Year  | AhNhaing Mae | flood victims in Bago |
|-------|--------------|-----------------------|
| 2022  | 1,845,700    | 2,000,000             |
| 2023  | 2,168,869    |                       |
| 2024  | 2,311,748    |                       |
| Total | 6,326,317    | 2,000,000             |



မြန်မာ့ရင်းနှီးမြှုပ်နှံမှု ကော်မတီ၏ ချမှတ်ထားသော နည်းလမ်းများအတိုင်း အမြတ်ငွေမှ ၂ % ကို (CSR) အတွက် အသုံးပြုခြင်း ။



## ပတ်ဝန်းကျင် စောင့်ကြပ်ကြည့်ရှုရေးလုပ်ငန်းများ

| တိုင်းတာမည့် နယ်ပယ်                                       | တိုင်းတာမည့် အရည်အသွေးများ                                                                                                                                                                                                                                                                         | တိုင်းတာမည့် နေရာ                                                                                                                                                                                          | တိုင်းတာမည့် အကြိမ်အရေအတွက်         | နှစ်စဉ်ခန့်မှန်း အသုံးစရိတ် (ကျပ်) |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------|
| လေအရည်အသွေး                                               | NOx, SO2, PM2.5, PM10 and O2                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Project area at 16°43'45.47"N, 96° 0'41.59"E</li> <li>Around the project area at 16°43'51.45"N, 96°0'41.96"E</li> </ul>                                             | ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်) | ၂,၀၀၀,၀၀၀                          |
| ဆူညံသံ                                                    | ဆူညံသံအဆင့် (dB (A) scale)                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Project area at 16°43'51.45"N, 96°0'41.96"E</li> </ul>                                                                                                              | ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်) | ၁၀၀,၀၀၀                            |
| ရေထုအရည်အသွေး                                             | Alkalinity (Alk), Magnesium (Mg ++), Sodium (Na+), Potassium (K+), Total Hardness (TH), Sulfate (SO4-), Chloride (Cl-), Iron (Fe), Dissolve Oxygen (DO), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), pH, Ammonia-Nitrogen (NH3-N), Turbidity, Salinity, Arsenic (As), Lead (Pb) | <ul style="list-style-type: none"> <li>တူးမြောင်းရေနှင့် မြေအောက်ရေ</li> <li>(1) Surface Water (Canal) at 16°43'40.81"N, 96° 0'42.03"E</li> <li>(2) Groundwater at 16°43'45.59"N, 96° 0'31.94"E</li> </ul> | ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်) | ၂,၄၀၀,၀၀၀                          |
| မြေအရည်အသွေး                                              | pH, Salinity Electrical Conductivity, Cation Exchangeable Capacity, Potassium (Potash)                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Project area at 16°43'43.20"N, 96° 0'42.38"E</li> </ul>                                                                                                             | ခြောက်လတစ်ကြိမ် (ECD သို့ တင်ပြရန်) | ၅၀၀,၀၀၀                            |
| ဘေးအန္တရာယ်ကင်းရှင်းရေးနှင့် ကျန်းမာရေးဆိုင်ရာ ထိခိုက်မှု | လျှပ်စစ်နှင့် မီးအန္တရာယ်<br>မတော်တဆထိခိုက်မှု မှတ်တမ်းများ                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>စီမံကိန်းဧရိယာအတွင်းရှိ မီးကြီးများ ငြင်းတို့ ၏ ဆက်စပ်ပစ္စည်းများနှင့် မီးလောင်လွယ်သည့် ပစ္စည်းများ</li> <li>စီမံကိန်းဧရိယာအတွင်းရှိ လုပ်ငန်းခွင်နေရာ</li> </ul>    | လစဉ်<br>လစဉ်                        | ၁,၀၀၀,၀၀၀                          |

## နိဂုံးချုပ် ခြုံငုံသုံးသပ်ချက်

- ❖ ပတ်ဝန်းကျင် ထိခိုက်မှုကို လျော့ချရမည့်အစီအစဉ်များကို စနစ်တကျလိုက်နာခြင်းဖြင့် ဖြစ်ပေါ်နိုင်သော ဆိုးကျိုးသက်ရောက်မှုများကို လျော့ချ၍ လူမှုစီးပွားအပေါ်ကောင်းကျိုးသက်ရောက်နိုင်မှု ဖြစ်ထွန်းစေရန် ဆောင်ရွက်နိုင်ခြင်း။
- ❖ ဒေသခံများနှင့် အနီးဝန်းကျင် အတွက် အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိစေခြင်း။
- ❖ ထို့ကြောင့် ပတ်ဝန်းကျင် ပြည်သူလူထုအတွက် ဒေသအတွင်း လူမှုစီးပွား အခြေအနေများ တိုးတက်လာနိုင်ခြင်း။
- ❖ စီမံကိန်းလုပ်ငန်းမှ နိုင်ငံတော်သို့ ပုံမှန်အခွန်ပေးဆောင်ခြင်းဖြင့် နိုင်ငံဝင်ငွေ တိုးတက် စေနိုင်ခြင်း။
- ❖ ခေတ်မီစက်ပစ္စည်းများကို ကျွမ်းကျင်စွာအသုံးပြုနိုင်သော အရည်အချင်းရှိသော ဝန်ထမ်းများ ထွက်ပေါ်လာခြင်း။
- ❖ လူမှုအကျိုးတူ ပူးပေါင်းပါဝင်မှု (CSR) အစီအစဉ်များ ပြုလုပ်ခြင်းဖြင့် လူမှုဝန်းကျင်အပေါ် ကောင်းကျိုးများ ရရှိစေခြင်း။

APPENDIX S: RECORD OF PARTICIPANTS AT PCM

Rice Mill Project (TR) .....နှင့် ပက်သက်၍ စီမံကိန်းနှင့် သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း  
STAKEHOLDER CONSULTATION FOR ..... Rice Mill Project (TR) ..... ①

Date/ ရက်စွဲ ..... ၁၅-၅-၂၀၂၅  
Place /နေရာ ..... ကဆုန်ကောင်းမင်း







| အမျိုးအစား/Type<br>• Government အစိုးရအဖွဲ့<br>• ✓ Public ပြည်သူ<br>• Media မီဒီယာ<br>• NGO အစိုးရမဟုတ်သောအဖွဲ့အစည်း | အမည်<br>Name     | ရာထူး<br>Position | ဌာန/အဖွဲ့အစည်းအမည်<br>Department/ Organization | နေရပ်လိပ်စာ<br>Address              | ဆက်သွယ်ရန်ဖုန်း<br>Phone | လက်မှတ်<br>Sign |
|----------------------------------------------------------------------------------------------------------------------|------------------|-------------------|------------------------------------------------|-------------------------------------|--------------------------|-----------------|
| ၁                                                                                                                    | မောင်မောင်မောင်  | စိုးတာအေး         |                                                | တက်ဂျီ အောင်                        | ၀၅ ၇၅၆၅၅၆၂၁၅             |                 |
| ၂                                                                                                                    | ဦးမြင့်မိုးမောင် | ပြင်ထိန်း         |                                                | တက်ဂျီ အောင်                        | ၀၅ ၇၆၂၅၈၇၇၅              |                 |
| ၃                                                                                                                    | ကိုနောင်မိုး     | ရဲခေါင်<br>စာရေး  |                                                | တွံတေးမြို့နယ်<br>သံလွင်မြစ်ကမ်းခြေ | ၀၅ ၇၇၅၂၃၃၁၅              |                 |
| ၄                                                                                                                    | ဦးမြင့်မိုး      | တက်မောင်          |                                                | တွံတေးမြို့နယ်<br>ကျပ်တိုက်မြို့နယ် | ၀၅ ၆၇၀၈၃၄၈၀              |                 |
| ၅                                                                                                                    | အခြားအမည်မရှိ    | Forklift          |                                                | တွံတေးမြို့နယ်                      | ၀၅ ၇၅၀၃၂၀၇၇၄             |                 |
| ၆                                                                                                                    | ဦးမောင်မောင်     | လီဒါ              |                                                | တက်ဂျီ / အောင်                      | ၀၅ ၇၅၀၅၅၀၁၂၇             |                 |

Rice Mill Project (TT) .....နှင့် ပက်သက်၍ စီမံကိန်းနှင့် သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း

STAKEHOLDER CONSULTATION FOR Rice Mill Project (TT).....

Date/ ရက်စွဲ ..... ၁၅.၅.၂၀၂၅.....

Place /နေရာ ..... ကညင်းကင်းယုန်းပ ..... ②

| အမျိုးအစား/Type<br>• Government အစိုးရအဖွဲ့<br>• Public ပြည်သူ<br>• Media မီဒီယာ<br>• NGO အစိုးရမဟုတ်သောအဖွဲ့အစည်း | အမည်<br>Name   | ရာထူး<br>Position | ဌာန/အဖွဲ့အစည်းအမည်<br>Department/ Organization | နေရပ်လိပ်စာ<br>Address            | ဆက်သွယ်ရန်ဖုန်း<br>Phone | လက်မှတ်<br>Sign                                                                       |
|--------------------------------------------------------------------------------------------------------------------|----------------|-------------------|------------------------------------------------|-----------------------------------|--------------------------|---------------------------------------------------------------------------------------|
| ၃. မောင်မင်းခိုင်                                                                                                  | မောင်မင်းခိုင် | ၁၆.၆              |                                                | တွဲစားမြို့နယ်<br>သံဖြူရေကျေးရွာ  | ၀၉-၇၆၀၇၈၃၂၈              |    |
| ၈. ကျော်ဂီဟ                                                                                                        | ကျော်ဂီဟ       | Forklift Driver   |                                                | တွဲစားမြို့နယ်<br>ကျော်ဂီဟကျေးရွာ | ၀၉-၇၇၀၈၈၈၈၈              |    |
| ၉. ဖွဲ့စည်းရေး                                                                                                     | ဖွဲ့စည်းရေး    | Finance           |                                                | တွဲစားမြို့နယ်<br>သံဖြူရေကျေးရွာ  | ၀၉-၇၈၀၈၇၀၃၅၇             |  ✓ |
| ၁၀. မိုးသူကမ္ဘာ                                                                                                    | မိုးသူကမ္ဘာ    | Finance           |                                                | TT Factory                        | ၀၉-၂၆၁၃၈၀<br>၇၇၆         |    |
| ၁၁. အမည်မရှိ                                                                                                       | အမည်မရှိ       | HR. staff         |                                                | TT Factory                        | ၀၉-၇၇၄၅၂၆<br>၇၇၆         |  |
| ၁၂. ချိန်းမင်းကော်                                                                                                 | ချိန်းမင်းကော် | Store clerk       |                                                | တွဲစားမြို့နယ်<br>သံဖြူရေကျေးရွာ  | ၀၉-၇၇၇၇၆၀၈၈              |  |
|                                                                                                                    |                |                   |                                                |                                   |                          |                                                                                       |






Rice Mill Project (TT) .....နှင့် ပက်သက်၍ စီမံကိန်းနှင့် သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း (3)

STAKEHOLDER CONSULTATION FOR Rice Mill Project (TT)

Date/ ရက်စွဲ ..... ၁၅.၅.၂၀၂၅.....

Place /နေရာ ..... ကလေးကလေးနယ်.....

Golden Lace POSCO International Co., Ltd.

| အမျိုးအစား/Type<br>• Government အစိုးရအဖွဲ့<br>• Public ပြည်သူ<br>• Media မီဒီယာ<br>• NGO အစိုးရမဟုတ်သောအဖွဲ့အစည်း | အမည်<br>Name   | ရာထူး<br>Position | ဌာန/အဖွဲ့အစည်းအမည်<br>Department/ Organization | နေရပ်လိပ်စာ<br>Address  | ဆက်သွယ်ရန်ဖုန်း<br>Phone | လက်မှတ်<br>Sign                                                                     |
|--------------------------------------------------------------------------------------------------------------------|----------------|-------------------|------------------------------------------------|-------------------------|--------------------------|-------------------------------------------------------------------------------------|
| ၁                                                                                                                  | မောင်ဝင်းအောင် | Manager           | Admin & HR Dept.                               | ၄၈၈၊ Hlaing<br>T/s      | ၀၉-၄၅၅၈၇၃၅၄              |  |
| ၂                                                                                                                  | ဒေါ်အေးအေး     | HR Manager        | Admin & HR Dept.                               | ပြင်သစ်လမ်း၊<br>ကလေးနယ် | ၀၉-၂၅၀၆၈၄၅၄              |  |
| ၃                                                                                                                  | ဦးလွင်ဦး       | Factory Manager   | Management                                     | ၄၂၂လမ်း၊<br>ကလေးနယ်     | ၀၉-၂၅၂၀၂၈၆၃              |  |
|                                                                                                                    |                |                   |                                                |                         |                          |                                                                                     |
|                                                                                                                    |                |                   |                                                |                         |                          |                                                                                     |
|                                                                                                                    |                |                   |                                                |                         |                          |                                                                                     |



Rice Mill Project (TT) .....နှင့် ပက်သက်၍ စီမံကိန်းနှင့် သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း

STAKEHOLDER CONSULTATION FOR Rice Mill Project (TT) ..... (၄)

Date/ ရက်စွဲ ၁၅.၅.၂၀၂၅

Place /နေရာ အစည်းအဝေးခန်းမ

Environmental Compliance Consultancy Co., Ltd.

| အမျိုးအစား/Type                                                                                 | အမည်<br>Name       | ရာထူး<br>Position    | ဌာန/အဖွဲ့အစည်းအမည်<br>Department/ Organization | နေရပ်လိပ်စာ<br>Address | ဆက်သွယ်ရန်ဖုန်း<br>Phone | လက်မှတ်<br>Sign |
|-------------------------------------------------------------------------------------------------|--------------------|----------------------|------------------------------------------------|------------------------|--------------------------|-----------------|
| • Government အစိုးရအဖွဲ့<br>• Public ပြည်သူ<br>• Media မီဒီယာ<br>• NGO အစိုးရမဟုတ်သောအဖွဲ့အစည်း | ၁. ဒေါ်ဖြတ်စွန်စေ့ | Principle Consultant | Env CC                                         | ၇၈၇၇                   | ၀၉၄၂၀၁၁၁၆၀               |                 |
|                                                                                                 | ၂. ဦးကွဲကွဲလတ်     | Manager              | Env CC                                         | ၇၈၇၇                   | ၀၉၄၂၀၁၁၁၆၀               |                 |
|                                                                                                 |                    |                      |                                                |                        |                          |                 |
|                                                                                                 |                    |                      |                                                |                        |                          |                 |
|                                                                                                 |                    |                      |                                                |                        |                          |                 |
|                                                                                                 |                    |                      |                                                |                        |                          |                 |



Environmental Compliance Consultancy Co., Ltd

Email: [info@envccmyanmar.com](mailto:info@envccmyanmar.com)

[www.envccmyanmar.com](http://www.envccmyanmar.com)

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ကျွန်ုပ်တို့ကမ္ဘာမြေကို စိမ်းလန်းပါစေ။