

REVISED REPORT Environmental Impact Assessment (EIA)



Animal Feed Mill Myanmar C.P Livestock Co., Ltd.







REVISED REPORT

Environmental Impact Assessment (EIA)

And

Environmental Management Plan (EMP)

for

Animal Feed Mill



Myanmar C.P. Livestock Co., Ltd.

Plot No 529/B, Industrial area, Pyinmabin Quarter, Mingalardon Township, Yangon Region.

16 August 2022

Green Enviro Services Ltd.



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"ENVIRONMENTAL COMMITMENT AND ACCOUNTABILITY STATEMENT"

Subject: Commitment to follow legal frameworks including Environmental Conservation Law, Rules, Standards and Mitigation Measure Stated in the Environmental Impact Assessment (EIA) for the Animal Feed Mill Project

With regard to the above matter, we, Myanmar C.P Livestock Co., Ltd. refer to the captioned EIA report, which has been prepared and finalized by Green Enviro Services Ltd. in compliance with EIA procedure (December 2015) and other relevant laws/rules.

We hereby undertake that;

Myanmar C.P Livestock Co., Ltd. in respect of the "Animal Feed Mill Project" will at all-time comply fully with:

- (1) any and all commitments and obligations as set forth in the EIA report, and
- (2) any and all our operations will be performed in an environmentally friendly manner by following existing laws and regulations especially Environmental Conservation Law 2012, Environmental Conservation Rules 2014, National Environmental Quality (Emission) Guideline (2015) and relevant environmental standards.
- (3) any and all plans and the various components thereof, including impact avoidance, mitigation measures and management plans related to the operation and decommissioning of the project.

Mr. Uthai Tantipimolphan Managing Director Myanmar C.P Livestock Co., Ltd.





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"ENVIRONMENTAL COMMITMENT AND ACCOUNTABILITY STATEMENT"

Subject: Commitment to follow and compliance with Environmental Conservation Law, Rules, Environmental Impact Assessment Procedure, National Environmental (Quality) Emission Guidelines, Standards and Mitigation Measure Stated in the Environmental Impact Assessment (EIA)

This EIA report has been prepared by Green Enviro Services Ltd. The report has been done with reasonable skills, care and diligence in accordance with EIA procedure (December 2015) and other relevant laws/rules.

We believe, to the best of our knowledge at the time of writing, that;

- a. the EIA report is accurate and complete, and;
- b. the EIA report has been prepared in strict compliance with all applicable laws, rules, regulations and procedures in force.

Green Enviro Services Ltd strongly commits that this EIA report has been prepared by the following Environmental Conservation Law (2012), Environmental Conservation Rules (2014), Environmental Impact Assessment Procedure, National Environmental Quality (Emission) Guideline (2015) and relevant environmental standards through successful implementation of mitigation measures stated in the Environmental Impact Assessment (EIA) for the Animal Feed Mill Project.

Daw Phyu Sin Maung Managing Director Green Enviro Services Ltd.



အကျဉ်းချုပ်အစီရင်ခံစာ

Myanmar C.P Livestock Co., Ltd. သည် ထိုင်းနိုင်ငံအခြေစိုက် Charoen Pokphand Group (CP Group) လက်အောက်ရှိ အကြီးဆုံးစီးပွားရေးလုပ်ငန်းစုကြီးဖြစ်ပြီး မြန်မာနိုင်ငံတွင်လယ်ယာလုပ်ငန်းနှင့် စားသောက် ကုန်လုပ်ငန်းကို ၁၉၇၀ ခုနှစ်မှစတင်ကာ ထိပ်တန်းစီးပွားရေးလုပ်ငန်းအဖြစ် လုပ်ကိုင်လျက်ရှိပါသည်။

Myanmar C.P Livestock Co., Ltd. သည် (၆ ရက်–မတ်လ–၁၉၉၇ ခုနှစ်) အသိအမှတ်ပြု ကုမ္မဏီမှတ်ပုံတင် အမှတ် – ၁၄၉၈၃၃၀၈၀ ရရှိထားသော ၁၀၀% နိုင်ငံခြားကုမ္မဏီတစ်ခုဖြစ်ပါသည်။ အစာစက်ရုံကို မြေဧရိယာ (၂၇.၃၁) ဧကရှိ စက်မှုဇုန်နယ်မြေဖြစ်သော မြေကွက်အမှတ် (၅၂၉/ဘီ) ပျဉ်းမပင်ရပ်ကွက်၊ မင်္ဂလာဒုံမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးတွင် ရင်းနှီးမြှုပ်နုံမှုပမာဏ (အမေရိကန်ဒေါ်လာ ၁၉.၄၉၂ သန်း) ဖြင့် တည်ဆောက် မည်ဖြစ်ပါသည်။

ယခုလေ့လာမည့်လုပ်ငန်းစီမံကိန်းသည် ခေတ်မှီတိရစ္ဆာန်အစာစက်ရုံလုပ်ငန်းစီမံကိန်းဖြစ်ပြီး မြေကွက်အမှတ် ၅၂၉/ ဘီ ၊ စက်မှုဇုန်ဧရိယာ၊ ပျဉ်းမပင်ရပ်ကွက် ၊ မင်္ဂလာဒုံမြို့နယ် ၊ ရန်ကုန်တိုင်းဒေသကြီးတွင်တည် ဆောက်မည်ဖြစ်ပါသည်။ တိရစ္ဆာန်အစာစက်ရုံသည် 17° 1'15.08" N ၊ 96° 8'13.14" E နှင့် ပင်လယ်ရေ မျက်နှာပြင်အမြင့် ၁၂၃ ပေတွင်တည်ရှိပါသည်။

ရည်ရွယ်ချက်

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်သိန်းသိမ်းရေးဝန်ကြီးဌာနမှ ၂၀၁၅–ခုနှစ် ဒီဇင်ဘာလ ၂၉–ရက်တွင် ထုတ်ပြန်ထားသော ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) လုပ်ထုံးလုပ်နည်းအရ Myanmar C.P Livestock Co., Ltd. ၏ တိရစ္ဆာန်အစာစက်ရုံစီမံကိန်းသည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီအရင်ခံစာ (EIA) ရေးဆွဲရမည်ဖြစ်ပါသည်။ Myanmar C.P Livestock Co., Ltd. သည် တိရစ္ဆာန်အစာစက်ရုံစီမံကိန်းအ တွက် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာရေးဆွဲရန် ဂရင်းအန်ဗာရိုဆားဗစ်(စ်)လီမိတက်ကို ငှားရမ်း၍ ဆောင်ရွက်ခဲ့ပါသည်။

EIA အစီရင်ခံစာရေးဆွဲရခြင်း၏ အဓိကရည်ရွယ်ချက်မှာ အဆိုပြုလုပ်ငန်းစီမံကိန်းနှင့်စပ်လျဉ်း၍ ဖြစ်ပေါ်လာ နိုင်သည့် ပတ်ဝန်းကျင်ဆိုင်ရာသက်ရောက်မှုများကို အသေးစိတ်အကဲဖြတ်ဖော်ထုတ်ရန်နှင့် လုပ်ငန်းလည် ပတ်မှုကြောင့်ဖြစ်ပေါ်လာနိုင်သည့် ဆိုးကျိုးသက်ရောက်မှုများကို လျော့ပါးသက်သာစေရန်အတွက် ပတ်ဝန်း ကျင်စီမံခန့်ခွဲမှုအစီအစဉ်များကို အကောင်အထည်ဖော်ဆောင်ရွက်ရန်တို့ဖြစ်ပါသည်။

အစီရင်ခံစာသည် အဆိုပြုလုပ်ငန်းကြောင့် သဘာဝပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုများအပြင် လုပ်ငန်းစီမံ ကိန်း၏ရည်ရွယ်ချက်များ၊ လိုအပ်ချက်များနှင့် အခက်အခဲများကို သက်ဆိုင်ရာဒေသခံ ပြည်သူများသိရှိနား လည်နိုင်စေရန် အသိပေးအကြောင်းကြားဖို့ကိုလည်း အဓိကထားပါသည်။ EIA အစီရင်ခံစာသည် အဆိုပြုလုပ် ငန်း၏ ပတ်ဝန်းကျင်ဆိုင်ရာဆောင်ရွက်ချက်များ တိုးတက်ကောင်းမွန်လာစေရန် အပြုသဘောဆောင် အကြံ ပြုချက်များပေးနိုင်မည် ဖြစ်ပါသည်။

လေ့လာသည့်ဧရိယာ

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းနယ်ပယ်ကိုသက်မှတ်ရာတွင် လုပ်ငန်းဆောင်ရွက်မှုကြောင့်ဖြစ်ပေါ် လာ နိုင်သည့်သက်ရောက်မှုများကို ခြုံငုံမိစေရန်အတွက် လေ့လာမှုပြုလုပ်မည့်ဧရိယာကို လုပ်ငန်းတည်နေရာမှ (၁) ကီလိုမီတာအတွင်းကို သတ်မှတ်ပါသည်။ တိရစ္ဆာန်အစာစက်ရုံဧရိယာ၏ သတ်မှတ်ထားသော (၁)ကီလိုမီ Green Green Enviro Services Ltd.

တာအတွင်းတွင် ပျဉ်းမပင်ကျေးရွာအုပ်စု(၀.၆၃)ကီလိုမီတာ ၊ နွယ်ခွေကျေးရွာအုပ်စု(၀.၈၆)ကီလိုမီတာ တို့ရှိ ပါသည်။

အခြားရွေးချယ်ရန်နည်းလမ်း

ခေတ်မီတိရစ္ဆာန်အစာစက်ရုံလုပ်ငန်းတည်ထောင်ရာတွင် သင့်လျော်မှန်ကန်သော ကိုက်ညီသောနေရာ ကောင်းတစ်ခုကိုလိုအပ်ပါသည်။ တိရစ္ဆာန်ရောဂါကာကွယ်ရေးနှင့် ဇီဝလုံခြုံရေးအရ တိရစ္ဆာန်အစာစက်ရုံလုပ် ငန်းကို တခြားမွေးမြူရေးခြံနှင့် အနည်းဆုံး (၁) ကီလိုမီတာအကွာအဝေးတွင် တည်ထောင်သင့်ပါသည်။ ထို့ကြောင့် Myanmar C.P Livestock Co., Ltd. သည် ဇီဝလုံခြုံရေးအရ ၎င်း၏တိရိစ္ဆာန်အစာစက်ရုံကို မင်္ဂလာဒုံစက်မှုဇုန်တွင် တည်ထောင်ရန်ဆုံးဖြတ်ခဲ့ပါသည်။ ထို့ကြောင့် အခြားရွေးချယ်ရန်မရှိပါ။

ဆက်စပ်ဥပဒေများ

Myanmar C.P Livestock Co., Ltd. ၏ တိရစ္ဆာန်အစာစက်ရုံလုပ်ငန်းစီမံကိန်းနှင့် စပ်လျဉ်း၍ လုပ်ငန်းဆောင်ရွက်မှု့ကြောင့် ဖြစ်ပေါ် လာနိုင်သည့် ပတ်ဝန်းကျင်ထိခိုက်ပျက်စီးစေမှုများ၊ လူမှုအကျိုးစီးပွား နှင့် ကျန်းမာရေးအပေါ်ထိခိုက်မှုများမရှိစေရန် (သို့မဟုတ်) နည်းပါးစေရန်အတွက် သဘာဝပတ်ဝန်းကျင် ထိခိုက်ပျက်စီးမှုဆန်းစစ်လေ့လာခြင်း (Environmental Impact Assessment – EIA) လုပ်ငန်းနှင့် အဆိုပါဆန်းစစ်လေ့လာတွေ့ရှိချက်များကိုအခြေခံ၍ ပတ်ဝန်းကျင်ထိခိုက်မှုမဖြစ်စေရန် (သို့မဟုတ်) ထိခိုက်မှု နည်းစေရန်အတွက် ဆောင်ရွက်မည့်အစီအမံများပါဝင်သည့် ပတ်ဝန်းကျင်ဆိုင်ရာစီမံခွဲ့မှုအစီစဉ် (Environmental Management Plan– EMP) ကို ဂရင်းအန်ဗာရိုဆားဗစ်(စ်)လီမိတက်မှ တာဝန်ယူလေ့လာ ရေးဆွဲခဲ့ပါသည်။

အောက်ဖော်ပြပါဥပဒေနှင့် စည်းမျဉ်းစည်းကမ်းများသည် စီမံကိန်းအကောင်အထည်ဖော်ရန်အတွက် သက်ဆိုင်မှုရှိပြီး လိုက်နာရမည်ဖြစ်သည်။

- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေ (၂၀၁၂)
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေ (၂၀၁၄)
- ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်း (၂၀၁၅)
- အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ(၂၀၁၅)
- ရေအရင်းအမြစ်နှင့် မြစ်ချောင်းများထိန်းသိမ်းရေးဥပဒေ (၂၀၀၀၆)
- မြေအောက်ရေအက်ဥပဒေ (၁၉၃၀)
- မြန်မာနိုင်ငံရင်းနှီးမြုပ်နှံမှုဥပဒေ (၂၀၁၆)
- ပုဂ္ဂလိကစက်မှုလုပ်ငန်းဥပဒေ (၁၉၉၀)
- အလုပ်ရုံများအက်ဥပဒေ (၁၉၇၄)
- မြန်မာနိုင်ငံမီးသတ်တပ်ဖွဲ့ဥပဒေ (၂၀၁၅)
- ပြည်သူ့ကျန်းမာရေးဆိုင်ရာဥပဒေ (၁၉၇၂)
- ကူးစက်ရောဂါများကာကွယ်နှိမ်နင်းရေးဥပဒေ (၁၉၉၅)



- အလုပ်သမားအဖွဲ့ အစည်းဥပဒေ (၂၀၁၁)
- အလုပ်သမားရေးရာအးငြင်းပွားမှုဖြေရှင်းရေးဥပဒေ (၂၀၁၂)
- အလုပ်အကိုင်နှင့်ကျွမ်းကျင်မှုဖွံဖြိုးတိုးတက်ရေးဥပဒေ (၂၀၁၃)
- တိရစ္ဆာန်ကျန်းမာရေးနှင့်ဖွံဖြိုးရေးဥပဒေ (၁၉၉၃)
- ဘွိုင်လာဥပဒေ (၂၀၁၅)
- ရန်ကုန်တိုင်းစည်ပင်သာယာရေးဥပဒေ (၂၀၁၈)

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းနည်းနည်းလမ်းများ

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီအရင်ခံစာကို အောက်ပါထိခိုက်ဆန်းစစ်ခြင်းနည်းလမ်းများကိုအသုံး ပြု၍ ရေးဆွဲခဲ့ပါသည်။

(က) အခြေခံအချက်အလက်များစုဆောင်းခြင်း

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာကို ရေးဆွဲရန်အတွက် စာရွက်စာတမ်းအထောက်အထားများ လေ့လာခြင်း၊ သက်ဆိုင်ရာလုပ်ငန်းဆက်စပ်ပတ်သက်နေသူများနှင့်တွေ့ဆုံဆွေးနွေးခြင်းဖြင့် အခြေခံအချက် အလက်များကို စုဆောင်းပါသည်။

(ခ) ကွင်းဆင်းလေ့လာဆောင်ရွက်ခြင်း

ကွင်းဆင်းလေ့လာဆောင်ရွက်ခြင်းကို အဆိုပြုလုပ်ငန်း၏ အကြိုတည်ဆောက်လုပ်ရေးကာလတွင် ဂေဟ ဗေဒဆိုင်ရာ၊ လူမှုစီးပွားရေးဆိုင်ရာ၊ ကျန်းမာရေးဆိုင်ရာအချက်အလက်များရယူရန် ကွင်းဆင်းခဲ့ပါသည်။

(ဂ) ဓာတ်ခွဲစမ်းသပ်ခြင်း

အဆိုပြုလုပ်ငန်းတည်ရှိရာနေရာ၏ ပတ်ဝန်းကျင်ဆိုင်ရာအချက်အလက်များရရှိရန်အတွက် မြေအရည်အ သွေးနှင့် ရေအရည်အသွေးတို့ကိုကောက်ယူ၍ သက်ဆိုင်ရာဓာတ်ခွဲခန်းများတွင် စမ်းသပ်စစ်ဆေးခဲ့ပါသည်။

သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုစီးပွားအခြေအနေ

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း လုပ်ငန်းဆောင်ရွက်ရာတွင် ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားဆိုင်ရာ အခြခံ ကိန်းဂဏန်းအချက်အလက်များကိုကောက်ယူရန်လိုအပ်ပြီး ထိုအချက်အလက်များကိုအခြေခံ၍ စီမံကိန်း တည်ဆောက်စဉ်ကာလ၊ လည်ပတ်စဉ်ကာလများတွင် ထိခိုက်မှုများကိုသုံးသပ်နိုင်မည်ဖြစ်ပါသည်။ ပတ်ဝန်း ကျင်နှင့် လူမှုစီးပွားဆိုင်ရာ အခြေခံကိန်းဂဏန်းများကို သုံးမျိုးခွဲခြားထားပါသည်။

- ရုပ်ပိုင်းဆိုင်ရာဝန်းကျင်
- လူမှု–စီးပွားဆိုင်ရာဝန်းကျင်
- ဧဝအရင်းမြစ်ဆိုင်ရာဝန်းကျင်



ရေအရင်းမြစ်သုံးစွဲမှု

Myanmar C.P Livestock Co., Ltd. သည် ထုတ်လုပ်မှုဆောင်ရွက်ရန် အသုံးပြုသည့်ဘွိုင်လာရေနှင့် ဝန်ထမ်း များအတွက်အသုံးပြုသည့်ရေကို ကိုယ်ပိုင်အဝီစိတွင်းမှထုတ်ယူ၍ သိုလှောင်ကန်များဖြင့်ထားရှိပါသည်။ ရရှိလာသော ရေကို သန့်စင်၍ အသုံးပြုပါသည်။

မြေဆီလွှာနှင့် ရေအရည်အသွေး

အဆိုပြုလုပ်ငန်းတည်ရှိရာနေရာ၏ ပတ်ဝန်းကျင်ဆိုင်ရာအချက်အလက်များရရှိရန်အတွက် လုပ်ငန်းစီမံကိန်း ဧရိယာအတွင်းရှိ မြေဆီလွှာနှင့် ရေအရည်အသွေးတို့ကိုကောက်ယူ၍ စိုက်ပျိုးရေးဦးစီးဌာန မြေအသုံးချရေး ဌာနခွဲရှိဓာတ်ခွဲခန်းတွင်စမ်းသပ်ခဲ့ပါသည်။ ရေအရည်အသွေးတိုင်းတာရန် စီမံကိန်းဧရိယာရှိ အဝီစိတွင်းရေကို ကောက်ယူတိုင်းတာပါသည်။

စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှု

(က) စွန့်ပစ်အစိုင်အခဲ

တိရစ္ဆာ့န်အစာစက်ရုံလုပ်ငန်းမှထွက်ရှိလာမည့် စွန့်ပစ်အစိုင်အခဲများကို စက်မှုဇုန်ကော်မတီနှင့် မြို့နယ် စည်ပင်သာယာရေးကော်မတီ၏ ညွှန်ကြားမှုအတိုင်းလိုက်နာဆောင်ရွက်မည်ဖြစ်ပါသည်။

(ခ) စွန့်ပစ်အရည်

တိရစ္ဆာန်အစာစက်ရုံလုပ်ငန်းမှထွက်ရှိလာမည့် စွန့်ပစ်အရည်များနှင့် သတ်မှတ်နှုန်းအတွင်းရှိစေရန် အနည် ထိုင်သန့်စင်သည့်စနစ်ကို အကောင်ထည်ဖော်ပြီး စနစ်တကျသန့်စင်ပြီးမှ စွန့်ပစ်မည်ဖြစ်ပါသည်။ မိလ္လာ ရေဆိုးများကို စနစ်တကျစွန့်ပစ်နိုင်ရန်အတွက် မိလ္လာကန်များကို စနစ်တကျတည်ဆောက်ထားမှာဖြစ် ပါသည်။

လူမှု–စီးပွားရေး

လူမှုစီးပွားရေးဆိုင်ရာအချက်အလက်များကို မင်္ဂလာဒုံမြို့နယ်အုပ်ချုပ်ရေးမှူးရံးမှရရှိပါသည်။ မင်္ဂလာဒုံမြို့ နယ်၏ လူဦးရေစုစုပေါင်းမှာ (၂၂၉,၆၂၉) ဦးခန့်ရှိပြီး အိမ်ခြေပေါင်း(၄၀,၇၅၉) ခန့်ရှိပါသည်။ အများစုမှာ ဗုဒ္ဓဘာသာဝင်များဖြစ်ပြီး အခြားဘာသာဝင်များဖြင့်အတူတကွ သာတူညီမျှပေါင်းစည်းနေထိုင်ကြပါသည်။

မင်္ဂလာဒုံမြို့နယ်တွင် တက္ကသိုလ်၊ ကောလိပ်များမရှိပါ။ စာတက်မြောက်မှုနှုန်းသည် ၂၀၁၂–၂၀၁၃ တွင်ပျဉ်းမျှ ၁၀၀% ဖြစ်သောကြောင့် ပညာရေးအဆင့်သည် ကောင်းမွန်ပါသည်။

အဓိကစီးပွားရေးမှာ စိုက်ပျိုးရေးကိုခြေခံထားပြီး အဓိကစိုက်ပျိုးသီးနှံမှာ စပါး၊ ပဲအမျိုးမျိုး၊ မြေပဲ၊ နေကြာနှင့် ကြံစသည်တို့ဖြစ်ပါသည်။ မင်္ဂလာဒုံမြို့နယ်သည် ရန်ကုန်တိုင်းဒေသကြီးတွင်တည်ရှိပြီး ရန်ကုန်မြို့နှင့် (၂၀) ကီလိုမီတာအကွာတွင်ရှိပါသည်။ လမ်းပန်းဆက်သွယ်ရေးလည်းကောင်းမွန်ပါသည်။

မင်္ဂလာဒုံမြို့နယ်၏ တိုင်းဒေသကြီးအစိုးရ၏အစီအမံဖြင့် လုံလောက်သော ကျန်းမာရေးအဆောက်အုံများနှင့် ဝန်ဆောင်မှုများကြောင့် ကျန်းမာရေးဝန်ဆောင်မှုအခြေအနေမှာ ကောင်းမွန်ပါသည်။



အပင်နှင့်သတ္တဝါများ

အဆိုပြုစီမံကိန်းတည်ရှိရာဧရိယာသည် သစ်တောဧရိယာအတွင်းတွင် တည်ရှိခြင်းမရှိပါ ။ နွယ်ပင်၊ ခြုံပင်၊ မြေလျှောက်ပင်၊ သစ်ငယ်အနည်းငယ်နှင့် မြက်ရိုင်းမြက်ခြောက်များကိုသာ တွေ့ရှိရပါသည်။ ဒေသအတွင်း တွေ့ရှိရသောရေနေ၊ ကုန်းနေအပင်နှင့် သတ္တဝါများစာရင်းကို အစီရင်ခံစာတွင် ဖော်ပြထားပါသည်။

သက်ရောက်မှုအလားလာ

တိရစ္ဆာန်အစာစက်ရုံလုပ်ငန်းသည် စက်မှုဇုန်ဧရိယာအဖြစ်သတ်မှတ်၍ ပြုပြင်တည်ဆောက်ထားပြီးဖြစ်သော စက်မှုဇုန်တွင် အကောင်ထည်ဖော်ဆောင်ရွက်မည်ဖြစ်သောကြောင့် သက်ရောက်မှုဖော်ထုတ်ရာတွင် အကြို တည်ဆောက်ခြင်းကာလမပါဝင်ပါ။

တိရစ္ဆာန်အစာထုတ်လုပ်ခြင်းလုပ်ငန်းသည် ယေဘုယျအားဖြင့် သဘာဝပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှု နည်းသည့် သဘောသဘာဝရှိသော လုပ်ငန်းအမျိုးအစားဟုယူဆပါသည်။ Myanmar C.P Livestock Co., Ltd. ၏ တိရစ္ဆာန်အစာစက်ရုံသည် မြို့ပြများနှင့်အတန်ငယ်ဝေးကွာသော နေရာတွင်တည်ရှိပြီး လမ်းပန်း ဆက်သွယ်ရေးအရကောင်းမွန်သော ရန်ကုန်–မန္တလေးလမ်းပေါ်တွင် တည်ရှိပါသည်။

လုပ်ငန်းတည်ဆောက်ရန် မြေနေရာရှင်းလင်းခြင်းနှင့်စပ်လျန်း၍ သဘာဝဂေဟစနစ်ကို များစွာမထိခိုက် နိုင်ပါ။ တည်ဆောက်အကောင်ထည်ဖော်ထားပြီးဖြစ်သော စက်မှုဇုန်ဧရိယာအတွင်းတွင်တည်ရှိပြီး အဆိုပြု တည်နေရာတွင် အပင်ကြီးအနည်းငယ်နှင့်ချုံပုတ်၊ မြက်ပင်အနည်းသာရှိသည်ကို တွေ့ရှိရပါသည်။ သဘာဝ ပေါက်ပင်နှင့် ဒေတွင်းတိရစ္ဆာန်များမှာလည်း စက်မှုဇုန်စတင်တည်ဆောက်ကတည်းက ရှင်းလင်းခဲ့ပြီးဖြစ် သည့်အတွက် မတွေ့ရှိရတော့ပါ။

တိရစ္ဆာန်အစာစက်ရုံလုပ်ငန်း၏ သဘောသဘာဝအရ အလားလာရှိသောသက်ရောက်မှုများမှာ လုပ်ငန်း လည်ပတ်စဉ်ထုတ်လွှတ်နိုင်သည့် ဖုန်မှုန့်များ၊ အနံ့နှင့် အသံဆူညံမှုတို့ကိုဖြစ်ပါသည်။ တိရစ္ဆာန်အစာ စက်ရုံလုပ်ငန်းသည် ကောင်းမွန်သောကုန်ထုတ်လုပ်မှုအလေ့အကျင့် (GMP) များကို လိုက်နာကျင့်သုံးခြင်း ဖြင့်လည်းကောင်း၊ ရေးဆွဲထားသောပတ်ဝန်းကျင်ဆိုင်ရာအစီစဉ်များကို စနစ်တကျအကောင်ထည်ဖော် ဆောင်ရွက်ခြင်းဖြင့်လည်းကောင်း ထိခိုက်မှုများကို လျော့ပါးသက်သာစေနိုင်မည်ဖြစ်ပါသည်။ တိရစ္ဆာန်အစာ စက်ရုံလုပ်ငန်းနှင့်စပ်လျဉ်း၍ ပတ်ဝန်းကျင်ဆိုင်ရာထိခိုက်နိုင်ခြင်းများမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။

- ကုန်ကြမ်းသိုလှောင်ခြင်း၊ ကိုင်တွယ်ခြင်းတို့မှထွက်ရှိသော အမှုန်အမွှားများမှ လေထုညစ်ညမ်းမှုကို ဖြစ်စေနိုင်ပါသည်။ နည်းပညာမြင့်လေထုတ်စနစ်ကိုအသုံးပြုခြင်း၊ ခေတ်မီစက်ပစ္စည်းများကို အသုံး ပြုခြင်း၊ ကောင်းမွန်သောထုတ်လုပ်မှုနည်းလမ်းများကို အသုံးပြုခြင်းဖြင့် လျော့ပါးသက်သာစေနိုင် ပါသည်။
- ကုန်ကြမ်းပစ္စည်းများမှ ထွက်ရှိလာသောအနံများသည် သိပ်မပြင်းထန်သော်လည်း ပမာဏများများ သိုလှောင်သိမ်းဆည်းထားပါက ပတ်ဝန်းကျင်ကို အနှောင့်အယှက်ပေးနိုင်ပါသည်။ စနစ်တကျသို လှောင်သိမ်းဆည်းခြင်း၊ လေဝင်လေထွက်ကောင်းစေခြင်း, ပုံမှန်စစ်ဆေးခြင်းတို့ဖြင့် လျော့ကျသက် သာစေနိုင်ပါသည်။
- လုပ်ငန်းသုံးစက်ပစ္စည်းများ၏ အသံဆူညံမှုကြောင့် လုပ်ငန်းခွင်ရှိ အလုပ်သမားတို့၏ ကျန်းမာ ရေးကို ထိခိုက်စေနိုင်ပါသည်။ အလုပ်ချိန်ကိုအလှည်ကျစီစဉ်ပေးခြင်း၊ (PPE) စသည့်အကာအကွယ်



ပစ္စည်းများကို ဝတ်ဆင်စေခြင်းနှင့် ပုံမှန်ကျန်းမာရေးထောက်ပံ့စစ်ဆေးပေးခြင်းတို့ လုပ်ဆောင်ရ ပါမည်။

- ရေသုံးစွဲမှုနှင့်စပ်လျဉ်း၍ တိရစ္ဆာန်အစာထုတ်လုပ်ခြင်းလုပ်ငန်းစဉ်အရ ရေသုံးစွဲမှုမရှိပါ။ ရေနွေးငွေ့
 ဘွိုင်လာအတွက်အသုံးပြုရန် ရေကိုကိုယ်ပိုင်အဝီစိတွင်းရေမှယူပါသည်။ စနစ်တကျသုံးစွဲခြင်းဖြင့် လျော့ချနိုင်ပါသည်။
- လုပ်ငန်းခွင်အန္တရာယ်များဖြစ်သော လျှပ်စစ်အန္တရာယ်နှင့်ထိခိုက်ဒဏ်ရာရရှိမှု၊ ဓာတုပစ္စည်း အန္တရာယ်ရှိမှုများနှင့်စပ်လျဉ်း၍ စနစ်တကျလုပ်ငန်းခွင်ဆိုင်ရာလုပ်ထုံးလုပ်နည်းများ၊ သင်တန်းများ၊ အကာအကွယ်ပစ္စည်းများ ထောက်ပံ့ပေးခြင်းဖြင့် လျော့ပါးစေနိုင်ပါသည်။
- စွန့်ပစ်ရေအနေဖြင့် လုပ်ငန်းခွင်သုံးပစ္စည်းများဆေးကြောရာမှထွက်ရှိရေ၊ ဘွိုင်လာစွန့်ပစ်ရေနှင့်
 ဝန်ထမ်းအိမ်ရာများမှ ထွက်သောရေတို့ဖြစ်ပါသည်။ ထွက်ရှိသောရေများကိုစက်မှု ုန်ရေမြောင်း
 ထဲသို့ တိုက်ရိုက်မစွန့်ပစ်ပဲ စနစ်တကျအနည်ထိုင်သန့်စင်ပြီးမှ စွန့်ပစ်မည်ဖြစ်ပါ သည်။
- စွန့်ပစ်အစိုင်အခဲအနေဖြင့် ကုန်ကြမ်းများမှထွက်ရှိသောအကြွင်းအကျန်၊ အမှုန်အမွှားများ၊ မီးဖို ချောင်ပစ္စည်းများနှင့် ထုပ်ပိုးရုံမှထွက်ရှိလာသောပစ္စည်းများပါဝင်ပါသည်။ စွန့်ပစ်အစိုင်အခဲများကို သက်ဆိုင်ရာစက်မှု ုန်ကော်မတီနှင့် စည်ပင်သာယာရေးကော်မတီတို့၏ လမ်းညွှန်ချက်အတိုင်း လိုက်နာ၍ စွန့်ပစ်မည်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်

ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်သည် ဆိုးကျိုးသက်ရောက်မှုကို လျော့ချနိုင်ရန်အတွက် အစီအစဉ်များ ရေးဆွဲထားခြင်းဖြစ်ပါသည်။ ယင်းအစီအစဉ်တွင် အဖွဲ့အစည်းတစ်ခုအနေဖြင့် လိုက်နာဆောင်ရွက်ရမည့် ပတ်ဝန်းကျင်နှင့် သက်ဆိုင်သည့်လုပ်ငန်းများကို သတ်မှတ်ချိန်အတွင်းအပြီးဆောင်ရွက်နိုင်ရန် ဖော်ပြထား ခြင်းဖြစ်ပါသည်။

- ၁။ အဖွဲအစည်းဆိုင်ရာလိုအပ်ချက်
- ၂။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုဆိုင်ရာရည်ရွယ်ချက်
- ၃။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုဆိုင်ရာတာဝန်ဝတ္တရားများ
- ၄။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအကောင်အထည်ဖော်ရန်အတွက်လျာထားငွေ
- ၅။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်
- ၆။ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုမည့်အစီအစဉ်

အဖွဲအစည်းဆိုင်ရာလိုအပ်ချက်

ခေတ်မီတိရစ္ဆာန်အစာစက်ရုံကို Myanmar C.P Livestock Co., Ltd. မှအကောင်အထည်ဖော် ဆောင်ရွက်မည်ဖြစ်သည်။ Myanmar C.P Livestock Co., Ltd. သည် လုပ်ငန်းလည်ပတ်စဉ်တစ်လျှောက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်တို့ကို အကောင်ထည်ဖော်ရန် HSE အရာရှိနှင့် လက်ထောက်များခန့်အပ်ပါမည်။ HSE အရာရှိ၏တာဝန်မှာ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်တို့မှာ အကောင်အထည်ဖော်ရုံသာမက သက်ဆိုင်ရာအဖွဲ့အစည်းများနှင့်လည်း ပူးပေါင်းဆောင်ရွက်ရမည်ဖြစ်ပါသည်။ HSE အဖွဲ့သည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတိုင်း ပုံမှန် စစ်ဆေး ဆောင်ရွက်သွားရမည်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်၏ရည်ရွယ်ချက်

- ၁။ စီမံကိန်းသက်တန်းအတွင်းဆောင်ရွက်မည့် ဆောက်လုပ်ခြင်းကာလ၊ လည်ပတ်ခြင်းကာလနှင့် ပိတ် သိမ်းခြင်းကာလများတွင် လုပ်ငန်းဆောင်ရွက်ရန်အတွက်ကိုးကားရန်နှင့် သဘောတူညီချက်တို့ဖြစ် ပါသည်။
- ၂။ သယံဇာတနှင့်ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏လိုပ်အပ်ချက်များကို ဖြည့်ဆည်းပေးရန်ဖြစ် သည်။
- ၃။ စီမံကိန်း၏ပတ်ဝန်းကျင်နှင့် လူမှုရေးလုပ်ငန်းများကိုဆောင်ရွက်ရာတွင် လမ်းညွှန်ချက်ဖြင့်ကိုးကား အသုံးပြုရန်ဖြစ်သည်။
- ၄။ ဖြစ်ပေါ် လာသည့်ဆိုးကျိုးများကို လျော့ချရန်အတွက်ဆောင်ရွက်ရာတွင် မူဘောင်အဖြစ်အသုံးချပြီး စီမံကိန်းကို စနစ်တကျအကောင်အထည်ဖော်ဆောင်ရွက်သွားရန်ဖြစ်သည်။

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်၏တာဝန်များ

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို ထိရောက်စွာအကောင်အထည်ဖော်နိုင်ရန်အတွက် ပါဝင်ပတ်သက် သူများအတွက် တာဝန်ဝတ္တရားများကိုဖော်ပြထားရမည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲနိုင်ရန်အတွက် မြန်မာနိုင်ငံ တွင်လက်ရှိထုတ်ပြန်ထားသည့်မူဝါဒ၊ ဥပဒေ၊ နည်းဥပဒေ၊ လမ်းညွှန်ချက်များကိုလိုက်နာရမည်။ အောက်ပါ အဖွဲ့အစည်းများသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို တာဝန်ယူဆောင်ရွက်ရမည်။

- Myanmar C.P Livestock Co., Ltd.
- ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန (ရန်ကုန်တိုင်းဒေသကြီး)
- တတိယပုဂ္ဂိုလ်အဖွဲ့အစည်း

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အကောင်အထည်ဖော်ရန်အတွက်လျာထားငွေ

Myanmar C.P Livestock Co., Ltd. သည် CSR အစီစဉ်နှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအစီ အစဉ်အကောင်အထည်ဖော်ရန်အတွက် ကုမ္ပဏီ၏ အမြတ်ငွေ (၂) ရာခိုင်နှုန်းထဲမှ (၂၅) ရာခိုင်နှုန်းကိုအ သုံးပြုရန်လျာထားပါသည်။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး အစီအစဉ်ကိုဆောင်ရွက်ရာတွင် ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုဆိုင်ရာ ကော်မတီဖွဲ့စည်း၍ HSE အရာရှိနှင့် လက်ထောက်များခန့်အပ်ပြီး အကောင်အထည် ဖော်ဆောင်ရွက်ရမည်ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်ဆိုင်ရာစောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအစီအစဉ်ဆောင်ရွက်ရာတွင် ဖြစ်ပေါ် လာနိုင်သည့်ဆိုးကျိုးများကို လျော့နည်းရန် အစီအစဉ်များကို လက်ရှိထုတ်ပြန်ထားသည့် စည်းမျည်းစည်းကမ်းများနှင့်အညီ အောင်မြင်အောင်ဆောင် ရွက်နိုင်ခြင်းရှိ/မရှိကို သုံးသပ်နိုင်ရန်အတွက် ဆောင်ရွက်ရန်ဖြစ်ပါသည်။ စီမံကိန်းတည် ဆောက်စဉ်ကာလနှင့် လည်ပတ်စဉ်ကာလအတွင်း ဆိုးကျိုးများကိုလျော့ချရန်နှင့် ကောင်းကျိုးများကိုပိုမို တိုးတက်လာအောင် ဆောင်ရွက်ခြင်းသည် စောင့်ကြပ်ကြည့်ရှုခြင်းဖြစ်ပါသည်။ Myanmar C.P. Livestock Co., Ltd.

Green Enviro Services Ltd.

စောင့်ကြပ်ကြည့်ရှုရန်အတွက်သတ်မှတ်ချက်များ

စီမံကိန်းတည်ဆောက်ခြင်းကာလ၊ လည်ပတ်ခြင်းကာလနှင့် ပိတ်သိမ်းခြင်းကာလအလိုက် လေ့လာရမည့် သတ်မှတ်ချက်များကိုအောက်တွင်ဖော်ပြထားပါသည်။

တည်ဆောက်စဉ်ကာလ။ ။ တည်ဆောက်ရေးလုပ်ငန်းများမှ ထွက်ရှိလာမည့် ထုတ်လွှတ်မှုများကို စောင့်ကြပ်ကြည့်ရှုလေ့လာရန်၊

လည်ပတ်စဉ်ကာလ။ ။ စီမံကိန်းလည်ပတ်ခြင်းကြောင့်ဖြစ်ပေါ် လာသည့် ဆိုးကျိုးများကို သိရိ နိုင်ရန်အတွက် စောင့်ကြပ်ကြည့်ရှုလေ့လာရန်၊

ပိတ်သိမ်းစဉ်ကာလ။ ။ တည်ဆောက်စဉ်ကာလနှင့် ယေဘုယျအားဖြင့်တူညီသည်ဟု သတ်မှတ် ထားပါသည်။

နိဂုံးချုပ်

Myanmar C.P Livestock Co., Ltd. ၏ တိရစ္ဆာန်အစာထုတ်လုပ်ခြင်းလုပ်ငန်းသည် သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုစီးပွားအပေါ် ထိခိုက်မှုလျော့နည်းနိုင်သည်ဟု တွေ့ရှိရပါသည်။ အစာစက်ရုံတည်ဆောက်မည့် မြေနေရာ သည် တည်ဆောက်အကောင်အထည်ဖော်ထားသောစက်မှုဇုန်ဧရိယာအတွင်းတွင် ပါဝင်နေသောကြောင့် သဘာဝတောတောင်ရေမြေအနေအထားထိခိုက်စေခြင်း၊ သစ်ပင်သစ်တောများ ခုတ်ထွင်ရှင်းလင်းရခြင်း၊ လူနေအိမ်ခြေနှင့်စိုက်ခင်းများဖယ်ရှားရွှေ့ပြောင်းရခြင်းတို့မရှိဘဲ စက်ရုံမြေဧရိယာကို မြေညှိရခြင်းသာ ဆောင်ရွက်ရပါသည်။

သက်ရောက်မှုဆန်းစစ်ရာတွင် စီမံခန့်ခွဲ့မှုအစီအစဉ်များကို လိုက်နာအကောင်အထည်ဖော်မည်ဆိုပါက သဘာဝပတ်ဝန်းကျင်သာမက လူမှုစီးပွားရေးအပေါ်တွင်ပါ ထိခိုက်သက်ရောက်မှုများ လျော့နည်းနိုင်သည် ဟုတွေ့ရှိရပါသည်။ ဖြစ်ပေါ် လာနိုင်ချေရှိသော သက်ရောက်စေနိုင်မှုများသည်လည်း တိရစ္ဆာန်အစာထုတ်လုပ် မှုလုပ်ငန်းစဉ်တို့၏ သဘောသဘာဝကြောင့်သာဖြစ်ပြီး စီမံခန့်ခွဲမှုအစီအမံများကို စနစ်တကျလိုက်နာဆောင် ရွက်ခြင်း၊ လုပ်ငန်းခွင်နှင့် အနီးပတ်ဝန်းကျင်တွင် သဘာဝပတ်ဝန်းကျင်ကို အဆင့်မြှင့် ထိန်းသိမ်းစောင့် ရှောက်ခြင်းဖြင့် လျော့ပါးသက်သာစေနိုင်ပါသည်။

နိဂုံးချုပ်အနေဖြင့် လုပ်ငန်းလည်ပတ်စဉ်နှင့်ဖျက်သိမ်းစဉ်ကာလတို့တွင် ဖြစ်ပေါ်လာနိုင်သည့် သက်ရောက်မှု များကိုစီမံခန့်ခွဲမှုအစီအမံတိုင်း လိုက်နာအကောင်အထည်ဖော်ဆောင်ရွက်ခြင်းဖြင့် ထိခိုက်မှုလျော့နည်း မည်ဟု သုံးသပ်ပါသည်။ ဂရင်းအန်ဗာရိဆားဗစ်(စ်)လီမိတက်၏ လေ့လာသုံးသပ်ချက်များအရ Myanamr C.P Livestock Co., Ltd. ၏ တိရစ္ဆာန်အစာထုတ်လုပ်မှုလုပ်ငန်းသည် ရေးဆွဲထားသော ပတ်ဝန်းကျင်စီမံခန့်ခွဲ မှုဆိုင်ရာအစီအမံများကို အကောင်အထည်ဖော် လိုက်နာခြင်းဖြင့် သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုစီးပွားအပေါ် သက်ရောက်မှုများကို လျော့ပါးသက်သာအောင် လုပ်ဆောင်နိုင်မည်ဖြစ်ပါသည်။

အကျိုးရလဒ်ကောင်းများအနေဖြင့် ကျေးလက်ဒေသအတွင်း ဖွံ့ဖြိုးတိုးတက်လောမှုနှင့်အတူ ဒေသခံများ၏ အလုပ်အကိုင်နှင့် အသက်မွေးဝမ်းကျောင်းမှုဆိုင်ရာတိုးတက်မှုများကို ရရှိခံစားနိုင်မျာဖြစ်ပါသည်။

အကြံပြုချက်များ

တိရစ္ဆာန်အစာထုတ်လုပ်ခြင်းလုပ်ငန်းဖြစ်၍လည်းကောင်း ထိုင်းနိုင်ငံတွင်ရှိသော ပင်မကုမ္ပဏီ၏ ပတ်ဝန်း ကျင်ထိန်းသိမ်းရေးလုပ်ငန်းအတွေ့အကြုံများနှင့် ထုတ်လုပ်မှုဆိုင်ရာ အဆင်မြင့်နည်းပညာများကို အခြေခံ ထားသောကြောင့်လည်းကောင်း EMP အစီရင်ခံစာပါ ကတိကဝတ်များနှင့်အစီအစဉ်များကို ကောင်းစွာ လိုက်နာဆောင်ရွက်နိုင်မည်ဟု ယူဆပါသည်။

ရှေးပြေးဦးဆောင်ကုမ္ပဏီကြီးအနေဖြင့် တိရစ္ဆာန်အစာထုတ်လုပ်ခြင်းလုပ်ငန်းအတွက် Good Manufacturing Practices ကို လုပ်ငန်းတွင်အသုံးချသွားရန်နှင့် အောက်ပါတို့ကို အကောင်ထည်ဖော်ရန် အကြံပြုပါသည်။

- ၁။ နိုင်ငံတကာအရည်အသွေးသတ်မှတ်ချက် ISO 9001 နှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအဆင့်သတ်မှတ် ချက် ISO 14000 ကိုလိုက်နာရန်၊
- ၂။ Good Manufacturing Practices (GMP) နှင့် Hazard Analysis Critical Control Point (HACCP) လမ်းညွှန်ချက်များကိုလိုက်နာရန်၊
- ၃။ ကုမ္ပဏီ၏ ပတ်ဝန်းကျင်ဆိုင်ရာ ပေါ်လစီရေးဆွဲအကောင်အထည်ဖော်ရန်နှင့် ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုကော်မတီဖွဲ့ထားရန်၊
- ၄။ အတည်ပြုထားသောပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုဆိုင်ရာ အစီအမံများကို အကောင်ထည်ဖော်လိုက်နာ ဆောင်ရွက်ရန်၊
- ၅။ တိရစ္ဆာန်အစာစက်ရုံအတွက် သင့်လျော်သော ရေဆိုးစွန့်ပစ်စနစ်ကို တည်ဆောက်ရန်၊
- ၆။ လုပ်ငန်းစဉ်များကို ပုံမှန်စစ်ဆေး၍ သက်ဆိုင်ရာတာဝန်ခံထံသို့ အစီရင်ခံစာတင်ပြရန်နှင့် ပတ်ဝန်း ကျင်စီမံခန့်ခွဲမှုဆိုင်ရာ လမ်းညွှန်ချက်များ အစီအမံများကို လိုက်နာထိန်းသိမ်းဆောင်ရွက်ရန်အတွက် HSE အရာရှိနှင့် လက်ထောက်များခန့်အပ်ထားရှိရန်၊
- ၇။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲခြင်း ဆောင်ရွက်မှုမှတ်တမ်းပြုစုထားရှိ၍ ပုံမှန်စောင့်ကြပ်ကြည့်ရှုမှုဆိုင်ရာ အစီရင်ခံစာကို ပြုစုတင်ပြရန်၊
- ၈။ ကုမ္ပဏီသည် ပတ်ဝန်းကျင်ဆိုင်ရာ ဥပဒေများ၊ နည်းဥပဒေများနှင့် ဆက်စပ်ဥပဒေများ၊ ညွှန်ကြား ချက်များကို လိုက်နာအကောင်အထည်ဖော်ရန်တို့ဖြစ်ပါသည်။



Executive Summary

Introduction

Myanmar CP, under the Thailand based Charoen Pokphand Group (CP Group), the largest Business Conglomerate, is the Leading Agro-industry and Food business in Myanmar, operating since 1997, starting by feed and farm business.

Myanmar C.P Livestock Co., Ltd. is a 100% Foreign Company with Certificate of Incorporation No. 149833080, dated: (6-March-1997). It has established the modernized Feed Mill on plot No 529/ B consisting 27.31 acres of industrial land in Pyinamabin Quarter, Mingalardon Township, Yangon region with the investment of USD 19.492 million.

The recent study project is for the construction of the modern animal feed mill is situated in Plot No 529/B, Industrial area, Pyinmabin Quarter, Mingalardon Township, Yangon Region. It is located 17° 1'15.08"N, 96° 8'13.14"E and 123 feet above sea level. The new Feed Mill will be consisting of modernized and upgraded facility, using the most advanced technology and equipment for being more economical, with less environmental and social impacts.

Objective

According to the Annex 1 of the EIA (Environmental Impact Assessment) Procedure dated 29th December 2015 issued by Ministry of the Natural Resources and Environmental Conservation (MONREC), an Environmental Impact Assessment (EIA) is required for the proposed Animal Feed Mill project. The project proponent, Myanmar C.P Livestock Co, Ltd has retained Green Enviro Services Ltd to conduct the Environmental Impact Assessment (EIA) study for the proposed project.

The objective of this EIA is to carry out a detailed evaluation of the environmental issues of the proposed project and to establish the EMP which covers best practice measures to minimize offsite environmental impacts from the operation of proposed project. Many of these measures are also beneficial to safety and welfare of a community and employees. The EIA has to highlight the implications of the project to the environment and also to inform the public and interested parties the project objectives, needs and constraints. This Environmental Impact Assessment also makes constructive suggestions on improving the environmental performance of the project.

Scope of Project

The study area for this project is roughly defined to be the area within 1 Km radius of the center of the proposed project site and will be large enough to cope with the most potential environmental and socio-economic impacts of the project operation as project site is located at Industrial Land area. There have two village tracts within 1 km radius of project area, namely Pyinmabin village tract (0.63 km) and Nwe Khway village tract (0.86 km).

Project Alternative

Having made the decision to build a Feed Production Factory, finding the right location is a critical first step. Not every piece of land is suitable as a Feed Mill site - and finding a good location that is fit for the purpose deserves some time and proper investigation, in order to give the Feed Mill a good start. To maintain high level biosecurity, the Feed Mill should be located at least one kilometer from any other poultry and livestock farms. Therefore,



Myanmar C.P. Livestock Co., Ltd. made decision to build Feed Mill in the Industrial Zone according to the Bio-security practice.

No alternative site has been proposed aside from this area since the proposed project area is situated within Mingalardon Industrial Area, Mingalardon Township, Yangon Region, which has been designated as the industrial zone for the development of industrial activities by the government.

Policy, Legal and Institutional Framework

The EIA and EMP for the Feed Mill were conducted by the Green Enviro Services Ltd. and 'Green Enviro Research and Survey Team'. The recent study was based on the followings; Environment, Environmental impact, Environment performance for Prevention of air, water and soil pollution, and Socio-economic Impact on the community.

The following Laws and Regulations of Myanmar are found to be relevant for the successful implementation of the project.

- The Environmental Conservation Law, 2012
- The Environmental Conservation Rules, 2014
- Environmental Impact Assessment Procedure, 2015
- National Environmental Quality (Emission) Guideline, 2015
- The Conservation of Water Resources and Rivers Law, 2006
- Underground Water Act, 1930
- Myanmar Investment Law, 2016
- The Private Industrial Enterprise Law, 1990
- The Factory Act, 1951
- Myanmar Fire Services Law, 2015
- Public Health Law, 1972
- Prevention and control of communicable Disease Law, 1995
- Labour Organization Law, 2011
- The Settlement of Labor Dispute Law, 2012
- Employment and Skill Development Law, 2013
- Animal Health and Development Law, 1993
- Boiler Law, 2015
- Yangon City Municipal Law, 2018

Methodology and Approach

In compliance with the Environmental Conservation Law (2012), Environmental Conservation Rules (2014) and EIA Procedure (2015), the Proponent will be required to carry out and prepare an EIA-EMP to address environmental, social and economic issues and concerns associated with proposed development in question.

The EIA-EMP study was undertaken in a holistic approach encompassing all different aspects of the EIA process. The methodologies adopted for conducting this EIA are as follows:

a) Desktop Research

Desktop research was used to establish an environmental information database for the EIA. Consulted materials include textbooks, articles, maps, internet, photographs, GIS datasets, and past EIA reports and secondary data of General Administration Data from Township Administration Department.

b) Field Research

Fieldwork activities have been carried prior the pre-construction period to verify and complement information gathered from desktop studies. The fieldwork covered all relevant components of ecological, socio-economic and health components of the environments.

c) Laboratory Analysis

A Geo-technical survey will be conducted by Green Enviro Services Ltd. where soil samples collected during the field sampling, analyzed in the laboratory by Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation.

Water sample collected from tube well water of the proposed project area and analyzed in the laboratory by Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation.

Environmental and Socio-economic setting of an area

In the EIA study, it is necessary to establish baseline information on the environmental and socio-economic setting of an area, which could receive direct and indirect impacts during the project construction and operation.

The environment /socio-economic related to the baseline information is typically divided into three resources:

- Physical Environment
- Socio-economic Environment
- Biological Environment

Water Supply

Myanmar C.P Livestock Co., Ltd uses its own source of underground water for operation use of boiler water and for domestic usage such as for drinking, personal washing, food preparation, and washing of utensils and water treatment and purification system installed to provide safe water for animal feed production.

Soil and Water quality

Water and soil testing were done on the study site. During the operations phase, it can be checked occasionally but the factory management or environment authorities concerned if there are hazardous residues in water or soil resulting from the spill if any, from the manufacture procedures of the factory.



Utilization of groundwater for operation use of boiler and general use of domestic purpose is achieved by tube wells within the site. To analysis the soil and untreated raw water for processing purpose and water source nearby factory site was collected on December 2013 at the proposed factory site and tested at the Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation, Yangon.

Waste Management

a) Solid Waste Management

For disposing waste from Feed Mill, the company will coordinate with Zone management committee and township city development committee, and disposing will be made under guidance of these respective authorities.

b) Liquid Waste Management

CP has a plan to be practiced treatment system of the wastewater effluents discharge facilities of sewage for sanitation and laboratory water, to ensure that all wastewater is properly treated to an acceptable level before it discharges to the public sewerage.

Socio-Economic Environment

Demographic aspect data is taken only from the Mingalardon Township Administration. The total population of Mingalardon Township is 229,629 with 40,759 houses of 49,357 households. In Mingalardon Township, most people are Buddhists in majority and other religions in minorities thrive together in good harmony, participating in each other's religious affairs together.

There is no university or college in Mingalardon Township. The education level is a fairly good indicator as of Literacy Rate is an average of 100% in 2012-2013.

The economy of Mingalardon Township is based on the Agriculture sector and major crop are paddy, bean, peanut, sunflower and sugar cane etc. Mingalardon Township is located at Yangon region and some 20 km far from Yangon downtown area. The transportation is fairly good.

The Health Services in Mingalardon Township are fairly good as there are sufficient numbers of health service facilities organized by the Government.

Biodiversity Environment

There is no forest area, wildlife and wetlands within or around the project compound. The site was already cleared and turned into a livestock farm and the only flora affected by this study project will be the remaining shady trees and wind shield trees or plantations meant for poultry green feed. The proposed project site is not located in or near a sensitive ecosystem as the proposed project area is situated in the Industrial area.

Potential Impact

The Pre- Construction phase is unlikely to be included as the Myanmar C.P. Livestock Co., Ltd. as it is in an already established Industrial Area of Regional government.

Animal feed production is generally accepted to be the mildest in nature among factories in terms of an impact to the environment. The recent study site of Myanmar C.P. Livestock Co., Ltd. is some distance away from other townships, not close enough to expel impact on it but



not far enough to be void of good transportation access for raw materials as well as finished products of pelleted feed, for its proximity to the Yangon-Mandalay Road.

The project site clearing and establishing is not supposed to be threatening the natural habitats of biodiversity, biotopes of flora and fauna, as the Industrial area with vegetation cover, which comprises mainly of few large trees, grass, shrubs, shady trees and wind shield trees, compounded by increasing population pressure and vegetation for use as livestock fodder. The wildlife was long gone since the start of the advent of an Industrial area.

The nature of Feed Mill itself has more potential air emission of dust particles, odour and noise but on comparison to the surrounding Factories mentioned, it is of less physical impact to the environment and less social impact to the community nearby, either by air emission of air pollutants, or noise and odour. On the other hand, the feed mill, could be well managed and at least by mitigation if not elimination, to protect the environment by proper GMP management.

The potential environmental impacts of the animal feed mill have been presented in Section 5.6. In summary, the key issues relate to:

- As for pollution by fugitive dust, airborne dust and crush grains emission from materials storage and handling of cereal grains, grinding and crushing etc, the significance is considered to be *Low* significance with mitigation by GMP, as all the planned improvements will be undertaken on the existing plant site for modernized and upgraded machineries and high-tech aspiration system in the study project.
- Pertaining to odours from raw materials of both plant and animal origins and though not very strong, still is a nuisance issue for neighbouring facilities and residential areas if in a huge mass. But the significance is considered to be *low* significance with mitigation by GMP, systematic storage design and regular monitoring practice.
- During the operation phase, employees and workers of animal feed mill will be endangered or oppressed particularly by noise from operation of heavy machinery equipment and activities. Exposure to high levels of noise can cause permanent hearing loss. This impact for the operation phase is considered to be *low* by proper management on work assignment, support material, PPE and health care of assigned workers.
- Pertaining to water consumption, there is no water use for processing purpose. Myanmar C.P. Livestock Co,, Ltd. uses its own source of underground water only for steam boiler and domestic use. The significance is considered to be *Low* significance with mitigation by GMP, proper handling and systematic control over usage.
- Concerning with the on- job safety of Personnel and individual workers including Manual Handling, Electric Shock and Equipment Safety, Slips and Trips, Infections and Allergic Reactions, Chemical Exposure etc., the significance assigned to these personal impact for the operation phase is considered to be *low* by possible mitigation or obviation by GMP, proper management on work assignment, support material and health care.
- The effluent wastewater will generate from the cleaning of utensil for operational use, steam boiler wastewater discharge and domestic wastewater. The significance assigned to this impact for the operation phase is considered to be *medium to low* with

mitigation by GMP, proper handling and systematic control over usage, either sedimented or double treated as necessary in the factory premise before dispose to the Zone Drain.

• Feed processing generates organic waste and by-products as solid wastes such as grain dust, kitchen waste and packaging materials. Pertaining to this impact is considered to be *low*, with mitigation by GMP and systematic waste management practice, efficient and regular monitoring

All the potential threats identified are generic threats associated with Feed mill facilities and can be mitigated with the proper implementation of the Environmental Management Plan and by maintaining a high-quality environment within and around the facility. The project will significantly contribute to the socio-economic development of nearby Townships and Yangon Region.

Environmental Management Plan

The chapter describes the modalities provided in the project for the implementation of the proposed mitigation measures to its negative impacts. It proposes the institutional responsibilities for the implementation of the management plans, the mitigation plans, and the monitoring plan and follows up activities. The Environmental Management Plan of the Animal Feed Mill is organized with the following sections:

- 1. Institutional Requirements
- 2. Objectives of Environmental Management Plan
- 3. Responsibilities of the EMP
- 4. Planning Budget for Environmental Management Plan
- 5. Environmental Management Plan
- 6. Environmental Monitoring Plan

Institutional Requirements

The development of the Animal Feed Mill project will be managed by Myanmar C.P. Livestock Co., Ltd. The project developer should appoint one Health, Safety and Environment (HSE) Coordinator and Assistants for Health, Safety and Environment (HSE) issues throughout the lifespan of the project. HSE Coordinator is responsible for implementation and monitoring of Environmental Management Plan (EMP) and Monitoring Plan as well as coordination with contractors, local authorities and the nearby communities. The HSE Team also makes regular review of EMP to cover all potential impacts, amendments and modifications

Objectives of Environmental Management Plan

The objectives of Environmental Management Plan are:

1. As a reference and commitment for the proponent to implement the EMP for three phases of the project life cycle, construction, operation and decommission phases of the project

2. It will fulfil the need of the Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation (MONREC)



3. Serve as a guiding document for the monitoring of environmental and social activities of the project

4. Provide detailed framework to mitigate negative impacts on the environment and management actions to be adopted for proper implementation of the project

Responsibilities of the EMP

In order to effectively implement of the EMP, it will be necessary to define the responsibility of various stakeholders. The environmental management activities should be in compliance with existing environmental policy, laws, rules, procedures and emission standards of the Republic of the Union of Myanmar. The following entities are responsible for implementation of the EMP:

- Myanmar C.P. Livestock Co., Ltd.
- Environmental Conservation Department (Yangon Region)
- Initial Provision Provisio Provisio Provisio Provision Provision Provisio

Myanmar C.P. Livestock Co., Ltd.

The proponent is responsible for ensuring that the performances of project activities are in accordance with the Environmental Management Plan developed and in an environmentally sound manner.

ECD (Yangon Region)

ECD (Yangon Region) is responsible for the general supervision and coordinating over all matters relating to the environment and also for providing guidance for existing regulatory frameworks.

Third-Party Consultant Company

The Third-Party Consultant Company is to ensure that the EMP developed is up-to-date and is being followed properly by CP. Periodic audits shall be performed in order to find out whether the expected outcomes are achieved as envisaged in the plan by comparing with the operating standards. If not, corrective actions have to be followed.

Planning Budget for Environmental Management Plan

The Myanmar C.P. Livestock Co., Ltd. has set up a policy of utilizing about the 2% of the profit income on implementing the CSR and 25% of CSR budget will spend on environment related management works, including the expenses on the Environment Management Committee and/or the appointed HSE coordinator and assistant who could also be one of the factory staff with responsibility to take care of the EMP activities in the factory compound.

Environmental Monitoring Plan

Monitoring of the environmental and social impacts in the receiving environment is important in evaluating the effectiveness of the Mitigation Plan so as to comply with the existing regulatory measures. During the construction and operation phase monitoring will be undertaken to ensure the proposed mitigation measures for negative impacts as well as enhancement measures for positive impacts.



Monitoring Parameters

The monitoring parameters are selected based on impacts identified in the construction, operation and decommissioning phases. The parameters determined will reflect the effectiveness of the mitigation measures and general environmental performance of the project. Monitoring of the parameters will be carried out at the various stages of the project as follows:

Construction Phase: To monitor the pollution levels that exists during the construction activities

Operation Phase: To determine the impacts that might arise from the operation of the factory.

Decommissioning Phase: Decommissioning is assumed to have the same impact as the construction phase and may entail parameters similar to those at the construction phase.

Conclusion

The Environmental Impact Assessment process carried out does not reveal or dispose any serious threat that the proposed development might have on the natural and socio-economic environment. Terrestrial Ecology Impacts - Flora, Fauna and Ecosystem Values are not affected much as the new Factory is not on the virgin land, which needed cleared and created for this project purpose but to be established in already developed Industrial area. All the potential threats identified are generic threats associated with the mild nature of feed production facilities and can be mitigated with the proper implementation of the Environmental Management Plan and by maintaining a high-quality environment within and around the facility.

The assessment concludes that the manufacturing activity is expected to have a **non-significant** impact following implementation of proposed mitigations during both the construction and operational phase. All the findings in the recent study of Green Enviro Services Ltd., invariably lead to envisage that the present study of the Myanmar C.P. Livestock Co., Ltd., will be of low impact on environment and community, given that the Company follows all the Environmental Management Plans and procedures mentioned in this study besides its own procedures, as committed to work on. It is believed that performance of aforementioned project will support the development of the semi-arid wasteland area Yangon Region into an optimum healthy living environment with job opportunities and poverty alleviation.

The beneficial impacts with the facility of access to market centers and location of social services will enhance productivity in rural area and improve the quality of life of the people. In addition, local people will get direct employment as workers which will contribute significantly in improving their livelihood. These benefits from the implementation of the proposed project are more significant and long term in nature against the adverse impacts most of which could be mitigated or avoided.

Recommendation

Pertaining to EMP, there is not much to say on the study project as the Myanmar C.P. Livestock Co., Ltd. could be able to properly handle the Environmental Management Plan as committed as the company has vast experiences in managing and following the strict



environmental management rules and regulations in Thailand. Based on the fact that Myanmar C.P. Livestock Co., Ltd. is a leading renowned business group in Livestock Sector as well as in the Feed industry, the Company should adopt the Good Manufacturing Practices Manual to be applied in the new factory under the recent study and follow sooth;

- i. The Environment Management system standard with ISO 14001.
- ii. The policy of the Quality Management System (ISO9001: 2008),
- iii. Guidelines for good Manufacturing Practice (GMP) and Hazard Analysis Critical Control Point (HACCP) for organizational management and the safety for animals as human food.
- iv. Keep its own Environmental policy documented with the organizational structure, planning activities, responsibilities, practices, procedures.
- v. Form an Environmental Management Committee for implementation of it.
- vi. Strictly follow and implementation of EMP
- vii. Establish appropriate wastewater treatment system for Feed Mill.
- viii. As for Monitoring and Evaluation of the EMP, well experienced and knowledgeable HSE Coordinator and HSE Assistants shall be assigned as a Monitoring Officer who will bear the responsibility for regular check and reporting to the Management Committee on EMP guidelines and arrangements on weekly basis or as required, so as to keep the EMP be strictly followed.
- ix. Keep full records of environmental management activities and present to annual independent third-party environment audit and follow the audit report and comments.
- x. Finally, the proponent must abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar

CHAPTER 1 – INTRODUCTION

1.1 Background

National Environmental Conservation Committee (NECC) was reformed in April 2011 as the central organization for the national environmental management in Myanmar and Ministry of Environmental Conservation and Forestry (MOECAF) was upgraded in place of Ministry of Forestry in September 2011 as the focal and coordinating agency for the overall environmental management including community welfare, amenity loss or other environmental issues in Myanmar.

The Environmental Law (EL) enacted very recently in 2012, provides guidance to any industry on the desired standards for project location, design and establishment. In reaching the planning decisions for both project and neighboring land uses, the local government will also have regards to the requirements of the Environmental Law (EL). The industry will work with local authority to be aware of proposed developments around its project area within the Boundary buffer and Separation distances specified in the GMP.

A key element of the Environmental Law (EL) is an emphasis on on-going environmental management and an Environmental Management Plan (EMP) is required to be submitted with every application for a new project.

1.2 Objective

According to the definition on the Environmental Law (EL) Chapter I, Environmental Impact Assessment means the process of studying the significant impact of a proposed project or business or activity on the physical, biological and socioeconomic environment, which is required as part of the decision making process;

The objective of this EIA is to carry out a detailed evaluation of the environmental issues of the project. The EIA has to highlight the implications of the project to the environment and also to inform the public and interested parties the project objectives, needs and constraints. This Environmental Impact Assessment also makes constructive suggestions on improving the environmental performance of the project.

1.3 Scope

The purpose of the EIA is to provide information on the nature and extent of potential environmental and social impact arising from the construction and operation of the propose project and relative activities taking place concurrently and to establish the EMP which covers best practice measures to minimize offsite environmental impacts from the operation of new or expanding project. Many of these measures are also beneficial to safety and welfare of a community and employees.

MIC recommended to the proposed manufacturing factory, to assess an EIA for the environmental consequences and to submit the EMP which the factory is going to follow in Manufacturing, Marketing, Sale and Distribution of Animal Feed. This report contains Seven (7) sections including this introductory section:

- 1) Introduction;
- 2) Policy, Legal and Institutional Framework
- 3) Geographical Condition;



- 4) Description of the proposed project;
- 5) Environmental Impact Assessment;
- 6) Environmental Management Plan;
- 7) Conclusion and Recommendation;

1.4 Identification of Study Team

The Project Proponent Myanmar C.P. Livestock Co., Ltd. has appointed Green Enviro Services Ltd. as a registered Third-Party Assessment Team to carry out the Environmental Impact Assessment (EIA). Besides the Consultants and team members of the Green Enviro Services Ltd., as shown in Table (1), the followings Table (2) are assigned for the Environmental Impact Assessment.

Name of Organization:	Green Enviro Services Ltd.
Registration No:	0021
Contact Person:	Daw Phyu Sin Maung
Contact Number:	95 9 5096601
E-mail Address:	greenenviroservices14@gmail.com
	phyusinmaung@gmail.com
Head Office Address:	No. 85, 1 st Floor, Malar Myaing (3) Street, (16) Ward,
	Hlaing Township, Yangon Region, Myanmar.

Sr.	Name	Designation	Responsibility
No			
1.	Dr. Wah Wah Han	Temporarily registered as Consultant for	For EIA and EMP
		Livestock Husbandry, Biosecurity and	emphasizing on Laboratory
		Risk Analysis along supply chains.	testing facility, Livestock
			facility, Biosecurity measures
			concerning with livestock
			business and Risk
			Assessment.
2.	Daw Phyu Sin	Temporarily registered as Consultant for	For EIA and EMP
	Maung	Socio-Economy	emphasizing on Socio-
			Economy study
3.	Dr. Hla Htay	Temporarily registered as Functional	For EIA and EMP
		Area Consultant for Geology	emphasizing on Geology
4.	Dr. Aye Aye Than	Temporarily registered as Functional	For EIA and EMP
		Area Consultant for Bioterrestrial	emphasizing on Bioterrestrial
		Diversity (Fauna)	Diversity (Fauna)
5.	Daw Moe Pyar Han	Temporarily registered as Functional	For EIA and EMP
		Area Consultant for Bioterrestrial	emphasizing on Bioterrestrial
		Diversity (Flora)	Diversity (Flora)
6.	Dr. Khin Aye Kyu	Temporarily registered as Functional	For EIA and EMP

Table 1. List of Consultants for EIA



		Area Consultant for Chemical Waste Management	emphasizing on Chemical Waste Management
7.	Dr. Myat Kyaw	Advisor for Livestock Livestock Husbandry and Biosecurity	For EIA and EMP emphasizing on Livestock facility, Biosecurity measures concerning with livestock business and Risk Assessment.
8.	Dr. Myint Thein	Advisor for Livestock Livestock Husbandry and Biosecurity	For EIA and EMP emphasizing on Livestock facility, Livestock husbandary, Reproduction, Biosecurity measures concerning with livestock business and Risk Assessment.
9.	U Naing Linn Oo	Advisor for Socio Economy	For EIA and EMP emphasizing on Social Assessment

Table 2. List of Advisors and Survey Team of Green Enviro Services Ltd.

Sr.	Name	Designation	Responsibility
No			
1.	Dr. Saw Plei Saw	• President of Myanmar Veterinary Council;	Advisor, Livestock
		• Advisor, Ministry of Livestock, Fisheries	
		and Rural Development. (Former	
		Myanmar Academy of Agriculture,	
		Forestry, Livestock & Fisheries)	
		• Pro Rector of University of Veterinary	
		Sciences (Retd.)	
2.	Dr. Than Kyaw	• Visiting Professor, University of Keletan,	Advisor, Livestock
		Malaysia;	
		• Pro Rector, University of Veterinary	
		Science. (Retd.)	
3.	Dr. Khin Hlaing	Secretary General of Myanmar Livestock	Advisor, Livestock
		Federation;	
		• National Consultant, Regional Dairy Project (EAQ):	
4	Davy Myzet Myzet Kyzaw	Director (Retd.)	Advisor Legal
т.	B Δ (I aw): II B II M	Office of Attorney Ceneral	Advisor, Legar
5	U Kan Shoin	Locturer (Rotd) Mandalay University	Advisor Biodivorsity
5.		Lecturer (Retu), Manualay Oniversity	Advisor, biodiversity
6.	U Hlaing Htun Naing	Team Member, Surveyor.	Noise Survey Team
7.	U Han Minn Htet	Team Member, Surveyor.	Noise Survey Team
8.	U Myo Minn	Team Member, Surveyor.	GIS Survey Team
9.	U Kyaw Myo Wai	Team Member, Surveyor.	GIS Survey Team



CHAPTER 2 – POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Government of Myanmar has adopted various Laws, regulations and guidelines to ensure the integration of development and conservation of environment. This section provides a brief summary of relevant national environmental legislations established by the Ministry of Natural Resources and Environmental Conservation and overview of current local and international environmental and social policies including related international or regional convention for the proposed project.

2.1 Existing Laws, Rules and Regulations, Notifications related to the project

The fundamental laws and regulations related to the environmental and social considerations in Myanmar are shown in Table (3).

No.	Name of Law	Section/	Action in accordance with the relevant law.
		paragraph	
1.	Environmental Conservation Law (2012)	7(d), 14, 15, 24, 32	The CP follows environmental quality standards prescribed by the ECD for environmental quality, treats, controls and disposes the wastes in environmentally sound methods to avoid environmental pollution, will get inspection from the concerned departments, follow the guidance and take penalty if any offence still exists.
2.	Environmental Conservation Rule (2014)	69 (a & b)	The CP managed the disposal of hazardous waste or hazardous substances so as not to affect the public or damage the ecosystem and the natural environment,
3.	Environmental Impact Assessment Procedure (2015)	102 to 110, 113, 115, 117	Will bear full legal and financial responsibility for all of its own actions and omissions in carrying out the Project; implement and comply to all rules and regulations; timely notify potential Adverse Impacts, if any; self- monitoring of the Project and activities and submit reports as in a schedule in EMP; make publicly available in 10 days; shall grant full access to the Ministry for monitoring, inspection, an emergency etc.
4.	National Environmental Quality (Emission) Guideline (2015)	All	Follows the guidelines for air emissions, waste water, odor, effluents, will correct and maintain to the level in the guidelines.
5.	Conservation of Water Resources and River Law 2006	8	The CP will follow the Conservation of Water Resources and River Law
6.	Conservation of Water Resources and River Rule 2013	8 (d, e, f)	The CP will follow the Conservation of Water Resources and River Law

Table 3. Relevant Law and Regulations

7.	Animal Health & Development Law (1993)	5, 6, 22	CP acknowledged that the Director General (LBVD) may inspect or prohibit harmful animal feed; submit feed mill to be inspected by the LBVD Department, abide by the Law if prohibited for sound reasons; understood the offence of refusing inspection or selling prohibited feed and to get penalty if happens.
8.	The Ethnic Rights Protection Law (2015)	5,22,24	The resident national/ethnic people to be fully aware of the project and able to cooperate.
9.	Myanmar Investment Law (2016)	50 (d), 51,65,	Already appointed citizens at all levels, including as senior manager, technical and operational expert, and advisor; done capacity building, arranged as entitlements and rights in the labor laws and rules, minimum wages, salary, leave, holiday, overtime fee, damages, compensation, social welfare, etc. The investors tried to follow all of the rules and regulations of the host country including the insurance.
10.	Myanmar Investment Rule (2017)	202,206,212	CP invested in compliance with conditions and applicable laws, appointed the employee with necessary documents and taken the relevant types of Insurance at the Government's Myanmar Insurance Enterprise
11.	The Myanmar Fire Brigade Law (2015)	25 (a) & (b)	The Fire-fighting demonstration and training will be conducted by the fire Services Department at the CP feed mill and Fire team will be established in the factory with full fire- fighting equipment.
12.	The Private Industrial Enterprise Law (1990)	4, 13 (b, e, f, g), 15 (a, b)	Registered under this law; abide by the terms and conditions of Registration, submit to inspection and approval of any change in the Enterprise and also in appointing foreign experts and technicians.
13.	Public Health Law (1972)	3, 5	CP follows all the instructions under related particular to protect public health.
14.	Prevention and Control of Communicable Diseases Law (1995)	3 (a),4,8,9, 11	CP will follow all the instructions under related particular to protect communicable disease.
15.	The Control of Smoking and Consumption of Tobacco Product Law (2006)	9	Feed Mill has separated the non-smoking area and smoking area for all the workers and staff in the plant.
16.	Boiler law (2015)	5, 6, 7, 15, 14 (a & b), 18,20, 21, 24, 31, 38	CP follows all the issues with the boiler starting from permission, registration, installation, certification, operation, pressure testing, quality control, inspection, accidents, systematic repair, etc.
17.	Labour Organization Law	17 to 22	CP acknowledges the Rights and



	(2011)		Responsibilities of the Labor Organization on drawing up constitution and rules, to appoint, to settle with employers for the rights of workers, to settle the disputes, complaints of workers on rights and interests in labor law; to participate, assist, carry out or holding meetings, strike or collective activities if in accord with regulation, directives or by-laws.
18.	The Settlement of Labour Dispute Law (2012)	38, 39, 40, 51	CP understands and follow the prohibitions of failure to negotiate and coordinate the complaint, or to alter the conditions that affect the interest of workers, during the investigation by Arbitration body or tribunal and let the workers know that no lock-out or strikes without accepting, arbitration etc.; and also that CP shall be liable for full compensation if reduce the production meant to reduce workers' benefits.
19.	Employment and Skill Development Law (2013)	5, 14, 15	CP appoints its workers abiding by the mentioned sections in law within 30 days and included the facts as mentioned; Training programs conducted for orientation, upgrading and on job training programs.
20.	The Minimum Wage Law (2013)	12, 13, 18	CP as the employer follows the law and wages are paid by the rules and inspection is allowed.
21.	The Payment of Wages Act (2016)	3,4,5, (7 to 13), 14	The Social welfare allowances, contribution and the meals etc. provided in a way; follows
			overtime wage.
22.	Leave and Holidays Act (1951)	All	 what to deduct and what hot to, and the overtime wage. Under the Leave and Holidays Act (1951), CP will be granted paid public holidays as announced by the Government in the Myanmar Gazette and will abide the law.
22. 23	Leave and Holidays Act (1951) The Social Security Law (2012)	All	what to deduct and what hot to, and the overtime wage. Under the Leave and Holidays Act (1951), CP will be granted paid public holidays as announced by the Government in the Myanmar Gazette and will abide the law. CP will abide the Social Security Law to enjoy more security in social life and health care of workers.
22. 23 24.	Leave and Holidays Act (1951) The Social Security Law (2012) The Factory Act (1951)	All All All	 what to deduct and what hot to, and the overtime wage. Under the Leave and Holidays Act (1951), CP will be granted paid public holidays as announced by the Government in the Myanmar Gazette and will abide the law. CP will abide the Social Security Law to enjoy more security in social life and health care of workers. The work place of Feed mill follows the Work place act, besides the modernized and upgraded, international standard feed mill as a work place.
22. 23 24. 25.	Leave and Holidays Act (1951) The Social Security Law (2012) The Factory Act (1951) The Workmen Compensation Act (1923)	All All All All	 what to deduct and what hot to, and the overtime wage. Under the Leave and Holidays Act (1951), CP will be granted paid public holidays as announced by the Government in the Myanmar Gazette and will abide the law. CP will abide the Social Security Law to enjoy more security in social life and health care of workers. The work place of Feed mill follows the Work place act, besides the modernized and upgraded, international standard feed mill as a work place. CP will abide the Workman Compensation act to their workman of compensation for injury by accident.
22. 23 24. 25. 26.	Leave and Holidays Act (1951) The Social Security Law (2012) The Factory Act (1951) The Workmen Compensation Act (1923) The Export and Import Law (2012)	All All All All All	 what to deduct and what hot to, and the overtime wage. Under the Leave and Holidays Act (1951), CP will be granted paid public holidays as announced by the Government in the Myanmar Gazette and will abide the law. CP will abide the Social Security Law to enjoy more security in social life and health care of workers. The work place of Feed mill follows the Work place act, besides the modernized and upgraded, international standard feed mill as a work place. CP will abide the Workman Compensation act to their workman of compensation for injury by accident. Not to violate the conditions contained in the license.
22. 23 24. 25. 26. 27.	Leave and Holidays Act (1951) The Social Security Law (2012) The Factory Act (1951) The Workmen Compensation Act (1923) The Export and Import Law (2012) Law on Standardization (2014)	All All All All 7 25 (c), 26	 what to deduct and what hot to, and the overtime wage. Under the Leave and Holidays Act (1951), CP will be granted paid public holidays as announced by the Government in the Myanmar Gazette and will abide the law. CP will abide the Social Security Law to enjoy more security in social life and health care of workers. The work place of Feed mill follows the Work place act, besides the modernized and upgraded, international standard feed mill as a work place. CP will abide the Workman Compensation act to their workman of compensation for injury by accident. Not to violate the conditions contained in the license. Must have conformity with mandatory standard and penalties to violate



29.	Yangon City Municipal	310 (a, b),	In general, the CP has to follow the City			
	Law (2018)	316 (a, b, m,	Development regulations.			
		317 (b, c),				
		318, 322 (a,				
		b, c, d, f, g,				
		h, n, o, u, af)				
30.	Myanmar Engineering	34, 37	To follow the rules in the registration			
	Council Law (2013)		certificate and prohibition and penalties			
			concerning with the member engineers.			

The proposed project of Myanmar C.P. Livestock Co., Ltd. is Manufacturing, Marketing, Sale and Distribution of Animal Feed in the Industrial Zone, Mingalardon Township, Yangon Region and follows the guidance of various laws including Environmental Law, Rules and Regulations, Foreign Investment Law, Rules and Regulations, and Notifications, etc.

2.2 Commitments of Proponents

Myanmar C.P. Livestock Co., Ltd. are committed to protection the environment by applying sound environmental arrangement practices that minimize environmental.

- Will follow and abide by all the applicable and relevant existing laws in Myanmar, including the existing environmental rules and regulations procedures and criteria laid down by MoNREC.
- Procure the necessary resources to support and implement the company's environmental policy;
- To continual improvement in environmental performance by developing environmental indicators, monitoring and auditing performance, and by implementing corrective actions where needed;
- To set up welfare plan for employee benefits and social welfare facilities such as staff medical checkup, training program and public talk for getting knowledge, risk prevention, bonus, and social security services.
- To promote Corporate Social Responsibility- (CSR) with 2% of the net profit for rural development such as road maintenance, educational support to village schools and village library, for health and sport support to villagers, for villages monastery and Myanmar traditional festivals and plan for environmental impact monitoring, mitigation and management.
- To carry out fire safety assessment and ensure adequate and appropriate fire safety measures for employees
- To carry out disposing wastes according to Yangon City Development Committee regulations, protect, and preserve the project environment from pollution of air, water and land by following laws and guidelines lay down by MONREC.
- Incorporate an emergency preparedness and response system into standard operation practices;
- Monitor and report on performance through periodic audits.

CHAPTER 3 – GEOGRAPHICAL CONDITION

3.1 Physical Environment

3.1.1 Locality (Situation) of Mingalardon Township

Mingalardon Township is in the north of Yangon Metropolitan, as a northern gate of Yangon City Development Committee municipality, and included in the Northern District since 1992, when Yangon Division at that time was re-established into four Districts of Administration. It is situated at North Latitude N71 degree and East Longitude E 92 degree, with 30 feet above sea level. In the west of Mingalardon, there are mountainous ranges and a huge Hlaw-Kar lake and the rest are low-lying plains, and the town is pleasant though with hot and humid weather.

3.1.2 Organization of Mingalardon Township

Mingalardon township is constituted of (27) Urban Wards, (5) Village Tracts and (20) villages. Mingalardon is a low plain bordering with Hlegu and North Okkalapa (Shwe Pauk Kan) townships in the east, Shwe Pyi Thar and Insein Township in the west, Mayangone Township in the south and Hmawbi Township at the north.

Table 4. Area of Mingalardon Township

No	Description	Area in square miles	Area in %
1.	Urban	22.18	50.7%
2.	Rural	15.01	34.3%
3.	Road & others	6.58	15.0%
	Total	43.77	100 %

Source: Township Administration

It is 43.77 square miles. The area for urban is 22.179 square miles, 50.7% of the township area and the rural area is 15.01 square miles, covering34.3% of the whole township. It was well accepted as a military zone for about half a century, until the military HQ moved to Nay Pyi Taw a decade ago, but still with some military hospitals, Medical Institutes but not pure military zone anymore, though two thirds of the land in Mingalardon Township is still military owned. At present, it is intermingled with civil society and contains characteristics that any township in the country does.





Figure 1. Map of Mingalardon Township

3.2 Socio-economic Environment

3.2.1 **Population Characteristics**

Demography

The total population of Mingalardon Township is 229,629 in nos., with an annual population increase of 1.01% and male-female ratio is 1:1.1. Over half of the total population (61.7%), is of working age.

Population

Demographic aspect data is taken only from Mingalardon Township where the project site is located, assuming that the impact (if any may occur) would not reach other villages further from the zone.

Based on the demographic data in the end of year 2013, the population of Mingalardon Urban and Rural area ratio is as mentioned in Table (5). The population of urban and rural is shown as followed,

No	Description			Units in nos.			
		Houses	%	Household	%	Population	%
1	Urban	24,050	59%	29,420	19.60%	147,538	64.30%
2	Rural	16,709	41%	19,937	40.40%	82,091	35.70%
Total		40,759		49,357		229,629	

Table 5. Population of Urban and Rural Area

Source: Township Administration

In Mingalardon Township, among the population of 229629, the younger generation under 16 years and elderlies above 60 years people are about 80,000 persons in nos. Between 18 and 60-year people who are of working age is about 142,000 persons which reveals that some 61.84 % of the whole township population is the major power of Human Resource for economic and development of the township.

3.2.2 Housing Conditions

Most of the houses in Mingalardon Township are permanent buildings, either RC or Brick Noggin**g** Buildings or Wooden Houses and very few Bamboo Houses but mostly with own garden compounds with own water wells and hand pumps or from Municipal water supply.

3.2.3 National Race

Bamar language is the principal and official language and others such as Chin, Kachin, Kayin, Shan and Mon languages are also used.

3.2.4 Religions and Religious places

Mingalardon is a place where multi religions **c**herish and Buddhist majority prevails with up to 95 % but thrive together with other religions minorities in good harmony, participating in each other's religious affairs together.


3.2.5 Education Level

Literacy Rate in Mingalardon Township as of 2012-2013 is 100%.

Population by education level, based on the demography data of Mingalardon Township in the year 2012, is mentioned in Table (6). In all the Sate Middle and High schools, the teacherstudent ratio in Mingalardon Township, is well within 1:36 which is a good indicator as of Myanmar Standard, if compared to other cities, except in Primary schools, in which the ratio is a bit high with 1:138.

Table 6. Education Level

No	Type of School	Total in No	No of Teachers	No of students	Ratio
1	State high schools	5	167	5,938	1:36
2	State middle schools	10	830	14,789	1:18
3	State primary schools	37	155	21,386	1:138
	Total	52	1,152	42,113	

Source: Township Administration.

3.2.6 Land Use

Table 7. Land Use of Mingalardon Township

No	Type of land		Area in acres
		2012-13	2013-14
1	Total Net cultivation area	4,285	4528
2	Fallow land	53	53
3	Pasture land	185	185
4	Cultivable Virgin land	174	174
5	Forest area	7,180	7,180
6	Urban residential land	5,219	5,219
7	Rural residential land	619	619
8	Industrial use	49	49
9	Airport land	649	649
10	Railway land	45	45
11	Roads	234	234
12	Lakes, Dams and embankments	279	279
13	Rivers, streams and surface water	328	328
14	Fishing lakes and ponds	1	1
15	Religious and cemetery land	4.337	4.337
16	Others	2,757	2,757
	Total	26,394	26,394

Source: Township Administration.

3.2.7 Livelihood

In the study area, the principal livelihood of its people is found to be small scale and medium scale agriculture and livestock farmers, staff, salary men, industrial / factory workers and casual laborers. Population by types of livelihoods in 2013 can be seen in Table (8).



No.	Livelihood	Population	%
1.	Agriculture Farmers (Paddy, Garden, Orchard &	421	0.3
	Vegetables)		
2.	Livestock Farmer	331	0.3
3.	Trading & Services	16,112	12.78
4.	Government Employee	4,305	3.4
5.	Teacher	1,152	0.9
6.	Workers	44,862	35.6
7.	Industry/Factory workers	12,478	9.9
8.	Odd-job/casual workers	35146	27.9
9.	Others	11,276	8.9
	Total	126,083	100.0

Table 8. Livelihood and Population by Occupation in Mingalardon Township

Source: Township Administration.

3.2.8 Economy

Review of the economy in Mingalardon Township is by the economic activities of its residents. Net Agricultural Land is 4, 285 acres producing rice, bean and pulses, peanut, sunflower, rubber, sugar cane and orchids as well. The general livelihood in Mingalardon is agriculture and livestock farming, trading and principally, the industrial workers in the zones.

Main Economic Activities

Mingalardon is the economic zone of the region as situated on the main Yangon- Pyay Highway Road passing through the city and banks are necessary as the Main Business is the Industrial, Agri-livestock and Orchids production for local trade as well as export

Table 9. Business Infrastructure of Mingalardon Township

No	Name of Banks	Government/Private
1	Myanmar Economic Bank	Government
2	Kanbawza Bank, Mingalardon Branch	Private
3	Kanbawza Bank, Htout Kyant Branch.	Private

Source: Township Administration.



Table 10. Per Capita Income in Mingalardon Township

No.	Budget Year	Per Capita Income (in Kyats)
1	2010-2011	907,807
2	2011-2012	1,124,067

Source: Township Administration

Table 11. The estimates of Gross Domestic Product and Services value in first five year project

No	Io Name of 2011-12 Sector		11-12	201	012-13 2013-		8-14 2014-15			2015-16		
		Value	Improveme nt %									
1	Agriculture	5195.6	2.4	5856.5	12.7	6256.6	6.8	6356.6		6356	1.2	
2	Industrial	148320.6	21.9	180395.5	21.6	191425.3	6.1	202215.6	5.6	202215.6	5.6	
3	Services	136152.1	20.5	141278.5	3.8	147328.5	4.3	15230.26	3.3	152302.6	3.3	
4	Gross Domestic Product	289668.3	20.8	327530.5	13.1	327530.5	5.3	360874.8	4.5	360874.8	4.5	

Source: Township Administration

Agriculture sector

No	Type of	2012-13		2013-14 2014		014-15 2015-16		15-16	
	rice	Acres	Bushels	Acres	Bushels	Acres	Bushels	Acres	Bushels
1	Monsoon Paddy	2,839	207,247	2,839	209,433	2,839	209,433	2,839	209,433
2	Summer Paddy	320	26,880	320	27,040	320	27,040	320	27,040

Table 12. Major Agriculture Product of Mingalardon Township

Source: Township Administration

Livestock and Fisheries Sector

Livestock farming especially Dairy industry is well developed in Mingalardon Township besides backyard pig production and native chicken. Dairy is being carried out by 4 large scale business, 36 medium scale, and 188 small scale holders. The area of fish farm is 56.48 acres and total fish farms are 128.

Table 13. Total Number of Dairy Farm in Mingalardon Township

No.	Particulars	Unit	Actual and estimated in budget years				
			2012-13	2013-14	2014-15	2015-16	
1	Dairy Farms	Farms					
	- large		3	4	5	8	
	- medium		30	36	40	50	
	- small		170	188	180	180	
2	Dairy cows	Heads	3,200	3,504	3,800	4,000	
3	Piggery	Farms	-	12	20	30	
4	Fish culture	Ponds	128				

Source: Township Administration

Table 14. Area of Fish Pond in Mingalardon Township

No	Estimated acreage	Completed	Cultured fish		
		No. of ponds	acreage	In estimated nos.	
1	56.48	128	56.48	7,331,800	

Source: Township Administration

Table 15. Total Number of Livestock in Mingalardon Township

No.	Livestock	Units	As of 2012-2013
1	Dairy cows	Heads	3,816
2	Buffaloes	Heads	121
3	Sheep/goat	Heads	267
4	Pigs	Heads	443
5	Chicken (Broilers, Layers, Native)	Heads	62,500
6	Ducks	Heads	509
7	Quails	Heads	43,100

Source: Township Administration



Forest sector

The distinct privilege or a special benefit of honor to Mingalardon Township is that it has an Orchids Zone, named Barlar- Shwe Nantha Special Orchid Zone which contains 15 nos of different Orchids Farms, 4 nos of different Anthurium Farms, 2 nos of Nursery Farms, and 32 nos of different medium and long term plantation and orchards.

As most of the people in the Mingalardon Township are agriculture and livestock farmers, the livelihood is said to be sufficient enough though not well-off. The rest are either Government staff, or working in the factories in industrial zones or other constructions existing in all the industrials and agriculture zones around.

Industrial Sector

It is the vital sector for the development of Mingalardon Township, necessitating the overall expansion and development in the Industrial zones and Private sector investments.

At present, there are one military garment factory and 3 nos of Industrial zones in the Mingalardon Township, namely;

- 1. Mingaladon Industrial zone
- 2. Yangon Industrial zone
- 3. Pyinmabin Industrial zone

A total of about 61 factories are in operation and there also are about 389 nos of small and medium scale cottage factories are running outside the industrial zones but they keep changing based on the profitability of their products.

3.2.9 Industrial zones

Mingalardon Industrial Zone (As of 2013)

(a) Type of Zone

It is a private zone intended for Foreign Direct Investment. It was built in February of 1996 as a partnership between the Housing Department and Mitsui & Co. Ltd. from Japan. And Leoventure Pet. Ltd from Singapore took over in November of 2006 and continued in Joint Venture system.

(b) Plots and Total area

- a. Plots 41 plots
- b. Total area 222.39 acres
- c. Plots area 1 hectare 4 hectare
- (c) Status of Factories

a.	Factory plots constructed	-	7 plots
b.	Factory plots under construction	n -	7 plots
c.	Plots awaiting MIC approval	-	27 plots
d.	Factories in Operation	-	5
e.	Temporarily stopped factories	-	2

f. Owners of Factories - All Foreigners

(d) Type of Business, Man power and Investment in factories

No	Investment		Production		Export		Human resource	
	US\$	Kyats	US\$	Kyats	Kyats	US\$	Male	Female
	(in	(in	(in	(in	(in	(in		
	millions)	millions)	millions)	millions)	millions)	millions)		
1	40.31	-	1.5	147.2	147.2	1.5	749	7,443

Table 16. Investment, Production and Manpower in Mingalardon Industrial Zone

All Investment is by Foreign Investors. Source: Township Administration Yangon Industrial Zone

(a) Type of Zone

It is situated on the Number (3) Main Road and within Mingalardon Gardens Complex. It is 1200 square acres wide and development by the cooperation of the Housing Department and Zay Kabar Company in 2000.

(b) Plots and Total area

- a. No. of Plots-436 plotsb. Total area-1200 acres
- c. Plots area 2 acres

(c) Status of Factories

a.	Factory plots constructed	-	77 plots
b.	Factory plots under construction	-	34 plots
c.	Plots already sold out	-	359 plots
d.	Factories in Operation	-	38
e.	Owners of Factories	-	27 Nationals, 3 Foreigners
_			

(d) Type of Business, Man power and Investment in factories

Table 17. Investment, Production and Manpower in Yangon Industrial Zone

No	Inves	stment	Prod	uction	Export		Human resource	
					In land	Abroad		
	US\$	Kyats	US\$	Kyats	Kyats	US\$	Male	Female
	(in	(in	(in	(in	(in	(in		
	millions)	millions)	millions)	millions)	millions)	millions)		
1	4.9	8,468.9	0.5	4,412.5	4,159.5	0.4	1,316	7,339

Source: Township Administration

Table 18. Type of Business in Yangon Industrial Zone

No.	Types of business	No. of Factories
1	Garment factories	9
2	Food production	3
3	Commodities	14

Environmental Impact Assessment for Feed Mill



4	Raw Materials production	2
5	Industrial equipments production	1
6	Transport related production	1
	Total	30

Source: Township Administration

Pyinmabin Industrial Zone

(a) Type of Zone

It is situated between Yangon-Pyay Road and Number (3) Main Road in Mingalardon Military Township. It was established in 1990, 560.06 square acres wide and military owned. Several factories are currently working on land lease in the zone. There is no separate zone committee but managed by Myanmar Economy Corporation.

- (b) Plots and Total area
 - a. Plots 39 plots
 - b. Total area 560.65 acres
 - c. Plot area 2 acres
- c) Status of Factories

a.	Factory plots constructed	-	25 plots
b.	Factory plots under construction	-	1 plot
c.	Factories in Operation	-	25
d.	Owners of Factories	-	13 Nationals, 4 Foreigners, 7 Joint
			Venture

d) Type of Business, Man power and Investment in factories

Table 19. Investment, Production and Manpower in Pyinmabin Industrial Zone

No	Inves	stment	Prod	uction	Export		Human resource	
					In land	Abroad		
	US\$	Kyats	US\$	Kyats	Kyats	kyats	Male	Female
	(in	(in	(in	(in	(in	(in		
	millions)	millions)	millions)	millions)	millions)	millions)		
1	38.58	5,031.9	-	9779.24	8185.1	1089.8	2,597	8,923

Source: Township Administration

Table 20. Type of Business in Pyinmabin Industrial Zone

No.	Types of business	No. of Factories
1	Garment factories	5
2	Food production	5
3	Commodities	11
4	Agriculture Services	1
5	Industrial equipments production	2
6	Transport related production	1
	Total	25

Source: Township Administration

Environmental Impact Assessment for Feed Mill



3.2.10 Electricity

There are two electrical supplying centers in the Township, namely; Mingalardon and Htauk Kyant Supplies. All 20 villages in the township have electricity.

Amount of Electricity in use:	678,921 Kilo Watt hrs.
Amount of Electricity in demand:	768,185 Kilo Watt hrs.
Amount of Electricity in need:	89,264 Kilo Watt hrs.

It is vital to get all the electricity demands in the Township. At present, 32,902 households (37.8%) of the township get electricity supply.

Table 21. Electricity Supply in Mingalardon Township

Township	Amount KW in	Sta	te	Private/village		
	need	Amount	Average	Factory	Production	
		available	hours/day		KW	
Mingalardon	13,247,000	54,000	24	-	-	

Source: Township Administration

Mingalardon Township is still need to rely on Yangon Electricity Supply Board but soon to be solved by some projects to produce Electricity such as 1 MWx 50= 50 MW by Gankul and Spanish Company near Hlawgar GT and in North of Hlawgar by Htoo Co. Ltd for GT=116 MW + 65 MW (Waste Heat Recovery Boiler 3 sets and to produce 543 MW and expecting to receive;

Table 22. Electricity Production

No	Fiscal year	Unit	Electricity Production
1	2013-14	Kilo Watt hours in thousands	245,734
2	2014-15	Kilo Watt hours in thousands	250,649
3	2015-16	Kilo Watt hours in thousands	255,662

Source: Township Administration

3.2.11 Transport

Roads

Table 23. Number of Roads and Miles in Mingalardon Township

No	Particulars	Bittumen & Asphalt		Bittumen & Concrete lat Asphalt		late	erite Earth		rth
		No	Miles	No	Miles	No	Miles	No	Miles
1	Urban	8	29.6	32	13.4	-	-	61	14
2	Rural	2	0.25	6	3.2	10	2	80	15
3	Inter township	7	31.87	-	-	-	-	-	-

Source: Township Administration

All the roads either Asphalt, Concrete, laterite or Earth lanes are in good condition as is in frequent maintenance program. Max Myanmar Co. Ltd is upgrading the No. 3 Main Road in to a 6 lane Road.



Transport Services

- i. The Aung Mingalar Highway Bus Terminal, the Principal for the whole Highway Bus Network in the whole country and about 520 highway buses from 24 different lines, are commuting daily with the whole Myanmar except with Ayeyarwady Region for which is based in Yangon. YCDC is currently planning to turn into 2 Highway Bus Terminals as the present one is over congested and crowded.
- ii. There is a State run Circular Train service and a bus line.
- iii. The Private run Bus line no. 15 is in service with over 300 vehicles

The ratio of Vehicle: Man in the Township is as follows;

Public buses: 1:261 Freight cars: 1:782 Private cars: 1:437

3.2.12 Communications

There are three Communications posts in the township; Mingalardon, Htauk Kyant and Pearl Posts.

3.2.13 Regional Projects

Under the guidance of the Township Management Committee, the relevant Township Committees, Departmental officials, Township elders, Members of Parliaments are holding monthly meetings for Regional Development.

3.2.14 Health Condition

The health condition of the people in the study area that covers Mingalardon Township is gathered through the study of patterns of disease, environmental sanitation and information from health staff in health facility.

According to the information from health workers, it is known that common diseases among Mingalardon Township are

- Seasonal Influenza and common cold
- Skin Itches, Diarrhea, Cough, Respiratory Infection and other hygiene problems
- Malnutrition
- 3.3 **Biophysical Environment**
- 3.3.1 Fauna and Flora

Plants and animals (Flora and Fauna) found around project locations comprise of terrestrial biota and aquatic biota, as presented in the following Table (24).

 Table 24. Type of Fauna and Flora in Mingalardon Township

No.	Name of Biota	Scientific Name
I.	Terrestrial Biota	
1.	Flora	
	- Elephant grass	Eleusine indica

	- Banyan	Ficus benjamina
	- Toddy Palm	Borassus flabellifer.
	- Mango	Mangifera Indica
	- Guava	Psidium quajava
	- Star flower	Mimusops elengi.
	- Jackfruit	Arthocarpus integra
	- Banana	Musa Paradisiaca
	- Coconut	Coco nifera
	- Bamboo	Bambusa sp.
	- Tamarind	Tamarindus indica.
	- Neem	Azadirachta indica.
	- Plum	Zizyphus jujuba
2.	Fauna	
	- Dragonfly	Ordonata
	- Beetle	Coleoptera
	- Grasshopper	Orthopera
	- Toad	Bufo melanotictus
	- Lizard	Mabouya multifaciata
	- Chameleon	Calotes jabatus
	- Snake	Vipera russelli
	- Centipede	Cermatia forceps
	- Scorpion	Vijovis spinigreus
	- Rat	Rattus rattus
	- Goat	Capra falcorenii
	- Dove	Colombia livia
	- Sparrow	Lonhura leucosgasstroides
	- Butterfly	Lepidoptera
	- Cricket	Anisomorpha femorata
	- Gacko	Hemidactylus turcicus
II.	Aquatic Biota	
1.	Flora	
	- Water hyacinth	Eichhomia crassipes
	- Reed	Saccharum spontaneum
	- Asparagus	Asparagus officinalis
	- Water crest	Ipomoea aquatica
2.	Fauna	
	- Eel	Pterocarpus albus
	- Catfish	Clarias batracus
	- Snail	Gastropoda
	- Shellfish	Bivalvea
	- Frog	Buto sp
	- Perch Fish	Trichogaster sp
	- Prawn	Parapenaeopsis sculptilis
	- Mollusks	Mollusca (Gastropoda)

Source: Township Administration



CHAPTER 4 – DESCRIPTION OF THE PROPOSED PROJECT

4.1 General Information of Proposed Company

General information of the proposed project, Myanmar CP Livestock Co. Ltd has been operating a business in the Livestock sector in Myanmar Since 1995. The Company wants to make further investment in animal feed production. It already had a feed mill running and successful all along and to meet the demand of its own farms, contract farms and the customers and to expand into feed production for a variety of livestock and aquaculture, Myanmar CP Livestock Co., Ltd intends to establish a new feed mill in this project. The type of business organization is to be formed as a total foreign investment. The location for building the feed mill is selected on plot No 529/ B consisting 27.31 acres of industrial land in Pyinamabin Quarter, Mingalardon Township, Yangon region. Myanmar CP Livestock Co., Ltd is reputable company and guarantees good manufacturing practices (GMP) for operating a feed mill. The technical team monitors an overall activity which may create an adverse environmental impact through emission or discharge of pollutant and waste produced by the factory. The top management defines use organizations environment policy and ensures that each and every department maintains the environmental policy according to the requirements of the environmental management ISO 14001, GMP and HACCP. All these standards are to be in conformity with the environmental rules and regulations laid down by the Ministry of Environmental Conservation and Forestry (MOECAF).





Figure 2. Factory Location of Myanmar CP Livestock Co., Ltd.

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4.1.1 Company's General Data

Name of Company:	Myanmar C.P. Livestock Co., Ltd.
Date of Establishment:	1995
Head Office Address:	135, Pyay Road, 8½ mile Mayangone Township, Yangon Region.
Phone Number:	(951) 660546
Facsimile Number:	(951) 663710
Name and position:	Mr Phichet Sivasri, Managing Director
Location of Business:	Plot No 529 / B, Pyinmabin Quarter, Mingalardon Township, Yangon Region.
Type of Business:	Animal Feed Mill
Status of Business Area:	Owner of Land (Ministry of Livestock, Fisheries and Rural Development)
Status of Capital:	FDI (100%)

4.1.2 Organizational Structure

The Organizational Structure of the animal Feed Mill of Myanmar C.P Livestock Co., Ltd is shown in Figure (3).



н



Figure 3. Organization Chart of Myanmar CP Livestock Co., Ltd.

4.2 Site Location

The Location of the animal feed mill of Myanmar CP Livestock Co., Ltd is situated in Plot No 529/B, Pyinmabin Quarter, Mingalardon Township, Yangon Region. It is located 17° 1'15.08"N, 96° 8'13.14"E and 123 feet above sea level.

4.3 Area Expansion and Development

According to the Yangon Region Government Town Plan, the expansion and development program of urbanization will not reach the project location. Allotments for some industrial, commercial and residential areas are planned in other suitable location in the region.

4.4 Land Use

The Land used for the animal feed mill by Myanmar CP Livestock Co., Ltd. at Pyinmabin Quarter, Mingalardon township is in accordance with the General Regional development plan and the Yangon Regional development plan, which states that the location used for the zone is at the Pyinmabin Zone Region, sufficient distance away from the residential urban area of all Yangon Metropolitan and other townships in the Region. The Industrial area itself was allotted for industries such as the various livestock production farms, food processing and canning factories, feed mill for livestock and fisheries commodity production factories which will inevitably produce noise and odor though not potentially hazardous by products.

4.5 Land Status

Location	\Rightarrow	(Area Map and Factory Layout are provided in the attachments)
		Plot No. 529/B, Pyinmabin Quarter, Mingalardon Township,
Type of Land	⇒	Yangon Region. Industrial Land
Area	⇒	(27.31)Acre
Arrangement	⇒	lease basis (Long Term Lease of 50 years (renewal another 10 years two times)
Cover Area		26953 Sq m
Uncover Area		99730 Sq m
Total Area		126683 Sq m



Table 25. Land use

No.	Land Use	Area sq.ft	Remark
1.	Road	632939 sq.ft	
2.	Drainage	4900 ft (fencing)	
	-		
3.	Factory	16705 sq.ft (feed mill)	
	Office	110868 sq.ft	
	Silos	241672 sq.ft	
	Car Dip/foot Dip	22281 sq.ft	
	Store room	129167 sq.ft	
	Generators room	6000 sq.ft	
	Boiler House	18535 sq.ft	
4	Air blosson (Air Clustion		
4.	Air blower / Air intration	10(04 ()	
	Water treatment	10624 sq.ft	
	Fire System	7911 sq.ft	
5.	Truck Scale office	4133 sa.ft	
	Sampler House	2884 sq.ft	
	Open space	2004 sq.it 88/14 sq.ft	
	Enging	4000 ft	
	rencing	4900 ft	
	TOTAL		27.31 Acres

Sources: Myanmar CP Livestock Co., Ltd

4.6 **Production Process**



Figure 4. Production Process

Process

The personnel from procurement department will purchase the raw materials throughout the Country and bring them back to the factory. Some vitamins and premixes are imported. Some raw materials undergo a grinding process and feed are analysed and mixed according to their ingredients requirements. Finished products are packed and delivered as required.

4.6.1 Type and Capacity of Production

Table 26. Type and Capacity of Production of Myanmar CP Livestock Co., Ltd.

Type of	Production	n Capacity	Natu	Means of	
Production	Proposal Ton/Year	Actual Ton/Year	Raw Materials	Finished Goods	Conveyance
Animal Feed	360000	360000	Corn, Soybean meal, Broken rice, Premix	Mash/ Crumble/Pellets	Truck

Sources: Myanmar CP Livestock Co., Ltd

4.6.2 The Factory Operating Hours

The Myanmar CP Livestock Co., Ltd. will assign the workers as follows;

In 1 (one) day	:	24 (twenty-four) working hours.
In 1 (one) week	:	6 (Six) working days.

4.6.3 Number of Working Shifts

Table 27. Number of Working Shifts

Monday to Friday		
8:00 am – 12:00 am	4 (four) hours	working
12:00 am -1:00 pm	1 (one) hour	for Lunch and Rest
1:00 pm – 5:00 pm	4 (four) hours	working
Saturday		
8:00 am – 12:00 am	4 (four) hours	working
12:00 am -1:00 pm	1 (one) hour	for Lunch and Rest
1:00 pm – 5:00 pm	4 (four) hours	working
Sunday.	whole day off	

Sources: Myanmar CP Livestock Co., Ltd

4.7 Types of Production Equipment

Table 28. Types of Production Equipment of Feed Mill

No	Types of Equipment	Quantity	Conditio	Country Of Origin	Energy Used	Types of Pollution
1	Conveyor	130	100	Thailand,	650 kw	Dust/Aspiration
2	Hammer mill	4	100	China	640 kw	Noise / Soundproof room
3	Mixer	2	100	USA	100 kw	-
4	Conditioner Feeder	4	100	China	88 kw	Heat/Insulation

5	Pellet mill	4	100	China	600 kw	-
6	Counter flow	4	100	China	88 kw	Odor/Odor
	Cooler					treatment
7	Crumbler	4	100	China	88 kw	Noise/ Soundproof
						room
8	Screening	8	100	China	60 kw	-
9	Dryer	1	100	Germany	60 kw	Heat/Insulation
10	Auto-packing	4	100	Thailand	12 kw	-

Sources: Myanmar CP Livestock Co., Ltd

4.8 **Raw Material and Supporting Materials**

Raw Materials and Supporting Materials used in the production process of Feed Mill are:

Table 29. Raw Materials and Supporting Materials to Print

Materials	Capacity/	Physical	Nature of	Source of	Method of	Balance o	f Materials
	Year (Ton)	State	Materials	Materials	Storage	Finished	Residual
						Product	Product
A. Raw Materials	i						
Yellow Corn	144000	Solid	Hygroscopic	Local/	Silo	33%	0.01%
				Import			
Soybean meal	72000	Solid	Hygroscopic	Local/	Silo	16%	0.01%
				Import			
Broken Rice	132000	Solid	Hygroscopic	Local/	Silo	30%	0.01%
				Import			
B. Supporting Ma	aterials						
Wheat bran	10000	Solid	Smelly	Local/	Closed	2%	0.01%
			-	Import	Warehouse		
Lime Stone	20000	Solid	Smelly	Local/	Closed	2%	0.01%
			-	Import	Warehouse		
POME,	19000	Solid	Smelly	Local/	Closed	4%	0.01%
groundnut cake			-	Import	Warehouse		
Dried Fish	13200	Solid	Smelly	Local/	Closed	3%	0.01%
			-	Import	Warehouse		
Premix & other	43000	Solid	Smelly	Local/	Closed	10%	0.01%
				Import	Warehouse		

Sources: Myanmar CP Livestock Co., Ltd

4.9 Manpower

The number of workers used for work in the animal feed mill is estimated at 56 people including 50 local personal and six foreign experts. Local personnel who are related to the technical matters will be trained for competency in the related field. Refresher training will be provided periodically for the employees to have good working attitude and knowledge to work correctly.

Table 30. Manpower Utilization Plan

No	Description	Number and unit	Education Qualification	Origin
1.	Local Personnel	50	Bachelor	Local
2.	Foreign Personnel	6		Foreign
	(Engineer, QC, Management, etc.			
	based on the nature of business			
	and required period)			
	Total	56		

Sources: Myanmar CP Livestock Co., Ltd

4.10 Electricity Utilization

Energy utilization in the operational phase can be seen in the table below.

Table 31. Energy Utilization

Type of Energy	Installed Capacity	Source
Electricity	We will use Government Electric Power supply when it becomes stable and enough to operate the Machine.	Yangon Electricity Board
Generators	6,000 KVA	MCPL

Sources: Myanmar CP Livestock Co., Ltd

4.11 Water Utilization

Water utilization in the Operation can be seen in the Table below:

Table 32. Water Utilization

Type of Source	Usage Capacity	Processed/	Source
		Not Processed	
Underground Water	<mark>16 Mill Gallon</mark>	Not processed	Soil Water
(one location)	/year		Drinking water from FDA
Total	16 Mill Gallon		Approved Supplier/
	/year		Distributor.

Sources: Myanmar CP Livestock Co., Ltd

4.12 Water Treatment Plan

Myanmar CP Livestock Co., Ltd. uses its own source of underground water for the main factory operation. Water treatment and purification system will be installed to provide safe water for employees and for processing.

4.13 Waste Management Plan

For disposing waste from factory, CP will coordinate with industrial area management committee and township city development committee, and disposing will be made under guidance of these respective authorities.

Table 33. Waste Handling and Management

No	Activity		Waste product pollutant	Management Plan				
1.	Transport of Ingredients and	feed	Dust particle	Vehicles and containers are kept clean and well protect from rain				



		odour	Different type of feed are loaded separately. Vehicles are sprayed for sterilization whenever enters the premise.				
2.	Processing	Glass fragments	Broken glass and hard plastic are harmful to the animals.				
			Tools and equipments with glass Components must not be used in production area.				
			Thermometers Must be replaced with other suitable material				
			Lamps used must have strong plastic cover.				
3.	Storage	feed spills	Proper storage location in needed				
		waste	Products must be handled and disposed regularly. Air humidity monitor and maintain in				
			optimum level.				

Sources: Myanmar CP Livestock Co., Ltd

4.14 Fuel Usage

To run the machineries and equipment for the production activity, the principal energy used is the electricity from Yangon Electricity Board, while the electricity power from the generators is used at the time of electricity power outage.

It requires fuel and oil for generators to activate those machines. Fuels and oils used in the Feed Mill of Myanmar CP Livestock Co., Ltd. can be seen in Table (34).

Table 34. Fuel requirements for the Feed Mill

Туре	Requirement for generator (gallons per year)	Residual Handling
Diesel oil	660,000 Gallon	Completely used

Sources: Myanmar CP Livestock Co., Ltd

4.15 Schedule of Project Activities

Table 35. Schedule of Project Activities of Myanmar CP Livestock Co., Ltd.

	Types of Activities	Time Schedule
1.	Preparation	March '14- May'14
2.	Land Acquisition	March '14- May'14
3.	Factory Construction	May'14-Dec'14
4.	Machine Construction	May'14-Dec'14
5.	Trial	Dec'14
6.	Commercial production	Jan'15- Feb'15

Sources: Myanmar CP Livestock Co., Ltd

4.16 Fire Prevention Plan

A special department under the administration of a General Manager of Preventive and Maintenance Program of the feed mill has taken the responsibility of fire prevention.

4.17 Employee Welfare Plan

Human Resources and General Affairs Manager is responsible for the manager is responsible for the management of human resource and welfare of the employees of the animal feed mill. The management prepare trainings requires for the development of employee the health and welfare of the employee in also taken care of by the Company.

4.18 Corporate Social Responsibility (CSR)

Myanmar CP Livestock Co., Ltd has established a program for providing scholarship for the Locals, give donation to monasteries in the region and provide budget for school development. The company has laid down the policy to form a friendly relationship with it neighbor and provide employment for the locals.

4.19 Planning Budget for Environmental Management

The Myanmar CP Livestock Co. Ltd. has set up a policy of utilizing about the 2% of the profit income on implementing the environment related management works.



CHAPTER 5 – ENVIRONMENTALIMPACT ASSESSMENT (EIA)

5.1 Methodology for Data Collection and Analysis

In compliance with the Environmental Conservation Law (2012), Environmental Conservation Rules (2014) and EIA Procedure (2015), the Proponent will be required to carry out and prepare an EIA and EMPs to address environmental, social and economic issues and concerns associated with proposed development in question.

The EIA study was undertaken in a holistic approach encompassing all different aspects of the EIA process. The methodologies adopted for conducting this EIA are as follows:

Desktop Research

Desktop research was used to establish an environmental information database for the EIA. Consulted materials include textbooks, articles, maps, internet, photographs, GIS datasets, and past EIA reports and secondary data of General Administration Data from Township Administration Department.

Field Research

One-seasoned fieldwork activities have been carried prior the pre-construction period to verify and complement information gathered from desktop studies. The fieldwork covered all relevant components of ecological, socio-economic and health components of the environments.

Laboratory Analysis

A Geo-technical survey will be conducted by Green Enviro Services Ltd. where soil samples collected during the field sampling, analyzed in the laboratory by Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation.

Water sample collected from tube well water of the proposed project area and analyzed in the laboratory by Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation.

Environmental Impact Assessment (EIA) is an on-going process, the aim of which is to optimize the environmental performance of the Project, within engineering and economic constraints. In general terms, the main stages in the EIA are as follows:

- Ø Data Review draw together and review available data
- Scoping identify significant issues and determine the subject matter of the EIA
- Baseline Surveys undertake baseline surveys and monitoring to identify existing baseline conditions
- Consultation seek feedback from consultees and the public in relation to key environmental issues, methodology adopted and design approaches
- Assessment and iteration assess likely effects of the Project, evaluate alternatives, provide feedback to design team on adverse impacts, incorporate mitigation, and assess effects of mitigated development

5.2 Study Limit

The animal feed mill of Myanmar CP Livestock Co., Ltd is situated in Plot No. 529/B, Pyinmabin Quarter, Mingalardon Township, Yangon Region. It is located 17° 1'15.08"N, 96° 8'13.14"E and 123 feet above sea level.

The study area for this project is roughly defined to be the area within 1 Km radius of the center of the proposed project site and will be large enough to cope with the most potential environmental and socio-economic impacts of the project operation as project site is located at Industrial Land area. There have two village tracts within 1 km radius of project area, namely Pyinmabin village tract (0.63 km) and New Khway village tract (0.86 km).

5.3 Alternatives

Having made the decision to build a Feed Production Factory, finding the right location is a critical first step. Not every piece of land is suitable as a Feed Mill site - and finding a good location that is fit for the purpose deserves some time and proper investigation, in order to give the Feed Mill a good start. To maintain high level biosecurity, the Feed Mill should be located at least one kilometer from any other poultry and livestock farms. Therefore, Myanmar C.P. Livestock Co., Ltd. made decision to build Feed Mill in the Industrial Zone according to the Bio-security practice.

No alternative site has been proposed aside from this area since the proposed project area is situated within Mingalardon Industrial Area, Mingalardon Township, Yangon Region, which has been designated as the industrial zone for the development of industrial activities by the government.



Myanmar C.P. Livestock Co., Ltd.

5.4 Initial Condition

Water and soil testing were done on the study site as well as the ground water. During the operations phase, it can be checked occasionally but the factory management or environment authorities concerned if there are hazardous residues in water or soil resulting from the spill if any, from the manufacture procedures of the factory.



Figure 5. Map of Soil and Water sample points

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5.4.1 Water Quality

The water sample of tube well from the project site was sent in December 2013 for water quality testing at the Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation. The results are obtained as follow:

Table 36. Water Quality Examination of Factory Area

Sr.	Sample	pН	EC	C1	HCO ₃	TDS	SAR	RSC	Dorminant Salts
No.				me/L	me/L				
1	Mingalardon	Neutral	Low	Low	Low	Low	Low	Low	(CaHCO ₃) ₂

Data Source: Land Use Department of Agriculture, Ministry of Agriculture and Irrigation (Copies of the Water Quality Test Data are provided in the attachments.)

Table 37. Water Quality Examination of Factory Area

Sr.	Sample	ANIONS me/L					CATIONS me/L				EC	SAR	RCS	TDS
No		CO ⁻ 3	HCO ⁻ 3	Cl-	SO ₄ =	Ca++	Mg⁺⁺	Na⁺	K⁺		ms/cm			
1	Mingalardon	Not	1.36	1.19	0.95	1.21	0.08	0.23	0.12	6.59	0.25	2.82	0.07	161.92
		detected												

Data Source: Land Use Department of Agriculture, Ministry of Agriculture and Irrigation (Copies of the Water Quality Test Data are provided in the attachments.)

5.4.2 Soil Quality

The soil sample from the project site was sent in December 2013 for soil testing at the Land Use Division of Department of Agriculture, Ministry of Agriculture and Irrigation. The results are obtained as follow:

Table 38. Soil Quality Examination of Factory Area

Sr. No.	Sample	pH Soil:Water	Texture	Organic Carbon	Total N	Exchan	geable	Available Nutrients		
		1:2.5				Ca	Mg	К	Р	K ₂ O
1	Mingalardon	Slightly acid	Sandy Loam	Low	Low	Medium	Low	Medium	High	Medium

Data Source: Land Use Department of Agriculture, Ministry of Agriculture and Irrigation

(Copies of the Soil Test Data are provided in the attachments.)



Table 39. Soil Quality Examination of Factory Area

Sr.	Sample Plot	Moisture	Ph	Texture			Organic	Humus	Total	Exchangeable Cations			Avai	lable	
No.			Soil:Water				Carbon		Ν	meq/ 100g			Nutrients		
			1:2.5	Sand	Silt	Clay	Total				Ca++	Mg++	K+	Р	K ₂ O
				%	%	%	%							ppm	Mg/
														(Bray)	100gm
1	Mingalardon	0.54	6.57	69.70	20.50	8.30	98.50	1.45	2.50	0.18	15.32	1.33	0.31	271.00	14.48

Data Source: Land Use Department of Agriculture, Ministry of Agriculture and Irrigation

(Copies of the Soil Test Data are provided in the attachments.)

5.6 Potential Impact Assessment

Myanmar CP Livestock Co., Ltd. is of the intention to develop an additional feed mill to the current facility situated in the Pyinmabin, Mingalardon Township. The Feed Mill will be a specialized manufacturing unit, using the most advanced feed milling technology and equipment being more economical with less environmental and social impacts.

The significance of the potential impacts identified for this project is determined using a combination of the criteria discussed on the table.

Definition of the Impact significance rating criteria

Significance Rating	Criteria
Low	Where the impact will have a negligible influence on the
	Environment and no mitigations are required.
Moderate	Where the impact could have an influence on the
	environment, which require some modifications on the
	project activities and/or alternative mitigation.
High	Where the impact could have a significant influence on
	the environment and, in the case of a negative impact,
	the activity causing it, should not be permitted.

The assessment of each issue area begins with a discussion of the setting relevant to that issue area. Following the setting is a discussion of the project's impacts relative to the issue area. The impact analysis, identifies the methodologies used and the "significance thresholds," which are those criteria adopted by the City, other agencies, universally recognized, or developed specifically for this analysis to determine whether potential impacts are significant. Then it will describe each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation, containing a statement of the significance determination for the environmental impact as follows:

Class I, Significant and Unavoidable: An impact that cannot be reduced to below the threshold level, given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved.

Class II, Significant but Mitigable: An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings to be made.

Class III, Not Significant: An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.

Class IV, Beneficial: An impact that would reduce existing environmental problems or hazards.

Various potential impacts are anticipated during either construction and/or operation of different significance. Impacts expected and assessed as part of this study are the loss of habitat and biodiversity, health and safety implications, increased traffic, increased noise levels, dust and gaseous emissions, water usage and waste water disposal, solid waste disposal, vermin control and visual impact. Following the assessment none of these impacts are regarded as having a significant impact to the extent that the intended activity cannot proceed, given that the follow-up studies, mitigations and recommendations proposed be implemented and monitored.



The assessment concludes that the Feed mill activity, as described in this Report, is expected to have a **non-significant** impact following implementation of proposed mitigations during both the construction and operational phase.

The potential Environmental Impact Assessment (EIA) falls into 3 phases;

- ↓ Pre-Construction and Construction Phase
- 4 Operation Phase
- Decommissioning Phase

5.6.1 **Pre-Construction and Construction Phase**

During the construction phase there would be some impact on air, noise and water quality, and management of solid waste. Besides, there would be some impact on quality of life due to inconvenience caused to public as a result of construction activities.

In most of the studies by Green Enviro Team, the IEE or EIA had to be based on either the Construction Phase and/ or Operations Phase, depending on the status of the project. In the recent study on the project of CP Feed Mill No.2, it has an additional Demolition Phase as the project site was once a livestock farm complex where the previous farm houses still exist and need to be removed, to clear away and get space for a new Feed mill establishment. There will be an extra Demolition Phase for some of the unwanted buildings or those that are necessary to be removed.

Air Pollution

Air quality impacts are likely from general construction activities including land clearing, trenching, laying of pipes, construction of foundations and superstructures, handling and transportation of construction and demolition materials, and from wind erosion of open sites and stock pile areas.

The other major source of air pollution is dust arising from demolition or construction of buildings, ground or soil disturbance and from movement of vehicles on poorly surfaced or damaged access roads. It has been observed that dust levels from vehicles sometimes may even obscure the vision significantly temporarily.

Dust is already a nuisance problem to the users of and residents around the project area. The potential for the generation of additional dust during the construction process can be minimized by planning the management plan.

The significance assigned to this impact for the construction period was considered to be *medium* without mitigation process or should there are residents around the site but *low* (*negative*) with mitigation, as all the planned improvements will be undertaken on the existing plant site.

Noise Pollution

Noise pollution will occur from operation of construction and demolition equipment in this project site, including earth digging, moving and material handling equipment.

An increase in noise pollution would be expected from the operation of heavy machinery during the construction period, an additional demolition equipment in this project site, from vehicles and powered mechanical equipment which can generate significant noise and



vibration and also from some local labour with hand tool methods to construct the subproject works. No blasting is anticipated. The cumulative effects from several machines can be significant well as due to the increased traffic. The severity of this impact is likely to be reduced due to the low numbers of people in close proximity to the site.

The significance assigned to this impact for the construction period was considered to be *medium* without mitigation process or should there are residents around the site but *low* (*negative*) with mitigation, as all the planned improvements will be undertaken on the existing plant site.

Water Pollution

Water quality impacts may occur from runoff and waste and sewage generated from construction activities and from a contractor's camp erected on site, for the duration of the construction phase, uncontrolled disposal of waste by construction workers, the unmanaged disposal of solid and liquid wastes into watercourses and natural drains.

The possibility of oil and fuel spillages remain either form trucks or by improper storage of hazardous us substances, renders pollution and impact on ground and surface water, by means of improper sewage and waste water management.

The significance assigned to this impact for the construction period was considered to be *medium* without mitigation process or should there is residential area around the site but *medium to low (negative)* with mitigation, as all the planned improvements will be undertaken on the existing plant site.

Terrestrial Ecology Impacts - Flora, Fauna and Ecosystem Values

The construction activities or change of land use will permanently change the present landscape with some implications for the existing biotopes of various animals and the vegetation areas (if present on site), that will have to be removed for construction to take place and will be susceptible to soil erosion.

The significance assigned to this impact for the construction phase is considered to be high, as this will be permanently or irreparably changed for the construction activities which has taken up the area of vegetation, forests or flora and the only mitigation program is to replant as much greeneries as possible that the industry could provide room for rehabilitation of the environment. As for Fauna-Biotope and ecosystem, it's high impact as it could never be replaced in different eco-system.

The significance assigned to this Terrestrial Ecology Impacts for the construction phase of CP Feed mill No.2 is considered to be *medium*, as the site was already cleared and turned into a livestock farm and the only flora affected by this study project will be the remaining shady trees and wind shield trees or plantations meant for poultry green feed and if by careful mitigation procedures, the impact is considered to be *low*.

Safety

Unforeseen accidents could result in personal injury and/or damage to private or public property.

In general, Safety and security is always a concern when construction activities are taking place on a site. Many people are likely to be employed during the construction phases, with the numbers rising and falling throughout the construction period, dependent on the



activities taking place at the time. While the proposed company would want to source construction labour locally, it is inevitable that there will be an influx of people to the near area. The increase of people in the area, as well as the periods where some construction workers are unemployed could lead to an increase in crime and prostitution in the surrounding areas.

The significance assigned to this impact for the construction period was considered to be *low* (*negative*) with mitigation, as the project site is in good daily transport communication near the main road, that there will not be much an influx of people to the near area, except in working hours.

Impact on Environment at Construction Phase

Construction-related Impact on environment includes the facts that were mentioned in above including noise, wastes, air pollution and water pollution etc. The larger the establishment construction, the more the impact to environment. In the study project, the factory site is located in the middle of the already established Zone either by the Central or Regional Government before, that it cannot evoke any more neither to the environment, the biotopes and terrestrial ecology and nor to the community, as it is away from residential area outside the zone, with a few miles distance in between.

5.6.2 **Operation Phase**

Animal feed needs proper handling and preservation to have a long shelf life and retain a desirable quality and nutritional value. As for many other feed milling operations, the main environmental impacts associated activities are the high consumption of water, consumption of energy and besides, is inevitably related with the following issues:

- Pollution(Air, Noise, Odour)
- **Water consumption and management**
- ♣ Solid waste and by-products
- 4 Wastewater
- **4** Emissions to air and energy consumption

Air Pollution

a) Air Pollution by Feed dust and Particulates

Feed Dust and Particulate emissions are generally an inevitable serious problem in the feed mill sector. If the facility is working properly no feed dust or particulates should be generated and emitted to the atmosphere because the plant will have an effective aspiration system, placing all conveying elements under negative pressure, and reclaiming all dust back into the system.

Smoke is also anticipated to occur from time to time because of the diesel generator used within the manufacturing process.

The significance assigned to this impact was considered to be *low (negative)* with mitigation, as all the planned improvements will be undertaken on the existing plant site for modernized and upgraded machineries and improved high technologies in the study project and mitigation by GMP.

b) Odours

Feed mills generate certain level of odours from raw materials of both plant and animal origins and though strong, still is a nuisance issue for neighbouring facilities and residential areas. Odour is emitted from storage sites, processing wastes, formulating including ingredients like fish meal etc. Very little odour are envisaged to be generated from the facility, due the facility not utilising any water during the manufacturing process.

c) Exhaust Gases

Attention is also be paid to the operation and monitoring of machinery units, that have potential atmospheric emission problems relating to organic compounds and particulates, as respiratory illnesses are known to occur in workers within processing areas. Exhaust gas emissions (carbon dioxide [CO2], nitrogen oxides [NOX] and carbon monoxide [CO]) are from the combustion of gas and fuel oil or diesel in turbines, boilers, compressors and other engines for power and heat generation. Guidance for the management of small combustion source emissions with a capacity of up to 50 megawatt thermal (MWth), including air emission standards for exhaust emissions, is provided in the General EHS Guidelines (Environmental, Health, and Safety Guidelines by IFC). For combustion source emissions with a capacity of MWth refer to the EHS Guidelines for Thermal Power.

The significance assigned to this impact is considered to be low for Odour pollution as it causes just annoyance, with or without mitigation, but emission problems of organic compounds and particulates, causing respiratory illnesses to workers, is a medium impact of health hazard which can be mitigated by GMP and monitoring.

Noise Pollution

A Feed mill or any manufacturing facility is known to inevitably generate a certain amount of noise and vibration, variable by the type and amount of machineries, equipments and products. It may result from proximity to noisy machinery (e.g. compressors, automatic packing machinery, condensers, ventilation units, and pressurized air). Noise levels inside the factory will be kept below 85dB and at a perimeter of 50 meter from the plant, noise levels originating from the plant will at all times be below 40dB.

The significance assigned to this impact is considered to be low, with or without mitigation, while the mill is still new but is a medium impact of health hazard when machineries user went wear and tear after some years. The whirring of machinery cannot lead to hearing impairment but better be mitigated by regular maintenance, GMP and monitoring.

Water Pollution

a) Ground and Surface water impacts

It is not foreseen that any detrimental impacts will be imposed on the groundwater during the operational phase of the development.

i) No manufacturing or emission of noxious substances that could harm the environment is envisaged. However it is important to note that the movement of heavy vehicles through the site on a daily basis as well as the potential for such vehicles to leak fuels and oils will mean that the risk of surface water contamination will be increased.



ii) Hazardous substances are to be stored on site which could cause further pollution if not stored and managed properly. Also the possibility of waste water leakages and untreated sewage discharge could contaminate ground and surface water.

The Myanmar CP Livestock Company has established Waste water purification system and waste water treatment systems as well as system for storage of chemicals in their Environmental Management System determined for their Feed mills including the study project.

The significance assigned to this impact is considered to be low, with or without mitigation, by GMP and monitoring.

b) Water Quality in Processing and Cleaning Procedure

Water used for food and feed processing is one of the important critical control points (CCP), for

- ↓ water used as an ingredient,
- ↓ water used as final rinse when cleaning equipment or
- **4** water which is likely to come into contact with the product.

The water should meet potable water standards. Local standards may vary or even be absent. The quality of the source water, the water treatment and the control exerted by the local regulatory authorities differs from place to place depending on the local situation.

The significance assigned to this impact is considered to be low, with or without mitigation, as water is unlikely to be used as an ingredient and by GMP and monitoring.

Waste Impacts

a) Hazardous Waste Potential Environmental Impacts

There will be very small quantities of hazardous wastes, if any at all from feed mill process and there are considered to be very minor environmental issue for this activity.

The disposal of waste must meet the requirements of the governing body and associated regulations, which control the collection, transport, storage, handling, processing, use and disposal from the feed mill process.

b) Solid Waste and By-products Waste Potential Environmental Impacts

Feed processing generates organic waste and by-products as Solid wastes such as

- feed raw materials, the remnants and pieces of husks, dried fish, shells etc and spilled/rejected feed
- **4** miscellaneous packaging materials, domestic and commercial waste

Discharge of solid matter and pollutants in liquid waste is to be prevented by all practical means as in:

- provision of adequate containers to avoid loss to the floor,
- **4** the control of spillages by sweeping, brooming, shovelling, vacuum cleaning,



impoundment and pumping out of liquid wastes and trapping into separation tank which is on site.

For disposing waste from factory, are to be transported by the company owned truck to be discarded at the site as directed will coordinate with industrial area management committee and Municipality, township city development committee, and disposing will be made under guidance of these respective authorities.

c) Liquid wastes

Effluents and waste water from the Processing and Washing Rooms will be filtered at the openings into drainage, physical removing the solid waste gradually at each filter. Chemicals commonly used for cleaning are acid, alkaline, and neutral detergents, and disinfectants such as chlorine compounds, hydrogen peroxide, and formaldehyde are usually present in the wastewater stream, during facility washing and cleaning activities .As effluents wastewater is usually given the minimal treatment of primary screening/ filtering, just to remove solids and then discharged into municipal sewers or directly into local water bodies (freshwater or marine), it can be toxic to fish and aquatic organisms.

The water Pollutant issues typically relate to:

- **4** Solids and organic matter levels.
- ↓ Elevated levels of salts
- ↓ Oil and grease content
- **4** Ammonia, nitrogen and phosphorus content
- Cleaning agents (including chlorine bleaches and surfactants).
- Liquid waste may need holding temporarily, and disposed of without damage to the environment.
- Disposal depends on the content levels in the waste and on an assessment of parameters such acidity levels, temperature, odour, and biochemical oxygen demand and chemical oxygen demand.

The magnitude of waste management issues depends on

- **4** waste volume,
- **4** the nature of the pollutants it carries,
- **4** the rate at which it is discharged
- **4** the capacity of the receiving environment to assimilate the pollutants.
- The receiving water body should be able to degrade the organic and inorganic waste components in a way that does not damage the aquatic ecosystem.

In this study of the feed mill, no hazardous waste water as most of the water are for boilers, cleaning, laboratory and household water.

The significance assigned to this impact for the operation phase is considered to be <u>low</u> with mitigation by GMP, proper handling and systematic control over usage.

Chemical Storage

The chemicals usually stored on site may include:

- **Ezychlor (Sodium Hypochlorite)** for sterilizing the premises which should be stored separately and handled under strict supervision of the Quality Control Officer.
- disinfectant / detergent solution
- food industry hand cleaner and antiseptic hand wash
- petrochemical oils for maintenance for generators to operate the cool rooms

*The significance assigned to this impact for the operation phase is considered to be<u>low</u> with mitigation by GMP, proper handling and systematic control over usage.

Safety

a) Manual Handling

Lifting, repetitive work and posture injuries occur as a result of working in the processing industry (e.g. lifting boxes, pails and containers of raw feed ingredients materials, feed additives and repetitive operations). Repetitive tasks can lead to musculoskeletal injuries.

The significance assigned to this impact for the operation phase is considered to be <u>low</u> by proper management on work assignment, support material, forklifts, conveyor belts and health care of assigned workers.

b) Electric Shock and Equipment Safety

The use of electrical devices in the feed mill facility (sorting, grinding, milling, filling facilities and lighting, cooling operations) means that the risk of electrical shock is present during a variety of operations. The use of sharp tools also presents a physical hazard.

*The significance assigned to this impact for the operation phase is considered to be <u>low</u> with mitigation by GMP.

c) Infections and Allergic Reactions

The handling of raw feed materials may develop infections or allergies resulting from the direct exposure to them or in contained facilities, may result in the inhalation of associated bacteria or foreign material containing disease.

*The significance assigned to this impact for the operation phase is considered to be<u>low</u> with mitigation by GMP and support health care.

d) Chemical Exposure

The variety of chemicals used in the cleaning process leads to the potential exposure to hazardous substances (e.g. chlorine and acids).

*The significance assigned to this impact for the operation phase is considered to be<u>low</u> with mitigation by GMP, proper storage.

e) Fire

As a factory that needs to operate work condition handling and concerning with tons of bulky materials, the possibility of fire problem is from packing material, electricity use or cooling system gas problems.



*The significance assigned to this impact for the operation phase is considered to be <u>low</u> with mitigation by GMP, proper housekeeping, storage and regular maintenance of electrical machineries.

Disinfection

Disinfection can be effected by physical treatments such as heat, Ozone and UV irradiation, or by means of chemical compounds. The use of heat in the form of steam or hot water is a very safe method and a widely used method of disinfection.

The most commonly used chemicals for disinfection are:

- Chlorine and chlorine compounds.
- Iodophors.
- Peracetic acid and hydrogen peroxide.
- Quaternary ammonium compounds.
- Ampholytic compounds

Table 40. Comparison of the more commonly used disinfectants (ICMSF 1988).

		Steam	Chlorine	Iodophore	QAC/QUAT	Acid
				S	S surfactants	anionic
Effective against	Gram-positive bacteria (lactics, clostridia, <i>Bacillus,</i> <i>Staphylococcus</i>)	Best	Past Cood Cood Door		Good	
	Gram-negative bacteria (E. coli, Salmonella, psychrotrophs)	Best	Good	Good	Poor	Good
	Spores	Good	Good	Poor		Fair
	Bacteriophages	Best	Good	Good		Poor
Properties	Corrosive	No	Yes	Slightly	No	Slightly
	Affected by hard water	No	(No)	Slightly	Some are	Slightly
	Irritative to skin	Yes	Yes	Yes	No	Yes
	Affected by organic matter	No	Most	Somewhat	Least	Somewhat
	Incompatible with:	Materials sensitive to high temperature	Phenols, amines, soft metals	Starch, silver	Anionic wetting agents, soaps.	Cationic surfactant s and alkaline detergents
	Stability of use solution		Dissipates rapidly	Dissipates slowly	Stable	Stable
	Stability in hot solution		Unstable, some	Highly usable (best	Stable	Stable



(greater than 66°C)		compound s stable	used below 45° C)		
Leaves active residue	No	No	Yes	Yes	Yes
Tests for active residue chemical	Unnecessar y	Simple	Simple	Simple	Difficult
Maximum level permitted by USDA and FDA w/o rinse	No limit	200 ppm	25 ppm	25 ppm	
Effective at neutral pH	Yes	Yes	No	No	No

Chlorine for Disinfection

Chlorine is one of the most effective and widely used disinfectants, available in several forms like sodium hypochlorite solutions, chloramines and other chlorine containing organic compounds. Gaseous chlorine and chlorine dioxide are also used.

Organism	Water	Cl2residues,	Temperature,	pН	Time,	Reduction	C*t ¹
		mg/l	°C		min.		
E. coli	BDF ²⁾	0.2	25	7.0	15	99.997	ND <u>3)</u>
E. coli	CDF ⁴⁾	1.5	4	?	60	99.9	2.5
E. coli + GAC ⁵⁾	CDF	1.5	4	?	60	<<10	>>60
L. pneumophila	tap	0.25	20	7.7	58	99	15
(water grown)							
L. pneumophila	tap	0.25	20	7.7	4	99	1.1
(media grown)							
<u>Acid-fast</u>	BDF	0.3	25	7.0	60	40	>>60
Mycobacterium							
chelonei							
<u>Virus</u>							
Hepatitis A	BDF	0.5	5	10.0	49.6	99.99	12.3
Hepatitis A	BDF	0.5	5	6.0	6.5	99.99	1.8
<u>Parasites</u>							
G. lamblia	BDF	0.2–0.3	5	6.0	-	99	54–87
G. lamblia	BDF	0.2–0.3	5	7.0	_	99	83–
							133
G. lamblia	BDF	0.2–0.3	5	8.0	-	99	119–
							192

Table 41. Inactivation of microorganisms by free chlorine.

1) C*t product of disinfectant concentration (C) in mg/l and

2) BDF = buffered demand free

3) ND = no data contact time (t) in minutes for 99% inactivation (mod.a. Sobsey 1989)

- 4) CDF = Chlorine demand free
- 5) GAC = granular activated carbon

Chlorine is cheap, available and monitoring free residual levels is simple; to maintain a free residual chlorine level of 0.2–0.5 mg/l in the distribution system (WHO 1984b).
- **4** For sanitation of clean equipment, up to 200 mg/l is used.
- Lower concentrations of 50–100 mg/l and longer contact times (10–20 minutes) are often used to avoid corrosion.
- Chlorine solutions are irritating to the skin and the fumes irritate the respiratory tract. These solutions should only be used with adequate ventilation and protective clothing.

The effectiveness of chlorine as a sanitizer is determined by pH, because when sodium hypochlorite (NaOCl) is mixed with water, an equilibrium reaction between hypochlorite and hypochlorous acid (HOCl, the active sanitizing agent) occurs.

The chemistry of hypochlorite and water mixtures described shows that an effective and safe chlorine sanitizing rinses are in an acid pH range, of 6.5 to 7.5.

Solutions with pH values

- **4** lower than 6.0 are more corrosive;
- 4 lower than 5.0 will begin to generate potentially harmful levels of chlorine gas,
- **4** solutions with pH values greater than 8.0 quickly lose the sanitizing effectiveness.

*The significance assigned to this impact for the operation phase is considered to be

<u>low</u> with mitigation by GMP, stringent control and monitoring.

Feed Safety Impact

A feed product recall brought about because of contaminated or adulterated food products found in commerce that are attributable to a specific company can damage a viable business. If a company can trace its products, then recall is a matter of removing all feeds associated with specific lot numbers. With a robust food safety program in place, a company can protect itself from product adulteration, contamination, and the impacts of food recalls.

5.6.3 Decommissioning Phase

Decommissioning phase impact include loss of direct and indirect employment, demolition waste, noise pollution, dust and exhaust emissions, and occupational health and safety hazards. The potential impact in decommission phase are

- Increase in dust generation due to demolition works
- Sedimentation/siltation of drainage or waterways from unconfined stockpiles of soil and other materials
- Contamination of ground/ surface water from hazardous substances left after operation.
- Solution State Control Cont

5.6.4 Socioeconomic Impact and Public Opinion

Myanmar CP Livestock Company is known for its Corporate Social Responsibility activities and the first company ever to exercise it at least in the Livestock sector. Besides the fact that the additional Feed Mill will definitely provide employment opportunities which would



have a positive impact on future job creation, the Myanmar CP Livestock company has drawn its CSR program for the expansion from the existing feed mill, which includes

- Scholarships at the universities
- **Donations to the monasteries**
- School development in the area
- **Good relations with the government units**
- **Creation of friendly neighbourhood**.

The Mingalardon Township community is expected to accept and to be employed in the project's activities, especially during the operational phases with high hopes for improvement in community living standard and educational status as the industrial development in neighborhood would apparently bring in. They are expecting for the schools and health facilities, and other industrial zones within a few miles distance.

The additional Factory will provide employment opportunities which would have a positive impact on future job creation. The proposed development would also result in a significant investment in services in the surrounding area.

The significance assigned to this impact for the operation phase is considered to be positive for employment impact with job opportunities as well as positive Economic impacts with 100 % Foreign Direct Investment Company for regional or national development.



Table 42. Potential Impact and Mitigation Measures

Project/ Activity Phase	Potential Environmental Impact	Significance Without- Mitigation	Mitigating & Enhancement Measures	Significance With Mitigation
Construction	Air Pollution The major source of air pollution is dust arising from construction and other ground or soil disturbance, during dry weather, and from movement of vehicles on poorly surfaced or damaged access roads.	Moderate Class II, Significant but Mitigable	Dust suppression facilities (back pack water sprayer) shall be available where earth and cement works are required. Watering the construction area Construction materials (sand, gravel, and rocks) and spoilt materials will be transported in trucks covered with tarpaulins. Storage piles will be at least 30m downwind of the nearest human settlements. All vehicles in construction use shall be well maintained. Contractor for subproject must be requested by the	Low
	Noise Pollution Noise pollution will occur from operation of construction equipment including earth moving and material handling equipment.	Class II, Significant but Mitigable	construction supervision consultants (engineer) to provide evidence and certification that all equipment to be used for construction is fitted with the necessary air pollution and noise dampening devices.	Low
	Water Pollution Water quality impacts may occur from runoff and waste and sewage generated from construction activities	Moderate Class II, Significant but Mitigable	 Keep facility as clean as possible. Proper use and maintain pollution control equipment. Storage areas should be protected against exposure to high intensity rainfall. Waste to be stored in appropriate containers in appropriately constructed area. Waste to be frequently collected and disposed of at appropriate and authorised landfill sites. 	Low



		6. Storage of any material or substance that may cause pollution to water sources to be safely handled and stored.7. Proper maintenance of sewerage systems.8. Monitor for potential contamination from sewerage	
Terrestrial Ecology Impacts A section of the vegetation on the proposed development site will have to be removed in order to create space for construction to take place.	Moderate Class II, Significant but Mitigable	The ecological character of project area is highly modified as an Industrial Area, was already established by the concerning company and the Region authorities. The feed mill site was already cleared and if by careful mitigation procedures, the impact is considered to be low. But still the Environment Management System Committee should have a plan for the healthy and green environment by good landscaping for the appropriate balance of the Feed Mill and accessory buildings and the plantation of trees, meant for shady environment besides the protection barrier of noise, odour etc. of the milling process.	Low
Safety Unforeseen accidents could result in personal injury and/or damage to private or public property.	Low Class III, Not Significant	 The site must be clearly demarcated. Appropriate signs should be in place showing dangerous areas and no-go areas. An Environmental Control Officer (ECO) must be appointed during construction to monitor compliance with the terms as set out in the EMP, and Clearance Certificate All necessary environmental controls to be discussed with the contractors on site before construction starts during start-up meeting. Staff and visitors to the site must be fully aware of all health safety measures and emergency procedures. If required security personal should be implied 	Low



			regards to possible crime7. External contractors must work to all existing safety standards and requirements.8. Tools must be used by safely by external contractors9. Access equipment must be appropriate and used safely by external contractors	
Operation	Air Pollution Dust During the operation phase, air pollution may cause by fugitive dust, airborne dust and crush grains emission from materials storage and handling of cereal grains, grinding and crushing, weighing and mixing of premix, drugs and micro raw materials and screening etc. Odour Feed mills generate certain level of odours from raw materials of both plant and animal origins and though pot very strong, still is a nuisance	Low Class III, Not Significant	 An effective aspiration system, placing all conveying elements under negative pressure and reclaiming all dust back into the system must be in proper working condition. Other emissions such as smoke from the broiler must be kept at a minimum. Where possible, appropriate smoke / dust reduction measures should be implemented. Plant trees as wind barrier inside and at the boundaries of the project location. The Feed mill facility should be enclosed to limit exposure of potential odours 	Low
	issue for neighbouring facilities and residential areas if in a huge mass. Odour is emitted from storage sites, processing wastes, formulating procedures that include ingredients like fish meal, etc.		2. Continues monitoring should take place to minimise the potential of smells from the Feed mill.	
	Noise Pollution Any commodity manufacturing facility or factory is known to	Low Class III, Not Significant	 New technology is used within the Feed mill which should minimise excessive noise. The facility is enclosed which would further minimise 	Low

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Mater Concernation	Lau	 3. Continues measurements should be taken to make sure the facility is in accordance with the Labour Act of 1992, Section 3(1) stipulates that in areas where it is suspected that noise levels are above 85dB (A) over an eight hour period, the employer shall take reasonable steps to reduce the levels to below 85dB (A). 4. Where possible, appropriate silencers and noise reduction measures should be implemented. 5. Continues monitoring of noise levels should be conducted to make sure the noise levels do not exceed the limits as set out by the regulations. 6. Ear protectors – must be worn if workers spend prolonged periods of times in noisy areas. 7. Regularly maintain and monitoring the machine. 	Law
Water Consumption In operation phase, according to the estimated water consumption for the whole factory is 16 million gal per annually for the purpose of boiler water and general office uses. No Input this Data	Low Class III, Not Significant	 Regularly maintain plumbing, and identify and repair leaks Shut off water to unused areas Install self-closing taps, automatic shut-off valves, spray nozzles, pressures reducing valves, and water conserving fixtures (e.g. low flow shower heads, faucets, toilets, urinals and spring loader or sensor faucets) Operate dishwashers and laundries on full loads, and only when needed Install water-saving equipment in lavatories, such as low flow toilets 	Low
Water Pollution The effluent wastewater will generate from the cleaning of utensil for operational use, steam boiler	Moderate Class II, Significant but Mitigable	 For the Wastewater Effluents management, following mitigation measures shall be considered. Keep facility as clean as possible. Proper use and maintenance pollution control 	Low





	wastewater discharge and domestic wastewater. Amount of liquid effluents discharged from the production process is minimal when compared with other industrial sectors.		 equipment. Storage of any material or substance that may cause pollution to water sources to be safely handled and stored. Proper maintenance of sewage systems. Monitor for potential contamination from sewage CP has a plan to implement the wastewater treatment system at Animal feed Mill project site 	
	 Waste Pollution a) Hazardous Waste There will be very small quantities of hazardous wastes, if any at all from feed mill process and these are considered to be very minor environmental issue for this activity. b) Solid Waste and By-products Waste Feed processing generates organic waste and by-products as solid wastes such as feed raw materials, the remnants and pieces of husks, dried fish, shells etc. and spilled/rejected feed, miscellaneous packaging materials, domestic and commercial waste 	Low Class III, Not Significant	According to the waste management practice, Myanmar CP company has provided the dedicated dustbins for paper waste, plastic waste, production waste, laboratory waste and food waste for the proper disposal of waste. For disposing waste from factory, they are to be transported by the company owned truck to be discarded at the destined site as directed by or will coordinate with Industrial Area Management Committee or Municipality, Township City Development Committee, and disposing will be made under guidance of these respective authorities.	Low
Occupational Health and Safety No Input this data	Exposure of noise to employees and workers During the operation phase, employees and workers of animal feed mill will be endangered or oppressed particularly by noise from	Moderate Class II, Significant but Mitigable	According to Occupational Safety and Health Administration (OSHA), the maximum allowable noise level for workers is 90 dB (A) for 8 hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas, need to provide if actual noise level	Low



	operation of heavy machinery equipment and activities of delivering of various raw materials, final products, grinding, weighting, roller and conveyor belts and operation of boiler etc.		monitoring results are more than 90 dB (A) at the work site for working time hours for 8 hours. Engineering controls involve modifying or replacing equipment, or making related physical changes at the noise source or along the transmission path to reduce the noise level at the worker's ear. Regular monitoring of the noisy machines for running in production that includes hammer mill, conveyors and other noisy equipment and should maintain and prepare procedures to reduce the noise exposure on employees and workers.	
No Input this o	Respiratory hazards Occupational health risks of respiratory hazards may cause by grain dust and fine airborne PM from Process activities of feed production and odor from storage facilities of feed additives, drugs and premix and chemicals. Infections and Allergic Reactions The handling of raw feed materials may develop infections or allergies in the sensitive workers, resulting from the direct exposure or in contained facilities. It may also result from the inhalation of associated bacteria or foreign material contaminated with pathogens or allergens.	Moderate Class II, Significant but Mitigable	 Organize the generated dusty areas of the production area to minimize the duration, frequency and level of exposure for employees Ensure proper handling of materials Ensure good maintenance of factory and equipment Provide sufficient information, instruction, and trainings for employees about the use of control measures for exposure of grain dust Provide ventilation, especially at workstations devoted to raw-material handling, milling, handling and use of solvents. When feasible, use hot water, rather than solvents, to facilitate cleaning. Ensure that employees handling concentrated lye, acid, and chlorine wear protective clothing and eyewear, to prevent and control exposure to chemicals. Upgrade of storage areas of all raw materials, casings and solvents will allow for proper containment of accidental spills and leakages and to minimise odours. Laboratory staff should wear the standard 	Low



		 laboratory outfit such as lab coats, proper headwear, masks, gloves, footwear and aprons whenever necessary The working environment and workers' health should be monitored for occupational hazards and diseases relevant to the specific project. 	
Manual Handling Lifting, repetitive work and posture injuries occur as a result of working in the processing industry. Repetitive tasks can lead to musculoskeletal injuries.	Low Class III, Not Significant	 Recommended prevention and control measures for these activities are To alleviate poor working postures; Rotation of work assignments and tasks to reduce repetitive activities of the workers; Install mechanical lifting aids, conveyor belts or forklifts where possible; Gloves and boots will also be provided for all manual work. 	Low
Electric Shock and Equipment The use of electrical devices in the feed mill facility (sorting, grinding, milling, filling facilities and lighting, cooling operations) means that the risk of electrical shock is present during a variety of operations. The use of sharp tools also presents a physical hazard.	Low Class III, Not Significant	 Inform each individual working with electrical equipment of basic precautionary steps to take to ensure personal safety. Avoid contact with energized electrical circuits. Let only qualified individuals service electrical equipment. Before qualified individuals service electrical equipment in any way, disconnect the power source to avoid the danger of electric shock. Ensure that any capacitors are, in fact, discharged. Before reconnecting electrical equipment to its power source after servicing, check the equipment with a suitable tester, such as a multi-meter, to ensure that it is properly grounded. Do not reenergize a circuit breaker until sure that the cause of the short circuit has been corrected. 	Low



			 Install ground fault circuit interrupter (GFCI), to protect users from electric shock, particularly if an electrical device is handheld during operation. If a person is in contact with a live electrical conductor, disconnect the power source before removing the person from the contact and administering first aid. 	
Decommissioning	Air Pollution Increase in dust generation due to demolition of the factory building and related infrastructure of the proposed animal feed factory	Low Class III, Not Significant	 (i) Dust suppression facilities (back pack water sprayer or on trolly) will be available where ever earth and cement works are required. (ii) Areas of construction will be maintained damp by profuse or appropriate watering on the construction area. (iii) Construction materials (sand, gravel, and rocks) and spoil materials will be transported in trucks covered with tarpaulins. (iv) Storage piles will be at least 30m downwind of the nearest human settlements. (v) All vehicles (e.g., trucks, equipment, and other vehicles that support construction works) will be well maintained. 	Low
	Noise Pollution Noise and vibration may be caused by the operation of pile drivers, earth moving and excavation equipment, cranes and the transportation of equipment, materials and decommissioning people.	Low Class III, Not Significant	 Use noise control devices, such as temporary noise barriers for workers Unused equipment will be turned off and the parallel use of noisy equipment/machinery must be avoided Schedule activities in day time Speed limit control for truck 	
	Soil Contamination Soil quality impact will be caused during decommissioning phase, such	Low Class III, Not	Oil spill equipment and adequate secondary containment should be provided and managed to reduce soil degradation.	Low

as excavation activities of digging and filling may impact on soil quality. The accidental spillage of diesel, petrol, oil and other hazardous waste of decommissioning activities may impact on soil quality.	Significant	 Set-up temporary silt trap/ponds to prevent siltation Proper stockpiling of spoils (on flat areas and away from drainage routes) Spoils generated from demolition works be disposed as filling materials Remove all hazardous substances and rehabilitate the area to restore its aesthetic/ economic value 	
Water Quality The water quality of the nearby drainage systems can be affected due to solid waste and wastewater drainage from the factory and also solid waste can damage soil quality if not properly handled.	Low Class III, Not Significant	 Keep facility as clean as possible. Proper use and maintain pollution control equipment. Storage areas should be protected against exposure to high intensity rainfall. Waste to be stored in the appropriate containers in the appropriately constructed area. Waste to be frequently collected and disposed of at an appropriate and authorised landfill sites. Storage of any material or substance that may cause pollution to water sources to be safely handled and stored. Proper maintenance of sewerage systems. Monitor for potential contamination from sewerage 	Low
Waste Pollution Demolition of the project buildings and related infrastructure will result in large quantities of solid waste. The sanitary wastewater from decommissioning workers can be expected for liquid waste	Low Class III, Not Significant	 All construction personnel must be properly trained regarding management of hazardous wastes. Construction materials that are potentially hazardous should be stored under watertight conditions, while still making them readily available for use. Hazardous waste collected from the project must be stored and disposed of in a manner that is appropriate for that particular type of waste. The contractor must be prepared to respond to spills or leaks that occur anywhere on the project site. 	



		 Failure to clean up spills, or improper storage of hazardous materials, may trigger sampling and analysis requirements. The Construction and demolition (C&D) material generated from the site formation and demolition works should be sorted on-site into inert C&D material (that is, public fill) and C&D waste. A suitable area should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process. Maintain the storm water channels in a working condition Water discharged from the construction site (no matter how non-hazardous it seems) should be discarded into water sedimentation pool, before it flows through the common drainage of the residential area. 	
 Impact on Human Loss of jobs of the employees Significant physical hazards may be caused due to decommissioning phase. Demolished workers will be exposed to risks of accidents and injuries. 	Low Class III, Not Significant	 Outplacement or referral system will be in place prior to retrenchment and closure of the facility The site must be clearly demarcated. Appropriate signs should be in place showing dangerous areas and no-go areas. Prevent physical injuries during period in the form of slips, trips, falls and impact with moving vehicles by being vigilant. Prevent injury by heavy physical work and manual handling of heavy loads by conducting proper training on site. Staff and visitors to the site must be fully aware of all health safety measures and emergency procedures. 	Low



External contractors must work to all existing safety	7
standards and requirements.	
Tools must be used by safely by externa	l
contractors	
Provide ear protectors for workers spend	l
prolonged periods of times in noisy areas.	
Prevent occupational exposure to dust and	l I
particulate matters during the demolition period by	7
providing masks and respirators.	
• The decommissioning of the Animal Feed Mill i	3
unlikely as it is to be available by its own land and	
it planned to work for long term at least 50 year	6
and extensions with no intention to stop and wil	l I
change to the production of appropriate	2
commodity even if the recent products are out o	f
place as time changes	



5.7 Environmental Impacts and Its Significance Summary

Fortunately, the recent study site of Myanmar CP Livestock Company Feed Mill No.2 is in the isolated environment, some distance away from the Yangon highway, being at the back of the Feed Mill No.1, and surrounded by either the Factory compounds, timber storage area and nonresidential area, to which the nearest village being about 2 miles from the site.

Besides, it used to be a Livestock Farm complex, which was in operation by the Government Institution and of fairly good bio-security to some extent for at least two or three decades that, it is not a virgin land anymore, and the project site clearing and establishing is not supposed to be threatening the natural habitats of biodiversity, biotopes of flora and fauna, which was long gone since the start of the previous Farming system, nor to the residential village, a long way off.

The nature of Feed Mill itself, on comparison to the livestock farm complex is of less physical impact to the environment and less social impact to the community nearby, by air emission of air pollutants, noise and odour or potential microbiological hazards of zoonotic diseases from different livestock.

On the other hand, the feed mill has more potential air emission of dust particles, odour and noise in another form, which unlike the living creatures of livestock farms, could be well managed and at least by mitigation if not elimination, to protect the environment by proper GMP management including strict HACCP Control.

The Environmental Impact Assessment process does not reveal/dispose any serious threat that the proposed development might have on the natural and socio-economic environment. Terrestrial Ecology Impacts - Flora, Fauna and Ecosystem Values are not to be affected much as the new Feed mill is not on the virgin land, cleared and created for this project.

All the potential threats identified are generic threats associated with Feed mill facilities and can be mitigated with the proper implementation of the Environmental Management Plan and by maintaining a high quality environment within and around the facility. The project will significantly contribute to the socio-economic development of Mingalardon Township.

From the field visit by the Green Enviro study team to the project site, careful observation and thorough scrutiny, not harsh but stringent perusal and analysis on the available documents from the management of the Myanmar CP Livestock Co. Ltd. (New feed Mill), besides the mild and low hazardous nature of the Feed production job, the Environment Impact Assessment(EIA) is generally be accepted as Low Impact or No Impact on Environment pertaining to the Feed mill Operations, either in Pre- construction phase or Operation Phase.

Demolition Phase expected to be in the next 50 years will be accordingly to the subjected rules and law of that time.

5.8 Cumulative Impact Assessment

Methodology and Approach

Impacts directly associated with the project are discussed in the preceding section. In this section the impacts associated with cumulative effects of the project and other development are described. Evaluation of potential cumulative impacts is an integral element of an impact assessment.



Cumulative impacts in relation to an activity are defined as the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities undertaking in the area.

In order to understand the manner in which the project will contribute to cumulative impacts, an understanding of the existing Feed Mill operations at Mingalardon Industrial Land by the past and present activities over space and time is essential. This will need the identification of existing and proposed projects within the region.

At present, the proposed project of establishment of CP Feed Mill for producing animal feed of which is situated at the Mingalardon Industrial area are void of neighboring factories and other business establishment and neighbored only by Beer factory, Toothbrush and toothpaste factory and garment factory etc.. It has no potential cumulative impact at the moment but it will arise as the industry increases in the neighbor plots and the Cumulative Impact Assessment has to be taken care of and collectively to work on it.

When assessing cumulative assessment activities, it will focus on key significant issues that have been included in the findings of the impact assessment. The following factors are incorporated into the cumulative impact presented below:

Project Activities	Element/Issue to be impacted	Additional consideration
A 1 11 11 1 1		
Air quality will be increased when all the business in the commercial area start their operation	Air quality deterioration by operation of all projects	Proposed project is located in the Commercial Area of Industrial Zone
Traffic Volume will be increased	Air and Noise Pollution by Movement of vehicles	Risk of road accidents due to increased road traffic
When all the project starts their operation, noise pollution may increase	Cumulative noise impact due to background noise conditions.	Cumulative impact may cause nuisance, sleep disturbance. However, there is no existing noise -sensitive receptors such as schools, hospitals or clinics, meditation centers, close enough to be affected by the operations.
Water Quality	Water pollution in downstream areas with less quantity of available domestic water	Established appropriate Industrial Zone Drainage System
Flora/Fauna	Loss of habitat for some fauna and flora species due to removal of ecological habitat	Established appropriate Replantation and Recreation Plan
Waste	When commercial business arises and starts their operation, it is going to increase the amount of industrial and business-related waste.	Established appropriate Industrial Zone Waste Management System

Table 43. Cumulative Impact Assessment



The cumulative impacts can be eliminated, reduced or compensated if the proposed Environmental Management Plan is followed as proposed. Additional to that some recommendations have been proposed so that the execution of the project becomes a success without harming or with the least negative effect to the environment in general.

Therefore, for the Cumulative Impact Assessment, only those impacts that are being affected at the sensitive level of concern and for long term duration will be considered.



CHAPTER 6 – ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The chapter describes the modalities provided in the project for the implementation of the proposed mitigation measures to its negative impacts. It proposes the institutional responsibilities for the implementation of the management plans, the mitigation plans, and the monitoring plan and follows up activities. The Environmental Management Plan of the Animal Feed Mill is organized with the following sections:

6.1 Institutional Requirements

The development of the proposed project will be managed by Myanmar C.P. Livestock Co., Ltd. The project proponent will appoint one Health, Safety and Environmental (HSE Team) Coordinator and Assistants for Environmental Management and Monitoring issues throughout the lifespan of the project. HSE Coordinator is responsible for implementation and monitoring of Environmental Management Plan (EMP) and Monitoring Plan as well as coordination with contractors, local authorities and the nearby communities. The HSE Team also makes regular review of EMP to cover all potential impacts, amendments and modifications.

6.2 **Objectives of Environmental Management Plan**

The objectives of Environmental Management Plan are:

- 1. As a reference and commitment for the proponent to implement the EMP for three phases of the project life cycle, construction, operation and decommission phases of the project
- 2. It will fulfill the need of the Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation (MONREC)
- 3. Serve as a guiding document for the monitoring of environmental and social activities of the project
- 4. Provide detailed framework to mitigate negative impacts on the environment and management actions to be adopted for proper implementation of the project

6.3 **Responsibilities of the EMP**

In order to effectively implement of the EMP, it will be necessary to define the responsibility of various stakeholders. The environmental management activities should be in compliance with existing environmental policy, laws, rules, procedures and emission standards of the Republic of the Union of Myanmar. The following entities are responsible for implementation of the EMP:

- **↓** Myanmar C.P. Livestock Co., Ltd.
- **4** Environmental Conservation Department (Yangon Region)
- **4** Third-party Environmental Consultant Company

Myanmar C.P. Livestock Co., Ltd.

The proponent is responsible for ensuring that the performances of project activities are in accordance with the Environmental Management Plan developed and in an environmentally



sound manner. The following Health, Safety and Environmental Team (HSE Team) will be responsible for the implementation of the Environmental Management Plan:

The team is consisted of the following personnel:

Team Coordinator (Admin and HR personnel) will be acting as in-charge of HSE team.

There will be 2 HSE assistants under the supervision of Team Coordinator.

HSE Team Coordinator

Team Coordinator is responsible and accountable for ensuring

- Observe HSE regulations, wears all required safety equipment, encourages safe working practices, corrects obvious hazards immediately or reports them to the General Manager.
- Development of HSE culture among all workers, during construction, operation and decommissioning phases.
- Regular site visit and reporting during construction, operation and decommissioning works to check whether the objectives of EMP are being followed.
- **4** Manage safety and health in the Factory operations.
- Keep full records of environmental management activities and present to annual independent third-party environment audit.
- **Undertaking regular safety and health inspections and audits onsite.**
- **4** Ensure equipment to be regularly checked and properly maintained.
- Provide necessary information and instructions, as well as providing and arranging training to the workers and supervising them to follow safety rules and safe working procedures strictly.
- Arrange with Township Health Officer and Social security Health Officers team or Occupational Health Department for regular or occasional check of the health status of the employees and work site situation, and for Health Talks to the farm workers.

HSE Assistants

The HSE Assistants are responsible for assisting Team Coordinator during the implementation of the HSE plan;

- **4** Development and training of the HSE plan.
- Liaise with local authorities where required, to ensure safety and health issues are resolved in a timely manner, to the benefit of the project.
- Review relevant subcontractor workplace health and safety documents, including procedures, work methods statements, etc.
- Resolve disputes which may impact the health and safety of project personnel, plant and equipment onsite.



ECD (Yangon Region)

ECD (Yangon Region) is responsible for the general supervision and coordinating over all matters relating to the environment and also for providing guidance for existing regulatory frameworks.

Third-Party Consultant Company

The Third-Party Consultant Company is to ensure that the EMP developed is up-to-date and is being followed properly by CP. Periodic audits shall be performed in order to find out whether the expected outcomes are achieved as envisaged in the plan by comparing with the operating standards. If not, corrective actions have to be followed.

6.4 Planning Budget for Environmental Management Plan

The Myanmar C.P. Livestock Co., Ltd. has set up a policy of utilizing about the 2% of the profit income on implementing the CSR and environment related management works, including the expenses on the Environment Management Committee and/or the appointed HSE coordinator and assistant who could also be one of the factory staff with responsibility to take care of the EMP activities in the factory compound.

- **4** (25%) of subscribed money to rural development such as road maintenance, educational support for village schools and village library development in the area
- (25%) will be budgeted for community welfare, health and sport support to the nearby villages
- 4 (25%) for Donations and religious support to the village's monasteries, religious facilities and Myanmar traditional festivals.
- (25%) will be used for environmental management plan such as monitoring, mitigation and management.

One of the major tasks for conserving the environment by the CP would fall into the greening of the environment nearby by hardy but shady trees useful for the inhabitants of the industrial zone.

6.5 Mitigation Measures during Construction Phase

Air Pollution

The other major source of air pollution is dust arising from construction and other ground or soil disturbance, during dry weather, and from movement of vehicles on poorly surfaced or damaged access roads.

The potential for the generation of additional dust during the construction process can be minimized by good planning and management. The following mitigation measures to be carried out as a matter of good housekeeping:

- (i) Dust suppression facilities (back pack water sprayer or on trolly) will be available where ever earth and cement works are required.
- (ii) Areas of construction will be maintained damp by profuse or appropriate watering on the construction area.
- (iii) Construction materials (sand, gravel, and rocks) and spoil materials will be transported in trucks covered with tarpaulins.



- (iv) Storage piles will be at least 30m downwind of the nearest human settlements.
- (v) All vehicles (e.g., trucks, equipment, and other vehicles that support construction works) shall be well maintained.

Noise Pollution

The construction activities can lead to an increase in noise levels. The potential adverse impact of noise can be reduced by ensuring compliance with construction noise standards, making sure construction equipment is kept in a good state of repair and undertaking particularly noisy activities at the time, when they will have the least impact on people and fauna in the environment (if any).

To minimize such impacts, the sub-contractor for the project must be requested by the construction supervision consultants (engineer) to provide evidence and certification that all equipment to be used for construction is fitted with the necessary air pollution and noise dampening devices.

Water Pollution

There is no water ways in the vicinity from the project site and discarded water run backwards down the vast slope of land and disappear along the way and proper drainage might be able to join the municipal drainage somewhere in Pyinmabin Zone area. Water quality impacts may occur from runoff and waste and sewage generated from construction activities. In order to maintain proper sanitation around the construction sites, the workforce will be allowed to use the flush toilets in the sub-station control facilities.

Terrestrial Ecology

The ecological character of project area is highly modified as an Industrial Zone Area. It was observed during the study that, as the Industrial zone was already established by the concerning ministry and/or the authorities some time before and as some other factories including the Myanmar CP Livestock Company Feed Mill No 1, in the zone also have already started their projects too, before that there is no vegetation or significant habitats left in Zone Area, which otherwise would need to be removed for the sake of construction phase.

As mentioned in EIA of the study site was already cleared and turned into a livestock farm and the only flora affected by this study project will be the remaining shady trees and wind shield trees or plantations meant for poultry green feed and if by careful mitigation procedures, the impact is considered to be low. But still the Environment Management System Committee should have a plan for the healthy and green environment by good landscaping for the appropriate balance of the Feed Mill and accessory buildings and the plantation of trees, meant for shady environment besides the protection barrier of noise, odour etc. of the milling process.

Pollution from Oily Run-off, Fuel Spills and Dangerous Goods

Contaminated residues and oily waste residues to be disposed at a site pre-arranged with the local authority and municipality. If for some reason there are oily spills or releases they to be cleaned up immediately. The waste including the top 2cm of any contaminated soil will be disposed of and managed the same as chemical waste to an approved landfill or



approved local authority disposal site. Used oil will be sold out to some merchants who trade it for reuse in other purposes.

Safety

All necessary precautions should be taken to prevent accidents and/or damage to property.

- External contractors must arrange the work site to all existing safety standards and requirements
- **4** Tools must be used safely by external contractors
- Access equipment (e.g. ladders and scaffolding) must be appropriate and be used safely by external contractors

Measures taken by the contractor will include but not limited to:

- ↓ Safe execution of construction work
- **4** Providing adequate health and safety protection to workers.
- Sufficient insurance coverage covering all risks including property damage, third party liability, workmen compensation and transit insurance.



Table 44. Environmental Management A	Action Plan for Construction Phase
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Issue	Management Action	Significance With	Time Frame	Estimated Cost Monitoring	Supervised/ Approved by
Air Quality	 Dust suppression facilities (back pack water sprayer or on trolly) will be available where ever earth and cement works are required. Areas of construction will be maintained damp by profuse or appropriate watering on the construction area. Construction materials (sand, gravel, and rocks) and spoil materials will be transported in trucks covered with tarpaulins. Storage piles will be at least 30m downwind of the nearest human settlements. Well maintain of all vehicles (e.g., trucks, equipment, and other vehicles that support construction works) 	Low	Construction period	5,000,000	HSE Coordinator/ Construction Supervisor
Noise	 Use noise control devices, such as temporary noise barriers for workers Unused equipment will be turned off and the parallel use of noisy equipment/machinery must be avoided Schedule activities in day time Speed limit control for truck OSHA recommends a 3-step noise hazard control process: Reduce: Use quieter equipment Move: Use extension cords to move the equipment father away. Move generators farther away Block: Build temporary plywood barriers to block the noise. Put a wooden box over a loud generator. 	Low	Construction period	3,000,000	HSE Coordinator/ Construction Supervisor



Water Quality	 Keep facility as clean as possible. Proper use and maintain pollution control equipment. Storage areas should be protected against exposure to high intensity rainfall. Waste to be stored in the appropriate containers in the appropriately constructed area. Waste to be frequently collected and disposed of at an appropriate and authorised landfill sites. Storage of any material or substance that may cause pollution to water sources to be safely handled and stored. Proper maintenance of sewerage systems. Monitor for potential contamination from sewerage 	Low	Construction period	5,000,000	HSE Coordinator/ Construction Supervisor
Soil Contamination	 Oil spill equipment and adequate secondary containment should be provided and managed to reduce soil degradation. Set-up temporary silt trap/ponds to prevent siltation Proper stockpiling of spoils (on flat areas and away from drainage routes) 	Low	Construction period	1,000,000	HSE Coordinator/ Construction Supervisor
Waste	 segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; separate labelled bins will be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors; any unused chemicals or those with remaining functional capacity will be recycled; maximising the use of reusable steel formwork to reduce the amount of Construction and demolition (C&D) material; prior to disposal of Construction and demolition (C&D) waste, it is recommended that wood, steel and other metals will be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; proper storage and site practices to minimise the potential for 	Low	Construction period	3,000,000	HSE Coordinator/ Construction Supervisor



	 damage or contamination of construction materials; plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste; minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering; Solid waste generated from construction works will be disposed under the instruction of Township CDC and Zone Management 				
Terrestrial ecology	 The ecological character of project area is highly modified as an Industrial Zone Area. But still have a plan for the healthy and green environment by good landscaping for the appropriate balance of the factory buildings and the plantation of trees, meant for shady environment besides the protection barrier of noise, odour etc. of the factory process 	Low	Construction period	3,000,000	HSE Coordinator/ Construction Supervisor
Safety	 The site must be clearly demarcated. Appropriate signs should be in place showing dangerous areas and no entry areas. All necessary environmental controls to be discussed with the contractors on site before construction starts during start-up meeting. Staff and visitors to the site must be fully aware of all health safety measures and emergency procedures. If required security personal should be implied regards to possible crime External contractors must work to all existing safety standards and requirements. Tools must be used by safely by external contractors Access equipment must be appropriate and used safely by external contractors 	Low	Construction period	3,000,000	HSE Coordinator/ Construction Supervisor

6.6 Mitigation Measure during Operation Phase

Air Pollution

Control of Dust and Odour

- An effective aspiration system, placing all conveying elements under negative pressure and reclaiming all dust back into the system must be in proper working condition.
- Plant trees as wind barrier inside and at the boundaries of the project location.
- Switch off vehicles when not in operation to reduce emissions by drivers
- The Feed mill facility will be enclosed to limit exposure of potential odours
- Keep all working and storage areas clean and remove waste products immediately from the production line;
- Cover all transfer systems, wastewater canals, and wastewater treatment facilities to reduce the escape of foul odour.
- Continuous monitoring will take place to minimise the potential of smells from the Feed mill.

Noise Pollution

The following mitigation measures will be considered to reduce noise levels in the operation phase of the animal feed factory

- New technology is used within the Feed mill which minimise excessive noise.
- The facility is enclosed which would further minimise noise impacts.
- Continues measurements should be taken to make sure the facility is in accordance with the Labour Act of 1992, Section 3(1) stipulates that in areas where it is suspected that noise levels are above 85dB(A) over an eight-hour period, the employer take reasonable steps to reduce the levels to below 85dB(A).
- Where possible, appropriate silencers and noise reduction measures will be implemented.
- Continues monitoring of noise levels will be conducted to make sure the noise levels do not exceed the limits as set out by the regulations.
- Ear protectors must be worn if workers spend prolonged periods of times in noisy areas.
- Regular maintenance, monitoring and en-ointing/lubricating of the machineries.
- Noisy equipment will not be permitted during night hours as much as possible.
- Used of Generator should be housed in a suitable acoustic enclosure. The acoustic insulation should be designed to meet mandatory standards based on a 25-dB insertion loss.

Water Consumption Management Plan

For the reduction of water consumption, the appropriate water conservation plan will be implemented with commensurate with the magnitude and cost of water use. These



programs promote the continuous reduction in water consumption and achieve savings in the water pumping, treatment and disposal costs.

- Regularly maintain plumbing, and identify and repair leaks
- Shut off water to unused areas
- Install self-closing taps, automatic shut-off valves, spray nozzles, pressures reducing valves, and water conserving fixtures (e.g. low flow shower heads, faucets, toilets, urinals and spring loader or sensor faucets)
- Operate dishwashers and laundries on full loads, and only when needed
- Install water-saving equipment in lavatories, such as low flow toilets
- Install water meter for internal control of water consumption
- All staff must be trained and made aware conservation practices and proper methods of water use must be placed in the toilets and other areas of water consumption

Sufficient quantities of water may be used for steam boiler for production sector, and this can be reduced by the following measures;

- Repair of steam and condensate leaks and repair of all failed steam traps
- Return of condensate to the boiler house, and use of heat exchangers (with condensate return) rather than direct steam injection where process permits
- Flash steam recovery
- Minimize boiler blow down consistent with maintaining acceptably low dissolved solids in boiler water. Use of reverse osmosis boilers feed water treatment substantially reduces the need for boiler blow down
- Minimize de- aerator heating

Wastewater Management Plan

Effluents and waste water from the Processing and Washing Rooms will be filtered at the openings into drainage, physical removing the solid waste gradually at each filter. Chemicals commonly used for cleaning are acid, alkaline, and neutral detergents and disinfectants such as chlorine compounds, hydrogen peroxide, and formaldehyde are usually present in the wastewater stream, during facility washing and cleaning activities. As effluents wastewater is usually given the minimal treatment of primary screening/ filtering, just to remove solids and then discharged into municipal sewers or directly into local water bodies (freshwater or marine), it can be toxic to fish and aquatic organisms. Liquid waste may need holding temporarily, and disposed of without damage to the environment. In a feed mill where liquid waste is not hazardous, it should at least have access to sedimentation pond, water treatment pool if not the water recycle plant. It would help a lot to Save a drop of water campaign if some used water may at least be re-used after a certain degree of water quality, appropriate enough to use in boilers or in cleaning and washing with disinfectants if not for potable water for drinking or laboratory use. For the Wastewater Effluents management, following mitigation measures will be considered.

- Keep facility as clean as possible.
- Proper use and maintenance pollution control equipment.



- Storage of any material or substance that may cause pollution to water sources to be safely handled and stored.
- Proper maintenance of sewage systems.
- Monitor for potential contamination from sewage
- Ensure that lines and sewage system of factory drainage and the nearest public drainage are watertight and sufficient capacity
- Avoid cleaners that contain active chlorine or prohibited, banned, or restricted chemicals.
- Continues monitoring of wastewater quality should be conducted to make sure the quality does not exceed the limits as set out by the emission guidelines.

An effective wastewater treatment system for production sector that reduced for BOD, COD, total nitrogen and other organic compound will be used to reduce the impact on aquatic lives and odour. CP has a plan to implement the wastewater treatment system at Animal feed Mill project site and treatment system in future.

Waste Management Plan

The Waste Management Plan will attempt to minimize waste production by applying the principles of *Reducing* the use of materials, *Reusing* materials whenever possible, *Recycling* materials and *Recovering* value from used materials.

Hazardous or Potentially Hazardous Wastes	Non-Hazardous Wastes	Mineral Waste
Sewage	Grain Dust	N/A
Laboratory water	Boiler Ash	
Used Oil	Food Waste / Domestic Waste	
Used Tyres	Packing Materials	
Used cartridge/filter	Office waste such as paper	

Type of Waste

According to the waste management practice, Myanmar CP Company has provided the dedicated dustbins for paper waste, plastic waste, production waste, laboratory waste and food waste for the proper disposal of waste.

Waste Collection, Storage and Dispose Plan

Domestic wastes are collected in garbage bins and placed at office, dormitories, accommodation for visitors, workshop, kitchen and mess. Hazardous waste from workshop should be collected in metal drums and for oily waste will be collected in metal bin with containments. Used oil storage will be made at a dedicated tank with a capacity of gallons to be sold out.

Packaging Bags and plastic container store at storage room to be sold out for recycle and reused.

Bottom ash from boiler will collect and temporary store at designated site and dispose weekly with company own truck to the designated disposal site. If local people want to use bottom ash, industry will give after collection weekly for using in pave or fill the road.

Waste Management Facilities

Various wastes will be generated during the operation of the Animal Feed Producing. In industrialized locations such as the project area, it is essential that, these wastes are handled, stored and managed in a safe and environmentally responsible manner. For disposing waste from factory, Myanmar C.P. Livestock Co., Ltd. will ensure that coordinate with township municipality and disposing will be under the guidance of these respective authorities.

Other requirement:

- Regularly inspection will be carried out of all bulk containment on site prevent leakage and product loss
- Train both cleaners and employees for proper good housekeeping practice at production area
- Regular check the temporary storage site of generated solid waste from the whole factory
- All employee will be followed and practiced by the principle of waste reduction, recycling, recovery and reusing
- Solvents and Oil waste will be collected by designated jerry cans
- Provide appropriate control devices in storage of solvents, diesel to avoid possible leakages
- Ensure that lighting and ventilation is adequate is the chemical solvents storage area
- Dispose at permitted areas specially designed to receive the waste
- Regularly check the storage and disposal areas of all hazardous chemical to prevent accidental release
- Provide separate storage tank or designated bin for chemical wastes

Occupational Health and Safety Plan

Exposure of noise to employees and workers

According to Occupational Safety and Health Administration (OSHA), the maximum allowable noise level for workers is 90 dB (A) for 8 hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas, need to provide if actual noise level monitoring results are more than 90 dB (A) at the work site for working time hours for 8 hours. Recommendations for noise exposure impact mitigation measures for managing exposure to noise are as followed.

In production area of Feed Mill, the required personal protective equipment (PPE) must be provided for all employees and workers to overcome the noise exposure impact working at production area.

Engineering controls involve modifying or replacing equipment, or making related physical changes at the noise source or along the transmission path to reduce the noise level at the worker's ear. Examples of inexpensive, effective engineering controls:

- Choose low-noise tools and machinery
- Maintain and lubricate machinery and equipment (e.g., oil bearings)



- Place a barrier between the noise source and employee (e.g., sound walls or curtains)
- Enclose or isolate the noise source.

Administrative controls are changes in the workplace or schedule that reduce or eliminate the worker exposure to noise. Examples:

- Operate noisy machines during shifts when fewer people are exposed
- Limit the amount of time a person spends at a noise source;
- Provide quiet areas where workers can gain relief from hazardous noise sources; and
- Control noise exposure through distance is often an effective, yet simple and inexpensive administrative control. Specifically, for every doubling of the distance between the source of noise and the worker, the noise is decreased by 6 dBA.

Regular monitoring of the noisy machines for running in production that includes hammer mill, conveyors and other noisy equipment and should maintain and prepare procedures to reduce the noise exposure on employees and workers.

Respiratory hazards

Occupational health risks of respiratory hazards may cause by grain dust and fine airborne PM from process activities of feed production and odour from storage facilities of feed additives, drugs and premix and chemicals.

To minimise the worker 's exposure to dust, effective reduction of exposure or control of dust sources by modifying the existing process and equipment used or change the composition of materials. Also, providing PPEs and having regular medical check-up of employee and providing treatments can minimize the likelihood of having diseases or illnesses related to dust exposure. In addition, install appropriate dust control facilities (such as filter bags, fans, and cyclones) at the proposed animal feed factory and must be monitored, checked and repaired. Recommended dust control measures are as below;

- Organize the generated dusty areas of the production area to minimize the duration, frequency and level of exposure for employees
- Ensure proper handling of materials
- Ensure good maintenance of factory and equipment
- Provide sufficient information, instruction, and trainings for employees about the use of control measures for exposure of grain dust

Infections and Allergic Reactions

The handling of raw feed materials may develop infections or allergies in the sensitive workers, resulting from the direct exposure or in contained facilities. It may also result from the inhalation of associated bacteria or foreign material contaminated with pathogens or allergens. Industry-related recommendations include the following:

- Provide ventilation, especially at workstations devoted to raw-material handling, milling, handling and use of solvents.
- When feasible, use hot water, rather than solvents, to facilitate cleaning.



- Ensure that employees handling concentrated lye, acid, and chlorine wear protective clothing and eyewear, to prevent and control exposure to chemicals.
- Upgrade of storage areas of all raw materials, casings and solvents will allow for proper containment of accidental spills and leakages and to minimise odours.
- Laboratory staff should wear the standard laboratory outfit such as lab coats, proper headwear, masks, gloves, footwear and aprons whenever necessary
- The working environment and workers' health should be monitored for occupational hazards and diseases relevant to the specific project.

Manual Handling

Lifting, repetitive work and posture injuries occur as a result of working in the processing industry (e.g. lifting boxes, pails and containers of raw feed ingredients materials, feed additives and repetitive operations). Repetitive tasks can lead to musculoskeletal injuries. It is fortunate that most part of the process in the animal feed mill is automatically run in the operations. Starting of the process from trucks coming into the gate of the factory compound passing on the weighing bridge, loading sites for raw material and transferring to silo. The rest of the process are functioning automatically and mechanized that almost all steps have no manual operations and handling, except for operating the forklifts and backhoes for lifting and shoving things.

Recommended prevention and control measures for these activities are

- To alleviate poor working postures;
- Rotation of work assignments and tasks to reduce repetitive activities of the workers;
- Install mechanical lifting aids, conveyor belts or forklifts where possible;
- Gloves and boots will also be provided for all manual work.

Electric Shock and Equipment Safety

When operating or servicing electrical equipment, be sure to follow basic safety precautions as summarized below.

- Inform each individual working with electrical equipment of basic precautionary steps to take to ensure personal safety.
- Avoid contact with energized electrical circuits. Let only qualified individuals service electrical equipment.
- Before qualified individuals service electrical equipment in any way, disconnect the power source to avoid the danger of electric shock. Ensure that any capacitors are, in fact, discharged.
- Before reconnecting electrical equipment to its power source after servicing, check the equipment with a suitable tester, such as a multi-meter, to ensure that it is properly grounded.
- Do not reenergize a circuit breaker until sure that the cause of the short circuit has been corrected.



- Install ground fault circuit interrupter (GFCI), to protect users from electric shock, particularly if an electrical device is handheld during operation.
- If a person is in contact with a live electrical conductor, disconnect the power source before removing the person from the contact and administering first aid.

Safety and Emergency Equipment

Safety equipment, including spill control kits, safety shields, fire safety equipment, respirators, safety showers and eyewash units, and emergency equipment should be available in well-marked highly visible locations. Fire-alarm pull stations and telephones with emergency contact numbers must be readily accessible. In addition to the standard items, other safety devices may also be needed. The factory supervisor is responsible for ensuring proper training and providing supplementary equipment as needed.

Storage and Inspection of Emergency Equipment

Establish a central location for storage of emergency equipment. Include the following:

- blankets for covering the injured,
- stretchers (generally best to wait for qualified medical help to move a seriously injured person),
- first-aid equipment (for unusual situations such as exposure to hydrofluoric acid or cyanide, where immediate first aid is required), and
- chemical spill cleanup kits and spill control equipment (e.g., spill pillows, booms, shoe covers, and a 55-gal drum in which to collect material).

Inspect safety equipment regularly (e.g., every 3 to 6 months) to ensure that it will function properly when needed. The factory supervisor or safety coordinator is responsible for establishing a routine inspection system and verifying that inspection records are appropriately maintained and archived.

Hazard Warning Signs

Whenever possible, warning signs will be displayed where a potential hazard may cause injury. Warning signs must be strictly adhered to. Warning signs must be posted where hazards exist and must not be removed unless hazard has been controlled.





Personal Protective Equipment (PPE)

PPE, Personal Protective Equipment, are the tools that ensure the basic health protection and safety of users. PPE includes all clothing and other work accessories designed to create a barrier against workplace hazards, and using PPE requires hazard awareness and training on the part of the user. Employees must be aware that the equipment does not eliminate the hazard; if the equipment fails, exposure will occur. To reduce the possibility of failure, equipment must be properly fitted and maintained in a clean and serviceable condition.

Employers are required to assess the workplace to determine if hazards that require the use of head, eye, face, hand, or foot protection are present or are likely to be present. If hazards or the likelihood of hazards are found, employers must select, and have affected employees use, properly fitted PPE suitable for protection from these hazards. Before doing work requiring the use of PPE, employees must be trained to know when PPE is necessary, what type is necessary, how it is to be worn, and what its limitations are, as well as its proper care, maintenance, useful life, and disposal. Most common categories and types of PPE are as followed.

- Eye and face protection: Industrial safety glasses, goggles, face shields, welding helmets
- Head protection: Protective helmets such as hardhats
- Hearing protection: Single-use earplugs, molded ear plugs, or earmuffs
- Respiratory protection: Air-purifying respirators, atmosphere-supplying respirators, combination respirators, and dust masks



- Foot and leg protection: Metatarsal guards, toe guards, foot and shin guards, steeltoed boots, industrial safety shoes/boots, and leggings
- Hand and arm: Durable work gloves, fabric/coated fabric protection gloves, chemical/liquid resistant gloves, and insulating rubber gloves
- Torso protection: Chemical protective clothing (CPC), Flame/heat resistant clothing, cooling vests, surgical gowns, aprons, and full body suits
- Fall protection: Full-body harnesses and body belts (only when used as part of a positioning system that limits falls to two feet)
- Musculoskeletal: Back belts, joint braces, and other devices designed to prevent overexertion-type injuries

Training Employees in the Proper Use of PPE

Employers are required to train each employee who must use PPE. Employees must be trained to know at least the following:

- When PPE is necessary.
- What PPE is necessary.
- How to properly put on, take off, adjust and wear the PPE.
- The limitations of the PPE.
- Proper care, maintenance, useful life and disposal of PPE.

Employers should make sure that each employee demonstrates an understanding of the PPE training as well as the ability to properly wear and use PPE before they are allowed to perform work requiring the use of the PPE.

The employer must document the training of each employee required to wear or use PPE by preparing a certification containing the name of each employee trained, the date of training and a clear identification of the subject of the certification.

Chemical Safety Plan

The Chemicals used in Feed Mill are Essential Amino acids, Antibiotics, Probiotics, Mold inhibitors, Antioxidants, Coloring Agents, Enzymes and Vitamins for the processing of poultry feed.

Chemical Storage

A medication that should be stored at room temperature means between 15 to 25 degrees Celsius; cool temperature means between 8 to 15 degrees Celsius; refrigeration means between 2 to 8 degrees Celsius; and freezing temperature means -10 to -25 degrees Celsius.

Most of chemicals should be stored in a dry place away from heat and humidity. Some chemicals also have special instructions for storage. If chemicals need to be protected from light, it should be stored in a container that keeps out light.

The Chemicals used in Feed Mill are stored according to the storage conditions and instructions on prescription of the chemicals. Some are stored in the cold storage room e.g. DL-Methionine, MCP Monocalcium Phosphate MCP 22% feed grade, MONO-DICALCIUM PHOSPHATE (MDCP). Probiotics are stored at a storage temperature of 4°C. Mold

inhibitors and Enzymes are stored under refrigeration and away from light. Vitamins and other chemicals are stored at room temperature.

Chemical Safety Plan

Most of the chemicals used in Feed Mills are powder forms. The dust and particulate matters are dispersed in the air at the working area. The eyes and skin can be irritated by some of the chemicals in handling. The particulate matters also enter into the lungs and can cause lung disease. To protect these hazards, the workers must use the personal protective equipments PPES. Therefore, workers should wear respirators or dust masks approved by a certification organization, for protection against these chemicals. To protect the skin, protective gloves, boots and impermeable clothes should be worn. In addition, the workers should do the medical checkup twice in a year for their health.

In evaluating the hazards of chemicals and communicating the information to employees, the employer must do the following:

- Develop a written hazard communication program
- Label containers of chemicals in the workplace
- Make safety data sheets (SDSs) concerning hazardous chemicals in the work place easily accessible to employees
- Inform and train employees about the hazardous chemicals in their working environment

Since chemical manufacturers and importers must evaluate the chemicals they produce or import, employers may rely upon those evaluations. However, if the employer chooses not to rely upon those evaluations, then the employer must make its own evaluations.

Written Hazard Communication Program

The written hazard communication program must, among other things, include the following:

- List all hazardous chemicals in the work place
- Describe how the employer complies with the requirements for:
 - Labelling hazardous chemicals
 - Providing Safety Data Sheets (SDSs)
 - Furnishing information to and training for employees

The written program must be available upon request to employees and their representatives.

Labels

The chemical manufacturer, importer or distributor must label each container with the identity of the hazardous chemical(s), appropriate warnings, and name and address of the manufacturer of the chemical. The employer must, in turn, label each container of hazardous chemicals in its work place similarly.

If the container is stationary, the employer may use signs, placards, etc., in lieu of labels. The important thing is that there is clear understanding as to what is in each container. If the container is portable and used only to transfer a chemical from its stationary container, the portable container does not have to be labelled.

Safety Data Sheets (SDS)



The chemical manufacturer and importer must provide employers with an SDS for each chemical they produce or import. Employers must ensure that the SDSs are readily accessible to the employees on every work shift.

Among other things, the SDS for each chemical must identify the chemical with the name used on the label of its container and must provide information such as, but not limited to, the following:

- Chemical and common names of ingredients that present a known health hazard, particularly carcinogens
- Chemical and common names of ingredients that present a physical hazard
- Characteristics such as the vapour pressure and flash point
- The potential for fire, explosion and reactivity
- Signs and symptoms that may indicate that an employee has been exposed to the hazardous chemical
- Primary routes of entry (how the chemical could enter the body)
- Precautions for safe handling, such as:
 - Hygienic practices
 - Protective measures for equipment repair
 - Clean-up of spills and leaks
- Control measures such as:
 - Engineering controls
 - Work practices
- Personal protective equipment
- Emergency and first aid procedures
- The name, address and telephone number of the manufacturer, importer or other party who can provide information on the chemical and relevant emergency procedures

Employee Information and Training

Employees must be *informed* about any operations in their work area where hazardous chemicals are present. They must also be informed about the locations and availability of the hazard communication program, list of chemicals and SDSs.

Employees must receive *training* on the following:

- Methods for detecting the presence or release of a hazardous chemical, such as monitoring devices and the visual appearance or odour of the chemical
- Physical and health hazards of chemicals in their work area
- How to protect themselves using work practices, emergency procedures

OHS Training

• Provisions should be made to provide OHS orientation training to all new employees to ensure they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow employees.



• Training should consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site-specific hazard or color coding in use should be thoroughly reviewed as part of orientation training

Feed Safety

Feed production should be performed according to internationally recognized food safety standards consistent with the principles and practice of HACCP and Codex Alimentaria.

Recommended food safety principles include the following:

- Respect "clean" and "dirty" zoning. Design in accordance with veterinary rules (e.g. surfaces are easy to clean and desterilize certain equipment);
- Improve the cooling chain;
- Facilitate tracing parts of processed product;
- Comply with veterinary regulation and precautions for waste and by-products;
- Full institutionalization of HACCP pre-requisites including:
 - o Sanitation
 - Good Management Practices (GMPs)
 - Implement integrated pest and vector management programs by contract and with some pest control agencies, maximize pest and vector control through mechanical means (e.g. traps), and use mesh on doors and windows to reduce the need for chemical pest and vector control
 - Chemical control
 - Allergen control
 - Customer complaints mechanism
 - Traceability and recall

Fire Safety Plan

It is principally based on the Preparation for Fire Hazard Prevention. The objective of fire prevention is to protect human life and property from fire. Factories should be regularly assessed for fire risk to identify sources of ignition and location of fuels for **Fire Safety**.

As per the Chapter VII, Formation of the Reserve Fire Brigade of Myanmar Fire Services Law, each factory needs to have the fire unit which is to be founded accordingly, to the classification of building and the level of production. The following systems need to be installed throughout the factory, including the fire emergency plan.

- a) Fire prevention
- b) Fire Protection
- c) Fire Alarm System
- d) Fire Fighting Training and Demonstration Schedule for all employees to understand
- e) Fire Security System
- f) Effective Communication (Telephone and Public Address system)

As for Fire prevention, the four most important functions are;


- a) Own Fire emergency plan to be drawn and post FIRE ORDER for the factory.
- b) Good Housekeeping includes keeping the work area, corridors and escape routes clear, safe storage of flammable materials (textiles, chemicals, papers etc.) / liquids, systematic waste disposal, smoking free work area etc.
- c) Fire safety equipment such as portable dry chemical Fire extinguishers, Fire Hydrants and hoses, fire alarm call points, Heat and smoke vents, etc.
- d) Trainings on instructions for all occupants and employees, of their individual and collective responsibilities for general safety of the factory and people, about the fire equipment and frequent, random fire drills carried out on "ALARM-RESCUE-EVACUATION-FIRE CONTROL."

For the prevention of fire hazards, Myanmar C.P Livestock Co., Ltd. plans the construction of factory building with steel structure and brick wall and have a large series of modern fire extinguishers, sand bags and sand pits with the essential shovels, pich axes, hooks and flats ready at hand in every sub-section of the factory. Smoking in the premises of the factory will be strictly restricted. Myanmar C.P Livestock Co., Ltd will abide by the instructions from Township Fire Services Stations and Minimum Standards Requirement of Fire Safety.

It is advisable to contact the Fire Services Department Head Quarter or at least to Township level Fire Services for Inspection and to get the certification on approval of Fire safety Preparations. Minimum Standards Requirement of Fire Safety to be followed including

- Smoking prohibited in work but to provide a segregated safe smoking area
- Electrical equipment to be regularly serviced
- Serviced, certificated and appropriate Firefighting equipment to be adequate and easily accessible
- Fire alarm points, Fire exits and escape routes to be clearly signed and accessible
- Fire doors with crash bars are recommended, which can be locked from the outside but can be opened from within to provide security and fire safety.
- Regularly serviced electrical equipment to avoid of becoming the source of ignition
- To install standard Fire hydrants coupling 70psi / minute, Hose reel/ Hose rack, 35 meters-35psi/min etc.

Fire drill instructions will be posted at every section of the factory and the workers will have regular fire drills and they will be divided into specific groups to carry out precise evacuation plan, if fire breaks out.

A Fire Protection and Supervisory Committee, headed by the Factory manager, consist of specific groups to carry out the Fire Prevention functions and the precise evacuation plan, in case of fire break outs, to be in line with the Myanmar Fire Services Law enacted and abided by the instructions from Township Fire Services Stations and Minimum Standards.

Fire Safety and Evacuation Plan

Fire Evacuation plans should include the following information

> Emergency escape routes must be clearly shown on floor plans and workplace maps



- > Employers must know that their employees know the emergency escape routes
- Procedures for employees who must remain to operate critical equipment before evacuating
- Identification and assignment of personnel responsible for rescue or emergency medical aid

Fire Safety Plans should include the following information:

- 1. Procedure for reporting a fire or other emergency
- 2. Site plans indicating the following
 - > The Occupancy assembly point
 - > The locations of fire hydrants
 - > The normal routes of fire department vehicles access
- 3. Floor Plans identifying the locations of the following
 - ➢ Exits
 - Primary evacuation routes
 - Secondary evacuation routes
 - Accessible egress routes
 - Areas of refuge
 - Exterior area for assisted rescue
 - Manual fire alarm boxes
 - Portable fire extinguishers
 - Occupant-use hose stations
 - ➢ Fire alarm annunciators and controls

Employee Training Program

Employee shall be trained in fire prevention, evacuation and fire safety in accordance with the following sections.

Fire Prevention Training - Employee shall be apprised of the fire hazards of the materials and processes to which they are exposed. Each employee shall be instructed in the proper procedures for preventing fires in the conduct of their assigned duties

Evacuation Training – Employees shall be familiarized with the fire alarm and evacuation signals, their assigned duties in the event of an alarm or emergency, evacuation routes, areas of refuge, exterior assembly areas and procedures for evacuation

Fire Safety Training – Employee assigned fire-fighting duties shall be trained to know the locations and proper use of portable fire extinguishers or other manual fire-fighting equipment and the protective clothing or equipment required for its safe and proper use.



Table 45. Environmental Management Action Plan for Operation Phase

Issue	Management Action		Time Frame	Estimated Cost	Supervised/
		With Mitigation		(MMK)	Appioved by
Air Quality	 Control of Dust and Odour An effective aspiration system, placing all conveying elements under negative pressure and reclaiming all dust back into the system must be in proper working condition. Plant trees as wind barrier inside and at the boundaries of the project location. Switch off vehicles when not in operation to reduce emissions by drivers The Feed mill facility must be enclosed to limit exposure of potential odours Keep all working and storage areas clean and remove waste products immediately from the production line; Cover all transfer systems, wastewater canals, and wastewater treatment facilities to reduce the escape of foul odours. Continuous monitoring should take place to minimise the potential of smells from the Feed mill. Stack height shall not be less than 33 meters in any case. The boiler shall incorporate all safety measures so as to provide complete protection to the operator and the unit against all possible operational/machinery failures. 	Low	Biannual	5,000,000	HSE Coordinator/ Factory Manager
Noise	 Where possible, appropriate silencers and noise reduction measures should be implemented. Continues monitoring of noise levels will be conducted to make sure the noise levels do not exceed the limits as set out by the regulations. Ear protectors – must be worn if workers spend prolonged 	Low	Biannual	2,000,000	HSE Coordinator/ Factory Manager



	 periods of times in noisy areas. Regular maintenance, monitoring and en-ointing/lubricating of the machineries. Noisy equipment will not be permitted during night hours as much as possible. Used of Generator should be housed in a suitable acoustic enclosure. The acoustic insulation should be designed to meet mandatory standards based on a 25-dB insertion loss. 				
Water Consumption	 Regularly maintain plumbing, and identify and repair leaks Shut off water to unused areas Install self-closing taps, automatic shut-off valves, spray nozzles, pressures reducing valves, and water conserving fixtures (e.g. low flow shower heads, faucets, toilets, urinals and spring loader or sensor faucets) Operate dishwashers and laundries on full loads, and only when needed Install water-saving equipment in lavatories, such as low flow toilets Install water meter for internal control of water consumption All staff must be trained and made aware conservation practices and proper methods of water use must be placed in the toilets and other areas of water consumption 	Low	Biannual	2,000,000	HSE Coordinator/ Factory Manager
Liquid waste management	 Properly designed and installed the sewage effluents treatments facilities to prevent any hazard to public health or contamination of land, nearest surface water and ground water Ensure that lines and sewage system of factory drainage and the nearest public drainage are watertight and sufficient capacity Avoid cleaners that contain active chlorine or prohibited, banned, or restricted chemicals. 	Low	Quarterly	2,500,000	HSE Coordinator/ Factory Manager



	 Continues monitoring of wastewater quality should be conducted to make sure the quality does not exceed the limits as set out by the guidelines. Monitor the boiler effluents water temperature to meet the guideline 				
Solid Waste and By-products Waste	 Regularly inspection must be carried out of all bulk containment on site prevent leakage and product loss Train both cleaners and employees for proper good housekeeping practice at production area Regular check the temporary storage site of generated solid waste from the whole factory All employee must be followed and practiced by the principle of waste reduction, recycling, recovery and reusing Solvents and Oil waste must be collected by designated jerry cans Provide appropriate control devices in storage of solvents, diesel to avoid possible leakages Ensure that lighting and ventilation is adequate is the chemical solvents storage area Dispose at permitted areas specially designed to receive the waste Regularly check the storage and disposal areas of all hazardous chemical to prevent accidental release Provide separate storage tank or designated bin for chemical wastes For disposing waste from factory, the factory management will coordinate with Municipality, township city development committee. 	Low	Monthly	1,000,000	HSE Coordinator/ Factory Manager
Occupational Health and Safety • Exposure of noise	 All employee must not be exposed at noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. Use of hearing protection must be enforced actively when the equipment sound level over 8 hours reaches 85 dB (A) 	Low	Biannual	10,000,000	HSE Coordinator/ Factory Manager

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 Respiratory 	Organize the generated dusty areas of the production area	
• Respiratory	to minimize the duration frequency and level of exposure	
nazarus	for employees	
 Infections and 	The Englished Angling of motorials	
Allergic	Ensure proper handling of materials	
Reactions	• Ensure good maintenance of factory and equipment	
• Manual	Provide sufficient information, instruction, and trainings for	
Handling	employees about the use of control measures for exposure of	
 Electric Shock 	grain dust	
and Equipment	Provide ventilation, especially at workstations devoted to	
and Equipment	raw-material handling, milling, handling and use of	
	solvents.	
	When feasible, use hot water, rather than solvents, to	
	facilitate cleaning.	
	Ensure that employees handling concentrated lye, acid, and	
	chlorine wear protective clothing and eyewear, to prevent	
	and control exposure to chemicals.	
	Upgrade of storage areas of all raw materials, casings and	
	solvents will allow for proper containment of accidental	
	spills and leakages and to minimise odours.	
	Laboratory staff should wear the standard laboratory outfit	
	such as lab coats, proper headwear, masks, gloves, footwear	
	and aprons whenever necessary	
	• The working environment and workers' health should be	
	monitored for occupational hazards and diseases relevant to	
	the specific project.	
	Rotation of work assignments and tasks to reduce repetitive	
	activities of the workers;	
	Install mechanical lifting aids, conveyor belts or forklifts	
	where possible;	
	Gloves and boots will also be provided for all manual work.	
	Inform each individual working with electrical equipment of	
	basic precautionary steps to take to ensure personal safety.	
	• Avoid contact with energized electrical circuits. Let only	



		Î.			1
	 qualified individuals service electrical equipment. Install ground fault circuit interrupter (GFCI), to protect users from electric shock, particularly if an electrical device is handheld during operation. Clearly display warning signs or symbols for dangerous areas at the factory Arrange appropriate health check-up facilities Plant must implement the safety and health program designed to identify, evaluate, monitor and control safety and health hazards 				
Fire Safety	and health hazardsIt is advisable to contact the Fire Services Department Head Quarter or at least to Township level Fire Services for Inspection and to get the certification on approval of Fire safety Preparations. Minimum Standards Requirement of Fire Safety to be followed including• Smoking prohibited in work but to provide a segregated safe smoking area• Electrical equipment to be regularly serviced• Serviced, certificated and appropriate Firefighting equipment to be adequate and easily accessible• Fire alarm points, Fire exits and escape routes to be clearly signed and accessible• Regularly serviced electrical equipment to avoid of becoming the source of ignition		Biannual	5,000,000	HSE Coordinator/ Factory Manager



6.7 Mitigation Measure during Decommission Phase

There is less prospect of encountering the decommissioning phase in Myanmar CP Livestock factory as it planned to work for long term at least 50 years and 10 yearly extensions with no intention to stop and will change to the production of appropriate commodity even if the recent products are out of place as time changes.

The objective to provide guidelines during the decommissioning phase is to prevent structures being left to deteriorate. Therefore it is imperative that non-functional structures are removed as soon as possible and the area is rehabilitated. If non-functional structures are not required any longer, and not removed, it must be maintained as if it is in used to prevent the environmental degrading of the area.

The Applicant is responsible for:

- Removal of the construction building rubble to a suitable disposal facility,
- Ensure that suitable arrangements be made to protect the environment against long term negative impacts,
- Minimize negative visual impacts,
- To clean up contaminants of the environment,
- Prevent erosion through regular monitoring and rehabilitation of degraded areas.



Table 46. Environmental Management Action Plan for Decommissioning Phase

Issue	Management Action	Significance With Mitigation	Time Frame	Estimated Cost of Management and Monitoring (MMK)	Supervised/ Approved by
Air Quality	 Dust suppression facilities (back pack water sprayer or on trolly) will be available where ever earth and cement works are required. Areas of construction will be maintained damp by profuse or appropriate watering on the construction area. Construction materials (sand, gravel, and rocks) and spoil materials will be transported in trucks covered with tarpaulins. Storage piles will be at least 30m downwind of the nearest human settlements. All vehicles (e.g., trucks, equipment, and other vehicles that support construction works) will be well maintained. 	Low	Decommission period	5,000,000	HSE Coordinator/ Construction Supervisor
Noise	 Use noise control devices, such as temporary noise barriers for workers Unused equipment will be turned off and the parallel use of noisy equipment/machinery must be avoided Schedule activities in day time Speed limit control for truck 	Low	Decommission period	3,000,000	HSE Coordinator/ Construction Supervisor
Soil Contamination	 Oil spill equipment and adequate secondary containment should be provided and managed to reduce soil degradation. Set-up temporary silt trap/ponds to prevent siltation Proper stockpiling of spoils (on flat areas and away from drainage routes) Spoils generated from demolition works be disposed as filling materials Remove all hazardous substances and rehabilitate the area to 	Low	Decommission period	1,000,000	HSE Coordinator/ Construction Supervisor

	restore its aesthetic/ economic value				
Water Quality	 Keep facility as clean as possible. Proper use and maintain pollution control equipment. Storage areas should be protected against exposure to high intensity rainfall. Waste to be stored in the appropriate containers in the appropriately constructed area. Waste to be frequently collected and disposed of at an appropriate and authorised landfill sites. Storage of any material or substance that may cause pollution to water sources to be safely handled and stored. Proper maintenance of sewerage systems. Monitor for potential contamination from sewerage 	Low	Decommission period	5,000,000	HSE Coordinator/ Construction Supervisor
Waste	 All construction personnel must be properly trained regarding management of hazardous wastes. Construction materials that are potentially hazardous should be stored under watertight conditions, while still making them readily available for use. Hazardous waste collected from the project must be stored and disposed of in a manner that is appropriate for that particular type of waste. The contractor must be prepared to respond to spills or leaks that occur anywhere on the project site. Failure to clean up spills, or improper storage of hazardous materials, may trigger sampling and analysis requirements. The Construction and demolition (C&D) material generated from the site formation and demolition works should be sorted on-site into inert C&D material (that is, public fill) and C&D waste. A suitable area should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process. 	Low	Decommission period	7,000,000	HSE Coordinator/ Construction Supervisor

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	• Water discharged from the construction site (no matter how non-hazardous it seems) should be discarded into water sedimentation pool, before it flows through the common drainage of the residential area.				
Impact on Human	 Outplacement or referral system will be in place prior to retrenchment and closure of the facility The site must be clearly demarcated. Appropriate signs should be in place showing dangerous areas and no-go areas. Prevent physical injuries during period in the form of slips, trips, falls and impact with moving vehicles by being vigilant. Prevent injury by heavy physical work and manual handling of heavy loads by conducting proper training on site. Staff and visitors to the site must be fully aware of all health safety measures and emergency procedures. External contractors must work to all existing safety standards and requirements. Tools must be used by safely by external contractors Provide ear protectors for workers spend prolonged periods of times in noisy areas. Prevent occupational exposure to dust and particulate matters during the demolition period by providing masks and respirators. The decommissioning of the Animal Feed Mill is unlikely as it is to be available by its own land and it planned to work for long term at least 50 years and extensions with no intention to stop and will change to the production of appropriate commodity even if the recent products are out of place as time changes 	Low	Decommission period	5,000,000	HSE Coordinator/ Construction Supervisor



6.8 Environmental Management Plan

The management plan towards factory environment condition and employees also need to be implemented, in addition to waste/pollutants management plan. Description on factory environment and employees management plan can be seen in Table (47).

Table 47. Management on Factory Environment and Employees

Management Plan	Remarks	Description of Brief Corrective Action
A. Factory Environment		
1. Are your industrial activities completed within the security fence from the surrounding areas?	Yes	Our Finish product produce complete inside the fence
2. Are your industrial activities in compliance with the provision on basic building coefficient or the Building Coverage set by the local government?	Yes	Factory Area 40% Free Area 60% Total Area 114000 sq.m
3. Is there any		
a. Demarcation line spacing at the front (towards the street)?	Yes	40 meter
b. Demarcation line spacing at the sides (left & right)?	Yes	15 meter both side
c. Demarcation spacing at the back?	Yes	15 meters
4. Does your factory use a green space system or landscape as a barrier to the surrounding areas?	Yes	An area of about 15000 sq.m around the factory is to be planted with ornamental plants and shady trees.
5. Is there a car parking lot in your factory area?	Yes	Parking capacity: approximately for 80 trucks
6. Are there facilities for loading and unloading in your plant area?	Yes	In an open space of about 5000 sq.m
7. Is there a rainwater/domestic channel system in your factory area?	Yes	Using closed/ covered channels to the drainage system.
8. Are there wastewater channels in your factory area?	Yes	Liquid waste from the office & household use is channelled to the drainage.
9. Is there a special place as a canteen for labors/workers in your plant area?	Yes	For the employees to have lunch or to take a rest.
B. Factory Building		
10. Is your factory building completed with a ventilation system?	Yes	Using rotary exhaust fan, conventional and grooved roof.
11. Is your factory completed with a fire fighting facilities?	Yes	Foam extinguishers are located in strategic places.
12. Is your factory completed with sanitation facilities for its employees?	Yes	In each production unit and office units.
13. Is your factory completed with a water efficiency system such as recycle or others?	No	Since there is no liquid waste produced.
C. Workers and Labors		

14. Does your company have a transportation system for its workers/labors?	No	The transportation allowance is to be given.
15. Are there regular health examinations for your workers/labors?	Yes	Health facilities, regular health examination and allowances are to be followed as in the rules of Occupational Health Department, Social Welfare Dept and Township Health Care Centres of the Government.
16. Does your company provide housings for its workers/labors?	No	Since the employees come from surrounding villages.
17. Does your company implement community programs in your factory surroundings?	Yes	Appropriate CSR Programs to be implemented in the village(s)
18. Is there cooperation between your company with other institutions on your factory's environmental management and monitoring activities?	Yes	To be Inspected by Environment Management units of Yangon Region Government, YCDC, ECD, Electricity board and Government Boiler Inspection Team, (Ministry of Industry). Monitoring and Evaluation (M&E) to be implemented as necessary.



6.9 Waste and Pollutants Management

Waste and Pollutants Management needs to be performed to plan waste and pollutant controls in order to prevent environmental contamination. Waste and Pollutants Management Plan their descriptions can be seen in Table (48).

Types of waste/	Physical State	Nature of Materials	Management System	System Work Method	Location/ Retriever	Emergency action if	Responsible Implementing Unit
pollutants							
A. Solid							
1.Rejected raw materials, scattered raw materials	Solid	Hazardous	Collected and put in sacks	Reused (Recycled)	Prod. Room		Production Unit
2.Raw Material Packages	Solid	Dirty and Smelly	Collected (recycled)	Reused for scattered raw materials container	Prod. Room		Production Unit
B. Liquid							
 Liquid waste Boiler Lab Sanitation 	Liquid	Non Hazardous	Channeled to Septic Tank		Drainage Channel		Production Unit
C. Dust							
1.Indoor	Dust	Dusty	Processed using dust collector and aspirator		Air in prod. room	Prod. operation shut down	Production Unit
2.Outdoor	Dust	Dusty	Processed using landscape and activities barrier		Free air in Up downwind and downwind points in	Conduct System improvement immediately	Production Unit

 Table 48. Waste/Pollutants Management Plan



Myanmar C.P. Livestock Co., Ltd.

			wall		activity location				
D. Noise									
1.Indoor	Gas	Noisy	By using air		Air in production room	Production operation	Production Unit		
	emission		ventilation			shut down			
2.Outdoor	Gas	Noisy	By planting shade		Free air in Up	Conduct System	Production Unit		
	emission		trees		downwind and	improvement			
					downwind points in	immediately			
					activity location				

6.10 Environmental Monitoring Plan

6.10.1 Environmental Monitoring Plan during Construction Phase

Table 49. Environmental Monitoring Plan for Animal Feed Factory during Construction Phase

Phase	Component	Parameter	Target Level	Measurement Method	Monitoring Location	Monitoring Freq.	Responsible Person
Construction Phase	Ambient Air Quality	PM10, PM2.5, CO2, NO2, SO2,	Within Guideline	Relevant Air Quality Monitoring Equipment	Receptor 's Areas near project site	Once after the Construction Activities	Contractor/ CP
	Noise Level	Noise level (dB(A) scale)	Within Guideline	Relevant Noise Meter Equipment	Construction area at proposed project site	Twice during Construction Phase	Contractor/ CP
	Waste Water Quality	For Wastewater: BOD, COD, pH, Total Coliform Bacteria, Oil and grease Total Nitrogen, Total Phosphate, Total Suspended Solid	Within Guideline and Within WHO standards limit levels	Relevant Laboratory	At construction area of project site	Once after the Construction Activities	Contractor/ CP
	Solid Waste	Construction Waste Domestic Waste	Volume of solid waste (ton or Kg)	According to the YCDC	Temporary Disposal Sites of proposed project area	Weekly	Contractor/ CP
	Occupational, Health and Safety	Short term affect (accidents and injuries)	Zero accident cases Safety training for construction workers	According to the Occupational Health and Safety Plan of the Government of Union of Myanmar	Construction area of proposed Project Site	During Construction phase	Contractor/ CP



6.10.2 Environmental Monitoring Plan during Operation Phase

Monitoring towards factory environment and employees of Myanmar CP Livestock Co., Ltd. includes, among others, factory equipment, raw materials, rainwater channels, domestic wastewater channels, firefighting facilities, energy efficiency system, and employees' health.

The monitoring system, the monitored aspects and their purposes can be seen in Table (50).

Table 50. Factory Environment and Planned Monitoring

Monitored Components	Monitored Aspects	Monitoring Method	Monitoring Frequency	Implementin g Unit	Purpose
1. Raw Materials	Quality/quantity of the materials, usage efficiency and material preparation	Analyzed, weighed, measured & recorded	Every working days	QC Dept./ Lab analyst	The implementation of a clean process & to prevent environmental pollution.
2. Factory Equipment	Quantity of machines, condition of machines, prime mover and impact resulted	Visual and mechanical test to measure the efficiency	Every 6 production months	Maintenance Dept.	To prevent the environmental pollution rate and to maintain production process efficiency
3. Rainwater Channels	Channels' capacity and cleanness.	Supervise channels' smoothness	Every working days in rainy season	Environment	To prevent surface water overflow
4. Domestic Channels	Channels' capacity and cleanness.	Supervise channels' smoothness	Every working days	Environment	To prevent surface water overflow due to domestic activities
5. Firefighting facilities	Capability, number of feasibilities and expiration date	Visually and fire extinguishing simulation trial	Every month	Environment	To anticipate readiness and feasibility of firefighting facilities
6. Energy Efficiency System	Energy efficiency aspect of all parts that use energy	Monitor the stand meter	Once in a week	GA Dept.	The implementation of energy saving and resource saving technology.
7. Employees' Health	Types of health problems and acuteness level	Clinically general check up	Any time with company clinic facility	Personnel Dept.	To increase the employees' working productivities.



Phase	Component	Parameter	Target Level	Measurement	Monitoring	Monitoring	Responsible
				Method	Location	Freq.	Person
Operation Phase	Ambient Air Quality	PM10, PM2.5, CO2, NO2, SO2, O3, VOC	Within Guideline and International standards limit levels	Relevant Air Quality Monitoring Equipment	Project site Of downwind direction and inside the production area	Biannually	HSE Team Coordinator
	Noise Level	Noise level (dB(A) scale)	Within Guideline and International standards limit levels	Relevant Noise Meter Equipment	Operation area inside factory	Biannually	HSE Team Coordinator
	Water Quality 1.Ground Water 2. Waste Water	For groundwater: pH, Color, Turbidity, Conductivity, Total Hardness, Calcium Hardness, Magnesium Hardness, Total Alkalinity, Total Alkalinity, Carbonate (CaCO3), Bicarbonate (CaCO3), Bicarbonate (HCO3), Iron, Chloride (as OL), Sodium Chloride (as NaCL), Sulphate (as SO4), Total Solids, Suspended Solid, Dissolved Solids, Manganese, Phosphate, Phenolphthalein, Acidity, Methyl Orange Acidity, Salinity	Within Guideline and Within WHO standards limit levels	Relevant Laboratory	Tube well water and Drainage channel at project site	Biannually for ground water, Quarterly for wastewater	HSE Team Coordinator

Table 51. Environmental Monitoring Plan for Animal Feed Factory during Operation Phase





	For Wastewater: BOD, COD, pH, Total Coliform Bacteria, Oil and grease Total Nitrogen, Total Phosphate, Total Suspended Solid					
Solid Waste	Production waste,	Volume of solid	According to the	Temporary	Daily	HSE Team
	Laboratory waste, Rejected products, Packaging waste and containers general office waste and domestic waste	waste (ton or Kg)	YCDC	Storage Sites of Factory	ŗ	Coordinator
Occupational,	Short term affect	Zero accident cases	According to the	Project Site	Monthly	HSE Team
Health and Safety	(accidents and injuries)	Safety training for	Occupational	Production Sector		Coordinator
	Long term affect	workers and	Health and Safety			or HR
	(inhalation of dust, noise)	accident reports	Plan of the			Manager of
		_	Government of			CP
			Union of			
			Myanmar			

6.10.3 Environmental Monitoring Plan during Decommissioning Phase

Table 52. Environmental Monitoring Plan for Animal Feed Factory during Decommissioning Phase

Phase	Component	Parameter	Target Level	Measurement	Monitoring	Monitoring	Responsible
				Method	Location	Freq.	Person
Decommissi oning Phase	Ambient Air Quality	PM10, PM2.5, CO2, NO2, SO2	Within Guideline and International standards limit levels	Relevant Air Quality Monitoring Equipment	Receptor's Areas near project site	Once after the Decommissioni ng Activities	Contractor/ CP
	Noise Level	Noise level (dB(A) scale)	Within Guideline and International standards limit levels	Relevant Noise Meter Equipment	Sensitive spots	Twice, During Decommissioni ng Phase	Contractor/ CP
	Wastewater Quality	BOD, COD, pH, Total Coliform Bacteria, Oil and grease Total Nitrogen, Total Phosphate, Suspended Solid	Within Guideline and Within WHO standards limit levels	Relevant Laboratory	At demolishing project site	Once after the Decommissioni ng Activities	Contractor/ CP
	Solid Waste	Demolition debris such as concrete, metal, drywall, wood, glass, adhesives, sealants and fasteners and other hazardous materials	Volume of solid waste (ton or Kg)	According to the YCDC	Disposal sites of decommissioning phase of project site	Weekly	Contractor/ CP
	Occupational, Health and Safety	Short term affect (accidents and injuries)	Zero accident cases Safety training for workers and accident reports	According to the Occupational Health and Safety Plan of the Government of Union of Myanmar	Project Site Production Sector	Monthly	Contractor/ CP
	Socio-economic Aspect	Employment 's compensation, Outplacement or referral system		According to the Labour Laws	Entire site	Once after decommissioni ng phase	

Environmental Impact Assessment for Feed Mill

CHAPTER 7 – CONCLUSION AND RECOMMENDATION

7.1 Conclusion

Animal feed needs proper handling and preservation, to have a long shelf life and retain a desirable quality and nutritional value. As for many other feed milling operations, the main environmental impacts associated activities are inevitably related with the following issues:

- Air pollution
- Noise pollution
- Water pollution
- Waste pollution

The Potential Environmental Impact Assessment process was carried out by the Green Enviro Services Ltd. for EIA. The study team does not reveal/dispose any serious threat that the proposed development might have on the natural and socio-economic environment. Terrestrial Ecology Impacts - Flora, Fauna and Ecosystem Values are not to be affected much as the new animal feed mill project is on the industrial land, and flora or fauna biotopes already cleared as a developed Industrial Area.

The potential environmental impacts of the animal feed mill have been presented in Section 5.6. In summary, the key issues relate to:

- As for pollution by fugitive dust, airborne dust and crush grains emission from materials storage and handling of cereal grains, grinding and crushing etc, the significance is considered to be *Low* significance with mitigation by GMP, as all the planned improvements will be undertaken on the existing plant site for modernized and upgraded machineries and high-tech aspiration system in the study project.
- Pertaining to odours from raw materials of both plant and animal origins and though not very strong, still is a nuisance issue for neighbouring facilities and residential areas if in a huge mass. But the significance is considered to be *low* significance with mitigation by GMP, systematic storage design and regular monitoring practice.
- During the operation phase, employees and workers of animal feed mill will be endangered or oppressed particularly by noise from operation of heavy machinery equipment and activities. Exposure to high levels of noise can cause permanent hearing loss. This impact for the operation phase is considered to be *low* by proper management on work assignment, support material, PPE and health care of assigned workers.
- Pertaining to water consumption, there is no water use for processing purpose. Myanmar C.P Livestock Co., Ltd. uses its own source of underground water only for steam boiler and office use. The significance is considered to be *Low* significance with mitigation by GMP, proper handling and systematic control over usage.
- Concerning with the on- job safety of personnel and individual workers including Manual Handling, Electric Shock and Equipment Safety, Slips and Trips, Infections and Allergic Reactions, Chemical Exposure etc., the significance assigned to these personal impact for the operation phase is considered to be *low* by possible mitigation or obviation by GMP, proper management on work assignment, support material and health care.



- The effluent wastewater will generate from the cleaning of utensil for operational use, steam boiler wastewater discharge and domestic wastewater. The significance assigned to this impact for the operation phase is considered to be *medium to low* with mitigation by GMP, proper handling and systematic control over usage, either sedimented or double treated as necessary in the factory premise before dispose to the Zone Drain.
- Feed processing generates organic waste and by-products as solid wastes such as grain dust, kitchen waste and packaging materials. Pertaining to this impact is considered to be *low*, with mitigation by GMP and systematic waste management practice, efficient and regular monitoring

The Environmental Impact Assessment process carried out does not reveal or dispose any serious threat that the proposed development might have on the natural and socio-economic environment. All the potential threats identified are generic threats associated with the mild nature of feed production facilities and can be mitigated with the proper implementation of the Environmental Management Plan and by maintaining a high-quality environment within and around the facility.

The assessment concludes that the manufacturing activity is expected to have a **non-significant** impact following implementation of proposed mitigations during both the construction and operational phase. All the findings in the recent study of Green Enviro Services Ltd., invariably lead to envisage that the present study of the Myanmar C.P Livestock Co., Ltd., will be of low negative impact on environment and community, given that the Company follows all the Environmental Management Plans and procedures mentioned in this study besides its own procedures, as committed to work on. It is believed that performance of aforementioned project will support the development of Yangon Region area into an optimum healthy living environment with job opportunities and poverty alleviation.

The beneficial impacts with the facility of access to market centers and location of social services will enhance productivity in area and improve the quality of life of the people. In addition, local people will get direct employment as workers which will contribute significantly in improving their livelihood. These benefits from the implementation of the proposed project are more significant and long term in nature against the adverse impacts most of which could be mitigated or avoided.

7.2 Recommendation

Pertaining to EMP, there is not much to say on the study project as the Myanmar C.P Livestock Co., Ltd. could be able to properly handle the Environmental Management Plan as committed as the company has vast experiences in managing and following the strict environmental management rules and regulations in Thailand. Based on the fact that Myanmar C.P Livestock Co., Ltd. is a leading renowned business group in Livestock Sector as well as in the Feed industry, the Company should adopt the Good Manufacturing Practices Manual to be applied in the new factory under the recent study and follow sooth;

- 1. The Environment Management system standard with ISO 14001.
- 2. The policy of the Quality Management System (ISO 9001: 2008),

- 3. Guidelines for good Manufacturing Practice (GMP) and Hazard Analysis Critical Control Point (HACCP) for organizational management and the safety for animals as human food.
- 4. Keep its own Environmental policy documented with the organizational structure, planning activities, responsibilities, practices, procedures.
- 5. Form an Environmental Management Committee for implementation of it.
- 6. Strictly follow and implementation of EMP
- 7. Establish appropriate wastewater treatment system for Feed Mill.
- 8. As for Monitoring and Evaluation of the EMP, well experienced and knowledgeable HSE Coordinator and HSE Assistants shall be assigned as a Monitoring Officer who will bear the responsibility for regular check and reporting to the Management Committee on EMP guidelines and arrangements on weekly basis or as required, so as to keep the EMP be strictly followed.
- 9. Keep full records of environmental management activities and present to annual independent third-party environment audit and follow the audit report and comments.
- 10. Finally, the proponent must abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar

Following the assessment none of these impacts are regarded as having a significant impact to the extent that the intended activity cannot proceed, given that the follow-up studies, mitigations and recommendations proposed be implemented and monitored.

ATTACHMENTS



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ညွှန်ကြားရေးမှူးချုပ် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန ရုံးအမှတ် ၅၃၊ နေပြည်တော်။

သို့

ရက်စွဲ။ ။ ၁၆ –၈–၂၀၂၂

- အကြောင်းအရာ။ ။ Myanmar C.P Livestock Co., Ltd. မှ တိရစ္ဆာန်အစားအစာများ ထုတ်လုပ် ဖြန့်ဖြူးရောင်းချခြင်းလုပ်ငန်း၏ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (Environmental Impact Assessment–EIA) အစီရင်ခံစာအပေါ် သဘောထားမှတ်ချက်နှင့်အညီ ဖြည့်စွက် ဆောင်ရွက်ထားရှိမှုကိစ္စ
- ရည်ညွှန်းချက်။ ။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာဝန်ကြီးဌာန၊ ပတ်ဝန်းကျင်ထိန်းသိမ်း ရေးဦးစီးဌာန၏ ၂၀၁၄ ခုနှစ်၊ ဇူလိုင်လ ရက်စွဲပါ စာအမှတ်၊ အီးအိုင်အေ ၁/၁၂/၂၀၁၄ (/၂၀၁၄)

Myanmar C.P Livestock Co., Ltd. မှ ရန်ကုန်တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပျဉ်းမပင်ကျေးရွာရှိ မြေဧရိယာ (၂၇.၃၁) ဧကပေါ်တွင် ဆောင်ရွက်မည့် တိရစ္ဆာန်အစားအစာထုတ်လုပ်ခြင်းလုပ်ငန်းစီမံကိန်းနှင့်စပ်လျဉ်း၍ ပတ် ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) အစီရင်ခံစာကို ၂၀၁၄ ခုနှစ်၊ ဧပြီလတွင် ပေးပို့တင်ပြခဲ့ပြီးဖြစ်ပါသည်။

ယင်းလုပ်ငန်းစီမံကိန်းနှင့်ပတ်သက်၍ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ သဘောထားမှတ်ချက်များကို ထပ်မံဖြည့်စွက်၍ လိုက်နာရမည့်အချက်များ၊ အကြံပြုချက်များကို Green Enviro Services Ltd. (ယခင် Myanmar Livestock Resources Development Research Team–MLRD Research Team) မှ အောက်ပါအတိုင်း လိုက်နာ ဖြည့်စွက်၍တင်ပြအပ်ပါသည်။

(က) အကျဉ်းချုပ်အစီရင်ခံစာအားထည့်သွင်းဖော်ပြထားပါသည်။

- (ခ) အခြားနည်းရွေးချယ်ဆောင်ရွက်မှုများနှင့်စပ်လျဉ်း၍ ထည့်သွင်းဖော်ပြထားပါသည်။
- (ဂ) အစီရင်ခံစာပါ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတိုင်း အကောင်အထည်ဖော်ဆောင်ရွက်သွားပြီး စီမံကိန်းအကောင်အထည်ဖော်ခြင်းနှင့်စပ်လျဉ်း၍ ပတ်ဝန်းကျင်စီမံခန့်ခွဲခြင်းနှင့် စောင့်ကြပ်လေ့လာ ရေးလုပ်ငန်းများကို ဖြည့်စွက်ဖော်ပြထားပါသည်။
- (ဃ) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ လုပ်ထုံးလုပ်နည်းများ၊ ညွှန်ကြားချက်များ၊ စံချိန်စံညွှန်းများနှင့်အညီ လိုက်နာကျင့်သုံး အကောင်အထည်ဖော်ဆောင်ရွက်သွားပါမည်။

လေးစားစွာဖြင့်

chys.

ဒေါ်ဖြူစင်မောင်

အုပ်ချုပ်မှု ဒါရိုက်တာ

Green Enviro Services Ltd.

ပူးတွဲ (၁) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏သဘောထားမှတ်ချက်

ပူးတွဲ (၁) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏သဘောထားမှတ်ချက်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ ပတ်ဂန်းကျင်ထိန်းသိမ်းရေးနှင့်သစ်တောရေးရာဝန်ကြီးဌာန ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန ရုံးအမှတ် (၅၃) ၊ နေပြည်တော်

> စာအမှတ်၊ အီးအိုင်အေ-၁/၁၂/၂၀၁၄(/၂၀၁၄) ရက်စွဲ ၊ ၂၀၁၄ ခုနှစ်၊ ဖူလိုင်လ - ရက်

ပြည်ထောင်စုဝန်ကြီးရုံး ပတ်ဝန်းတွင်တိန်းလိန်းသေး န

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့်သစ်တောရေးရာဝန်ကြီးဌာန

အကြောင်းအရာ။

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S.

Myanmar CP Livestock Co., Ltd. မှ တိရစ္ဆာန်အစားအစာများ ထုတ် လုပ်ဖြန့်ဖြူးရောင်းချခြင်းလုပ်ငန်း၏ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း (Environmental Impact Assessment - EIA) နှင့် ပတ်ဝန်းကျင်စီမံ ခန့်ခွဲမှုအစီအစဉ် (Environmental Management Plan - EMP) အစီရင်ခံစာတို့အပေါ် စိစစ်တင်ပြုခြင်း

- ရည်ညွှန်းချက် ။
- (၁) မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်၏ ၆-၆-၂၀၁၄ ရက်စွဲပါ စာအမှတ် ရက-၆(ခ)/န-၉၁၃/၂၀၄၃(၅၇၃၉)
- (၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာဝန်ကြီးဌာန၊ ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၁၁-၆-၂၀၁၄ ရက်စွဲပါ စာအမှတ်၊ ၂/၂၂၀ (ခ)(၆)/(၄၂၀၅/၂၀၁၄)

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ Myanmar CP Livestock Co., Ltd. မှ ရန်ကုန် တိုင်းဒေသကြီး၊ မင်္ဂလာဒုံမြို့နယ်၊ ပျဉ်းမပင်ကျေးရွာရှိ နွယ်ခွေသိုလှောင်ရုံနှင့်နွယ်ခွေဉစားကြက်ခြံ မြေ ဧရိယာ(၂၇.၃၁)ဧကအားငှားရမ်း၍ တိရစ္ဆာန်အစားအစာများ ထုတ်လုပ်ဖြန့်ဖြူးရောင်းချခြင်း လုပ်ငန်း (စက်ရုံအမှတ်-၂) ၏ (Environmental Impact Assessment – EIA) နှင့် (Environmental Management Plan-EMP) အစီရင်ခံစာအားစိစစ်၍ သဘောထားမှတ်ချက် တင်ပြရန် ရည်ညွှန်းပါစာဖြင့် အကြောင်းကြားလာပါသည်။

။ သို့ဖြစ်ပါ၍ ပေးပို့လာသည့်အစီရင်ခံစာအား အောက်ပါအတိုင်း စိစစ်တင်ပြအပ်ပါသည်-

- (က) စီမံကိန်း၏ EIA လုပ်ငန်းများအား Myanmar Livestock Resources Development Research Team-MLRD Research Team မှ ရေးဆွဲဆောင် ရွက်ခဲ့ကြောင်း၊ အစီရင်ခံစာတွင် နိဒါန်း၊ စီမံကိုန်း၏ ပတ်ဝန်းကျင်ဆိုင်ရာ ဖော်ပြ ချက်၊ စီမံကိန်းဆိုင်ရာဖော်ပြချက်များ၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း၊ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် နိဂုံးတို့ကို ဖော်ပြထားပါသည်။
- (ခ) စီမံကိန်း၏ ပတ်ဝန်းကျင်ဆိုင်ရာဖော်ပြချက်တွင် စီမံကိန်းအနီးပထဝီအနေအထား နှင့် ပတ်ဝန်းကျင်ဆိုင်ရာ အခြေအနေ၊ လူဦးရေ၊ ပညာရေး၊ ကျန်းမာရေး၊ မြေအသုံး ချမှု၊ အသက်မွေးဝမ်းကျောင်းလုပ်ငန်းနှင့် လူမှုစီးပွားရေးအခြေအနေ၊ လျှပ်စစ် ဓာတ်အားရယူသုံးစွဲမှု၊ အပင်နှင့်သတ္တဝါများစာရင်း၊ စီမံကိန်းပတ်ဝန်းကျင်ရှိ မြေ နှင့်ရေအရည်အသွေးတိုင်းတာမှုများနှင့်စက်ရုံ၏အဆောက်အဦပုံစံအား ဖော်ပြထား ပါသည်။

စီမံကိန်းအကြောင်းအရာဖော်ပြချက်တွင် Myanmar CP Livestock Co., Ltd. အား ၁၉၉၅ ခုနှစ်မှစတင်၍ လုပ်ငန်းလည်ပတ်ဆောင်ရွက်ခဲ့ကြောင်း၊ လုပ်ငန်း အောင်မြင်မှုနှင့် ဈေးကွက်တောင်းဆိုမှုများကြောင့် ယခုဆောင်ရွက်မည့် စက်ရုံ အမှတ်(၂)အား တိုးချဲ့တည်ထောင်ခြင်းဖြစ်ကြောင်း၊ လုပ်ငန်းဆောင်ရွက်ရာတွင် ကောင်းမွန်သောအလေ့အကျင့်ကောင်းများကို ကျင့်သုံးဆောင်ရွက်လျှက်ရှိကြောင်း၊ နည်းပညာဆိုင်ရာအဖွဲ့အစည်းမှ စောင့်ကြည့်စစ်ဆေးမှုများ ဆောင်ရွက်မည်ဖြစ် ကြောင်း၊ ပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုများဆောင်ရွက်ရာတွင် ISO 14001၊ Good Manufacturing Practice(GMP) နှင့် Hazard Analysis Critical Control Point (HACCP) အရဆောင်ရွက်မည်ဖြစ်ကြောင်း၊ ပတ်ဝန်းကျင်ထိန်း သိမ်းရေးနှင့်သစ်တောရေးရာဝန်ကြီးဌာနမှ ချမှတ်ထားသော ဥပဒေ၊ နည်းဥပဒေ များအား လိုက်နာမည်ဖြစ်ကြောင်း၊ စီမံကိန်းနှင့်ပတ်သက်သည့် လုပ်ငန်းစဉ်အဆင့် ဆင့်၊ ကုန်ကြမ်းပစ္စည်းရယူသုံးစွဲမှု၊ ရေရယူသုံးစွဲမှုနှင့် စက်ရုံတွင် ကိုယ်ပိုင် ရေ သန့်စင်စက် ထားရှိမည်ဖြစ်ကြောင်း၊ အသားတင်အမြတ်ငွေမှ ၅ % အား လူမှု စီးပွားဖွံ့ဖြိုးတိုးတက်ရေးအတွက်အသုံးပြုမည်ဖြစ်ကြောင်းဖော်ပြထားပါသည်။

အဆိုပြုစီမံကိန်းကြောင့် အောက်ဖော်ပြပါ ပတ်ဝန်းကျင်ဆိုင်ရာထိခိုက်နိုင်မှုများ ဖြစ်ပေါ်နိုင် ကြောင်း ဖော်ပြထားပါသည်-

(က) စီမံကိန်းမတည်ဆောက်မီနှင့် တည်ဆောက်ရေးကာလအတွင်း ထိခိုက်နိုင်မှုများ အနေဖြင့် စီမံကိန်းဧရိယာရှိ တည်ရှိပြီး စက်ရံဟောင်းအား ဖြိုဖျက်၍ ရွှေပြောင်းမှု များဆောင်ရွက်ခြင်း၊ မြေနေရာရှင်းလင်းခြင်း၊ တူးဖော်ခြင်း၊ တည်ဆောက်ရေး လုပ်ငန်းများဆောင်ရွက်ခြင်း၊ တည်ဆောက်ရေး စက်ယန္တရားများ သယ်ယူပို့ဆောင် ခြင်းတို့ကြောင့် လေထု၊ ရေထုညစ်ညမ်းမှုနှင့် အသံဆူညံမှုဖြစ်နိုင်ကြောင်း၊ စီမံကိန်း ဆောင်ရွက်မှုကြောင့် စီမံကိန်းဧရိယာအတွင်း မြေအသုံးချမှုပုံစံပြောင်းလဲ၍ မြေ မျက်နှာသွင်ပြင်ပြောင်းလဲမှုနှင့် အပင်နှင့်ဓိဝဂေဟစနစ်တို့ ပြောင်းလဲနိုင်ကြောင်း၊ လုပ်ငန်းခွင်မတော်တဆထိခိုက်နိုင်မှု အသင့်အတင့်ရှိသော်လည်း လျော့နည်းစေမည့် အစီအစဉ်များ ဆောင်ရွက်ခြင်းဖြင့် ထိခိုက်နိုင်မှုများအား လျှော့ချနိုင်ကြောင်း၊

လူနေရပ်ကွက် နှင့် ဝေးသဖြင့် ထိခိုက်မှုနည်းနိုင်ကြောင်း ဖော်ပြထားပါသည်။ (ခ) လုပ်ငန်းလည်ပတ်ချိန်တွင် အဓိကထိခိုက်နိုင်မှုများသည် ရေသုံးစွဲမှုနှင့် လျှပ်^{စစ်} ဓာတ်အားသုံးစွဲမှု များပြားခြင်းကြောင့် ဖြစ်နိုင်ကြောင်း၊ အစာမှုန့်များနှင့် အမှုန် အမွှားများထွက်ရှိနိုင်ကြောင်း၊ ကုန်ကြမ်းပစ္စည်းများတွင် တိရစ္ဆာန် (အသား၊ ငါး)နှင့် အပင်များမှ အခြေခံသည့် ပစ္စည်းများပါဝင်၍ သိုလှောင်ခြင်း၊ အစာစပ်ခြင်းစသည့် လုပ်ငန်းများကြောင့် အနံ့အသက်များထွက်ရှိနိုင်ကြောင်း၊ စက်ရံအတွင်း အသံ ဆူညဲမှုအား ၈၅ dB အောက်တွင် ထားရှိဆောင်ရွက်မည်ဖြစ်ကြောင်း၊ ယာဉ်များမှ လောင်စာဆီနှင့် စက်ဆီယိုဖိတ်မှု၊ စွန့်ပစ်အရည်ယိုဖိတ်မှုများကြောင့် မြေပေါ်ရေ ညစ်ညမ်းမှုဖြစ်နိုင်ကြောင်း၊ အစာထုတ်လုပ်သည့်လုပ်ငန်းစဉ်တွင် အသုံးပြု^{မည့်} ကုန်ကြမ်းပစ္စည်းများ၊ ငါးအကြေးခွံများ၊ အရေခွံများ၊ စွန့်ပစ်လိုက်သည့်ပစ္စည်း^{များ၊} ဝန်ထမ်းများ၏စွန့်ပစ်ပစ္စည်းများ၊ ထုပ်ပိုးပစ္စည်းများကြောင့် ညစ်ညမ်းမှုဖြစ်^{နိုင်} ကြောင်း၊ ထုတ်လုပ်မှုလုပ်ငန်းစဉ် အဆင့်ဆင့်နှင့် ဆေးကြောသန့်စင်သည့် ^{အခန်းမှ} စွန့်ပစ်အရည်များ၊ သန့်စင်ရာတွင်အသုံးပြုသည့် ဓာတုပစ္စည်းများကြောင့် ညစ်^{ညမ်း}

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မူများဖြစ်နိုင်ကြောင်း၊ တိရစ္ဆာန်အစာစပ်ကုန်ကြမ်းများကို ကိုင်တွယ်ခြင်းနှင့် သန့်ရှင်းရေးလုပ်ငန်းတွင် အသုံးပြုမည့် ဓာတုပစ္စည်းများကြောင့် ဝန်ထမ်းများအား ယားယံခြင်းများဖြစ်နိုင်ကြောင်း ဖော်ပြထားပါသည်။

- (ဂ) လူမှုစီးပွားရေးဆိုင်ရာ ထိခိုက်နိုင်မှုများမဖြစ်နိုင်ကြောင်းနှင့် မင်္ဂလာဒုံမြို့နယ်မှ ဒေသခံများသည် စက်ရံတည်ဆောက်ခြင်းအား သဘောတူညီကြကြောင်း၊ အလုပ် အကိုင်အခွင့်အလမ်း ပိုမိုရရှိနိုင်ကြောင်းဖော်ပြထားပါသည်။
- (ဃ) နိဂုံးတွင် စီမံကိန်းတည်နေရာသည် ကျေးရွာများမှ (၂) မိုင်ကွာဝေးပြီး စက်ရံများ နှင့်သစ်သိုလှောင်ထားသည့် နေရာများသာ တည်ရှိကြောင်း၊ စီမံကိန်းဆောင်ရွက် ခြင်းကြောင့် ဇီဝမျိုးစုံမျိုးကွဲများအပေါ် ထိခိုက်မှုမရှိနိုင်ကြောင်း၊ ပတ်ဝန်းကျင် အပေါ် ထိခိုက်မှုအနည်းငယ်သာ ရှိနိုင်ကြောင်း၊ နှစ်(၅၀) စီမံကိန်းကာလပြီးဆုံး၍ လုပ်ငန်းပိတ်သိမ်းချိန်တွင် ပြဋ္ဌာန်းထားမည့် ဥပဒေများအား လိုက်နာမည်ဖြစ် ကြောင်း ဖော်ပြထားပါသည်။

၄။ အဆိုပါထိခိုက်နိုင်မှုများအား လျော့နည်းစေရန် အောက်ပါအတိုင်း စီစဉ်ဆောင်ရွက်မည် ဖြစ်ကြောင်း ဖော်ပြထားပါသည်-

(က) တည်ဆောက်ရေးကာလအတွင်း လေထုညစ်ညမ်းမှုလျော့ကျစေရန် Dust suppression facilitiesများတပ်ဆင်အသုံးပြုခြင်း၊ရေဖြန်းခြင်း၊ တည်ဆောက်ရေး လုပ်ငန်းသုံးပစ္စည်းများသယ်ဆောင်ရာတွင် ကားများအား ဘေးအကာများ ကာရံ၍ သယ်ယူပို့ဆောင်ခြင်း၊ ကုန်ကြမ်းပစ္စည်းများသိုလှောင်ရာတွင် လူနေအိမ်များ၏ လေအောက်ဖက် ၃ဂ မီတာအကွာတွင် သိုလှောင်ထားရှိခြင်း၊ လုပ်ငန်းတွင် အသုံးပြု မည့် ယာဉ်များအား ကောင်းမွန်စွာပြုပြင်ထိန်းသိမ်းခြင်း၊ အသံဆူညံမှုလျော့နည်း စေရန် တည်ဆောက်ချိန်တွင် ရှိရမည့် ဆူညံမှုစံချိန်စံညွှန်းအတွင်းသာ ရှိစေရန် လိုက်နာဆောင်ရွက်ခြင်း၊ စွန့်ပစ်ရေများအား ပျဉ်းမပင်ဇုန်အတွင်းရှိ စည်ပင် သာယာရေးမြောင်းအတွင်းသို့ စွန့်ပစ်ရေများအား ပျဉ်းမပင်ဇုန်အတွင်းရှိ စည်ပင် သာယာရေးမြောင်းအတွင်းသို့ စွန့်ပစ်မည်ဖြစ်ကြောင်း၊ စီမံကိန်းအနီးသိသာထင်ရှား သော ဂေဟစနစ်နှင့် သစ်ပင်သစ်တောများ မရှိခြင်းကြောင့် ထိခိုက်မှုမရှိနိုင်၍ ပတ်ဝန်းကျင် စိမ်းလန်းစိုပြည်ရေး လုပ်ငန်းများဆောင်ရွက်ခြင်း၊ စွန့်ပစ်ဆီနှင့် စက်ဆီများအား စည်ပင်သာယာရေးကော်မတီ၏ ညွှန်ကြားမှုဖြင့် စွန့်ပစ်ခြင်းများ ဆောင်ရွက်မည်ဖြစ်ကြောင်းဖော်ပြထားပါသည်။

(ခ) လုပ်ငန်းလည်ပတ်ချိန်တွင် ထွက်ရှိမည့် ဖုန်၊ အမှုန်များ၊ ဘွိုင်လာမှ ထွက်ရှိမည့် အခိုးအငွေ့များ လျော့နည်းစေရန် စနစ်တကျဆောင်ရွက်ထားရှိခြင်း၊ လေကာပင် များစိုက်ပျိုးခြင်း၊ အနံ့အသက်ထွက်ရှိမှုအား သတ်မှတ်စံချိန်စံညွှန်းအတွင်း ထားရှိ ဆောင်ရွက်ခြင်းနှင့် အနံ့ထွက်ရှိမှု အနည်းဆုံးဖြစ်စေရန် စောင့်ကြည့်စစ်ဆေးခြင်း၊ အသံဆူညံမှုမရှိစေရန် သတ်မှတ်စံနှုန်းများအတွင်း၌သာ ဆောင်ရွက်ခြင်းနှင့် အသံ ဆူညံမှုနှင့် ကြာရှည်စွာထိတွေ့ရသော ဝန်ထမ်းများအား နားကြပ်များတပ်ဆင် အသုံးပြုစေခြင်း၊ ရေထုညစ်ညမ်းမှုလျော့ကျစေရန် အသုံးပြုမည့်ပစ္စည်းများအား သန့်ရှင်းစွာအသုံးပြုခြင်း၊ ညစ်ညမ်းမှုထိန်းချုပ်သည့် ပစ္စည်းများအသုံးပြုခြင်း၊ စွန့်ပစ်ဖစ္စည်းများအား သင့်တော်သောနေရာတွင် ထိန်းသိမ်း၍ ခွင့်ပြုထားသည့် နေရာတွင် စွန့်ပစ်ခြင်း၊ ရေထုညစ်ညမ်းမှု ဖြစ်ပေါ်စေသော ပစ္စည်းများအား စနစ် တကျကိုင်တွယ်အသုံးပြုခြင်းနှင့် စောင့်ကြည့်စစ်ဆေးခြင်း၊ လုပ်ငန်းခွင်ဘေးကင်း စေရေး ဆောင်ရွက်မည့်အစီအစဉ်များ၊ လုပ်ငန်းပိတ်သိမ်းချိန်တွင် ဆောင်ရွက်မည့်) အစီအစဉ်များအား ဖော်ပြထားပါသည်။

(ဂ) ပတ်ဝန်းကျင်ထိခိုက်မှု လျော့နည်းစေရန် ဆောင်ရွက်မည့်အစီအစဉ်များနှင့် စောင့် ကြည့်စစ်ဆေးမှုများအား စက်ရုံ၏ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြည့်စစ်ဆေးမည့် အဖွဲ့အစည်းမှ ဆောင်ရွက်မည်ဖြစ်ကြောင်းနှင့် စစ်ဆေးမည့် အကြိမ်အရေအတွက် စသည်တို့အား ဖော်ပြထားပါသည်။

(ဃ) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာဝန်ကြီးဌာနနှင့် ရန်ကုန်တိုင်း ဒေသကြီးအစိုးရတို့မှ ချမှတ်ထားသည့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေနှင့် စံသတ်မှတ်ချက်များအား လိုက်နာမည်ဖြစ်ကြောင်းနှင့် ယခုတင်ပြပါ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်တွင် ဖော်ပြပါရှိသည့်အချက်များအား လိုက်နာ သောင်ရွက်မည်ဖြစ်ပြီး လိုက်နာဆောင်ရွက်ရန် ပျက်ကွက်ပါက ပြစ်ဒဏ်ခံယူမည် ဖြစ်ကြောင်း ကုမ္ပဏီ၏ဦးဆောင်ညွှန်ကြားရေးမှူးနှင့် EIA ရေးဆွဲဆောင်ရွက်သည့် အဖွဲ့ အစည်းမှ ဒုတိယဥက္ကဌတို့၏ ဝန်ခံကတိတို့ ဖော်ပြပါရှိပါသည်။

၅။ ပေးပို့လာသော EIA အစီရင်ခံစာတွင် အောက်ပါအချက်များဖော်ပြရန် လိုအပ်ကြောင်း စိစစ်တွေ့ရှိရပါသည်-

(က) အကျဉ်းချုပ်အစီရင်ခံစာ၊

(ခ) အခြားနည်း ရွေးချယ်ဆောင်ရွက်မှုများကို နှိုင်းယှဉ်ဖော်ပြခြင်းနှင့် ရွေးချယ်ခြင်း။

၆။ သို့ဖြစ်ပါ၍ တင်ပြလာသည့် အစီရင်ခံစာတွင် အောက်ဖော်ပြပါအချက်များကို ထည့်သွင်း လိုက်နာဆောင်ရွက်ရန် လိုအပ်ပါကြောင်း သဘောထားမှတ်ချက် တင်ပြအပ်ပါသည်-

- (က) အကျဉ်းချုပ်အစီရင်ခံစာအား ဖော်ပြရန်၊
- (ခ) အခြားနည်း ရွေးချယ်ဆောင်ရွက်မှုများကို နှိုင်းယှဉ်ဖော်ပြခြင်းနှင့် ရွေးချယ်ခြင်းကို ဖော်ပြရန်၊
- (ဂ) အစီရင်ခံစာပါ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတိုင်း အကောင်အထည်ဖော် ဆောင်ရွက်သွားရန်နှင့် စီမံကိန်းအကောင်အထည်ဖော်ခြင်းနှင့်စပ်လျဉ်း၍ ပတ်ဝန်းကျင် စီမံခန့်ခွဲခြင်းနှင့် စောင့်ကြည့်လေ့လာခြင်းလုပ်ငန်းဆောင်ရွက်မှု အစီရင်ခံစာအား ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာဝန်ကြီးဌာနသို့ ပြန်လည်တင်ပြရန်၊
- (ဃ) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ လုပ်ထုံးလုပ်နည်း^{များ၊} ညွှန်ကြားချက်များ၊ စံချိန်စံညွှန်းများနှင့်အညီ လိုက်နာကျင့်သုံး အကောင်အထည် ဖော်ဆောင်ရွက်သွားရန်။

(နေအေး) ညွှန်ကြားရေးမျှုးချုပ်

မိတ္တူကို

ရုံးလက်ခံ၊ မျှောစာတွဲ၊ အမှုတွဲချုပ်။



ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ် Certificate of Incorporation

မြန်မာ စီပီ လိုက်(ဖ်)စတော့(ခ်) ကုမ္ပဏီ လီမိတက် MYANMAR C.P. LIVESTOCK COMPANY LIMITED Company Registration No. 149833080

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ **မြန်မာ စီပီ လိုက်(ဖ်)စတော့(ခ်) ကုမ္ပဏီ လီမိတက်** အား ၁၉၉၇ ခုနှစ် မတ်လ ၆ ရက်နေ့တွင် အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that MYANMAR C.P. LIVESTOCK COMPANY LIMITED was incorporated under the Myanmar Companies Act 1914 on 6 March 1997 as a Private Company Limited by Share's.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ Registrar of Companies ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန Directorate of Investment and Company Administration

Former Registration No. 321FC/1996-1997



son:em:eò: ၓၟနီတြားရေးမှားချွှေ

ဖြစ်ပါသည်။ ၁၊ လုပ်ငန်းအရည် Myannar CPLivestock Co. Lul တိရောန်အအေအတာယုတ်လုပ်ခြင်းလုပ်ငန်း ကားသာက်ရေသိုင်ရာထုပ်ငန်း ၂။ လုစ်ငန်းအမျိုးအမည် တိရပ္သာနီအစားအစာ အဓိကကုန်ချောပစ္စည်းအမှိုးအမည် , TF တည်နေရာလိမ်စာ အမှတ်-၅၂၃(ခ) မြည်လမ်း ရှည်မမင်ကျေးရွာ မင်္ဂလာခံမြို့နယ်၊ မြောက်မိုင်းခရိုင် ÇF ကမ္ပကီမိုင် ပိုင်ဆိုင်ပအမျိုးအစား 1 and the second states 6။ လှမိငန်းရင်အမည် ၇။ ကိုင်ဆောင်သည့်မှတ်ပုံတင်အမှတ် __________________________________ ၀။ ရင်းနှီးမြှုပ်နှံမှုတန်စိုး(ကျပ်)^{စတ္စက္က}ု. (၇၇သန်း ၊ ၄၀၁ စာသမီတည်ထောင်သည့်ခုနှစ် ၂၀၁၅ အသုံးပြုသည့်အားအမှိုးအစား ဂဒ္ဓမ်ကာဗ်မင် မြင်းတောင်ရေ ၄၅၀၀ KVA 61 ý 1 **∛** ၁၀။ အလုပ်သတာဦးရေ ၁၁။ မှတ်ပုံတင်သက်တမ်းကုန်ဆုံးသည့်နေ့နှက် 220. 000)

စတ်မှုတွင်စာမှတ် <u>ရက/ကြီး/၄၁၂</u> ရက်ရွဲ ၂၀.၁, ၇ဝ၆ စတ်မှုတွင်စာမှတ် <u>ရက်ကြီးကား</u> ပြည်ထောင်စုနယ်မြေ/တိုင်းဒေဘကြီး/မြည်နယ် <u>မါကျွန်</u> လွမ်ငန်းအရွယ်အတာ <u>အကြီးစား</u> ပြည်ထောင်စုနယ်မြေ/တိုင်းဒေဘကြီး/မြည်နယ် <u>မါကျွန်</u> အောက်ပါလုပ်ငန်းသည် ပုဂ္ဂလိကစက်မှုလုပ်ငန်း ဥတဒေ ပုဒ်မ ၇ ပုဒ်မခွဲ (၈)အရ မှတ်ပုံတင်မြီး

ၜြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အမိုးရ စတ်မှုဝန်ကြီးဌာန စက်မှုကြီးကြပ်ရေးနှင့်စစ်ဆေးရောဦးမီးဌာန

ပုဂ္ဂလီက**ေ**က်မှုလုပ်ငန်းမှတ်ပုံတင်လက်မှတ်







PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT





TEM CERTIFIC

Certificate TH13/6892

The management system of

MYANMAR C.P. LIVESTOCK CO., LTD.

PYAY ROAD, PYINMABIN INDUSTRIAL ZONE, MINGALADON TOWN SHIP, YANGON, MYANMAR

has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

Manufacture and Product Development of Livestock Feed and Premix

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organisation

This certificate is valid from 14 February 2013 until 14 February 2016 and remains valid subject to satisfactory surveillance audits. Re certification audit due before 21 December 2015 Issue 1. Certified since 14 February 2013

Authorised by



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Page 1 of 1



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ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ လယ်ယာစိုက်ပျိုးရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာန စိုက်ပျိုးရေးဦးစီးဌာန (မြေအသုံးချရေးဌာနခွဲ)

> စာအမှတ်-ဓခ-၂/(၁)/၁၃-၁၄ (၂ ၃၇) နေ့စွဲ၊ ၂၀၁၃-ခုနှစ် ဒီဇင်ဘာလ (၂၇) ရက်

CIP

အကြောင်းအရာ ။ ။ မြေ နှင့် ရေ နမူနာ ဓါတ်ခွဲအဖြေ ပေးပို့ခြင်း

ရည်ညွှန်းချက် ။ ။ ဒေါ်ဝါဝါဟန် မှ ပေးပို့သော နမူနာ။

အထက်အကြောင်းအရာပါ ကိစ္စနှင့်ပတ်သတ်၍ ရည်ညွှန်းစာဖြင့် ပေးပို့လာသော မြေ+ရေ နမူနာ (၁+၁-မျိုး) အား ဓါတ်ခွဲစစ်ဆေးပြီးဖြစ်၍ ဓါတ်ခွဲတွေ့ရှိချက် အဖြေများကို ဤစာနှင့်အတူ ပူးတွဲပေးပို့ပါသည်။

(2005: 00) ဦးစီးအရာရှိ

ဓာတ်ခွဲခန်းတာဝန်ခံ မြေအသုံးချရေးဌာနခွဲ

ဒေါ်ဝါဝါဟန်

မိတ္တျှကို - ညွှန်ကြားရေးမျှး (မြေအသုံးချရေးဌာနခွဲ) - ရုံးလက်ခံ

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ရှိကျဝုဝ

DEPARTMENT OF AGRICULTURE (LAND USE) INTERPREATATION OF RESULTS

Sheet No. 1

1.83

C/P

Lab No. S 1/ 13-14

-	Sr.No.	
Sajag	Sample	
Slightly acid	Soil:Water 1:2.5	рН
Sandy loam	lexture	3
Low	Organic Carbon	
Low	Total N	
Medium	Ca	Excl
Low	Mg	nangeable Ca
Medium	К	tions
High	Р	Available
Medium	K ₂ 0	Nutrients

Division - ရန်ကုန်တိုင်း

2

Township - မင်္ဂလာဒုံ

DEPARTMENT OF AGRICULTURE(LAND USE) SOIL ANALYTICAL DATA SHEET

ဝါဝါဟန်

Sheet No. 1

20

CIP

Lab No. S 1/ 13-14

1	Sr No.		
ဝန ယို့ေခ	Sample plot		
0.54	Moisture %		
6.57	1:2.5	Soil-Water	2 L
69.70	Sand		
20.50	Silt %		Text
8.30	Clay %		lure
98.50	Total %		
1.45	Organic Carbon %		
2.50	Humus %		
0.18	%	N	Total
15.32	Ca ⁺⁺		Excha
1.33	Mg++	angeable Cations meq/100gm	
0.31	K ⁺		
271.00	P ppm (Bray)	Available	
14.48	K ₂ O mg/100gm		Nutrients

	2
	H
	A
	R
F	H
4	\leq
H	E
R	Z
P	7
R	2
H	Т
À	P
H	9
ō	R
Z	0
0	2
H	5
T	5
Fi	R
S	H
C	0
5	F
20	5
	A
	2
	G
	H
	0

ဝါဝါဟန်

Division - ရန်ကုန်တိုင်း Township - မင်္ဂလာဒုံ

1.

23

SHEET NO. 1 LAB NO. W 1 / 13-14

1

C/P

1	Sr .no	
နွယ်ခွေ	Sample	
Neutral	pН	
Low	EC	
Low	C1 me/L	
Low	HCO ₃ me/L	
Low	TDS	
Low	SAR	
Low	RSC	
(CaHCO ₃) ₂	Dorminant Salts	

