Environmental Management Plan for the existing operational mining activities within the Kanbauk tin and tungsten mine

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Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO)
No: .....
Date.....

Date: 05 June 2017

U HlaMaungThein,
Director General,
Ministry of Natural Resources and Environmental Conservation,
Environmental Conservation Department,
Building No (53),
Nay Pyi Taw City
The Republic of the Union of Myanmar

ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR KANBAUK TIN AND TUNGSTEN PROJECT BY DEVELOPERS ENTREPRENEURS LIAISON CONSTRUCTION ORGANIZERS LIMITED (DELCO)

-SUBMISSION OF EMP REPORT-

Company Ref.[076/Daka/ME-2/2017]
ECD Letter Ref. Letter No. 15 sub (1) 17/ Mining (0489), Dated: 10, February 2017

Dear Sir,

Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO)would like to submit the Revised Environmental Management Plan in response to the comments received from Environmental Conservation Department (ECD) for the existing Kanbauk tin and tungsten Project, Myanmar. A table of summarising the response to these comments is attached herewith.

DELCO commissioned Environmental Resources Management (ERM) to undertake the EMP. This attached EMP is final revised version and please do not hesitate to contact me directly should you have any queries on the enclosed.

Yours Faithfully

Ding Ving
Chairman
Developers Entrepreneurs Liaison
Construction Organizers Limited. (DELCO)

Copy to: Department of Mines

Environmental Management Plan for the existing operational mining activities within the Kanbauk tin and tungsten mine

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Environmental Resources Management

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Client:	Project No:
Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO)	037000210
Summary: This document presents the Environmental Management Plan for the existing operational mining activities within the Kanbauk tin and tungsten mine. I hereby signed that the facts and data mentioned in the report are true and correct.	Date: 25/3/2019 Approved by:  Craig A. Reid *Partner*

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Distribution

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ADB	Asia Development Bank
ASEAN	Association of South East Asia Nations
ARI	Acute respiratory infection
CO	Carbon Monoxide
CSR	Corporate Social Responsibility
CV	Curriculum Vitae
dB	Decibel
DELCO	Developers Entrepreneurs Liaison Construction Organizers Limited
ECC	Environmental Compliance Certificate
ECD	Environmental Conservation Department
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERM	Environmental Resources Management
EQEG	Environmental Quality Emissions Guidelines
EQM	Environmental Quality Management
GAD	General Administrative Department
GHG	Greenhouse gas
HSE	Health, Safety and Environment
HEPP	Hydroelectric power plant
IEE	Initial Environmental Examination
IFC	International Finance Corporation
km	Kilometres
km^2	Square kilometres
kW	kilowatts
L	Litre
LOQ	Limit of Quantitation
m	Metres
m^3	Cubic metres
mg/l	Milligram/litre
MT	Metric Ton
MONREC	Ministry of Natural Resources and Environmental Conservation
MSL	Mean Sea Level
NGO	Non-Governmental Organization
NO_2	Nitrogen dioxide
O_3	Ozone
OPF	Ore Processing Facility
PM	Particulate matter
ROM	Run-of-mine
SO_2	Sulphur dioxide
TSF	Tailing Storage Facility
SEP	Stakeholder Engagement Plan
UNDP	United Nations Development Program

1 EXECUTIVE SUMMARY

1.1 INTRODUCTION AND OBJECTIVES

This document is the Environmental Management Plan (EMP) for the existing operational mining activities within the Kanbauk tin and tungsten mine Project (the "Project"). The Project is adjacent to the township of Kanbauk, located in the Dawei District of Tanintharyi Region, Myanmar.

Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO) has commissioned Environmental Resources Management (ERM), to develop an EMP for the existing operations in accordance with the requirements of the Environmental Impact Assessment (EIA) Procedure, issued by the Government of the Republic of the Union of Myanmar on December 2015. This EMP Report presents the objectives, methodology and outcomes of in accordance with the EIA Procedure.

The principal objective of this EMP is to satisfy local regulatory requirements, in particular, the requirements related to exiting projects in the EIA Procedure (2015). However, this EMP is not only to align with national permitting requirements, i.e. obtaining the Environmental Compliance Certificate (ECC), but also to ensure that the any potential environmental and social impacts are mitigated and will not lead to significant adverse effects on the environment or people during the Project.

The EMP lists the obligations and responsibilities of each party involved in the project; stipulates methods and procedures that will be followed; as well as outlining the environmental and social management actions that will be implemented.

1.2 PROJECT DESCRIPTION

The Kanbauk mine is owned by DELCO, an associated company of Panwa. The EMP covers the existing tin and tungsten mining and ore processing operations, which consist of the following:

- single open pit;
- An ore processing facility (OPF);
- Run-of-mine (ROM) ore stockpiles;
- A tailing storage facility (TSF);
- A hydroelectric power plant (HEPP); and
- Associated mine support buildings, including a workshop, offices, accommodation and laboratory.

Mining at Kanbauk is from a single open pit located to the west of the valley. Mining is undertaken via free digging and blasting with dynamite and loading into tipper lorries. Crude ores are excavated with back-hoe excavator by open-cut mining method. Blasting was made where necessary. Prepare the free face before applying the delay blasting method to reduce noise and vibration, and 32 mm diameter Emulsion Explosive was used for blasting. Ore is hailed to tip directly at the OPF feed point or to ore stockpiles as well as transported by dumps truck to Mineral Dressing Plant.

Mineral Dressing Plant was applied with Gravity Concentration Method for ore processing. Firstly, crude ore are washed with water pressure pump before size sepatation by Trommel. Then the sizes are reduced by Jaw Xrusher, separated by

Vibratoin Screen and milled with Ball Mill (Grinding machine) to produce appropriate size which can be sent to Shaking Tables. Tailings (slurry) produced are collected at Tailing Pond Np.1, and then pumped out to Tailing Pond Np.4 which is connected Np.2 and Np.3 with spillway. Coarse grains from Tailings (slurry) are silted at Np.4. Fine grain from Tailings (slurry) are silted at Np.2 and Np.3. Eventually, only clear water are discharge to stream form Np.3.

Ore processing use only water and vibration screen to separate the concentrates. No raw materials or chemicals are used for the operation except the ore from the mine pits. Based on the information supplied by DELCO, the groundwater in the Project area is located 100 ft. (30 m) below the surface.

1.3 BASELINE

This EMP has been prepared based on the findings of a number of support documents including the Kanbauk Prefeasibility Study (AMC Consultants, May 2016). It should be noted that no Initial Environmental Examination or Environmental Impact Assessment has been previously completed for the Kanbauk mine. The baseline for the EMP was compiled based on a site visit in November 2016, primary baseline surveys in April 2017 and review of all available documentation provide by DELCO. The primary data collection involved air, noise and water sampling at up to five locations within and around the Project Area; including Kanbauk Village. Water samples were collected along the flow path of the effluent discharged from the Project as well as in wells in Kanbauk Village. All samples were analyses by local Myanmar laboratories in Yangon.

For air quality, the monitoring data at the Project Area indicates that, with the exception of the NO_2 1-hour and SO_2 10-minute averaging periods, the National Environmental Quality (Emissions) Guidelines (NEQEG) are exceeded. The monitoring data at Kanbauk Village indicates that, with the exception of the NO_2 1-hour, NO_2 annual and SO_2 10-minute averaging periods, the air quality standards are exceeded. The principal sources of emissions to the atmosphere are likely to be from agricultural open-air burning, wood burning for domestic purposes (i.e. heating and cooking), and exhaust emissions from road transportation. In the Project Area, this also includes dust emissions from vehicles using the access roads.

For noise, the level of noise at the Projects Area does not exceed the day or night time limits in the NEQEG. The level of noise in Kanbauk Village is mainly from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc.). The night-time levels exceeded the NEQEG. The night time noise in Kanbauk Village was slightly higher than the day time. This could be due to the busy main road which connects with Dawei and Yebyu.

The effluent discharges were assessed against the NEQEG. The values of most parameters at these points meet the discharge standards in the NEQEG. At Point 3 (tailing pond), the recorded COD was of 141 & 137 mg/L (points a&b) which exceeds the NEQEG. Higher COD levels mean a greater amount of oxidisable organic material in the sample, which will reduce dissolved oxygen (DO) levels.

Public consultation was also undertaken for the EMP within the neighbouring Kanbauk Village in April 2017.Primary data on Kanbauk village livelihoods, and income sources as well as information on infrastructure, facilities and health care was collected during this engagement.

By conducting public consultation in the compound of DELCO, Kanbauk community becomes more transparent on the mining project of DELCO as well as understands that DELCO has done well by undertaking CSR. The community, however, prefers the public consultation to be held in the public compound or in Kanbauk area in order to explain publicly to all people.

1.4 IMPACTS AND MITIGATION

The mining operations have had a positive impact of job creation and rural development. Any potential negative impacts of the Project have been mitigated with commitments in this EMP.

The mitigation covers operation and decommissioning phases as it is assumed that impacts during decommissioning will be similar to those during operation.

Potential impacts of mining activities are mainly related to access to water, waste management, air quality, noise emissions, land take, and accidental events.

During operations, there is the potential for changes in surface water and river water quality. Regualr inspection and necessary maintenance will be executed for overflow from last Tailing Pond, sedimentation of sewage, drainage channel and position of stock piles for overburden and crude ore.

Contamination of land, air and water through the improper management of waste are not likely because project developed and applied the waste management plan which included 1) define the separate waste collection point and storage, 2) recycling of waste, 3) identified the waste dump site and 4) coordinate with local municipal to follow their guideline.

For air quality, though machinery, vehicles and energy generator devices can generate gas emissions to the atmosphere as well as dust can be generated from ore processing, impacts are not likely due to the low rate emitted and low charge of pollutants, the daily water spraying at the access road and spraying water during the crushing process.

The operations such as vehicle and truck, earth moving equipment, material handling equipment, mining equipment, OPF and surface blasting will generate noise and vibration. In order to mitigate these ambient sounds, regular motoring for Noise Emissions in line with NEQEG will be executed and blasting will be managed as per procedures.

As regard land form and topography, landslides and soil erosion from mining operations may lead to de-stabilisation of the surrounding hill side. Significant impacts, however, are not likely because ore excavation is conducted with contour strip bench method for safety, and embankment of ponds are constructed with desigh calculation. For mitigation, protection/banking of decant ponds, tailing ponds and access roads will b e ensured.

Furthermore, accidental events like flooding and landslides due to unexpected heavy rain might impact the project area. Regular inspection and necessary maintenance for drainage channel embankments of ponds and dam will mitigate the impacts.

Table 1.1 provides a summary of potential impacts, a description and mitigation measure to reduce the significance of the impact.

1.5 *COMMENTMENTS*

Through the Project development, DELCO has made commitments to ensure appropriate environmental and social performance. DELCO has made the following commitments:

- Ensure the accuracy of this EMP;
- Confirm the EMP is in strict compliance with applicable Environmental Conservation Law, Rules and Procedures; and
- Confirm and commit to mitigation measures stipulated in this EMP.

The Project will be undertaken in line with a number of national and local standards and laws such as The Constitution of the Republic of the Union of Myanmar (2002), The Myanmar Agenda 21 (1997), Myanmar Investment Law (2016), The Myanmar Mines Law (Amended)(2015) & Myanmar Mining Rules, etc., and Local laws relating to EIA include: The Environmental Conservation Law (2012); The Environmental Conservation Rules (2014); National Environmental Quality (Emission) Guidelines (2015); and EIA Procedure (2015).

A full list of laws and their relevance to the Project is provided in *Section 6, Table 6.2*

1.6 *MONITORING AND BUDGET ALLOCATION*

Monitoring will be required in order to demonstrate compliance with both regulatory and DELCO Project requirements, and will also provide verification of the effectiveness of the implemented control/mitigation measures.

Compliance will be monitored to ensure that DELCO and its subcontractors meet contractual obligations with respect to work practices and design specifications. In developing the monitoring program, the following considerations and strategies have been applied:

- Consistency with internationally and locally acceptable practices;
- Logistically practical;
- Suitable location monitoring points to ensure early detection of any uncontrolled impacts; and
- Cost effectiveness.

It is suggested that DELCO will complete an environmental Monitoring Report every 6 months to record the Environmental and Social performance of the Project (as per the EIA Procedure).As per DELCO's commitment and the requirements of the EIA Procedure; an Incident Repot will be submitted to MONREC within 24 hours after the event (serious impacts) or seven (7) days for any other incident considered as minor impact.

A summary of the aspects of the monitoring report is provided in *Section 11, Table 11.1*

Based on the environmental and social management and mitigation measures presented in this EMP, DELCO has estimated a budgeted of US$ 100,000 to fully implement such measures.

1. အစီရင်ခံစာအကျဉ်းချုပ်။ (*EXEUTIVE SUMMARY*)

1.1 နိဒါန်း နှင့် ရည်မှန်းချက်များ။ (Introduction and Objectives)

ဤစာရွက်စာတမ်းသည် ကံပေါက်ခဲမဖြူနှင့်အဖြိုက်နက် သတ္တုတွင်းစီမံကိန်းအတွင်းရှိ လုပ်ငန်းလည်ပတ် သတ္တုတူးဖော်ရေးလုပ်ငန်း လှုပ်ရှားမှုများအတွက် သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု စီမံချက် (The Environmental Management Plan (EMP) ဖြစ်ပါသည်။ အဆိုပါစီမံကိန်းသည် မြန်မာနိုင်ငံ၊ တနင်္သာရီတိုင်းဒေသကြီး၏ ထားဝယ်ခရိုင်တွင်တည်ရှိသည့် ကံပေါက်ကျေးရွာနှင့် ကပ်လျက် တည်ရှိပါသည်။

ဖွံ့ဖြိုးတိုးတက်ထုတ်လုပ်မှုဖော်ဆောင်ရေးလီမိတက် (Developers Entrepreneurs Liaison Construction Organizers Limited DELCO) မှ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ အရင်းအမြစ်များ စီမံခန့်ခွဲရေးအဖွဲ့ (Environmental Resources Management ERM) အား လက်ရှိရှိနေသည့် လုပ်ငန်းလည်ပတ်မှု လုပ်ငန်းခွင် အတွက် သဘာဝပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုစီမံချက် (EMP) ကို ၂၀၁၅ခုနှစ်၊ ဒီဇင်ဘာလတွင် ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်အစိုးရမှ ထုတ်ပြန်ထားခဲ့သည့် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ အကျိုးသက်ရောက်မှုဆန်းစစ်ချက် (the Environmental Impact Assessment - EIA) ၏ လုပ်ထုံးလုပ်နည်း၊ လိုအပ်သော အချက်အလက်များနှင့် အညီ လုပ်ဆောင်ပေးဖို့ရန် တာဝန်ပေး အလုပ်ခန့်အပ် ထားခဲ့ပါသည်။ အဆိုပါအစီရင်ခံစာသည် EIA ၏ လုပ်ထုံး လုပ်နည်းနှင့်အညီ ရည်မှန်းချက်များ၊ နည်းစနစ်များနှင့် ထွက်ပေါ်လာသည့် ရလဒ်များကို တင်ပြထားခြင်း ဖြစ်ပါသည်။

ဤ EMP ၏ အဓိကကျသောရည်မှန်းချက်မှာ EIA လုပ်ထုံးလုပ်နည်း (၂၀၁၅ခုနှစ်) တွင် ပါဝင်သည့် အထူးသဖြင့် လက်ရှိတည်ရှိနေသည့် စီမံကိန်းများနှင့်သက်ဆိုင်သည့် လိုအပ်ချက်များ အတွက် ဒေသဆိုင်ရာ စည်းမျဉ်း လိုအပ်ချက်များကို ပြည့်မှီပြီး ကျေနပ်မှု ရရှိစေဖို့ဖြစ်ပါသည်။ သို့ရာတွင် ဤ EMP သည် နိုင်ငံအဆင့် ခွင့်ပြုချက်ပါမစ် လိုအပ်ချက် များနှင့်အတူ ကိုက်ညီဖို့ သက်သာမဟုတ်စေဘဲ ဥပမာ- သဘာဝပတ်ဝန်းကျင် ဆိုင်ရာ စည်းကမ်းလိုက်နာမှု လက်မှတ် (the Environmental Compliance Certificate ECC) အား လက်ခံရရှိခြင်းအပြင်၊ စီမံကိန်း လုပ်ဆောင်နေစဉ်အတွင်း လူများ (သို့) သဘာဝပတ်ဝန်းကျင် အပေါ် တမူထူးခြားသည့် ဆိုးကျိုး သက်ရောက်မှု မဖြစ်ပေါ်စေဘဲ အလားအလာရှိသော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာနှင့် လူမှုရေးဆိုင်ရာ အကျိုးသက်ရောက်မှုများ တစ်စုံတစ်ရာတို့အား လျော့ကျစေမှုကိုလည်း သေချာစေမည် ဖြစ်ပါသည်။

အဆိုပါ EMP စာရင်းတွင်စီမံကိန်းထဲတွင်ပါဝင်သည့် အဖွဲ့အစည်းတစ်ခုစီတိုင်း၏ လိုက်နာရမည့် အချက်များနှင့် လုပ်ဆောင်ရမည့် တာဝန်ဝတ္တရားများ ဖော်ပြပါရှိသည်။ လိုက်နာရမည့် သတ်မှတ်ထားသော နည်းစနစ်များနှင့် လုပ်ထုံးလုပ်နည်းများအပြင် အကောင်အထည် ဖော်ဆောင်ရမည့် သဘာဝပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ စီမံခန့်ခွဲမှု အရေးယူ လုပ်ဆောင် ချက်များကိုလည်း အကြမ်းဖျင်းဖော်ပြထားပါသည်။

1.2 စီမံကိန်းအားဖော်ပြချက်။ (Project Description)

ကံပေါက်သတ္တုတွင်းအား ပန်ဝါ၏ ပူးတွဲကုမ္ပဏီဖြစ်သော ဒယ်လ်ကိုမှ ပိုင်ဆိုင်ထားပါသည်။ EMP သည် အောက်ဖော်ပြပါများပါရှိသည့် သတ္တုရိုင်းသန့်စင်မှု လုပ်ငန်းစဉ်လည်ပတ်မှုများနှင့် လက်ရှိ တည်ရှိနေသည့် ခဲမဖြူနှင့် အဖြိုက်နက် မိုင်းတွင်းလုပ်ငန်းများ ပါဝင်ကြသည်။

- ဟင်းလင်းပွင့်တွင်း။ (A single open pit)

- သတ္တုသန့်စင်စက်ရုံ။ (An ore processing facility - OPF)
- သတ္တုရောရာမြေစာပုံ။ (Run-of-mine (ROM) ore stockpiles)
- စက်ရုံမှ သတ္တုသန့်စင်ပြီး ထွက်ရှိလာသည့် စွန့်ပစ်အညစ်အကြေး သိုလှောင်ကန်။ (A tailing storage facility - TSF)
- ဓါတ်ခွဲခန်း၊ နေရာထိုင်ခင်းနှင့် လူနေအဆောက်အအုံများ၊ ရုံးခန်းများနှင့် အလုပ်ရုံနေရာ
- ရေအားလျှပ်စစ်စက်ရုံ။ (A hydroelectric power plant - HEPP) အပါအဝင် သတ္တုလုပ်ငန်းနှင့် ဆက်စပ်သည့် အထောက်အပံ့ပေးသည့် အဆောက်အအုံများပါဝင်သည်။

ကန်ဘောက်၌ သတ္တုတူးဖော်ခြင်းလုပ်ငန်းသည် တောင်ကြား၏အနောက်ဘက်ပိုင်း၌ တည်ရှိသော ဟင်းလင်းပွင့်တွင်း တစ်တွင်းမှတူးဖော်ခြင်း ဖြစ်ပါသည်။ သတ္တုတူးဖော်ခြင်းကို မြေတူးစက်များဖြင့် အလွတ်တူးဖော်ခြင်း၊ ဒိုင်းနမိုက်ဖြင့် ဖောက်ခွဲခြင်း နည်းတို့ဖြင့် ဆောင်ရွက်၍ တစ်ပါလော်ရီကားများပေါ်သို့ တင်ပါသည်။ သတ္တရိုင်းများ (Crude ores) တူးဖော်ခြင်းလုပ်ငန်းကို Back-hoe Excavator များအသုံးပြု၍ Open-cut Mining Method ဖြင့်တူးဖော်ပါသည်။ လိုအပ်သောနေရာများ (မာသောနေရာများ) တွင် ဒိုင်းနမိုက်များဖြင့် ယမ်းခွဲပေးရပါသည်။ အသံနှင့်တုန်ခါမှုတို့ လျော့ချစေရန်အလို့ငှာ အချိန်ဆွဲ ယမ်းဖောက်ခွဲခြင်း နည်းစနစ်ကို အသုံးမပြုမီ ဟင်းလင်းပြင်ဖြစ်သည့် မျက်နှာပြင်ကို ကြိုတင်ပြင်ဆင်ပြီး ယမ်းဖောက်ခွဲခြင်းအတွက် ၃၂ မမ အချင်းရှိသော Emulsion Explosive ဒိုင်းနမိုက်ကို အသုံးပြုပါသည်။ သတ္တရိုင်းကို OPF feed point သို့မဟုတ် Stockpiles သို့ တိုက်ရိုက်သယ်ပို့ သကဲ့သ မြေသယ်ယာ်များဖြင့် သတ္တရိုင်းသန့်စင်စက်ရုံ (Mineral Dressing Plant) သို့လည်း သယ်ပို့ပါသည်။

သတ္တရိုင်းသန့်စင်စက်ရုံ (Mineral Dressing Plant) သည် သတ္တရိုင်းထုတ်လုပ်ခြင်း အဆင့်ဆင့်အတွက် Gravity Concentration Method ကို အသုံးပြုပါသည်။ ပထမဦးစွာ သတ္တရိုင်းက Trommel ခေါ် Revolving Screen များဖြင့် အရွယ်အစားခွဲခြားခြင်း မဆောင်ရွက်မီ ရေပန်းဖြင့် ထိုးဖော်ဆေးကြောရပါသည်။ ပြီးလျှင် Shaking Table လှုပ်စားပွဲများသို့ ပို့ဆောင်ရန်အတွက် သင့်လျော်သော အရွယ်အစားများ ထုတ်လုပ်နိုင်ရန် သတ္တရိုင်း အရွယ်အစားများကို Jaw Crusher ကြိတ်ခွဲစက်ဖြင့် ကြိတ်ခွဲခြင်း၊ Vibration Screen လှုပ်ဆန်ခါဖြင့် အရွယ်အစား ထပ်မံခွဲခြားခြင်း Ball Mill ခေါ် Grinding Machine များဖြင့် ထပ်မံကြိတ်ချေခြင်းများ ဆောင်ရွက်ရပါသည်။ သတ္တရိုင်းသန့်စင်စက်ရုံ (Mineral Dressing Plant) မှ ထွက်ရှိလာသော Tailing (slurry) များအား Tailing Pond Np. ၁ အတွင်း၌ စုဆောင်းထားရှိပြီး Tailing Pond Np.2 & Np.3 တို့ကို ရေပို့လွှဲဖြင့် ဆက်သွယ်ထားသော Tailing Pond Np.4 သို့ ရေစုပ်ပန့် ၂ လုံးဖြင့် စုပ်ထုတ်ပို့ဆောင်ပါသည်။ Tailing (slurry) အတွင်းမှ Coarse grain များကို Tailing Pond Np.4 ၌ အနည်ထိုင်စေပြီး Tailing (slurry) အတွင်းမှ Fine grain များကို Tailing Pond Np.2 & Np.3 တို့၌ အနယ်ထိုင်စေပါသည်။ နောက်ဆုံးတွင် သန့်ရှင်းသော ရေများသာလျှင် Tailing Pond Np.3 မှ ချောင်းအတွင်းသို့ ထုတ်လွှတ်ပါသည်။ သတ္တရိုင်းထုတ်လုပ်ခြင်းအဆင့်ဆင့်သည် သတ္တသန့်စင် (Concentrates) ရသည်အထိ အဆင့်ဆင့် ခွဲခြားခြင်း အတွက် ရေ နှင့် လှုပ်ဆန်ခါများကိုသာ အသုံးပြုပါသည်။

မည်သည့် ကုန်ကြမ်းပစ္စည်းများ (သို့) ဓါတုဗေဒဆိုင်ရာပစ္စည်းများကို သတ္တုရောရာ ထုတ်ယူမှု လုပ်ငန်းလည်ပတ်ရာတွင် အသုံးပြုထားခြင်းမရှိပေ။ DELCO ၏ အချက်အလက်များအရ စီမံကိန်းဧရိယာအတွင်း မြေအောက်ရေသည် မြေမျက်နှာပြင်အောက် ၁၀၀ ပေ (၃၀ မီတာ)ခန့်၌ တည်ရှိပါသည်။

1.3 အခြေခံအချက်

ဤ EMP အား မေလ၊ ၂၀၁၆ခုနှစ်တွင် AMC Consultants မှ ပြုလုပ်ခဲ့သည့် ကံပေါက်သတ္တုတွင်း ပဏာမ ဖြစ်နိုင်ခြေလေ့လာမှု (the Kanbauk Prefeasibility Study - AMC Consultants, May 2016) အပါအဝင် အထောက်အပံ့ပေးထားသည့် စာရွက်စာတမ်းများစွာ ပါဝင်သည့် အရေအတွက်တစ်ခု၏ တွေ့ရှိချက်အပေါ်တွင် အခြေခံပြီး ပြင်ဆင်ထားခဲ့ခြင်း ဖြစ်ပါသည်။ ၎င်းအား ကံပေါက်သတ္တုတွင်းအတွက် ကနဦးပိုင်းတွင် သဘာဝ ပတ်ဝန်းကျင်ဆိုင်ရာ အကျိုးသက်ရောက်မှု ဆန်းစစ်ချက် (သို့) ကနဦး သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ စစ်ဆေးချက် (Initial Environmental Examination or Environmental Impact Assessment) မလုပ်ဆောင်ထားခဲ့ကြောင်းကို မှတ်ထား သင့်ပါသည်။ EMP အား ဧပြီလ၊ ၂၀၁၇ခုနှစ်တွင် ပြုလုပ်ထားခဲ့သည့် အဓိက ခြေခံ ခြုံငုံလေ့လာချက် primary baseline surveys များနှင့် ၂၀၁၆ခုနှစ်၊ နိုဝင်ဘာလတွင် လုပ်ငန်းခွင်သို့ သွားရောက်လည်ပတ်ထားခဲ့သည့် တွေ့ရှိချက်များနှင့် ဒယ်လ်ကိုမှ ထောက်ပံ့ပေးထားသည့် စာရွက်စာတမ်းများ အားလုံးကုလည်း ဆန်းစစ်ထားမှုတို့အပေါ်တွင် အခြေခံထားပြီး သီကုံးရေးဖွဲ့ထားခြင်း ဖြစ်ပါသည်။ အဓိက စုဆောင်းရရှိထားသည့် အချက်အလက်များတွင် လေထု၊ ဆူညံမှုနှင့် ရေနမူနာများအား ကံပေါက်ကျေးရွာ အပါအဝင် စီမံကိန်းနေရာအတွင်းနှင့် အနီးအနားရှိပတ်ဝန်းကျင်ဒေသ ၅ ခုအထိ ပါဝင်လုပ်ဆောင်ခဲ့ပါသည်။ ရေနမူနာများကို ကံပေါက်ကျေးရွာရှိ ရေတွင်းများနှင့် စီမံကိန်းမှ ထုတ်လွှတ်ထားသည့် စွန့်ပစ်ရေမြောင်း လမ်းကြောင်းအတိုင်း စီးဆင်းနေသည့် ရေများကိုလည်း စုဆောင်း ကောက်ယူထား ခဲ့ပါသည်။ နမူနာများအားလုံးကို ရန်ကုန်မြို့ရှိ မြန်မာဒေသခံ ဓါတ်ခွဲခန်းများတွင် ဓါတ်ခွဲ ဆန်းစစ် ထားခဲ့ပါသည်။

လေထုအရည်အသွေးအတွက် ပရိဂျက်ဧရိယာတွင် ထိန်းချုပ်ထားသည့်ဒေတာများမှာ NO_2 ၁နာရီနှင့် SO_2 ၁၀-မိနစ် ပျမ်းမျှအချိန် (1-hour and SO_2 10-minute averaging periods) မှလွဲပြီး အမျိုးသားဆိုင်ရာ သဘာဝ ပတ်ဝန်းကျင်အရည်အသေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (the National Environmental Quality (Emissions) Guidelines (NEQEG)) တို့မှာ အထူးကောင်းမွန်လျက်ရှိကြောင်း ရည်ညွှန်းတွေ့ရှိထားပါသည်။ ကံပေါက်ကျေးရွာတွင် စောင့်ကြည့် မှတ်တမ်းတင်ထားသည့် ဒေတာအရ NO_2 ၁နာရီ၊ NO_2 နှစ်ပတ်စဉ်နှင့် SO_2 ၁၀ မိနစ် ပျမ်းမျှကြာချိန် (the NO_2 1-hour, NO_2 annual and SO_2 10-minutes averageperiod) တို့မှလွဲပြီး လေထုအရည်အသွေး စံနှုန်းအခြေအနေမှာ အထူးကောင်းမွန်မှုရှိကြောင်း ရည်ညွှန်းထားပါသည်။ လေထုထဲသို့ အဓိက ထုတ်လွှတ်မှုအရင်းအမြစ်မှာ သယ်ယူပို့ဆောင်ရေး ယာဉ်များမှ မီးခိုး ထုတ်လွှတ်ထားမှုနှင့် ရပ်ရွာသုံး ရည်ရွယ်ချက်များ (ဥပမာ - အပူပေးခြင်းနှင့် ချက်ပြုတ်ခြင်း) အတွက် သစ်တောလောင်ကျွမ်းမှုနှင့် လယ်ယာစိုက်ပျိုးမှုအတွက် လယ်ယာများ မီးရှို့မှုကြောင့် ပြင်ပလေထုပူလောင်မှုမှ ဖြစ်ပေါ်လာပုံရသည်။ စီမံကိန်းဧရိယာ အတွင်းတွင် သွားလာမှုအတွက် လမ်းကြောင်းများကို အသုံးပြုသည့်မော်တော်ယာဉ်များမှ ထုတ်လွှတ်ထားသည့် ဖုန်မှုန့်များလည်း ပါဝင်ကြသည်။ ဆူညံမှုအတွက်စီမံကိန်းဧရိယာ၌ NEQEG ထဲရှိ နေ့ (သို့) ညအချိန် ကန့်သတ်ချက်အား ကျော်လွန်ခြင်း မရှိပေ။ ကံပေါက်ကျေးရွာထဲရှိ ဆူညံမှုအဆင့်မှာ အဓိကအားဖြင့် မော်တော်ယာဉ်များ (မော်တော်ဆိုင်ကယ်များ၊ ကားများ) နှင့် အနီးအနား ပတ်ဝန်းကျင်ရှိ လူများ လုပ်ငန်းဆောင်ရွက်မှုများနှင့် သဘာဝပတ်ဝန်းကျင် (မိုးရွာခြင်းနှင့် လေတိုက်ခြင်း စသည်ဖြင့်) တို့မှ ထွက်ပေါ်လာကြပေသည်။ ညအချိန် အဆင့်များမှာ NEQEG ထက် အထူးကောင်းမွန်ပါသည်။ ကံပေါက်ကျေးရွာရှိဆူညံမှုမှာ နေ့အချိန်ထက် ညအချိန်က အနည်းငယ် ပိုမိုမြင့်မားသည်။ ၎င်းသည် ရေဖြူနှင့် ထားဝယ်မြို့တို့ကို ဆက်သွယ်ထားသည့် အဓိကလမ်းမကြီးအား အသုံးပြုမှု များပြားနေသည့် အတွက်ကြောင့် ဖြစ်နိုင်ပါသည်။

စွန့်ပစ်ပစ္စည်းအညစ်အကြေး ထုတ်လွှတ်မှုများအား NEQEG အား ဆန့်ကျင်ဘက် ဆန်းစစ်ထားခဲ့သည်။ ၄င်းဆုံချက်များရှိ အများဆုံးသောမူဘောင်များ၏တန်ဖိုးသည် NEQEG ထဲရှိ စွန့်ပစ်ပစ္စည်းထုတ်လွှတ်မှု စံနှုန်းများကိုပြည့်မှီစေပါသည်။ Point 3 (tailing pond) တွင် မှတ်တမ်းတင်ထားသည့် ၁၄၁ နှင့် ၁၃၇ mg/L (points a&b) တို့ဖြစ်သည့် COD မှာ NEQEG ထက် ကျော်လွန် ကောင်းမွန်မှုရှိပါသည်။ ပိုမိုမြင့်မားသည့် COD levels အဆင့်များမှာ နမူနာထဲရှိ oxidisable organic ပစ္စည်း၏ အရေအတွက် ပို၍ကြီးမားသော ပမာဏ တစ်ခုကို ရည်ညွှန်းထားခြင်းဖြစ်ပြီး၊ Oxygen (DO) levels ရောစပ်မှုကို လျော့ကျစေမည်ဖြစ်ပါသည်။

EMP အတွက် အများပြည်သူနှင့် တွေ့ဆုံပြီး ဆွေးနွေးတိုင်ပင်ခြင်းကို ၂၀၁၇ ခုနှစ်၊ ဧပြီလတွင် ကံပေါက်ကျေးရွာ အနီးအနား၌ ပြုလုပ်ခဲ့ပါသည်။ ဤအလုပ်တာဝန်အား ဆောင်ရွက်နေစဉ် အတွင်းတွင် ကံပေါက်ကျေးရွာသူ/သားများ၏ နေထိုင်အသက်ရှင်မှုများ၊ ဝင်ငွေရရှိသည့် လုပ်ငန်းများ၊ အခြေခံအဆောက်အအုံဆိုင်ရာသတင်း အချက်အလက်များ၊ အဆောက်အအုံ စက်ရုံများနှင့် ကျန်းမာရေးပြုစုစောင့်ရှောက်မှုတို့အတွက် အဓိကကျသည့် အချက်အလက်များလည်း ကောက်ယူထားခဲ့ပါသည်။

DELCO ၏ လုပ်ငန်းခွင်အဝန်းအတင်း အများပြည်သူများနှင့် တွေ့ဆုံဆွေးနွေးတိုင်ပင်ခြင်းကို ပြုလုပ်ခြင်းဖြင့် ကန်ဘောက်ကျေးရွာနေပြည်သူများက DELCO ၏ သတ္ထုတူးဖော်ခြင်း စီမံကိန်းအပေါ် အမြင်များ ပိုမိုရှင်းလင်းလာသည့်အပြင် DELCO က Corporate Social Responsibility လုပ်ငန်းကို ဆောင်ရွက်ခြင်းဖြင့် လုပငန်းများကောင်းမွန်စွာ ဆောင်ရွက် လာခဲ့ကြောင်းကို နားလည်ပါသည်။ သို့သော် ဒေသခံပြည်သူများက ဒေသအတွင်းရှိ ပြည်သူများ အားလုံးအား လူသိရှင်ကြား ရှင်းလင်းပြောပြနိုင်ရန်အလို့ငှာ အများပြည်သူ နေထိုင်ရာအဝန်းအတွင်း သို့မဟုတ် ကန်ဘောက်ရေိယာအတွင်း အများပြည်သူနှင့် တွေ့ဆုံဆွေးနွေးခြင်းကို ပို၍ ကျင်းပပြုလုပ်စေလိုပါသည်။

1.4 ဆိုးကျိုးသက်ရောက်မှုများနှင့် ဆိုးကျိုးသက်ရောက်မှုအားလျော့ချမှု။ (Impacts and Mitigation)

မိုင်းတွင်းလုပ်ငန်းလည်ပတ်မှုများအား အလုပ်အကိုင်ဖန်တီးမှုနှင့် ကျေးလက်ဒေသ ဖွံ့ဖြိုးတိုးတက်ရေးတို့အတွက် ကောင်းမွန်ပြီး အပြုသဘောဆောင်သည့် အကျိုးသက်ရောက်မှုတစ်ခု ဖြစ်ပေါ်စေခဲ့ပြီး ဖြစ်ပါသည်။ စီမံကိန်းမှ ဖြစ်နိုင်ခြေရှိသည့် အပြုသဘောမဆောင်သည့် ဆိုးကျိုးတစ်စုံတစ်ရာရှိခဲ့ပါက ဤ EMP ထဲတွင် ကတိကဝတ်ပြုထားခြင်းအရ လျော့ချစေနိုင်မည် ဖြစ်ပါသည်။

ဆိုးကျိုးလျော့ချမှုတွင် လုပ်ငန်းလည်ပတ်နေစဉ်အတွင်း အဆိုပါအချက်များနှင့်တူညီမှုရှိနေမည့် အသုံးမပြုတော့သည့် အချိန်အတောအတွင်း ဆိုးကျိုးသက်ရောက်မှုရှိကြောင်း ယူဆထားသည် နှင့်အညီ စက်ရုံလုပ်ငန်းခွင်အား အသုံး မပြုတော့သည့်အချိန်ကာလများနှင့် လုပ်ငန်းလည်ပတ်မှု အပေါ်တွင်တို့ ပါဝင်ကြသည်။

သတ္ထုတူးဖော်ရေး ဆောင်ရွက်မများ၏ ဖြစ်နိုင်ခြေရှိသော ဆိုးကျိုးသက်ရောက်မှုများမှာ အဓိက အားဖြင့် ရေ၊ အလေအလွင့်စီမံခန့်ခွဲမှု၊ လေထုအရည်အသွေး၊ ဆူညံသံထုတ်လွှတ်မှုများ၊ မြေနေရာများ နေရာယူထားခြင်းနှင့် မတော်တဆဖြစ်မှုများနှင့် အဓိက ဆက်စပ်နေပါသည်။

လုပ်ငန်းများဆောင်ရွက်စဉ်ကာလအတွင်း မြေမျက်နှာပြင်အပေါ်ရှိရေနှင့် မြစ်ရေတို့၏ အရည်အသွေးများ ပြောင်းလဲရန် အလားအလာရှိပါသည်။ ပုံမှန် စစ်ဆေးခြင်းနှင့် လိုအပ်သော ထိန်းသိမ်းစောင့်ရှောက်မှုတို့ကို နောက်ဆုံးသော Tailing Pond မှ ပိုလျှံစီးလာသော အရည်များ၊ ရေဆိုး

အနည်အနစ်များ၊ ရေမြောင်းများနှင့် သတ္ထရိုင်းများနှင့် ဖယ်ရှားလိုက်သော Overburden အပေါ်ယံ မြေသားများအတွက် စုပုံထားသော Stock piles နေရာများအတွက် ဆောင်ရွက်ပါမည်။

စွန့်ပစ်အမှိုက်များ စွန့်ပစ်ခြင်း မလျော်ကန်သော စီမံခန့်ခွဲမှုမှ မြေ၊ ရေနှင့် လေတို့ ညစ်ညမ်းခြင်း ဖြစ်ပေါ်ဖွယ် အလားအလာမရှိပါ။ အဘယ်ကြောင့်ဆိုသော် စီမံကိန်းသည် ၁) စွန့်ပစ်အမှိုက်များ စုဆောင်းသည့်နေရာ အမျိုးမျိုးနှင့် သိုလှောင်သည့်နေရာများ သတ်မှတ်ခြင်း၊ ၂) စွန့်ပစ်အမှိုက်များ ပြန်လည်သန့်စင်၍အသုံးပြုခြင်း၊ ၃) စွန့်ပစ်အမှိုက်များ စွန့်ပစ်စုပုံသည့်နေရာ သတ်မှတ်ဖော်ထုတ်ခြင်းနှင့် ၄) ဒေသတွင်း စည်ပင်၏လမ်းညွှန်ချက်များကို လိုက်နာဆောင်ရွက်ရန် စည်ပင်နှင့် ညှိနှိုင်းဆောင်ရွက်ခြင်း အစရှိသည့် အချက်များပါဝင်သော စွန့်ပစ်အမှိုက်များ စီမံခန့်ခွဲမှု စီမံချက်ကို ဖော်ထုတ်၍ အသုံးချဆောင်ရွက်ခြင်းကြောင့် ဖြစ်ပါသည်။

လေအရည်အသွေးနှင့်ပတ်သက်လျှင် စက်ယန္တယားများ၊ မော်တော်ယာဉ်များနှင့် လျှပ်စစ်မီးစက် များက လေထုအတွင်းသို့ ခါတ်ငွေ့ထုတ်လွှတ်မှုများ ထုတ်လွှတ်နိုင်သကဲ့သို့ သတ္ထရိုင်းထုတ်လုပ်ခြင်း အဆင့်ဆင့်မှလည်း အမှုန်အမွှားများထုတ်လုပ်လာနိုင်ပါသည်။ ညစ်ညမ်းစေသောအရာများ နည်းပါးမှုနှင့် ထုတ်လွှတ်မှုနှုန်းနိမ့်ပါးခြင်း၊ **ယာ**ဉ်များသွားလာလှုပ်ရှားသည့် လမ်းမများအား နေ့စဉ် ရေဖျန်းပေးခြင်းနှင့် သတ္ထများအားကြိတ်ခွဲခြင်းလုပ်ငန်း ကာလအတွင်း၌လည်း ရေဖျန်းပေးခြင်း တို့ကြောင့် ထိခိုက်မှုများဖြစ်ဖွယ်ရာအလားအလာမရှိပါ။

ယာဉ်များသွားလာခြင်း၊ မြေသားလှုပ်ရှားစေသည့် စက်ကရိယာများ၊ ပစ္စည်းများကို ကိုင်တွယ်သည့် စက်ကရိယာများ၊ OPF နှင့် မြေပြင်မိုင်းခွဲခြင်းများသည်လည်း ဆူညံသံနှင့်တုန်ခါမှုကို ထုတ်လုပ် ဖြစ်ပေါ်စေပါမည်။ အဆိုပါ အသံများဆူညံခြင်း လျော့ပါးသက်သာစေရန်အလို့ငှာ NEQEG ၏ လမ်းညွှန်ချက်များနှင့်အညီ ဆူညံသံများထုတ်လွှတ်မှုအတွက် ပုံမှန် စောင့်ကြပ်ကြည့်ရှုခြင်းလုပ်ငန်းကို ဆောင်ရွက်မည်ဖြစ်ပြီး ဒိုင်းနမိုက်ဖြင့် ယမ်းဖောက်ခွဲခြင်းကိုလည်း လုပ်ထုံးလုပ်နည်းများအရ စီမံဆောင်ရွက်ပါမည်။

မြေပုံပန်းသဏ္ဌာန်နှင့် မြေမျက်နှာပြင်နှင့်ပတ်သက်လျှင် သတ္ထတူးဖော်ခြင်းလုပ်ငန်းများမှ မြေပြိုခြင်းများ နှင့် မြေဆီလွှာတိုက်စားခြင်းများက အနီးအနားဝန်းကျင်ရှိ တောင်စောင်းများကို မတည်မငြိမ်ဖြစ်စေနိုင် ပါသည်။ သို့သော် သိသာထင်ရှားသော ထိခိုက်မှုများ ဖြစ်နိုင်ဖွယ်အလားအလာမရှိပါ။ အဘယ်ကြောင့်ဆိုသော် သတ္ထရိုင်း တူးဖော်ခြင်းလုပ်ငန်းကို ဘေးအန္တရာယ်ကင်းရှင်းစေရန်အတွက် Contour strip bench method ဖြင့် ဆောင်ရက်ခြင်းကြောင့် ဖြစ်ပါသည်။ လျော့ပါးသက်သာစေရန်အတွက် Decant ponds,Tailing ponds တို့နှင့် ယာဉ်များသွားလာသည့် လမ်းများကို ဘောင်တင်ခြင်းနှင့် ကာကွယ်ခြင်းများ သေချာအောင် ဆောင်ရွက်ပါမည်။

ထို့ပြင် မျော်လင့်မထားသည့် မိုးသည်းထန်စွာ ရွာသွန်းမှုကြောင့် ရေကြီးခြင်းနှင့ မြေပြိုခြင်းတို့ ကဲ့သို့သော မတော်တဆဖြစ်ရပ်များက စီမံကိန်းဧရိယာကို ထိခိုက်မှုများဖြစ်စေနိုင်ပါသည်။ ရေမြောင်းများ၊ ကန်များနှင့် ဆည်တို့၏တာရိုးများတို့အတွက် ပုံမှန် စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် လိုအပ်သော ထိန်းသိမ်းစောင့်ရှောက်မှုများက ထိခိုက်မှုများကို လျော့ပါးသက်သာစေပါမည်။

Table 1.1 သည် ဆိုးကျိုး၏တမူထူးခြားမှုကို လျော့ချနိုင်ရန် ဆိုးကျိုးလျော့ချမှု တိုင်းတာထားမှု အား ဖေါ်ပြချက်တစ်ခုနှင့် ဖြစ်နိုင်ခြေရှိသည့် ဆိုးကျိုးများ၏ အကျဉ်းချုံးတစ်ခုအား ဖေါ်ပြ ပေးထားပါသည်။

1.5 ကတိကဝတ်ပြုခြင်း။ (Commitments)

စီမံကိန်းဖွံ့ဖြိုးရေးလုပ်ငန်း လုပ်ဆောင်နေစဉ်အတွင်းတွင် ဒယ်လ်ကို (DELCO) သည် သင့်လျော်မှန်ကန်သည့် သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာနှင့် လူမှုရေးလုပ်ငန်းတို့အား ကောင်းမွန်စွာ

လုပ်ဆောင်မှုတို့က သေချာစေဖို့ရန် ကတိကဝတ် ပြုထားခဲ့ပါသည်။ ဒယ်လ်ကို (DELCO) မှ ပြုလုပ်ထားခဲ့သည် အဆိုပါကတိကဝတ်များတွင် အောက်ပါအချက်များ ပါဝင်ကြပါသည်။

- ဤ EMP ၏ တိကျမှန်ကန်မှုအားသေချာစေခြင်း။
- အသုံးချနိုင်သော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ ထိန်းသိမ်းစောင့်ရှောက်ရေးဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းနှင့် လုပ်ထုံးလုပ်နည်းများ၊ နှင့်
- ဤ EMP ၌ သတ်မှတ်ထားသည့် ဆိုးကျိုးသက်ရောက်မှု လျော့ချတိုင်းတာရေးအား ကတိကဝတ်ပြု အတည်ပြုခြင်း။

စီမံကိန်းကို The Constitution of the Republic of the Union of Myanmar (2002), The Myanmar Agenda 21 (1997), The Myanmar Investment Law (2016), The Myanmar Mines Law (Amended)(2015) & The Myanmar Mine Rules, etc. အစရှိသည့် ပြည်တွင်းနှင့် ဒေသတွင်း စံသတ်မှတ်ချက်များနှင့် ဥပဒေများစွာတို့နှင့် The Environmental Conservation Law (2012), The Environmental Conservation Rules (2014), The National Environmental Quality (Emission) Guidelines (2015) and EIA Procedure (2015) စသည်တို့ ပါဝင်သော EIA နှင့်ဆက်စပ်သော ဒေသတွင်း ဥပဒေများနှင့်အညီ ဆောင်ရွက်ပါမည်။ စီမံကိန်းနှင့်သက်ဆိုင်သော ဥပဒေများ၏စာရင်းကို အခန်း(၆)၌ ဇယား (၆-၂) နှင့်တကွ ပြည့်စုံစွာ ဖော်ပြထားပါသည်။

1.6 စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် ရံပုံငွေ ခွဲဝေချထားခြင်း

စောင့်ကြပ်ကြည့်ရှုခြင်းလုပငန်းသည် DELCO စီမံကိန်း လိုအပ်ချက်များနှင့် ထိန်းသိမ်းရန် အာဏာရှိသူတို့ နှစ်မျိုးစလုံး၏ လိုအပ်ချက်များကို လိုက်နာကြောင်း သရုပ်ပြရန်အလို့ငှာ လိုအပ်သော အကောင်အထည်ဖော်ဆောင်သည့် ထိန်းချုပ်မှု သို့မဟုတ် လျော့ပါးသက်သာစေခြင်း အကဲဖြတ်ဆုံးဖြတ်မှုများ၏ အကျိုးထိရောက်မှုများကို တိုက်ဆိုင်စစ်ဆေးနိုင်မှုများကိုလည်း ပံ့ပိုးပေးပါမည်။

DELCO နှင့် ၎င်း၏ ကန်ထရိုက်ငယ်လေးများက လုပ်ငန်းကျွမ်းကျင်မှုများနှင့် အသေးစိတ် ပုံစံစနစ်များနှင့်အညီ စာချုပ်ပါတာဝန်ဝတ္တရားများအတိုင်း ဖြည့်ဆည်းပေးသည်ကို သေချာစေရန်အတွက် လိုအပ်ချက်များကို လိုက်နာဆောင်ရွက်မှုအား စောင့်ကြပ်ကြည့်ရှုရပါမည်။ စောင့်ကြပ်ကြည့်ရှုသည့် အစီအစဉ် ဆောင်ရွက်ရာ၌ အောက်ဖော်ပြပါ စဉ်းစားချက်များနှင့် နည်းပျူဟာများကို အသုံးချလျက်ရှိပါသည်။

- နိုင်ငံတကာနှင့် ပြည်တွင်း သို့မဟုတ် ဒေသတွင်း လက်သင့်ခံနိုင်သော ကျွမ်းကျင်မှုများကို အမြဲတမ်း တူညီနိုင်စေခြင်း
- လက်တွေ့ကျသော ကျွမ်းကျင်မှုများ
- ထိန်းချုပ်၍ မရနိုင်သော မည်သည့်ထိခိုက်မှုများကိုမဆို ရှေ့ပြေး စုံစမ်းစစ်ဆေးမှုများကို သေချာစေရန် အတွက် ရေရှည်တည်တံ့သော တည်နေရာကို စောင့်ကြပ်ကြည့်ရှုသော နေရာများ
- ကုန်ကျစရိတ် အကျိုးထိရောက်မှု

DELCO က စီမံကိန်း၏ သဘာဝ ပတ်ဝန်းကျင်ဆိုင်ရာနှင့် လူမှုရေးဆိုင်ရာ ဆောင်ရွက်ထားရှိမှုမှန်သမျှကို မှတ်တမ်းတင်ရန် (၆) လတိုင်းတွင် သဘာဝ ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုခြင်း အစီရင်ခံစာကို ပြီးပြည့်စုံရန် ဆောင်ရွက်သွားပါမည်။ DELCO ၏ ကတိကဝတ်များနှင့်တကွ သဘာဝ ပတ်ဝန်းကျင် ထိခိုက်မှု ဆန်းစစ်ခြင်းလုပ်ငန်း လုပ်ထုံးလုပ်နည်းများ၏ လိုအပ်ချက်များအရ ဆိုးဆိုးဝါးဝါး

ထိခိုက်မှုများရှိသော အဖြစ်အပျက် ဖြစ်ပျက်ပြီးနောက် (၂၄) နာရီအတွင်း သို့မဟုတ် အသေးအဖွဲ ထိခိုက်မှုဟု စဉ်းစားဆုံးဖြတ်သည့် အခြားသော မည်သည့် ဖြစ်ပျက်မှုမျိုးမဆိုအတွက် (၇) ရက်အတွင်း MONREC သို့ အမှတ်မထင်ဖြစ်သော ဖြစ်ရပ်၏ အစီရင်ခံစာကို တင်ပြသွားပါမည်။ စောင့်ကြပ်ကြည့်ရှုခြင်း အစီရင်ခံစာ၏ ပုံပန်းသွင်ပြင်များ အကျဉ်းချုပ်ကို အခန်း(၁၁)၌ ဇယား (၁၁-၁)ဖြင့် ပြည့်စုံစွာ ဖော်ပြထားပါသည်။

EMP ၌ တင်ပြထားသော သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာနှင့် လူမှုရေးဆိုင်ရာ စီမံအုပ်ချုပ်မ နှင့် လျော့ပေါ့သက်သာစေခြင်း အကဲဖြတ်ဆုံးဖြတ်မှုများကို အခြေပြု၍ DELCO က အဆိုပါ အကဲဖြတ်ဆုံးဖြတ်မှုများကို ပြီးပြည့်စုံစွာ အကောင်အထည်ဖော်နိုင်ဖို့ရန် အမေရိကန်ဒေါ်လာ တစ်သိန်း ရံပုံငွေ ခန့်မှန်းတွက်ချက်ခဲ့ပါသည်။

Table 1.1 Summary of Impacts and Mitigation Measures for the Kanbauk Project

Parameter	Impact	Impact Description	Proposed Mitigation
Planned Activities			
Air Quality	Disturbance to air quality can arise from the use of the access roads on site and emissions from vehicles and processing equipment. This is more of an issue during the dry season when there is no rain and vehicles using the mud access roads generate dust emissions. Operational activities that may affect the air quality of offsite sensitive receptors for dust include; • Vehicle use of the access roads on site; • Moving material (excavators, scrapers); • Topsoil stripping; • Road grading; • Stacking and reclaiming from stockpiles; • Conveyors, loading and crushing at the OPF; • Wind erosion from stockpiles, tailings storage facilities or exposed areas.	Potential impacts caused by operational dust could be: • Increased dust affecting the air quality amenity at sensitive receptors; and • Increased dust affecting the health at sensitive receptors. Machinery, vehicles and energy generator devices can generate gas emissions to the atmosphere. Significant impacts are not likely due to the low rate emitted and low charge of pollutants. Dust from the access roads during the dry season can impact local flora and fauna and the workforce. Significant impacts are not likely due to the daily water spraying at the access road. Significant impacts of dust generated from ore processing (crushing and grinding large size of crude ore) are not likely because the crushing process was combination water spraying during the crushing process which control no dust generation as well as use only water and vibration screen to separate the concentrates.	• Low speed for vehicles (max speed of 30 km/h) on Project Site as well as through Kanbauk village • Replantation program for open bare soil areas • A dust management plan will be prepared and implemented. • Water will be sprayed on roads to control dust. • Engine maintenance as recommended by manufacturer.
Water Quality	During operations, there is the potential for changes in surface water and river water quality. The tailing from the mine is processed in the OPF and the remainder is	Potential surface water impacts include the following: • Contamination of rainfall runoff	• Regular water quality check for over flow from last Tailings Pond. • Septic tank was constructed for sedimentation of sewage and waste

Parameter	Impact	Impact Description	Proposed Mitigation
	emptied into the tailing pond which eventually leads to the decant pond. From here, there is a small stream which leads onto the Yine Ye stream. Within the Decant Pond, heavy particles / sedimentation sinks to the bottom and the remaining water is led out to the Yine Ye stream. The operational activities that may affect surface water include; • Constructing landforms that changethe catchment hydrology; • Operating dams associated with the site water management system; • Waste water from onsite accommodation and office facilities; • Water discharges to the Yine Ye stream from the Decant Pond; • Clearing land for operational purposes; and • Storage of mine tailings.	with sediments from exposed areas and stockpiles. Significant impacts are not likely due to the water flow to Tailings Pond through drainage channel. • Contamination of the local Yine Ye stream with waste water and water from the Decant Pond. Significant impacts are not likely from waste water from decant pond due to the three steps silting at Tailings Ponds for waste water from OPF, sanitary water generated from rest rooms was collected at septic tank and discharged clear water after sedimentation of sewage at septic tank and water flow through settling pond with simple turbid water treatment system. • Changed water flow paths. Significant impacts are not likely because final water flow headed to local Yine Ye stream. • Erosion. Significant impacts are not likely due to proper drainage channel for water flow was constructed as well as regular check and maintenance for stock pile of overburden (removal top soil) and crude ore. • Reduced water flows entering the local drainage systems due to capture of rainfall in dams and pits. . Significant impacts are not likely because no water usage from local drainage system. • Contaminated groundwater entering	from sanitary water. • Settling ponds or simple turbid water treatment will be installed as necessary • Regular inspection and necessary maintenance for drainage channel. • Regular inspection and necessary maintenance for position of stock piles for overburden (removal top soil) and crude ore.

Parameter	Impact	Impact Description	Proposed Mitigation
		surface water systems. . Significant impacts are not likely because no chemical usage in Ore Processing.	
Noise and Vibration	Increases in ambient sound and generation of sound from processing machines and road clearance machinery. The main mine pit and OPF facilities are located to the south of the Kanbauk village. The noise from the OPF, which operates 25 hours per day, cannot be heard from the neighbouring village. During operation, blasting is used in the mine pit and sometimes on access roads which can cause disturbance to local fauna. Operations that generate noise include: • Vehicle and truck operations; • Earthmoving equipment operation; • Material handling equipment and operations; • Mining equipment operation; • OPF operation; and • Surface blasting.	The Project activities will generate sound levels at low frequencies for a continuous period in a specific area. This also applies also for road and land clearance activities. No impacts in day time because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (53 dB) are lower than 70 dB (noise level for industrial area) and 55 dB (noise level of residual area) Significant impacts are not likely in night time because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (56 dB) are lower than 70 dB (noise level for industrial area) and higher than 45 dB (noise level of residual area). It was noted that noise level mainly captured from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc). Significant impacts are not likely for blasting because blasting was made where necessary and only daytime. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration.	• Maintenance of machinery as recommended by manufacturer; • Project activities will keep as much distance as possible from villages; • Regular monitoring for Noise Emissions in line with NEQEG; andBlasting Management Procedures will be prepared and implemented. (See detail in Annex;)
Waste Management	Generation of wastes from Project activities and workforce on site. There is a waste dumping facility on site for old tyres. There is no municipal waste	Significant impacts caused by waste: • Contamination of land, air and water through the improper management of waste. are not likely because project	• Development and implementation of Waste Management Plan. • Classification of waste according to its type, appropriate storage and

Parameter	Impact	Impact Description	Proposed Mitigation
	collection and solid wastes are generally sent to a local landfill. Dry waste in incinerated on site. The types of wastes generated are: • Regulated waste (hydrocarbon waste, batteries, tyres, chemistry, etc.) from workshop and laboratory activities; • General waste (benign construction waste, wood, food scraps, un-recyclable plastics, etc.); • Recyclable general waste (paper, cans, glass, plastics, cardboard); • Recyclable scrap metal; • Liquid waste (sewerage, etc.); • Waste rock (created from mine operations); and • Tailings (from the OPF).	developed and applied the waste management plan which included 1) define the separate waste collection point and storage, 2) recycling of waste, 3) identified the waste dump site and 4) coordinate with local municipal to follow their guideline.	correct final disposal. • Proper waste management and disposal procedure shall be established and followed. Food and bio degradable waste generated • during operation will be properly disposed of in a small pit and buried • All non-biodegradable waste such as plastic bottle, empty cans and metal shall be collected in designated dust bin and then brought back to company. Disposal of waste in the Project Area is strictly prohibited • Improvement of septic tank system (which currently leads to groundwater contamination). • New waste dumping site being created in location of old British Pit.
Water Use	The operation of the mine is governed by the water resources available from the local Sinyat Dam. The HEPP and OPF facilities can only operate when there is available water. Sometimes the OPF can only operate for 3 months in the dry season due to limited water supply. The Kanbauk village also uses water from the Sinyat Dam. The majority of the water from the Sinyat Dam is used for the mine, and some overflow goes into the village water supply via the Yine Ye stream. Villagers have their own wells in the village which they use to get water in the	Potential impacts include: • Limitation of operations of the OPF and HEPP. Significant impactS on operation are not likely because water control system (recycling of process water to reuse) in processing can cover operation throughout the raining season. • Limitation of water supply to the local Kanbauk area. Significant impacts are not likely because Kanbauk village didn't need water from Yine Ye stream for their local consumption.	• Recycle the water from the open mine pit to use for processing at the OPF • Expand the Sinyat dam to increase the storage capacity. • Quality of discharges of waste water from industrial and human activities will be inspect regularly.

Parameter	Impact	Impact Description	Proposed Mitigation
	dry season.		
Land Form and Topography	The mining includes both open digging and blasting of the mine pit. There are also local artisanal mining conducted in Yine Ye stream on site. The site is an open pit mine which does not have re-enforced edges and some slope erosion was evident on mine wall.	Potential impacts include: • Landslides and soil erosion from mining operations leading to de-stabilisation of the surrounding hill side. • Significant impacts on mining operation are not likely because crude ore excavation was conducted with contour strip bench method for safety as well as regular inspection of pit situation and quick action of maintenance if necessary. • Significant impacts on erosion of banking of decant ponds, tailing ponds are not likely because embankment of ponds are constructed with design calculation made by Irrigation Engineer as well as regular inspection on embankment situation and quick action of maintenance if necessary.	• Ensure protection / banking of decant ponds, tailing ponds and access roads to avoid landslides. • Mining activities will be restricted to work areas that will be clearly demarcated • Consult with local authorities and land holders to obtain permission for access in advance of the start of activities. • Obtain an approved Land Clearance Permit. • Reinstatement of ground when any construction complete.
Occupational Health and Safety	The mine site has a number of large machinery (such as diggers) in the open pit and around the edge of the tailing pond as well as large machinery within the OPF. Driving within the mine site is undertaken on dirt roads so there can be traffic accidents.	Potential impacts include: • Injury of the workforce in the OPF. Significant impacts are not likely because safety rule and regulation was defined and provide PPE as well as strict instruction for all staffs/worker to follow the safety regulation. • Traffic incidents on site. Significant impacts are not likely because strict instruction for speed limit for traffic.	• Develop, approve and disseminate the facilities, policies that detail the company/ factory's philosophy in the health and safety management systems; • Arrange yearly regular medical checkup for staffs and workers • Ear plugs and other personal protective equipment to be used by OPF workers. • Create pathways between buildings that are safe to walk on (non-slip floor and free of obstacles). • Noise barriers for explosives.

Parameter	Impact	Impact Description	Proposed Mitigation
			• Provide emergency health care facilities like first-aid kits in accessible areas • Provide first-aid trainings among staffs.
Cultural Heritage	No distribution of cultural heritages in the surrounding area. But open pit mining may found unexpected cultural heritage at underground	Intrusive activities can affect cultural heritage artefacts.	• Archaeological Management Plan will be prepared and implemented. • All workers will receive Archaeological Management Plan training.
Biodiversity	Potential impacts on flora and fauna in the Project Area and surrounding forest from Noise emissions Air quality and dust emissions Use of natural resources	Flora and fauna near the Project Area could be disturbed by noise emissions from the OPF. Significant impacts are not likely because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (53 dB) are lower than 70 dB (noise level for industrial area) and 55 dB (noise level of residual area) as well as blasting was made where necessary and only daytime. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration Dust generation from vehicles using access roads could lead to smothering of plant life. Significant impacts are not likely because control measure of dust generation like daily water spraying at the access road, combination water spraying during the crushing process and use only water and vibration screen to separate the concentrates.	• Evaluation of new access roads to avoid intrusion into forest areas. • Workers will access mining areas on foot as far as practical • Replantation (plan to cultivate > 1,000 plants) to strengthen against erosion. • No employees will be allowed to collect, hunt or fish for natural resources. Also the commerce of species is prohibited. • Training to drivers about driving safety rules. • Installation of signals of: • Speed limit. • Presence of animals. • Animal crossings. • No hunting. • Any protected areas will be marked on a map. • Coordinate with Forest Department for improving forestry management in surrounding area

Parameter	Impact	Impact Description	Proposed Mitigation
		Significant impacts for wildlife especially for Tiger conservation are not likely because the project area located approximate 100 miles away from protected area as well as project coordinated with Forest Department for improving forestry management in surrounding area as well as coordinated with organization which conducting for wildlife conservation to improving public awareness of the importance of tiger conservation to increase support from local people.	• Coordinate with organization which conducting for wildlife conservation to improving public awareness of the importance of tiger conservation to increase support from local people
Accidental Events			
Flooding / Landslides	During the rainy season, the open pit, tailing pond and decant pond collect rain water. Water is also collected here through run off from the surrounding mountains.	Flooding can lead to impacts to the mine site and local village which is situated downhill from the mine site. Unexpected heavy rain may cause flooding from dam and ponds. Which storage capacity of dam and ponds are calculated with annual rainfall, catchment area and water used from ore processing. Impact will be minimal, because regular inspection and necessary maintenance for drainage channel which connected to Yine Ye stream. Flooding can also lead to landslides in the surrounding areas. Significant impacts are not likely because embankment of ponds and dam are design for storage capacity as well as regular inspection and immediate action for necessary maintenance. Also stop working at pit area during raining season.	• Ensure protection / banking of decant ponds, tailing ponds and access roads to avoid landslides. • Mining activities will be restricted to work areas that will be clearly demarcated • Consult with local authorities and land holders to obtain permission for access in advance of the start of activities. • Obtain an approved Land Clearance Permit. • Reinstatement of ground when any construction complete. • Develop emergency evacuation plan for flooding and land slide situation.

Parameter	Impact	Impact Description	Proposed Mitigation
Oil and Fuel Spills	Within the OPF, oil and lubricants are used on the machinery and can run off into the tailing pond and onto the decant pond. Fuel for machinery is kept onsite in facilities.	Potential impacts include: • Decrease in water quality in the Yine Ye stream; • Contamination of groundwater and surface water; and • Fatality of local flora and fauna.	• Solid waste not stored near water courses. • Oil Spill Plan / Procedure to be prepared. Control and limit and oil spills as part of accidental events and spill control within Health and Safety Management Plan.
Fire Hazard	Fire hazard is being highlighted as one of the highest attention issues in terms of human resource value rather than property loss, and environmental pollution. Negligence may cause fired.	Significant impacts are not likely because DELCO will be install specified number of fire extinguisher and facility advice by Fire Fighting Department and developed the fire evacuation plan.	To prevent the fire hazard, management strictly follow the requirement advice by Firefighting Department. In addition to that, mockup activities for fire evacuation also plan to conduct accordingly. • To install necessary firefighting facilities with technical advise and regulations ot the Firefighting Department • Develop a fire evacuation plan • Conduct fire drill through the fire evacuation plan regularly.

2 INTRODUCTION

This document is the Environmental Management Plan (EMP) for mining operations for the Kanbauk tin and tungsten mine (the "Project").

The Kanbauk mine is owned by Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO), an associated company of Panwa. DELCO has a permit to mine tin and tungsten at the Kanbauk site.

The EMP covers existing tin and tungsten mining and ore processing operations, which includes of a single open pit, an ore processing facility (OPF), run-of-mine (ROM) ore stockpiles, a tailing storage facility (TSF), a hydroelectric power plant (HEPP), and associated mine support buildings, including a workshop, offices, accommodation, and laboratory.

2.1 PROJECT PROPONENT

Contact details for the DELCO Human Resources Manager are provided below.

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2.2 ENVIRONMENTAL AND SOCIAL CONSULTANT STUDY TEAM

DELCO has commissioned Environmental Resources Management (ERM), supported by local environmental consultants, Environmental Quality Management (EQM), to undertake an EMP for the existing operations at Kanbauk mine in accordance with the requirements of the Myanmar Environmental Impact Assessment (EIA) Procedure (2015). This EMP Report has been prepared for DELCO by ERM and presents the objectives, methodology and outcomes of in accordance with the EIA Procedure. *Table 2.1* presents key team members for the preparation of this EMP. Curriculum Vitae (CVs) of the EIA Experts are presented in *Appendix 1*.

Table 2.1 ERM and EQM Team Members

Name	Role	Organization	Academic Experience	Years' Experience
Craig Reid	Project Director	ERM	BSc (Hons) Marine Biology	19
Guy Williams	Project Manager	ERM	MSc Environmental Management and Development	15
Han Htet Ko	Environmental Specialist	ERM	B.Sc Forestry, Diploma of GIS/ RS	2

Name	Role	Organization	Academic Experience	Years' Experience
Becky Summons	Environmental Specialist	ERM	MSc Marine Environmental Protection	10
Team led by Dr. Ohnmar Tin Hlaing	Survey Specialists (air, noise and water)	EQM	MSc Environmental Engineering and Management	14
Myat Mon Swe	Social Specialist	ERM	MSc Energy and Environmental Management	10

2.3 *METHODOLOGY*

To assess the baseline conditions of the Project Area and surrounds, primary baseline data was collected for the physical and socio-economic resources. Air, noise and water quality samples were taken from within the Project Area and in the neighbouring Kanbauk Village. The socio-economic data was collected from public consultation.

All information collected was supported by secondary data obtained from relevant ministries/governing bodies and research institutions as reference material for the preparation of the formulation of EMP report. A full list of references is provided at the end of this EMP.

2.4 *SCOPE OF THE EMP*

The principal objective of this EMP is to satisfy local regulatory requirements, in particular, the requirements related to exiting projects in the EIA Procedure (2015). However, this EMP is not only to align with national permitting requirements, i.e. obtaining the Environmental Compliance Certificate (ECC), but also to ensure that the any potential environmental and social impacts are mitigated and will not lead to significant adverse effects on the environment or people during the Project.

The EMP lists the obligations and responsibilities of each party involved in the project; stipulates methods and procedures that will be followed; as well as outlining the environmental and social management actions that will be implemented.

2.5 *PURPOSE AND OBJECTIVES OF THE EMP*

This EMP has been prepared based on the findings of a number of support documents including the Kanbauk Prefeasibility Study (AMC Consultants, May 2016). It should be noted that no Initial Environmental Examination or EIA have been previously completed for the Kanbauk mine.

This EMP aims to provide an environmental and social management framework by outlining the compliance requirements, mitigation measures and monitoring programmes to be implemented throughout the Project.

The overarching purpose of this EMP is to:

- Integrate management and mitigation measures into the existing mining operations and associated activities in order to reduce or mitigate any potential environmental and social impacts on natural and socio- economic environments;
- Consider and address the concerns and interests of stakeholders who will potentially be engaged or impacted during mining operations and associated activities; and,
- Establish systems and processes for delivery and implementation of environmental and social requirements in order to meet statutory and compliance standards.

The objectives of the EMP are to:

- Demonstrate compliance with the relevant Myanmar environmental legislation and DELCO Policies;
- Describe the mechanism for implementing identified control, monitoring and management measures to mitigate potentially adverse impacts;
- Provide a regulatory and institutional framework for mitigating impacts;
- Undertake monitoring to provide assurance that the control and management measures are being implemented; and
- Combine all of the above in a systematic framework of monitoring, reporting and management that will measure the successful implementation of the Project in accordance with DELCO's standards for social and environmental performance, and respond as needed to maintain those objectives.

3 PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The Project Area, is adjacent to the township of Kanbauk, approximately 65 km north of Dawei, within Dawei district of Myanmar, approximately 300 km southeast of Yangon. The location of the Project is shown in *Section 4*.

The concession covers an area 2,087 acres, although only 30 acres is currently mined, with an additional 20 acres being used for accommodation, plant and related infrastructure.

3.2 PROJECT BACKGROUND

A Large Scale Mineral Production Permit (permit number 0001/2010) was granted to DELCO on 5th January 2010, for a 10 year period covering operation of the mine, including open above ground mining and underground tunnelling. It is understood that a lease for the underlying land tenure including the mining permit area was granted to DELCO in 2009 from the previous land owner, the Ministry of Mining.

The history of mining in the Project Area dates back to the 1910's when Messrs Radcliffe Company, under the leadership of British Colonel Radcliffe, first began mining operations in the region. This company built the nearby Sinyat Dam, completed in 1919. In 1926 Kanbauk Mines Limited took over operations until the end of the Second World War (around 1954). The mine was then handed over to Tavoy Trading Limited, which continued operating the mine for a further 14 years before passing on the business to Mineral Development Corporation in 1968. In 1971 at the introduction the Socialist Economic System, the business was nationalised under the Tin-Tungsten Corporation, and the Ministry of Mines continued operations with the endorsement of No (2) Mining Corporation Act till 1996.

From 1998 till 2007 DELCO worked together with the Ministry of Mines under a shared mining structure as part of a production sharing basis. In 2007 the mine was fully acquired and privatised by Mr Ding Ying, and has carried through till present time operating as a 100% privately owned independent business.

The Department of Geological Survey and Mineral Exploration within the Ministry of Natural Resources and Environmental Conservation (MONREC) sent a letter to DELCO requesting the submission of an Environmental Management Plan in order to obtain approval in the form of the Environmental Compliance Certificate (ECC) from the Environmental Conservation Department (ECD).

3.3 PROJECT SITE OVERVIEW

The Kanbauk mine site consist of a single pit, an ore processing facility (OPF), run-of-mine (ROM) ore stockpiles, a tailoring storage facility (TSF), a hydroelectric power plant (HEPP) and mine support buildings, including workshop, offices, accommodation and a laboratory. There is also an old pit (British Pit) located between the Project Area and the village that is currently overgrown with vegetation and fills with water during the wet season. DELCO are looking into the option of using this pit as their new waste dumping site.

Tin and tungsten concentrate produced at the mine is transported by road to Dawei (approximately 65 km to the south of Kanbauk) where it is weighed,

sampled, and assayed. The Government of the Union of Myanmar is entitled to 30% of the concentrate under the terms of the approval system, with the remaining 70% of production transported by road to markets in China.

The management of the mine also allowed for a limited number of registered artisanal miners to access parts of the property not currently being mined, including panning for tin and tungsten minerals in the watercourse or mining narrow sub-vertical veins in pit walls.

The mine can be accessed via commercial flights from Yangon to Dawei, followed by a 2-hour drive north along sealed roads to the mine site. Vehicular access from Yangon to the mine takes two days. Concentrate from the mine is trucked via the national road network to southern China, the dominant market for the mine products.

The mine is located in a relatively broad, steep sided valley between two undulating hills.

The pit is located to the west of the valley, and has a high west wall cut from the adjacent hill and low east wall, restricted by access road to the site and the TSF. The OPF is located at the base of the east hill. The major water storage facilities for the mine are located in the hills to the south-east of the mine. The HEPP is located near the base of the south-east hill, with overflow water from the HEPP running through the mine and then into a local watercourse.

3.4 OPERATION OVERVIEW

The following is a description of the main operations for Kanbauk Mine as detailed in the *Kanbauk Feasibility Study* (AMC, May 2016), and re-presented here to provide an overview of the scale and extent of main activates at site. No raw materials or chemicals are used for the operation except the ore from the mine pits.

3.4.1 *Mining Process*

Open pit mining operations are generally seasonal from November to April each year. The open pit is flooded during monsoon rains and all mining operations cease, while ore processing continues from stockpiled ROM. In the following dry season, water is pumped out of the open pit mine and mining operations resume. Ore processing then continues until the mines water supplies run out before resuming in the next wet season.

At the end of the wet season, water is pumped directly from the pit to the watercourse that runs through the mine; the Yine Ye stream. Numerous artisanal miners actively pan for heavy metals (mainly tin-bearing ore) from this site watercourse. Artisanal miners are also active on the higher pit slopes, where veins of mineralisation striking into the pit walls are mined, before being hand-crushed and separated. DELCO site managed permits allow this activity to occur, and provides an outlet for the products as a way to assist the local community.

Mining at Kanbauk is from a single open pit located to the west of the valley. Mining is undertaken via free digging and blasting, by diesel operated hydraulic excavators, loading into tipper lorries. Blasting with dynamite takes place 1-2 times each month.

Crude ores are excavated with back-hoe excavator by open-cut mining method and transported by dumps truck to Mineral Dressing Plant. Firstly, removing the

cover soil which call overburden until rich lode (large deposit of metalliferous ore) was found. After that calculated the mineable depth, excavated with contour strip bench method for safety. Bench are constructed with 60 degree slop and 10 meter for each contour bench. Overburden was pile up at the place where away from mine area, stream and residual location located west of mine site. With stripping ratio of 0.3:1, excavating overburden 570,000 cu-meter to collect the crude ore 190,000 cu-meter which required to produce mix concentrate 100 MT of factory yearly capacity.

Ore is hailed to tip directly at the OPF feed point or to ore stockpiles located between the open pit and the OPF. Very little waste material is mined, with the majority or the overlying waste rock mined in previous years. Any waste rock is hauled to ex-pit waste dumps located in the south of the pit.

Blasting was made where necessary. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration. 32 mm diameter Emulsion Explosive was used for blasting. 2000 Kg of 32 mm diameter Emulsion Explosive, 3500 meter of Detonating Cord (plastic), 5000 meter of Safety Fuse (plastic) and 4000 nos of No. 8 Plain Detonator was stored at the munition dump which construction in accordance with the instruction from Directorate of Military Weapons. (See in Annex.)

Figure 3.1. Photo of munition dump

STANDARD OPERATION PROCEDURE

Figure 3.2 **Flow diagram of mineral dressing**

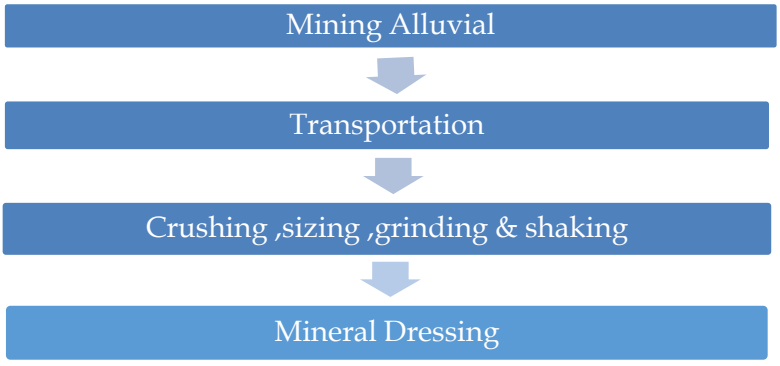


Figure 3.3 **General processing flow sheet for mineral dressing.**

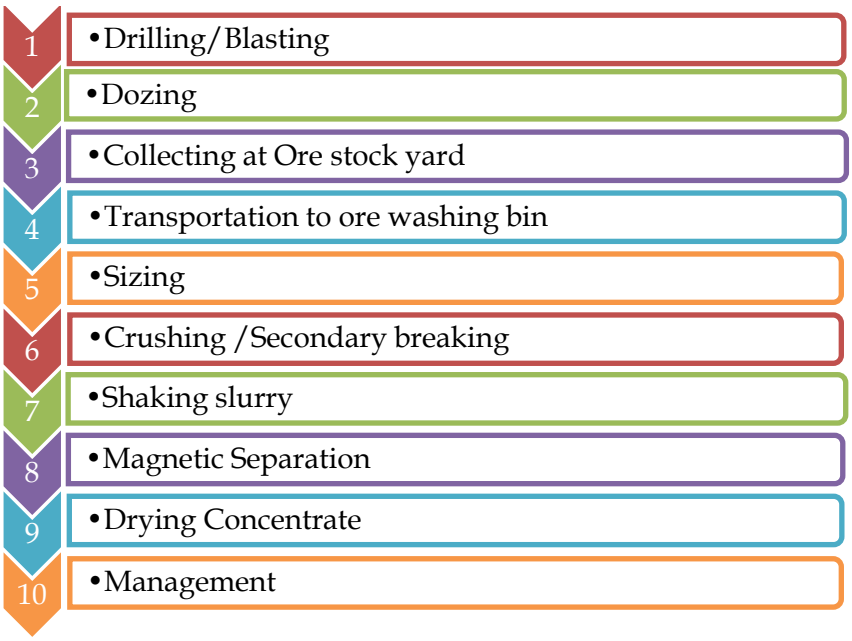


Figure 3.4 **Drilling for testing.**

Figure 3.5 **Dozing :** Showing the alluvial which consists of mixed tin and tungsten and then transported to the dumper. To avoid from mass wasting, ladder shaped benches are made by back-hoe excavator. Bench slope is about 60 degrees and height is 10 meters.

Figure 3.6 **Collecting at old stock yard:** Showing the stock yard site near the ore dressing plant where transported alluvial were kept for raining season (June- November).

Figure 3.7 **Transportation to ore washing bin:** Showing the first stage of raw ore materials dumped into washing bin for ore washing by water pump**.**

Figure 3.8 **Sizing:** Showing the washed materials are passed for sizing by trommel. Large trommels at the top level separate the tailings into different sizes which are fed down to the separating tables at the lower levels.

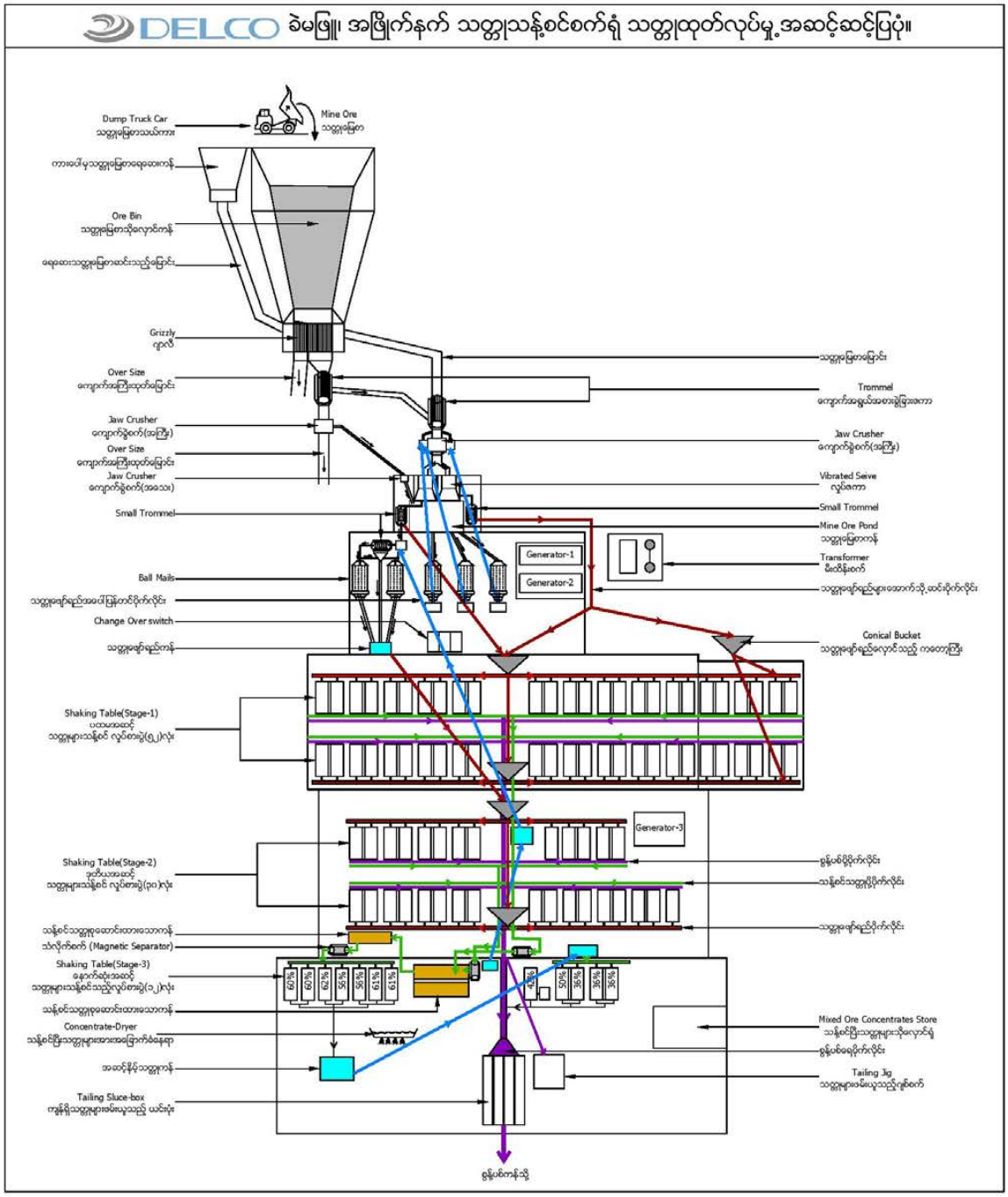
Figure 3.9 **Crushing /Secondary breaking**: Showing the oversized materials are crushed by ball mill. Oversized blocks are crushed by jaw crusher, sizing by vibrating screen. Then crushed again by ball mill and sized by small trammel to get (-1mm) size.

Figure 3.10 **Shaking slurry**: Showing the two- step shakers for mineral separation. Minus 1 mm sized slurry (mixed soil and mineral) is washed and vibrated step by step by shaking tables to get mineral concentrate. No chemical is used for mineral concentration.

Figure 3.11 **Magnetic Separation:** Showing to remove magnetic minerals from tin & tungsten.

Figure 3.12 **Drying Concentrate:** Showing to dry mixed ore concentrate by oven.

Figure 3.13 Schematic flow diagram of the Kanbauk plant



3.4.2 *Ore Processing*

Mineral Dressing Plant was applied with Gravity Concentration Method for ore processing.The OPF (Ore Processing Facility – OPF) operates 24 hours per day, seven days per week on a seasonal basis; and is limited by the supply of water from the Sinyat Dam. The OPF is located on a steep hillside with feed entering the circuit at the highest point, and tailing existing to the tailing storage facility (TSF) at the lowest. The OPF is predominately operated by gravity separation to produce a mixed tin and tungsten concentrate. Large trommels at the top level separate the tailings into different sizes which are fed down to the separating tables at the lower levels. Firstly, crude ore are washed with water pressure pump before size separation by Trommel (which can called revolving screen sieve). 25% of the 190000 cu-meter crude ore which size are more than 5-inches were remove by Trommel and those removals are used at road and pond construction within mine area.

After that, reducing the size by Jaw Crusher and second time size separation with Vibration Screen. After the separated from Vibration Screen, raw crude ore are milling with Ball Mill (Grinding Machine) to produce appropriate size which can sent to Shaking Tables for concentration.

Tailings (slurry) produced from Mineral Dressing Plant were collected at Trailing Pond Np.1. Tailings (slurry) from Tailing Pond No. 1 were pumping out to Trailing Pond No. 4 which connected Tailing Pond No.2 and Tailing Pond No. 3 with spillway. Coarse grains (55% of crude ore – 104500 cu-meter) from Tailings (slurry) are silting at Pond No. 4. Exceed capacity of of Pond No 4 are discharge to Pond No.2 through overflow spillway. Find grain (15% of crude ore) from Tailings (slurry) are silting at Pond No. 2 and remaining are overflow to Pond No. 3. Remaining Tailings (slurry) which approximate 5% of crude ore are silting at Pond No.3 and only clear water are discharge to stream from Pond No.3.

Ore processing use only water and vibration screen to separate the concentrates. No chemical are used for separation of concentrates. Therefore, water discharge from Pond No. 3 to stream cannot affect to environment.

Tailings (slurry) from Pond No. 4 and Pond No.2 are excavated during the dry season when ore processing was stop. Those excavated Tailings (slurry) are collecting at eastern part of Pond No. 4. Without chemical in ore processing, Tailings (slurry) cannot affect to environment. Those collected Tailings (slurry) are refilling at mining pit when mine closure.

A schematic of the OPF process is provided in *Section 4*.

3.4.3 *Mine Closure*

The pit will be refilling with tailings (slurry) and overburden before replantation at the mine closure time.

DELCO will plant rubber, teak (*Tectona grandis*), Pyinkto (*Xylia xylocarpa*) and other hardwood trees in mining areas once the operatons in the particular area have finished. DELCO will also plant the trees on the tailing dump area when operations have ceased.

At the decommissioning phase, the tailing and decant ponds will also be filled with tailing soil and the topography will be re-established. All facilities such as the OPF, accommodation block, kitchen and workships will be removed

For detail activities and step by step procedure and time line of mine closure including quality inspection of water, air and soil; refilling of mining pit with Tailings (slurry) and overburden; replantation for landscape, and demolishing of building and machine will be submitted to ECD by six months in advance of actual mine closure.

3.4.4 Site Infrastructure

The Kanbauk mine is located to the south of Kanbauk village, which supplies the majority of the workforce and some of the accommodation for workers. This village also includes a number of small businesses that supply resources (food, water) for the mine. Site infrastructure is already in place and operating. The major on-site infrastructure consists of the following:

- **Hydro Electric Power Plant (HEPP) –** Commissioned for the 2015 processing season and consistency of two turbines each capable of fenerating 320 kilowatts (kW). The HEPP provides power to the OPF. This is shown in *Figure 3.14.*
- **Diesel-powered generators** – There are has four diesel generators, and combined with the HEPP, this is capable of running the OPF.
- **Water supply dam and pipeline** – Water is mainly supplied from the Sinyat and Balu Dam designed to capture wet season rainfall, and located at elevation in hills behind the mine. The difference in water levels between the dry and wet season is shown in *Figure 3.15* and *Figure 3.16*. The capacity of the damn is insufficient to provide continuous operations through the year, which is shut down for approximately three months each year due to local of process water. Water is stored in nine locations on the Kanbauk site. *Figure 3.17* shows the location and interconnections between the various storage locations and to the OPF.
- **Ore Processing Facility** – This includes a three-tier workshop and is operated via gravity separation. Large trommels at the top level separate the tailings into different sizes which are fed down to the separating tables at the lower levels. Refer to *Figure 3.18*.
- **Tailing Pond** – Tailing material (material from open pit) is taken to the tailing dump for processing in the OPF. Some samples contain up to 40% of the minerals needed for processing. Material from OPF that can't be processed ends up in tailing pond. The wall around tailing pond was recently increased to 40 ft. high.
- **Tailing Dump** – Storage area for tailing direct from mine pit located between the open pit and OPF (shown in *Figure 3.19*).
- **Decant Pond** – Water from the tailing pond runs into decant pond. Heavy materials sink and top water runs from decant pond into the Yine Ye stream (shown in *Figure 3.20*).
- **Site support buildings** – These include an office and staff accommodation buildings with a kitchen, bathroom and recreational area. There is one office, five accommodation blocks and one shop in this area.
- **Security gate.**
- **Replantation nursery** – This is located by the main security gate and houses a number of trees which will be replanted in areas where mining operations have ceased. This also includes the sides of access roads on site (shown in *Figure 3.21*)

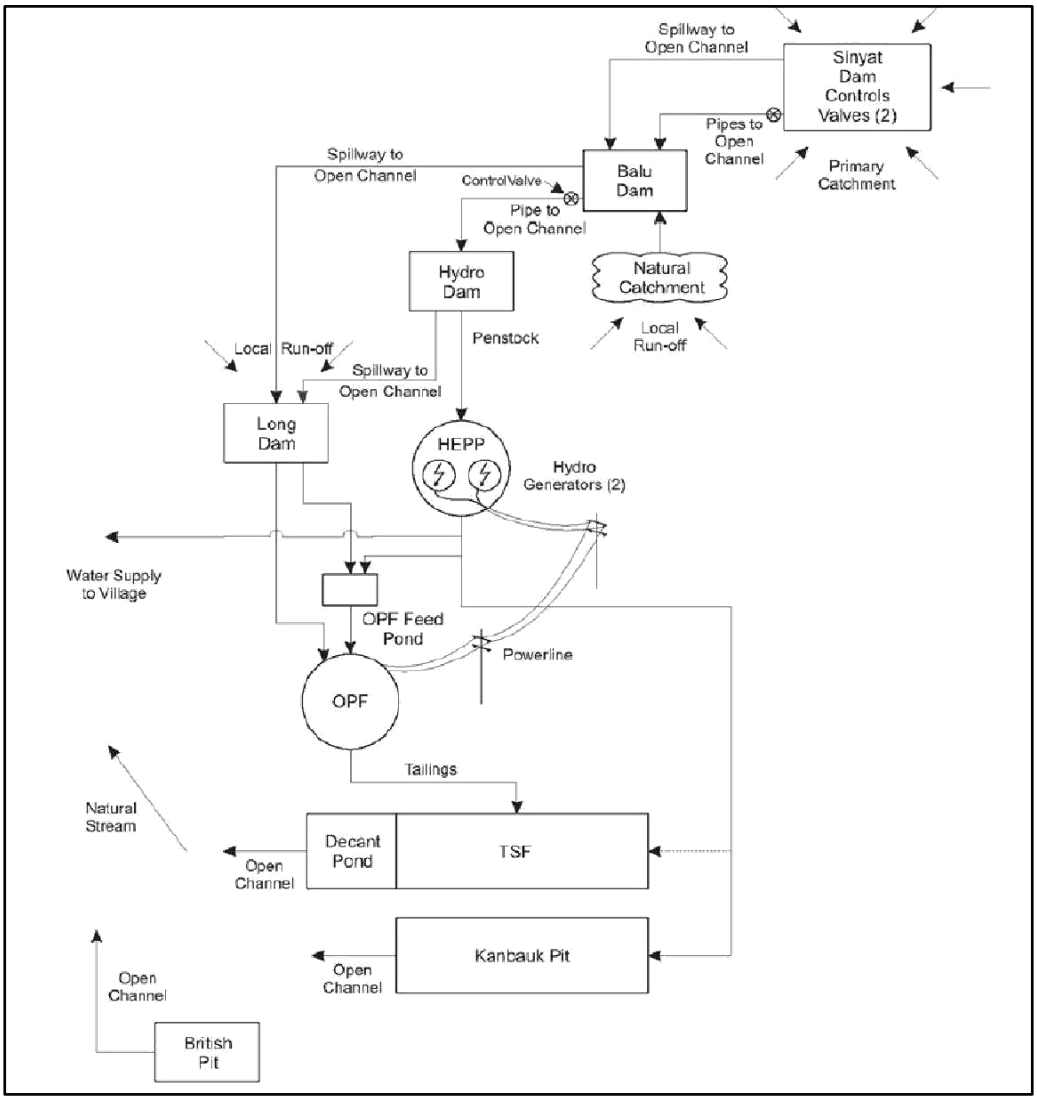
A site survey conducted by ERM documented each of the detailed mining activities. The schematics for the waste water system and OPF are provided in *Section 4 (Maps and Layout)*.

Figure 3.14 ***Kanbauk Hydroelectric power stati***

Figure 3.15 ***Balu Dam in Wet Season***

Figure 3.16 ***Balu Dam (in dry season), showing entry to discharge pipe and spillway***

Figure 3.17 ***Schematic Diagram of Water Storage Locations and Connections***



Source: Kanbauk Prefeasibility Study (AMC Consultants, May 2016)

Figure 3.18 OPF

Figure 3.19 Tailing Pond with OPF in Background.

Figure 3.20 Decant Pond

Figure 3.21 Replantation Nursery

3.4.5 *Resources*

Manpower: The mine currently has around 360 staff, of this 180 work in the OPF; see *Table 3.1* for details of the permanent staff and day labourers within the Project Site. Currently the site houses around 150 people.

Table 3.1 *Employee Numbers at the DELCO Mining Site*

No.	Department	Permanant	Day Labourers	Total
1	Administration	17	0	17
2	OPF	39	165	204
3	Machines and Repair	48	21	69
4	Hydropower	17 (2 living near HEPP)	8	25
5	Minerals finding (geologists)	6	7	13
6	Dam and Environmental conservation		2	5
7	Security	28	3	31
	Total	**158**	**206**	**364**

Water: Water for mining operations is supplied from the Sinyat Dam; details of the location and capacity of this dam are provided in *Table 3.2*. The mining operations cease when water is used up from the Sinyat Dam, therefore the operational water demand is 500 million gallons (the capacity of the Sinyat Dam). The water process is provided in *Figure 3.17*.

Table 3.2 *Sinyat Dam*

Name of Water body	Location	Distance (km)	Capacity
Sinyat Dam	4.5 mile from mine site, 1 sq. mile 50 ft. deep in wet season	Dyke 630'x (5-100')x 50' (LxDXW)	500 million gallon (enough for 3 months' supply to OPF operations)
	MSL 2,200 feet	45° slope in inside an 70° slope in outside	

Fuel: Annual fuel demands for the facilities and equipment on site are provided in *Table 3.3*.

Table 3.3 ***Fuel Demand (per year)***

Annual Diesel Usage	
Heavy Machinery (Wheel-loader, Backhoe, Bulldozer)	95,728 L
Motor Vehicles	78,152 L
Generator	6,263 L
Car Workshop	118 L
General (Water Pump & Other)	23,689 L
TOTAL	**203,950 L**

Fuel was stored in 4 Nos. of Steel Tanks with the capacity of 25,458 Liter (6364.528 Liter per tank). Fuel tank was constructed in accordance with the regulation issued by Ministry of Energy. Fire prevention activities was arrange in accordance with instruction of Fire Fighting Department. The photo of fuel tanks shown in Figure 3.22 below:-

Figure 3.22 *Fuel Tanks*

3.4.6 *Working Hours*

The mine operates 24 hours a day in three shifts as shown in *Table 3.4* for June to January and *Table 3.5 Table* for February to May.

Table 3.4 ***Working Hours from June to January***

	Start	Stop	
Shift (1)	07:00	15:00	8 hour
Rest time	11:00	11:30	30 minutes
Total working hour			7:30 hour
Shift (2)	15:00	23:00	8 hour
Rest time	17:00	17:30	30 minutes
Total working hour			7:30 hour
Shift (3)	23:00	07:00	8 hour
Rest time	03:00	03:30	30 minutes
Total working hour			7:30 hour

Table 3.5 ***Working Hours from February to May***

	Start	Stop	
Shift (1)	07:00	16:00	9 hour
Rest time	11:00	12:00	1 hour
Total working hour			8 hour
Shift (2)	18:00	03:00	9 hour
Rest time	22:00	23:00	1 hour
Total working hour			8 hour

3.4.7 *Production*

The amount of product produced by the mine from 1988 to 99 is presented in *Table 3.6*. The production between 2016 and 17 is provided in *Table 3.7*.

Table 3.6 ***Production (in MT) from 1988 to 1999***

No.	Year	Tin	Tungsten	Mix ore	Total Metric Ton
1	1988-1999	31.58	2.60	4.23	38.41
2	1999-2000	25.65	0.56	40.02	66.23
3	2000-2001	14.78	1.50	54.92	71.20
4	2001-2002	5.51	1.23	38.26	45.00
5	2002-2003	0.10	0.68	30.02	38.80
6	2003-2004	0.18	0.00	16.58	16.76
7	2004-2005	0.87	0.00	18.82	19.69
8	2005-2006	0.00	0.00	11.07	11.07
9	2006-2007	0.00	0.00	4.61	4.61
10	2007.2008	0.00	0.00	0.00	0.00

No.	Year	Tin	Tungsten	Mix ore	Total Metric Ton
11	2008-2009	0.00	0.00	38.27	38.27
12	2009-2010	0.00	0.00	152.54	152.54
13	2010-2011	0.00	0.00	381.00	381.00
15	2012.2013	0.00	0.00	250.39	250.39
16	2013-2014	0.00	0.00	331.85	331.85
17	2014-2015	0.00	0.00	412.26	412.26
18	2015-2016	0.00	0.00	318.45	318.45
19	2016-2017	0.00	0.00	479.17	479.17
	Total	**78.67**	**6.57**	**2,805.90**	**2,899.20**

Table 3.7 *Production (in MT) from 2015 -16 to 2016-17*

No.	Year	2016-2017 financial year		2017-2018 financial year	
			Total		Total
1	Jan	50.08	576.73	-	-
2	Feb	-	-	-	-
3	Mar	-	-	-	-
4	April	-	-	-	-
5	May				
6	June	74.27	74.24	-	-
7	July	104.59	178.83	-	-
8	Aug	107.13	285.96	-	-
9	Sep	76.84	362.80	-	-
10	Oct	52.03	414.83	-	-
11	Nov	44.82	459.64	-	-
12	Dec	67.01	526.65	-	-
	Total	**576.74**	**55%**		

Notes:

Metal production from June 2016 to January 2017 was estimated to be 576.74 MT.

65% is highest standard of product. When producing high standard product the losses are estimated to be 97.56 MT

Metals given to the Mining Department per year is estimated to be 479.17 MT The percentage losses in processing is estimated to be 17%

Table 3.8 **Production (Metric ton) from 2010 to 2018) (Delco Production Period)**

No	Budget Year	HG Mix Ore	LG Mix Ore	Total
1	**2010-2011**	**381.0000**	**-**	**381.0000**
2	**2011-2012**	**223.5000**	**-**	**223.5000**
3	**2012-2013**	**250.3936**	**-**	**250.3936**
4	**2013-2014**	**331.8459**	**-**	**331.8459**
5	**2014-2015**	**412.2626**	**-**	**412.2626**
6	**2015-2016**	**318.4525**	**-**	**318.4525**

No	Budget Year	HG Mix Ore	LG Mix Ore	Total
7	2016-2017	479.1667	-	479.1667
8	2017-2018	361.607	121.393	483.000
Total				2879.6213

Starting from 2017-2018, two types of grade: high grade and low grade ore are produced for the market requirement.

3.4.8 Waste Management Plan

DELCO will follow any national guidelines related to waste management. There is no waste rock as it is reused on site. As part of the Waste Management Plan, reusing of materials will be undertaken were possible.

3.4.9 Water Resource and Waste Water Management Plan

The Project is connected the Balu Dam and the Sinyat Dam water with steel pipes that are 30 ft. and 1,574 in length. Drinking water for the mine is pumped from the Dams (*Figure 3.23*).

Figure 3.23 Drinking Water on Site

Wastewater Management from the OPF

Wastewater is managed from the OPF through the tailing ponds and decant pond, and water from these ponds is discharged in the Yine Ye stream.

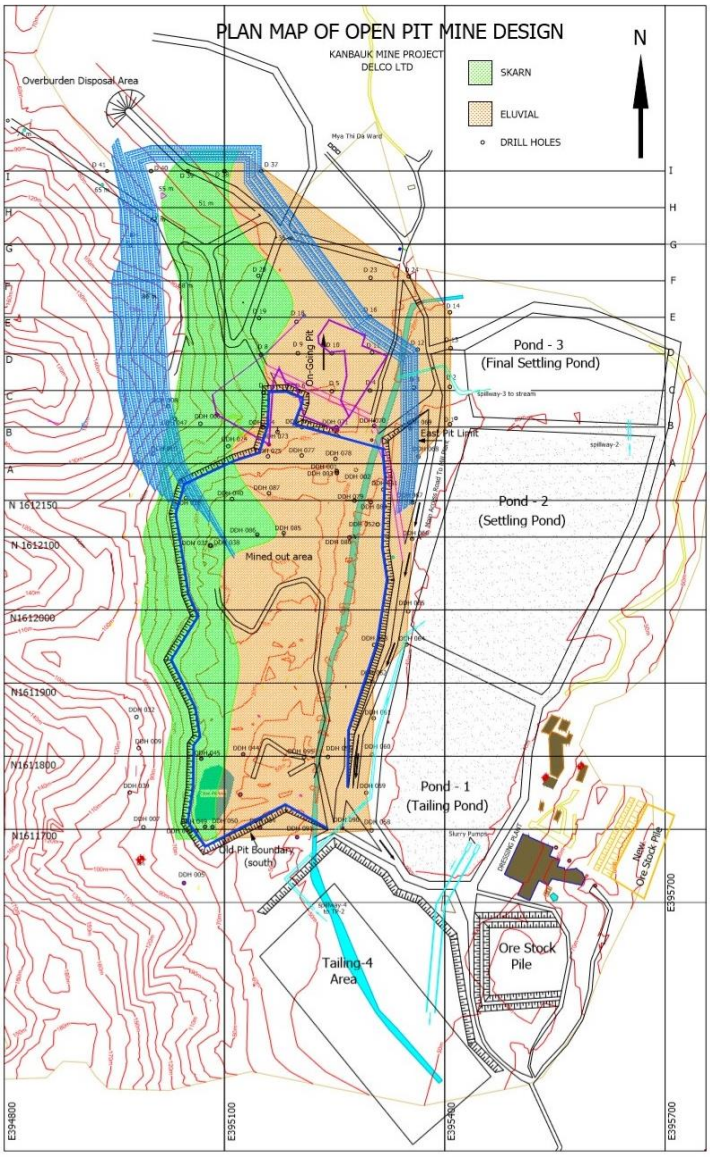
Domestic Wastewater Management

Sewage generated from the premises is discharged into the septic sewer system using septic tanks, while storm water from the project area as offices, accommodation block, workshop and kitchen is channelled into the storm water drain system shown in *Section 4*. The sewage in the septic tank is treated by lime twice per month.

Solid Waste Management

All buildings including HEPP and OPF have solid waste handling facilities including dustbins for temporarily holding waste within the premises before disposal at the dedicated land fill site (the old British mine area).

Figure 3.24 **Map showing the overburden disposal area**. (North-western corner of the map area, Pointed by red arrow)



4 MAPS AND LAYOUT

The Project Area, is located at a site adjacent to the township of Kanbauk, approximately 65 km north of Dawei, within Dawei district of Myanmar, approximately 300 km southeast of Yangon. The location of the Kanbauk mine is shown in *Figure 4.1* and the layout is shown in *Figure 4.2*.

Other maps in this section in two topographic maps of the layout of the Kanbauk mine, showing the estimated elevations in the Project Area; these are present in *Figure 4.3* and *Figure 4.4*.

A schematic view of the processing of ore within the OPF is provided in *Figure 4.5* (in Myanmar Language).

The waste management process chart is provided in *Figure 4.6*.

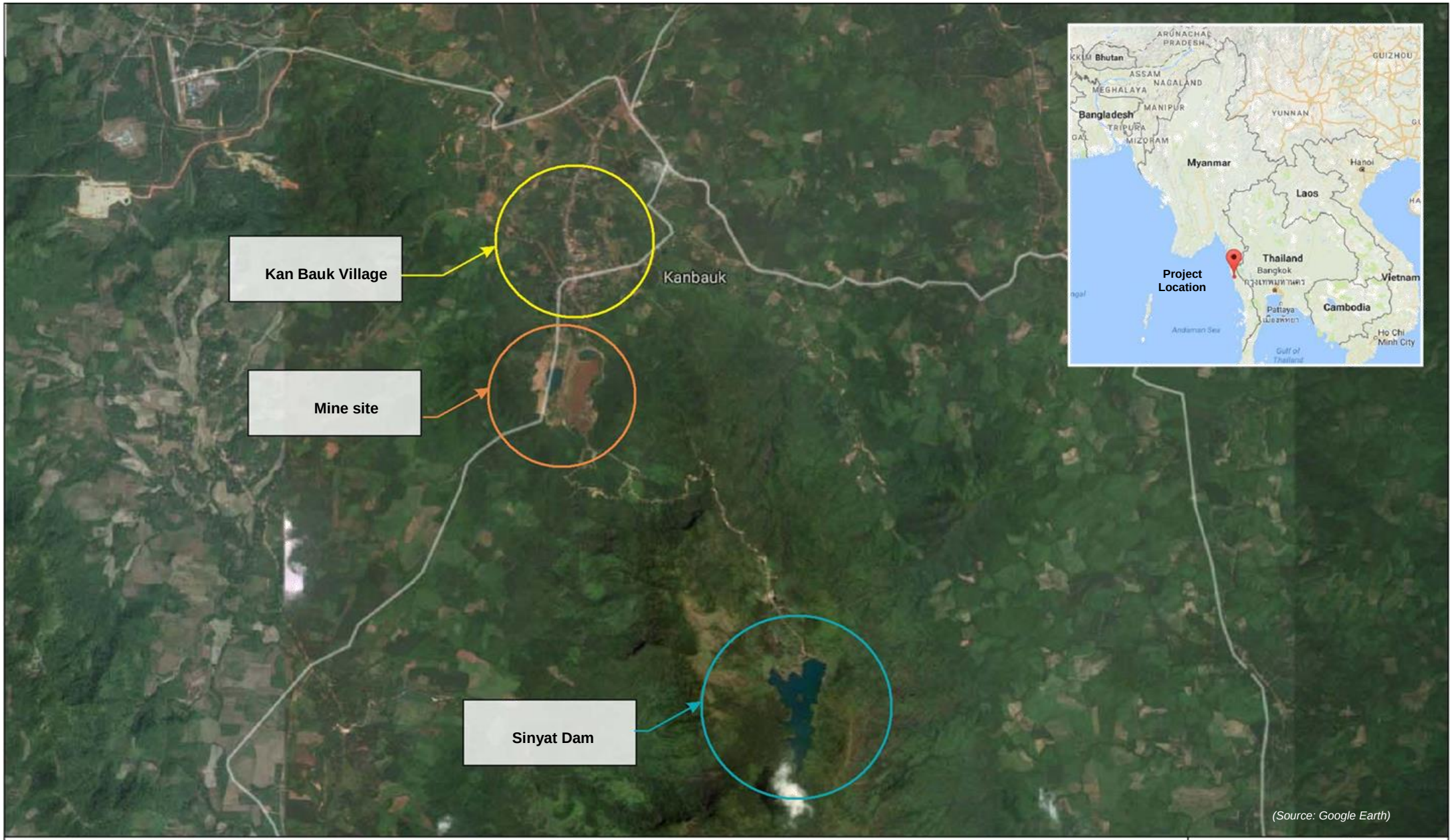


Figure 4.1

Location of the Kanbauk Mine

Environmental Resources Management

ERM

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DATE: 28/10/2016

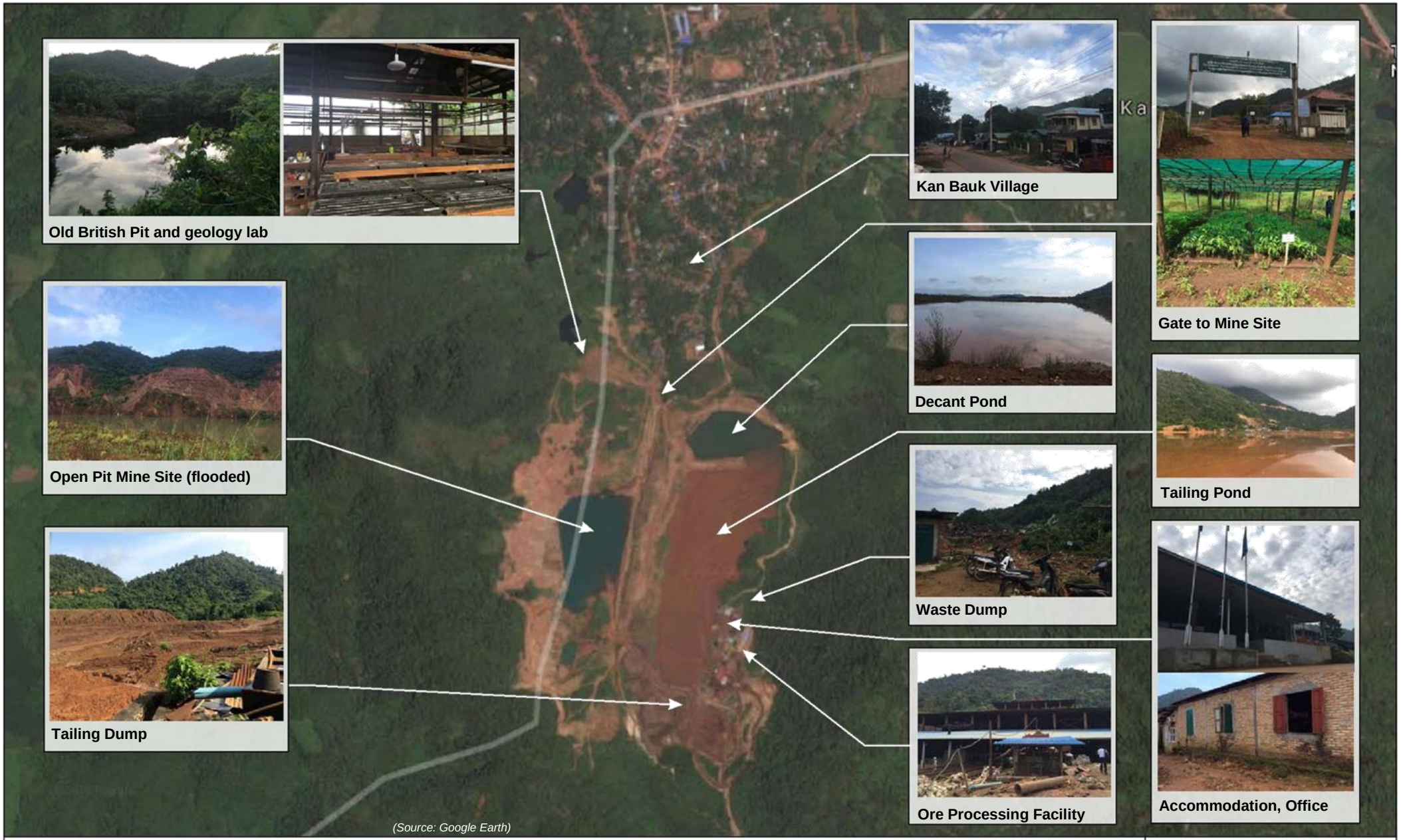

Figure 4.2

Layout of Mining Operations

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Environmental Resources Management

ERM

Figure 4.3 Topographic Map of Kanbauk Tin Mining Area

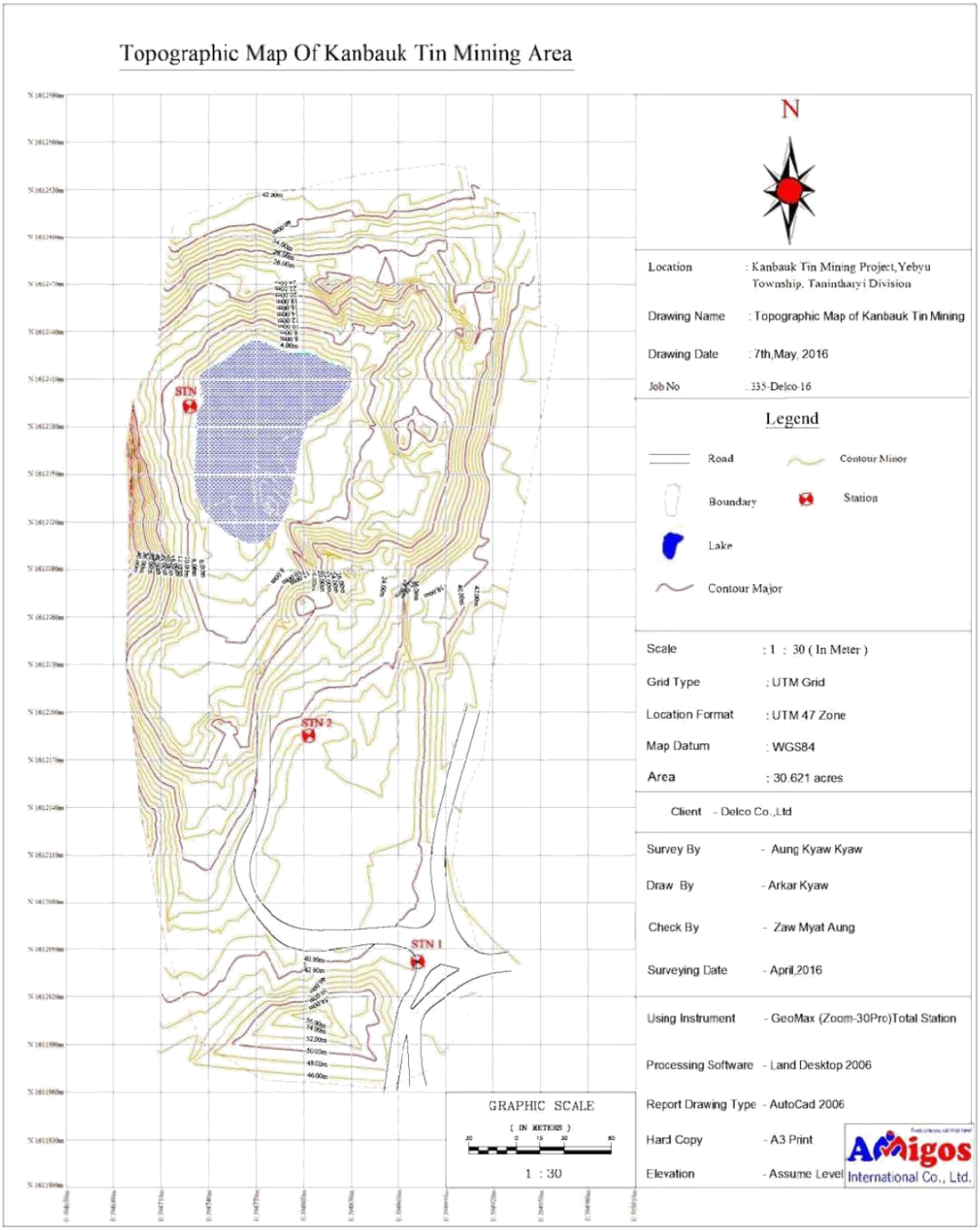


Figure 4.4 Topographic Map of Kanbauk Tin Mining Area

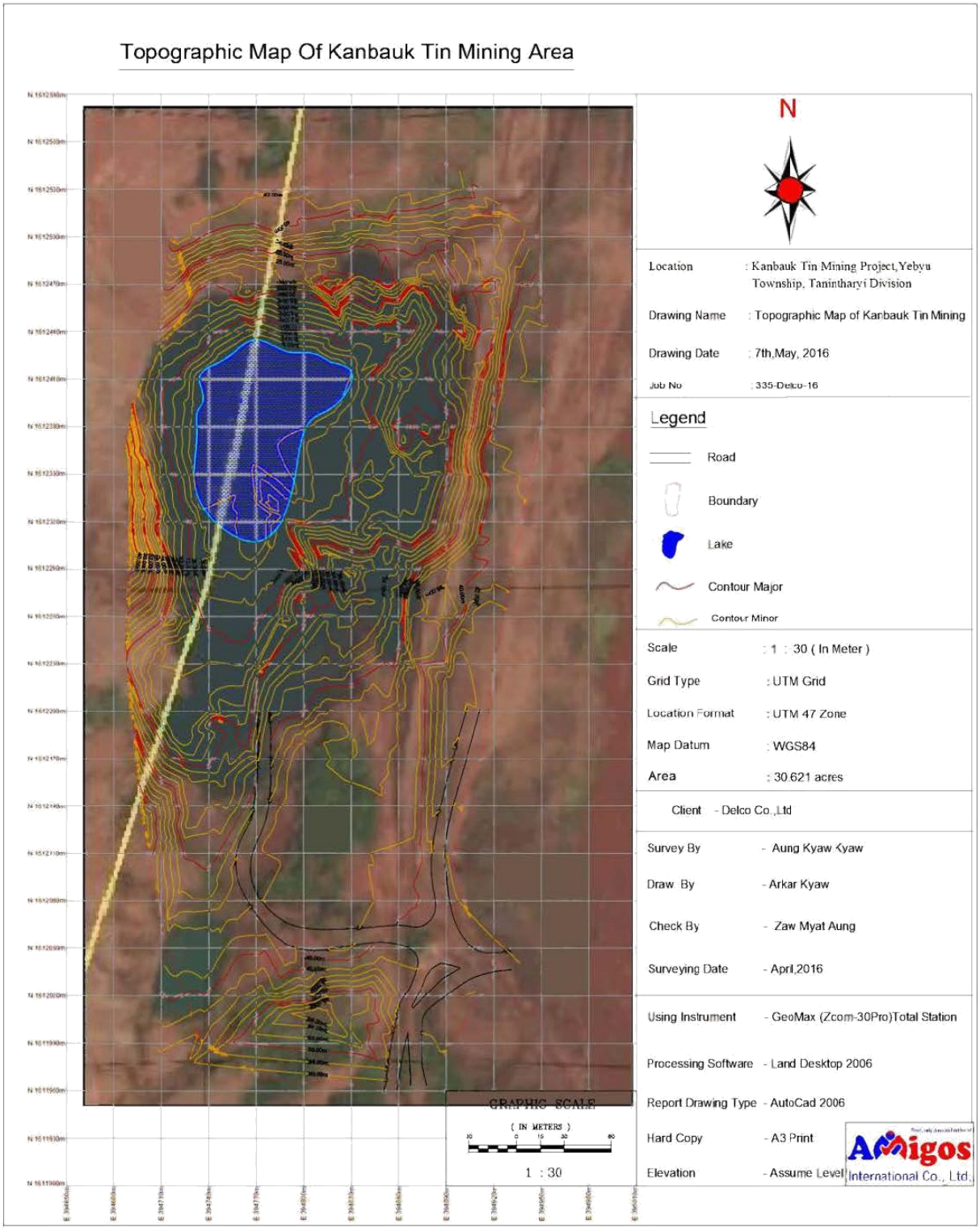


Figure 4.5 Schematic flow diagram of the Kanbauk plant

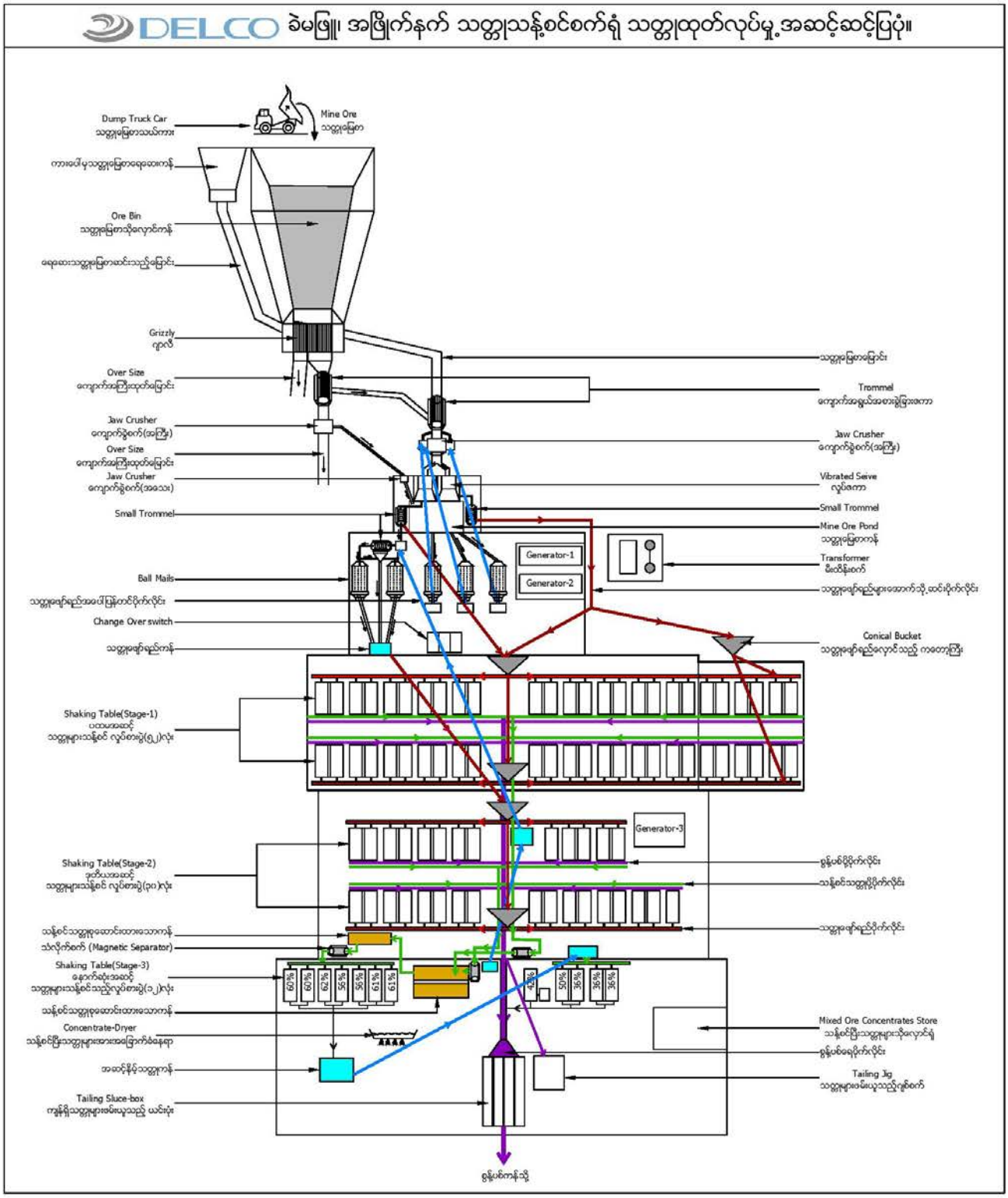
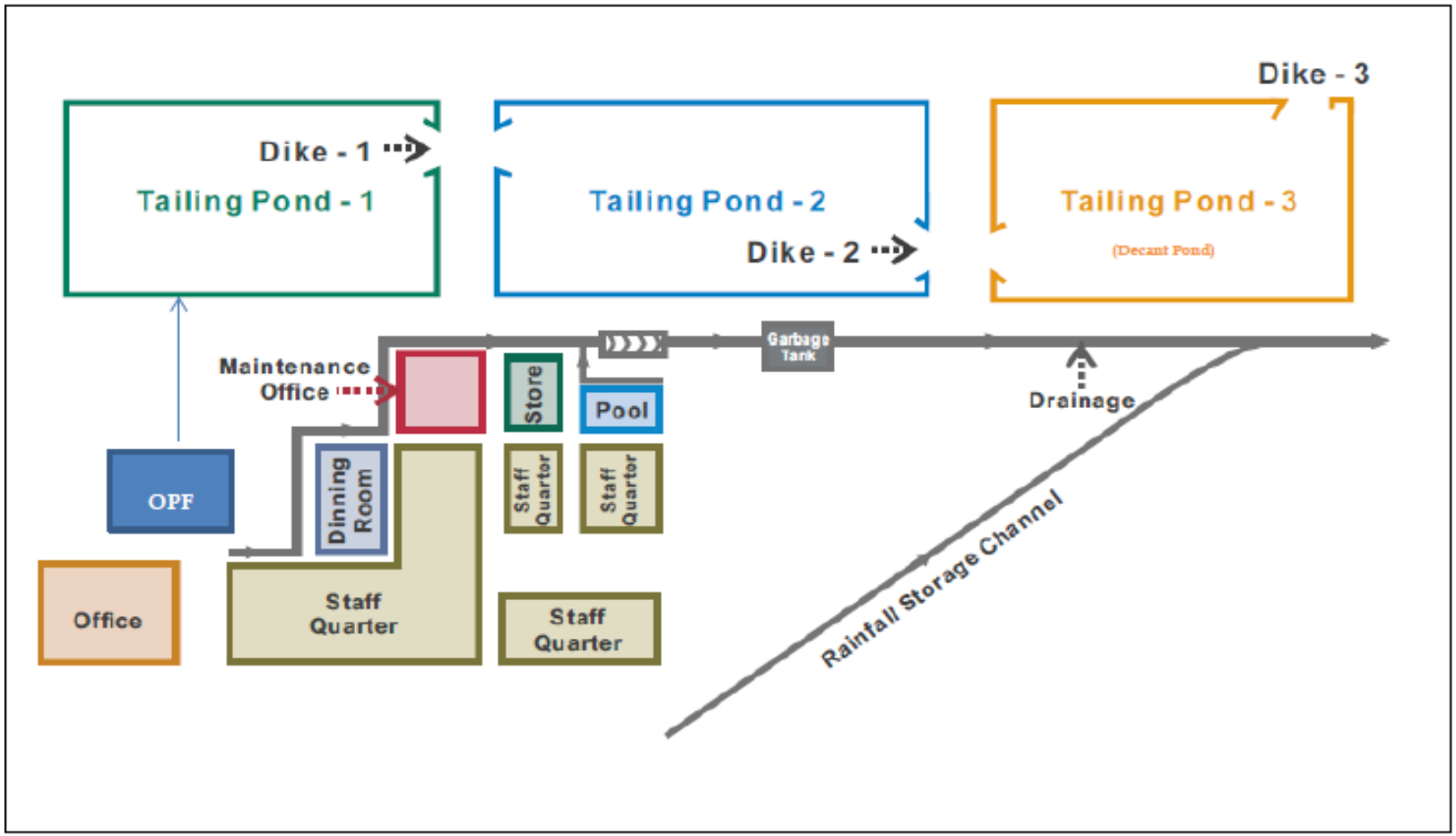


Figure 4.6 Generations of waste disposal activities charts



5 *COMMITMENTS*

Through the Project development, DELCO has made a number of commitments to ensure appropriate environmental and social performance.

DELCO has made the following commitments:

- Endorse and confirm, to MONREC, the accuracy and completeness of the EMP;
- Confirm and commit to MONREC that the EMP has been prepared in strict compliance with applicable Environmental Conservation Law, Rules and Procedures of Myanmar; and
- Confirm and undertake to MONREC that DELCO shall at all times comply fully with:
    (i) any and all commitments and obligations as set forth in the EMP; and
    (ii) any and all plans and the various components thereof, including without limitation, impact avoidance, mitigation, and remediation measures, and with respect to both (i) and (ii), including but not limited to such commitments, obligations, plans and measures as relate to the development, construction, commissioning, operation and maintenance of the project, and any circumstance in which work done or to be done, or services performed or to be performed, in connection with the project's development, construction, commissioning, operation and maintenance is carried out or intended or required to be carried out by any contractor, subcontractor or other party.

The detail commitments can be seen in the commitment letter for EMP in the *Appendix 2*.

A summary of the Project impacts and the mitigation measures designed to avoid, reduce and manage impacts is presented in *Table 5.1*.

Table 5.1 Detailed Management Plan

Potential Impact	Control /Mitigation Measure	Specific Action	Responsible Project Team Member	Records	Annual Estimate Budget (USD)
Disturbance to air quality	Low speed for vehicles (max speed of 30 km/h) including in vicinity of villages	DELCO to provide specific training to drivers.	DELCO Project Manager	Training record	
	Replantation program for open bare soil areas	Replant on exposed soils to minimise dust and erosion.	DELCO Project Manager	Replantation Records	
	Draft a dust management plan	Develop dust management plan for all key dust sources and allocate responsibility for ongoing management and implementation.	DELCO Project Manager	Dust Management Plan	Additional 10,000 USD for replantation and5,000 USD for air quality monitoring.
	Watering of access roads to control dust	Ensure inspection and maintenance vehicles equipped with water spraying for frequent application. Water from mine pit to be recycled where possible to avoid strain in water resources.	DELCO Project Manager	Dust Management Plan	
	Engine maintenance as recommended by manufacturer	Ensure operation in line with manufacturers standards	DELCO Facilities Manager	Vehicles and equipment maintenance record	
Disturbance of water quality	A Water Management Plan will be prepared to meet the requirements of the Myanmar National Environmental Quality (Emission) Guidelines	Provision of service tank sewage from toilet facilities	DELCO Facilities Manager	Contract with supplier	Approximately 5,000 USD for maintenance of facilities and 10,000 USD for water quality monitoring.
		Provision for water pit for grey water from kitchen	DELCO Facilities Manager	Photo log	
		Periodical maintenance of equipment and machinery.	DELCO Facilities Manager	Maintenance record	

Potential Impact	Control /Mitigation Measure	Specific Action	Responsible Project Team Member	Records	Annual Estimate Budget (USD)
		Service tank and water pit are separated from drainage and storm-water	DELCO Facilities Manager	Layouts Photo Log	
	Effluent Discharges in line with National Environmental Quality Emissions Guidelines (EQEG)	Undertake water quality monitoring every 6 months at 5 sites; one in village and four on site.	DELCO Project Manager	Monitoring Record	
Increases in ambient sound and generation of sound for the use of machinery	Maintenance of machinery as recommended by manufacturer	Review and tracking of the maintenance program for vehicles	DELCO Facilities Manager	Maintenance activities record per each vehicle	Approximately 10,000 USD for noise monitoring
	Project activities will keep as much distance as possible from villages.	Avoidance of works within 500m of schools and hospitals.	DELCO Facilities Manager	Check list of sensitive receptors	
	Noise Emissions in line with National Environmental Quality Emissions Guidelines (EQEG)	Undertake noise monitoring every 6 months. Monitoring to be conducted for 24hr period (day and night).	DELCO Project Manager	Monitoring Record	
	Blasting management procedures	Use of explosives will be announced to the community and workers. Letters are provided to Village Tract Leaders (24 hrs in advance). A whistle is blown three times prior to using explosives and guards ensure no one enters the area	DELCO Project Manager	Log of letters	
Modification of the land use	Mining activities will be restricted to work areas that will be clearly demarcated	Installation of signals and barricades to demark works areas.	DELCO Project Manager	Photo Log of demarcation of works areas Layout of the works areas	Approximately 15,000 USD for installation of control measures and 5,000 USD for additional engagement.
	Create an Exploration Land Use Agreement with individual land-users, covering access, use of land	Create an Exploration Land Use Agreement.	DELCO Project Manager	Exploration Land Use Agreement	

Potential Impact	Control /Mitigation Measure	Specific Action	Responsible Project Team Member	Records	Annual Estimate Budget (USD)
	and compensation in advance of the start of activities.				
	Consult with local authorities and land holders to obtain permission for access in advance of the start of activities.	Consultation will be carried out with local communities and government.	DELCO Project Manager	Meeting minutes.	
	Obtain an approved Land Clearance Permit	A Land Clearance Permit will be obtained through relevant government authorities.	DELCO Project Manager	Land Clearance Permit	
	Reinstatement of ground when any mining activities complete.	Replant on exposed soils to minimise dust and erosion.	DELCO Project Manager		
	Use of existing infrastructure	Selection of any expansion areas will consider the use of existing roads.	DELCO Project Manager	Check list	
Generation of waste	Classification of waste according to its type, appropriate storage and correct final disposal.	Waste Management Plan will be developed and implemented by all workers.	DELCO Facilities Manager	Waste Management Plan Waste generation log	Costs included in operational costs. New pit for waste approximately 25,000 USD.
	Proper waste management and disposal procedure during activities will be properly disposed of in a small pit and buried.	Waste will be disposed of in line with the Waste Management Plan. shall be established and followed. Food and bio degradable waste generated	DELCO Facilities Manager	Waste Management Plan Waste generation log	
	All non-biodegradable waste such as plastic bottle, empty cans and metal shall be collected in designated dust bin and then brought back to company. Disposal of waste in the Project Area.	Waste will be disposed of in line with the Waste Management Plan.	DELCO Facilities Manager	Waste Management Plan Waste generation log	
	Improvement of septic tank	Design of septic tanks to comply with	DELCO	Waste	

Potential Impact	Control /Mitigation Measure	Specific Action	Responsible Project Team Member	Records	Annual Estimate Budget (USD)
	system (which currently leads to groundwater contamination).	the Waste Management Plan.	Facilities Manager	Management Plan	
	New waste dumping site being created in location of old British Pit.	Creation of any new dumping site to minimise disturbance and excessive waste accumulation.	DELCO Facilities Manager	Waste Management Plan	
Intrusive activities can affect cultural heritage artefacts.	Prior to commencement of the activities, archaeological potential of the area will be defined and the elaboration of an Archaeological Management Plan	Archaeological Management Plan will be undertaken and followed for all workers.	DELCO Facilities Manager	Archaeological Management Plan Artefacts photo log	Included in operational costs.
		All workers will receive Archaeological Management Plan training.	DELCO Facilities Manager	Archaeological Management Plan Training records	
Potential impacts on vegetative communities and wild life	In order to mitigate the impact, if possible, roads will be constructed through modified habitat instead of natural habitat (e.g. crossing agricultural or cattle fields).	Evaluation of the road access and the possibility to avoid intervention to a forest.	DELCO Facilities Manager	Check list of road assessment	An additional 15,000 USD for replantation, training, and installation of safety signals.
		Workers for deployment of roads and mining areas will access on foot as far as practical.	DELCO Facilities Manager	Land Management Plan	
	Rehabilitate disturbed land after completion of mining activities.	Replantation (plan to cultivate > 1,000 plants) to strengthen against erosion.	DELCO Project Manager	Land Management Plan.	
	Prohibit hunting, fishing or collection of natural products by employees and contractors.	No employees will be allowed to collect, hunt or fish for natural resources. The trade of species will be prohibited.	DELCO Facilities Manager	Contracting documentation	
	A speed limit will be stablished on site in order to avoid collisions. The maximum speed will be 30 km/h.	Training provided to drivers about driving safety rules. Presence of Animals	DELCO Project Manager	Training assistance	
		Installation of signals of: - - Speed Limit	DELCO Project Manager	Photo log Collisions events	

Potential Impact	Control /Mitigation Measure	Specific Action	Responsible Project Team Member	Records	Annual Estimate Budget (USD)
		- Animals crossing - No hunt		record.	
	As part of the mitigation measures, protected areas are excluded of intervention.	Protected areas will be marked in a map.	DELCO Project Manager	Map of protected areas	
Modification of the land use	Ensure that future installation undertaken on modified habitat where possible.	Area where the platform will be installed should be done where a prior intervention has taken place (i.e. clearance area or, agriculture, cattle fields).	DELCO Project Manager	Photo log Check list	Included in operational costs.
Water resource supply to mine facilities.	A Water Management Plan will be prepared to meet the requirements of the National Environmental Quality (Emissions) Guidelines.	Identification of streams close to the mine area to define which has the highest capacity to supply the needs of the project.	DELCO Project Manager	Water Management Plan	Included in operational costs.
		Identify the existing use of the stream (agricultural, human consumption).	DELCO Project Manager	Inventory of water users	
		For workers, water consumption is preferable from a third party.	DELCO Project Manager	Inventory of water and purchases.	
	Recycle the water from the open mine pit for use on the OPF.	Water from open pit to be pumped out after rainy season and used for operation of OPF.	DELCO Project Manager	Water Management Plan	
	Expand the Sinyat dam to increase the storage capacity.	Consider expansion of existing dam capacity to ensure unnecessary reliance on other secondary water sources.	DELCO Project Manager	Water Management Plan	
	Water for human consumption should be supplied in compliance with potable water standards.	For workers, water consumption is preferable from a third party and in compliance with necessary standards.	DELCO Project Manager	Inventory of water and purchases.	

Potential Impact	Control /Mitigation Measure	Specific Action	Responsible Project Team Member	Records	Annual Estimate Budget (USD)
	Discharges of waste water from industrial and human activities will be in compliance with National Environmental Quality (Emissions) Guidelines.	Commence water monitoring and management plan to ensure any discharge meets necessary standards.	DELCO Project Manager	Water Management Plan	
Occupational Health and Safety	Ear plugs and other personal protective equipment (PPE) to be worn by OPF workers. (non-slip floor and free of obstacles)	Ensure PPE is provided to all workers at the OPF, and include in training.	DELCO Facilities Manager	Health and Safety Management Plan.	Approximately 5,000 USD for personal protective equipment.
	Create pathways between buildings that are safe to walk on	Commence maintenance of existing pathways and roads to ensure non-slip surfaces.	DELCO Facilities Manager	Health and Safety Management Plan.	
	Noise barriers for explosives.	Control timing and scale of use of explosives to reduce noise impacts on workers and local community.	DELCO Facilities Manager	-	
Accidental events (floods, landslides and spills)	Oil spills cleared up and not allowed to enter water course.	Control and limit and oil spills as part of accidental events and spill control within Health and Safety Management Plan.	DELCO Project Manager	Health and Safety Management Plan /Water Management Plan.	Included in operational costs.
	Solid waste not stored near water courses.	Control disposal of any solid wastes and exclude and isolate to avoid discharge in water courses.	DELCO Project Manager	Waste Management Plan	
	Oil Spill Plan /Procedure to be drafted. Control and limit oil spills.	Develop and monitor accidental events and spills procedure to cover oil spills.	DELCO Project Manager	Health and Safety Management Plan	
	Regular inspection of embankment of dam and ponds	Regular inspection of embankment of dam and ponds (weekly/monthly)	DELCO Project Manager	Inspection and maintenance Plan	
Fire hazard	Develop firefighting and evacuation plan	Installation of firefighting equipment and drill every three month	DELCO Project Manager	Firefighting and Evacuation Plan	An additional 5,000 USD for firefighting equipment

6 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Under *Section 8* of the *Environmental Conservation Law* and *Articles 52* and *53* of the *Environmental Conservation Rules* of the Republic of the Union of Myanmar, DELCO is required to obtain an Environmental Compliance Certificate (ECC) for the ongoing mining activities.

6.1 MYANMAR REGULATORY AUTHORITIES

Matters pertaining to Health, Safety and Environment (HSE) requirements are generally under the jurisdiction of the ministries and state-owned enterprises in the mining sector.

The Project is being conducted in line with DELCO's *Health, Safety and Environmental Policy* and *Stakeholder and Social Policy (2016)*, as well as Myanmar regulatory requirements. Key ministries, agencies and state- owned enterprises that have jurisdiction over HSE matters in mining operations are included in *Table 6.1*.

Table 6.1 Key Ministries, Agencies and State-Owned Enterprises Involved in HSE

Ministry/Agency	Responsibility
MONREC	MONREC has ultimate responsibility in the approval, or otherwise, of submissions under the EIA Procedure.
ECD	The ECD of MONREC has responsibility to undertake the review of submissions under the EIA Procedure and provide recommendations to the Minister of MONREC
Department of Mines	The Department of Mines oversees the development of new and existing mines in Myanmar and is involved in direct communication and coordination with various levels of different government agencies for HSE related issues.

6.2 RELEVANT NATIONAL LAWS

The Project will be undertaken in line with a number of national and local standards and laws. Local laws relating to EIA include: Environmental Conservation Law (2012); Environmental Conservation Rules (2014); National Environmental Quality (Emission) Guidelines (2015); and EIA Procedure (2015). A full list of laws and their relevance to the Project is provided below in *Table 6.2* With the release of the final Myanmar EIA Procedure in December 2015, the National Environmental Quality (Emissions) Guidelines were also released. These Guidelines provide the basis for regulation and control of noise and air emissions and effluent discharges from projects in order to prevent pollution and protect the environment and public health. These standards are noted to be based on the standards as recommended by the IFC General EHS Guidelines (2007) (IFC, 2007).

Table 6.2 Myanmar Legislation Relating to the Mining Sector and of Relevance to Project

Laws and regulations	Description
Constitution of the Republic of the Union of Myanmar, 2008	
The Constitution of the Union of Myanmar is the supreme law of the country and has provisions regarding the protection of the environment in Myanmar. Articles in the Constitution relevant to environmental protection are Articles 37, 42 and 390. They are quoted below:	
Article 37	(a) The Union is the ultimate owner of all lands and all natural resources above and below the ground, above and beneath the water and in the atmosphere in the Union;
	(b) The Union shall enact necessary law to supervise extraction and utilization of State owned natural resources by economics forces;
Article 42	The Union shall protect and conserve natural environment.
Article 390	Every citizen has the duty to assist the Union in carrying out the following matters: (a) preservation and safeguarding of cultural heritage; (b) environmental conservation; (c) striving for development of human resources; (d) protection and preservation of public property. These three Articles in the Constitution provide a basis for legalizing and institutionalizing environmental health impact assessment and social impact assessment.
The Environmental Conservation Law, 2012	
The Pyidaungsu Hluttaw enacted this law by Law No. 9 of 2012 on the date of 30th March, 2012. March, 2012. The legal mechanism for ESHIA has been put in this law. This law was enacted with the objectives of: (a) To enable to implement the Myanmar National Environmental Policy; (b) To enable to lay down the basic principles and give guidance for systematic integration of the matters of environmental conservation in the sustainable development process; (c) To enable to emerge a healthy and clean environment and to enable to conserve natural and cultural heritage for the benefit of present and future generations; (d) To reclaim ecosystems as may be possible which are starting to degenerate and disappear; (e) To enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially; (f) To enable to implement for promoting public awareness and cooperation in educational for dissemination of environmental perception; (g) To enable to promote international, regional and bilateral cooperation in the matters of environmental conservation; (h) To enable to cooperate with Government Departments, Government Organizations, International Organizations, non-government organizations and individuals in matters of environmental conservation.	
The Environmental Conservation Rules, 2014	
The Ministry of Natural Resources and Environmental Conservation, in exercise of power conferred under sub-section (a) of section 42 of the Environmental Conservation Law, issues this rules by No. 50 of 2014 on the date of 5 June, 2014.	
Rule 51	The Ministry shall assign duty to the Department for enabling to adopt and carry out the environmental impact assessment system.
Rule 52	The Ministry shall determine the categories of plan, business or activity which shall carry out environmental impact assessment

Laws and regulations	Description
Rule 53	The Ministry shall to scrutinize whether or not it is necessary to conduct environmental impact assessment, determine the proposed plans, businesses or activities which do not include in stipulation under rule 52
Rule 56	The person who carries out any project, business or activity shall arrange and carry out for conducting the environmental impact assessment for any project, business or activity by a qualified third person or organization accepted by the Ministry.
Rule 58	The Ministry shall form the Environmental Impact Assessment Report Review Body with the experts from the relevant Government departments, Government organizations.
Rule 61	The Ministry may approve and reply on the EIA report or IEE or EMP with the guidance of the Committee
Rule 69	(i) Any person shall not emit, cause to emit, dispose, cause to dispose, pile and cause to pile, by any means, the pollutants and the hazardous waste or hazardous material stipulated by notification under the Law and any of these rules at any place which may affect the public directly or indirectly. (ii) Any person shall not carry out to damage the ecosystem and the natural environment which is changing due to such system, except for carrying out with the permission of the Ministry for the interest of the people.
EIA Procedure(2015)	
The EIA Procedure sets out the procedures for completing an IEE, EIA and/or EMP in Myanmar. This includes information on project categorisation, responsibilities of project developers and ministries, EIA review, monitoring and auditing, among other issues.	
The Conservation of Water Resources and Rivers Law, 2006	
The State Peace and Development Council Law enacted this law by Law No. 8/ 2006 on the date of 2 October, 2006. This law covers for all water sources above and underground within boundaries of rivers, creeks, banks and water fronts. Under this law, Ministry of Transport has power to direct for carrying out waterways conservation work, to notify the land boundary as waterfront boundary for bank protection, river-creek improvement and to navigate the vessels in the rivers and creeks with the objectives of: a) To conserve and protect the water resources and rivers system for beneficial utilization by the public; b) To smooth and safety waterways navigation along rivers and creeks; c) To contribute to the development of State economy through improving water resources and river system; d) To protect environmental impact.	
The Protection and Preservation of Cultural Heritage Regions Law, 1998	
The State Peace and Development Council Law enacted this law by Law No. 9/ 98 on the date of 10 September, 1998. The Ministry of Culture may, with the approval of the Government issue notification for the protection of cultural heritage areas are categorized as following kinds of zones / region: a) ancient monumental zone; b) ancient site zone. **Objectives:** a) to implement the protection and preservation policy with respect to perpetuation of cultural heritage that has existed for many years; b) to protect and preserve the cultural heritage regions and the cultural heritage therein so as not to deteriorate due to natural disaster or man-made destruction; c) to uplift hereditary pride and to cause dynamism of patriotic spirit of citizens by	

Laws and regulations	Description
	protecting and preserving the cultural heritage regions; d) to promote public awareness and will as to the high value of the protection and preservation of the cultural heritage regions; e) to protect the cultural heritage regions from destruction; f) to carry out protection and preservation of the cultural heritage regions in conformity with the International Convention approved by the State.
The Conservation of Antique Objects Law 2016	
The objectives of this law are as follows: a) to implement the policy of protection and preservation for the perpetuation of antique objects; b) to protect and preserve antique objects so as not to deteriorate due to natural disaster or man-made destruction; c) to uplift hereditary pride and to cause dynamism of patriotic spirit by protection and preservation of antique objects; d) to have public awareness of the high value of antique objects; e) to carry out in respect of protection and preservation of antique objects in conformity with the International Convention and Regional Agreement ratified by the State.	
The Forest Law, 1992	
The State Law and Order Restoration Council had enacted the following Law in 3 November, 1992 as Forest Law.	
Chapter II: Basic Principles	3. This Law shall be implemented in accordance with the following basic principles: a) to implement the forestry policy of the Government; b) to implement the environmental conservation policy of the Government; c) to promote the sector of public co-operation in implementing the forestry policy and the environmental conservation policy of the Government.
Chapter IV: Management of Forest Land	9. The functions and responsibilities of the Forest Department are as follows:- a) implementation of the forestry policy of the Government; b) implementation of the plans relating to conservation of water, bio-diversity and environment, sustained yield of forest produce and protection of forest covered land; c) management of forest land in accordance with the provision of this Law; d) submitting proposals to the Minister for the determination, alteration or cancellation of reserved forest, protected public forest and species of reserved trees; Whoever, within a forest land and forest covered land at the disposal of the Government: a) is desirous of carrying out any development work or economic scheme shall obtain the prior approval of the MONRAEC.
Chapter XII: Offences and Penalties	40. Whoever commits any of the following acts shall, on conviction be punished with fine which may extend to Kyat 5,000 or with imprisonment for a term which may extend to 6 months or with both: a) trespassing and encroaching in a reserved forest; b) pasturing domestic animals or permitting domestic animals to trespass in a reserved forest; c) breaking up any land, clearing, digging or causing damage to the original condition of the land without a permit in a reserved forest; d) causing damage to a water-course, poisoning in the water, using chemicals or explosives in the water in a reserved forest;

Laws and regulations	Description
	e) catching animals, hunting or fishing in a reserved forest; f) kindling, keeping, carrying any fire or leaving any fire burning which may set fire to the forests in a reserved forest; g) violating any provision of the rule, procedure, order, directive or notification issued under this Law.
The Protection of Wildlife and Natural Areas Law, 1994 and associated rules: Rules On Protection Of Wildlife, And Protected Area Conservation Law (2003) And The Protection Of Wildlife, And Wild Plant And Conservation Of Natural Areas Rules (2002)	
The State Law and Order Restoration Council had enacted the Protection of wildlife and Natural Areas Law on 8th June, 1994.	
Objectives	The objectives of this Law are as follows:- a) to implement the Government policy for wildlife protection; b) to implement the Government policy for natural areas conservation; c) to carry out in accordance with the International Conventions acceded by the State in respect of the protection and conservation of wildlife, ecosystems and migratory birds; d) to protect endangered species of wildlife and their natural habitats.
Protected Wildlife	15. The Director General shall, with the approval of the Minister: a) determine and declare endangered species of wild animal which are to be protected according to the following categories: (i) completely protected species of wild animals; (ii) normally protected species of wild animals; (iii) seasonally protected species of wild animals; b) determine and declare the endangered species of wild plants and their nature habitats thereof; c) lay down and carry out measures for the preservation of protected wildlife species;
Taking Administrative Action	31. A Forest Officer may pass an administrative order causing a fine that may extend to Kyat 10,000 to be paid, on a person who kills, hunts, wounds or raises a seasonally protected wild animal without permission during the closed season.
The Burma Wildlife Protection Act 1936 and The Burma Wildlife Protection Rules 1941 (Burma Act No. Vii Of 1936)	
This legislation makes provision for the establishment of sanctuaries (game sanctuaries) on any land at the disposal of the government or, subject to the consent of the owner, any land which is private property. It also provides for the protection of a number of named species outside sanctuaries and reserved forests.	
The Protection and Preservation of Ancient Monuments Law (2015)	
3. The objectives of this law are as follows: (a) To implement the protection and preservation policy for the perpetuation of ancient monuments which have existed for many years; (b) To protect and preserve cultural heritage regions and ancient monuments so that they are not destroyed by natural disaster or man; (c) To uplift hereditary pride and to cause dynamism of patriotic spirit of citizens by protecting and preserving cultural heritage regions; (d) To promote public awareness and will as to the high value of the protection and preservation of cultural heritage regions; (e) To explore and preserve new ancient monuments; (f) To protect cultural heritage regions from destruction; **(g)** To implement protection and preservation of ancient monuments in conformity with international conventions and regional agreements. 15. Every person desirous to engage in the following within the area of certain ancient monuments has to apply for the permission of the administration department:	

Laws and regulations	Description
	(e) digging a ***well, pond*** or fish-breeding pond; **(f)** **mining** for gold, producing sand, digging stones, brickworks and other works which can impact the soil density and ground structure;
National Sustainable Development Strategy (2009)	
Sustainable management of natural resources in Myanmar, from environmental perspective comprises 11 areas, in which mining sector development concerned are as follow: - Sustainable forest resources management; - Biodiversity conservation; - Sustainable fresh water resources management; - Environmental quality management and enhancement; - Sustainable management of land resources; - Sustainable management for mineral resources utilization; - Sustainable energy production and consumption; and - Sustainable industrial, transport and communication development.	
National Environmental Policy (1994)	
Under this policy, the main environmental body was the NCEA. Prior to the establishment of MONREC, environmental conservation was undertaken by various ministries and departments. In 1990, the NCEA was established to advise the government on environmental policy, to act as a focal point and as a coordinating body for environmental affairs and to promote environmentally sound and sustainable development. The NCEA's main mission is to ensure sustainable use of environmental resources and to promote environmentally sound practices in industry and other economic activities, objectives and mandates.	
Public Health Law, 1972	
Purpose: to ensure the public health include not only employees but also resident people and cooperation with the authorized person or organization of health department. It is concerned with the protection of peoples' health by controlling the quality and cleanliness of food, drugs, environmental sanitation, epidemic diseases and regulation of private clinics. The project owner will cooperate with the authorized person or organization in line with the section 3 and 5 of said law. Section 3: The project owner will abide by any instruction or stipulation for public health. Section 5: The project owner will accept any inspection, anytime, anywhere if it is needed.	
Myanmar Mines Law (Amended) (2015) & Myanmar Mining Rules – Notification No.125/96 (replacing Mining Law 1994)	
	The mining law was updated in 2015, replacing the 1994 Law. There have been the following amendments: - Minerals- Gemstones administered under different law. - Types of Permits- corresponding to type of business activity. - Regional Authorities- Authority delegation for some types of permits.
Chapter II: Objectives	3. The objectives of this Law are as follows: a) To implement the Mineral Resources Policy of the Government; f) To protect the environmental conservation works that may have detrimental effects due to mining operation.
Chapter III: Application and Granting of Permit	4. A person or organization, desirous of carrying out any of the following operations, shall apply to the Ministry in accordance with the stipulations for obtaining permit 8. The Ministry may grant permit for the following operations: a) large scale production of industrial mineral or stone with local

Laws and regulations	Description
	investment
Chapter IV: Duties of the Holder of Permit	12. The holder of permit shall: a) abide by the provisions of this Law, rules, orders and directives made there under; b) abide by the conditions contained in the permit; c) pay rent for the land related to the permit calculated in accordance with the rates prescribed by the rules made under this Law; d) pay rent for the land for each permit separately; 13. The holder of permit shall comply with the rules prescribed under this Law in respect of the following matters:- c) making provisions for safety and the prevention of accidents in a mine and their implementation; e) making provisions for the environmental conservation works that may have detrimental effects due to mining operation;
Chapter V: Right of Utilization of Land and Water for Mineral Production	15. If, in the interest of the State, it is necessary to acquire the land where mineral production could be undertaken on commercial scale, the Ministry shall co-ordinate with the relevant. Ministry for the acquisition of such land in accordance with the existing law. 16. If the holder of mineral production permit requires the use of public water for mineral production he shall first and foremost inform the Department of such requirement in accordance with the prescribed manner.
Chapter VI: Royalty	d) for industrial mineral or stone at the rate of 1% to 3%.
Chapter VII: Designation of Mineral Reserve Area and Gemstone Tract	21. The Ministry:- (a) may designate an area where mineral can be produced on commercial scale as Mineral Reserve Area by notification with the approval of the Government;
Chapter IX: Taking of Action by Administrative Means	28. If the holder of permit or a person managing on his behalf or any of the worker fails to comply with any of the orders or directives made under this Law, or contravenes any of the terms of the permit, the person issuing the permit may pass any of the following administrative orders:— a) suspending all or portion of the operations carried out under the permit; b) allowing continuation of the operation, after causing the payment of fine; c) cancelling the permit;
The Factories Act, 1974	
This act contains the provisions for chemicals management and storage. Some chemicals are likely to require permits. It also requires all factories to have proper pollution control measures such as air pollution, sewage and wastewater treatment system.	
The Private Industrial Enterprise Law, 1990	
The State Law and Order Restoration Council enacted this law by Law No.22/90 on 26th November, 1990. According to this law; all private industrial enterprises shall avoid or reduce the use of polluting technology. The Supervisory Body supervises and inspects the enterprise to ensure the following: o No health threats from the industrial enterprise to the nearby residence; o No fire threats or hazards;	

Laws and regulations	Description
	o No source of nuisance or pollution originating from the enterprise; o No occupational hazard to the workers and o Compliance with the existing law.
Myanmar Investment Law, 2016	
3. The objectives of this Law are as follows: (a) To develop responsible investment businesses which do not cause harm to the natural environment and the society for the benefit of the Union and its citizens; (b) To protect the investors and their investments in accordance with the law; (c) To create job opportunities for the people; (d) To develop human resources; (e) To develop high functioning production, service, and trading sectors. (f) To develop technology and the agriculture, livestock and industrial sectors; (g) To develop various professional fields including infrastructure across the Union; (h) To enable the citizens to be able to work alongside with the international community; and **(i)** To develop businesses and investments that meet international standards.	
Myanmar Fire Force Law, 2015	
The objectives of Myanmar Fire Force Law are: a) To take precautionary and preventive measure and loss of state own property, private property, cultural heritage and the lives and property of public due to fire and other natural disasters b) To organize fire brigade systemically and to train the fire brigade c) To prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs d) To educate, organize an inside extensively so as to achieve public corporation e) To participate if in need for national security, peace for the citizens and law and order The relevant Government Department or organization shall, for the purpose of precaution and prevention, obtain the approval of the Fire force Department before granting permission for the following cases: a) Constructing three-storied and above buildings market and condominium buildings, b) Operating hotel ,motel, guest house enterprise c) Constructing factory, workshop ,storage facilities and warehouse d) Operating business expose to fire hazard by using in inflammable materials or explosive materials **e)** Producing and selling fire-extinguishing apparatuses Doing transport business, public utility vehicles train, airplane, helicopter, vessel, ship, etc. The relevant government department or organization shall obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans.	
Prevention from Danger of Chemical and Associated Material Law (Pyidaungsu Hluttaw Law No 28/2013)	
The objectives of this law are: a) to prevent damage to environmental resources and living organisms due to chemicals and associated materials b) to provide for the systematic control of businesses using chemicals and associated materials in accordance with government approvals c) to carry out data gathering and to undertake education and research regarding the safe and systematic utilization of chemicals and associated materials **d)** to achieve continuous improvements in worksite safety, health and environmental conservation	
The Petroleum Rules (1937) and The Petroleum Act 1934	
Production, storage or transportation of oil.	

Laws and regulations	Description
Underground Water Act, 1930	
The underground water act enacted on the date of 21st June in 1930 whereas it is expedient to conserve and protect underground sources of water supply in the Union of Myanmar. This act prohibits sinking of a tube for the purpose of obtaining underground water except under and in accordance with the terms of a license granted by the water officer. Township Officer or sub-divisional officer had power to close a license tube after exercising jurisdiction over the local area concerned and the expense of such closure shall be recoverable from the owner of the tube as if it were an arrear of land-revenue.	
The Settlement of Labour Dispute Law, 2012	
The Pyidaungsu Hluttaw hereby had enacted this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly.	
Explosives Act (1887)	
The President of the Union make rules consistent with this Act to regulate or prohibit, except under and in accordance with the conditions of a licence granted as provided by those rules, the manufacture, possession, use, sale, transport and importation of explosives, or any specified class of explosives.	
Explosive Substances Act (1908)	
Any person who unlawfully and maliciously causes, by any explosive substance, an explosion of a nature likely to endanger life or to cause serious injury to property shall, whether any injury to person or property has been actually caused or not, be punished with transportation for life or any shorter term, to which a fine may be added, or with imprisonment for a term which may extend ten years, to which a fine may be added. To determine how land is acquired for projects and how compensation is paid for the land. This includes compensation for things attached to the earth or permanently fastened.	
Land Acquisition Act (1984)	
To determine how land is acquired for projects and how compensation is paid for the land. This includes compensation for things attached to the earth or permanently fastened.	
The Land Acquisition (Mines) Act. 1885	
To determine how mines or mineral extraction enterprises acquire land and pay compensation.	
The Vacant, Fallow and Virgin Lands Management Law (2012)	
6. The Central Committee shall take the following necessary ***action in respect*** of on application matters which are in accordance with Section 5:- (a) to get the recommendation of the concern Region or State Government; (b) to get the recommendation of the Ministry of Mines for mining, and other concern Ministry for other purposes prescribe in Section4, Sub-section (d); (c) to coordinate with the Ministry of Environmental Conservation and Forestry ,and other concern Ministries for the prevention of damage and destruction to the Forest land which are Reserved Forest, and Protected Public Forest; and for conservation of natural regions, watershed area and natural fisheries; (d) to submit the necessary suggestion relate to explore the National Land Use Policy to the Union Government; 10. The Central committee shall permit the following ***land area*** of Vacant, Fallow and Virgin Lands in relation to commercial agriculture, and livestock breeding purposes:- (c) Mining purpose shall be permitted with the agreement and coordination with the Union Government of the Ministry of Mine; 11. The Central Committee shall permit the following duration for right to use of Vacant, Fallow and Virgin Lands in relation to commercial agriculture, and livestock breeding purposes:-	

Laws and regulations	Description
d) For Mining purpose the duration of right to use land shall be permitted with the agreement and coordination with the Union Government of the Ministry of Mine; 19. The Central Committee shall resume the area required in the authorized land, if one of the following situation arises:- (c) Except the permitted minerals , if other natural resources are found in the authorized land which are permitted for production of mining;	
Myanmar Agenda 21 (1997)	
The Myanmar Agenda 21 makes recommendations for the drafting and promulgation of a framework law which can further promote the integration of environmental and developmental concerns in the decision-making processes of the country. The Myanmar Agenda 21 contains guidelines to address the following issues: - increasing energy and material efficiency in production processes; - reducing wastes from production and promoting recycling; - promoting use of new and renewable sources of energy; - using environmentally sound technologies for sustainable production; - increasing awareness for sustainable consumption. - reducing wasteful consumption;	
Myanmar Insurance Law (1993)	
The Myanmar Insurance is established under this Law as a legal entity having perpetual succession, capable of suing and being sued in its own name. The rules for establishing insurances in the country are established. The Myanmar Insurance is established with the following aims: • to overcome financial difficulties by effecting mutual agreement of insurance against social and economic losses which the people may encounter, due to common perils; • to promote the habit of savings individually by effecting life assurance, thus contributing to the accumulation of resource, of the State; • to win the trust and confidence of the people in the insurance system by providing effective insurance safeguards which may become necessary in view of the social and economic developments.	
The Law On Standardization (2014)	
The objectives of Law on Standardization are as follows: • to enable to determine Myanmar Standards • to enable to support export promotion by enhancing quality of production organizations and their products, production processes and services; • to enable to protect the consumers and users by guaranteeing imports and products are not lower than prescribed standard, and safe from health hazards; • to enable to support protection of environment related to products, production processes and services from impact, and conservation of natural resources; • to enable to protect manufacturing, distributing and importing the disqualified goods which do not meet the prescribed standard and those which are not safe and endangered to the environment; • to support on establishing the ASEAN Free Trade Area and to enable to reduce technical barriers to trade. • to facilitate technological transfer and innovation by using the standards for the development of national economic and social activities in accordance with the national development program.	
The Science and Technology Development Law (1994)	
• To carry out development of Science and Technology for promotion of industrial production contributory towards the National Economic Development Plans; • To carry out Research and Development for the increased extraction and utilization of domestic raw materials and the promotion of industrial production enterprises	

Laws and regulations	Description
	based on modern Science and Technology; To effect Technology Transfer for the promotion of production processes and the improvement of the quality of goods; • To nurture luminaries required for the development of Science and Technology and for Research and Development and to improve their qualifications.

6.3 GOVERNING PARAMETERS

A summary of National Environmental Quality (Emissions) Guidelines (EQEG) that are relevant to the Project (mining) for effluent discharges are shown in this section.

6.3.1 *Effluent Discharges*

Any activity that may generate water discharges should comply with the following parameters as provided in *Table 6.3* (taken from *Section 2.8.2* of the EQEG). This table matches the effluent discharge guidelines provided by the IFC for their mining standards (Word Bank, 2007).

Table 6.3 National EQEG on Effluent Discharge Levels

Parameter	Unit	Guideline Value
Arsenic	mg/l	0.1
Cadmium	mg/l	0.05
Chemical oxygen demand	mg/l	150
Chromium (hexavalent)	mg/l	0.1
Copper	mg/l	0.3
Cyanide	mg/l	1
Cyanide (free)	mg/l	0.1
Cyanide (weak acid dissociable	mg/l	0.5
Iron (total)	mg/l	2
Lead	mg/l	0.2
Mercury	mg/l	0.002
Nickel	mg/l	0.5
pH	S.U.[a]	6-9
Temperature	°C	<3 degree differential
Total suspended solids	mg/l	50
Zince	mg/l	0.5

[a] standard unit

6.3.2 *Air Emissions / Noise and Vibration*

The air and noise emission parameters are taken from *Section 1.2* and *1.4* of the EQEG and shown in *Table 6.4* and *6.5* respectively.

Table 6.4 Air Emissions Parameters

Parameter	*Average Period*	*Guideline Value µg/m³*
Dichloromethane	24-hour	3,000
Nitrogen dioxide	*1-year* *1-hour*	*40* *200*
Ozone	8-hour daily maximum	100`
Particulate matter PM_{10}[a]	1-year 24-hour	20 50
Particulate matter $PM_{2.5}$[b]	1-year 24-hour	10 25
Sulphur dioxide	24-hour 10-minute	20 500

[a] PM_{10} = Particulate matter 10 micrometers or less in diameter

[b] $PM_{2.5}$ = Particulate matter 2.5 micrometers or less in diameter

Table 6.5 Noise Level Parameters

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

[a] Equivalent continuous sound level in decibels

7 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

This section presents an overview of the social and environmental conditions of the Project Area. Information was collected from primary data during environmental baseline sampling conducted for air, noise and water quality in April, 2017. The social baseline is supported by information collected during public consultation in April, 2017 in Kanbauk and with DELCO workers. Information was supported by secondary data collected from relevant organisations, NGOs and scientific research as well as the Kanbauk Feasibility Study conducted in 2016.

7.1 TOPOGRAPHY

Topographically, Myanmar is composed of central lowlands surrounded by steep, rugged highlands. The highest point is Mount Hkakabo Razi (5881 m) in the far north of Kachin State. From here mountain ranges generally trend north-south, with the Patki Range, the Naga hills, the Chin Hills and the Rakhine Yoma to the west long border with India and Banglasesh. Mountain ranges also form the Estern border with China, passing southwards into the highly dissected Shan Plateau at an average elevation of 900m in Shan State. Four main rivers draining the mountains, the Chindwin, Ayeyawaddy (2170 m long), Thanlwin and the Sittaung flow southwards through the central lowlands to form an extensive delta in the nothern part of the Andaman Sea and the Gulf of Mottama (Martaban).) Costal lowlands and offshore islands margin the Bay of Bengal to the west of the Rakhine Yoa and the Andaman Sea in Tanintharyi (Tenasserim).

The Project is located in the Tanintharyi Division of Myanmar, which are ringed by steep, rugged highlands. The mine is located at less than 100m above sea level at the base of the mountain located immediately to the south that rises more than 800 m above sea level. The Sinyat dam, forming the main water storage for the Project water supply is located at the south estern edge of this mountain, at approximately 700m above sea level.

The mine is located in a relatively broad, steep-sided valley between two undeloped hills. A general over view of the mine area and major facilities showing the site topography is shown in the following figure.

Figure 7.1 **Over view of the Kanbauk Mine area. (Looking North**

7.2 *REGIONAL TECTONIC SETTING*

The central lowlands are divided into two unequal parts by the Bago Yoma Ranges, the larger Ayeyarwaddy Valley and the smaller Sittaung Valley. The Bago Yoma Ranges, the larger Ayeyarwaddy Valley and the smaller Sittaung Valley. The Bago Yoma Ranges pass northwards into a line of extinct volcanoes with small crater lakes and eroded cones; the largest of these is Mount Popa (1518 m). Coastal lowlands and offshore islands margin the Bay of Bengal to the west of the Rakhine Yoma and the Andaman Sea in Tanintharyi (Tenasserim).

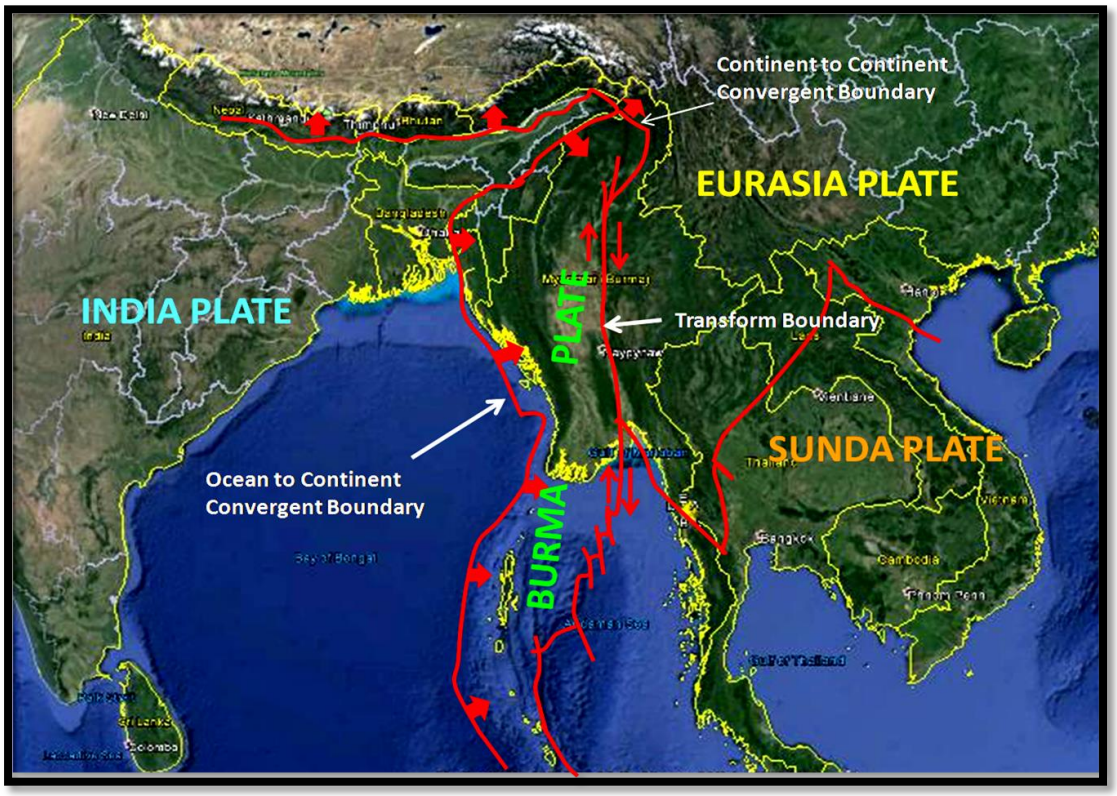
Myanmar lies at the junction of the Alpine-Himalayan Orogenic Belt and the Indonesian Island Arc System.

Further south, the overlying sediments of the Bengal Fan have been affected by trans current faulting and transpression to form a fold-and-thrust belt in the Rakhine Yoma. Curray et al. (1979) defined a Burma (Myanmar) Microplate, delimated to the west by the active Andaman subduction zone and a major strike-slip fault between the Indian Plate and Myanmar, and to the east by the north-south—aligned strike-slip Sagaing Fault. The Burma (Myanmar) Microplate is presently moving northwards at a rate of 18mm a-1 relative to Southeast Asia along the Sagaing Fault.

The west Myanmar Block is considered to have formed part of the northern margin of the magacontinent of Gondwana, comprising all the southern continents during the Proterozoic and Early Palaeozoic.

Further east, and extending southwards through Tanintharyi (Tenasserim) into Thailand, is the Palaeozoic Slate Belt (Mergui Group) which contains diamicties. (see Fig. 7.2)

Figure 7.2 Regional Tectonic Map of Myanmar



7.3 REGIONAL GEOLOGY

Myanmar is subdivided into two geological provinces – the Eastern and Western provinces separated by metamorphic belt in the middle. The eastern province is composed of the Late Mesozoic and older orogenic belts of the Shan-Thai Block. The western province is a northern continuation of the Late Mesozoic – Cenozoic Banda-Sunda arc system. Separating the two provinces is a median metamorphic belt composed of Mogok Belt in the north and Kyaukse-Mopalin Belt in the south. (see Fig. 7.3)

Figure 7.3 **Geological Map of Myanmar**

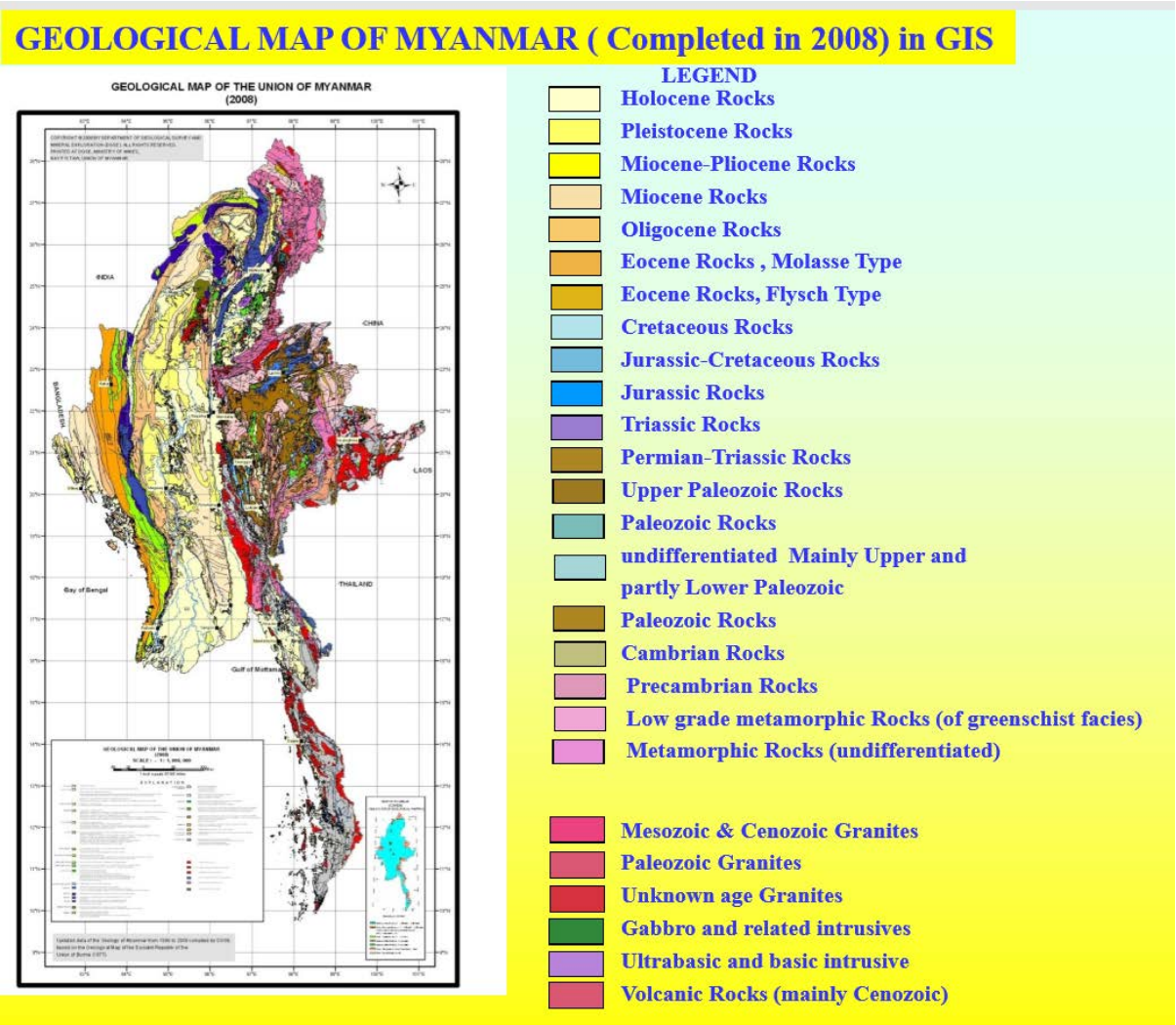


Figure 7.4 **Geological map of Tanintharyi Region.**

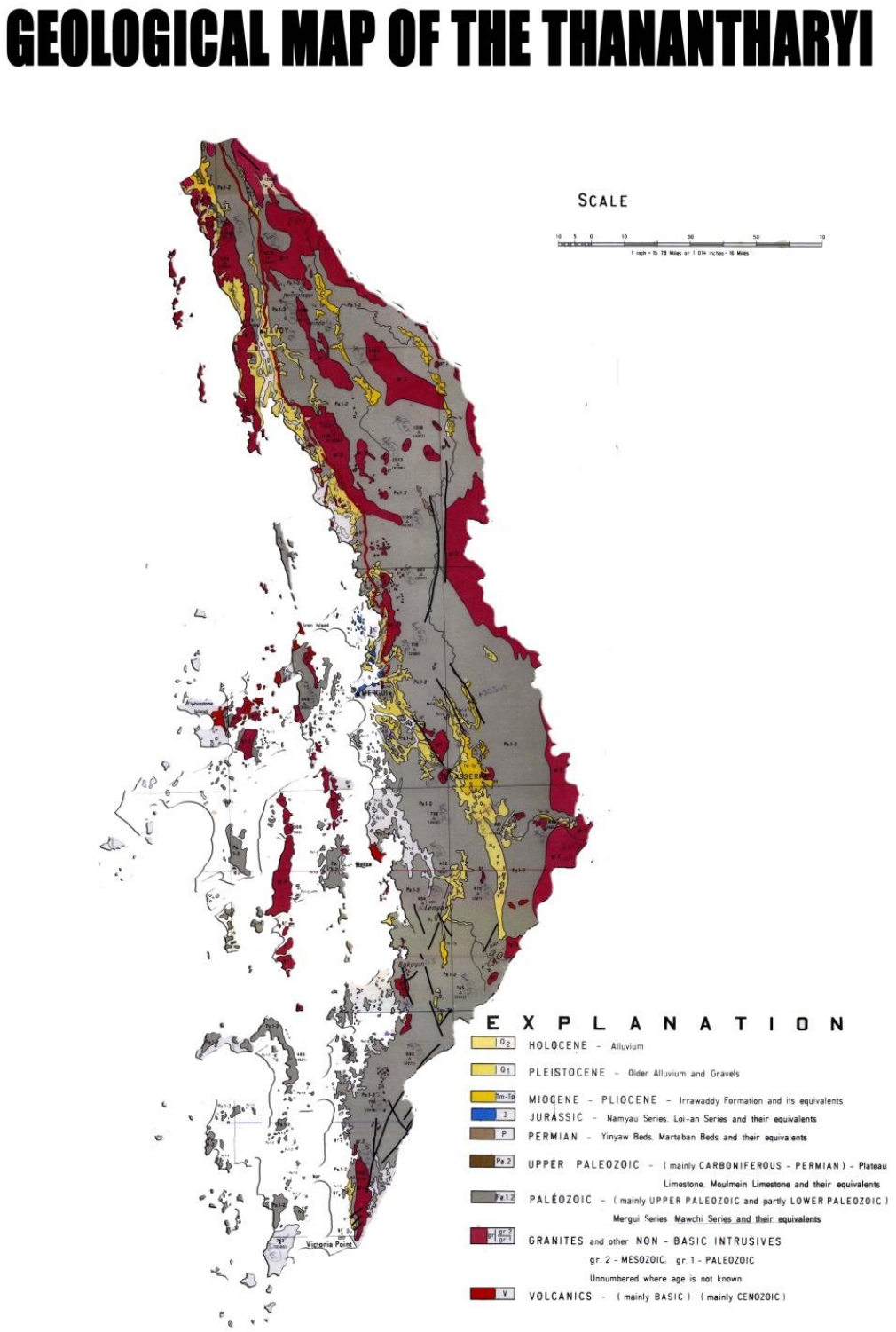
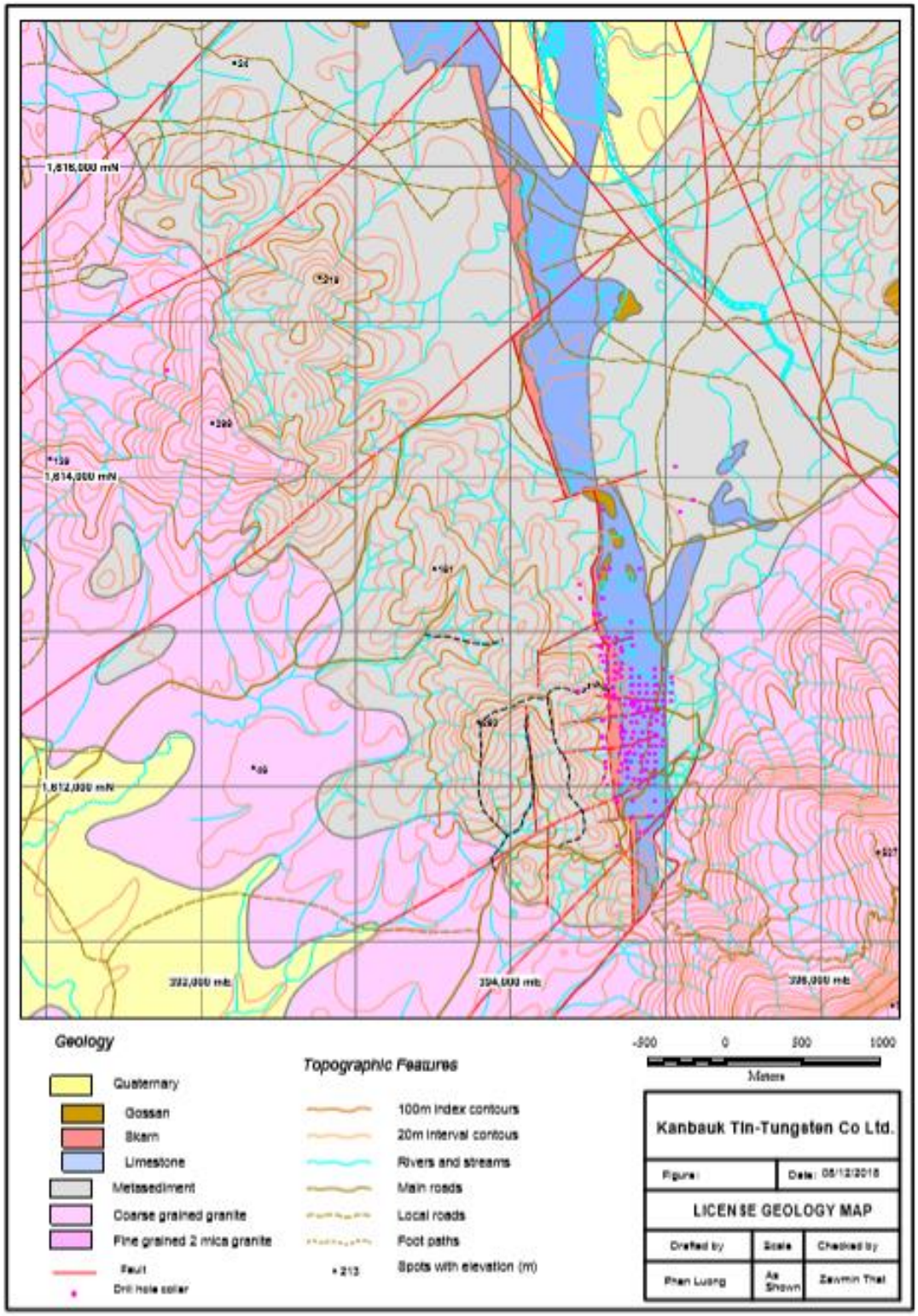


Figure 7.5 **Geological Map of the Kanbauk Mine.**



The Project lies within the eastern provinces as part of the Shan-Thai block comprised of a belt made up of largely slate deposits.

The main lithological units in Kanbauk are described below.

- ***Metasediments*** dominated by metamorphosed shales and siltstones that strike approximately north-south edge along the western edge of the current pit. Bedding within the sediments dips approximately 70 degrees to the west. Within the meta sediment, there are many thin quartz veins containing elevated tungsten grades. These generally steeply dipping veins trend between east-west and northwest-southeast, and are generally narrow (less than 20 cm), and are mined by the local villagers.
- ***Limestone*** underlies the mineralised eluvium. The limestone is poorly bedded, variably metamorphosed to marble, and cut by steep and shallow dipping veins and narrow fingers of skarn that carry tin and tungsten mineralisation.The limestone itself is generally non mineralized, and is well exposed in some parts of the pit. The contact of the limestone/marble unit with the overlying eluvial sediments is interpreted as a karst surface. The morphology of the karst surface may have been influenced by north-south-trending and east-west-trending faults.
- ***Skarn*** has formed at the contact between the meta-sediment and the limestone/marble and outcrops along the western side of the current pit. The skarn is mineralized and is not a focus of the current mining operations due to its hardness.
- ***Eluvium*** is most commonly found at the centre and western edge of the pit, adjacent to the skarn. The presence of manganese gives the eluvium its characteristic dark brown to black colour. Petrographic analysis of the eluvial material indicates minimal transport of the component rock and mineral fragments. The eluvium is interpreted to be derived from the skarn, either weathered insitu, or transported a small distance from the skarn fault scrarp.
- ***Colluvium*** is orange-brown clay based dirt, lighter in colour than the eluvium as it does not contain manganese.Colluvium has a similar geochemical signature to the metasediment and may be derived largely from that lithology. Channels of colluvium are characterized by the presence of a basal layers of coarse rock fragments and a generally steep sided channel shape where observed in the walls. The main colluvium channel trends north-south. Colluvium is mineralized with tin and tungsten, but is generally lower grade the eluvium.
- ***Alluvium*** is present in narrow, shallow, erosional alluvial channels in some areas of the pit at Kanbauk. The channels are filled with sand and silt and are likely active aquifers.

  Transported waste dump material from the Kanbauk pit sits along the eastern side of the current pit and separates the pit from the tailings dam. Dump material generally sits upon a layer of colluvium above the limestone.

7.5 MINERIALIZATION

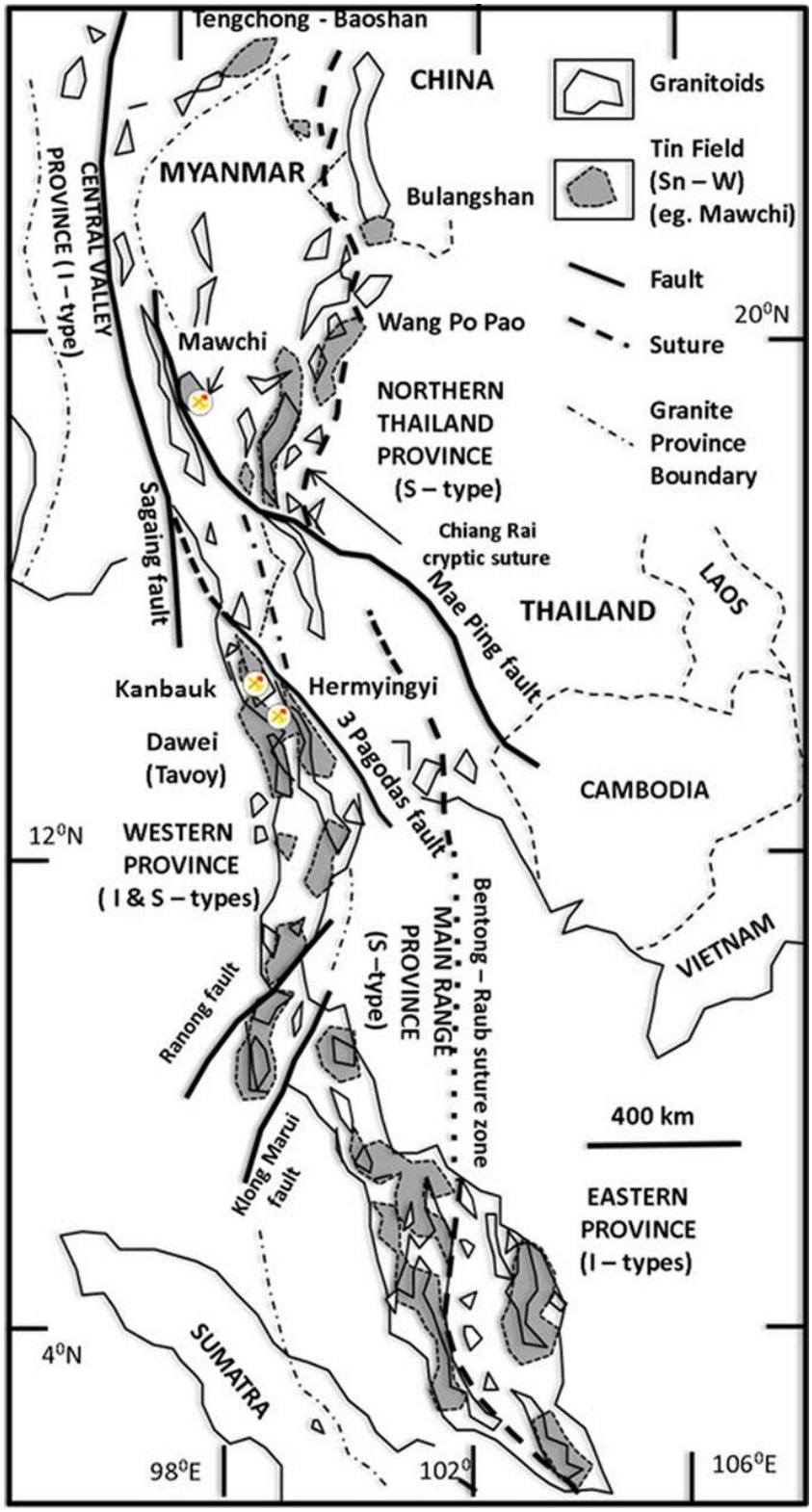
The South-east Asian Tin Belt occupies a broadly arcuate zone extending south-wards from north-western Thailand and eastern Myanma/Burma, along the border between those two countries, through peninsular Malaysia to the Indonesian islands of Singkep, Bangka and Belitung. This belt represents a distinct metallogenic province that during the twentieth century yielded around 75% of the world's tin supply.

Mineralization at Kanbauk arises from meta-sediment and skarn with tin, tungsten and a variety of other oxides and sulphides. Additional minerals include clays, garnet, rutile, carbonate, feldspars, geothite hematite and pyrite.

Meta-sediment is cut by tungsten-rich quartz veins. However most of the mineralization is thought to have originated from the skarn.

Current mining is focused on mining the weathered free dig eluvial and lateritic material in the base of the open pit.

Figure 7.6 **Tin and tungsten deposits of Myanmar & SE Asia.**



The present area lies on the Tin – Tungsten belt of Myanmar which is running nearly north-south . (see Fig. 7.7 & 7;8)

Figure 7.7 Mineral belts of Myanmar

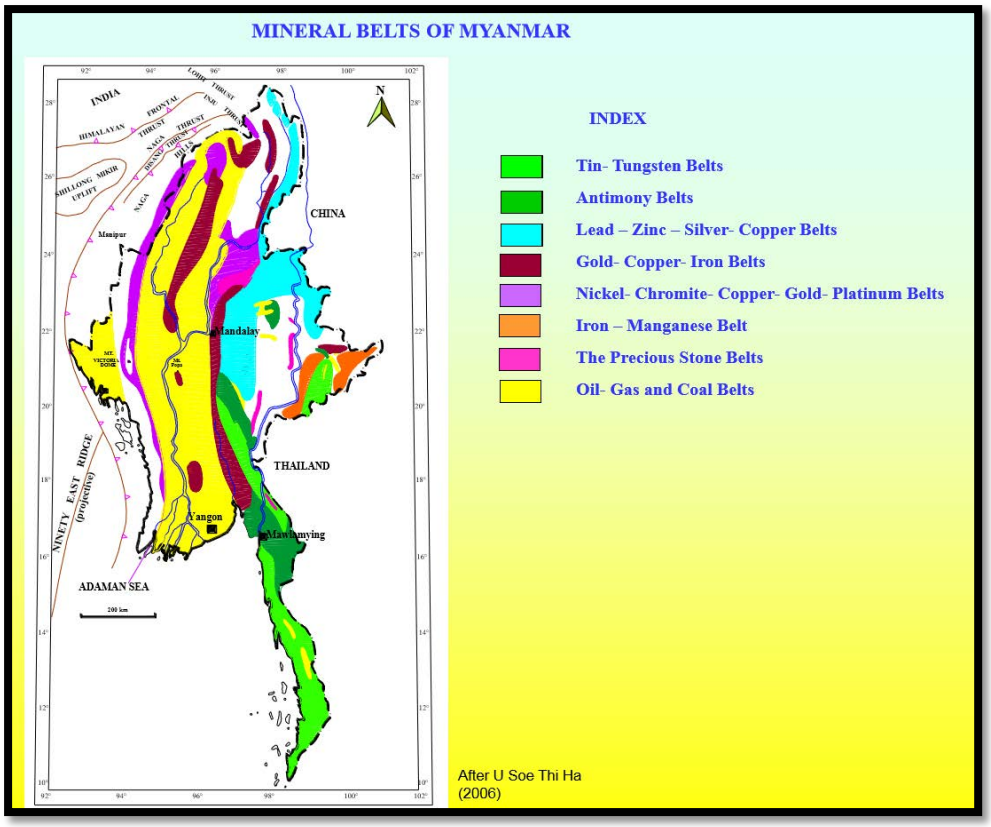
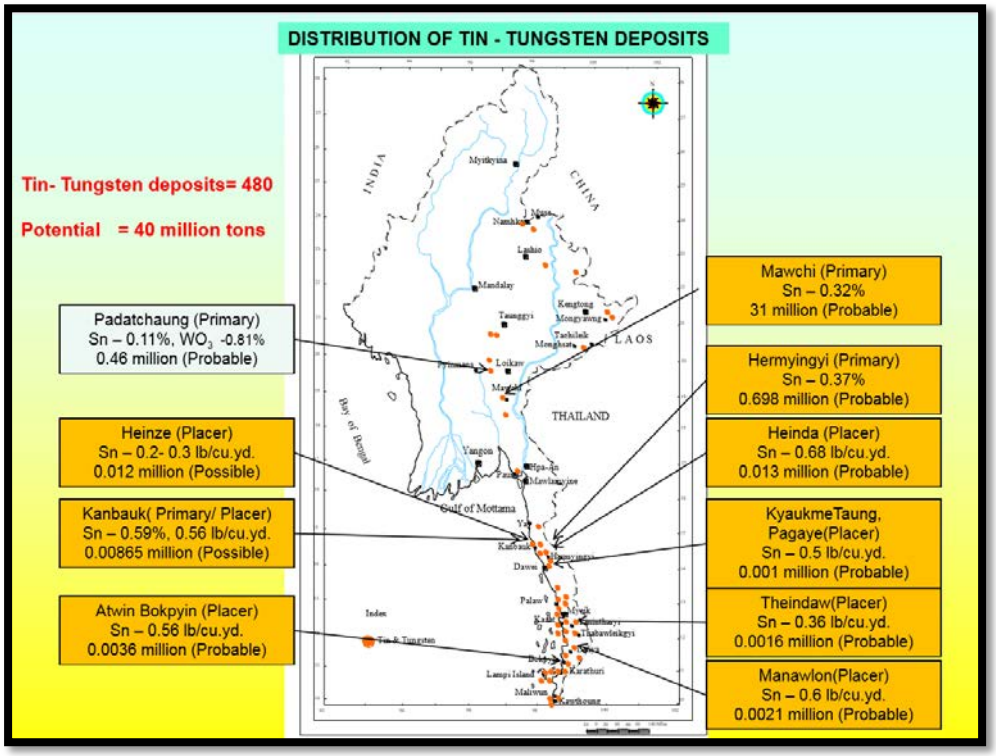


Figure 7.8 **Distribution of Tin – Tungsten deposits of Myanmar**



Mineralization at Kanbauk is hosted along a 600m strike length and 20m width. Metasediment and skarn are mineralized with tin, tungsten, and a variety of other oxides and sulphides, including cassetrite, wolframite, scheelite, galena, magnetite, marcasite, native bismuth, and bismuthinite. Gangue minerals include clays, garnet, rutile, carbonate, feldspars, goethite, hematite, and pyrite. Meta-sediment is cut by tungsten-rich quartz veins. However most of the mineralization is thought to have originated from the skarn. Mineralization in the limestone/marble is limited to zones where narrow skarn bands have formed, presumably along one of the major structural directions observed in the pit area.

Current mining is focused on mining the weathered free dig eluvium and lateritic material in the base of the open pit. The anount of weathering varies from extremely whethered near the surface, progressing through to lightly weathered material adjacent to the harder fresh rock. Pit walls are generally excavated in the lightly weathered eluvium material, although in places, the harder skarn and limestone/marble materials are present.

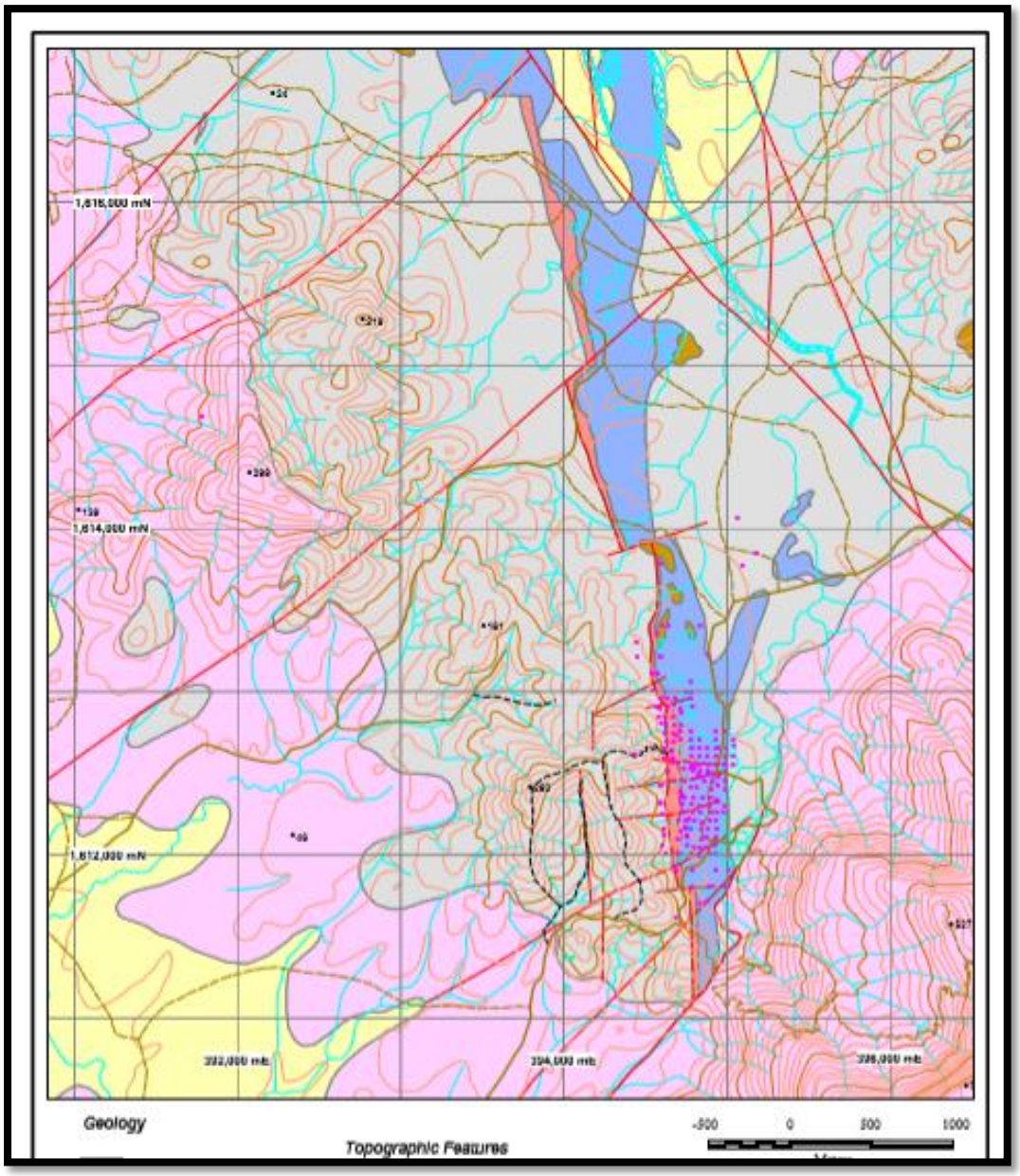
7.6 LAND CONDITION LOCATED BETWEEN TWO MOUNTAINS – MOUNTAINAINOUS AREA AND SLEEP GULLY

The Project is located in the central lowlands of Myanmar, which are ringed by steep, rugged highlands. The mine is located at less than 100 m above sea level at the base of a mountain located immediately to the south that rises more than 800 m above sea level. The Sinyat dam, forming the main water storage for the Project water supply is located at the south eastern edge of this mountain, at approximately 700 m above sea level.

The mine is located in a relatively broad, steep-sided valley between two undeveloped hills. A general overview of the mine is shown in the following figure.

Figure 7.9 **General overview of the Kanbauk mine.**

Figure 7.10 Topographic map of the Kanbauk Area.



The mine area and the surrounding topography is shown in Fig. 7.10. We can compare the map and photograph of the present mine excavation area Fig. 7.9.

7.7 *CLIMATE*

Data for meteorology and climate for Myanmar and the Project was collected from secondary sources such as the Department of Meteorology of the Ministry of Transport and Department of Geography of the University of Yangon. An internet review of available information was also conducted.

The meteorology and climate of Myanmar is controlled by the great monsoon circulation system of South East Asia and is influenced in detail by topographic peculiarities.

The mountain ranges in Myanmar generally run North to South, so that they present effective climate barriers for the South West monsoon in the summer and the North East monsoon in the winter. The climate of Dawei (the nearest city to the Project for ongoing climate records) features an extreme tropical monsoon climate. There is a substantial dry season from November to April, but in the wet season the influence of local mountains causes Dawei to receive as much as 1,300 millimetres (mm) precipitation per month. These extreme rainfall intensities are important for the operation of the mine, which uses water for the mining and processing operations.

7.8 *VEGETATION*

The Project is located in the Myanmar coastal rainforest terrestrial ecosystem, mapped in *Figure 7.3* as tropical wet evergreen forest.

The Project is also surrounded by a mixture of native and planted vegetation. The area to the north of the Project is largely cleared by the village of Kanbauk for agricultural purposes.

Loss of vegetation from land clearing for operations is currently being offset by a mine site rehabilitation program established by DELCO on vacant land, no longer used for operations. Rubber trees are planted on old waste rock dump areas, discussed roads and road verges. DELCO intends for these

trees to be a source of future economic development opportunities for the local Kanbauk village once the mine ceases operations. During the Site Visit in October 2016; a replantation nursery was observed by the security gate which contains a number of plant species to be replanted within the Project Area.

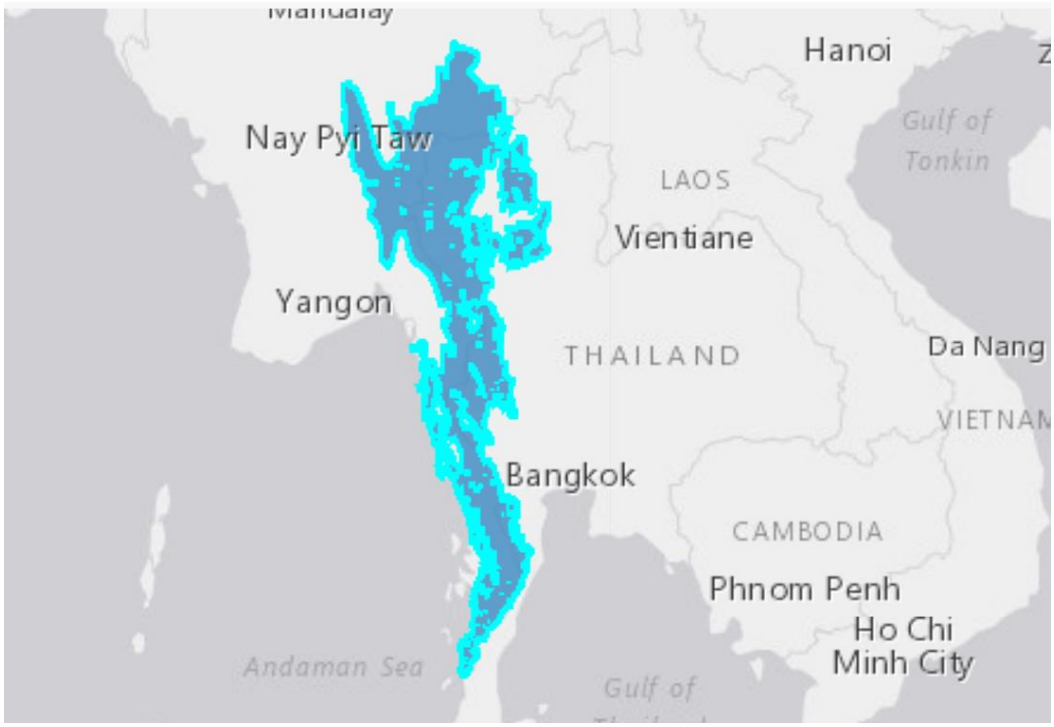
No detailed information about types of flora and related habitat in the area is available.

7.9 *WILDLIFE*

Based on Global Forest Watch data database and additional published information, the operation is located within area mapped as Tiger conservation landscape. (See the map in Figure 7.11)

The area is also mapped as a biodiversity hotspot, i.e. regions where conservation is most urgent because of high levels of endemism and human threat.

Figure 7.11 ***Global Forest Watch Tiger Conservation Landscape Map (source; globalforestwatch.org)***



Myanmar is one of (13) countries in Mainland Asia where tigers persist today. According to the 3-year national tiger survey, three areas areas – Hukaung Valley Wildlife Sanctuary (HKVWS), Htamanthi Wildlife Sanctuary (HMTWS) and Tenasserim Range – were proved to be present by using camera traps.

The Dawna Tenasserim Landscape (DTL) straddling the border of Myanmar and Thailand is a stronghold for large mammals, rare birds, endemic plants, and functioning ecosystems. A mountainous region with steep hillsides and narrow valleys carved from ancient limestone, it covers 84,442 km2 of which 77 percent is natural forest cover. Increasingly the DTL is being recognized as an international conservation priority, but we are in a race against time, as there are tremendous development pressures on this area. The landscape is a tiger stronghold, containing as many as 250 of this critically endangered species and serving as the single best hope for tiger recovery across the Greater Mekong.

Even the project area located DTL landscape, the project area was not mapped as:

- A protected area;
- Bird Life endemic bird area; and
- Alliance for zero extinction site.

Mangrove forest (widely considered as an important forest ecosystem) is mapped in downsteam reaches of receiving water, and flanking coastal estuary downstream of the mine.

The nearest protected area is the Tanintharyi Natural Reserve, located 10 km to the east of the Project Area (*Figure 7.12*). The reserve has over 75% of the area covered by evergreen forest which supports a rich biodiversity. The site hosts the endangered Gurney's Pitta (*Pitta gurneyi*) endemic to Thailand and Myanmar, and almost 70 species of mammals, many of which are globally threatened.

Figure 7.12 Locations of Protected Areas in Myanmar

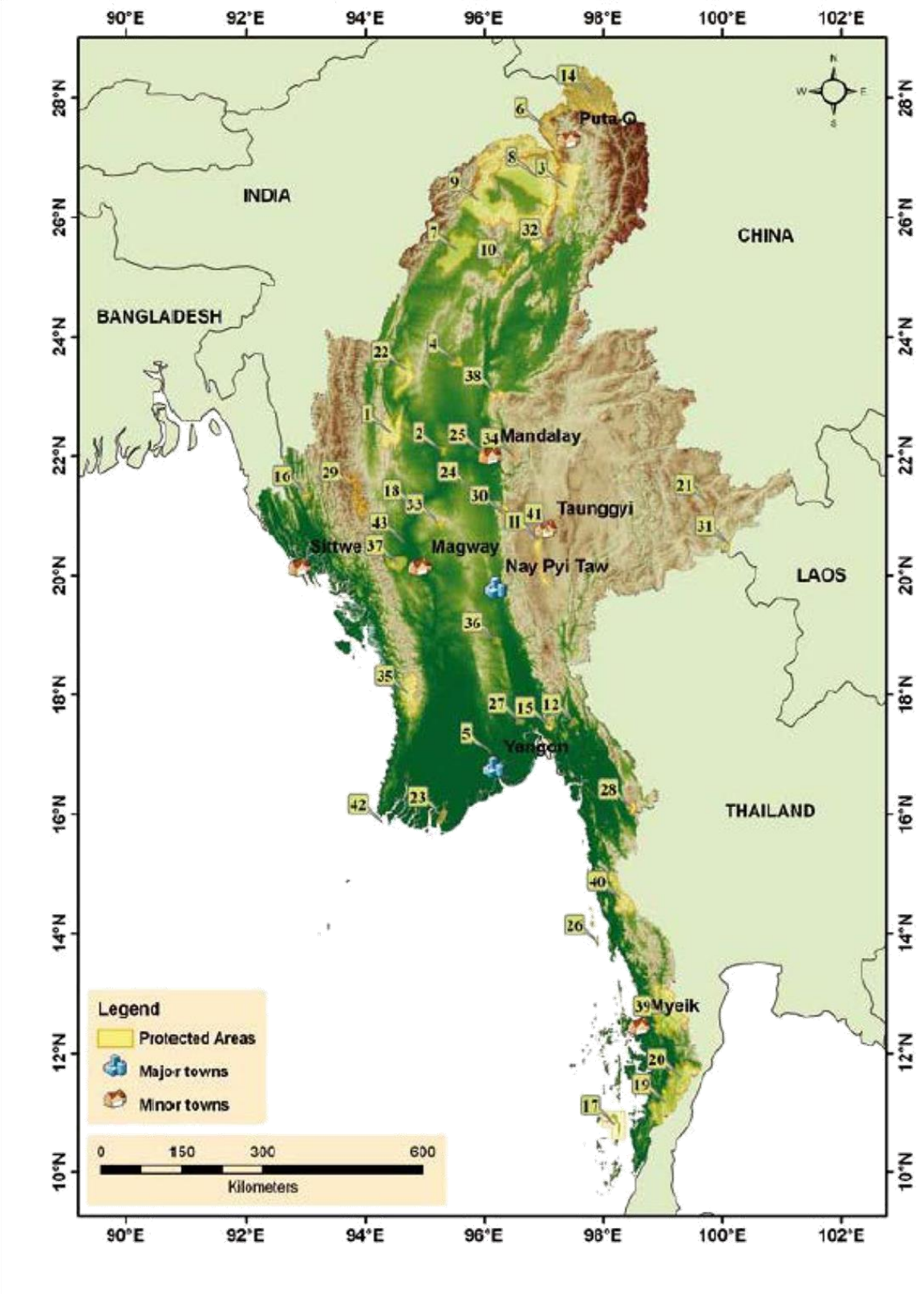
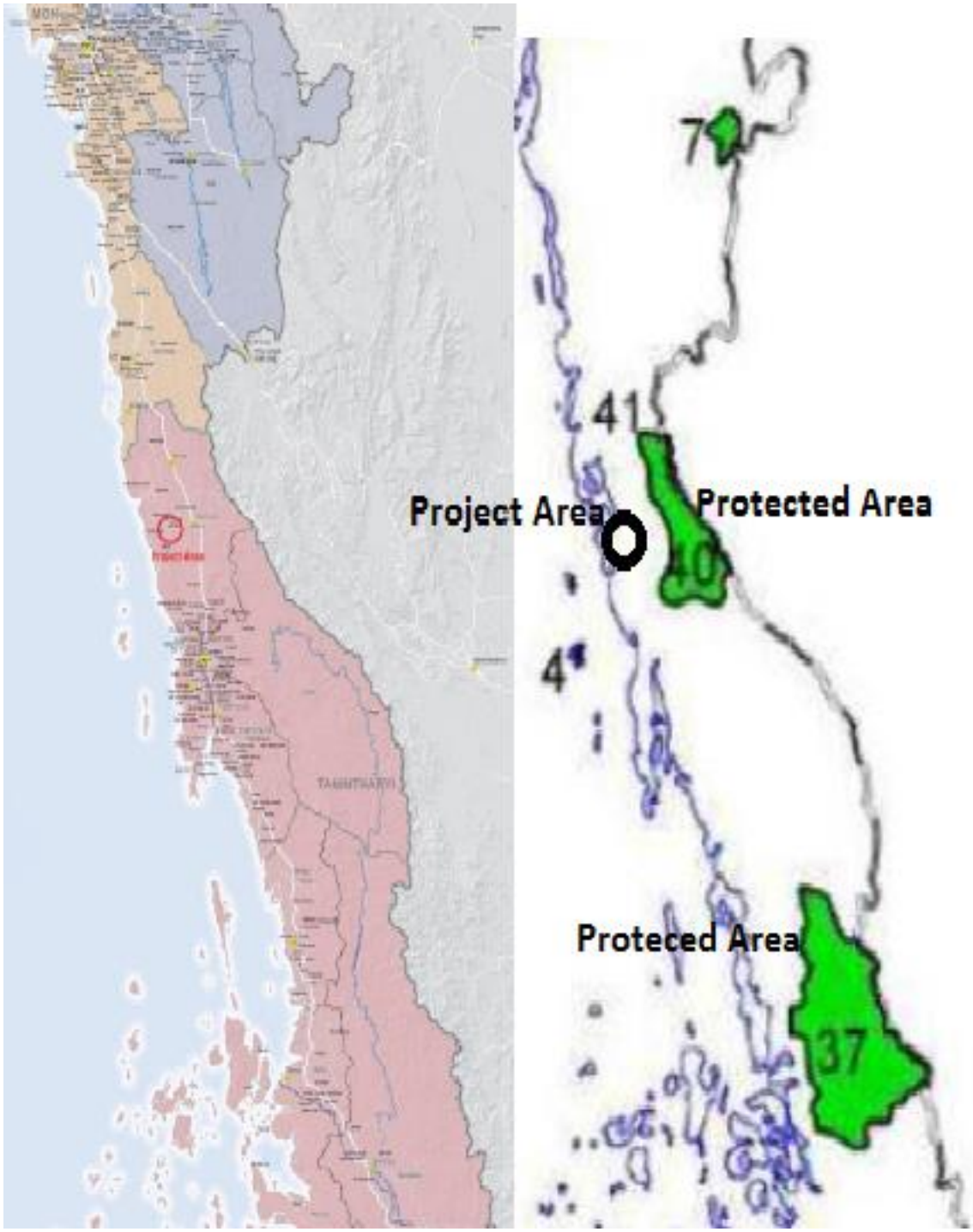


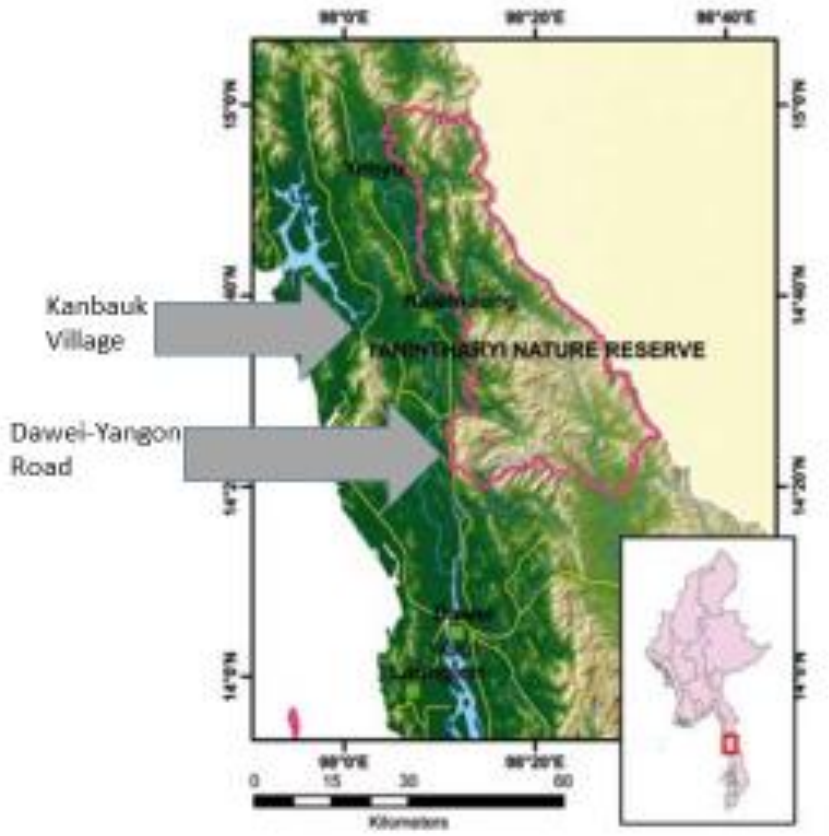
Figure 7.13 .4 Location Map of Project and Protected Area in Tanintharyi Natural Reserve



https://myanmar.wcs.org/Wildlife/Tiger.aspx

http://www.wwf.org.mm/en/our_works/dtl/

Figure 7.14 ***Map showing Kanbauk village and the mine site, Tanintharyi Nature Reserve and the Dawei-Yangon road in between (adapted from Istituto Oikos and BANCA 2011)***



The mine is located in the Myanmar coastal rainforest terrestrial ecoregion. According to the report "Review of the Taninthayi Nature Reserve Project as a conservation model in Myanmar." by *The Biodiversity Consultancy,* (*Cambridge* 2014), the Tanintharyi Nature Reserve is managed with funds from three gas pipeline companies as a biodiversity compensation to the Forest Department. FD is responsible to implement work plans for the Tanintharyi Nature Reserve to protect species from poaching, illegal logging and encroachment. A major impediment to conservation activities is security situation, with Karen National Union control access to significant portions of TNR.

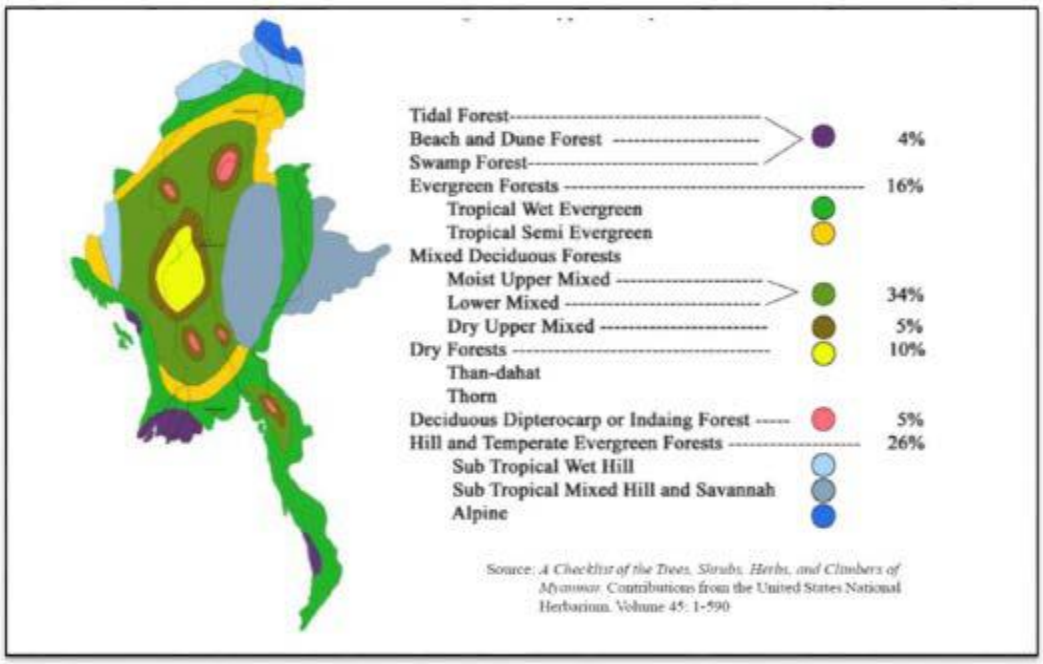
These are tropical wet evergreen forests which are part of the wider Kayah- Karen Montane Rain Forests (see *Figure 7.15*). The following information describes the ecology of the Kayah-Karen forests (ADB, 2012):

- The Kayah-Karen Montane Rain Forests cradle a rich diversity of plants, birds, mammals and amphibians. The ecoregion is one of the richest in forest animal life in the sub-region, second richest in bird species, and fourth in mammal species.
- The ecoregion lies in the northern part of the Tenasserim Mountain Range, on the border between Myanmar and Thailand with plants and animals in these forests with distinctive characteristics and some of these are unique to the area.

- The ecoregion harbours 168 species of mammals, one of which, the tiny Kitti's hog-nosed bat (smallest mammal in the world), is endemic in the area, particularly in the limestone caves of west Thailand.
- The relatively intact and contiguous habitat in these forests makes them a potential area for the conservation of threatened species like the tiger. Most of Thailand's biggest wildlife reserves and several protected areas are in this ecoregion.
- With 568 bird species, the ecoregion ranks high in avian diversity. Two species, the Deignan's babbler and the Burmese yuhina, are endemic in the area.

According to EIA report of 200MW Combined Cycle Power Plant (CCPP) project Kanbauk, Tanin Tharyi Region, Myanmar developed by Myanmar UPA Company Limited, the survey results indicate that 103 plant species exists; eleven (11) species of mammal; seventeen (17) species of amphibian and reptiles; twenty- seven (27) butterflies; forty- nine (49) bird species; and twentynine (29) fish species. The survey found two globally threatened species of mammal including the Fishing Cat (Prionailurus viverrinus) and the Northern Pig tailed Macaque (Macaca leonine).

Figure 7.15 Forest types of Myanmar



7.10 SOIL

The high intensity rainfall of the monsoon suggests that water erosion of soils will be a significant risk, particularly on steeper slopes and cleared and disturbed soils with no protective vegetation of erosion prevention.

7.10.1 Surface Soil Piling up

Very little waste material is mined, with the majority or the overlying waste rock mined in previous years. Any of waste rock is hauled to ex-pit waste dumps located in the south of the pit.

7.11 WATER

7.11.1 Site Visit Observations

Based on information supplied by DELCO, the groundwater in the Project Area is located 100 ft. (30 m) below the surface. Sediment run-off from the mine, TSF, and waste rock dumps is carried by a local water course into the local river system. DELCO directs the majority of water from its operation through the TSF, allowing time for sediment to settle before it percolates through the 'leaky wall' of the TSF into the decant pond. Water from this pond is allowed to overflow into the local watercourse at present.

The OPF does not use chemicals in processing ore, so that contamination of OPF water run-off is from sediment rather than chemicals. Additional sediment generated from the activities of artisanal miners panning for tin and tungsten in the local water course immediately downstream of the mine is currently uncontrolled, and contributes to sediment loads during the wet season, when the local watercourse is running.

Use of local water for mine-site operations is offset by DELCO providing some of the domestic water supply for the Kanbauk village from its water supply system. Water captured in the dam system behind Kanbauk is funnelled through the HEPP, and whatever is not used in the OPF currently runs through the local watercourse into the river system. Capture of upstream run-off in the dams has the effect of reducing water run-off peaks in the wet season and increasing the time water is available. However, once DELCO commences water recycling, this additional run-off water will no longer be available.

Mine affected water is treated via settling pond (the decant pond) and is discharged to the local waterway (Yine Ye stream), which drains to the Heinz basin, a mangrove fringed tidal estuary.

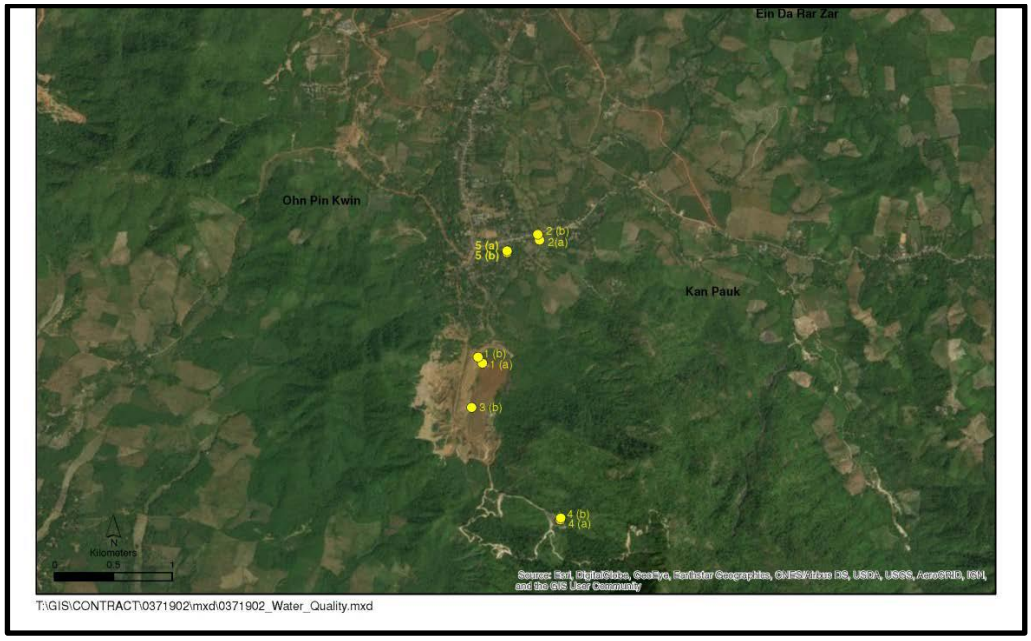
7.11.2 Primary Baseline Surveys

To inform surface water quality conditions occurring at and near Project Area, surface water quality monitoring was conducted at ten stations that are located:

- Upstream of the mine (i.e. , Stations 4a&b – Dam Site Reservoir);
- Within the mine (i.e. Stations 3a&b – Tailing Pond, Stations 1a&b – Decant Pond); and, Downstream of the mine (i.e. Stations 2a&b – Yine Ye stream, Stations 5a&b – a dug well at Kanbauk Village).

Water quality monitoring at these locations was conducted over the course of two days in April 2017. A map of the water quality monitoring station locations is shown in *Figure 7.16*. The water quality baseline data report is provided in *Appendix 3*.

Figure 7.16 Location of Water quality Monitoring Stations at and near the Project Area



The water quality sampling parameters selected for monitoring were in line with the requirements of the National Environmental Quality (Emission) Guidelines (NEQEG) for the Mining Sector provided in *Table 7.1.*

Table 7.1 Effluent levels of National Environmental Quality Emission Guidelines for Mining Sector – Construction Materials Extraction

Parameter	Unit	Maximum Concentration
Biological oxygen demand	mg/l	30
Chemical oxygen demand	mg/l	125
Oil and Grease	mg/l	10
pH	S.U[a]	6-9
Total coliform bacteria	100 ml	400
Total nitrogen	mg/l	10
Total Phosphorus	mg/l	2
Total suspended solids	mg/l	50

[a] *Standard Unit*

During the monitoring survey, the collected water samples were analysed 'in situ' using equipment in the field (i.e. pH, temperature, salinity total dissolved solids and conductivity) or by off-site laboratory methods (pH, total suspended solid, ammonia nitrogen, nitrate nitrogen, total phosphorous, oil & grease, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD)).

Table 7.2 and *Table 7.3* present the results of the water quality tests undertaken in the field and in the laboratory, respectively. Results which exceed the national guidelines are shown in red in the tables.

Table 7.2 Water Quality Monitoring Results for 'In situ' Parameters at 10 Monitoring Stations

Points	Name	Coordinates		Date/ Time	pH	Temp	Salt (ppm)	TDS (ppm)	Conductivity (ms/cm)
		N	*E*						
1(a)	Decant Pond 1(a)	14˚35' 03.64"	98˚01' 33.95"	3.4.17 (9:53 AM)	*8.3*	*29.8*	*170*	*95*	*0.25*
1(b)	Decant Pond 1(b)	14˚35' 05.31"	98˚01' 32.82"	3.4.17 (10:10 AM)	*8.5*	*34.1*	*195*	*110*	*0.31*
2(a)	Yine Ye Stream 2(a)	14˚35' 37.55"	98˚01' 49.77"	3.4.17 (10:30 AM)	*7*	*32.7*	*95*	*55*	*0.15*
2(b)	Yine Ye Stream 2(b)	14˚35' 39.09"	98˚01' 49.28"	3.4.17 (10:40 AM)	*7.2*	*33.3*	*95*	*55*	*0.15*
3(a)	Tailing Pond 3(a)	14˚34' 46.72"	98˚01' 34.01"	3.4.17 (11:10 AM)	*8.2*	*32.4*	*410*	*235*	*0.64*
3(b)	Tailing Pond 3(b)	14˚34' 51.53"	98˚01' 30.99"	3.4.17 (11:34 AM)	*8.5*	*31.7*	*80*	*45*	*0.12*
4(a)	Sinyat Dam 4(a)	14˚34' 20.61"	98˚01' 55.49"	3.4.17 (5:30 PM)	*7*	*27.7*	*0*	*1*	*0.01*
4(b)	Sinyat Dam 4(b)	14˚34' 21.16"	98˚01' 55.55"	3.4.17 (5:40 PM)	*7.1*	*27.7*	*0*	*1*	*0.01*
5(a)	Village well 5(a)	14˚35' 34.18"	98˚01' 40.81"	4.4.17 (8:58 AM)	*6*	*25.3*	*95*	*50*	*0.13*
5(b)	Village well 5(b)	14˚35' 34.60"	98˚01' 40.80"	4.4.17 (9:08 AM)	***4.4***	*25.8*	*75*	*40*	*0.10*

Note: TDS is Total Dissolved Solids

Table 7.3 Water Quality Monitoring Results for Laboratory Analysed Parameters

NO	Test Parameter	LOQ	Result										Unit
			Decant Pond 1(a)	Decant Pond 1(b)	Yine Ye Stream 2(a)	Yine Ye Stream 2(b)	Tailing Pond 3(a)	Tailing Pond 3(b)	Sinyat Dam 4(a)	Sinyat Dam 4(b)	Village well 5(a)	Village well 5(b)	
1	pH	-	7.60	7.75	7.28	7.26	8.13	7.74	6.97	6.68	6.20	8.13	mg/l
2	Total Suspended Solid	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	mg/l
3	Ammonia Nitrogen	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	mg/l
4	Nitrate Nitrogen	0.05	0.210	0.146	0.090	0.082	0.116	0.097	0.123	0.108	2.293	0.116	mg/l
5	Total Phosphorus	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l
6	Oil and Grease	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	mg/l
7	BOD	2	5	4	3	4	4	5	4	6	7	4	mg/l
8	COD	10	98	94	97	95	141	137	69	59	144	141	mg/l
9	Total Coliforms	>16	>16	>16	>16	>16	>16	>16	>16	>16	9.2	0*	MPN/ 100ml
10	Faecal Coliforms										2.2		

The village well/5(b) is 0 and the ground tank/5(a) is 9.2 and 2.2 which are Total coliforms and Faecal coliform respectively. Therefore, it is assumed the well is relatively clean compared to the ground tank (which is for household use) the latter of which could be contaminated with either human faeces or animal faeces leading to increase E coli (Escherichia coli) that is a component of Total Coliforms.

The water quality results from the water monitoring event have provided a characterisation of water quality occurring at and near the Project Area during mining operations at the time of sampling in April 2017. The dataset can provide the basis for comparison for future monitoring results, if undertaken.

The monitoring indicated that no water quality parameter values were found to exceed the NEQEG for the Mining Sector at the discharge point (Stations 1a&b) and in the stream downstream of the mine (Stations 2a&b) at the time of sampling.

Within the tailing ponds (i.e. prior to discharge from the project site), the monitoring found that COD was the only parameter that exceeded the NEQEG for the Mining Sector. At Station 3a&b, COD was found at 141 & 137 mg/L, which exceeded 125 mg/L maximum guideline limit. COD is a measure of the amount of oxidisable organic and inorganic material in the water sample, with higher levels likely to result in depleted dissolved oxygen concentrations in a water body, and associated potential impacts to aquatic biota

Similarly, the monitoring found COD was 144 & 141 mg/L at the dug well in Kanbauk village (Station 5a&b), which is higher than the 125 mg/L maximum guideline limit. The reason for this result is not known. At Station 5b, it was noted that 'in situ' measured pH was below (more acidic than) the guideline limit, though laboratory analysis found the sample to be within allowable range. The reason for the low pH measurement, which was not repeated by laboratory analysis, was not known..

At the dam site reservoir (Station 4a&b), which is located upstream of the mine, it was found no water quality parameter values were found to exceed the NEQEG for the Mining Sector at the time of sampling.

7.12 AIR

7.12.1 Primary Baseline Surveys

Ambient air quality data was collected in April 2017 at two monitoring stations. The air quality monitoring stations were located at the Delco project site and the nearby village of Kanbauk. Continuous monitoring of NO_2, SO_2, $PM_{2.5}$ and PM_{10} was undertaken over a 24-hour period at both locations to provide an indication of ambient air quality.

Locations of air sampling stations are listed in *Table 7.4* and shown in *Figure 7.17, 7.18* and *7.19*. The baseline data report for this Project is described in *Appendix 3*.

- Point 1 at the DELCO Project Area (near Sinyat Dam); and
- Point 2 at Kanbauk village which is north to the Project Area.

Table 7.4 Air sampling locations for baseline survey, April, 2017

Points	Locations	Coordinated		Start Date	End Date
		N	E		
1	Delco Project Sitye	14˚34' 24.82"	98˚01' 39.43"	2.4.2017	3.4.2017
2	Kanbauk Village	14˚35' 37.35"	98˚01' 39.86"	3.4.2017	4.4.2017

Figure 7.17 Ambient air quality monitoring areas at and around the project site

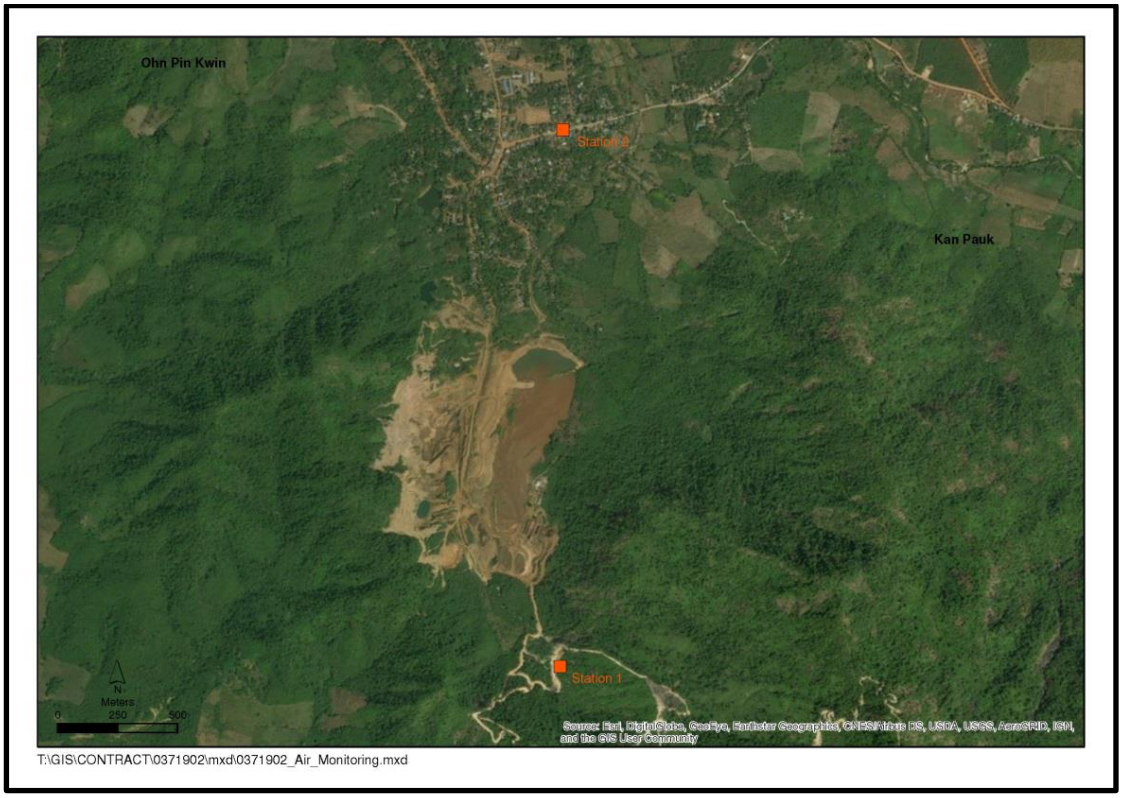


Figure 7.18 Ambient air monitoring at point 1

Figure 7.19 *Ambient air monitoring at point 2*

Table 7.5 and *Table 7.6* present the findings of the air quality sampling monitored over a 24-hr period and the applicable national standards used for comparison for Location 1 and 2, respectively. Results which exceed the national guidelines are shown in red in the tables.

The meteorology findings (temperature, relative humidity, wind speed, and wind direction) during the monitoring are also presented in *Table 7.5*.

Table 7.5 *Ambient Air Monitoring at Delco Project Site*

Parameters	Concentration (24hr average) except some Gases (NO_2, CO and O_3)*	National Environmental Quality (Emissions) Guideline
PM_{10}	**61**a(17b-441c) µg/m^3	50 µg/m^3
PM 2.5	**137**a(1b-417c) µg/m^3	25 µg/m^3
NO_2*	**44**a(22b-80c)ppb/**83**µg/m^3(24 hr)	40 µg/m^3 (annual) /
	55.64 ppb/105 µg/m^3 (one hr)	*200 µg/m^3 (one hour)
SO_2	**41**a(1b-309c)ppb/107.42µg/m^3	20 µg/m^3

Parameters	Concentration (24hr average) except some Gases (NO_2, CO and O_3)*	National Environmental Quality (Emissions) Guideline
Meteorology		
T (Degree C)		35a(1b-52c)
RH		56a(1b-75c)
Wind Speed (kph)		1.28a(0b-17.4c)
Wind Direction (Degree from North)		183 (S)
Remark		
Heavy rain for 2hrs (between 3-5pm) and windy during monitoring. Haul Trucks (approximately average 15 cars/hr) were running up and down around the monitoring site till 8:00 pm.		

a. Average b Min cMax, NO2 1 ppb = 1.88 µg/m3, SO2 1 ppb = 2.62 µg/m3
The general equation is: µg/m3 = (ppb)*(12.187)*(M) / (273.15 + °C) where M is the molecular weight of the gaseous pollutant. An atmospheric pressure of 1 atmosphere is assumed. (WHO), * (one hr average)

Table 7.6 *Ambient Air Monitoring at Kanbauk village*

Parameters	Concentration (24hr average) except some Gases (NO_2, CO and O_3)*	National Environmental Quality (Emissions) Guideline
PM_{10}	**55.14**a(6b-566c) µg/m3	50 µg/m^3
PM 2.5	**77.02**a(1b-584c) µg/m3	25 µg/m^3
NO_2*	**40**a(10b-105c)ppb/**75.2**µg/m^3(24 hr) * **53.64** ppb/101 µg/m3 (one hr)	40 µg/m^3 (annual) / * 200 µg/m3 (one hour)
SO_2	**15.27**a(1b-125c)ppb/**40**µg/m3	20 µg/m3
Meteorology		
T (Degree C)		33a(1b-42c)
Wind Speed (kph)		0.34a(0b-10.7c)
Wind Direction (Degree from North)		169 (**S**)
Remark		
No specific activities apart from cycles and 4 wheel drives passing by during monitoring		

a. Average b Min cMax, NO2 1 ppb = 1.88 µg/m3, SO_2 1 ppb = 2.62 µg/m3 * (one hr average)
The general equation is: µg/m3 = (ppb)*(12.187)*(M) / (273.15 + °C) where M is the molecularweight of the gaseous pollutant. An atmospheric pressure of 1 atmosphere is assumed (WHO)

The monitoring data needs to be interpreted for comparison to the NEQEG which includes both short term (10-minute, 1-hour, and 24-hour) and long term (annual) standards. The United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) suggests that long term background concentrations can be implied by dividing the short term concentration by a factor of two. Using the monitored 24-hour average concentration as a basis, this conversion has been undertaken to provide an indicative long term background concentration for comparison to the NEQEG annual air quality standards. For comparison to the 10-minute average air quality standard the power law formula to convert from the 24-hour to a 10- minute concentration has been applied to indicate potential exceedances of the standard. It should be noted that emissions from the Project are limited to generators, vehicle emissions and dust and likely to cause significant increases in this parameters. As such, the ambient air emissions do not meet the NEQEG at present.

The monitoring data at the Project Area indicates that, with the exception of the NO_2 1-hour and SO_2 10-minute averaging periods, the air quality standards are exceeded.

The principal sources of emissions to the atmosphere in the vicinity of the Project Site are likely to be from agricultural open-air burning, wood burning for domestic purposes (i.e. heating and cooking), the operation of the OPF, and exhaust emissions from road transportation. Elevated ambient concentrations may be compounded by onsite project activities including but not limited to power generation, vehicle exhausts, material transfer, mining activities and vehicle movements over unpaved surfaces.

The monitoring data at Kanbauk Village indicates that, with the exception of the NO_2 1-hour, NO_2 annual and SO_2 10-minute averaging periods, the NEQEG are exceeded. It should be noted that emissions from the Project are limited to generators, vehicle emissions and dust and likely to cause significant increases in this parameters. As such, the ambient air emissions do not meet the NEQEG at present.

The principal sources of emissions to the atmosphere in the vicinity of Kanbauk village are likely to be from agricultural open-air burning, wood burning for domestic purposes (i.e. heating and cooking), and exhaust emissions from road transportation.

7.13 NOISE

7.13.1 Primary Baseline Surveys

The ambient noise level monitoring was carried out continuously for 24hr along at the same locations as the air monitoring. *Table 7.7* present the NEQEG limits for daytime and night-time noise limits for both residential (village) and industrial (Project Area).

Table 7.7 Emission Guidelines Noise levels of National Environmental Quality Table

Receptor	One Hour LAeq (dBA)a	
	Daytime 07:00 - 22:00 (10:00 - 22:00 for Public holidays)	Nighttime 22:00 - 07:00 (22:00 - 10:00 for Public holidays)
Residential, institutional, educational	55	45
Industria, commercial	70	70

Locations of noise sampling stations are listed in *Table 7.8* and *Figure 7.20*

- Point 1 at the Delco Project Site; and
- Point 2 at Kanbauk Village (equipment at the site is shown in *Figure 7.21*).

The baseline data report for this Project is described in *Appendix 3*.

Table 7.8 *Noise Sampling Locations for Baseline Survey, April, 2017*

Point	Locations	Coordinates		Start Date	End Date
		N	E		
1	Delco Project Site	14˚34' 24.82"	98˚01' 39.43"	2.4.2017	3.4.2017
2	Kanbauk village	14˚35' 37.35"	98˚01' 39.86"	3.4.2017	4.4.2017

Figure 7.20 *Location map of Noise Monitoring Locations*

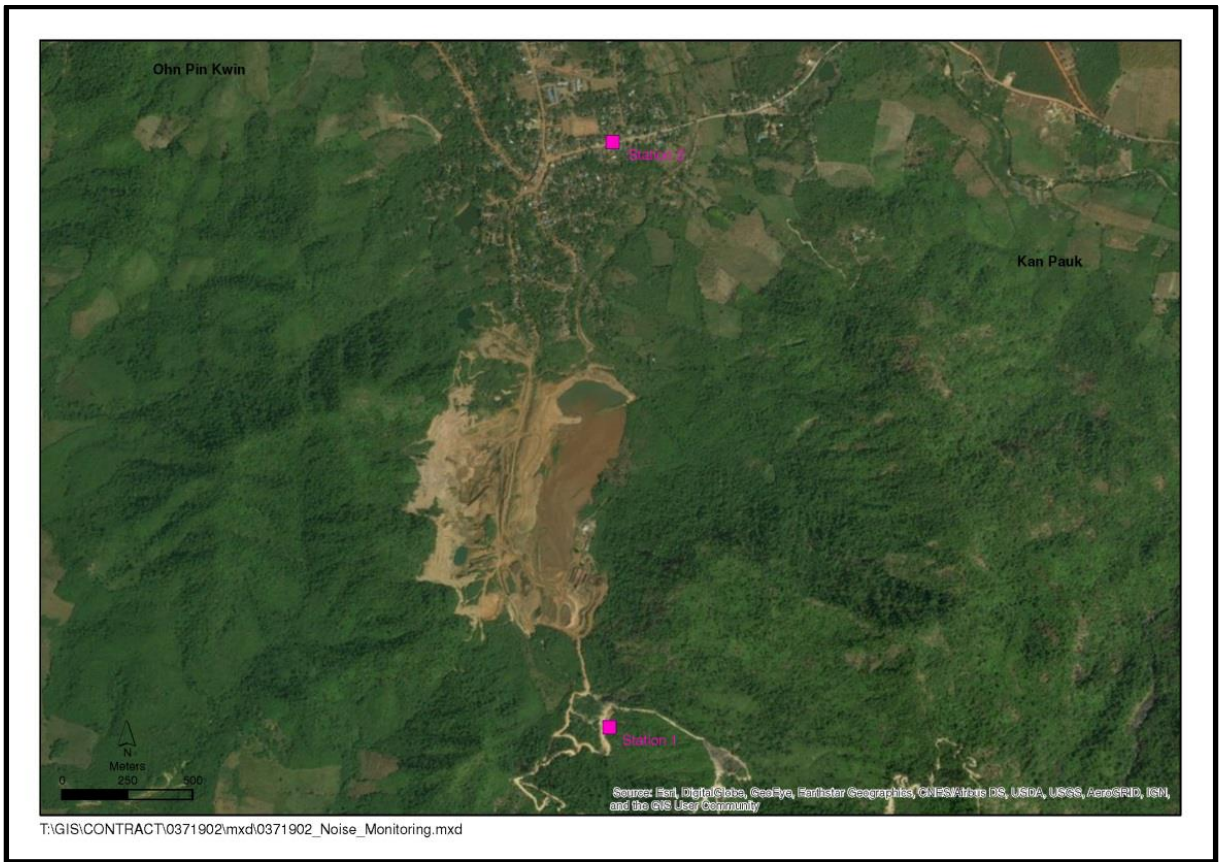


Table 7.9 presents the findings of hourly A-weighted equivalent continuous sound pressure levels monitored over a 24-hr period and applicable standards used for comparison. The whole day average level, daytime level and night- time level are 68dB, 68dB and 69dB, respectively.

Table 7.9 *The 24hr average noise level of Location 1 Delco Project Site*

Area	Whole Day Noise Level (dB)	Daytime Noise Level (dB)	NEQEG (Daytime) (dB(A))	Night-time Noise Level (dB)	NEQEG (Night-time) (dB(A)
Delco Project Site	$68_a \pm 0.01_b$ $68_c(56_d\text{-}93_e)$	$68_a \pm 0.02_b$ $69_c(55_d\text{-}92_e)$	70	$69_a \pm 0.003_b$ $69_c(67_d\text{-}72_e)$	70

a. Average, b Standard Error, c Median, d Min, e Max

The noise level at the Point 1 is mainly from the OPF, Project vehicles (bulldozer, haul truck, mass excavator and water truck) and surrounding activities including human and environment (rain and wind etc.).

Figure 7.21 Noise monitoring at point 2 (Kanbauk village)

Table 7. 10 presents the findings of hourly A-weighted equivalent continuous sound pressure levels monitored over a 24-hr period at Location 2 and applicable standards used for comparison. The values that exceed the NEQEG are shown in red.

Table 7.10 The 24hr average noise level of Location 2 (Kanbauk Village)

Area	Whole Day Noise Level (dB)	Daytime Noise Level (dB)	NEQEG (Daytime) (dB(A))	Night-time Noise Level (dB	NEQEG (Night- time) (dB(A))
Kanbauk village	53[a]±0.05[b] 54[c](38[d]-117[e])	**51**[a]±0.08[b] 58[c](39[d]-116[e])	55	**56**[a]±0.08[b] 58[c](38[d]-100[e])	45

[a] Average, [b] Standard Error, [c] Median [d] Min, [e] Max

The level of noise at Kanbauk village is mainly from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc.).

The night-time levels exceeded the NEQEG. The night time noise in Kanbauk Village was slightly higher than the day time noise level. This could be due to the main road which is a busy route connecting with Dawei and Yebyu.

7.14 SOCIO-ECONOMICS

7.14.1 *Overview of Myanmar*

Myanmar is divided into twenty-one (21) main administrative subdivisions, which include:

- Seven states;
- Seven regions (Note that regions were previously referred to as "divisions", prior to August 2010);
- Five self-administered zones;
- One self-administered division; and
- One union territory.

The administrative subdivisions are detailed in *Table 7.11.*

Table 7.11 Administrative Regions of Myanmar, 2014 (Myanmar Population and Household Census, 2015)

Name	Capital	Population	Area
Ayeyarwady Region	Pathein	6,663,000	35,138
Bago Region	Bago	5,099,000	39,404
Chin State	Hakha	480,000	36,019
Kachin State	Myitkyina	1,270,000	89,041
Kayah State	Loikaw	259,000	11,670
Kayin State	Pa-an	1,431,377	30,383
Magway Region	Magwe	4,464,000	44,819
Mandalay Region	Mandalay	7,627,000	37,021
Mon State	Mawlamyaing	2,466,000	12,155
Rakhine State	Sittwe	2,744,000	36,780
Sagaing Region	Sagaing	5,300,000	93,527
Shan State	Taunggyi	4,851,000	155,801
Tanintharyi Region	Dawei	1,356,000	43,328
Yangon Region	Yangon	5,560,000	10,170
Naypyidaw Union Territory	Naypyidaw	925,000	-
Danu Self-Administered Zone	Pindaya	N/A	N/A
Kokang Self-Administered Zone	Laukkai	N/A	N/A
Naga Self-Administered Zone	Lahe	N/A	N/A
Pa-O Self-Administered Zone	Hopong	N/A	N/A
Pa Laung Self-Administered Zone	Namhsan	N/A	N/A
Wa Self-Administered Division	Hopang	N/A	N/A

The 2014 census shows that Myanmar had a total population of 51,486,253 persons as of 29 March 2014. Of these, 24,824,586 were males and 26,661,667 were females.

The total population for Tanintharyi Region as of 29 March 2014 was 1,408,401 persons. Of these, 700,619 were males and 707,782 were females. The total population of Tanintharyi Region represents 2.7 percent of the total population of Myanmar (The 2014 Myanmar Census).

There are up to 135 ethnic groups in Myanmar and the major ethnic groups are Bamar (68%), Tibeto-Burman (18%), Sino-Thai (8%), Mon-Khmer (5%) and others (2%). In 2009, the human Poverty Index was 20.4 which is 77 out of 135 countries. About 25.6% of the population lived below the poverty line in 2010 and had no means to support their basic subsistence. Life expectancy is low at an average of 65 years old, the infant mortality rate is 50 per 1,000 live births, the under-five mortality rate is 66 per 1,000 live births and maternal mortality is 200 per 100,000 live births. All three latter indicators are the highest in the Mekong sub-region.

7.14.2 Demographics and Population

The Project Area is within Kanbauk Village Group, approximately 65 km north of Dawei, within Yebyu Township, Dawei District of Myanmar, and approximately 300km southeast of Yangon. There are twelve wards in the Kanbauk Village Group. The population of these wards in Kanbauk is approximately 19,952 people (*Table 7.12*). Other ethnic groups in the Kanbauk are: Kayin, Burma and Mon. The majority of people are Buddhist and other religions are Muslim, Hindu, and Christian. Approximately, 4,344 households are located in those wards.

In terms of the villages located in the Project area, the nearest village is Kanbauk and in terms of ethnicity, language and religion, reflect the broader Myanmar population – i.e. are Buddhist Burmans that speak Myanmar, but Kanbauk also houses, a Charge, a Hindu temple and a Mosque.

Table 7.12 Population of the Wards of Kanbauk Group

No.	Name of Ward	HH	Male	Female	Total
1	Bogyoke	110	209	311	520
2	Mya Thida	210	473	538	1011
3	Kahing Thazin	170	210	300	510
4	Thiri Mingalar	398	512	861	1673
5	Macgin	201	451	437	888
6	Hlegone (1)	199	349	322	671
7	Hlegone (2)	210	508	599	1107
8	Mi Kaung Eain	116	230	370	600
9	Htan Ta Pin	150	320	530	580
10	Set Kone	178	456	480	936
11	Gangawtaung	230	580	630	1210
12	(11) Ward	2,172	4,598	5,678	9,973
	Total	**4,344**	**9,196**	**10,756**	**19,952**

7.14.3 Livelihood

The information presented in this Section was gathered through a desktop review of publicly available sources and supported by primary data collected during a site visit in October 2016 and consultation in April 2017. Primary socio-economic data was collected through key informant interview to village leaders which have been administered in Kanbauk village which is located approximately around 3 km north east of the Project Site. The data collected from social survey is shown in *Appendix 4*.

Farming

The agricultural sector is the source of livelihood in the Study Area. Some people are self-employed (i.e. produce crops on their own land), while others earn money as day labourers. The average income per year of Kanbauk villagers is about 3,700,000 Kyat. The crops cultivated in Yebyu Township are paddy, sesame, and corn. In addition, rubber, oil palm, betel and coconut are cultivated as long term plantation. The main cash crops are rubber, betel, palm, cashew, jack fruit, rambutan, cane and durian. Other crops are pineapple and pepper. Cashew and betel nuts are sold at Dawei Market.

Both men and women are actively involved in crop production in the Project area villages – either running their household crop production activities or taking up roles as day labourers. For day labourers, men tend to earn more (on average 1000 kyats more) per day when compared to women.

Livestock

People in Yebyu Township raise a variety of livestock, including pig, goat, duck, buffalo, sheep and poultry. In Kanbauk, the most commonly raised livestock is duck and chicken. More Kanbauk households are involved in crop production, than livestock rearing.

The livestock are reared for personal consumption and in some occasions, sold to the market. Both men and women are involved in the rearing of livestock.

Forestry

According to the land Record Department, the majority of the Yebyu Township is covered by forest land with 527,883 acres of forest reserve. Gurjan, Karen wood, dropping fig, Shiral, Dog fruit, Kalod, Burmese ironwood are the most common tree species.

Many households collect firewood from nearby forested areas for cooking.

Fisheries

Even though fishing is popular in some villages in the Region, it is generally not the primary livelihood in Kanbauk; given the distance from the coean and main river tributaries.

Industry

Although the majority of people are involved in the agricultural sector, a small number of people own and operate businesses. This includes a range of shops – like restaurants, sewing, hair dressing and beauty salon.

7.14.4 Health

Malaria is considered to be one of the main health issues. The issue is compounded by the increasing presence of the multi-drug resistant form of malaria, which is now widespread along much of the Myanmar-Thailand border. Other vector borne diseases common in Myanmar include dengue fever and Chikungunya virus, which are spread by two species of day-time feeding mosquitoes - *Aedes aegypti* and *Aedes albopictus*. Leading causes of morbidity appear to be hypertension, diabetes, acute respiratory infection, stroke and common fever linked to influenza are observed as most occurring diseases.

7.14.5 Infrastructure and Utilities.

Access to Water and Sanitation

Ground water is the main source of drinking water along with stored water from streams. Water from the Yine Ye stream is also used by villagers from

Kanbauk for domestic use but not as drinking water. The quality of well water in that area is relatively good quality from consultation with villagers. Spring water is not as good and rain water is poor as the roofs are dirty through which the water is collected. Well water is widely used for domestic use and agriculture purpose. Sources of water in Yebyu Township (where Kanbauk is located) are provided in *Table 7.13* (from 2015 Myanmar census).

Filtering and boiling is used to purify water from wells in Kanbauk. Water is available all year round but becomes scarce during the dry season particularly water from the Yine Ye stream.

In general, houses use pour flush latrines or dry pit latrines. Wastewater is discharged into the ground or into open streams without treatment.

Healthcare Facilities

Kanbauk does not have its own health care facility. In terms of health facility, there is a sixteen-bed hospital where a medical officer is assigned, one rural health centre and a few private clinics. Yebyu General Hospital is used for more major health issues and is located 2 hours away from Kanbauk. There is no plan to improve access to healthcare services in the area.

Child birth usually takes place at home with the assistance of the nurse. Vaccinations are provided at birth and approximately 90% of newborns are vaccinated.

Education

There is one basic education primary school, two post primary schools and one high school in Kanbauk. In most instances, villagers obtain a primary school education, while some continue on to middle school and/ or high school. A small number of villagers have obtained a university education.

Waste Management

In terms of waste in the Study Area, wastewater is largely directed back into the ground or into the nearest stream. Solid waste disposal is the responsibility of each household and is usually burnt on the house compound. Specific disposal areas exist in Kanbauk including a waste dump site and DELCO organised daily collective system.

Electricity and Energy

Most of the households in the Study Area have access to the electricity with almost half having access to a 24 hour service. Electricity shortages occur frequently in the summer months. Sources of electricity in Yebyu Township (where Kanbauk is located) are provided in *Table 7.13* (from 2015 Myanmar census).

For domestic energy in Kanbauk, most of the households use gas and charcoal. People can purchase gas and charcoal in Kanbauk village.

Table 7.13 Lighting and Water Sources in Yebyu Township

Source of lighting											
Township Name	**Total**	**Electricity**	**Kerosene**	**Candle**	**Battery**	**Generator (private)**	**Water mill (private)**	**Solar system/energy**	**Other**	**Remark**	
Yebyu	22,073	835	5,160	5,881	162	8,564	107	1,285	79		
	Source of drinking water										
	Total	Tap water/ Piped	Tube well, borehole	Protected well/ Spring	Unprotected well/Spring	Pool/ Pond/ Lake	River/ stream/ canal	Waterfall/ Rain water	Bottled water/ Water purifier	Tanker/ Truck	Other
	22,073	727	224	9,310	7,461	159	256	2,565	577	8	786
	Source of non-drinking water										
	Total	Tap water/ Piped	Tube well, borehole	Protected well/ Spring	Unprotected well/Spring	Pool/ Pond/ Lake	River/ stream/ canal	Waterfall/ Rain water	Bottled water/ Water purifier	Tanker/ Truck	Other
	22,073	1,048	225	9,189	7,468	159	296	2,854	10	23	801

Source: The 2014 Myanmar Population and Housing Census (2015)

Transportation

Within the Project Area the main transportation is motorbike and there are shuttle buses to other villages and to Dawei.

7.14.6 Cultural Heritage

There are a number of pagodas and monasteries in the Project Area. There is also a Mosque, a Hindu temple and a Church in Kanbauk. One of the monastery's in Kanbauk is shown in *Figure 7.22*.

Figure 7.22 Living Cultural heritage of Villages within the Study Area

8 SUMMARY OF IMPACTS AND MITIGATION MEASURES

8.1 METHODOLOGY

It included three parts as 1) secondary data collection through desk research and interview with key stakeholders; 2) primary data collection through field measurement, field analysis, laboratory analysis, HHs interviews and key informants interview; and 3) public consultation meeting before field work and after field work with necessary data analysis.

Throughout the onsite physical examination, photo taking, counting the flora and fauna, meeting with stakeholders, key informant interview were made. Data collection will be made through semi-structured interview with local authority, government officials as well as HH interview survey.

8.2 AIR QUALITY

Impact:

Disturbance to air quality can arise from the use of the access roads on site and emissions from vehicles and processing equipment. This is more of an issue during the dry season when there is no rain and vehicles using the mud access roads generate dust emissions. Operational activities that may affect the air quality of offsite sensitive receptors for dust include;

- Vehicle use of the access roads on site;
- Moving material (excavators, scrapers);
- Topsoil stripping;
- Road grading;
- Stacking and reclaiming from stockpiles;
- Conveyors, loading and crushing at the OPF;
- Wind erosion from stockpiles, tailings storage facilities or exposed areas.

Impact Description:

Potential impacts caused by operational dust could be:

- Increased dust affecting the air quality amenity at sensitive receptors; and
- Increased dust affecting the health at sensitive receptors.

Machinery, vehicles and energy generator devices can generate gas emissions to the atmosphere. Significant impacts are not likely due to the low rate emitted and low charge of pollutants.

Dust from the access roads during the dry season can impact local flora and fauna and the workforce. Significant impacts are not likely due to the daily water spraying at the access road.

Significant impacts of dust generated from ore processing (crushing and grinding large size of crude ore) are not likely because the crushing process was combination water spraying during the crushing process which control no dust generation as well as use only water and vibration screen to separate the concentrates.

Mitigation measure:

- Low speed for vehicles (max speed of 30 km/h) on Project Site as well as through Kanbauk village
- Air Emissions in line with National Environmental Quality (Emissions) Guidelines (NEQEG)
- Replantation program for open bare soil areas
- A dust management plan will be prepared and implemented.
- Water will be sprayed on roads to control dust.
- Engine maintenance as recommended by manufacturer.

8.3 WATER QUALITY

Impact:

During operations, there is the potential for changes in surface water and river water quality. The tailing from the mine is processed in the OPF and the remainder is emptied into the tailing pond which eventually leads to the decant pond. From here, there is a small stream which leads onto the Yine Ye stream. Within the Decant Pond, heavy particles/sedimentation sinks to the bottom and the remaining water is led out to the Yine Ye stream.

The operational activities that may affect surface water include;

- Constructing landforms that change the catchment hydrology;
- Operating dams associated with the site water management system;
- Waste water from onsite accommodation and office facilities;
- Water discharges to the Yine Ye stream from the Decant Pond;
- Clearing land for operational purposes; and
- Storage of mine tailings.

Impact Description:

Potential surface water impacts include the following:

- Contamination of rainfall runoff with sediments from exposed areas and stockpiles. Significant impacts are not likely due to the water flow to Tailings Pond through drainage channel.
- Contamination of the local Yine Ye stream with waste water and water from the Decant Pond. Significant impacts are not likely from waste water from decant pond due to the three steps silting at Tailings Ponds for waste water from OPF, sanitary water generated from rest rooms was collected at septic tank and discharged clear water after sedimentation of sewage at septic tank and water flow through settling pond with simple turbid water treatment system.
- Changed water flow paths. Significant impacts are not likely because final water flow headed to local Yine Ye stream
- Erosion. Significant impacts are not likely due to proper drainage channel for water flow was constructed as well as regular check and maintenance for stock pile of overburden (removal top soil) and crude ore.
- Reduced water flows entering the local drainage systems due to capture of rainfall in dams and pits. Significant impacts are not likely because no water usage from local drainage system.
- Contaminated groundwater entering surface water systems. Significant impacts are not likely because no chemical usage in Ore Processing.

Mitigation Measure

- Regular water quality check for over flow from last Tailings Pond.
- Septic tank was constructed for sedimentation of sewage and waste from sanitary water.
- Settling ponds or simple turbid water treatment will be installed as necessary
- Regular inspection and necessary maintenance for drainage channel.
- Regular inspection and necessary maintenance for position of stock piles for overburden (removal top soil) and crude ore.

8.4 NOISE AND VIBRATION

Impact:

Increases in ambient sound and generation of sound from processing machines and road clearance machinery. The main mine pit and OPF facilities are located to the south of the Kanbauk village. The noise from the OPF, which operates 25 hours per day, cannot be heard from the neighbouring village.

During operation, blasting is used in the mine pit and sometimes on access roads which can cause disturbance to local fauna.

Operations that generate noise include:

- Vehicle and truck operations;
- Earthmoving equipment operation;
- Material handling equipment and operations;
- Mining equipment operation;
- OPF operation; and
- Surface blasting.

Impact Description:

The Project activities will generate sound levels at low frequencies for a continuous period in a specific area. This also applies also for road and land clearance activities.

No impacts in day time because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (53 dB) are lower than 70 dB (noise level for industrial area) and 55 dB (noise level of residual area)

Significant impacts are not likely in night time because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (56 dB) are lower than 70 dB (noise level for industrial area) and higher than 45 dB (noise level of residual area). It was noted that noise level mainly captured from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc).

Significant impacts are not likely for blasting because blasting was made where necessary and only daytime. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration.

Mitigation Measure:

- Maintenance of machinery as recommended by manufacturer;
- Project activities will keep as much distance as possible from villages;
- Regular monitoring for Noise Emissions; and

- Blasting Management Procedures will be prepared and implemented. (See detail in Annex;)

8.5 *WASTE MANAGEMENT*

Impact:

Generation of wastes from Project activities and workforce on site. There is a waste dumping facility on site for old tyres. There is no municipal waste collection and solid wastes are generally sent to a local landfill. Dry waste in incinerated on site.

The types of wastes generated are:

- Regulated waste (hydrocarbon waste, batteries, tyres, chemistry, etc.) from workshop and laboratory activities;
- General waste (benign construction waste, wood, food scraps, un-recyclable plastics, etc.);
- Recyclable general waste (paper, cans, glass, plastics, cardboard);
- Recyclable scrap metal;
- Liquid waste (sewerage, etc.);
- Waste rock (created from mine operations); and
- Tailings (from the OPF).

Impact Description:

Significant impacts caused by waste:

- contamination of land, air and water through the improper management of waste. are not likely because project developed and applied the waste management plan which included 1) define the separate waste collection point and storage, 2) recycling of waste, 3) identified the waste dump site and 4) coordinate with local municipal to follow their guideline.

Mitigation Measure:

- Development and implementation of Waste Management Plan.
- Classification of waste according to its type, appropriate storage and correct final disposal.
- Proper waste management and disposal procedure shall be established and followed. Food and bio degradable waste generated during operation will be properly disposed of in a small pit and buried.
- All non-biodegradable waste such as plastic bottle, empty cans and metal shall be collected in designated dust bin and then brought back to company. Disposal of waste in the Project Area is strictly prohibited.
- Improvement of septic tank system (which currently leads to groundwater contamination).
- New waste dumping site being created in location of old British Pit.

8.6 *WATER USE*

Impact:

The operation of the mine is governed by the water resources available from the local Sinyat Dam. The HEPP and OPF facilities can only operate when there is

available water. Sometimes the OPF can only operate for 3 months in the dry season due to limited water supply.

The Kanbauk village also uses water from the Sinyat Dam. The majority of the water from the Sinyat Dam is used for the mine, and some overflow goes into the village water supply via the Yine Ye stream. Villagers have their own wells in the village which they use to get water in the dry season.

Impact Description:

Potential impacts include:

- Limitation of operations of the OPF and HEPP. Significant impact on operation not likely because water control system (recycling of process water to reuse) in processing can cover operation throughout the raining season.
- Limitation of water supply to the local Kanbauk area. Significant impact not likely because Kanbauk village didn't need water from Yine Ye stream for their local consumption.

Mitigation Measure:

- Recycle the water from the open mine pit to use for processing at the OPF
- Expand the Sinyat dam to increase the storage capacity.
- Quality of discharges of waste water from industrial and human activities will be inspect regularly.

8.7 LAND FORM AND TOPOGRAPHY

Impact:

The mining includes both open digging and blasting of the mine pit. There are also local artisanal mining conducted in Yine Ye stream on site. The site is an open pit mine which does not have reinforced edges and some slope erosion was evident on mine wall.

Impact Description

Landslides and soil erosion from mining operations leading to de-stabilization of the surrounding hill side. Significant impact on mining operation not likely because crude ore excavation was conducted with contour strip bench method for safety as well as regular inspection of pit situation and quick action of maintenance if necessary.

Significant impact on erosion of banking of decant ponds, tailing ponds not likely because embankment of ponds are constructed with design calculation made by Irrigation Engineer as well as regular inspection on embankment situation and quick action of maintenance if necessary.

Mitigation Measure

- Ensure protection / banking of decant ponds, tailing ponds and access roads to avoid landslides.
- Mining activities will be restricted to work areas that will be clearly demarcated

- Consult with local authorities and land holders to obtain permission for access in advance of the start of activities.
- Obtain an approved Land Clearance Permit.
- Reinstatement of ground when any construction complete.

8.8 *OCCUPATIONAL HEALTH AND SAFETY*

Impact:

The mine site has a number of large machinery (such as diggers) in the open pit and around the edge of the tailing pond as well as large machinery within the OPF.

Driving within the mine site is undertaken on dirt roads so there can be traffic accidents.

Impact Description:

Potential impacts include:

- Injury of the workforce in the OPF. Significant of impact not likely because safety rule and regulation was defined and provide PPE as well as strict instruction for all staffs/worker to follow the safety regulation.
- Traffic incidents on site. Significant impact not likely because strict instruction for speed limit for traffic.

Mitigation Measure:

- Develop, approve and disseminate the facilities, policies that detail the company/ factory's philosophy in the health and safety management systems;
- Arrange yearly regular medical checkup for staffs and workers
- Ear plugs and other personal protective equipment to be used by OPF workers.
- Create pathways between buildings that are safe to walk on (non-slip floor and free of obstacles).
- Noise barriers for explosives.
- Provide emergency health care facilities like first-aid kits in accessible areas
- Provide first-aid trainings among staffs

8.9 *CULTURAL HERITAGE*

Impact

No distribution of cultural heritages in the surrounding area. But open pit mining may found unexpected cultural heritage at underground

Impact Description;

Intrusive activities can affect cultural heritage artefacts.

Mitigation Measure

- Archaeological Management Plan will be prepared and implemented.
- All workers will receive Archaeological Management Plan training.

8.10 BIODIVERSITY

Impact:

Potential impacts on flora and fauna in the Project Area and surrounding forest from

- Noise emissions
- Air quality and dust emissions
- Use of natural resources

Impact Description:

Flora and fauna near the Project Area could be disturbed by noise emissions from the OPF. Significant of impact not likely because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (53 dB) are lower than 70 dB (noise level for industrial area) and 55 dB (noise level of residual area) as well as blasting was made where necessary and only daytime. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration

Dust generation from vehicles using access roads could lead to smothering of plant life. Significant impacts are not likely because control measure of dust generation like daily water spraying at the access road, combination water spraying during the crushing process and use only water and vibration screen to separate the concentrates.

Significant impact for wildlife especially for Tiger conservation because the project area located approximate 100 miles away from protected area as well as project coordinated with Forest Department for improving forestry management in surrounding area as well as coordinated with organization which conducting for wildlife conservation to improving public awareness of the importance of tiger conservation to increase support from local people.

Mitigation Measure

- Evaluation of new access roads to avoid intrusion into forest areas.
- Workers will access mining areas on foot as far as practical
- Replantation (plan to cultivate > 1,000 plants) to strengthen against erosion.
- No employees will be allowed to collect, hunt or fish from natural resources. Also the commerce of species is prohibited.
- Training to drivers about driving safety rules.
- Installation of signals of:
    - Speed limit.
    - Presence of animals.
    - Animal crossings.
    - No hunting.
- Coordinate with Forest Department for improving forestry management in surrounding area
- Coordinate with organization which conducting for wildlife conservation to improving public awareness of the importance of tiger conservation to increase support from local people

8.11 *FLOODING AND LANDSLIDES*

Impact

During the rainy season, the open pit, tailing pond and decant pond collect rain water. Water is also collected here through run off from the surrounding mountains.

Impact Description

Flooding can lead to impacts to the mine site and local village which is situated downhill from the mine site. Unexpected heavy rain may cause flooding from dam and ponds. Which storage capacity of dam and ponds are calculated with annual rainfall, catchment area and water used from ore processing. Impact will be minimal, because regular inspection and necessary maintenance for drainage channel which connected to Yine Ye stream.

Flooding can also lead to landslides in the surrounding areas. Significant impact not likely because embankment of ponds and dam are design for storage capacity as well as regular inspection and immediate action for necessary maintenance. Also stop working at pit area during raining season.

Mitigation Measure

- Ensure protection / banking of decant ponds, tailing ponds and access roads to avoid landslides.
- Mining activities will be restricted to work areas that will be clearly demarcated
- Consult with local authorities and land holders to obtain permission for access in advance of the start of activities.
- Obtain an approved Land Clearance Permit.
- Reinstatement of ground when any construction complete.
- Develop emergency evacuation plan for flooding and land slide situation.

8.12 *OIL AND FUEL SPILLS*

Impact:

Within the OPF, oil and lubricants are used on the machinery and can run off into the tailing pond and onto the decant pond. Fuel for machinery is kept onsite in facilities.

Impact Description

Potential impacts include:

- Decrease in water quality in the Yine Ye stream;
- Contamination of groundwater and surface water; and
- Fatality of local flora and fauna.

Mitigation Measure

- Solid waste not stored near water courses.
- Oil Spill Plan / Procedure to be prepared. Control and limit and oil spills as part of accidental events and spill control within Health and Safety Management Plan.

8.13 FIRE HAZARD

Impact

Fire hazard is being highlighted as one of the highest attention issues in terms of human resource value rather than property loss, and environmental pollution. Negligence may cause fired.

Impact Description

Significant impact not likely because DELCO will be installed specified number of fire extinguisher and facility advised by Fire Fighting Department and developed the fire evacuation plan.

Mitigation Measure

To prevent the fire hazard, management strictly follow the requirement advised by Firefighting Department. In addition to that, mockup activities for fire evacuation also plan to conduct accordingly.

- To install necessary firefighting facilities with technical advise and regulations ot the Firefighting Department
- Develop a fire evacuation plan
- Conduct fire drill through the fire evacuation plan regularly

Potential impacts are provided in *Table 8.1*. It is concluded that it is unlikely that there will be any significant impacts from this Project provided that all the mitigation measures shown below are adopted.

Table 8.1 Summary of the Key Potential Impacts and Proposed Mitigation Measures from the Project

Parameter	Impact	Impact Description	Proposed Mitigation
Planned Activities			
Air Quality	Disturbance to air quality can arise from the use of the access roads on site and emissions from vehicles and processing equipment. This is more of an issue during the dry season when there is no rain and vehicles using the mud access roads generate dust emissions. Operational activities that may affect the air quality of offsite sensitive receptors for dust include; - Vehicle use of the access roads on site; - Moving material (excavators, scrapers); - Topsoil stripping; - Road grading; - Stacking and reclaiming from stockpiles; - Conveyors, loading and crushing at the OPF; - Wind erosion from stockpiles, tailings storage facilities or exposed areas.	Potential impacts caused by operational dust could be: - Increased dust affecting the air quality amenity at sensitive receptors; and - Increased dust affecting the health at sensitive receptors. Machinery, vehicles and energy generator devices can generate gas emissions to the atmosphere. Significant impacts are not likely due to the low rate emitted and low charge of pollutants. Dust from the access roads during the dry season can impact local flora and fauna and the workforce. Significant impacts are not likely due to the daily water spraying at the access road. Significant impacts of dust generated from ore processing (crushing and grinding large size of crude ore) are not likely because the crushing process was combination water spraying during the crushing process which control no dust generation as well as use only water and vibration screen to separate the concentrates.	• Low speed for vehicles (max speed of 30 km/h) on Project Site as well as through Kanbauk village • Air Emissions in line with National Environmental Quality (Emissions) Guidelines (NEQEG) • Replantation program for open bare soil areas • A dust management plan will be prepared and implemented. • Water will be sprayed on roads to control dust. • Engine maintenance as recommended by manufacturer.
Water Quality	During operations, there is the potential for changes in surface water and river water quality. The tailing from the mine is processed in the OPF and the remainder is emptied into the tailing pond which eventually leads to the decant pond. From here, there is a small stream which leads onto the Yine Ye stream. Within the Decant Pond, heavy particles / sedimentation sinks to the	Potential surface water impacts include the following: • Contamination of rainfall runoff with sediments from exposed areas and stockpiles. Significant impacts are not likely due to the water flow to Tailings Pond through drainage channel. • Contamination of the local Yine Ye stream	• Regular water quality check for over flow from last Tailings Pond. • Septic tank was constructed for sedimentation of sewage and waste from sanitary water. • Settling ponds or simple turbid water treatment will be installed as necessary • Regular inspection and necessary

Parameter	Impact	Impact Description	Proposed Mitigation
	bottom and the remaining water is led out to the Yine Ye stream. The operational activities that may affect surface water include; - Constructing landforms that change the catchment hydrology; - Operating dams associated with the site water management system; - Waste water from onsite accommodation and office facilities; - Water discharges to the Yine Ye stream from the Decant Pond; - Clearing land for operational purposes; and - Storage of mine tailings.	with waste water and water from the Decant Pond. Significant impacts are not likely from waste water from decant pond due to the three steps silting at Tailings Ponds for waste water from OPF, sanitary water generated from rest rooms was collected at septic tank and discharged clear water after sedimentation of sewage at septic tank and water flow through settling pond with simple turbid water treatment system. • Changed water flow paths. Significant impacts are not likely because final water flow headed to local Yine Ye stream • Erosion. Significant impacts are not likely due to proper drainage channel for water flow was constructed as well as regular check and maintenance for stock pile of overburden (removal top soil) and crude ore. • Reduced water flows entering the local drainage systems due to capture of rainfall in dams and pits. Significant impacts are not likely because no water usage from local drainage system. • Contaminated groundwater entering surface water systems. Significant impacts are not likely because no chemical usage in Ore Processing.	maintenance for drainage channel. • Regular inspection and necessary maintenance for position of stock piles for overburden (removal top soil) and crude ore.
Noise and Vibration	Increases in ambient sound and generation of sound from processing machines and road clearance machinery. The main mine pit and OPF facilities are located to the south of the Kanbauk village. The noise from the OPF, which operates 25 hours per day, cannot be heard from the neighbouring village. During operation, blasting is used in the mine pit	The Project activities will generate sound levels at low frequencies for a continuous period in a specific area. This also applies also for road and land clearance activities. No impacts in day time because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (53 dB) are lower than 70 dB (noise level for industrial	• Maintenance of machinery as recommended by manufacturer; • Project activities will keep as much distance as possible from villages; • Regular monitoring for Noise Emissions in line with NEQEG; andBlasting Management Procedures will be prepared and implemented.

Parameter	Impact	Impact Description	Proposed Mitigation
	and sometimes on access roads which can cause disturbance to local fauna. Operations that generate noise include: - Vehicle and truck operations; - Earthmoving equipment operation; - Material handling equipment and operations; - Mining equipment operation; - OPF operation; and - Surface blasting.	area) and 55 dB (noise level of residual area) Significant impacts are not likely in night time because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (56 dB) are lower than 70 dB (noise level for industrial area) and higher than 45 dB (noise level of residual area). It was noted that noise level mainly captured from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc). Significant impacts are not likely for blasting because blasting was made where necessary and only daytime. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration.	(See detail in Annex;)
Waste Management	Generation of wastes from Project activities and workforce on site. There is a waste dumping facility on site for old tyres. There is no municipal waste collection and solid wastes are generally sent to a local landfill. Dry waste in incinerated on site. The types of wastes generated are: - Regulated waste (hydrocarbon waste, batteries, tyres, chemistry, etc.) from workshop and laboratory activities; - General waste (benign construction waste, wood, food scraps, un-recyclable plastics, etc.); - Recyclable general waste (paper, cans, glass, plastics, cardboard); - Recyclable scrap metal; - Liquid waste (sewerage, etc.); - Waste rock (created from mine	Significant impacts caused by waste: • Contamination of land, air and water through the improper management of waste. are not likely because project developed and applied the waste management plan which included 1) define the separate waste collection point and storage, 2) recycling of waste, 3) identified the waste dump site and 4) coordinate with local municipal to follow their guideline.	• Development and implementation of Waste Management Plan. • Classification of waste according to its type, appropriate storage and correct final disposal. • Proper waste management and disposal procedure shall be established and followed. Food and bio degradable waste generated during operation will be properly disposed of in a small pit and buried. • All non-biodegradable waste such as plastic bottle, empty cans and metal shall be collected in designated dust bin and then brought back to company. Disposal of waste in the Project Area is strictly prohibited. • Improvement of septic tank system (which currently leads to groundwater contamination). • New waste dumping site being

Parameter	Impact	Impact Description	Proposed Mitigation
	operations); and - Tailings (from the OPF).		created in location of old British Pit.
Water Use	The operation of the mine is governed by the water resources available from the local Sinyat Dam. The HEPP and OPF facilities can only operate when there is available water. Sometimes the OPF can only operate for 3 months in the dry season due to limited water supply. The Kanbauk village also uses water from the Sinyat Dam. The majority of the water from the Sinyat Dam is used for the mine, and some overflow goes into the village water supply via the Yine Ye stream. Villagers have their own wells in the village which they use to get water in the dry season.	Potential impacts include: • Limitation of operations of the OPF and HEPP. Significant impacts on operation are not likely because water control system (recycling of process water to reuse) in processing can cover operation throughout the raining season. • Limitation of water supply to the local Kanbauk area. Significant impacts are not likely because Kanbauk village didn't need water from Yine Ye stream for their local consumption.	• Recycle the water from the open mine pit to use for processing at the OPF • Expand the Sinyat dam to increase the storage capacity. • Quality of discharges of waste water from industrial and human activities will be inspect regularly.
Land Form and Topography	The mining includes both open digging and blasting of the mine pit. There are also local artisanal mining conducted in Yine Ye stream on site. The site is an open pit mine which does not have re- enforced edges and some slope erosion was evident on mine wall.	Potential impacts include: • Landslides and soil erosion from mining operations leading to de-stabilisation of the surrounding hill side. • Significant impacts on mining operation are not likely because crude ore excavation was conducted with contour strip bench method for safety as well as regular inspection of pit situation and quick action of maintenance if necessary. • Significant impacts on erosion of banking of decant ponds, tailing ponds are not likely because embankment of ponds are constructed with design calculation made by • Irrigation Engineer as well as regular inspection on embankment situation and quick action of maintenance if necessary.	• Ensure protection / banking of decant ponds, tailing ponds and access roads to avoid landslides. • Mining activities will be restricted to work areas that will be clearly demarcated • Consult with local authorities and land holders to obtain permission for access in advance of the start of activities. • Obtain an approved Land Clearance Permit. • Reinstatement of ground when any construction complete.

Parameter	Impact	Impact Description	Proposed Mitigation
Occupational Health and Safety	The mine site has a number of large machinery (such as diggers) in the open pit and around the edge of the tailing pond as well as large machinery within the OPF. Driving within the mine site is undertaken on dirt roads so there can be traffic accidents.	Potential impacts include: • Injury of the workforce in the OPF. Significant impacts are not likely because safety rule and regulation was defined and provide PPE as well as strict instruction for all staffs/worker to follow the safety regulation. • Traffic incidents on site. Significant impacts are not likely because strict instruction for speed limit for traffic.	• Develop, approve and disseminate the facilities, policies that detail the company/ factory's philosophy in the health and safety management systems; • Arrange yearly regular medical checkup for staffs and workers • Ear plugs and other personal protective equipment to be used by OPF workers. • Create pathways between buildings that are safe to walk on (non-slip floor and free of obstacles). • Noise barriers for explosives. • Provide emergency health care facilities like first-aid kits in accessible areas • Provide first-aid trainings among staffs.
Cultural Heritage	No distribution of cultural heritages in the surrounding area. But open pit mining may found unexpected cultural heritage at underground	Intrusive activities can affect cultural heritage artefacts.	• Archaeological Management Plan will be prepared and implemented. • All workers will receive Archaeological Management Plan training.
Biodiversity	Potential impacts on flora and fauna in the Project Area and surrounding forest from - Noise emissions - Air quality and dust emissions - Use of natural resources	Flora and fauna near the Project Area could be disturbed by noise emissions from the OPF. Significant impacts are not likely because average noise levels monitored over a 24-hr period in project area (68 dB) and Kanbauk village (53 dB) are lower than 70 dB (noise level for industrial area) and 55 dB (noise level of residual area) as well as blasting was made where necessary and only daytime. Prepare the free face as much as before applying the delay blasting method to reduce noise and vibration Dust generation from vehicles using access	• Evaluation of new access roads to avoid intrusion into forest areas. • Workers will access mining areas on foot as far as practical • Replantation (plan to cultivate > 1,000 plants) to strengthen against erosion. • No employees will be allowed to collect, hunt or fish for natural resources. Also the commerce of species is prohibited. • Training to drivers about driving safety rules. • Installation of signals of:

Parameter	Impact	Impact Description	Proposed Mitigation
		roads could lead to smothering of plant life. Significant impacts are not likely because control measure of dust generation like daily water spraying at the access road, combination water spraying during the crushing process and use only water and vibration screen to separate the concentrates. Significant impact for wildlife especially for Tiger conservation because the project area located approximate 100 miles away from protected area as well as project coordinated with Forest Department for improving forestry management in surrounding area as well as coordinated with organization which conducting for wildlife conservation to improving public awareness of the importance of tiger conservation to increase support from local people.	• Speed limit. • Presence of animals. • Animal crossings. • No hunting. • Any protected areas will be marked on a map. • Coordinate with Forest Department for improving forestry management in surrounding area • Coordinate with organization which conducting for wildlife conservation to improving public awareness of the importance of tiger conservation to increase support from local people
Accidental Events			
Flooding / Landslides	During the rainy season, the open pit, tailing pond and decant pond collect rain water. Water is also collected here through run off from the surrounding mountains.	Flooding can lead to impacts to the mine site and local village which is situated downhill from the mine site. Unexpected heavy rain may cause flooding from dam and ponds. Which storage capacity of dam and ponds are calculated with annual rainfall, catchment area and water used from ore processing. Impact will be minimal, because regular inspection and necessary maintenance for drainage channel which connected to Yine Ye stream. Flooding can also lead to landslides in the surrounding areas. Significant impacts are not likely because embankment of ponds and dam are design for storage capacity as well as regular inspection and immediate action for necessary maintenance. Also stop working at pit area during raining season.	• Ensure protection / banking of decant ponds, tailing ponds and access roads to avoid landslides. • Mining activities will be restricted to work areas that will be clearly demarcated • Consult with local authorities and land holders to obtain permission for access in advance of the start of activities. • Obtain an approved Land Clearance Permit. • Reinstatement of ground when any construction complete. • Develop emergency evacuation plan for flooding and land slide situation.

Parameter	Impact	Impact Description	Proposed Mitigation
Oil and Fuel Spills	Within the OPF, oil and lubricants are used on the machinery and can run off into the tailing pond and onto the decant pond. Fuel for machinery is kept onsite in facilities.	Potential impacts include: - Decrease in water quality in the Yine Ye stream; - Contamination of groundwater and surface water; and - Fatality of local flora and fauna.	• Solid waste not stored near water courses. • Oil Spill Plan / Procedure to be prepared. Control and limit and oil spills as part of accidental events and spill control within Health and Safety Management Plan.
Fire Hazard	Fire hazard is being highlighted as one of the highest attention issues in terms of human resource value rather than property loss, and environmental pollution. Negligence may cause fired.	Significant impacts are not likely because DELCO will be install specified number of fire extinguisher and facility advice by Fire Fighting Department and developed the fire evacuation plan.	To prevent the fire hazard, management strictly follow the requirement advice by Firefighting Department. In addition to that, mockup activities for fire evacuation also plan to conduct accordingly. • To install necessary firefighting facilities with technical advise and regulations ot the Firefighting Department • Develop a fire evacuation plan • Conduct fire drill through the fire evacuation plan regularly.

9 *EMERGENCY RESPONSE PLAN*

DELCO will follow the appliance of an Emergency Response Plan (ERP) which includes plans and procedures to identify unsafe conditions and the corrective actions to avoid accidents related to Health & Safety as well as environmental incidents. In case any contractor has its own ERP, it will be reviewed and approved by DELCO Health & Safety Manager and also by the Environmental Manager.

The ERP should contain instructions for support relating to:

- Chemical substances Spill Emergency Plan ;
- Medical emergencies procedures;
- Social Emergencies Procedures (i.e., protests, vehicle accidents);
- Heavy weather/storms / flood events;
- Hazardous material spill response plans; and
- Any other emergency response plan required by Myanmar authorities.

The ERP also contains information on reportable incidents, incident notification, contact information and activation of alarms. Also should contain the contact telephone number of fire department, nearest hospital, helicopter evacuation, amongst others.

Emergency preparedness and response will be continually reviewed to guarantee the applicability of the procedures. In case of emergencies an investigation will be conducted and as part of the lessons learned the EP will also be updated. Emergency exercises will be undertaken on a regular basis to confirm the adequacy of response strategies. Personal will be trained in fire control procedures, first aid procedures and spills control.

10 PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

DELCO currently undertake engagement with workers and the local village of Kanbauk on a weekly basis. Every Monday there is a safety briefing to all staff including those that live in on-site accommodation and those from surrounding village. During this meeting, the staff living in villages can provide grievances raised by other villagers. Workers can also report grievances too.

It is the intent of DELCO that ongoing and periodic Stakeholder Engagement activities would be undertaken with local community and other key stakeholders. These activities will build awareness of the Project by providing notification of activities to relevant communities and other key stakeholders as necessary.

Records of such engagement will be included in the Monitoring Reports to be provided to MONREC as part of the ongoing environmental and social management of the Project.

10.1 PUBLIC CONSULTATION IN KANBAUK

This section presents a summary of the consultation undertaken in July 2017 for the development of the EMP, including a description of:

- Regulatory and corporate requirements;
- Objectives of consultation;
- Key issues raised during consultation; and
- Approach for developing a grievance mechanism.

10.2 PURPOSE OF THE CONSULTATION

The specific objectives for stakeholder engagement were to:

- Inform relevant stakeholders about DELCO and its planned Project activities;
- Identify stakeholders and communities potentially affected by Project activities;
- Gather baseline information on the social and biological environment; and,
- Engage with potentially affected groups to understand the scope of farming activities, potential Project impacts, perceptions and concerns and discuss appropriate mitigation measures.

10.3 KEY QUESTIONS RAISED DURING PUBLIC CONSULTATION

10.3.1 *Exploration Incidents*

One community representative asked who will take responsibility if during exploration an incident with an existing gas pipeline were to occur. DELCO responded that they would take the responsibility.

10.3.2 *Disclosure of Information*

One of community representatives mentioned that holding the meeting in the DELCO compound was not enough to disclose the information and a meeting must be held in the public compound to explain to all people. The second comment received was to let the community know why DELCO has to do the

EMP only, and not and EIA or IEE. It was responded that as this is an existing Project, and as such the ECD advised DELCO to submit an EMP in accordance with the EIA Procedure.

10.3.3 Local Benefits

Community representative asked about social investment and the proposed Corporate Social Responsibility (CSR) program. DELCO responded that CSR is very important to DELCO and that is why DELCO have completed CSR programs in the past. DELCO consider supporting CSR an essential part of their operation.

The minutes of the meetings and photos from the consultation are provided in *Appendix 5*.

10.4 GRIEVANCE MECHANISM

DELCO have a procedure in place to receive grievances from the local community and from their workforce. A formal Community Grievance Mechanism will be implemented for the Project. Such a mechanism will provide a procedure to address any community concerns that may arise even after all efforts to mitigate any impacts have been made. This will be undertaken through the weekly meetings. This mechanism will record engagement with the local communities and workers, highlight the grievances received, and put in place measures to address those grievances.

11 *MONITORING AND BUDGET ALLOCATION*

Monitoring will be required in order to demonstrate compliance with both regulatory and DELCO Project requirements (compliance monitoring), and will also provide verification of the effectiveness of the implemented control/ mitigation measures.

Compliance will be monitored to ensure that DELCO and its subcontractors meet contractual obligations with respect to work practices and design specifications (e.g. Project emission standards, and machinery maintenance programs). Particular attention should be applied to monitoring the impact of air, noise and water on the receiving environment and nearby communities.

In developing the monitoring program, the following considerations and strategies have been applied:

- Consistency with internationally and locally acceptable practices;
- Logistically practical;
- Suitable location monitoring points to ensure early detection of any uncontrolled impacts; and
- Cost effectiveness.

The following key principles should be used in developing each of the key monitoring programs:.

Air Quality – The primary impact from the project to air quality will be from generation of dust. No extensive monitoring for dust or air emissions from the Project is required as air emissions are very small and likely to have a negligible effect on the environment or sensitive receptors. However, monitoring of one location (OPF) will be conducted after 6 months of operation to assess the emission levels against the NEQEG. The frequency of monitoring will be confirmed following the analysis of the first set of operational monitoring results.

Water Resources – The project activities for the site have the potential to impact on quality and quantity or surface waters and localised groundwater resources. Notable discharge includes release of sewerage to the groundwater, and tailing waste to local streams. A sensitive system of surface water and ground water monitoring points should be developed to ensure detection of any uncontrolled release of mine affected water from the site the receiving environment. Monitoring of two locations (Point 1 and Point 3: Tailing Pond, and Decant Pond) will be conducted after 6 months of operation to assess the effluent discharge levels against the NEQEG. The frequency of monitoring will be confirmed following the analysis of the first set of operational monitoring results.

Failure of the existing waste control and containment infrastructure (notably the Sinyat dam) needs to be monitored to ensure a significant release of water to local water catchment. There is a need for frequent monitoring and inspection of integrity of this facility.

Noise and vibration – Monitoring of all activities likely to result in noise and vibrational disturbance should be monitored periodically. The company should also ensure the existing community grievance mechanism to ensure any excess noise records from local community is directly fed back to the company. Monitoring of one location (Kanbauk Village) will be conducted after 6 months 6 months of operation to assess the noise emission levels against the NEQEG. The frequency of monitoring will be confirmed following the analysis of the first set of operational monitoring results.

11.1 MONITORING PLAN

Monitoring shall be implemented throughout all project phases as per monitoring plan.

Air Quality: The air quality in and around the mine-site will be monitored at two locations. One is Power House Air Control Point, which is located at an altitude of 345 ft and its coordinate is N 14° 34′ 20.2″ and E 98° 01′ 49.8″, and the other one is U Hla Aung Air Control Point, which is located at an altitude of 120 ft and its coordinate is N 14° 35′ 31.1″ and E 98° 01′ 50.5″. As for parameters, continuous monitoring of NO_2, SO_2, $PM_{2.5}$ and PM_{10} was undertaken over a 24-hour period at both locations to provide an indication of ambient air quality once a year. In addition, as for meteorological data, Relative Humidity (RH)%, Temperature °C, Wind Speed (kph) and Wind Direction will be monitored.

As the primary impact from the project to air quality will be from generation of dust and exhaust emissions from vehicles, machines and generators, the location of air monitoring points should be at the central part of the project site as well as covered as many operations as they are operating. Disturbances are more during the dry season when there is no rain and vehicles using the mud access roads generate dust emissions. So, locations for monitoring air quality are selected as mentioned below.

One of the air monitoring points, Power House, is situated in the project site nearby the access roads where vehicles such as excavators, scrapers, tipper lorries, and dump trucks are operating daily for mining operation. It is also closed to the Ore Processing Facility (OPF) in which water pressure pump, trommer, vibration screen, ball mill, jaw crusher and shaking slurry are operating 24 hours to produce final products as well as the ore stockpiles (ROM) where ore is hailed and kept for the rainy season as the open pit is flooded during monsoon rains and all mining operations cease.

The other air monitoring point, U Hla Aung house, is located at Kanbauk village in the north of the project site, which is the nearest point to the access roads and other operating activities on site as well as nearby the transportation road that pass by Kanbauk village to Yay-Dawei highway road.

Water Quality: The Project is connected the Balu Dam and the Sinyat Dam water with steel pipes. Drinking water for the mine is pumped from the Dams. Water captured in the dam system behind Kanbauk is funnelled through the HEPP, and whatever is not used in the OPF currently runs through the tailing ponds and decant pond and then through the local watercourse into the river system.

The majority of water from Sinyat Dam is used for the mine and some overflow goes into the village water supply but villagers have wells of their own from which they use water in the dry season. Kanbauk villagers don't need water from Yine Ye stream for their local consumption.

Wastewater is managed from the OPF through the tailing ponds and decant pond, and water from these ponds is discharged in the Yine Ye stream. DELCO directs the majority of water from its operation through the TSF, allowing time for sediment to settle before it percolates through the 'leaky wall' of the TSF into the decant pond.

The majority of water from operations through TSF is settled into the decant pond where heavy particles or sedimentation sink to the bottom. Tailings (slurry) produced from Mineral Dressing Plant were collected at tailing pond No. 1 and then pumping them out to pond No.4 that is connected to pond No.2 and No.3 with spillway. Remaining tailings (slurry) are silting at pond No. 3 (decant pond)

and only clear water is discharged to stream from pond No. 3 (decant pond).

Waste water or effluent for water quality in and around the project site needs to be monitored. Therefore, the water quality (including wastewater) in and around the mine-site will be monitored at three locations. The first one is at No.1 (Tailing Pond), which is near DELCO office, having an altitude of 133 ft and its coordinate is N 14° 34′ 41.8″ and E 98° 01′ 46.4″. The second is at the Water Outlet of No. 1&2 (Tailing Pond) located at an altitude of 133 ft and the coordinate is N 14° 34′ 44.8″ and E 98° 01′ 47.2″. The third is located at the Water Outlet of No. 3 (Decant Pond) having an altitude of 109 ft. The coordinate is N 14° 34′ 58.3″ and E 98° 01′ 44.1″. Parameters such as pH, Temperature, Salinity, Total Dissolved Solids (TDS), Electrical Conductivity (EC), Total Suspended Solid (TSS), Amonia Nitrogen, Nitrate Nitrogen, Total Phosphorous, Oil & Grease, Bioligical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) for water quality will be monitored once a year.

Noise and Vibration: The noise level at Power House is mainly from the OPF, Project vehicles (bulldozer, haul truck, mass excavator and water truck) and surrounding activities including human and environment (rain and wind etc.). The level of noise at U Hla Aung, Kanbauk village, is mainly from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc.). The night time noise in Kanbauk Village was slightly higher than the day time noise level. This could be due to the main road which is a busy route connecting with Dawei and Yebyu.

Ambient noises and vibration are generally generated from mining operations such as surface blasting at the main mine pit, moving of vehicles, handling of equipment, processing of OPF and TSF in the project site as well as from transportation on the road nearby Kanbauk village. Not only was the air quality impacted but also the noise and vibration impact the surrounding area concurrently by such operations in and around the project site. Thus, noise and vibration monitoring locations are set as same as air monitoring.

The ambient noise level and vibration monitoring in and around the mine-site will be carried out continuously for 24hr along at same locations as the air quality monitoring. One monitoring point is at Power House, which is located at an altitude of 345 ft and its coordinate is N 14° 34′ 20.2″ and E 98° 01′ 49.8″, and the other one is U Hla Aung monitoring point, which is located at an altitude of 120 ft and its coordinate is N 14° 35′ 31.1″ and E 98° 01′ 50.5″. As for noise and vibration level, parameters such as noises and vibrations created from operating vehicles, activities, traffic on access roads and environment (rain, wind, etc.) will be monitored once a year.

Waste rock: Mining at Kanbauk is from a single open pit and undertaken via free digging and blasting by diesel operated hydraulic excavators and loading into tipper lorries. Crude ores are excavated with backhoe excavator by open-cut mining method and transported by dump trucks to Mineral Dressing Plant as well as ore stockpiles from which ore processing continues in the wet season. By the mining and processing nature, very little waste material is mined with the majority or overlying waste rock.

There is no waste rock as it is reused on site. As part of the Waste Management Plan, reusing of materials will be undertaken and were possible. Based on the nature of mining operation, monitoring for waste rock is not necessary.

The OPF is set on a steep hillside with feed entering the circuit at the highest

point, and tailing existing to the Tailing Storage Facility (TSF) at the lowest. Based on the processing method, it is not necessary to monitor waste rock or earth waste for the project.

Emission: Mining at Kanbauk is from a single open pit and undertaken via free digging and blasting, by diesel operated hydraulic excavators, loading into tipper lorries. Blasting with dynamite takes place 1-2 times each month.

Crude ores are washed with water pressure pump before size separation by Trommel (which can be called revolving screen sieve). Reducing the size is operated by Jaw Crusher and second time size separation with Vibration Screen. After separation from Vibration Screen, raw crude ores are milling with Ball Mill (Grinding Machine) to produce appropriate size which can sent to Shaking Tables for concentration. Ore processing use only water and vibration screen to separate the concentrates. No chemical are used for separation of concentrates.

According to the processes of mining and ore processing at Kanbauk mine, there is no specific emission from the mine-site so that monitoring for emission will not be undertaken.

11.2 REPORTING REQUIREMENTS

It is suggested that DELCO will complete an environmental Monitoring Report every 6 months to record the Environmental and Social performance of the Project (as per the EIA Procedure). It is understood that MONREC are entitled to audit should they see fit.

As per DELCO's commitment and the requirements of the EIA Procedure; an Incident Report will be submitted to MONREC within 24 hours after the event (serious impacts) or seven (7) days for any other incident considered as minor impact.

Table 11.1 presents a summary of the aspects of the monitoring report.

Table 11.1 Reporting Prepared for the Project

Project Activity/ Environmental Aspact	Monitoring Measures	Reporting
Air Quality	Air emissions samples from Project Area.	Air Emissions Report
Water Quality	Water sample results and statistical analysis for all sample locations. Include other stakeholder observation involving change to water quality and quantity (as per Incident report forms).	Water Quality Report
Noise	Noise recordings and analysis for all sample locations. Include other stakeholder observation involving change to water quality and quantity (as per Incident report forms).	Noise Emissions Report
Waste Generation	Quantities of waste generated classified by type of waste: - Organic, Plastic, Office/ Paper, Hazardous, Drilling Percentage of recycling or reuse wastes.	Waste Generation log
Land Rehabilitation	Total area rehabilitated (Hectares) - Species replaced - Height - Recovery time	Land Rehabilitation Report

Stakeholder engagement	Consultation meetings held in the period of the report. Claims reported by the community.	Stakeholder Engagement Report
Incident reporting	Details of any environment or social incidents.	Incident report forms
Non-Compliance Reporting	Non-Compliance with EMP.	Inspection check sheets
Accidental Releases and Leaks	Safety Record.	Safety record

11.3 CAPACITY DEVELOPMENT AND TRAINING

The Project will require that all staff and contractors have implemented training programmes for their personnel and each contractor is responsible for HSE awareness training for personnel related to the Project activities.

Training for skilled labourers is provided by DELCO. Training is provided to managers / supervisors who then distribute information to the workers in their supervision. The workers operating heavy machinery have training for their operations. A list of the training conducted by DELCO to date is provided in *Table 11.2*.

Table 11.2 Training Provided by DELCO to Employees

Training Name	Frequency	Requirements/Comments
KOBELCO Excavator Operator training at Magwe Training Centre	4 people (once)	Operating machinery
` Fire Protection training	Once	This is arranged by the fire department

Training will potentially cover the following:

- Environmental and social impacts that could potentially arise from Project activities;
- Proposed mitigation measures to reduce environmental and social impacts;
- Environmental regulation related to the Project;
- DELCO policies (HSE and Stakeholder); and
- Roles and responsibilities of personnel.

All trainings should be recorded, including information as attendees, main information divulgated and date. DELCO will be responsible to ask for training records to all workers and contractor involved in the Project.

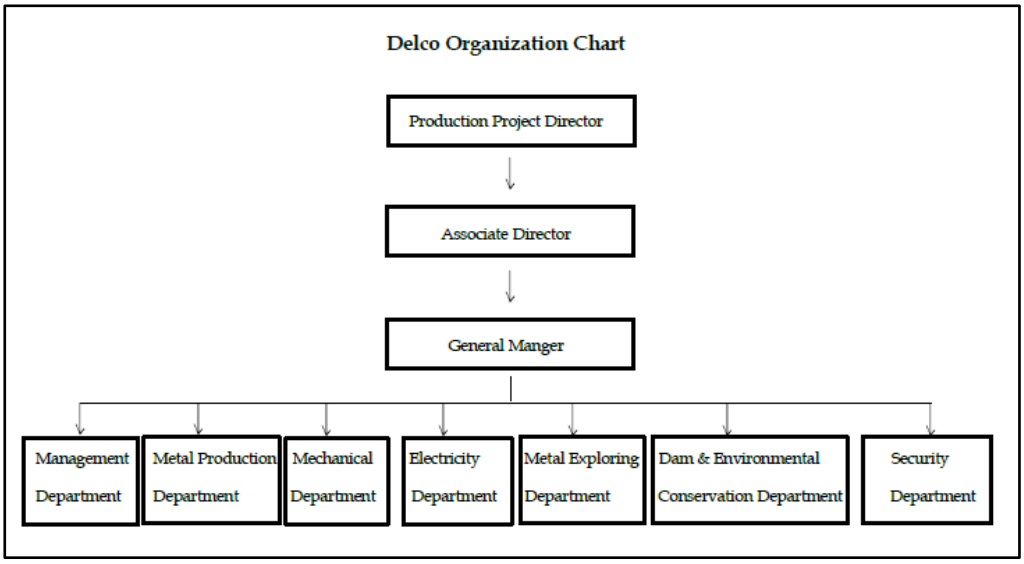
11.4 BUDGET ALLOCATION

Based on the environmental and social management and mitigation measures presented in this EMP, DELCO has estimated a budgeted of US$ 100,000 to fully implement such measures.

12 *INSTUTION AND BUDGET ALLOCATION*

DELCO has designated qualified personnel to implement and monitoring the activities proposed in this EMP. The organisational chart of DELCO is provided in *Figure 12.1*.

Figure 12.1 *Organisation Chart*



As part of DELCO's commitment, resources has been provided to ensure the monitoring program is applied during the Project and ensure the communication and reporting process is understood and followed (*Table 12.1*).

Table 12.1 *Environmental and Social Roles and Responsibilities*

Position	Responsibility
Office Personnel (Yangon)	
DELCO Environmental Coordinator	♦ Assist with the review, investigation and reporting of environmental incidents. ♦ Ensure environmental monitoring and inspections/audits are undertaken as per the requirements of this EMP. ♦ Liaise with relevant regulatory authorities as required. ♦ Assist in preparation of external regulatory reports required, in line with environmental approval requirements and DELCO incident reporting procedures. ♦ Monitor and close out corrective actions identified during environmental monitoring or inspections. ♦ Provide advice to every contractor that joined the project to understand the EMP and its environmental duties as part of the Project. ♦ Report on stakeholder consultation. ♦ Ensure ongoing liaison as required.
On Site-based Personnel	
DELCO Project Director	♦ Ensure that Project activities are undertaken as per this EMP ♦ Provide sufficient resources to implement the management measures in this EMP.

Position	Responsibility
	• Relevant personnel involved in the project will receive specific training related to environmental matters.
DELCO Project Manager	• Ensure that the Project program meets the requirements stablished in the EMP. • Ensure reporting of environmental incidents meets external reporting requirements and DELCO's policy. • Verify the compliment of periodically environmental inspections. • Ensure corrective actions raised from environmental inspections are tracked and closed out.
DELCO Health, Safety and Environment (HSE) Supervisor	• Verify that the activities are undertaken as outlined in this EMP. • Verify DELCO procedures are implemented. • Ensure that relevant corrective actions related to incidents and inspections are identified, tracked and closed out. • Ensure that personnel starting work on Project receive an environmental induction and are competent to undertake the work they have been assigned. • Ensure that any environmental incident is reported immediately to the Delco Environment Coordinator. • Support the staff to ensure the monitoring requirements are met and the EMP is implemented. • Ensure the Emergency Response Team is created and has been trained. • Ensure environmental incidents are reported. • Ensure periodic environmental inspections are completed.

12.1 *CONTRACTOR MANAGEMENT*

DELCO should coordinate the contractors to ensure that every employee or people related to the Project are fully aware and prepared for:

- Identifying environmental and social impacts that Project can generate;
- Undertake necessary activities to mitigate environmental and social impacts;
- Environmental and Social responsibilities are clear for all employees;
- Employees are aware of governing parameters and DELCO Policies;
- Undertake reports and records of all activities carried out to mitigate environmental and social impacts;
- Attend meetings with environmental regulator as per its request; and

Respond in the event of an emergency or any other unplanned events.

12.1.1 *Project Budget*

The operational budget for Kanbauk from 2015 to 2017 is presented in *Table 12.2*.

Table 12.2 Operational budget

No.	Year	Operational Budget (MMK)
1	2016-2017	3,269,609,497
2	2015-2016	4,837,739,608

13. *CORPORATE AND SOCIAL RESPONSIBILITY*

DELCO regularly contributes towards the community's and stakeholders needs and have invested in community social infrastructure in the Greater Yangon Region and Tanintharyi Division. DELCO are a significant employer in some regions, investing in infrastructure that can be shared with local communities. DELCO aims to generate economic and social development through local procurement, job creation, training and skills transfer and support community programmes in a sustainable way by helping build local capacity. With these visions, DELCO implemented the CSR program when they start the project activities.

The summary of donations made to the community by DELCO is over 1,042 million kyats in different sectors between 2007 and 2017. Some documents and photos of the CSR activities are also provided in *Appendix 6.*

Table 13.1 Corporate Social Responsibility (CSR) Plan

No.	Subject	Amount (Kyats)
1	To develop the participation of international media in the improvement of mining industry	333,150,045
2	Donation for road construction in Yangon Region	49,290,520
3	Donation for rural development of Kanbauk	111,431,300
4	Donation for sand, wages, cars and vehicles in Kanbauk	67,167,000
5	Compensation fees for rubber plantation and other crops within the DELCO Project Area	220,872,000
6	Land rental fees for the land within the DELCO Project Area	56,340,220.17
7	Compensation fees for land and houses due to the breaking of the tailing pond wall	165,351,396
8	Compensation fees for crops in the DELCO Project Area which will be used to construct a ditch (in accordance to Yine Ye stream with the Township water committee request)	38,538,000
	Total	**1,042,140,481.17**

14 MINE CLOSURE PLAN

The decommissioning / closure plan for the Project is not well known at this stage as the Project is likely to operate for a number of years.

After mining operations have ceased, DELCO plan to fill in the open mine pits, pot-holes in roads and cover soil until it is restored to its previous condition. DELCO intend to fill in the mining pits with soil from old mining holds and will plant the rubber, teak (*Tectona grandis*), Pyinkto (*Xylia xylocarpa*), and other hardwood trees.

DELCO are already growing perennial trees in the nursery area that are adapted to local weather conditions. The intention is to replant these in mining areas once the operations in the particular area have finished. This will also likely occur during mine closure. DELCO also intend to replant these trees on the tailing dump area when operations have ceased.

At the decommissioning phase, the tailing and decant ponds will also be filled with tailing soil and the topography will be re-established. Replanting of trees will be important to ensure stability of the soils.

Although the timing of decommissioning is not yet known, it is likely that additional surveys will be conducted for operational monitoring in the region to understand the impact of the Project on the environment and people and to ensure the best available techniques for decommissioning are used to help avoid or reduce any potential impacts.

All facilities such as the OPF, accommodation block, kitchen and workshops will be removed and the materials will be reused or recycled where possible.

DELCO will follow the guidelines of the ECD, Department of Mines and other relevant government authorities.

For detail activities and step by step procedure and time line of mine closure including quality inspection of water, air and soil; refilling of mining pit with Tailings (slurry) and overburden; replantation for landscape, and demolishing of building and machine will be submitted to ECD by six months in advance of actual mine closure.

14.1 RETAINING WALL

Figure 14.1 Proposed design for retaining wall for stock yard site.

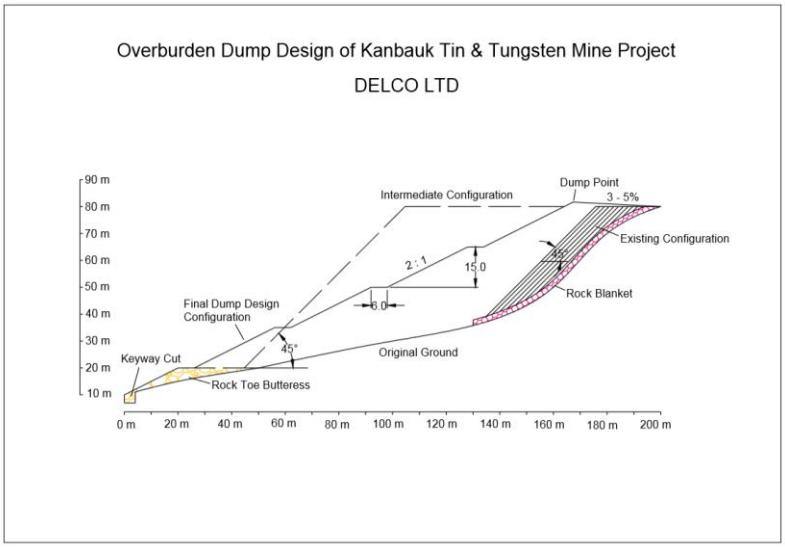


Figure 14.2 Under construction of retaining wall stock yard

Figure 14.3 Upper part of stock yard site

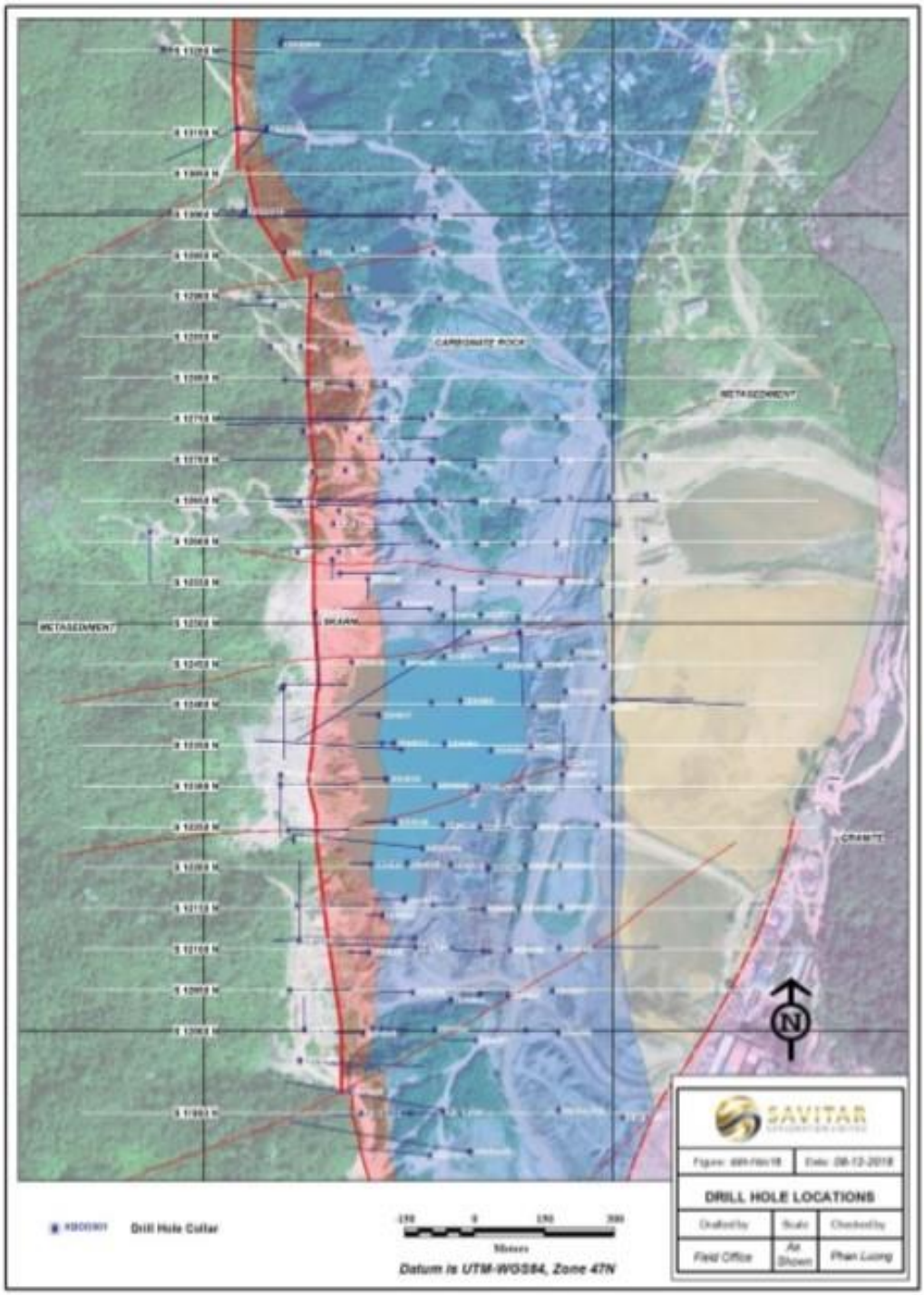
14.2 PLAN FOR CLOSING THE HOLES

Figure 14.4 Detail drilling list of mine area

From 2015 to 2018, total number of drill holes is 225 and drill hole sizes are 75mm, 95mm and 110mm and among them 75 mm size is used commonly.

Delco Mine Site drilling detail list (1.9.2014 to 13.07.2018)							
Drilling Company	Drill Hole No.	Total Drill Holes	Total Depth (m)	Total Core trays	Start Date	End Date	Remark
AMC	DDH	95	6358.90	1440	1.9.2014	25.1.2015	AMC Consultant Austrlia Co.,Ltd, Chinese driller 2 and myanmar 1, XY-4T (2 machine) and XY-2PC (1 machine)
DELCO	D	49	3848.10	790	16.3.2015 29.12.2015	5.6.2015 30.9.2016	Delco geologists only and using delco drilling machine.
KOREA	KB15-I-	19	2357.70	444	1.11.2015	21.12.2015	Used Korea drilling machine and some delco labour.
SAVITAR	KBDD	13	3821.19	123	17.4.2017	30.6.2017	(TITELINE) Australia drilling machine 1 and chinese 2 machine, total 3 machine drilling . KBDD001 to KBDD013
SAVITAR	Water well	8	700.00	1109	10.11.2016	25.3.2017	Hospital 1, School 2, Police station 1, Mine site 4
SAVITAR	KBDD	41	10627.38	2015	3.9.2017	03.10.2018	KBDD014 to KBDD050 hole
	Total	225	27713.27	5921			

Figure 14.5 Location map of drill holes



After drilled, drill hole caps are managed immediately. The drill hole caps are shown in the following figures.

Figure 14.6 Drill hole caps

As the drill hole size is 75 mm, it is not needed to close. Drill hole caps are safety to those small holes.

In the mine site area trenches or pits are not used for the determination of ore grade calculation and exploration.

Figure 14.7 Drilling at mine site with sign boards showing warning for safety

15 CONCLUSIONS AND SUGGESTIONS OF THE EMP REPORT

15.1 CONCLUSION

The EMP covers the potential impacts, mitigation measures, management and monitoring plans that should be implemented. In addition, DELCO's CSR plan is also presented.

The EMP lists the obligations and responsibilities of each party involved in the project; stipulates methods and procedures that will be followed; as well as outlining the environmental and social management actions that will be implemented.

The baseline for the EMP was compiled based on a site visit in November 2016, primary baseline surveys in April 2017 and review of all available documentation provide by DELCO. The primary data collection involved air, noise and water sampling at up to five locations within and around the Project Area; including Kanbauk Village. These locations can form the basis for operational monitoring requirements.

For air quality, the monitoring data at the Project Area indicates that, with the exception of the NO_2 1-hour and SO_2 10-minute averaging periods, the National Environmental Quality (Emissions) Guidelines (NEQEG) are exceeded. The monitoring data at Kanbauk Village indicates that, with the exception of the NO_2 1-hour, NO_2 annual and SO_2 10-minute averaging periods, the air quality standards are exceeded. The principal sources of emissions to the atmosphere are likely to be from agricultural open-air burning, wood burning for domestic purposes (i.e. heating and cooking), and exhaust emissions from road transportation. In the Project Area, this also includes dust emissions from vehicles using the access roads.

For noise, the level of noise at the Projects Area does not exceed the day or night time limits in the NEQEG. The level of noise in Kanbauk Village is mainly from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc.). The night-time levels exceeded the NEQEG. The night time noise in Kanbauk Village was slightly higher than the day time. This could be due to the busy main road which connects with Dawei and Yebyu.

The effluent discharges were assessed against the NEQEG. The values of most parameters at these points meet the discharge standards in the NEQEG. At Point 3 (tailing pond), the recorded COD was of 141 & 137 mg/L (points a&b) which exceeds the NEQEG. Higher COD levels mean a greater amount of oxidisable organic material in the sample, which will reduce dissolved oxygen (DO) levels.

Through the Project development, DELCO has made commitments to ensure appropriate environmental and social performance. DELCO has made the following commitments:

- Ensure the accuracy of this EMP.
- Confirm the EMP is in strict compliance with applicable Environmental Conservation Law, Rules and Procedures; and
- Confirm and commit to mitigation measures stipulated in this EMP.

15.2 SUGGESTIONS

The EMP commitments should be followed by DELCO. For stakeholder engagement, knowledge and information should be disseminated to employees and local people regularly during operations.

Training programs should be done for factory workers and staff to meet the environmental performance.

DELCO will need to monitor every 6 months, the air and noise emissions and water discharges from the Project to ensure these align with the National Environmental Quality (Emissions) Guidelines. The monitoring proposed in this EMP should also be conducted on a regular basis to ensure the impacts to the environment and people are reduced.

It is suggested that DELCO will complete an environmental Monitoring Report to record the Environmental and Social performance of the Project. It is understood that MONREC are entitled to audit should they see fit.

As per DELCO's commitment and the requirements of the EIA Procedure; an Incident Repot will be submitted to MONREC within 24 hours after the event (serious impacts) or seven (7) days for any other incident considered as minor impact.

REFERENCES

1. ACT Government (2013), Environmental guidelines for preparation of an Environment Management Plan.
2. AMC Consultants, Kanbauk Prefeasibility Study Report by Delco on May 2016
3. American Petroleum Institute (1997), Environmental Guidance Document: Waste Management in Exploration and Production Operations.
4. Australia Pacific LNG (2010), Australia Pacific LNG Project: Wastewater Management Plan.
5. Bureau of Minerals and Petroleum (2011), BMP guidelines, for preparing an Environmental Impact Assessment (EIA) Report for Mineral Exploitation in Greenland.
6. CSIR Environmental (2005), Guideline for Environmental Management Plans, Edition-1.
7. Enviro Dynamics (2014), Exploration Environmental Management Plan.
8. Environmental Impact Assessment Procedure (2015).
9. IFC, 2007. Environmental, Health and Safety (EHS) Guidelines – General EHS Guidelines: April 2007, International Finance Corporation, World Bank Group
10. National Environmental Quality (Emission) Guidelines (2015)
11. Republic of the Union of Myanmar Fifth National Report to the Conservation on Biological Diversity Ministry of Environmental Conservation and Forestry (March 2014).
12. Requirements for Mineral Exploration Environmental Management Plan by Department of Geological Survey and Mineral Exploration on January, 2015.
13. The 2014 Myanmar Population and Housing Census (2015)
14. World Bank Group (2007). Environmental, health, and safety guidelines for mining. International Finance Corporation.

APPENDICES

Appendix 1 CVs of the Environmental and Social Experts

Craig A Reid

International ESIA Expert and
ERM Myanmar Country Manager

Craig A. Reid is a Partner with ERM. He is the ERM Myanmar Country Manager and Partner-in-Charge of the Hong Kong based International ESHIA Management Team.

With over 19 years' experience Mr Reid specialises in the Environmental and Social Impact Assessment (ESIA) of major resource or infrastructure development projects, many of which require compliance with either Corporate Standards or internationally recognised standards and guidelines, such as the International Finance Corporation or the Equator Principles. He also contributes to the environmental and social management of these projects, including the development and implementation of environmental and social action plans. These plans are used to translate project sponsor commitments into realistic and verifiable environmental and social management programs during project construction and operations.

Mr Reid has been working in Myanmar since 2004 conducting impact assessments on a variety of foreign investments within the Power, Oil & Gas, Mining and Infrastructure sectors. Mr Reid has also acted as the Partner-in-Charge for numerous projects in the country including those for IFC, ADB, JICA, BG, Chevron, Statoil, Woodside, eni and PTTEP amongst many others.

Mr Reid has also been involved with the development of the EIA Procedures through working with the Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation (MONREC), and has been invited to speak at a number of impact assessment workshops for the likes of the ADB, USAID, MCRB and Vermont Law School.

Mr Reid has specific experience in servicing ERM's key industry sectors, namely Power and Oil & Gas as well as a strong background in Government regulatory and management services. Mr Reid has worked on onshore and offshore power generation (coal, gas, diesel, hydro and renewables), oil and gas infrastructure, LNG terminals, FPSOs, FSRUs, seismic surveys, exploratory and production drilling, decommissiong, dredging, disposal and reclamation, mud disposal facilities, port management, airports, incinerators, fuel storage facilities, theme parks, highways, railways and submarine cables. The results of these studies have been used to present information on baseline conditions of sensitive habitats and biodiversity, to assess acceptability of installations, developments or facilities, or to develop and implement mitigation, management and marine conservation programmes.

Based in Hong Kong, Mr Reid has worked extensively internationally, having undertaken studies in Africa (Angola, Benin, Egypt, Gabon, Ghana, Liberia, Nigeria, Sierra Leone and Togo), Middle East (Abu Dhabi, Iran, Bahrain, Qatar and Saudi Arabia) South East Asia (Singapore, Thailand, Philippines, Malaysia, Vietnam, Brunei and Myanmar) East Asia (China, Hong Kong, Japan and South Korea) and the Pacific Rim (Australia, New Zealand and Fiji).

EDUCATION

- BSc (Hons), Marine Biology, University of Stirling, Scotland, United Kingdom, 1997

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

- Member of the International Association for Impact Assessment
- Member of the Society of Petroleum Engineers
- Member of the Marine Biological Association of Hong Kong
- Member of the Hong Kong Institute for Environmental Impact Assessment

FIELDS OF COMPETENCE

- Marine Biology, Ecology and Water Quality
- Environmental Impact Assessment (EIA)
- Environmental Monitoring
- Site selection and route assessment
- Natural Resource Management

ERM

MYANMAR PROJECTS

POWER GENERATION

- Environmental and Social Assessment Services for Middle Paunglaung 280MW Hydropower Project. Energize Myanmar, Myanmar, 2016. *Project Director.*
- ESIA for Yangon 300MW Rental Project. APR Energy and MCM Energy Co Ltd, Myanmar, 2016. *Project Director.*
- ESIA for 225MW Myingyan CCGT Power Plant, Sembcorp, 2015-ongoing, *Project Advisor.*
- ESIA for 1,280MW Coal-fired Power Plant in Mon State, Toyo Thai, 2015-ongoing. *Project Advisor.*
- Environmental and Social Consulting Services in Support of Transaction Advisory Services for the Myingyan IPP Project, IFC, Myanmar, 2014-2015. *Project Director.*
- ESIA for Combined Cycle Power Plant, GMS Power, Myanmar, 2014. *Technical Advisor.*

INFRASTRUCTURE AND DEVELOPMENTS

- ESIA for the Hwambi Agricutural Complex, Myanmar, Awba and International Finance Corporation, 2017 – ongoing. *Project Director.*
- Scoping and Terms of Reference for the ESIA of the Shwe Taung Cement Plant and Coal Mine, Sagaing State, Myanmar. International Finance Corporation, 2016. *Technical Advisor.*
- ESIA for Semeikhon Port Development in Mandalay, Myanmar. International Finance Corporation, 2015. *Project Director.*
- ESIA for Phase 2 Myanmar Industrial Port Development in Yangon, Myanmar. International Finance Corporation, 2016. *Project Director.*
- EHS Assessment for Phase 1 Myanmar Industrial Port Development in Yangon, Myanmar. International Finance Corporation, 2016. *Project Director.*
- Land Acquisition Study for Phase 1 and 2 Myanmar Industrial Port Development in Yangon, Myanmar. International Finance Corporation, 2016-ongoing. *Project Director.*

MINING

- EMP for Tungsten Mine, Myanmar, DELCO, 2016-ongoing. *Project Director.*
- EMP for Shangalong Gold Mine, Myanmar, Daewoo Precious Resources, 2016-ongoing. *Project Director.*

OIL AND GAS

- ESIA for Multi Well / Multi Year Exploration Drilling in Deepwater Block AD-5, Woodside Energy Limited, Myanmar, 2017-ongiong. *Project Director.*
- ESIA for Multi Well / Multi Year Exploration Drilling in Shallow water Block A-7, Woodside Energy Limited, Myanmar, 2017-ongiong. *Project Director.*
- Initial Environmental Evaluation for 3D Marine Seismic Survey in Shallow water Block A-6, Woodside Energy Limited, Myanmar, 2017-ongiong. *Project Director.*
- Initial Environmental Evaluation for 3D Marine Seismic Survey in Shallow water Block A-7, Woodside Energy Limited, Myanmar, 2017-ongiong. *Project Director.*
- ESIA for Shwe Gas Development Phases 2-4 Facilities, POSCO DAEWOO Corporation, Myanmar, 2016-ongoing. *Project Director.*
- EMP for Shwe Gas Development Phase 1 Facilities, POSCO DAEWOO Corporation, Myanmar, 2016-ongoing. *Project Director.*
- ESI for Exploration Drilling in Onshore Block MOGE-4, COAG s.a.r.l, Myanmar, 2016-ongiong
- ESIA for Exploration Drilling in Block M-8, Berlanga, Myanmar, 2016-ongoing. *Project Director.*
- ESIA for Exploration Drilling in Block AD-03, Ophir, Myanmar, 2016-ongoing. *Project Director.*
- ESIA for Multi Well / Multi Year Exploration Drilling in Block AD-7, Woodside, Myanmar, 2016-ongoing. *Project Director.*
- ESIA for Multi Well / Multi Year Exploration Drilling in Block A-6, Woodside, Myanmar, 2016-ongoing. *Project Director.*
- ESIA for Seismic Exploration of Block AD-07, Myanmar, Daewoo, 2015-ongiong. *Project Director.*
- ESIA for Seismic Exploration of Offshore Block AD-10, Myanmar, Statoil, Myanmar, 2014-ongoing. *Partner-in-Charge.*
- ESIA for Marine Seismic Survey in Block M-10, Tap Oil, Myanmar, 2015. *Project Director.*
- ESIA for Seismic Exploration of Offshore Blocks A-5, for Chevron, Myanmar, 2015. *Partner-in-Charge.*
- ESIA for Exploration Drilling in Block AD-7, Woodside, Myanmar, 2015. *Project Director.*
- ESIA for Seismic Exploration of Offshore Blocks A-04 and AD-02, Myanmar, BG, Myanmar, 2014. *Partner-in-Charge.*
- ESIA for Onshore Seismic Exploration of Block IOR-4 and Block IOR-6, Myanmar, MPRL E&P, Myanmar, 2014-ongiong. *Partner-in-Charge.*
- EIA for Enhanced Oil Recovery of the Mann Oil Field, Myanmar, for MPRL E&P, Myanmar, 2014-ongiong. *Partner-in-Charge.*
- ESIA for Onshore Seismic Exploration of Block C-1 and Block H, Myanmar, for Pacific Hunt Energy Corp, Myanmar, 2014-ongiong. *Partner-in-Charge*
- ESIA for Exploration of onshore Block MOGE-4, Myanmar, for COAG s.a.r.l, Myanmar, 2014-ongiong. *Partner-in-Charge*
- ESIA for Exploration of offshore Block M-8, Myanmar, for Berlanga Holdings Ltd, Myanmar, 2014-ongiong.

Partner-in-Charge

- EIA / SIA for Exploration of Blocks PSC-K and RSF-5, for eni, Myanmar, 2014. *Technical Advisor.*
- Environmental Risk Assessment for Offshore Exploration, for BG, Myanmar, 2013. *Technical Advisor.*
- ESIA for Exploration of Blocks AD6 and AD8, Chinnery Assets Limited (CNPC), Myanmar, 2013. *Project Director.*
- Myanmar HSE Regulatory Framework Study, for RocOil, Myanmar, 2013. *Project Director.*
- Air Dispersion Modelling for Shwe Gas Development, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2013. *Project Director.*
- EIA for the Shwe Gas Field Shore Base for Shwe Gas Field Development, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2010. *Project Manager.*
- EIA for the Midstream Pipeline and Gas Metering Station for Shwe Gas Field Development, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2009. *Project Manager.*
- Terrestrial Environmental Baseline Study for Onshore Midstream Facilities and Pipeline Landing Site, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2008. *Project Manager.*
- Marine Environmental Baseline Survey for Midstream Pipeline, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2008. *Project Manager.*
- Impact Identification Study for the Alternative Midstream Pipelines and Associated Onshore Facilities, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2008. *Project Manager.*
- Drill Cuttings Modelling Study for Offshore Production Platform, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2007. *Project Manager.*
- EIA for Upstream Facilities in Offshore Myanmar, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2007. *Project Manager.*
- Marine Environmental Baseline Survey for the Development of Upstream Facilities in Offshore Myanmar, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2006. *Project Manager.*
- Impact Identification Study for the Development of Upstream Facilities in Offshore Myanmar, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2005. *Project Manager.*
- EIA for a Medium Compression Platform, Myanmar (Hyundai Heavy Industries & Total E&P Myanmar), Myanmar, 2007. *Project Manager.*
- Preliminary Environmental and Social Scoping Study for the Development of an Offshore Gas Field, for Daewoo International Corporation (Myanmar E&P), Myanmar, 2004. *Project Manager.*

INTERNATIONAL PROJECTS

OIL AND GAS PROJECTS

MARINE SEISMIC SURVEYS

- ESIA for Marine Seismic Survey of Blocks 17/03 & 04/20 in South China Sea, China, SK Innovation, 2015-ongoing. *Project Director.*
- Screening and Scoping Study for 3D Seismic Survey of three Blocks in the South China Sea, Shell, 2012. *Partner in Charge.*
- Environmental Scoping and Management Plan for 3D Seismic Survey of Blocks 64/18 and 53/30 in the South China Sea, China, Chevron, 2010. *Project Manager.*
- Environmental Risk Assessment of a 3D Marine Seismic Survey in Southern Chinese Waters, BG, 2008. *Marine Ecology Specialist.*
- Survey on Environmental Impact of Marine Seismic Operations, Japanese Oil, Gas and Metals Corp, 2008 - 2009. *Project Manager.*
- ESHIA for Block G4/50 Seismic Survey, Gulf of Thailand, Chevron, 2008 - 2009. *Marine Ecology Specialist.*
- Monitoring Impacts of 3D Marine Seismic Surveys for Browse Field Development, Woodside Energy Limited, Australia, 2007 – 2009. *Lead Scientist.*
- Environmental Review for 2D Marine Seismic Survey in Southern Chinese Waters, BG, 2007. *Project Manager.*
- Environmental Protection Statement for Maxima 3D Marine Seismic Survey at Scott Reef, Woodside Energy Limited, 2007. *Lead Scientist.*
- Marine Seismic Survey Integrated Impact Assessments, Offshore Brunei Darussalam, Brunei Shell Petroleum Sdn Bhd, 2004 – 2006. *Lead Scientist.*

EXPLORATORY/PRODUCTION DRILLING OPERATIONS

- ESHIA for Seismic Exploration of Blocks 15/10 & 15/27 in South China Sea, Chevron, 2013. *Project Director.*
- ESHIA for Exploration Drilling of Block 42/05 in South China Sea, Chevron, 2013. *Project Director.*
- ESIA for Exploration Drilling of a Deepwater Well in the Sea of Japan, JX Nippon Oil, Japan, 2012. *ESIA Advisor.*
- ESHIA for Exploration Drilling of Block 64/11, 53/30 and 42/05 in South China Sea, Chevron, 2011. *Project Director.*
- ESHIA for Block B Gas Development, Vietnam, for Chevron Vietnam, 2010. *Lead Marine Scientist.*
- ESHIA for Pandora Offshore Gas Development, Talisman, Papua New Guinea, 2010 ongoing. *Lead*

Marine Scientist.

- ESHIA for Shore Base for Offshore Operations, Thailand, for Chevron Pattani Thailand, 2008 – 2009. *Project Manager.*
- ESHIA for Block G4/48(c) Production Facility, Gulf of Thailand, Chevron, 2007 – 2008. *Lead Marine Scientist.*
- Status and Trends of HSE Issues in the Oil and Gas Industry, Japanese Oil, Gas and Metals Corp, 2007, 2008 and 2010. *Project Manager.*
- EIA of Mampak Block 4 Field Development, Brunei Shell Petroleum Sdn Bhd, 2006 – 2009. *Lead Marine Scientist.*
- Main Oil Line Replacement Study, Brunei Shell Petroleum Sdn Bhd, 2007 – 2008. *Lead Marine Scientist.*
- Impact Assessment of Bugan Field Development, Brunei Shell Petroleum Sdn Bhd, 2006 – 2009. *Lead Marine Scientist.*
- Pipeline Replacement Project, Brunei Shell Petroleum Sdn Bhd, 2007. *Lead Marine Scientist.*
- EIA of Seria North Flank Development, Brunei Shell Petroleum Sdn Bhd, 2006 – 2007. *Lead Marine Scientist.*
- Bugan Phase II ROV Field Survey, Brunei Shell Petroleum Sdn Bhd, 2006. *Lead Marine Scientist.*
- Integrated Impact Assessment of the Jetty Relocation Project, Brunei Shell Petroleum Sdn Bhd, 2004. *Lead Marine Scientist.*

DRILL CUTTINGS AND PRODUCED WATER DISPOSAL

- Drill Cuttings Study for Block D12 in Offshore Sarawak, for Shell Sarawak Berhard, Malaysia, 2012. *Project Director.*
- Drill Cuttings Modelling for Well SH-05 in Abu Dhabi, for Wintershall, Abu Dhabi, UAE, 2011. *Technical Lead.*
- Drill Cuttings and Oil Spill Modelling for Hair Dalma HD-09 Well in Abu Dhabi, for ADMA-OPCO, Abu Dhabi, UAE, 2011. *Project Manager.*
- Drill Cuttings and Oil Spill Modelling for Block 64/11, 53/30 and 42/05 in South China Sea, Chevron, 2011. *Project Director.*
- Drill Cuttings Modelling Study Bugan Field Development (Brunei Shell Petroleum Sdn Bhd), Brunei, 2008. *Project Manager.*
- Drill Cuttings Modelling Study Bubut Field Development (Brunei Shell Petroleum Sdn Bhd), Brunei, 2007. *Project Manager.*
- Peragam Exploration Well Drill Cuttings Modelling, Brunei Shell Petroleum Sdn Bhd, 2006 – 2007. *Project Manager.*
- BSP CP127ST1 Well CPDP-12, Champion South-East Development Project, for Brunei Shell Petroleum Sdn Bhd, Brunei, 2007. *Project Manager.*
- Oil Spill Modelling Study for Offshore Production Platform, TOTAL, 2007 – 2008. *Project Manager.*
- Oil Spill Modelling Study for Offshore Production Platform, Shell Australia, 2007 – 2008. *Project Manager.*

FLOATING PRODUCTION STORAGE AND OFFLOADING (FPSO) VESSELS

- Fishing/Fisheries Scoping/Baseline Study for Offshore Developments, Ghana, for Tullow Ghana Ltd, 2010 - ongoing. *Technical Specialist.*
- Integrated Impact Assessment of the Development of Cendor Field, Petrofac, 2005 – 2006. *Lead Marine Scientist.*

LNG TERMINALS (EXPORT AND RECEIVING)

- Hong Kong Offshore LNG Terminal – Preliminary Environmental Site and Risk Assessment, Hong Kong, Confidential Client, 2015 – ongoing. *Marine Specialist.*
- Environmental Social Health Impact Assessment for a Floating Liquefied Natural Gas Facility in Offshore Waters, Northwest Australia, Confidential, 2008 – 2009. *Marine Ecology Specialist.*
- Manzanillo LNG Terminal, Korea, Samsung Engineering Company Ltd (SECL), 2008. *Lead Marine Scientist.*
- Environmental Impact Assessment (EIA) of Liquefied Natural Gas (LNG) Receiving Terminal and Associated Facilities, CAPCO, 2005 – 2007. *Project Coordinator.*
- Adequacy Review of Environmental Assessment for Proposed Taranaki LNG (New Plymouth Council), 2008. *Lead Marine Scientist.*
- Environmental and Risk Assessments for two Natural Gas Facilities in Southeast Asia, CAPCO, 2004 – 2005. *Project Coordinator.*
- Detailed EIA and FEED Study for Submarine Gas Pipelines from Shenzhen LNG Terminal to Tai Po Gas Production Plant, Hong Kong & China Gas Company, 2002 – 2003. *Lead Marine Scientist.*
- Study of Potential Land-based Sites for Natural Gas Facilities in Southeast Asia, CAPCO, 2002 – 2003. *Project Coordinator.*
- Site Selection and Scoping Study for an LNG Terminal in Thailand, Confidential Client, 2005 – 2006. *Lead Marine Scientist.*

DECOMMISSIONING

- Options Assessment Update for Lufeng 22-1 Oil Field Decommissioning Project, Statoil, 2008–2009. *Project Manager.*
- Options Assessment for Lufeng 22-1 Oil Field Decommissioning Project, Statoil, 2004. *Lead Marine Scientist.*

- Platforms Decommissioning Campaign, Offshore Brunei Darussalam, Brunei Shell Petroleum Sdn Bhd, 2004. *Lead Marine Scientist.*
- Environmental Impact Study of Temsah NW Platform Disposal, Eni E&P, 2005. *Lead Marine Scientist.*
- Consultation on Decommissioning of Overseas Offshore Platforms, CNOOC, 2006. *Project Manager.*

DOWNSTREAM PROJECTS

- ESHIA for a Greenfield Refinery in Mandji Free Trade Zone, Samsung C&T, Gabon, 2012 - ongoing. *Project Director.*

POWER SECTOR PROJECTS

- Seawater Recirculation Study for Jeddah South Power Plant Stage I, HHI, Saudi Arabia, 2012. *Partner in Charge.*
- Marine Biodiversity Study for Shoaiba Power Plant Stage III, HSBC, Saudi Arabia, 2012. *Marine Expert.*
- EM&A Team for Installation of Offshore Wind Farm in Southwest Lamma Waters, Hong Kong, for The Hongkong Electric Co., Ltd., 2011 – ongoing. *Project Director.*
- Investigation into Fish Ingress at Hong Kong Electric Power Station, Lamma Island, Hong Kong, 2010 – 2011. *Project Manager.*
- ESHIA Update for Mong Duong 2 Power Plant, Vietnam, AES, 2010 – 2011. *Marine Ecology Specialist*.
- Cooling Mist Dispersion Study at Sabyia Combined Cycle Gas Turbine Power Station, Kuwait, HHI, 2009 – 2010. *Project Manager.*
- EIA for an Offshore Wind Farm Development in Hong Kong, for The Hongkong Electric Co Ltd, 2007 - 2009. *Project Manager.*
- Environmental, Health and Safety Impact Assessment (ESHIA) for Vung Ang II Thermal Power, for One Energy, Vietnam. 2008 - 2010. *Marine Ecology Specialist*.
- Environmental Impact Assessment of the Development of a 2,750MW Power Station and Desalination Plant in Jubail Industrial City, Marafiq IWPP, Kingdom of Saudi Arabia, for WSP Environmental Middle East, 2007. *Marine Ecology Specialist*.
- Seawater Recirculation Study, Al Dur IWPP, for Hyundai Heavy Industries Co. Ltd, Bahrain, 2008. *Project Manager.*
- Seawater Recirculation Study, Marafiq IWPP, Hyundai Heavy Industries Co. Ltd., Kingdom of Saudi Arabia, 2006 – 2007. *Project Manager.*
- Baseline Water Quality Survey, Marafiq IWPP, Hyundai Heavy Industries Co. Ltd., 2006, Kingdom of Saudi Arabia. *Project Manager.*
- Thermal Plume Dispersion Study, Ma'aden Phosphate Company, Kingdom of Saudi Arabia, 2009. *Project Manager.*
- Kwang Yang Combined Cycle Power Plant Cooling Water Review, BP, South Korea, 2005.
- Emissions Control Project at the Castle Peak Power Station "B" Units, CAPCO, Hong Kong, 2006. *Marine Ecology Specialist*.
- Cooling Water Culvert Improvement Works, CLP Power, Hong Kong, 2002. *Marine Ecology Specialist*.
- EIA for an 1800 MW Gas-Fired Power Station at Lamma Extension, The Hongkong Electric Co., Ltd., Hong Kong, 1998 – 1999. *Marine Ecology Specialist*.
- Identification of Constraints to the Routing of HEC New Gas Pipeline - Desktop Study, The Hongkong Electric Co., Ltd., 1998. *Project Manager.*

PORT RELATED PROJECTS

- Environmental Monitoring and Audit for Disposal Facility to the East of Sha Chau (2017-2020) - Investigation, CEDD, Hong Kong Government, 2017 – ongoing. *Project Director.*
- Environmental Monitoring and Audit for Contaminated Mud Pits to the South of The Brothers and at East Sha Chau (2012-2017) – Investigation. CEDD, Hong Kong Government, 2017 – ongoing. *Project Director*
- ESIA of a Greenfield Port, APM Terminals, Nigeria, 2012. *Project Director.*
- Contaminated Sediment Disposal Facility at South of Brothers – EIA Update, Civil Engineering and Development Department, Hong Kong Government, Hong Kong, 2009 - 2010. *Project Manager.*
- EM&A for Contaminated Mud Pit IV at East of Sha Chau, CEDD, Hong Kong Government, 2009 – 2013. *Deputy Environmental Team Leader.*
- EM&A for Contaminated Mud Pit IV at East of Sha Chau, CEDD, Hong Kong Government, 2005 – 2009. *Deputy Project Manager.*
- EM&A for Contaminated Mud Pit IV at East of Sha Chau, CEDD, Hong Kong Government, 1997 – 2002. *Project Coordinator.*
- Ecological Monitoring for Uncontaminated Mud Disposal, CEDD, Hong Kong Government, 1999 – 2002. *Project Manager.*
- Review of the Contaminated Mud Disposal Strategy and the need for an Intermediate Contaminated Mud Disposal Facility, CEDD, Hong Kong Government, 2002 – 2003. *Project Manager*
- Ecological, Fisheries and Water Quality Impact Assessment Study for the Proposed Port Development at Northwest Lantau, EDLB, Hong Kong Government,

2005 – 2007. *Water Quality Specialist.*

- Environmental Impact Assessment of Savusavu Port, Rural and Outer Islands Project, Asian Development Bank, Fiji, 2006 – 2007. *Environmental Team Lead.*
- EIA of the Development of a Container Terminal, Vietnam, SPCT/P&O Ports, Vietnam, 2006 – 2008. *Lead Marine Scientist.*
- Permanent Aviation Fuel Facility, Leighton Contractors Asia Limited, Hong Kong, 2003 – 2009. *Environmental Team Leader.*
- Strategic Assessment and Site Selection Study for Contaminated Mud Disposal, CEDD, Hong Kong Government, 1999. *Marine Ecology Specialist.*
- Site Specific Feasibility of Sludge Management Strategy and Sludge Disposal Plan, EPD, Hong Kong Government, 1998 – 2000. *Marine Ecology Specialist.*
- Focussed Cumulative Water Quality Impact Assessment for the West Po Toi Sand Borrow Area, HAM Dredging & Marine Contractors, 2001. *Marine Ecology Specialist.*
- Baseline Survey at East Tung Lung Chau, CEDD, Hong Kong Government, 1999. Non-Statutory Marine Environmental Monitoring Update, Airport Authority Hong Kong, 2002 – 2003. *Marine Ecology Specialist.*
- Performance Verification of Stanley and Shek O Outfalls, EPD, Hong Kong Government, 1999 – 2001. *Marine Ecology Specialist.*
- Sustainable Development for the 21st Century, Supplementary Agreement for Undertaking Baseline Surveys - Monitoring of Toxics in Marine Sediment and Biota, PlanD, Hong Kong, 2000. *Marine Ecology Specialist.*

MINING PROJECTS

- Marampa Mine ESHIA, London Mining PLC, Sierra Leone, 2012. *Aquatic Specialist*
- ESHIA of Weda Bay Nickel Mine, ERAMET, Indonesia, 2011. *Marine Specialist.*

TRANSPORT

- Environmental Permit Consultancy for the Third Runway System Project at Hong Kong International Airport, Hong Kong, 2015. *Project Director.*
- EIA Review Consultancy for Hong Kong Airport Third Runway Project, Airport Authority Hong Kong, Hong Kong, 2012-2013. *Project Manager*
- EIA Review for Area 54 Road Network, Transport Department, Hong Kong, 2012-2013. *Project Director.*

SEWAGE INFRASTRUCTURE AND DRAINAGE

- Agreement No. CE 55/2009 (DS) - Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works – Investigation EIA, Hong Kong, for DSD, 2010 – 2014. *EIA Manager.*
- Agreement No. CE 6/2002 (DS) - Drainage Improvement in Northern New Territories – Package C - Investigation, Design and Construction – EIA for TKL05, Hong Kong, for DSD, 2010 – 2012. *EIA Manager.*
- Agreement No. CE 6/2010 (DS) - Improvement of Yuen Long Town Nullah (Town Centre Section) – Investigation EIA, Hong Kong, for DSD, 2010 – 2012. *EIA Manager.*
- Environmental Impact Assessment of Regulation of Shenzhen River Stage IV EIA Study, Hong Kong, for DSD, 2009 – 2011. *Water Quality Specialist.*
- Hong Kong Sewage Harbour Area Treatment Scheme (HATS) Stage 2 – Supplementary Water Quality Monitoring, EPD, Hong Kong Government, Hong Kong, 2007 – 2011. *Project Manager.*

NATURAL RESOURCE MANAGEMENT

- Total Water Management for Hong Kong – Feasibility Study, DSD, Hong Kong Government, 2005 – 2008. *Project Manager (Environmental).*
- Study in Terrestrial Habitat Mapping Based on Conservation Value, SDU, Hong Kong Government, 2002 – 2003. *Project Manager.*
- Artificial Reef Deployment Study, AFCD, Hong Kong Government, 1998 – 1999. *Marine Ecology Specialist.*
- Fisheries Resources and Fishing Operations in Hong Kong Waters, AFCD, Hong Kong Government, 1998. *Marine Ecology Specialist.*
- Seabed Ecology Studies, AFCD, Hong Kong Government, 1998 – 1999. *Marine Ecology Specialist.*

Guy Williams

Principal Consultant

Mr. Guy Williams has recently joined ERM Vietnam, with more than fifteen years' experience in environmental and social impact assessment and review for natural resource and private sector development throughout Africa and Asia-Pacific. Mr Guy is a technical leader in the biodiversity and ecosystems services field and has extensive experience leading biodiversity related aspects of environmental and social assessment, and due diligence.

Before joining ERM, he had worked for IFC, World Bank and has worked on various projects funded by multilateral and bilateral financing and development agencies that are signed up to the IFC/WB guidelines, the World Bank Equator Principles. He is thoroughly familiar with the environmental and social conditions associated with multilateral and bilateral lending.

Mr Guy has managed or worked as technical reviewer/advisor for projects across Asia-Pacific, including Papua New Guinea, Myanmar, Vietnam, China, Cambodia, Lao, Thailand, Philippines. He has led or involved in reviewing environmental, social risks of projects and programmes against IFC Performance Standards, the Equator Principles, ISO 14001 (environmental management), OHSAS 18001 (health and safety management) and ISO 31000 (risk management).

Guy has worked in Papua New Guinea for more than 15 years, including project management and independent technical review of projects from the following sectors: power (hydro, thermal, biofuel), argo-forestry (rubber, oil pam, and timber), infrastructure (transport, and property), mining (quarry, open cut and artisanal), and oil and gas.

Guy was a founder and director of an environmental management consultancy firm based in Australia. He worked closely with a variety of clients including multinational, private equity, investment funds and lending institutions. Guy was also a director of Australia Myanmar Chamber of Commerce of which includes over 30 leading Australian businesses investing in Myanmar.

Professional Affiliations

- FSC/ RSPO, High Conservation Value, Accredited Assessor
- IUCN, Commission for Ecosystem Management
- IUCN, Species Survival Commission, Primate Specialist Group

Fields of Competence

- Environmental and social strategy/assessment (EIA/SIA)
- Sustainable finance and environmental due diligence
- Biodiversity and ecosystem services assessment
- Stakeholder engagement
- Environmental management & monitoring
- Environmental, health and safety auditing
- Health , safety and environmental training

Education

- Master of Environmental Management and Development, *Australian National University, Australia, 2014.*
- MPhil (Application of high conservation value assessment in protected area management), *Australian National University, Australia, 2012.*
- BSc/BA (Hons) Ecology/ Anthropology, *Australian National University, Australia, 2001*

Languages

- English (native speaker)
- Mandarin (conversational)
- Tok Pisin (conversational)

Key Industry Sectors

- Mining
- Power
- Infrastructure
- Oil and Gas
- Argo-forestry

Key Previous Experience

- **Environmental and Social Due Diligence Assessment of Operating and Proposed Hydropower Plant, Independent Client, 2016.** The project includes identification of potentially significant E&S legacy issues related to 4 operational hydropower plants comprising a cascade from 3MW to 60MW, located in central Viet Nam. Guy's role included review of existing / historical grievances; review of gaps in existing E&S management systems; and recommended actions to address and manage risks in line with the Applicable Standards.
- **Health, Safety and Environment Program Development, Max Myanmar/ Parami Energy, Myanmar, 2016.** The project aims at designing and delivering corporate health and safety policy in accordance with OHSAS 18001 for a leading Myanmar company, with cross sector footprint (including road construction, upstream oil and gas). Guy's role included risk assessment, policy and system development and training for senior management, operational staff and sub-contractors.
- **Environmental and Social Review for Gold Mine, FinnFund, Myanmar, 2016.** An independent due diligence review and assessment for potential co-investment in a gold mine (open cut / artisanal concession mix) in Shann State, Myanmar. Guy worked as part of integrated finance, legal and risk teams in completing risk assessment of life of mine risks through operational improvements. His role included provision of on-ground context, stakeholder mapping and material risk analysis in support of the lender assessment.
- **Myanmar Ministry of Environment, Conservation and Forestry - EIA training and capability program, MOECAF/ Vermont Law School, Myanmar, 2015.** Guy's role includes review of EIA and due diligence screening of development applications against national EIA procedures.
- **Strategic Environmental Assessment for Dawei Special Economic Zone, Confidential Client, Myanmar, 2015.** Guy was a project leader of team of international and national consultants undertaking strategic environmental and social risk assessment and scenario workshop for regional government and civil society organisations involved in Dawei Special Economic Zone.
- **Development of Biodiversity offset policy for PNG Conservation and Environmental Protection Agency, Papua New Guinea, 2015.** Guy was responsible for development of a technical standard for assessment of habitat disturbance and biodiversity impacts for Papua New Guinea.
- **Regional ecosystem services mapping and offset program for Critical Ecosystems Partnership, FFI, Vietnam, 2014-2015.** The project included design of regional payment for ecosystem services program to explore sustainable finance mechanisms for community lead protected area management. Guy undertook community consultation and consent workshops and lead conservation value mapping across 15 local communities.
- **Climate Impact and Resilience Assessment For Sugar Industry and Protected Areas for Negros Occidental, ADB, Philippines, 2013-2014.** Guy involved in **e**nvironmental impact and climate change adaptation assessment for regional sugar industry.
- **High Conservation Value Assessment, New Britain Palm Oil / WWF, Papua New Guinea, 2013.** The project included design and delivery of community-lead high conservation and carbon stock value based assessment for palm oil development in New Britain region of Papua New Guinea. Guy's role included GIS / mapping of climate affected livelihood zones and supporting corporate investment objectives for new planting and expansion.
- **Myanmar-China forest products trade projection, World Bank, Myanmar, 2012.** Mr Guy worked as a trade analyst for supply chain of timber and non-timber forest products in Kachin State (Myanmar) and Yunan Province (P.R.China), including community impacts and climate related effects of forest clearing and land use.

- **Ok Tedi Expansion Review for Ok Tedi Mining Limited, Papua New Guinea, 2012.** Guy worked as an ecology and biodiversity expert on the team reviewing for the PNG Government, environmental impact predictions made by Ok Tedi Mining Limited as part of its application for Mine Life Extension.
- **Environmental and Social Impact Assessment (ESIA) of Surat processing and transport facility, Shell/ PV Oil, Thailand, 2008.** Guy involved in stakeholder consultation and programme management for regional oil storage and transport facility, Environmental, health and social impact assessment, including reporting and environmental management planning.
- **National Infrastructure Risk and Adaptation Planning Guidelines, ADB, Papua New Guinea, 2007.** Guy's role included Program management and project reporting for national bridge and port infrastructure upgrade programs, and technical inputs for environmental and climate change adaption risk assessments.
- **LNG Project Western Highlands, Exxon Mobil, Papua New Guinea, 2007.** Guy worked as a biodiversity lead and ongoing adviser to Exxon-Mobil's PNG LNG project, including EIS and ESMP development to IFC standards. This is a major development to pipe gas from central PNG to Port Moresby for liquefaction and export. He was responsible for identification, elaboration and scoping of all onshore biodiversity and ecology issues for project planning and EIS preparation and supervision and/or carrying out of field studies.
- **ESIA for Daru deep water port and offshore storage facility, Talisman / PNG Sustainable Development Program, Papua New Guinea, 2006.** The project included design of ESIA scope for gas transfer, storage and handling facility. Coordination of hydrological and geotechnical assessment for offshore port facility. Guy was responsible for leading marine and terrestrial biodiversity survey coordination and reporting for ESIA.
- **Western province regional ESIA for prospective oil and gas and mining investment activity, PNG Sustainable Development Program, Papua New Guinea, 2005**. Guy involved in development of community lead ESIA model, including government officer and community training and capacity building. Strategic board-level advice for community development program for trust fund / royalty distribution.
- **Phou Xang He Community Biodiversity Conservation and Development Plan, IFC, Laos, 2002-2004.** Contracted by the International Finance Corporation to produce a Community Biodiversity Conservation and Development Plan for a large area of central Laos as a prerequisite for financing the Sepon gold project. The plan included an analysis of development and environmental activities in the region, liaising with government agencies, mining companies, villagers and NGOs, conservation needs, management needs and structures, training plans, and financing.

Becky Summons

Senior Consultant

Becky Summons is a Senior Consultant with ERM based in the Yangon, Myanmar Office. Miss Summons has over 8 years' experience in Environmental and Social Impact Assessments (ESIAs) and has worked on a number of projects in the oil and gas, renewables, infrastructure, power and marine cable industries. She has particular experience in both Myanmar permitting requirements for ESIA and undertaking ESIAs to lender requirements (such as IFC, EBRD, Equator Principles and JBIC).

Becky specializes in marine environmental impact assessment and has significant experience in the preparation and management of a variety of Environmental, Health and Social Impact Assessments (ESIAs/ EIAs/ESHIAs), Environmental Statements (ESs), Habitat Regulations Assessments (HRAs), Appropriate Assessment (AAs) and Strategic Environmental Assessments (SEAs). As part of these works, Becky has managed a range of projects for clients including BP, BG Group, Statoil, EnQuest, Petrofac, PA Resources, GDF Suez, RWE, South Stream Transport B.V. and Wintershall.

As part of these works, Becky either lead or supported stakeholder engagement for oil and gas projects in Europe, ensuring all consultation was conducted to IFC requirements. Becky's engagement experience includes: setting up and running engagement workshops; preparing stakeholder engagement plans, consultation databases, meeting minutes and presentation materials and participating in stakeholder consultation. This engagement has included liaison and meetings with local and fishing communities, fishing organizations, governing bodies and local academic institutions. She was seconded to the BP offices in Aberdeen in 2010-2011 where she worked within the subsea and wells environmental team on all environmental permits required for BPs oil and gas activity within the UKCS. This role required liaison with the Environmental Advisor at BP, the DECC and other statutory bodies.

Becky has managed a range of projects for clients in the oil and gas industry including BP, EnQuest, Petrofac, PA Resources, GDF Suez, RWE, South Stream Transport B.V. and Wintershall. Becky has been involved in a number of upstream offshore oil and gas environmental permits including PONs OPEPs (Oil Pollution Emergency Plans) and Marine Licenses and has managed developments from single small scale exploration well permits to detailed permitting requirements for large scale field developments. Through this, Becky has gained extensive knowledge of chemical and environmental impact assessments including air, waste and chemical emissions, oil spills, seabed disturbance and underwater noise.

EDUCATION

- MSc, Marine Environmental Protection, Bangor University, Wales, United Kingdom, 2009
- BSc (Hons), Marine Biology, University of Swansea, Wales, United Kingdom, 2003

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

- Member of the Institute of Environmental Management & Assessment (IEMA)
- DECC Level 2 Corporate Manager (Oil Spill Response): Oil Spill Response (September 2011)

FIELDS OF COMPETENCE

- Marine Biology and Ecology
- Environmental Impact Assessment (EIA)
- Environmental Monitoring
- Oil and Gas Specialist
- Environmental Planning and Regulations
- Stakeholder Engagement

CONTACT DETAILS

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ERM

SELECTED PROJECT EXPERIENCE

INFRASTRUCTURE & INDUSTRY

- **Environmental Considerations Report for potential exploration mining activities in Sagaing. 2016-2017.** Becky was the Project Manager and has undertaken a site visit and environmental review of existing data in order to provide an environmental review and recommendations in support of PanAust future potential mining operations. This work included a site visit and drafting of a report to provide recommendations for control of existing environmental issues in the area.
- **EMP for Tin and Tunsten Mine in Kanbauk, Tanintharyi Region, Delco. 2016-ongoing.** Becky is the environmental specialist for the Project and work includes a site visit and preparation of the environmental baseline and impacts assessment / mitigation within the EMP. The work is conducted to Myanmar national legislation.
- **EIA for Offshore Supply Base, confidential, 2016-ongoing.** Becky is the Project Manager for a proposed offshore supply base in Myanmar. The work involves preparation of PPR, Scoping Report and EIA Report for Myanmar national requirements as well as stakeholder engagement and site visits.
- **Yangon Port, Phase 2 Development ESIA, Myanmar, 2016-ongoing.** Becky is the Project Manager for an ESIA Study of a port expansion in downtown Yangon, Myanmar. The work includes site surveys, baseline data collection, public consultation and stakeholder engagement to be conducted to IFC Standards. Becky is responsible for the overall management of the Project and production of the ESIA Report and EMP.
- **Semeikhon Port ESIA, Mandalay, Myanmar, 2016-ongoing.** Becky is the ESIA Expert for ESIA Study of a port expansion near Mandalay in Myanmar. The work includes site surveys, baseline data collection, public consultation and stakeholder engagement to be conducted to IFC Standards. Becky is responsible for the impacts assessment and production of the ESIA Report and EMP.

OIL AND GAS (UPSTREAM)

- **Shwe Field Development, EIA, Offshore Rakhine State, Myanmar. 2016-ongoing**. Becky is the in country Project Coordinator for the Daewoo Shwe Field EIA and EMP. This work is being undertaken in accordance with the EIA Procedure of Myanmar. The role includes client liaison, marine environmental baseline and impact assessment, public consultation and stakeholder engagement, and preparation of the EIA Report to local Myanmar requirements.
- **Exploration Drilling campaign EIA's, Offshore and Onshore Myanmar, Berlanga, 2016-Ongoing.** Becky is the Project Manager for two Projects for exploration drilling campaigns in Block M-8 and MOGE-4 offshore and onshore Ayeyarwady Region in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment, public consultation and stakeholder engagement, and preparation of the EIA Report to local Myanmar requirements.
- **Exploration Drilling campaign EIA's, Offshore Myanmar, Woodside, 2016-Ongoing.** Becky is the Project Manager for two Projects for exploration drilling campaigns in Block A-6 and AD-7 offshore Rakhine State and Ayeyarwady Region in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment, public consultation and stakeholder engagement, and preparation of the EIA Report to local Myanmar requirements.
- **Exploration Drilling EIA, Offshore Myanmar, Ophir, 2016-Ongoing.** Becky is the Project Manager for exploration drilling in Block AD-3 in the waters offshore Rakhine State in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment and preparation of the EIA Report to local Myanmar requirements. The work also involved stakeholder engagement in the Thandwe and Sittwe, Rakhine State to participate in focus group discussions on fishing and the environment.
- **3D Seismic Survey and Exploration Drilling IEE, Offshore Myanmar, Woodside, 2015-Ongoing.** Becky is the Project Manager for a 2D and 3D exploration campaign (including seismic surveys and exploration drilling) in Block AD-07 in the waters offshore Rakhine State in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment and preparation of the IEE Report to local Myanmar requirements. The work also involved stakeholder engagement in the Sittwe, Rakhine State to participate in focus group discussions on fishing and the environment. The engagement has also involved discussion with key stakeholders such as universities, NGOs, government authorities and Myanmar fishing associations.
- **2D and 3D Seismic Survey IEE, Offshore Myanmar, Tap Oil, 2015-Ongoing.** Becky is the Project Manager for 2D and 3D seismic surveys in Block M-7 in the waters offshore Mon State and Tanintharyi Region in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment and preparation of the IEE Report to local Myanmar requirements.
- **2D and 3D Seismic Survey IEE, Offshore Myanmar, BG Group, 2015-Ongoing.** Becky is the Project Manager for a 2D and 3D exploration campaign

(including seismic surveys, gravity & magnetic surveys and seabed sampling) in Blocks A-4 and Ad-02 in the waters offshore Rakhine State in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment and preparation of the IEE Report to local Myanmar requirements. The work also involved stakeholder engagement in the Rakhine State in 4 townships to participate in focus group discussions on fishing and the environment. The engagement has also involved discussion with key stakeholders such as universities, NGOs, government authorities and Myanmar fishing associations.

- **2D Seismic Survey IEE, Offshore Myanmar, Statoil, 2015-ongoing.** Becky is the Project Manager for a 2D seismic survey in Block AD-10 in the waters offshore Rakhine State in Myanmar. The role includes client liaison, marine environmental baseline and impact assessment and preparation of the IEE Report to local Myanmar requirements. The work also involved stakeholder engagement in the Rakhine State in 2 townships to participate in focus group discussions on fishing and the environment.
- **Seismic Survey ESIA, Honduras, BG Group, 2014-2015**. Becky was the part of the marine ecological project team for an ESIA required for a seismic survey in Honduran Caribbean waters. Work involved the development of the marine ecological impact methodology and criteria, the preparation of the baseline and impacts assessment and development of mitigation measures and monitoring requirements.
- **Conrie Field Development Environmental Statement (ES), EnQuest, UKCS 2011-2012**. Becky was project manager, lead author and focal point to deliver the ES for the Conrie Field Development in the Northern North Sea including 8 new wells and a tie-back to the existing Don Platform. This work included the preparation of an ES detailing impacts from construction of and production from the Conrie Field in the Northern North Sea. Work included liaison with statutory bodies, chemical, noise, air and other environmental impacts associated with oil and gas developments based on baseline surveys.
- **Don SW and West Don and Exploration offshore oil and gas permitting, EnQuest, 2010-2011**. Becky was project manager and focal point for environmental permitting work for EnQuest in their Don Field. Work involved the preparation of a variety of environmental permits (PONs/ OPPCs/ OPEPs) for drilling and intervening wells, seismic surveys and installing pipelines and platforms and liaison with regulatory bodies. Impact assessments were carried out for the following; Don SW and West Don, Heather and Ivy, Crathes and Knightsbridge.
- **BP Secondment, Aberdeen, BP, 2010 – 2011 (6 months).** Becky was seconded into the BP offices in Aberdeen to assist the wells and subsea environmental advisor with permitting regulations of all BP upstream activities in the UKCS. Work involved liaison with statutory bodies and preparation, tracking and submission of E&P permits for the UKCS.
- **Offshore oil and gas permitting, BP, RWE, GDF Suez, EnQuest, Wintershall, UK 2009-11.** Becky was project manager and focal point for environmental permitting work for EnQuest exploration drilling within the UKCS. Becky was also involved in the preparation and management of environmental assessments and permits of a number of well drilling and intervention programs for a variety of companies operating within the UKCS. Work included; preparation of ESs, seismic surveys applications, drilling and intervention permits for wells, permits for installation of pipelines, platforms and subsea templates.
- **Exploration drilling Oil Pollution Emergency Plans (OPEPs), EnQuest, Wintershall, BP, 2010-2011**. Becky was the lead author for a number of Oil Pollution Emergency Plans (OPEPs) for BP, Wintershall and EnQuest and undertook frequent liaison with governmental departments on the requirements of new legislation into oil spill response. This work involved assessment of oil spill models and key sensitivities in the area. The OPEP was prepared in accordance with new government guidelines.
- **Seaward License Round (R26) Applications, RWE and GDF Suez, 2010**. Becky authored the environmental appendix for RWE and GDF Suez to support their 26th round license applications. This involved identification of key sensitivities and assessment of any potential impacts.
- **Seismic Survey Application and ES, PA Resources, Greenland, 2010**. Becky was involved in the preparation of applications with an associated ES for proposed 3D seismic activity in Disko Bay (West Coast of Greenland). Work involved liaison with local authorities, review and assessment of baseline environmental data and environmental impact assessment.
- **Offshore oil and gas permitting, BP, RWE, GDF Suez, EnQuest, Wintershall, UK 2009-11**. Becky has undertaken over 15 applications for seismic surveys within the North Sea. These have included underwater noise modelling analysis, baseline creation and impact assessment to meet permitting requirements.

MIDSTREAM (PIPELINES)

- **South Stream Offshore Pipeline Project, South Stream Transport B.V., 2012-2014**. The SSOPP was a major development scheme to bring gas from the

Russian gas fields to Europe via a pipeline under the Black Sea. Becky was the country manager for the Turkish EIA and ESIA process and was responsible for the delivery of all reports from scoping to final ESIA related to Turkish permitting requirements and international standards such as Equator Principles, World Bank and IFC Performance Standards. She was also responsible for delivering the marine ecology Chapters for all three countries (Russia, Bulgaria and Turkey). Becky also managed the stakeholder engagement aspects of the project within Turkey which included liaison with ministries, NGOs and academic organisations to support the national approval process. She also assisted with the stakeholder consultation primarily focused on fishing communities and organisations as the Project was located >100km from the coastline. Becky's responsibilities in the marine ecology aspects include: sole author of the scope of work for Turkish, Russian and Bulgarian marine survey. The survey included benthic, mammal and seabird surveys in the Black Sea and was undertaken to meet international standards, development of impact assessment criteria for marine receptors, preparation of the marine ecology chapters for the ESIA and assistance with the planning of HRA/Appropriate Assessment for Bulgaria and other required documents for permitting requirements.

POWER

- **EIA for Yangon 300MW power plant.** ERM are undertaking an EIA for local Myanmar approval for a 300 MW Power Plant in Yangon Region. Becky is the Project Manager. This work involves preparation and submission of EIA and EMP documentation as well as environmental baseline surveys and stakeholder engagement.
- **Middle PaungLaung Hydropower Feasibility Study. National Environmental and Social Consultants. 2016-Ongoing.** Becky is the Project Manager for the environmental and social baseline surveys for the Feasibility Study in Shan State / Naypyidaw hydro Project. The work includes organising the social and environmental baseline surveys, preparation of the Survey Reports and engagement with key stakeholders such as government, NGOs and local communities.
- **Habitats Regulations Assessments (HRA) for siting of a nuclear power station, DECC, 2010**. Becky assisted in the preparation of HRAs for two locations within the UK identified as potential sites for nuclear power stations. This work involved assessing potential impacts from the power plants in terms of the impact on neighbouring protected areas.
- **GTI and BWII Windfarms due diligence, Germany, 2009-10**. Becky was involved in the due diligence work for two large German windfarm developments in the North Sea. Work involved managing the translation of documents from German and overall document management for all key reports. Becky also prepared the environmental and permitting sections of a due diligence report to focus on any key issues that could arise from the proposed wind farms.

DUE DILIGENCE/RISK

- **TAP / TANAP ESIA Commitments Risk Assessment, BP, 2014**. Becky was the Project Manager for a risk assessment of ESIA commitments contained within the commitment registers for two gas pipelines (TAP and TANAP). This work involved a review, categorisation and pre-screening of the ESIA commitments in order to undertake a risk assessment. The risk assessment focused on business, HSE and financial risks (associated with the inaction of commitments) and highlights those with the greatest risk to the Project.

Myat Mon Swe

Senior Consultant

Myat Mon Swe is a Senior Consultant with ERM based in the Myanmar Office. She is a Myanmar national with over 20 years' experience as a social consultant working on Projects in Myanmar. Myat Mon has been experience in undertaking stakeholder engagement throughout Myanmar from the national to village levels and has worked with ERM for a number of oil and gas Projects including Woodside and Ophir in Ayeyarwaddy Region and Rakhine State.

Myat Mon has worked on a number of projects in Offshore Seismic and drilling projects, Offshore Supply Based Project, Coal, Tin and Tungsten Mining Projects, Cement Project, National Power Transmission Line Project, Private Power Supply Projects, Thilawa Special Economic Zone Development, Korea-Myanmar Friendship Bridge (Dala) Construction, Sustainable Energy Industries, Sugar Mill Industries, Manufacturing and Hotels and Resorts undertaking Environmental and Social Impact Assessments by the requirements of Myanmar Environmental Impact Assessments Procedure and National Environmental Quality (Emission) Guideline, IFC Standards, ECDF Safeguard Policy and JICA Guidelines and Environmental, Health, Safety and Social-EHSS Safeguard Screening in Hospitals and High-Rise Office and Apartment of Complex Buildings in Myanmar.

Myat Mon has significant experience in the management of public consultation and social engagement of a variety of EIAs, ESIAs and SEAs. She has strong professional relationships with a number of key stakeholders including Ministry of Natural Resources and Environmental Conservation (MONREC), Ministry of Construction (MOC), Ministry of Electrical Power (MOEP) Ministry of Oil and Gas Enterprise (MOGE) and Ministry of Hotel and Tourism as well as Sates and regional levels of Chief Ministers and government.

Since February 2015, Myat Mon has been working exclusively in Myanmar on projects for Woodside and Ophir related to offshore exploration. She has taken part in numerous public consultations for ESIA studies in Rakhine State, Ayeyarweddy Region, and Yangon and in Nay Pyi Taw and has built up good relationships with governing bodies such as MOECAF and MOGE.

Myat Mon has also lead or supported stakeholder engagement, ensuring all consultation was conducted to Myanmar Environmental Impact Assessment procedure and National Environmental Quality (Emission) Guideline, IFC requirements, ECDF Safeguard Policy and JICA Guidelines. Myat Mon's engagement experience includes: Environmental and Social Survey, preparing of consultation management plan, presentation materials and meeting minutes, participating in focus group concerned with project discussions, stakeholder consultation including liaison and meetings with local potentially affected communities and civil communities, local industrial and market association and organizations, governing bodies and local universities.

ERM

EDUCATION

- Diploma of GIS and RS, Yangon University, Myanmar, 2006
- MSc, Energy and Environmental Management, University of Flensburg, Germany, 1998
- B.Agri.Sc., Yezin Agricultural University Myanmar, 1987

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

- Member of Myanmar Engineering Society (MES)
- Member of German Alumni Association
- Myanmar (GAAM)
- Member of Flensburg Association for Energy
- Management (FAME)-Asia Pacific

FIELDS OF COMPETENCE

- Stakeholder Engagement
- Energy and Environmental Management
- Environmental and Social Impact Assessment (ESIA)
- Environmental Monitoring
- EHSS Safeguard Screening
- Occupational Safe, Healthy and Environment (OSHE) –OHSAS 18001:2007
- Internal Auditing, ISO 9001:2008

CONTACT DETAILS

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Web: www.erm.com

SELECTED PROJECT EXPERIENCE

OFFSHORE IN MYANMAR

- **Environmental Impact Assessment-EIA of Drilling, Offshore Myanmar, Woodside (Ongoing Project).** Myat Mon is the Team Leader of Public Consultation for drilling in Block AD-7 in Rakhine State and Block A-6 in Ayeyarweddy Region in Myanmar working with ERM (HK). The role includes preparation of the Public Consultation Plan, National, Regional and State levels and Townhall Stakeholder Meetings, Meeting Minutes, Social and Fishing Survey for the preparation of IEE Report to local Myanmar requirements. The engagement has also involved discussion with key stakeholders such as universities, NGOs, government authorities and Myanmar fishing associations

- **Environmental Impact Assessment-EIA of Drilling, Offshore Myanmar, Ophir Myanmar (Ongoing project).** Myat Mon is the Team Leader of Public Consultation for drilling in Block AD-3 in Rakhine State in Myanmar working with ERM (HK). The role includes preparation of the Public Consultation Plan, National, Regional and State levels and Townhall Stakeholder Meetings and participating in focus group discussions on fishing and the environment. Meeting Minutes are reported for the preparation of IEE Report to local Myanmar requirements.

- **2D and 3D Seismic Survey, Offshore Myanmar, Woodside (2015-2016).** Myat Mon was the Team Leader of Public Consultation for 2D and 3D seismic surveys in Block AD-7 in the waters offshore Rakhine State and Block A-7 and A-6 in Ayeyarweddy Region in Myanmar working with ERM (HK). The role includes preparation of the Public Consultation Plan, National, Regional and State levels and Townhall Stakeholder Meetings, Meeting Minutes, Social and Fishing Survey and Program Management of Community Liaison Officers- CLO for Grievance Redress Mechanism- GRM for the preparation of IEE Report to local Myanmar requirements.

OFFSHORE SUPPLY BASED (OSB) PROJECT

- **Provision of Environmental Baseline Survey for the Offshore Supply Based in Ngayokekaung Townshop , Myint & Associates Company Ltd. (M&A) (2017).** Myat Mon was Team leader of Public Consultation and Socio-economic Survey for ESIA investigation as per the Myanmar Environmental Impact Assessment (EIA) Procedure issued by the Ministry of Natural Resources and Environmental Conservation (MONREC).

BRIDGE CONSTRUCTION

- Korea-Myanmar Friendship Bridge (DALA) Construction Project, Ministry of Construction-MOC, Myanmar (2016). Myat Mon was involved as a Local Consultant of Environmental and Social Impact Assessment – ESIA study in this National Project aimed to construct a bridge cross the Yangon River connecting Yangon and Dala Townships cooperated with Korea Engineering Consultants Corp-KECC and SAMIL from Korea.

POWER

- 500 KV Power Transmission Line Project, Myanma Electrical Power Enterprise,- MEPE, Ministry of Electrical Power, Yangon, Meikhtilar, Taung Oo and Bago, 2015. The work was mainly updating of the existing IEE report with JICA and ERM (Japan) together by the Consultation of national, regional and township levels of governing authorities and Socio-economic based and involved analysis of baseline data and data from the local authorities on key sensitivities in the region and engaged with Environmental Management Plan and Monitoring Plan. And 2 Stakeholder meetings was conducted for land acquisition, land and crops compensation for ROW of transmission line and access roads of Sub stations and 6 Townhall Meetings for the explanation of projects and IEE results in 4 townships. Grievance Redress Mechanism- GRM programme was involved in this project working with village tract leaders of General Administration Department- GAD and YESB (Yangon Electric Supply Board).

- ESIA for Yangon 300 MW Rental Project in Dala Township, Yangon, Consortium of National Infrastructure Holdings Co., Ltd., MCM Energy Co Ltd., APR Energy Plc., and Ace Resources Group Pte. Ltd. (2016). The role of the participation in that project, Myat Mon involved as Social Specialist for the Social Impact Assessment.

SPECIAL ECONOMIC ZONE DEVELOPMENT

- Thilawa Special Economic Zone (2000Ha) Development Project, Thilawa SEZMC, Myanmar (2014-2015). Myat Mon was a Local Consultant of social and public consultation to assist JICA Team and ERM (Japan). The role includes client liaison, Social and environmental baseline and impact assessment and preparation of the SEA/EIA Reports to local Myanmar requirements. The work also involved field survey, stakeholder engagement in the Thanlyin, Kyauk Tan Townships. The engagement has also involved discussion with key stakeholders such as universities, NGOs, national and regional government authorities and Myanmar Thilawa Development Associations. 8 Townhall meetings were conducted by the regulation of JICA Guideline and Myanmar EIA draft procedure (2014). Work involved managing the translation of documents from English and overall document management for all key reports.

MANUFACTURING

- **Adidas Shoe Production Factory, Myanmae Paung Cheng Co., Ltd, Thar Du Kan Industrial Zone, 2014**. Myat Mon was Team leader and this work included the Environmental Quality baseline survey and liaison with authorised bodies, chemical, noise, air and other environmental impacts associated with shoes production, social developments based on baseline surveys and Stakeholders meetings with PAPs, NGOs, Workers' Association, government bodies and interest civil communities.

INDUSTRIES

- **Myo Hla Sugur Mill, Myanmar, 2014**. Myat Mon was Team leader and focal point mainly for environmental management plan for existing factory. Work involved Impact assessments and mitigation measures were carried out and the preparation of Environmental Management Plan–EMP and Environmental Monitoring Plan- EMoP.

- **Printing Ink Production Factory, Hlaing Thar Yar Industrial Zone, Yangon, Myanmar, (2014).** Myat Mon was a team leader of Feasibility Study for EIA and this involved analysis of baseline data in terms of key sensitivities.

HOTELS AND RESORTS

- **Hotels and Resorts in Ngapali and Inlay Lake and Nay Pyi Taw, Eden Hotels and Resorts (Hilton) Group, Amazing Groups of Companies 2014-2016.** Myat Mon was Team leader and focal point mainly for environmental management plan for existing Hotels and Resorts. Work involved Impact assessments and mitigation measures were carried out and the preparation of Environmental Management Plan–EMP and Environmental Monitoring Plan- EMoP.

TIN AND TUNGSTEN MINING PROJECT

- **Kangbauk Tin and Tungsten Mine Project in 2016-2017, DELCO Company Limited.** Myat Mon focused in Environmental and Social Impact Assessment for the preparation of Environmental Management Plan–EMP and Environmental Monitoring Plan- EMoP.

COAL, CEMENT PROJECT

- **Shwe Taung Cement Plant and Coal Mine Project (ESIA), Shwe Taung Mining Co., Ltd and Ahwe Taung Cement Co., Ltd, 2016- 2017.** Myat Mon lead for Stakeholder Consultation and Baseline Survey for the which is seeking equity and debt funding from the International Finance Corporation (IFC) and therefore needs to undertake a Supplemental Environmental and Social Impact Assessment (ESIA) in line with the IFC's Applicable Standards. This assessment are included a Cement Plant, Two Mudstone Quarries, Limestone Quarry and a coal Mine.

DUE DILIGENCE AND RISK ASSESSMENT

- **Due Diligence and Risk Assessment on two areas to be developed hospitals and residential projects (one is under construction) by ERM (Thailand), 2016.** Myat Mon was a team leader and conducted meetings with Ga Mone Pwint Co., Ltd and AST to collect general project information on the scope of environmental, health, safety and social - EHSS. It was conducted including the land ownership clearance with Yangon City Development Committee-YCDC.

ISO: 9001:2008 INTERNAL AUDITING

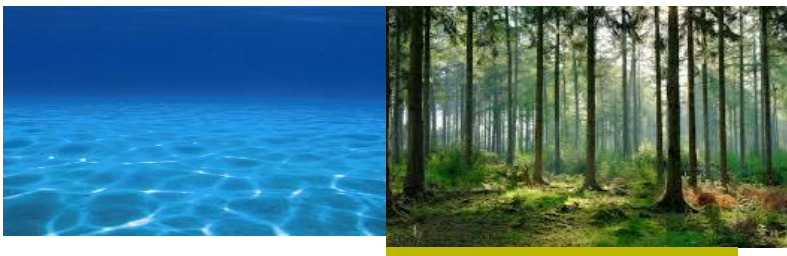
- **Internal Auditing of ISO: 9001:2008 with SGS, 2016.** Myat Mon was Internal Auditor cooperated with SGS for registration of ISO: 9001:2008.

WORKED AT GOVERNMENT BODIES

- **Ministry of Agricultural and Irrigation, 1987-2010.** Myat Mon worked for Government Body: Ministry of Agricultural and Irrigation with over 20 years experiences in project planning and management.

Han Htet Ko

Assistant Consultant



Han Htet Ko recently joined ERM based in the Yangon, Myanmar Office. Han has many experiences local and international joint projects; Environmental Management Plan, Initial Environmental Examination, Environmental Impact Assessment and Social Impact Assessment projects in Myanmar. He has background knowledge in both forestry and natural resource management via GIS/RS for the implementation of sustainable solutions for effective environmental conservation.

Han has worked on a number of projects in Diligence and Risk Assessment project, Thilawa Special Economic Zone Development, Sustainable Energy Industries, Hydropower dam Project, offshore supply base project, mining plants, ADCP (Acoustic Doppler Current Profiler) Measure in Salween River, RAP for Upgrading Projects and Hotels and Resorts undertaking Environmental and Social Impact Assessments by the requirements of Myanmar Environmental Impact Assessments Procedure and National Environmental Quality (Emission) Guideline, IFC Standards, and JICA Guidelines and Environmental, Health, Safety and Social-EHSS Safeguard Screening in Hospitals and High-Rise Office and Apartment of Complex Buildings in Myanmar.

Han has significant experiences in the management of public consultation and social engagement of a variety of EIAs, ESIAs and SEAs. Since February 2015, He has been working exclusively in Myanmar on projects for Woodside related to offshore exploration. Meanwhile, he has good experiences not only other offshore but also onshore oil and gas projects in the management of public consultation and social engagement of a variety of EIAs, ESIAs and SEAs. He has significant experience in the management of public consultation and social engagement of a variety of EIAs, ESIAs and SEAs. He has also some experiences of GIS (decision-making support tool in case of environmental assessment processes) database related projects.

EDUCATION

- Diploma of GIS and RS, Yangon University, Myanmar, 2016
- B.Sc. (Forestry), University of Forestry, Yezin, Myanmar, 2014

PROFESSIONAL AFFILIATIONS & REGISTRATIONS

- Member of Myanmar Forest Association (MFA)
- 2016 Fall YSEALI Academic Fellowship Program on Environmental Issues hosted by East West Centre, Hawaii.
- International Development Field Camp (Japan Myanmar friendship)

FIELDS OF COMPETENCE

- Geographic Information System
- Stakeholder engagement and public consultation
- Impact Assessment
- Liaison officer including government authorities, NGOs

CONTACT DETAILS

ERM Myanmar Company Limited
Suite 628, 6th Floor, Hledan Centre, Corner of Pyay Road and Hledan Road, Kamaryut Township, Yangon, Myanmar

Direct Office Line: +95 (0) 1 230 4405, ext. 8535
Email: hanhtet.ko@erm.com
Web: www.erm.com

ERM

SELECTED PROJECT EXPERIENCE

DUE DILIGENCE AND RISK ASSESSMENT

- **Due Diligence and Risk Assessment on two areas to be developed hospitals and residential projects (one is under construction) by ERM (Thailand), 2016.**

  Han assisted to conduct meetings with Ga Mone Pwint Co., Ltd and AST to collect general project information on the scope of environmental, health, safety and social - EHSS. It was conducted including the land ownership clearance with Yangon City Development Committee- YCDC.

- **Due Diligence and Risk Assessment on Myanmar Industrial Port (MIP) to developed port operations by ERM (HK).**

  Han was an assistant consultant on EHS assessment and ESMS support in Environmental Management Plan (EMP). The role includes EHS audit assistant for existing port operation, interview with each department at MIP and support laws/ regulations and terms/ references and also the permit, approval and license of port operations in Myanmar.

OFFSHORE IN MYANMAR

- **Environmental Impact Assessment-EIA of Drilling in Block AD-5 & A-7, Offshore Myanmar, Woodside.**

  Han was assistant consultant of Public Consultation and fishery surveys for Drilling in Block AD-5 and A-7 in Ayeyarwady Region in Myanmar. The role includes preparation of fishery survey, focus group questionnaires and the Public Consultation Plan for the preparation of Scoping and EIA Report to local Myanmar requirements.

- **Initial Environmental Examination – IEE of Seismic in Block A-7 and A-6, Offshore Myanmar, Woodside.**

  Han was assistant consultant of Public Consultation and fishery surveys for Seismic study in in Block A-7 and A-6 in Ayeyarwady Region in Myanmar. The role includes preparation of fishery survey, focus group questionnaires and the Public Consultation Plan for the preparation of Scoping and IEE Report to local Myanmar requirements.

- **Initial Environmental Examination of 2D and 3D Seismic Survey, Offshore Myanmar, Eni.**

  Han was assistant consultant of Public Consultation for 2D and 3 D Seismic Survey in Block AD-4 in Ayeyarwady Region and Block AD-2 in Thanintharyi Region in Myanmar. The role includes preparation of the Public Consultation Plan, and Townhall Stakeholder Meetings, for the preparation of IEE Report to local Myanmar requirements. The engagement has also involved discussion with key stakeholders such as government authorities, NGOs, CSOs and Myanmar fishing associations.

- **Environmental Impact Assessment-EIA of Shwe Development, Offshore Myanmar, Posco Daewoo.**

  Han was assistant consultant of Public Consultation for Shwe Development EIA in Rakhine Region in Myanmar. The role includes preparation of the Public Consultation Plan, Regional and State levels and Townhall Stakeholder Meetings, for the preparation of IEE Report to local Myanmar requirements.

- **Environmental Impact Assessment-EIA of Drilling, Offshore Myanmar, Woodside.**

  Han was the project associate of Public Consultation for drilling in Block AD-7 in Rakhine State and Block A-6 in Ayeyarwaddy Region in Myanmar working with ERM (HK). The role includes preparation of the Public Consultation Plan, Regional and State levels and Townhall Stakeholder Meetings, Meeting Minutes, Social and Fishing Survey for the preparation of IEE Report to local Myanmar requirements. The engagement has also involved discussion with key stakeholders such as universities, NGOs, government authorities and Myanmar fishing associations.

- **2D and 3D Seismic Survey, Offshore Myanmar, Woodside (2015-2016).**

  Han was the project associate of Public Consultation for 2D and 3D seismic surveys in Block AD-7 in the waters offshore Rakhine State and Block A-7 and A-6 in Ayeyarwaddy Region in Myanmar working with ERM (HK). The role includes preparation of the Public Consultation Plan, Regional and State levels and Townhall Stakeholder Meetings, Meeting Minutes, Social and Fishing Survey and Program Management of Community Liaison Officers- CLO for Grievance Redress Mechanism- GRM for the preparation of IEE Report to local Myanmar requirements.

ONSHORE IN MYANMAR

- **Environmental Impact Assessment-EIA of 3D Seismic Survey, Onshore Myanmar, PTTEP.**

  Han was assistant consultant of Public Consultation for 3 D Seismic Survey in Block MOGE-3 in Magway Region in Myanmar. The role includes preparation of the Public Consultation Plan, Regional and State levels and Townhall Stakeholder Meetings, for the preparation of EIA Report to local Myanmar requirements. The engagement has also involved discussion with key stakeholders such as government authorities, NGOs, CSOs and Myanmar fishing associations.

CONSTRUCTION

- **EIA offshore supply base project**

  Han is an assistant consultant of Scoping study and EIA study in Nga Yoke Kaung Town, Ayeyarwady Region. Moreover he supported for Public Consultation for scoping and EIA Survey in Nga Yoke Kaung Town in Ayeyarwady Region in Myanmar. The role includes marine impact study, social impact study and preparation of the Public Consultation Meetings, for the preparation of EIA Report to local Myanmar requirements.

- **EIA Diesel Power Plant Project**

  Han was as an assistant of social specialist in the Seikgyikhanaungto, Dala, Twente, Ahone townships of Yangon Region in Myanmar. Besides, I had to assist a technical air quality specialist from HK who was traveling to Myanmar to conduct air quality sampling for a Power Plant. The role includes communication with local stakeholders and cooperation with GADs, Social Survey for households, group discussion and EIA Report to local Myanmar requirements.

- **RAP for Construction of Thaton Bypass and 3 Bridges**

  Han was a project associate of public works with Ministry of Construction Improvement of East-West Economic Corridor Local Project Assistant under JICA study team. The role includes socio-economic surveying and stakeholder engagement.

- **RAP for Yangon Circular Line Upgrading Project**

  Han was a project associate of Myanmar Railway, Ministry of Transportation Rehabilitating and modernizing the existing railway Local Project Assistant under JICA study team. The role includes site surveying and socio-economic surveying for PAUs, stakeholder engagement and data Import.

SPECIAL ECONOMIC ZONE DEVELOPMENT

- **Thilawa Special Economic Zone (2000Ha) Development Project, Thilawa SEZMC, Myanmar (2014-2015).**

  Han was a project associate of social and public consultation for JICA Team and ERM (Japan). The role includes field survey, stakeholder engagement in the Thanlyin, Kyauk Tan Townships.

HYDROPOWER ESIA

- **Feasibility study for middle Paung-Laung Hydropower Dam**

  Han was an assistant of Social Expert**.** He also assisted baseline survey, environmental quality study, and socio-economic survey and implementation.

- **Than Lwin river in Mon, Kayin and Shan State SMEC International Myanmar, ADCP (Acoustic Doppler Current Profiler) Measure**

  Han was an assistant of ADCP (Acoustic Doppler Current Profiler) Expert from Australia**.** He assisted Senior ADCP Surveyor with all aspects of ADCP survey work, including set up and assembly of equipment on survey boat, liaison with, and training of survey boat drivers, monitor stability of ADCP equipment and mount during ADCP survey work, liaison with Myanmar Government Authorities**.**

DRY ZONE WATER SUPPLY PROJECT

- **Social Survey with JICA team in the countryside of Magway, Sagaing and Mandalay Regions for water supply project**

  Han was as an assistant of social specialist in the countryside of Magway, Sagaing and Mandalay Regions in Myanmar working with JICA. The role includes communication with local stakeholders and cooperation with Local Government Organization (Department of Rural Development), Social Survey for Households and Key Informant and also Database mapping concerning with the project area.

RESUME

Personal Details:

Name	Dr. Ohnmar May Tin Hlaing
Address:	No. (233), Block 23, Sayeepin Lane
	Thuwunna, Thingungyun Township, Yangon, Myanmar
Tel.No	95-1-2330291, Mobile – 95-9-5016606
Email	ohnmarmay@gmail.com, ohnmarmay@eqm-myanmar.com
Date of Birth	February, 22, 1970
Place of Birth	Yangon, Myanmar
Nationality	Myanmar

Summary:

Currently, Dr Ohnmar May Tin Hlaing is leading an Environmental Company as an Environmental Health Consultant as well as Managing Director working on the environmental related projects particularly in Environmental, Social and Health Impact Assessments (ESHIA) projects as well as ambient and indoor air quality monitoring projects in Myanmar. She was a Former Research Scientist (National Poison Control Center, Department of Medical Research, Ministry of Health, Myanmar) with over 14years progressive responsibility in environmental programs and public health care as well.

She conducted the first initiative air quality projects in Myanmar as a principal investigator collaborating with the respective government bodies with the UN Environment (UNEP) grant since 2017. Moreover, she carried out as a consultant for Clean Air Management for Myanmar under the German Technical Cooperation - Clean Air for Smaller Cities in the ASEAN Region and developed the Myanmar country profile, 2014 together with reviewing in Myanmar's existing Environmental Policies, Rules of Law and Regulations in the various sectors related to air quality management.
Moreover, she starts focusing on the projects assessing public health impact and health risk potentially affected by air pollution impacts so that the policy makers become aware of air pollution control and management.

Furthermore, she has been working as a local consultant for the Institute for Global Environmental Strategies (IGES, Japan) - Centre Collaborating with UNEP on Environmental Technologies (CCET) since 2016 in the development of National and City Level Waste Management Strategy. The strategy reports are now being on the development stage and the Policy Report on Waste Management in Myanmar has been recently published.

As a local consultant, she has also been working on the Master Plan (3years) for Hazardous and Industrial Waste Management in Myanmar with SINTEF, Norway since 2016.

She had conducted the research survey on Chemical Policies and Regulations in Myanmar for the EnviX Ltd (Japan) which is working on a research project consigned by National Institute of Technology and Evaluation (NITE).

Dr Ohnmar got her MB,BS degree in Institute of Medicine (I), Yangon, Myanmar. She received Certificate in Analytical Toxicology as a WHO fellow and then post graduated in Environmental Toxicology, Technology and Management in the inter university program of Asian Institute of Technology (AIT) and Chulaborn Research Institute (CRI). Her thesis is mainly focused on Air Pollution, Exposure and Cancer Risk Assessment.

She is a member of Myanmar Medical Association (MMA), an AIT Alumini, a member of Asian Pacific Association of Medical Toxicology (APAMT) and a member of IGAC (Monsoon Asia, Oceania Networking Group) as well.

Education:

2004 -2006
Asian Institute of Technology (School of Environment, Resources and Development), Chulabhorn Research Institute Klong Luang, Pathumthani, 12120, Bangkok, Thailand)

International program (Professors from AIT, Chulabhorn Research Institute and International Experts Team from WHO, UNEP and Europe).

- **Master of Science in Environmental Engineering and Management,** Full scholarship (Japan Government) for two years

Specialized **Environmental Toxicology, Technology and Management**
Learned -1)Environment Impact (EIA) & Health Risk Assessment (HRA), 2)Environmental Chemistry and Laboratory, 3)Sampling Design for Environment Samples Collection and Data Analysis, 4)Health, Development and Environment, 5)Principle of Toxicology, 6)Advances in Environmental Health Sciences, 7)Environmental Toxicology, 8)Hazardous Waste Management, 9)Environmental Immuno and Reproductive Toxicology, 10)Environmental Economics, (11)Environmental Quality Management, (12)Industrial Waste Abatement & Management

Thesis – particulate bound polycyclic aromatic hydrocarbons emitted from incense sticks and assessment of health risk in temple workers (*The excellent grade obtained*)

- Laboratory setting monitoring
- Ambient and indoor air monitoring
- Personal air monitoring
- Urinary Biomarker assessment
- Cancer risk assessment

1986-1996
Institute of Medicine (I), Yangon 11131, Myanmar

- Bachelor of Medicine and Bachelor of Surgery, **(MB,BS)**

Certification/Licensure

November 4-7, 2013
Environmental Devices Corporation Plaistow, NH, USA

Manufacturer's Certificate of Product and Service Training in Environmental Perimeter Air Monitoring Station

July 30-31, 2013
Asean – German Technical Cooperation, Clean Air for Smaller Cities in the ASEAN Region Project, Yangon, Myanmar

Certificate in Air Quality Monitoring

May 20-24, 2013
Asian Institute of Technology,

Certificate in Assessment of impacts of the emission reduction measures of short-lived climate

Bangkok, Thailand	forcing pollutants (SLCPS) on air quality and climate in SEA (PEER-SEA NETWORK)
Dec 4-21, 2012 **Chulabhorn**. **Research Institute Bangkok, Thailand.**	Certificate in Management on Health/Environment Risk and Impact Assessment (WHO Chemical Safety)
September 8-9, 2012 **National Center for Environmental Assessment by USEPA, Chulabhorn**. **Research Institute, Bangkok, Thailand,**	Training Certificate in Health Risk Assessment Training and Experience (USEPA)
September 18-20, 2012 **Conference of International Occupational Hygiene Association (IOHA),KLCC, Malaysia**	Training Certificate in Industrial Ventilation for Industrial Hygiene Professionals (IOHA)
September, 2002 to November, 2002, **All Indian Institute of Medical Science & Industrial Toxicology Research Center)** **New Delhi & Lucknow, India)**	• WHO Fellow (3 months), Certificate in Analytical Toxicology
1998, **Myanmar Medical Council**	• Registered Medical Practitioner, RN 14920

Environmental Health Experience

Environmental Consultant) (2009-2017)	Environmental Impact Assessment including air quality monitoring and impact assessment projects
Industrial Hygienist (2011 – 2013)	**Total E&P, Myanmar (Oil & Gas Company) (2011, 2012 & 2013)** • Ambient and indoor Air monitoring and potential exposure assessment carried out in onshore and offshore • Ergonomics campaign • Chemical and Bacteria Analysis in Domestic Water • Indoor air monitoring (Bacteria, Fungus and Moisture and Air Flow and Air Velocity)
Research Scientist(2007 to January, 2011) Chemical Toxicology Research Division, National Poison Control Center, Department of Medical Research (Lower Myanmar)	Environmental monitoring (Air, Water and Soil) in surrounding area near by industrial zone (WHO funded) (Co- Investigator) (2010)
Research Officer (2000 to 2007)	Epidemiology surveys on public health Particulate bound cyanide emitted from industries

Chemical Toxicology Research Division, National Poison Control Center, Department of Medical Research (Lower Myanmar)	(WHO funded), (Co-Investigator)

Healthcare Experience

Medical Officer (1996- 1997) Women and Children Hospital, Thaungokkalapa, Yangon, Myanmar	• Provided health education regarding water, sanitation and hygiene on mothers and children in Paediatrics wards and surrounding community • Conducted surgery practice in Obsterics and Gynaecology wards
1997-2000 Emergency Medical Officer and Assistant Surgeon, Workers General Hospital, Yangon, Myanmar	• Provided health care service • Supervised health and safety measures and environmental sanitation measures in the working environment

Membership

1998	• Myanmar Medical Association (MMA)
2000	• Pharmacology Association
2006	• AIT Alumni
2009	•Asian Pacific Association of Medical Toxicology
2015	•IGAC (Monsoon Asia, Oceania Networking Group) (MANGO)

Health & Environment Conference

- 2/29 and 3/1, 2016 , "Future Earth Asian Perspective Symposium on Air Pollution" in Academia Sinica, Taipei, Taiwan (paper presented)
- 23-25, May, 2016, PEER EVIDENCE-TO-ACTION WORKSHOP: Assessment of impacts of the emission reduction measures of short-lived climate forcing pollutants on air quality and climate in Southeast Asia AITCC, Asian Institute of Technology, Thailand, (paper presented)
- 2-3 March and June, 2015, Planning Workshop for Developing a Framework for Cooperation Between IGAC Activities in Asia, AIT, Bangkok, Thailand (paper presented)
- 17-22 Aug 2015, Advanced International Training Course in Occupational and Environmental Health, CRI, Bangkok, Thailand
- 23-24, June 2014, 4th Myanmar Oil & Gas Summit 2014 (Paper Presented)
- 27-28 January 2014, 3rd Myanmar Oil & Gas Summit 2014 (Paper Presented)
- 28-29 September 2013, 5th International Conference on Public Health among Greater Mekong Sub-regional Countries, Yangon, Myanmar (Paper Presented)
- 24-25 July 2013, Myanmar Drilling & Exploration, 2013 (Paper presented)
- 10-13 Sept, 2012, IUTOX 8th Congress of Toxicology in Developing Countries (CTDC8), Bangkok, Thailand (Poster Presented)

• 16-20, Sept , 2012, 9th IOHA International Scientific Conference, Kuala Lumpur, Malaysia (Participant)

• International training course on Environmental and Health Risk Assessment and Management of Toxic Chemicals by WHO (4-21 December 2012) (Participant)

• 20-22 Oct, 2009, The 8th Annual Congress of Asia Pacific Association of Medical Toxicology, (Response to Toxic Hazard Collaboratively), Beijing, China, (Paper Presented)

•May 2007, Air Quality Monitoring in Myanmar, (UNEP&NCEA), Yangon, Myanmar. (Resource Person & Paper Presented)

• Sept, 2007, 1st National Sustainable Development Strategy in Myanmar, (UNEP&NCEA), Naypyidaw, Myanmar. (Representative of Ministry of Health)

• Nov, 2007, 2nd National Sustainable Development Strategy in Myanmar, (UNEP&NCEA), Naypyidaw, Myanmar. ((Representative of Ministry of Health)

• Nov, 25-29, 2007, The Sixth Princess Chulabhorn International Science Congress (The Interface of Chemistry and Biology in the "OMICS ERA": Environment & Health and Drug Discovery), Bangkok, Thailand. (Poster Presented)

• Nov 30 - Dec 1, 2007, Collegium Ramazzini Satellite Workshop "Occupational and Environmental Health in the Asia/Pacific Region, Bangkok, Thailand. (Participant)

•12-14, Dec, 2007, The Sixth Annual Congress of Asia Pacific Association of Medical Toxicology (Challenges and Opportunities in Medical Toxicology), Bangkok, Thailand (Paper Presented)

• August, 2006, Arsenic contamination in drinking water UNICEF, Yangon, Myanmar. (Participant)
• 8-11 Dec, 2005, Asia Pacific Environmental Health, Chulabhorn Research Institute, Bangkok, Thailand (Participant)

International Fellowship/Awards

- WHO fellowship in Analytical Toxicology (2002)
- Full Scholarship (Government of Japan) in Environmental Engineering and Management post graduate program. Specialized in Environmental Toxicology, Technology and Management (2004)
- Asian Pacific and Medical Toxicology Fellowship Award in the 6th APAMT congress (2007)

Asian Pacific and Medical Toxicology Fellowship Award in the 8th APAMT congress (2009)

- IUTOX Senior Fellowship Award in the IUTOX 8th Congress (2012)
- Strategic Approach to International Chemical Management (SAICM) scholarship in the International training course on Environmental and Health Risk Assessment and Management of Toxic Chemicals (2012)

Workshops organized

- Regional Workshop on Hazardous Chemical Management Organized by Asian Institute of Technology, Yangon City Development Committee (YCDC), The Foundation for Scientific

Industrial Research of Norway (SINTEF) and Environmental Quality Management Co., Ltd September 18, 2014, Yangon

- The First Workshop on the Development of National Level Waste Management Strategy in collaboration with Ministry of Natural Resources and Environmental Conservation (MONREC), of the Government of Myanmar, The United Nations Environmental Programme (UNEP) and The Institute for Global Environmental Strategies (IGES), 14 – 15 June 2016, Nay Pyi Taw

- The First Workshop on the Development of Municipal Waste Management Strategy for Mandalay, in collaboration with Mandalay City Development Committee (MCDC), Ministry of Natural resources and Environment Conservation (MONREC) of the Government of Myanmar, The United Nations Environmental Programme (UNEP) and The Institute for Global Environmental Strategies (IGES), 16 – 17 June 2016, Mandalay Hill Resort, Mandalay

- The Second Workshop on the Development of National Level Waste Management Strategy in collaboration with Ministry of Natural Resources and Environmental Conservation (MONREC), of the Government of Myanmar, Yangon City Development Committee (YCDC), The United Nations Environmental Programme (UNEP) and The Institute for Global Environmental Strategies (IGES), 5-6 December 2016, Nay Pyi Taw

- The Second Workshop on the Development of Municipal Waste Management Strategy for Mandalay, in collaboration with Mandalay City Development Committee (MCDC), Ministry of Natural resources and Environment Conservation (MONREC) of the Government of Myanmar, The United Nations Environmental Programme (UNEP) and The Institute for Global Environmental Strategies (IGES), 8 December 2016, Mandalay

- Training on Air Quality Management hosted by Yangon City Development Committee Supported by Asian Institute of Technology and Environmental Quality Management Co., Ltd 12-13 February 2017, Yangon

International published papers

- Potential health effects of exposure to carcinogenic compounds in incense smoke in temple workers, Chemico-Biological Interactions 173(1):19-31 · May 2008 Source: PubMed, Panida Navasumrit, Manasawee Arayasiri, ***Ohnmar May Tin Hlaing***, Mathuros Ruchirawat

- Myanmar Country Profile: Focus on Cities, April 2014, *ASEAN – German Technical Cooperation Clean Air for Smaller Cities in the ASEAN Region,* ***Dr. Ohnmar May Tin Hlaing,*** Ms. Kaye Patdu and Ms. Cherine Capadocia

- IGES Policy Report on Waste Management in Myanmar: Current Status, Key Challenges and Recommendations for National and City Waste Management Strategies, January 2017, Premakumara Jagath DICKELLA GAMARALALAGE, Matthew HENGESBAUGH, Kazunobu ONOGAWA and ***Ohnmar May Tin Hlaing***

Appendix 2 Commitment for EMP

DELCO
Forging the Future
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Email delco@delcoltd.com
Web www.delcoltd.com

Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO)
No: .....
Date.....

Date : 05 June 2017

To
Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation
Office No.(53), Ottrathiri Township
Nay Pyi Taw, Myanmar.

Re: Environmental Management Plan (EMP) Report in respect of the Kanbauk Tin and Tungsten Mine Project

Dear Sir,

We refer to the captioned EMP, which was prepared and revised by Environmental Resources Management (ERM) in accordance with the Environmental Conservation Law, Rules and Procedures under the instructions of the Ministry of Natural Resources and Environmental Conservation dated 29th December 2015 and formally submitted to the Environmental Conservation Department under the Ministry of Natural Resources and Environmental Conservation under letter dated 8th December 2016.

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

(a) Endorse and confirm to the Ministry of Natural Resources and Environmental Conservation the accuracy and completeness of the EMP,

(b) Confirm and commit to the Ministry of Natural Resources and Environmental Conservation that the EMP has been prepared in strict compliance with applicable Environmental Conservation Law, Rules and Procedures and

(c) Confirm and undertake to Ministry of Natural Resources and Environmental Conservation that the project company established by Developers Entrepreneurs Liaison Construction Organizers Limited (**DELCO**) in respect of the **Kanbauk Tin and Tungsten Mine Project** shall at all times comply fully with: (i) any and all commitments and obligations as set forth in the EMP, and (ii) any and all plans and the various components thereof, including without limitation, impact avoidance, mitigation, and remediation measures, and with respect to both (i) and (ii), including but not limited to such commitments, obligations, plans and measures as relate to the development, construction, commissioning, operation and maintenance of the project, and any circumstance in which work done or to be done, or services performed or to be performed, in connection with the project's development, construction, commissioning, operation and maintenance is carried out or intended or required to be carried out by any contractor, subcontractor or other party.

The issuance of this confirmation and undertaking has been duly authorized by all necessary corporate actions and relevant environmental standards through successful implementation of mitigation measures stated in the EMP report.

Sincerely yours,

By _____
Name: Ding Ying
Title: Chairman

Developers Entrepreneurs Liaison
Construction Organizers Limited. (DELCO)

Appendix 3 Baseline Data Monitoring Methodology

TABLE OF CONTENTS

The ambient noise quality report on DELCO mining project

Table

Figure:

1. Executive summary

In order to determine the existing background noise levels at and around the DELCO mining project site, the 24hr average ambient noise levels were monitored as well as compared with the National ambient noise level guideline for residential stated by the Environmental Conservation Department (ECD).

Regarding the findings of average noise levels within the project area and nearby village, the existing baseline noise levels including both day and night time are higher than the National ambient noise quality guideline stated by ECD.

Looking at the source of noise emission, at the project site, the vehicles activities (Bulldozer, Haul Truck, Mass Excavator and Water Truck) are the main contributors generating noise and at the Kanbauk village sites, motorcycles being used for transportation are major causes of nose in the community.

Comparing to day and night, it was noticed that night time noise is slightly higher than of day time. Generally, there may be due to wind speed in the night time.

Furthermore, according to the observation, some vehicle activities running in the night time will lead to increase the noise level at the project site. In terms of the village noise level, it can be due to travelling of motorcycles with high speed at night.

2. Introduction

The ambient noise level monitoring was carried out for 24hr continuously along with air monitoring at the Delco Mining project site and in the immediate vicinity within 2 km of the project area which is located at the Kan Bauk Village in the Kanbauk Township where people are spending several hours working both weekdays and weekends.

3. Objective

It was aimed to reveal the existing baseline ambient noise level.

4. Ambient noise monitoring locations

Locations of noise sampling stations are listed in **Table 4-1.**

- Point 1 at the Delco project site
- Point 2 at Kan Bauk Village which is north to the project site

Table 4.1 Noise sampling locations for baseline survey, April, 2017

Points	Locations	Coordinates		Start Date	End Date
		N	E		
1	Noise monitoring station (1) Delco Project Site	14°34' 24.82"	98° 01' 39.43"	2.4.2017	3.4.2017
2	Noise monitoring station (2) Kan Bauk village	14° 35' 37.35"	98°01' 39.86"	3.4.2017	4.4.2017

The following tables (4.2 to 4.3) show the noise level measured at and around the proposed project area. Being the residential area, the findings were compared with the applicable noise level guideline for residential, institutional and educational receptors by National Environmental Quality Guideline by ECD.

(a) Point (1) (Delco Project Site)

Figure 4.1: Location map of noise monitoring point 1 (Delco Project Site)

Table 4.2: The 24hr average noise level of point 1 Delco Project Site

Area	Whole Day Noise Level (dB)	Day Time Noise Level (dB)	EQG (Day Time)	Night Time Noise Level (dB)	EQG (Night Time)
Delco Project Site	68[a]±0.01[b] 68[c](56[d]-93[e])	**68**[a]±0.02[b] 69[c](55[d]-92[e])	55	**69**[a]±0.003[b] 69[c](67[d]-72[e])	45

[a]Average[b] Standard Error [c]Median [d]Min [e]Max

Table 4.2 presents the findings of noise levels monitored over a 24-hr period and applicable standards used for comparison. The whole day average level (68dB), day time level (68dB) and night time level (69 dB) are higher than the World Bank guideline adopted by ECD.

The noise level at the point 1 is mainly captured from vehicles (Bulldozer, Haul Truck, Mass Excavator and Water Truck) and surrounding activities including human and environment (rain and wind etc). The whole day average level (68dB) was higher than noise EQG standard.

(b) Point (2) Kanbauk village

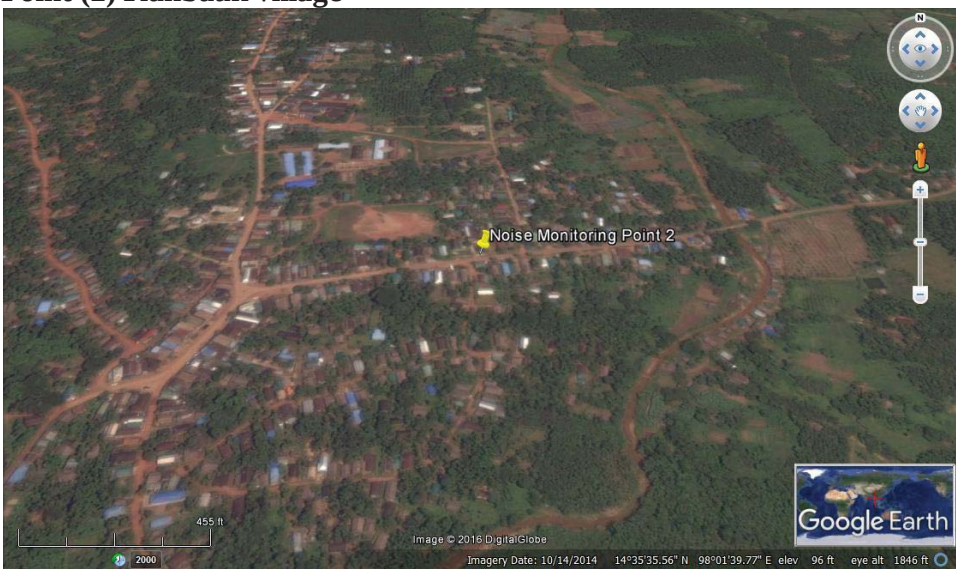

Figure 4.2:Location map of noise monitoring point 2 (Kanbauk village)

Figure 4.3: Noise monitoring at point 2 (Kanbauk village)

Table 4.3: The 24hr average noise level of point 2

Area	Whole Day Noise Level (dB)	Day Time Noise Level (dB)	EQG (Day Time)	Night Time Noise Level (dB)	EQG (Night Time)
Kanbauk village	53[a]±0.05[b] 54[c](38[d]-117[e])	**51**[a]±0.08[b] 58[c](39[d]-116[e])	55	**56**[a]±0.08[b] 58[c](38[d]-100[e])	45

[a]Average[b] Standard Error [c]Median [d]Min [e]Max

Table 4.3 presents the findings of noise levels monitored over a 24-hr period and applicable standards used for comparison. The whole day average level (53 dB), day time level (51 dB) and night time level (56 dB) are higher than the World Bank guideline adopted by ECD.

The level of noise at the point 2 is mainly captured from vehicles (motorcycles, cars), and surrounding activities including human activities and environment (rain and wind etc). The whole day average level (53 dB) was higher than noise EQG standard.

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Website:www.eqm- myanmar.com

(1)Base Line Data Monitoring Methodology

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1 Base Line Data Monitoring Methodology

1.1 Ambient air monitoring instrument

The air monitoring survey will use the HAZ-SCANNER EPAS Wireless Environmental Perimeter Air Monitoring System (EPAS).

(i) Principles

The EPAS, manufactured by EDC/SKC (USA), is a light scattering photometer equipped with a filter sampling system. This dual capability allows for simultaneous real-time and filter measurement. Single-jet impactors are used for particulate size selection and the TSPM, PM_{10} impactor would be used for this air quality survey.

The highly sensitive EPAS provides real-time determinations and data recordings of airborne particle concentration in $\mu g/m^3$. It provides the minimum, maximum and time-weighted average (TWA) monitoring of gases as well.

This instrument is factory calibrated with the appropriate USEPA certified target gas and correlated with USEPA methods. (Ref: Code of Federal Regulation 40CFR part 53).

The EPAS does not require laboratory analysis to determine concentrations. It operates maximum automation of data collection, uses the optional data logger including Dust Comm Pro Software for PC that provides statistical analysis, graphs, and detailed reports that can be printed for record keeping.

(ii) System check

Prior to the survey, calibration span and system checks (system flow rate, sensor baseline levels for all parameters, etc.) will be performed on the EPAS to ensure it is operational and ready for monitoring.

The air monitoring instrument will be operated in accordance with the manufacture's guidelines.

1.2 Ambient air monitoring

(i) The sensor intakes

The survey would deploy the sensor intakes based on the sitting criteria as specified in the U.S. Code of Federal Regulations (40 CFR 58 Appendix E - Probe Siting Criteria for Ambient Air Quality Monitoring).The survey will comply with the following guidelines as follows;

- Particulates and gas sensor intakes will be located between 2-3 meters above the ground level
- Keep unrestricted airflow located away from obstacles so that the distance from the sensor intake is at least twice the height that the obstacle protrudes above the probe
- Keep unrestricted airflow in an arc of at least 270 degrees around the inlet probe, or 180 degrees if the probe is on the side of a building
- Would be clear of optical obstructions, including potential obstructions that may move due to wind, human activity, growth of vegetation, etc.
    - Spacing from trees (10-20 m)
    - Spacing from roadways (10-250 m) depending on the traffic

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- Observe temporary optical obstructions, such as rain, particles, fog, or snow

(ii) Location of the monitoring sites

The monitoring sites were selected based on their being broadly distributed within the project area and in proximity to the most sensitive receptors i.e. communities.

Operating activities of the project would impact local air quality. Air pollution both on site and in the surrounding locality may result from release of dust to the atmosphere from handling or processing of its by-products.

(iii) Sampling time and frequency of measurements

The survey will monitor 24hr continuously.

(iv) Ambient air parameters to be measured

1) Particulates: PM_{10}, $PM_{2.5}$ } USEPA Criteria air pollutants
2) Gases: NO_2, SO_2, CO, VOC, NH_3, CH_4, O_3
3) Meteorology: Temperature, Relative Humidity, Wind Speed, Wind Direction which can have the influence on both local and regional air quality

Particulates (sensor: 90 degree Infra Red Light Scattering)
Calibration: Gravimetric reference NIST Traceable - SAE fine dust- ISO12103-1
Accuracy (± 10% to filter gravimetric SAE fine test dust which falls under the ACGIH/ ISO/CEN criteria.
Detection limit – 1- 20,000ug/m^3
Gases (sensor: electrochemical)
Calibration: ppm equivalent change/year in lab air (24month warranted)
NO_2, Detection limit – (0-5000) ppb
SO_2, Detection limit – (0-5000)ppb
CO, Detection limit – (0-100)ppm
VOC (sensor: photoionisation), Detection limit: – (0-100)ppm
Meteorology (EPAS Meters)
Temperature, Detection limit - (-4°C to 140°F)/ (-20°C - 60°C)
Relative Humidity, Detection limit – 90-100%
Wind Speed (sensor: 3-cup anemometer), Detection limit - (0 – 125 mph)
Wind Direction (sensor: continuous rotation on potentiometric wind direction vane), Detection limit - (5 – 355degrees)

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Website:www.eqm- myanmar.com

(2)Air Monitoring Raw Data

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1436

Start Date 4/2/2017 4:17:01 PM 1439

End Date 4/3/2017 4:15:01 PM

	NO2	PMA	PMB	RH %	SO2	TmpC	WDir	WSpM	Pwr V		
Ave	**44.3822**	**136.598**	**61.2272**	**56.6184**	**40.8193**	**35.4301**	**183.355**	**1.28422**	**10.9801**	**0**	**0**
Max	80	417	441	75	309	52	359	17.4	11.3	0	0
Min	22	1	17	1	1	1	0	0	0	0	0
	44	154	224	40	37	46	172	0.0	10.7	0.0	0.0

Comments

Main | Preferences | Header | Data | Report | Help

Environmental Report

Logger ID 912005

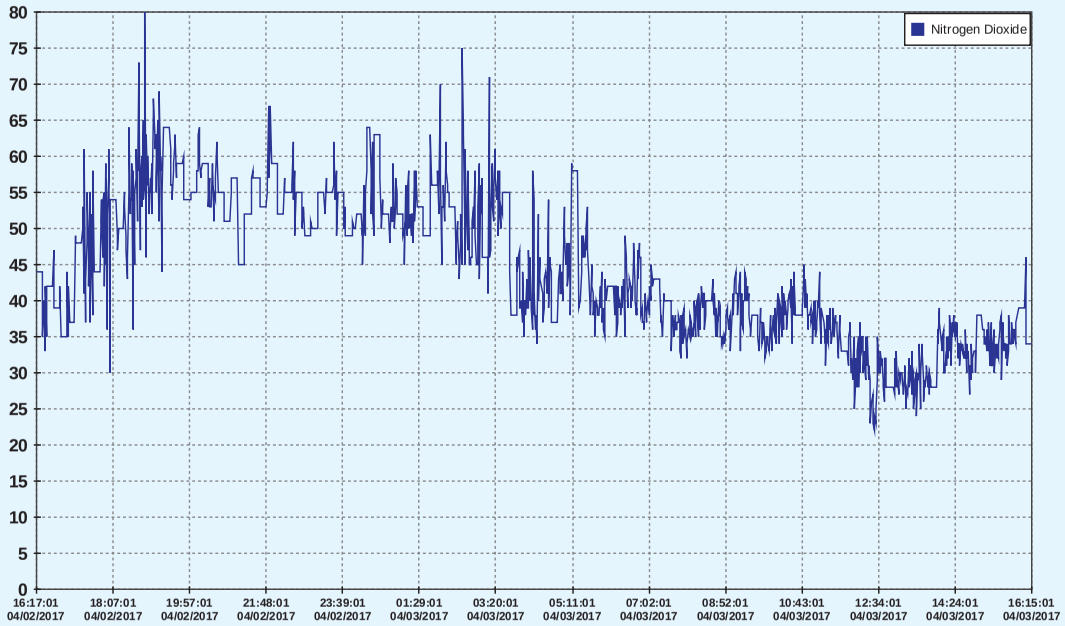
Header ID

Start: 4/2/2017 4: Record Count 1439 d: 4/3/2017 4:15:01 PM

Nitrogen Dioxide

Range: 0 to 5000 ppb

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
22	44.38	80	9.92	ppb		0.00%		0.00%



Graph Zoom

Min Graph 0

Max Graph 80

Record Start 1

Record End 1439

Sensor

Min Graph 0

Max Graph 50

Main | Preferences | Header | Data | Report | Help

Environmental Report

Logger ID 912005

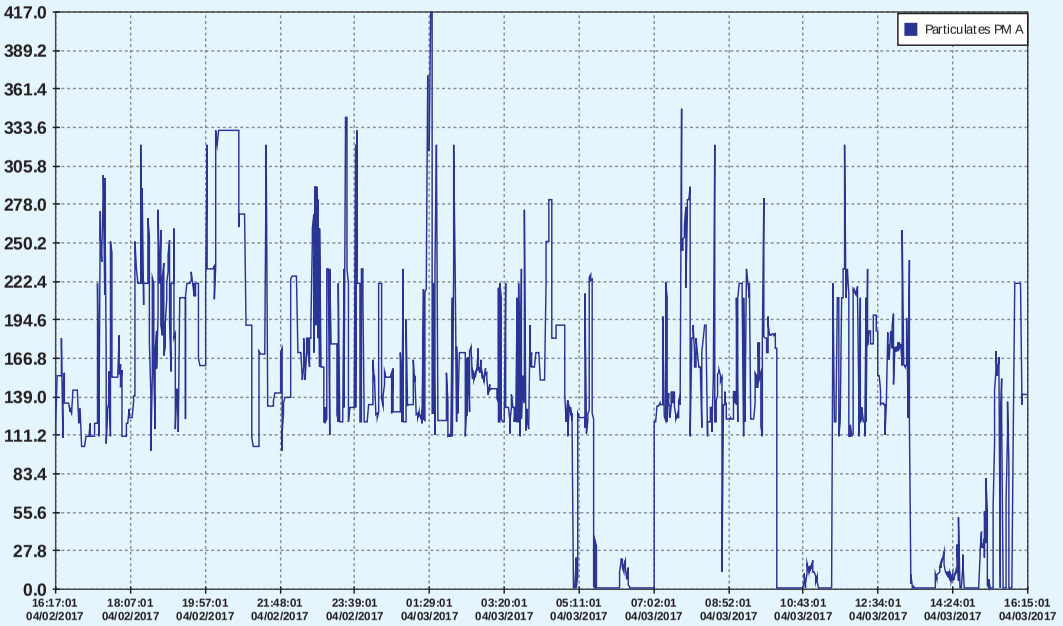
Header ID

Start: 4/2/2017 4: **Record Count** 1439 d: 4/3/2017 4:15:01 PM

Particulates PM A

Range: 0 to 20000 uG/m3

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
1	136.5	417	85.92	uG/m3		0.00%		0.00%



Graph Zoom

Min Graph 0

Max Graph 417

Record Start 1

Record End 1439

Sensor

Min Graph 0

Max Graph 50

Main | Preferences | Header | Data | Report | Help

Environmental Report

Logger ID 912005

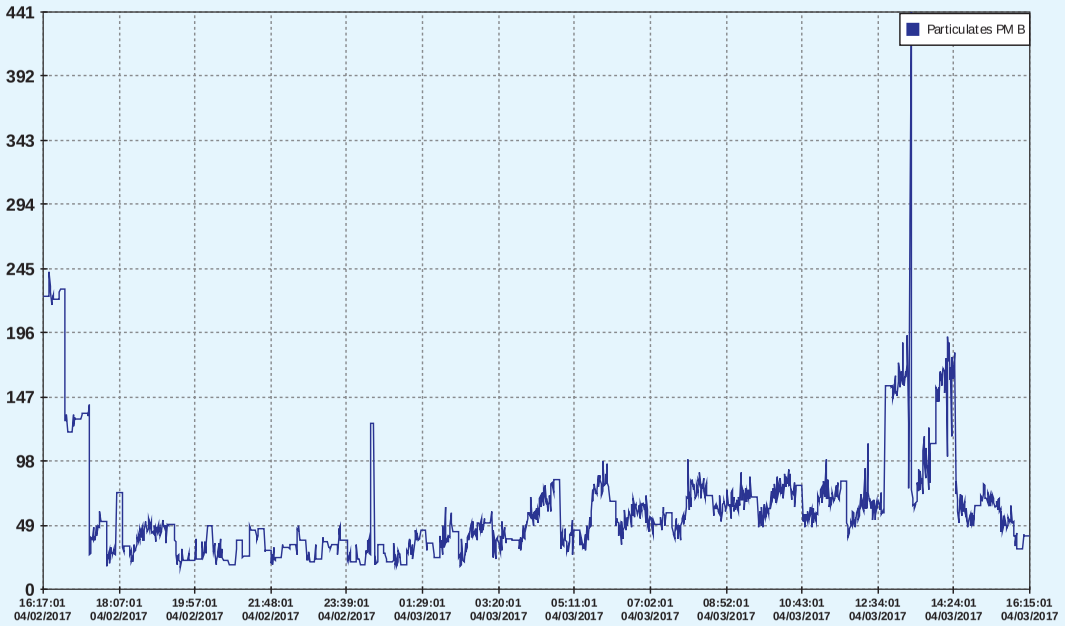
Header ID

Start: 4/2/2017 4: Record Count 1439 d: 4/3/2017 4:15:01 PM

Particulates PM B

Range: 0 to 20000 uG/m3

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
17	61.22	441	42.75	uG/m3		0.00%		0.00%



Graph Zoom

Min Graph 0

Max Graph 441

Record Start 1

Record End 1439

Sensor

Min Graph 0

Max Graph 50

Main | Preferences | Header | Data | Report | Help

Environmental Report

Logger ID 912005

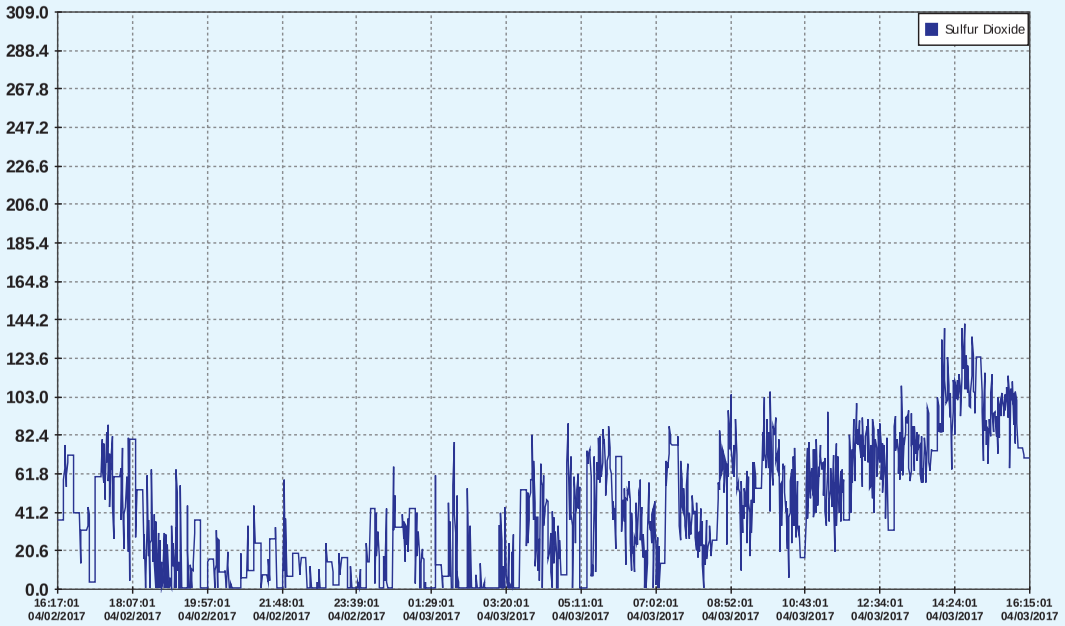
Header ID

Start: 4/2/2017 4: Record Count 1439 d: 4/3/2017 4:15:01 PM

Sulfur Dioxide

Range: 0 to 5000 ppb

Min	Ave	Max	Std. Dev		Hi Limit	% Above Hi	Lo Limit	% Below Lo
1	40.81	309	33.69	ppb		0.00%		0.00%



Graph Zoom

Min Graph 0

Max Graph 309

Record Start 1

Record End 1439

Sensor

Min Graph 0

Max Graph 75

Main | Preferences | Header | Data | Report

Alarm Sensor List

Clear List

Timer On

Timer Off

Logger Number 912005 **Header ID** -700000 **Last Data Time** 4/26/2017 1:00:49 PM **Record Count** 1439

Nitrogen Dioxide

Lo Limit: 34 Hi Limit

Min:	Ave:	Max:
22.0	44.0	80.0

Particulates PM A

Lo Limit: 141 Hi Limit

Min:	Ave:	Max:
1.0	137.0	417.0

Particulates PM B

Lo Limit: 41 Hi Limit

Min:	Ave:	Max:
17.0	61.0	441.0

Sulfur Dioxide

Lo Limit: 70 Hi Limit

Min:	Ave:	Max:
1.0	41.0	309.0

Temperature

Lo Limit: 40 Hi Limit

Min:	Ave:	Max:
1.0	35.0	52.0

Wind Direction

Lo Limit: 172 Hi Limit

Min:	Ave:	Max:
0.0	183.0	359.0

Wind Speed

Lo Limit: 0 Hi Limit

Min:	Ave:	Max:
0.0	1.3	17.4

Supply Voltage

Lo Limit: 11 Hi Limit

Min:	Ave:	Max:
0.0	11.0	11.3

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1214

Start Date 4/3/2017 5:07:01 PM

1215

End Date 4/4/2017 1:21:01 PM

	NO2 ppb	PMA uG/m3	PMB uG/m3	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V
Ave	**40.1728**	**77.0222**	**55.0748**	**15.2742**	**33.1596**	**169.669**	**.347654**	**10.8894**
Max	105	584	566	125	42	360	10.7	11.5
Min	10	1	6	1	3	0	0	0
	57	1	30	1	34	227	2.2	11.5

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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4593 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 3(a)

Date and Time of collection: 1:30 Pm / 3.4.17

Date and Time of receipt : -

Result of Analysis:

Total coliforms in MPN/ 100ml	16

(MPN= Most Probable Number)

Report: Water sample of B – 4593 is **bacteriologically unsatisfactory.**

Microbiologist: Head/ Consultant Microbiologist

Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
3. *Myer'sand Koshi's Manual of Diagnostic procedures in Medical Microbiology and Immunology/ Serology, 2001 (Christian Medical College and Hospital Vellore 632004, Tamil Nadu, India)*
4. *Guidance on the use of heterotrophic plate counts in Canadian drinking water supplies: FPT committee on Drinking water, January, 2012*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4594 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 3(b)

Date and Time of collection: 4:00 Pm / 3.4.17

Date and Time of receipt : 12:05 Pm/-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4594 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist
Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
3. *Myer'sand Koshi's Manual of Diagnostic procedures in Medical Microbiology and Immunology/ Serology, 2001 (Christian Medical College and Hospital Vellore 632004, Tamil Nadu, India)*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4595 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 1(a)

Date and Time of collection: 3:00 Pm / 3.4.17

Date and Time of receipt : 12:07 Pm/-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4595 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist
Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
3. *Myer'sand Koshi's Manual of Diagnostic procedures in Medical Microbiology and Immunology/ Serology, 2001 (Christian Medical College and Hospital Vellore 632004, Tamil Nadu, India)*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4596 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 1(b)

Date and Time of collection: 11:30 Am / 3.4.17

Date and Time of receipt : 12:05 Pm/-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4596 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist

Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4597 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 2(a)

Date and Time of collection: 11:00 Am / 3.4.17

Date and Time of receipt : 12:05 Pm/-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4597 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist

Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
3. *Myer'sand Koshi's Manual of Diagnostic procedures in Medical Microbiology and Immunology/ Serology, 2001 (Christian Medical College and Hospital Vellore 632004, Tamil Nadu, India)*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4598 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 2(b)

Date and Time of collection: 1:00 Pm / 3.4.17

Date and Time of receipt : -/-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4598 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist
Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4599

Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 4(a)

Date and Time of collection: 3:45 Pm / 3.4.17

Date and Time of receipt : 12:05 Pm /-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4599 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist

Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4600

Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 4(b)

Date and Time of collection: 4:00 Pm / 3.4.17

Date and Time of receipt : 12:05 Pm /-

Result of Analysis:

Total coliforms in MPN/ 100ml	>16

(MPN= Most Probable Number)

Report: Water sample of B – 4600 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist

Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
3. *Myer'sand Koshi's Manual of Diagnostic procedures in Medical Microbiology and Immunology/ Serology, 2001 (Christian Medical College and Hospital Vellore 632004, Tamil Nadu, India)*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4601 Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 5(a)

Date and Time of collection: 4:00 Pm / 3.4.17

Date and Time of receipt : 12:05 Pm /-

Result of Analysis:

Total coliforms in MPN/ 100ml	9.2
Faecal coliforms in MPN/100ml	2.2

(MPN= Most Probable Number)

Report: Water sample of B – 4601 is **bacteriologically unsatisfactory.**

Microbiologist:

Head/ Consultant Microbiologist
Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
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WATER BACTERIOLOGY REPORT

Laboratory No: B – 4602

Date of report: 10.4.17

Sender: EQM

Address: ထားဝယ်မြို့

Voucher No: 020995

Source (Description): Surface water 5(b)

Date and Time of collection: 2:15 Pm / 3.4.17

Date and Time of receipt : 12:06 Pm /-

Result of Analysis:

Total coliforms in MPN/ 100ml	0

(MPN= Most Probable Number)

Report: Water sample of B – 4602 is **bacteriologically satisfactory.**

Microbiologist:

Head/ Consultant Microbiologist

Bacteriology Section

Reference: 1. *Guidelines for Drinking-Water Quality, (Volume 3)2nd ed. WHO, Geneva: 1997*
2. *Dialysis water pre-treatment for In-Centre and Satellite Haemodialysis Units in NSW: A Set of Guidelines, June, 2008*
3. *Myer'sand Koshi's Manual of Diagnostic procedures in Medical Microbiology and Immunology/ Serology, 2001 (Christian Medical College and Hospital Vellore 632004, Tamil Nadu, India)*
4. *Guidance on the use of heterotrophic plate counts in Canadian drinking water supplies: FPT committee on Drinking water, January, 2012*
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ORIGINAL

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Fax: 211549

Client Name : ENVIRONMENTAL QUALITY MANAGEMENT CO.LTD
Address : NO.233 , 23 QUARTER , SAYAY PIN STREET , THUWANA , YANGON MYANMAR
Attn : MOH MOH THANT ZIN
Account: 1602229

INVOICE

Issuing Office : SGS - Yangon
Division : AGRI
SGS Ref. No : MM1710-2948

Invoice No. : 1710/03008
Issue Date : 4/24/2017
Client Ref. No. : ORD DT:5-4-2017

Product : WATER
Code : 1800

Certificate/Report No : Agri - 2948/17

Inspection Period : 4/11/2017 4/24/2017

Description of Goods and Services	Rate, MMK	Units	Quantity	Exc. CT (MMK)	Inc. CT (MMK)
Water - pH test charges	7500	lot	10	75,000.00	78,750.00
Water - Total Suspended Solid (APHA) test charges	13000	lot	10	130,000.00	136,500.00
Water - Ammonica Nitrogen Test Charges	13000	lot	10	130,000.00	136,500.00
Water - Nitrate Nitrogen Test Charges	13000	lot	10	130,000.00	136,500.00
Water - Total Phosphorus test charges	13000	lot	10	130,000.00	136,500.00
Water - Oil and Grease test charges (APHA Method)	30000	lot	10	300,000.00	315,000.00
Water - BOD test charges	30000	lot	10	300,000.00	315,000.00
Water - COD test charges	40000	lot	10	400,000.00	420,000.00

	MMK
Total excluding CT	*1,595,000.00*
Commercial Tax (CT) 5%	*79,750.00*
Total including CT	***1,674,750.00***

One Million Six Hundred Seventy Four Thousand Seven Hundred Fifty MMK

Payment Instruction for MMK
Bank Name: Yoma Bank (Main Branch)
Address: No.1, Kyunchan Street, Mingalartaungnyunt Township, Yangon, Myanmar
Bank Account Number: 000110262500069
Account Name: SGS (Myanmar) Ltd
Currency: MMK

Payment Instruction for USD
Bank Name: Co-Operative Bank (Head Office)
Address: No (334/336), Corner of Strand Road and 23rd Street, Latha Township, Yangon
Bank Account Number: 0010101200472638
Bank Swift Code: CPOBMMMY
Account Name: SGS (Myanmar) Ltd
Currency: USD

SGS (Myanmar) Limited
(Nu Nu Yi)
Manager

SGS

ORIGINAL

ANALYSIS REPORT

Job Ref: 2948/2017
Date : 18 April, 2017

Sample Described as	:	**ENVIRONMENTAL WATER**
Client Name	:	ENVIRONMENTAL QUALITY MANAGEMENT CO. LTD No.233, 23 Quarter, Sayay Pin Street, Thuwana, Thinkengyun Township, Yangon, Myanmar
Sample Received Date	:	05.04.2017
Sample Brought By	:	Client (Sampling Date : 03.04.2017, 1130)
Sample Reference	:	10
Sample Location	:	DAWEI, KAN BAUK
Analysed Date	:	05.04.2017

Lab Code Nos. : 080/2017 to 089/2017

No.	Test Parameter	LOQ	Result					Unit
			Surface Water, 1(a)	Surface Water, 1(b)	Surface Water, 2(a)	Surface Water, 2(b)	Surface Water, 3(a)	
1	pH	-	7.60	7.75	7.28	7.26	8.13	
2	Total Suspended Solid	20	<20	<20	<20	<20	<20	mg/L
3	Ammonia Nitrogen	5	<5	<5	<5	<5	<5	mg/L
4	Nitrate Nitrogen	0.05	0.210	0.146	0.090	0.082	0.116	mg/L
5	Total Phosphorus	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/L
6	Oil & Grease	5	<5	<5	<5	<5	<5	mg/L
7	BOD	2	5	4	3	4	4	mg/L
8	COD	10	98	94	97	95	141	mg/L

SGS (MYANMAR) LIMITED SGS (AFL)

SGS

ORIGINAL

Job Ref: 2948/2017
Date : 18 April, 2017

No.	Test Parameter	LOQ	Result					Unit
			Surface Water, 3(b)	Surface Water, 4(a)	Surface Water, 4(b)	Surface Water, 5(a)	Surface Water, 5(b)	
1	pH	-	7.74	6.97	6.68	6.20	6.22	
2	Total Suspended Solid	20	<20	<20	<20	<20	<20	mg/L
3	Ammonia Nitrogen	5	<5	<5	<5	<5	<5	mg/L
4	Nitrate Nitrogen	0.05	0.097	0.123	0.108	2.293	2.331	mg/L
5	Total Phosphorus	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/L
6	Oil & Grease	5	<5	<5	<5	<5	<5	mg/L
7	BOD	2	5	4	6	7	7	mg/L
8	COD	10	137	69	59	144	138	mg/L

Analysis methods followed to the method mentioned below:-

Test Parameter	Method
pH	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 4500-H^+ B.Electrometric Method
Total Suspended Solid	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 2540-D.Dried at 103-105 °C
Ammonia Nitrogen	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;4500-NH_3-A,B& C
Nitrate Nitrogen	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 4500-NO^{3-} B. UV Spectrophotometric Screening Method
Total Phosphorus	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;4500-P E.Ascorbic Acid Method
Oil & Grease	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;5520B
BOD	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012; 5210 D & Instruction Manual BOD-System Oxidirect (Lovibond)
COD	Standard methods for the examination of water & waste water APHA ,AWWA & WEF,22nd ed, 2012;5220 D.Closed Reflux, Colorimetric Method

**********End of Report**********

SGS (Myanmar) Limited

(Nu Nu Yi)
Manager

tmmh

Appendix 4 Data collection for social baseline

Community Questionnaire: Village Socio-economic Survey (Village leader)

Location Details			
Village: ကျေးရွာအမည်	**Thiri Mingalar**	*Township: မြို့နယ်*	**Yebyu**
Village Tract: ကျေးရွာအုပ်စုအမည်	**Kanbauk**	*District: ခရိုင်*	**Dawei**
State/Region ပြည်နယ်/တိုင်း	**Thanintharyi Region**	*Coordinates: ကိုအော်ဒိနိတ်*	
VTL Name	**U Aung Min Htun**	*VTL Signature*	

Village Level Primary Information							
1.	Population *လူဦးရေ*	**a. Total** *စုစုပေါင်း* 1,673		**b. Male** *ကျား* 812		**c. Female** *မ* 861	
2.	Number of households *အိမ်ထောင်စုဦးရေ*			*398*			
3.	Ethnicity လူမျိုး		**Ethnicity** လူမျိုး	**No. of HHs** *အိမ်ထောင်စုဦးရေ*		**Ethnicity** လူမျိုး	**No. of HHs** *အိမ်ထောင်စုဦးရေ*
		(a.)	Bamar ဗမာ		(b.)	Rakhine ရခိုင်	
		c.	Kachin ကချင်		d.	Shan ရှမ်း	
		e.	Kayah ကယား		f.	Indian အိန္ဒိယ	
		(g.)	Kayin ကရင်		h.	Chinese တရုတ်	
		i.	Chin ချင်း		j.	Other (.....)	
		k.	Mon မွန်		l.	Other (.....)	
4.	Are there any rivers cross the village? *ရွာကို ဖြတ်စီးသွားသည့်မြစ်ရှိပါက ဖော်ပြရန်*			-			
5.	How far is the sea from your village habitation?			19 miles			
6.	Are there any instances of disaster in the village, please mention year? Can you remember how it affected the community? *သင့်ရွာတွေ့ကြုံဖူးသော သဘာဝဘေးအွန္တရာယ် ဖြစ်ပွားသောခုနှစ်။ ရွာကိုမည်သို့ထိခိုက်သနည်း။*			-			

Livelihood *စားဝတ်နေရေး* ***What do people do to support themselves?***				
7.	Number of people engaged in these sources of livelihood *အလုပ်လုပ်ကိုင်မှု အခြေအနေ*	**Source of livelihood** အဓိက စားဝတ်နေရေး အလုပ်	**Number of HHs engaged** *အိမ်ထောင်စုပေါင်း*	**Primary Role of Man[1] and Woman[2]** *အမျိုးသား ၁ နှင့် အမျိုးသမီး ၂ တို့၏ အရေးပါမှု*
		a. Cultivator *စိုက်ပျိုးရေး* ☑		
		b. Agricultural laborers *လယ်စာရင်းငှား* ☑		
		c. Fishing *ငါးဖမ်းခြင်း* ☐		
		d. Business (SME, shop, trading etc.) *စီးပွားရေး (ဥပမာ-စျေးဆိုင်၊ ကုန်သွယ်ရေး၊ စသဖြင့်)* ☑		

		e. Hunting *တောလိုက်ခြင်း* ☐		
		f. Making coal *မီးသွေးဖုတ်ခြင်း* ☐		
		g. Livestock rearing *မွေးမြူရေး* ☐		
		h. Casual Labour/ temporary work *ကျဘန်း* ☐		
		i. Other *အခြား* ☐		
		j. Government service *အစိုးရဝန်ထမ်း* ☑		
		k. Private companies *ကိုယ်ပိုင်ကုမ္ပဏီ* ☐		
		l. Money from relatives (remittance) *ဆွေးမျိုးများမှ ထောက်ပံ့ခြင်း* ☐		

Fishing *ငါးဖမ်းခြင်း*

8 How do you classify the boats?

Type of Boats *လှေအမျိုးအစား*	**Size (feet)** *အရွယ်အစား*	**Carrying Capacity** *သယ်ဆောင်နိုင်သောဦးရေ*	**Motor capacity** *မော်တာ(မြင်းကောင်ရေအား)*	**Distance covered (in kms)** *သွားနိုင်သောအကွာအဝေး*	**Usually moves in Depth of (in mts.)** *သွားနိုင်သောရေ၏အနက်*	**Number of HHs** *အိမ်ထောင်စုပေါင်း*
1)						
2)						
3)						

9 How many households in the village are full time fishermen and have no land *ရွာတွင်မြေမရှိဘဲ အချိန်ပြည့်ငါးဖမ်းလုပ်ငန်းလုပ်သည့် အိမ်ထောင်စုပေါင်း*

10 How many families are fishermen and also have agricultural land *ရွာတွင်မြေရှိပြီး ငါးဖမ်းလုပ်ငန်းလုပ်သည့် အိမ်ထောင်စုပေါင်း*

11 What are the main types of fish catch *ဖမ်းမိရရှိနိုင်သည့် ငါးအမျိုးအစားများ*

Type of Fish *ငါးအမျိုးအစား*	Specific season/ round the year *ရာသီ*	Big boat/ Medium Boat/ Small Boat *(အသေး/အလတ်/အကြီး)*	Distance from the river at which they are usually found *မည်မျှဝေးဝေးသွားဖမ်းရပါသနည်း*
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

12 What is the main market for selling fish? *မည်သည့်စျေးတွင်ပြန်လည်ရောင်းချပါသနည်း*

1. Local (village) ဒေသတွင်း ☐ Yes
2. National နိုင်ငံတွင်း ☐ Yes
3. Export နိုင်ငံခြားသို့တင်ပို့ခြင်း ☐

13	What is the usual kind of fishing method? အသုံးပြုသည့် ငါးဖမ်းနည်းများ	1. Net Fishing ငါးဖမ်းပိုက် 2. Line Fishing တန်းချ 3. Other Fishing	☐ Yes ☐ Yes ....

Land

14	Do people engage in cultivation in this village? ရွာသားများအနေဖြင့် စိုက်ပျိုးရေးကို အခြေခံကြပါသလား		a. Yes, ☐ b. No ☐	
15	Do families own the land that they cultivate / farm? And if so, do they also live on the land? လယ်လုပ်သူမိသားစုများမှာ ထိုမြေကိုပိုင်ဆိုင်ပါသလား။ ပိုင်ဆိုင်ပါကထိုမြေပေါ်တွင်နေထိုင်ကြပါသလား။ If they don't own the land, who do they lease from and how is the system managed? အကယ်၍မပိုင်ဆိုင်ပါကမည်သူကငှင်းတို့ကိုငှားရမ်း၍လုပ်ခလစာ မည်မျှရသနည်း။		- -	
16	If the answer to the previous question is yes, how many families are engaged in agriculture? စိုက်ပျိုးရေးလုပ်ငန်းအားအခြေခံ လုပ်ကိုင်ပါက လုပ်ကိုင်သည့် အိမ်ထောင်စုပေါင်း		-	
17	What is the average land holding size per family in the village? (***mention in acres or any other unit but specify***) ပျမ်းမျှ မြေယာပိုင်ဆိုင်မှု (ဧက)		-	
	Provide the approximate proportion of land under each category *Specify the utilization of the land according to its categorization. E.g. agriculture, housing, playground, recreational etc.*	**i. Type of land အမျိုးအစား**	**ii. Proportion မြေယာပိုင်ဆိုင်မှုမှ အချိုး**	**iii. Utilization အသုံးချမှု (သီးနှံအမည်/ ရောင်းရန်/ စားရန်)**
		a. LE (wet) လယ်		
		b. Ya (dry) ယာ		
		c. Kaing (cultivable waste land, island etc.) ကိုင်း	/	
		d. Taungya (shifting cultivation) ရွှေ့ပြောင်း တောင်ယာ		
		e. Garden ဥယျာဉ်ခြံမြေ	/	Rubber
		f. Reserved forest ကြိုးပိုင်းတော		
		g. Current fallow ပလပ်မြေ		
		h. Other (specify) အခြား		
18	Do people use any irrigation methods for their field? ရေသွင်းစိုက်ပျိုးမှုရှိပါက ရေသွင်းသည့်နည်းလမ်း			
19	How many families use irrigation sources for their field? ရေသွင်းစိုက်ပျိုးသည့် အိမ်ထောင်စုအရေအတွက်			
20	What percentage of the total agricultural land will be irrigated? ရာခိုင်နှုန်းမည်မျှ ရေသွင်းစိုက်ပျိုးပါသနည်း			

Crops သီးနှံ

21	**Sample crops:** Monsoon Paddy (မိုးစပါး) , Summer Paddy (နွေစပါး) , Oil Seeds (ဆီထွက်သီးနှံ), Peas (ပဲပင်), Pulses (ပဲတောင့်), Maize (ပြောင်း), Wheat (ဂျုံ), Potatoes (အာလူး), Sweet Potato (ကန်စွန်းဥ), Onion (ကြက်သွန်နီ) , Garlic (ကြက်သွန်ဖြူ), Ginger (ဂျင်း), Turmeric (နနွင်း), Chili (ငြုပ်), Fruits (သစ်သီးဝလံ), Vegetables (ဟင်းသီးဟင်းရွက်), Sugar cane (ကြံ), Nippa Palm (အုန်းထန်းပင်), Coconut (အုန်းပင်), Betel nut/ leaf (ကွမ်း), Toddy (ထန်းပင်). We should just stress on getting the important crops which are either important for the survival of the HHs or are important for the income it brings to the household. Please pick from the options mentioned above, if the community needs help.	
	What are the major crops grown in the village. အဓိကစိုက်ပျိုးသည့် သီးနှံ	**1**..... **2**..... **3**..... **4**..... **5**.....

Livestock မွေးမြူရေး

22	Number of households rearing these livestock (tick the appropriate option) မွေးမြူရေးဆောင်ရွက်သည့် အိမ်ထောင်စုအရေအတွက်	**Type** အမျိုးအစား	**Number of Households having the livestock holdings** အိမ်ထောင်စုအရေအတွက်	**Main Use** မွေးမြူရခြင်းရည်ရွယ်ချက် **Eat** [1]/ **Trade**[2] (စားရန်°/ရောင်းရန်√)
		Buffalo ကျွဲ	☐ _____	
		Goats/Sheep ဆိတ်/ သိုး	☐ _____	
		Horse မြင်း	☐ _____	
		Cattle နွား	☐ _____	
		Ducks ဘဲ	☐ _____	
		Chickens ကြက်	☐ ___ almost house_____	private
		Pigs ဝက်	☐ ___ almost house_____	private
		Others အခြား	☐ _____	

Income/ Expenditure ဝင်ငွေနှင့်အသုံးစရိတ်

23	How many households fall into these Annual Income Levels? တစ်နှစ်ဝင်ငွေ	**Level of monthly income ဝင်ငွေ အဆင့်**	**Number of HH falling under the categories** **အိမ်ထောင်စုအရေအတွက်**
		a. Less than 25,000 Kyats < ၂၅,၀၀၀ ကျပ်	
		b. 25-50,000 Kyats ၂၅,၀၀၀- ၅၀,၀၀၀ ကျပ်	
		c. 50-100,000 Kyats ၅၀,၀၀၀- ၁၀၀,၀၀၀ ကျပ်	
		d. 100,000-200,000 Kyats ၁၀၀,၀၀၀- ၂၀၀,၀၀၀ ကျပ်	Yes
		e. 200,000-300,000 Kyats ၂၀၀,၀၀၀- ၃၀၀,၀၀၀ ကျပ်	
		f. More than 300,000 Kyats > ၃၀၀,၀၀၀ ကျပ်	

Village Infrastructure ကျေးရွာအခြေခံအဆောက်အဦ

24	Distance to the following facilities (in time mile) အကွာအဝေးဖော်ပြရန်				
	Infrastructure **အခြေခံအဆောက်အဦ**	**i. Facilities available** **ii. (Yes/ No)** **ရှိ/မရှိ ဖော်ပြရန်**	**iii. Distance from Village (in Minutes)** **အကွာအဝေး** **(မိနစ်ဖြင့်ဖော်ပြရန်)**	**iv. Preferred mode of Transport** **သယ်ယူပို့ဆောင်ရေး**	**Mode of Transport** **အသုံးပြုသည့်အမျိုးအစား**

	Health Center ကျန်းမာရေးစင်တာ				1) *Walking လမ်းလျှောက်* 2) *Bicycle, စက်ဘီး* 3) *Motor-cycle မော်တော်ဆိုင်ကယ်* 4) *Car ကား* 5) *Boat လှေ*
	Seed/grain bank မျိုးစေ့ဘဏ်				
	Cyclone shelter ဆိုင်ကလုန်းအဆောက်အဦ				
	Hand pumps လက်နှိပ်ပန့်	yes			
	Grocery shops ကုန်စုံဆိုင်				
	Chemist /Pharmecy ဆေးဆိုင်				
	Post office စာတိုက်				
	Bank ဘဏ်				
	Other (specify) အခြား.....				

25	Access to Road Facilities in the village (tick the appropriate) ရွာလမ်း	a. No Road (reaching all the way to the village); လမ်းမမရှိပါ b. Rough Track (Bullock Cart or Walking only); လမ်းလျှောက်ရန်/ နွားလှည်းနှင့်သွားရန် c. Accessible by trawlargee but not cars/trucks; ထော်လာဂျီနှင့်သာသွားရန် d. Accessible by car/ truck in dry weather only; နွေရာသီတွင်သာ ကား/ထရပ်ကားဖြင့်သွားရန် (e.) Accessible by car/truck in all-weather ရာသီတိုင်း ကား/ထရပ်ကားဖြင့်သွားရန်	☐ ☐ ☐ ☐ ☐Yes

Availability, access and proximity to the education services ပညာရေး		**i. Facility ပံ့ပိုးမှု**	**ii. Distance (km or mile) အကွာအဝေး (ကီလိုမီတာ/ မိုင်)**	**iii. Quality (Good[1]/bad[2]/no comments[3]) အရည်အသွေး (ကောင်း[1]/ညံ့[2]/ မသိပါ[3])**
26	Operational Education System ပညာရေးစနစ်	a. Nursery နေ့ကလေးထိန်း	5 min/ 10 min	Good
		b. Primary မူလတန်း		Good
		c. Middle အလယ်တန်း		
		d. Secondary အထက်တန်း	1 school	Good
		e. University တက္ကသိုလ်		
		f. Vocational training institute သက်မွေးပညာသင်ကျောင်း		
		g. Religious School ဘုန်းတော်ကြီးပညာသင်		
27	Market (when and where) ဈေး (ဖွင့်ချိန် / နေရာ)	a. Every day market နေ့စဉ်ဈေး	15 min/ 20 min	
		b. Weekly market (for basic provisions) တစ်ပတ်တစ်ခါဈေး		
		c. Monthly market (for trade) တစ်လတစ်ခါဈေး		
		d. Occasional market		

		အခါအားလျော်စွာဖွင့်သည့်စျေး		
28	Operational Health System ကျန်းမာရေးစနစ်	a. Town council မြို့နယ်ဆေးရုံ		
		b. Station hospital တိုင်းအဆင့်ဆေးရုံ		
		c. Rural health center ဆေးခန်း	One hospital/ 15 min	
		d. Rural health Sub-center Rural health Sub-center (eg local mid-wife)ကျေးလက်ဆေးပေးခန်း (သားဖွားဆရာမ)		
		e. Village health committee ကျေးရွာကျန်းမာရေးကော်မတီ		
29	**Credit Facility ချေးငွေဆိုင်ရာပံ့ပိုးမှု**			
A	**How do people borrow money? ငွေချေးနိုင်မှုအခြေအနေ**	1. Family မိသားစု 2. Friends/ Neighbours သူငယ်ချင်း/ အိမ်နီးချင်း 3. Licensed creditor အမိန့်ရအပေါင်ဆိုင် 4. Bank ဘဏ် 5. Savings group ငွေစုအုပ်စု 6. Other (specify): အခြား _____		
B	What is the interest rate? အတိုးနှုန်း	☐ .....2...% per ..... (period[1] ကာလ ိ: year[2] နှစ် ျ, month[3] လ ံ) ☐ No interest အတိုးမဲ့		
C	Why do people borrow money? ငွေချေးယူရသည့် အကြောင်းရင်း	1. Repairing/buying boats (လှေပြင်ရန်/ဝယ်ရန်) 2. Repairing or buying fishing equipment (ငါးဖမ်းပစ္စည်းဝယ်ရန်/ ပြင်ရန်) 3. Food (အစားအစာ) 4. Medical facilities (ဆေးဝါး) 5. For Marriage (လက်ထပ်ထိမ်းမြားရန်) 6. For house construction (အိမ်ဆောက်ရန်) 7. For Business (စီးပွားရေးလုပ်ရန်) 8. Others (education, land etc). အခြား (ပညာရေး /မြေဝယ်ရန်)		
30	Identify the five main health challenges in the village according to the following အဓိကရင်ဆိုင်ရသော ကျန်းမာရေးပြဿနာ ငါးမျိုးကိုဖော်ပြပေးပါ။	**a. General b. အထွေထွေ**	**c. Especially among women အမျိုးသမီး**	**d. Especially among children ခလေး**
		A. Diarrhoea ဝမ်းလျှောခြင်း		
		B. Malaria ငှက်ဖျား		
		C. Respiratory tract infection (cold, cough etc) အအေးမိဖျားနာ		
		D. Cholera ကာလဝမ်းရောဂါ		
		E. Tuberculosis တီဘီအဆုပ်နာ		
		F. HIV/AIDS		
		G. Guinea worm သံကောင်		
		H. Sexually transmitted infection ကာလသားရောဂါ		
		I. High blood pressure သွေးတိုး		
		J. Skin rash/itches အရေပြားရောဂါ		

		K. Other အခြား		
31	Access to Electricity လျှပ်စစ်ရရှိမှု	**a. Type of electricity supply ရရှိသည့်အခြေခံ**	**b. No. of HHs utilizing အိမ်ထောင်စုအရေအတွက်**	**c. Power Consumption/day နေ့စဉ်သုံးစွဲသည့်ပမာဏ**
		a. Government Electricity/ National Grid နိုင်ငံတော်		
		b. Electricity Organized by the Village ရပ်ရွာ အခြေခံ		
		c. Electricity by private/ commercial generator ကျင်နရေတာ		
		d. Solar နေရောင်ခြည်စွမ်းအင်သုံး		
		e. No electricity လျှပ်စစ်မသုံးစွဲပါ		
32	Cooking fuel ချက်ပြုတ်သည့် လောင်စာ	What type of cooking fuel is used in the community? 1) Firewood 2) Charcoal 3) Electricity 4) Other ချက်ပြုပ်သည့်အခါတွင် မည့်ကဲ့သို့ သော လောင်စာအမျိုးအစားကို အသုံးပြုသနည်း။ ၁) ထင်း ၂) မီးသွေး ၃) လျှပ်စစ် ၄) အခြား	charcoal	
Water Services ရေအရင်းအမြစ်				
33	**Water sources ရေအရင်းအမြစ် Where do people get drinking water? သောက်ရေမည်ကရရှိပါသနည်း**	a. River (မြစ်) b. Creek (ချောင်း) c. Pond (ရေကန်) d. Brick Well (အုတ်စီရေတွင်း) Yes e. Hand –Dug Well (လက်ရက်တွင်း) f. Tube Well (Motor Pump) (ရေစုပ်စက်-မော်တာပန့်) g. Tube Well (Hand Pump) (တုံကင်) h. Spring Water (natural) (ပိုက်သွယ်တန်း-သဘာဝ) i. Spring Water (stored) (ပိုက်သွယ်တန်း- သိုလှောင်) j. Public Water Supply (အစိုးရရေပိုက်) k. Rain Water Storage Tank (မိုးရေသိုလှောင်ကန်) l. Other အခြားဖော်ပြရန် (Specify)……		
		Option 1…… ပထမအခြေအနေ	Option 2…… ဒုတိယအခြေအနေ	Option 3…… တတိယအခြေအနေ
	a. Distance from the village ရွာမှ	4 miles		

	အကွာအဝေး			
	b. Availability of water (In months)လစဉ်ရေရရှိမှုအခြေအနေ	April - May		
	c. Quality (Good/ Average/ Bad) အရည်အသွေး (ကောင်း/သင့်/ညံ့)	Good		

34. Priority wise Key expectations for the village စီမံကိန်းနှင့် ပတ်သက်၍ ကျေးရွာအတွက် အဓိကဂျုံး ဦးစားပေးရမည့် မျှော်မှန်းချက်များ

	i. Men အမျိုးသား		ii. Women အမျိုးသမီး		iii. Youth လူငယ်
A	Job opportunities	A	Job opportunities	A	Education
B		B		B	
C		C		C	

Social Group Support

Try to understand the social networks in the village. Try to understand through a discussion on the existence of these groups, role they perform and then try to fill in the information in the table below.

Use these codes for the following one question:

Nature of support – 1. None II. Monetary III. Farming IV. House Construction V. Other (specify)

35	Type of Group အုပ်စုအမျိုးအစား	Number of Members အဖွဲ့ဝင်အရေအတွက်	Frequency of Meeting (In months) လစဉ်တွေ့ဆုံသည့် အကြိမ်အရေအတွက်	Nature of Support Received အထောက်အပံ့ရရှိမှု	Any contribution to group အခြား ကူညီထောက်ပံ့မှု
	a. Youth Group လူငယ်အုပ်စု				
	b. Fishing Group ငါးဖမ်းအုပ်စု				
	c. Farming Group လယ်သမားအုပ်စု				
	d. Hunter Group အမဲလိုက်အုပ်စု				
	e. Community Group ရပ်ကွက်အုပ်စု				
	f. Religious Group ဘာသာရေးအသင်း	50	Sunday		
	g. Low Interest Micro Credit group အသေးစားငွေချေး	100	Sometime in month		
	h. Other (specify) အခြားဖော်ပြရန်				

36	Does the village have some kind of fishing association or cooperative? ငါးလုပ်ငန်းဆိုင်ရာ အသင်း/အဖွဲ့အစည်းရှိပါသလား	
	How does the fishing association work? မည်သို့ဆောင်ရွက်လေ့ရှိသနည်း	

Non-governmental Organizations Operational in the community အစိုးရမဟုတ်သောအဖွဲ့အစည်းများဆောင်ရွက်ပေးမှု

Use these options for the following questions:

Nature of Work – Health, Sanitation, Education, Livelihood, Water supply, Micro-credit, Environment conservation, Other (specify),

Benefits Received – Technical training, Medical Supplies, Other Capacity Building, Credit Group Formation, Other (specify)			
37	**Are their NGOs or CSOs operational in the area?** **အစိုးရမဟုတ်သောအဖွဲ့.အစည်းများနှင့် လူမှုရေးရာအဖွဲ့.အစည်းများရှိပါသလား**	a. Yes, b. No If the answer is **yes**, move to the next question, otherwise skip	
38	**i. NGO name / CSO name အမည်**	**ii. Nature of Work လုပ်ငန်း**	**iii. Benefits Received အကျိုးကျေးဇူး**

Sacred sites, graves and heritage sites ထိန်းသိမ်းစောင့်ရှောက်ရမည့် နေရာ - ဂူ၊ ယဉ်ကျေးမှုဆိုင်ရာအမွေအနှစ်				
39	**i. Object အမည်**	**ii. Location's Name နေရာအမည်**	**iii. Distance from village (in mins or kms or mile) အကွာအဝေး (မိနစ်/ကီလိုမီတာ/မိုင်)**	**iv. Likely to fall within the Project area or not စီမံကိန်းဧရိယာတွင်းမှာပါဝင်မှုရှိ/မရှိ**

Knowledge about the Project စီမံကိန်းနှင့် ပတ်သက်သည့်ပဟုသုတ			
40	Do you have any information regarding the proposed Project? စီမံကိန်းနှင့် ပတ်သက်၍သိရှိပါသလား	a. Yes, I know about the Project သိရှိပါသည် **Yes** b. Yes, somewhat သိသလိုလိုရှိပါသည်	c. No မသိရှိပါ d. No response ဘာမှမပြောလိုပါ
41	**If Yes**, from where did you hear about the Project? သိပါက မည်သို့.သိရှိခဲ့ပါသနည်း If No. how would like being communicated about the project? မသိဘူး ဆိုပါက မည်ကဲ့သို့ သောနည်းလမ်းများဖြင့်စီမံကိန်းအကြောင်းကို မိတ်ဆက်ပေးရန် လိုအပ်ပါသနည်း	a. Government Department (အစိုးရဌာနများ) **Yes** b. Technical Surveyors (နည်းပညာအရတိုင်းထွာမှုများမှ) c. Newspapers (သတင်းစာများ) d. Neighbours (အိမ်နီးချင်းများ)	e. Community Elders/ Traditional leaders ကျေးရွာခေါင်းဆောင်များ **Yes** f. Direct Contact with the community member လူမှုရေးအဖွဲအစည်းအဖွဲ့.ဂင်များမှ g. Radio ရေဒီယို h. Any Other(specify) အခြားရှိကဖော်ပြရန် .....

GRS Grievance redressal system		
42	Information Disclosure system in the village. ရွာမှ သတင်းအချက်အလက်ဖြန့်ဝေမှုစနစ်။ a. How information made available to the community? To the community? ရွာလူထုမှ သတင်းအချက်အလက်ဘယ်လိုရလဲ။ Is it through community radio, Television, public address system, newspapers, notice, meetings in the community etc. ရေဒီယို၊ TV၊ သတင်းစာ၊----	

43	Grievance redressal system in the village ရွာမှာဆုံးရှုံးနစ်နာမှုအတွက်ဘယ်လိုလုပ်ဆောင်ပေးလဲ။ a. What kind of grievance situations arises for the community? ရွာမှာထိခိုက်မှုအမျိုးအစားဘယ်လိုရှိလဲ။ b. How are these grievances settled? ဘယ်လိုဆောင်ရွက်ပေးလဲ။ c. What is the role of village level institutions in addressing these grievances? နစ်နာချက်တွေကိုကိုင်တွယ်ဆောင်ရွက်တဲ့အခါ ရပ်ရွာတွေအဆင့်အခန်းကဏ္ဍကဘယ်လိုလဲ။	
44	What kinds of grievances are typically raised by the community? လူ့အဖွဲ့အစည်းတွေမှာဘယ်လိုမျိုးနစ်နာချက်တွေ ပေါ်ပေါက်လဲ။ a. What is the role of the related department in handling these grievances? နစ်နာချက်တွေကိုဖြေရှင်းတဲ့အခါ နစ်နာချက်တွေကို သက်ဆိုင်ရာဌာနများမှ ဘယ်လိုလုပ်ဆောင်ပေးပါသလဲ။ b. What is the role of the Client in handling the grievances? စီမံကိန်းပိုင်ရှင်မှ မည်သို့တာဝန်ယူဆောင်ရွက်ပေးသနည်း c. Are they handled in a similar fashion like the general grievances in the community? ရပ်ရွာတွေမှာအထွေထွေနစ်နာချက်တွေကိုဘယ်လိုလုပ်ဆောင်ပေးလဲ။	
45	General understanding of vulnerability in the village ရွာ၏အထွေထွေ ထိခိုက်မှုရှိနိုင်မည့်သူများ a. What is the understanding of vulnerability in the village? ရွာမှာထိခိုက်နိုင်မှုရှိတဲ့လူတွေကိုဘယ်လိုခွဲခြားသိနိုင်လဲ။ • Poor ဆင်းရဲ • Disabled မသန်မစွမ်း • Old age အသက်ကြီးသူ • Widow မုဆိုးဖို/မုဆိုးမ b. Why are they considered vulnerable by the community? ကျေးရွာအဖွဲ့အစည်းအနေဖြင့်ထိခိုက်မှုတွေကိုမည်သို့စဉ်းစားပေးပါသနည်း c. What are the support systems (if any) to help these people? ရွာသူ/သားတွေကိုဘယ်လိုထောက်ပံ့မှုမျိုးလုပ်ဆောင်ပေးလဲ	
46	Previous experience of any project in the area. အရင်တုန်းကစီမံကိန်းများရှိခဲ့သလား။ a. Are there past experiences of other projects in the area? Or engagement with other operators or large companies? b. ဤနေရာတွင် အခြားမည်သည့်ကုမ္ပဏီ(သို့) စီမံကိန်းများရှိပါသလား။ c. Was there any issue with the community? ကျေးရွာအဖွဲ့အစည်းနဲ့ပတ်သက်ပြီးအတွေ့ကြုံရှိလား။	

Appendix 5 Public Consultation Meeting activities with attendance lists and meeting minutes

Environmental Management Plan for Kanbauk Mine by DELCO

Record of Attendee List of Stakeholder Consultation Meeting

Place: Meeting Hall at DELCO Office

Date :03-04-2017

Public

No.	Name	Position	Department/ Organization	Address
1	U Than Swe	Digging worker	Delco	Khaing Thazin
2	U Lay Htet Aung	Digging worker	Delco	Mya Thida
3	U Aung Thin	Store Keeper	Delco	Kan Pauk
4	U Baran Sai	Engineer	Delco	Kan Pauk
5	U Aung Myo Myint	Mechanic	Delco	Kan Pauk
6	U Phyo Wai Aung	Driver	Delco	Kan Pauk
7	U Zaw Min Oo		Delco	Kan Pauk
8	Daw Muyar Mo Mo	Clerk	Delco	Kan Pauk
9	U Moe Zaw	Manager	Delco	Kan Pauk
10	U Myint Thu Win	Worker	Delco	Kan Pauk
11	U Cho Lay	Mining	Delco	Kan Pauk
12	U Kyaw Sein Hla	Store Keeper	Delco	Kan Pauk
13	U Zaw Win Htun	Social	Delco	Kan Pauk
14	U Nyun Win	Medical	Delco	Kan Pauk
15	U Aung Myint	Mechanic	Delco	Kan Pauk
16	U Thet Naing Oo	Worker	Delco	Kan Pauk
17	U Naing Win Kyaw	Worker	Delco	Kan Pauk
18	U Hein Moe Aung	Worker	Delco	Kan Pauk
19	U Zin Ko Aung	Worker	Delco	Kan Pauk
20	U Yan Naing Moe	Worker	Delco	Kan Pauk
21	Daw Hnin Pwint Han	Clerk	Delco	Kan Pauk
22	Daw Mya Yi	Worker	Delco	Kan Pauk
23	Daw Ni Ni Win	Worker	Delco	Kan Pauk
24	U Zarni Oo	Worker	Delco	Kan Pauk
25	U Htet Oo	Worker	Delco	Kan Pauk
26	Daw Khine War New	Worker	Delco	Kan Pauk
27	U Saw Min Htike	Driver	Delco	Kan Pauk
28	U Arkar Bo	Mechanic	Delco	Kan Pauk
29	U Htay Naing Win	Driver	Delco	Kan Pauk
30	U Altar Taw	Worker	Delco	Kan Pauk
31	U Kyaw Pyae	Worker	Delco	Kan Pauk
32	U Nwee Win	Worker	Delco	Kan Pauk
33	U Nyi Nyi Soe	Geologist	Delco	Thiri Mingalar
34	U Saw Ginyami	Worker	Delco	Thiri Mingalar
35	U Naing Zaw Oo	Worker	Delco	Mya Thida
36	U Sithu Htun	Worker	Delco	Yaphyu
37	U Hla Soe	Worker	Delco	Kan Pauk
38	U Sithu Kyaw	Worker	Delco	Kan Pauk

39	U Thet Oo	Worker	Delco	Kan Pauk
40	U Aye Min Htun	Clerk	Delco	Kan Pauk
41	U Zaw Min Htun	Worker	Delco	Kan Pauk
42	U Kyaw Soe Oo	Diver	Delco	Kan Pauk
43	U Hein Soe			Kan Pauk
44	U Kyaw Thura			Kan Pauk
45	U Thein Chein			Kan Pauk
46	U Maung Lwan			Kan Pauk
47	U Than Zin Aung			Kan Pauk
48	U Thein Win	Mechanic	Delco	Kan Pauk
49	U Kwar Lar Htoo	Worker	Delco	Kan Pauk
50	U Saw Shi Shi	Worker	Delco	Kan Pauk
51	U Aung Thu Naing	Worker	Delco	Kan Pauk
52	U Aye Min Win	Driver	Delco	Kan Pauk
53	U Saw Alphaw	Driver	Delco	Kan Pauk
54	U Myo Myint Thu	Driver	Delco	Kan Pauk
55	Daw Ei Thinzar	Clerk	Delco	Kan Pauk
56	U Aung Myo Oo			Kan Pauk
57	U Aung San Oo			Kan Pauk
58	U Kyaw Min Aung			Kan Pauk
59	U Shwe San			Kan Pauk
60	U Soe Win			Kan Pauk
61	U Kyaw Kyaw			Kan Pauk
62	U Nyi Nyi			Kan Pauk
63	Daw Ei Ei Zin	Worker	Delco	Kan Pauk
64	U Nyein Chan Paing	Worker	Delco	Kan Pauk
65	U San Tin	Worker	Delco	Kan Pauk
66	U Thiha Soe	Worker	Delco	Kan Pauk
67	U Kyaw Kyaw	Worker	Delco	Kan Pauk
68	U Thiha Kyaw	Worker	Delco	Kan Pauk
69	U Thein Win Aung	Worker	Delco	Kan Pauk
70	U Yan Naing Htun		Delco	Kan Pauk
71	U Aye Htun		Delco	Kan Pauk
72	U Htet Aung Zaw		Delco	Kan Pauk
73	U Aung Thu Phyo	Assistant Manager	Delco	Kan Pauk
74	U Kyaw Sein Aung		Delco	Kan Pauk
75	U Naing Lwin Oo	Junior Geologist	Delco	Kan Pauk
76	U Sai Min Htun	Driver	Delco	Kan Pauk
77	U Aung Kyaw Moe	Driver	Delco	Kan Pauk
78	U Soe Myint	Community Representative		Mya Thida
79	U Tin Win Aung	Community Representative		Mya Thida
80	U Ko Ko Gyi	Community Representative		Kan Pauk
81	U Kyaw Kyaw	Community Representative		Gagaw Taung
82	U Tin Shwe	Community Representative		Ngwe Nyo Kone (2)
83	U Kyaw Kyaw Naing	Community Representative		Bogoke
84	U Soe Lwin	Community Representative		Michaung Ai
85	U Myint Soe	Community Representative		Khin Thazin

86	U Myint Aung	Community Representative	Kan Pauk
87	U Moe Kyaw	Community Representative	Mya Thida
88	U Aung Min Htun	Community Representative	Thiri Mingalar
89	U Soe Myint	Community Representative	Sat Kone
90	U Hla Aung	Community Representative	Bogoke
91	U Hla Htun	Community Representative	Mya Thida

Government

1	U Aung Naing	Township GAD officer	GAD	Kalain Aung
2	U Htay Win	Clerk	GAD	Kalain Aung
3	U Myint Oo	Staff Officer	Police Services Department	Kan Pauk
4	U Hla Win	Officer	Police Services Department	Kan Pauk
5	U Aung Khaing	Staff Officer	GAD	Kan Pauk

Organization

1	Daw Khaw Win	CEO	DELCO	
2	U Lun Maung	Deputy Director	DELCO	
3	U Tint Naing	General Manager	DELCO	
4	Daw Yi Ywe Soe	Assistant Operation Mana	DELCO	
5	Daw Ei Thinzar	BC	DELCO	
6	Daw Myat Mon Swe	Senior Consultant	ERM	

Meeting of Minutes – DELCO

Detail			
Project	Upgrade of EMP		
Venue	DELCO Hall	**Region/State**	Tanintharyi
Village Tract	Kanbauk	**Township**	Ye Phyu
Objective	Stakeholder Consultation for Upgrade of EMP		
Date	3rd April 2017		
Time	1.30-3.00PM		
Attendee	Public (91) Government (5) Organization (6) Total (110)		

Agenda

1) Opening Speech by U Aung Naing, Township Administrator, Ka Lain Aung Town on behalf of Ye Phyu Township Administrator
2) Explanation about DELCO Co., Ltd and Mining activities by U Lun Maung, Deputy Director (Administration) from DELCO
3) Explanation of existing EMP by Daw Myat Mon Swe, Senior Consultant, ERM
4) Explanation of CSR by U Tint Naing, General Manager, DELCO
5) Discussion
6) Closing Meeting

Opening Speech by U Aung Naing:

- Thank you for the disclose information about DELCO project activities and the outcome of the EMP. DELCO EMP is being undertaken under the instruction of the Ministry of Environmental Conservation and Natural Resources (MONREC) and is required to obtain the ECC from MONREC for the continuous project activities. The EMP provides the environmental and social impact assessment and its related mitigation measures. DELCO has to submit a Monitoring Report to MONREC every 6 months and the authorised departments will check to ensure the conservation of the environment and social baseline around the project activities. Due to their CSR programme, DELCO has donated to the community development. ERM have been commissioned by DELCO as third party experts to conduct this EMP. Public participation is required for the success of the project activities.

Explanation by U Lun Maung:

- Explained the history of Mining.
- Kanbauk mine is owned by Developers Entrepreneurs Liaison Construction Organizers Limited (DELCO) from November 1998 up to present and they have a permit to mine tin and tungsten at the Kanbauk site.
- Project Facilities include ore processing operations (single open pit, an ore processing facility (OPF), run-of-mine (ROM) ore stockpiles, and a tailing storage facility (TSF).
- Also includes a hydroelectric power plant (HEPP) and associated mine support buildings, including a workshop, offices, accommodation, and laboratory.
- Explained the project execution including the project layout map and the project activities of open pit mining operations, ore processing facility sorts the material (by gravity separation) mined from the pit and tailing pond to collect the residual from the ore processing facility.
- Finally explained the water storage and usage at the project operation and other site activities.

Explanation by Daw Myat Mon Swe:

- Explained that ERM is conducting EMP by the instruction of Ministry of Environmental Conservation and Natural Resources (MONREC) and the EMP required for national permitting to obtain the Environmental Compliance Certificate (ECC) to continue operations.
- EMP also ensures potential environmental and social impacts are mitigated and will not lead to significant adverse effects on the environment or people during the Project.
- The EMP lists the obligations and responsibilities of the Project Proponent including mitigation measures and management procedures.
- ERM commissioned by DELCO as third party experts to conduct the EMP and explained about the ERM as an international EIA consultant Farm.
- The potential impacts such as air emission, surface waters, and increases of ambient sound and generation of sound from processing machines and road clearance machinery, generation of general waste and hazardous waste, and its related mitigation measures are explained.
- The monitoring should be considered the implementation of dust monitoring plan for the locations close to each of the sensitive receptors. A system of surface water and ground water monitoring points should be developed to ensure detection of any uncontrolled release of mine affected water from the site the receiving environment.
- Failure of the existing waste control and containment infrastructure (notably the Sinyat dam) needs to be monitored to ensure a significant release of water to local water catchment. There is a need for frequent monitoring and inspection of integrity of this facility.
- Monitoring of all activities likely to result in noise and vibrational disturbance should be monitored periodically. The company should also ensure the existing community grievance mechanism to ensure any excess noise records from local community is directly fed back to the company.
- DELCO will develop and follow an Emergency Plan which includes plans and procedures to identify unsafe conditions and the corrective actions to avoid accidents related to Health& Safety as well as environmental incidents. The ERPs should contain instructions for support relating to:
    - Chemical substances Spill Emergency Plan ;
    - Medical emergencies procedures;
    - Social Emergencies Procedures (i.e., protests, vehicle accidents);
    - Heavy weather/storms / flood events;
    - Hazardous material spill response plans; and
    - Any other emergency response plan required by Myanmar authorities.

Explanation by U Tint Naing:

- **DELCO** has done CSR programme for the Kanbauk community development since 2007 and all donations are recorded by the CEO's command and some of the donations are shown in this presentation.
- Then explained some of the donations provided by DELCO in education, health and infrastructure for the community development in Kanbauk area as part of the CSR Programme which are included as follow:
    - **Health:** Support to the Basic First Aid Training, donate of Red Cross office building to place the ambulance car, support daily a Damp truck to collect the domestic waste from Kanbauk village, donate the crutches and a tube well to the Kalainaung Hospital and grow 119,22 plants (such as Rubber, Cashew, Jengkol bean, betal vine, rambutan, kapok, Jack fruit, Son Pa Dat (a kind of fruit), Coconut and Mango for the environmental conservation point of view.
    - **Education:** Donate of the new installation of Ceilings, Windows and Doors of buildings of school in Magin Ward, Kanbauk group and 10 million Kyats donation to renovate 5 schools in Kanbauk group.
    - **Infrastructure:** Donate of the new bridge and road across the Ye Yin Creek (660,000 MMK), Myathidar Road renovation in Kanbauk group (26 million Kyat), renovation of Paya road and Ye Yin Creek in this year.

- Explained of the summary of donation for the community development by DELCO is total donation for overall up to now is over 1,042 million Kyats between 2007 and 2017 and explained detail as follow and said that DELCO will take care of the public awareness.

No.	Subject	Amount (Kyats)
1	To participate the international media section for the improvement of mining industry	333,150,045
2	Donation for the road construction in Yangon Region	49,290,520
3	Donation for the rural development of Kanbauk	111,431,300
4	Donation for the sand, wages, cars and vehicles in Kanbauk	67,167,000
5	Compensation fees for the trespassed rubber plantation and other crops within our block area that issue by.	220,872,000
6	Land rental fees that pay from Delco for the trespassed land	56,340,220.17
7	Compensation fees for the land and houses due to the effect of breaking down tilling ponds	165,351,396
8	Compensation fees that gave from Delco for the crops in line for the ditch construction according to the Township water committee	38,538,000
Total		**1,042,140,481.17**

Question and Answer Session

Q1. U Hla Aung (Community Representative):
We, Kanbauk community people do not have to be afraid with closed eyes and we have to be afraid with opened eyes at present in Myanmar. We thank you for the transparency of DELCO by disclosing information about EMP. However, the holding meeting in the DELCO compound is not enough to disclose the information and it must be held in the public compound to explain to all people. So that we request to do a public meeting again in Kanbauk area. The second one is to let us know why DELCO has to be done EMP only, why not be EIA or IEE as other mining projects.

A1. Daw Myat Mon Swe (ERM):
DELCO Mining Project is one of the existing projects therefore the MONREC require an EMP instead of EIA as the Project is in progress. The Project has small potential for impacts due to the using of sustainable hydroelectric energy for the electricity supply for the operation and it have decent and tilling ponds as doing wastewater treatment to discharge the water to the local stream.

Q2. U Ko Ko Gyi (Community Representative)
Who is the responsible company for the exploration of Gas Pipe here in Kanbauk?

A2. Daw Myat Mon Swe (ERM):
ERM are only consulting for EMP of Kanbauk Mine of DELCO now and please ask to the related Project Developer.

A2. U Aung Naing (GAD, Ka Lain Aung Town):
The EIA company and project owner will have to take the responsibilities as normal procedure.

Q3. U Myint Aung (Community Representative)
All community people of Kanbauk area understand that DELCO has done well by undertaking CSR and thank you for all donations. However, we would like to know when the new bridge across the Ye Ying Creek which is already promised to build by DELCO.

A3. U Tint Naing: (DELCO):
We will discuss with DELCO management authority to build this bridge soon.

Photo:

Appendix 6 Corporate and Social Responsibility

ဖွံ့ဖြိုးတိုးတက်ထုတ်လုပ်မှုဖော်ဆောင်ရေး(ဒယ်လ်ကို)လီမိတက်
ကံပေါက်အကြီးစားသတ္တုတွင်းလုပ်ငန်း၏
မြန်မာနိုင်ငံသတ္တုကဏ္ဍဖွံ့ဖြိုးတိုးတက်ရန်အတွက် နိုင်ငံတကာသတင်းကဏ္ဍများတွင်ပါဝင်ခြင်း
ရန်ကုန်တိုင်းဒေသကြီးနှင့်တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊
ကံပေါက်ကျေးရွာတို့တွင် ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်းများဖြစ်သော
လမ်းတံတားပြုပြင်တည်ဆောက်မှုနှင့်လူမှုရေး၊ ပညာရေး၊ ကျန်းမာရေး၊ ဘာသာရေးလုပ်ငန်းများတွင်
(၁၆. ၁၁. ၂၀၀၇ မှ ၂၅. ၄. ၂၀၁၉ ထိ)
ကူညီဆောင်ရွက်ထားရှိမှု

စဉ်	အကြောင်းအရာ	တန်ဖိုး-ကျပ်
၁	မြန်မာနိုင်ငံ၏သတ္တုကဏ္ဍဖွံ့ဖြိုးတိုးတက်ရန်အတွက် မိမိတို့ကုမ္ပဏီမှ နိုင်ငံတကာသတင်းကဏ္ဍများတွင် ပါဝင်ဆောင်ရွက်ထားခြင်း	၅၆၀,၃၇၉,၆၆၀. ၃၆
၂	ရန်ကုန်တိုင်းဒေသကြီးတွင် လမ်းဖောက်လုပ်ခြင်းနှင့်လျူဒါန်းငွေ	၄၉,၂၉၀,၅၂၀. ၀၀
၃	ကံပေါက်ဒေသဖွံ့ဖြိုးရေးအတွက် ငွေသားလျူဒါန်းခြင်း	၁၇၄,၅၄၁,၇၅၀. ၀၀
၄	မြေ၊ လုပ်အား၊ ကားနှင့် ယန္တရားများကူညီထောက်ပံ့လျူဒါန်းပေးခြင်း၊	၈၂,၈၂၃,၅၀၀. ၀၀
၅	ခွင့်ပြုမိန့်ရရှိထားသောမိမိလုပ်ကွက်ဧရိယာအတွင်း ကျူးကျော်စိုက်ပျိုးထားသော ရာဘာနှင့်ခြားသီးနှံပင်များအတွက် ကရုဏာကြေးပေးခြင်း၊	၂၃၀၅၇၂၀၀၀. ၀၀
၆	ကျူးကျော်မြေဧရိယာများအတွက် ဒယ်လ်ကိုမှကျခံထားပေးသော နှစ်အလိုက်မြေငှားရမ်းခကုန်ကျစရိတ်များ	၁၂၀,၅၁၈,၂၅၅. ၇၆
၇	ကံပေါက်ဒေသတွင်အိမ်ယာဆောက်လုပ်လျူဒါန်းခြင်း	၁၆၅,၃၅၁,၃၉၆. ၀၀
၈	ရင်းရဲချောင်းရေစီးရေလာကောင်းမွန်စေရန် မြို့နယ်ချောင်းဖောက်လုပ်ရေးကော်မတီ၏သတ်မှတ်ချက်အရ ရေချောင်းဖောက်လုပ်ရမည့်လမ်းကြောင်းရှိသီးနှံပင်များအတွက် ကုမ္ပဏီမှနစ်နာကြေးစိုက်ထုတ်ပေးခြင်း။	၂၅,၇၁၈,၀၀၀. ၀၀
	စုစုပေါင်း	**၁,၄၀၉,၁၉၅,၀၈၂ . ၁၂**

စုစုပေါင်း (ကျပ် - တစ်သောင်းလေးထောင် ကိုးဆယ့်တစ်သိန်း ကိုးသောင်း ငါးထောင်ရှစ်ဆယ့်နှစ် ဒဿမ တစ်နှစ်)တိတိ။

ဒယ်လ်ကိုလီမိတက်မှ တနင်္သာရီတိုင်းဒေသကြီး ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်းများဆောင်ရွက်ပေးမှုအတွက်
နှစ်အလိုက်လျှဒါန်းငွေ

စဉ်	ခုနှစ်	လျှဒါန်းငွေ (ကျပ်)	မှတ်ချက်
၁။	၂၀၀၇	၁,၆၀၀,၀၀၀	
၂။	၂၀၀၈	၂,၂၀၀,၀၀၀	
၃။	၂၀၀၉	၁,၈၀၀,၀၀၀	
၄။	၂၀၁၀	၉,၁၀၀,၀၀၀	
၅။	၂၀၁၁	၆၀၀,၀၀၀	
၆။	၂၀၁၂	၂,၂၀၀,၀၀၀	
၇။	၂၀၁၃	၈,၆၈၆,၀၀၀	
၈။	၂၀၁၄	၁၅,၄၀၅,၀၀၀	
၉။	၂၀၁၅	၈,၇၀၆,၀၀၀	
၁၀။	၂၀၁၆	၈၇,၁၆၅,၂၀၀	
၁၁။	၂၀၁၇	၇၅,၅၀၁,၃၀၀	
၁၂။	၂၀၁၈	၃၀,၉၉၁,၇၅၀	
၁၃။	၂၀၁၉	၁၃,၄၀၀,၀၀၀	
	စုစုပေါင်း	၂၅၇,၃၆၅,၂၅၀	

စုစုပေါင်း (ကျပ် - နှစ်ထောင် ငါးရာခုနှစ်ဆယ့်သုံးသိန်း ခြောက်သောင်း ငါးထောင် နှစ်ရာငါးဆယ်) တိတိ။

ပဲ့ဖြိုးတိုးတက်ထုတ်လုပ်မှုဖော်ဆောင်ရေး (ဒယ်လ်ကို) လီမိတက် ရန်ကုန်တိုင်းဒေသကြီးတွင် ဒေသပဲ့ဖြိုးရေးလုပ်ငန်းဖြစ်သော လမ်းတံတား ပြုပြင်တည်ဆောက်ခြင်း၊ လူမှုရေး၊ ပညာရေး၊ ကျန်းမာရေး၊ ဘာသာရေးလုပ်ငန်းများတွင် ကူညီဆောင်ရွက်ထားရှိမှု အခြေအနေတင်ပြခြင်း။

၁။ (၁၇. ၉. ၂၀၁၁)နေ့တွင် မင်္ဂလာဒုံမြို့နယ်၊ ရွှေနံ့သာကျေးရွာအုပ်စု၊ လေးထောင့်ကန်စံပြကျေးရွာရှိ စွယ်တော်(၃)လမ်း၊ လမ်းအကျယ်(၁၂)ပေ၊ အရှည်(၁၀၁၁)ပေ၊ ထု-၁၅" (ကျောက်သား-၈"၊ ကွန်ကရစ်-၇") ကွန်ကရစ်လမ်းအတွက် ကုန်ကျငွေ(၃၁၅၄၀၅၂၀/)ကျပ်အား လျှဒါန်းပါသည်။ (မှတ်တမ်းတင် ဓါတ်ပုံ(၂)ရွက် ပူးတွဲ - ၁၊ ပူးတွဲ - ၁ (က))

၂။ (၅. ၁. ၂၀၁၄)နေ့တွင် မြန်မာနိုင်ငံမသန်စွမ်းသူများအားကစားအဖွဲ့ချုပ်၏ (၇)ကြိမ်မြောက်အာဆီယံမသန်စွမ်းအားကစားပြိုင်ပွဲ (7th Asean Para Games, Nay Pyi Taw) တွင် မြန်မာ့မသန်စွမ်းအားကစားအသင်းအောင်နိုင်ရေးအတွက် (၂၀၀၀၀၀၀/) ကျပ် - သိန်းနှစ်ဆယ်တိတိအား လျှဒါန်းပါသည်။ (မှတ်တမ်းတင် ဂုဏ်ပြုလွှာမိတ္တူပူးတွဲ -၂)

၃။ (၁၀. ၁၀. ၂၀၁၅) MUSIC FOR MYANMAR 2015 မြန်မာနိုင်ငံရှိ အကြားအာရုံချို့တဲ့သောကလေးငယ်များ ၊ မိဘမဲ့ကလေးငယ်များနှင့် နှင့် ဆင်းရဲ ချို့တဲ့သောကလေးငယ်များ ရံပုံငွေအတွက် အမေရိကန်ဒေါ်လာ (၁၀၀၀၀/-ဒေါ်လာတစ်သောင်းတိတိ) လျှဒါန်းခဲ့ပါသည်။
(ဂုဏ်ပြုမှတ်တမ်းလွှာမိတ္တူ ပူးတွဲ - ၃၊ ပူးတွဲ - ၃(က))

၄။ (၂၂. ၆. ၂၀၁၆)ကြည့်မြင်တိုင်မြို့နယ်၊ အရိုးရောဂါအထူးကုဆေးရုံကြီးတွင်လူနာများအဟာရကျွေးရန်အတွက် (၄၃၀၀၀၀/)ကျပ် - လေးသိန်းသုံးသောင်းတိတိအား လျှဒါန်းခဲ့ပါသည်။
(ဂုဏ်ပြုမှတ်တမ်းလွှာမိတ္တူ ပူးတွဲ - ၄)

၅။ (၂၂. ၆. ၂၀၁၆) ကြည့်မြင်တိုင်မြို့နယ်၊ အရိုးရောဂါအထူးကုဆေးရုံကြီးတွင် ချိုင်းထောက် - ၁၆၄စုံ (၃၂၈ ချောင်း)အား လိုအပ်သောလူနာများသုံးရန်အတွက် (၂၄၆၀၀၀၀/) ကျပ် - နှစ်ဆယ့်လေးသိန်းခြောက်သောင်းတိတိအား လျှဒါန်းခဲ့ပါသည်။
(ဂုဏ်ပြုမှတ်တမ်းလွှာမိတ္တူ ပူးတွဲ - ၅)

ဒယ်လ်ကိုလီမိတက်၊ ကံပေါက်သတ္တုဖက်စပ်လုပ်ငန်းမှ မြို့နယ်၊ ကျေးရွာဖွံ့ဖြိုးရေးလုပ်ငန်းများတွင်
ကူညီဆောင်ရွက်ထားရှိမှု

<u>၂၀၀၇ ခုနှစ်</u>

၁။ (၁၆.၁၁.၂၀၀၇) ရက်နေ့တွင်၊ ကံပေါက်ရွာ ရင်းရဲတံတားပြုပြင်မွမ်းမံရေးအတွက် ကွန်ကရစ်ပိုက်လုံး (၂)လုံး လျှုဒါန်းခဲ့ပါသည်။ **(၅၀၀၀၀၀×၂) = ၁၀၀၀၀၀၀ဝ/ကျပ်-တစ်ဆယ်သိန်းတိတိ။**

၂။ ကံပေါက်နှစ်ကျိပ်ရှစ်ဆူဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ ကျပ်(၆)သိန်းတိတိ လျှုဒါန်းပါသည်။

၂၀၀၇ခုနှစ် စုစုပေါင်းလျှုဒါန်းငွေ ၁၆၀၀၀၀၀ဝ/(တစ်ဆယ့်ခြောက်သိန်း)တိတိ။

<u>၂၀၀၈ ခုနှစ်</u>

၁။ (၂.၃.၂၀၀၈) ရက်နေ့တွင် ကံပေါက်ပြည်သူ့ဆေးရုံတွင် မြေ၊ ကျောက်ကျင်းပေါင်း (၁၂၈)ကျင်း လျှုဒါန်းခဲ့ပါသည်။ **(၁၂၈ ÷ ၄) × ၅၀၀၀၀ = ၁၆၀၀၀၀၀ဝ/(ကျပ် - တစ်ဆယ့်ခြောက်သိန်း)တိတိ။**

၂။ ကံပေါက်နှစ်ကျိပ်ရှစ်ဆူဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ ကျပ်(၆)သိန်းတိတိ လျှုဒါန်းပါသည်။

၂၀၀၈ခုနှစ် စုစုပေါင်းလျှုဒါန်းငွေ ၂၂၀၀၀၀၀ဝ/(ကျပ် - နှစ်ဆယ့်နှစ်သိန်း)တိတိ။

<u>၂၀၀၉ ခုနှစ်</u>

၁။ ၂၀၀၉ခုနှစ်၊ ဇန်နဝါရီလတွင် ကံပေါက်အထက်တန်းကျောင်းဆောင်သစ်အတွက် လိုအပ်သောမြေများ ပေးပို့ကူညီခဲ့ပါသည်။ **(၄၀ ÷ ၄) × ၅၀၀၀၀ = ၅၀၀၀၀၀ဝ/(ကျပ် - ငါးသိန်း)တိတိ။**

၂။ (၁၅.၂.၂၀၀၉) ရက်နေ့တွင် ထားဝယ်မြို့၊ အောင်စည်ပင်စေတီတော်မြတ် မုခ်ဦးပြုပြင်မွမ်းမံရေးအတွက် **(၂၀၀၀၀၀ဝ/ကျပ် - နှစ်သိန်း)တိတိ** အားလျှုဒါန်းပါသည်။

၃။ (၁၆.၃.၂၀၀၉) ရက်နေ့တွင် ထားဝယ်မြို့၊ နောင်ရေရှည်မုခ်ဦးတော် ထိန်းသိမ်းစောင့်ရှောက်မွမ်းမံနိုင်ရေးအတွက် ငွေပဒေသာပင်စိုက်ထူလျှုဒါန်းပါသည်။ **၅၀၀၀၀၀ဝ/(ကျပ် - ငါးသိန်းတိတိ)။**

၄။ ကံပေါက်နှစ်ကျိပ်ရှစ်ဆူဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ (၆)သိန်းတိတိ လျှုဒါန်းပါသည်။

၂၀၀၉ခုနှစ် စုစုပေါင်းလျှုဒါန်းငွေ ၁၈၀၀၀၀၀ဝ/(ကျပ် - တစ်ဆယ့်ရှစ်သိန်း)တိတိ။

<u>၂၀၁၀ ခုနှစ်</u>

၁။ (၈၊ ၂၊ ၂၀၁၀ မှ ၉၊ ၂၊ ၂၀၁၀) ရက်နေ့အထိ ကံပေါက်ကျေးရွာ၊ ရွှေစေတီကျောင်းတိုက်ပရဝုဏ်အတွင်းရှိ ရွှေစေတီဘုရားကုန်းတော်၏ အရှေ့ဘက်ရင်ပြင် မြေဧရိယာညီညာပြန့်ပြူးစေရန်အတွက် မြေဖို့ပေးခြင်းလုပ်ငန်းများ ဆောင်ရွက်ပေးပါသည်။

(၁၀၅ ခေါက်×၅၀၀၀၀)-၅၂၅၀၀၀၀ဝ/(ကျပ် - ငါးဆယ့်နှစ်သိန်းငါးသောင်းတိတိ)။

၂။ (၁၇၊ ၃၊ ၂၀၁၀)ရက်နေ့တွင်ကံပေါက်ရွာ၊ ဗောဓိမာရ်အောင်ဘုန်းတော်ကြီးကျောင်းတွင် ဆောက်လုပ်ဆဲဖြစ်သော ဓမ္မာရုံကြီးအတွက်လိုအပ်သော ဝမ်းစာဖြည့်မြေများပေးပို့ကူညီခဲ့ပါသည်။

(၃၀ စီး × ၅၀၀၀၀) = ၁၅၀၀၀၀၀ဝ/(ကျပ် - တစ်ဆယ့်ငါးသိန်း)တိတိ။

၃။ ၂၀၁၀ခုနှစ်၊ ဧပြီလတွင် ဓမ္မဝိဟာရ (ကျောင်းသစ်ဘုန်းတော်ကြီးကျောင်း) လမ်းပြုပြင်ရန်အတွက် လိုအပ်သောမြေစာများ ပေးပို့ကူညီခဲ့ပါသည်။

(၂၂ စီး × ၅၀၀၀၀) = ၁၁၀၀၀၀၀ဝ/(ကျပ် - တစ်ဆယ့်တစ်သိန်းတိတိ)။

၄။ (၂၆၊ ၁၁၊ ၂၀၁၀)ရက်နေ့တွင် ကံပေါက်ကျေးရွာ၊ မဂ္ဂင်ရပ်ကွက်အတွင်းရှိ ကျိုက္ကပျက်စီးသွားသောရင်းရဲချောင်းတံတားနေရာတွင် ရေရှည်တည်တံ့အသုံးပြုနိုင်ရန်အတွက် ကွန်ကရစ်တံတားပြန်လည်ဆောက်လုပ်ခြင်းလုပ်ငန်းသို့ သံချောင်း(၁)တန်နှင့် တန်ဖိုးညီမျှသည့်ငွေကျပ် **(၆၆၀၀၀၀ဝ/ကျပ် - ခြောက်သိန်းခြောက်သောင်း)တိတိ** အား လျှဒါန်းခဲ့ပါသည်။

၅။ ကံပေါက်နှစ်ကျိပ်ရှစ်ဆူ ဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ **(၆)သိန်းတိတိ** လျှဒါန်းပါသည်။

၂၀၁၀ခုနှစ် စုစုပေါင်းလျှဒါန်းငွေ ၉၁၁၀၀၀၀ဝ/(ကျပ် - ကိုးဆယ့်တစ်သိန်းတစ်သောင်း)တိတိ။

<u>၂၀၁၁ ခုနှစ်</u>

၁။ ကံပေါက်နှစ်ကျိပ်ရှစ်ဆူ ဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ **(၆)သိန်းတိတိ** လျှဒါန်းပါသည်။

၂၀၁၁ခုနှစ် စုစုပေါင်းလျှဒါန်းငွေ ၆၀၀၀၀၀ဝ/(ကျပ် - ခြောက်သိန်း)တိတိ။

<u>၂၀၁၂ ခုနှစ်</u>

၁။ (၈၊ ၇၊ ၂၀၁၂)ရက်နေ့တွင် ကံပေါက်ကျေးရွာအုပ်စုမှ၊ စွန့်ပစ်အမှိုက်များစုပုံရန်အတွက် ဒယ်လ်ကိုလီမိတက်မှ Wheel Loaderဖြင့်မြေညှိခြင်း၊ မြေသယ်ခြင်းလုပ်ငန်းများအား ကူညီဆောင်ရွက်ပေးခဲ့ပါသည်။

(၁၂၀၀ မှ ၁၇၀၀)အထိ (၅နာရီ x ၆၀၀၀၀)-၃၀၀၀၀၀ဝ/(ကျပ် - သုံးသိန်း)တိတိ။

၂။ ကံပေါက်ကျေးရွာအုပ်စု၊ သချိုင်းကုန်းတွင် မီးသင်္ဂြိုလ်စက်ပြုလုပ်ရာတွင် လိုအပ်သောဖို့မြေများအတွက် ဒယ်လ်ကိုလီမိတက်မှ (၁၀ဘီးကား)ဖြင့် မြေ(၈)ခေါက်သယ်ဆောင်ကူညီပေးခဲ့ပါသည်။
(၈ ခေါက် x ၅၀၀၀၀) = ၄၀၀၀၀၀/ (ကျပ် - လေးသိန်း) တိတိ။

၃။ (၆၊ ၉၊ ၂၀၁၂)ရက်နေ့တွင် ကံပေါက်ဒေသ ပိုက်တဲလေးကျေးရွာ၊ ရေဘေးသင့်ရွာသူ/ရွာသားများအတွက်ဆန်(၂၃)အိတ်၊ ဆီ(၂၃)ပိဿာနှင့် ကြက်သွန်ဖြူ/နီ အစရှိသော ရိက္ခာများ (စုစုပေါင်းတန်ဖိုးသင့်ငွေ **(၇၆၀၀၀၀/ကျပ် - ခုနှစ်သိန်းခြောက်သောင်း) တိတိ** လျှုဒါန်းခဲ့ပါသည်။

၄။ (၁၀၊ ၉၊ ၂၀၁၂) ရက်နေ့ ပိုက်တဲလေးကျေးရွာ ရေဘေးသင့်ရွာသူ/ရွာသားများနေထိုင်ရန်အတွက် တိုင်များ၊ ဝါးများကိုကံပေါက်ကျေးရွာမှ ပိုက်တဲလေးကျေးရွာအထိ ဒယ်လ်ကိုလီမိတက်မှကားများဖြင့် သယ်ဆောင်ကူညီပေးပို့ခဲ့ပါသည်။
(၂ခေါက် x ၇၀၀၀၀) = ၁၄၀၀၀၀/(ကျပ်တစ်သိန်းလေးသောင်း) တိတိ။

၅။ ကံပေါက် နှစ်ကျိပ်ရှစ်ဆူ ဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ (၆)သိန်းတိတိ လျှုဒါန်းပါသည်။
၂၀၁၂ ခုနှစ် စုစုပေါင်း လျှုဒါန်းငွေ ၂၂၀၀၀၀၀/ (ကျပ်-နှစ်ဆယ့်နှစ်သိန်း)တိတိ။

<u>၂၀၁၃ ခုနှစ်</u>

၁။ (၁၊ ၂၊ ၂၀၁၃)နေ့တွင် ကံပေါက်သုတရောင်ခြည်စာကြည့်တိုက်အတွက် **ငွေကျပ်တစ်သိန်း** တန်ဖိုးရှိ ဘီရိုတစ်လုံးလျှုဒါန်းခဲ့ပါသည်။

၂။ (၂၂၊ ၂၊ ၂၀၁၃) မှ (၂၄၊ ၂၊ ၂၀၁၃) နေ့အထိ ကံပေါက်ရွှေစေတီ ရပ်တော်မူဘုရားရင်ပြင်တော်အတွက် လိုအပ်သောမြေများအား ၁၀ဘီးယာဉ်ဖြင့် (၃၆)ခေါက်သယ်ယူပေးခဲ့ပါသည်။
(၃၆ ခေါက် × ၅၀၀၀၀နှုန်း = ၁၈၀၀၀၀၀ကျပ်)

၃။ (၁၇၊ ၄၊ ၂၀၁၃)နေ့တွင် မြသီတာရပ်ကွက်သက်ကြီးပူဇော်ပွဲအတွက် **(၅၀၀၀၀/ကျပ် - ငါးသောင်း တိတိ)** နှင့် **(ဒီဇယ်ဆီ ၅ဂါလံ × ၃၆၀၀နှုန်း = ၁၈၀၀၀ကျပ်တိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၄။ (၃၊ ၅၊ ၂၀၁၃) နေ့တွင် မွန်ပြည်နယ်၊ ကျောက်ကလပ်ကျေးရွာအုပ်စု၊ အောက်လူလေးကျေးရွာတွင် လိုအပ်သော ကျောင်းသုံးပရိဘောဂ၊ စာရေးကိရိယာများ၊ ကျောင်းဆောင်တိုးချဲ့ခြင်းများအတွက် **(၁၀၈၀၀၀/ကျပ် - တစ်သိန်းရှစ်ထောင်တိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၅။ (၂၄၊ ၆၊ ၂၀၁၃)နေ့တွင် ပဲခူးတိုင်းဒေသကြီး၊ ဝေါမြို့နယ်၊ ဘုန်းတော်ကြီးသင်ပညာရေး ကျောင်းသူ/သားများအတွက် **(၇၂၀၀၀/ကျပ် - ခုနှစ်သောင်းနှစ်ထောင်တိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၆။ (၁၊ ၉၊ ၂၀၁၃) နေ့တွင် မြသီတာရပ်ကွက်၊ သဲပုံစေတီကျောင်းတိုက်အတွင်း အသစ်ဆောက်လုပ်နေသော နှစ်ထပ်မမွာရုံခေါင်မိုး မိုးရန်အတွက် **(၅၃၀၀၀၀၀/ကျပ် - ငါးဆယ့်သုံးသိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၇။ (၂၈. ၉. ၂၀၁၃)နေ့တွင် ကံပေါက်ကျေးရွာအုပ်စုဘောလုံးပြိုင်ပွဲအတွက် **(၂၀၀၀၀၀/ကျပ် - နှစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၈။ (၁၈. ၁၁. ၂၀၁၃)နေ့တွင် ဧရာဝတီတိုင်းဒေသကြီး၊ နယ်စပ်ဒေသနှင့် ဆင်းရဲနွမ်းပါးကလေးငယ်များ ဘက်စုံဖွံ့ဖြိုးရေးအတွက် တစ်နှစ်စာကျောင်းသား(၂)ဦး ပညာရေးနှင့် အာဟာရ **(၂၈၈၀၀၀/ကျပ် - နှစ်သိန်းရှစ်သောင်း ရှစ်ထောင်တိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၉။ (၁၆. ၁၂. ၂၀၁၃)နေ့တွင် ထားဝယ်မြို့လွတ်လပ်ရေးပြခန်းတည်ဆောက်ရေးရန်ပုံငွေ **(၁၀၀၀၀၀၀/ကျပ် - တစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၀။ (၂၉. ၁၂. ၂၀၁၃) နေ့တွင် ထားဝယ်မြို့အာယုဒါနအတွက် **(၅၀၀၀၀/ကျပ် - ငါးသောင်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၁။ ကံပေါက် နှစ်ကျိပ်ရှစ်ဆုဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ **(၆၀၀၀၀၀/ကျပ် - ခြောက်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၂၀၁၃ခုနှစ် စုစုပေါင်းလျှုဒါန်းငွေ (၈၆၈၆၀၀၀/ကျပ် - ရှစ်ဆယ့်ခြောက်သိန်းရှစ်သောင်း ခြောက်ထောင် တိတိ)

<u>၂၀၁၄ ခုနှစ်</u>

၁။ (၁၇. ၃. ၂၀၁၄) နေ့တွင် ကံပေါက်ဒေသ၊ မြသီတာရပ်ကွက်သက်ကြီးပူဇော်ပွဲအတွက် **(၁၀၀၀၀၀/ကျပ် - တစ်သိန်းတိတိ) လျှုဒါန်းခဲ့ပါသည်။**

၂။ (၂၂. ၄. ၂၀၁၄)နေ့တွင် စွန့်ပစ်အမှိုက်များအား ဦးကိုကြီး၏ အကူအညီတောင်းခံမှုဖြင့် ၁၂နာရီမှ ၁၇နာရီထိ Excavator ဖြင့်ရှင်းလင်းပေးခြင်း **(၅နာရီ × ၆၀၀၀၀နှုန်း = ၃၀၀၀၀၀/ကျပ်-သုံးသိန်း)**

၃။ (၁၈. ၅. ၂၀၁၄) မှ (၂၃. ၅. ၂၀၁၄)အထိ ကံပေါက်၊ မိကျောင်းအိုင်ရပ်ကွက် တံတားချောင်းအရှည် ၈၅၀၀ပေ မြောင်းဖောက်ရန် Excavator ဖြင့်တူးဖော်ပေးခြင်း။

(၁ရက် × ၈နာရီ × ၆၀၀၀၀နှုန်း = ၄၈၀၀၀၀)

(၂ရက် × ၁၆နာရီ × ၆၀၀၀၀နှုန်း = ၁၉၂၀၀၀၀)

(၃ရက် × ၂၄နာရီ × ၆၀၀၀၀နှုန်း = ၄၃၂၀၀၀၀)

စုစုပေါင်း - (၆၇၂၀၀၀၀/ကျပ် - ခြောက်ဆယ့်ခုနှစ်သိန်းနှစ်သောင်းတိတိ)

တံတားဆောက်လုပ်ရန် အချင်း၁၀ချောင်း **(.25T × ၆၆၀၀၀၀နှုန်း = ၁၆၅၀၀၀၀ကျပ်)** နှင့် ဘိလပ်မြေအိတ် **(၁၀၀အိတ် × ၆၄၀၀နှုန်း = ၆၄၀၀၀၀၀ကျပ်)** လျှုဒါန်းခဲ့ပါသည်။

၄။ (၂၆. ၅. ၂၀၁၄)နေ့တွင် ကံပေါက်အထက်တန်းကျောင်းတွင် (ပေ၁၆၀၊ ပေ၃၀)အတွက်မျက်နှာကျက် တပ်ဆင်ရန် **(၂၀၀၀၀၀၀/ကျပ် - သိန်းနှစ်ဆယ်တိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၅။ (၂၊ ၆၊ ၂၀၁၄) နေ့တွင် ကံပေါက်၊ သီရိမင်္ဂလာရပ်ကွက် လမ်းဘေးရေမြောင်းဖောက်ရန် 8" ပိုက် (ပေ၃၀ × ၁၀၀၀၀နှုန်း = **၃၀၀၀၀၀ကျပ်**) လျှုဒါန်းခဲ့ပါသည်။

၆။ (၂၇၊ ၆၊ ၂၀၁၄)နေ့တွင် သီရိမင်္ဂလာလမ်းတွင် ရေစီးရေလာကောင်းမွန်စေရန် M.S pipe 8" ၄လုံး၊ ပေအရှည် (11' + 13' + 17' + 17') စုစုပေါင်း 58' (58' × ၁၀၀၀၀နှုန်း = **၅၈၀၀၀၀ ကျပ်**) လျှုဒါန်းခဲ့ပါသည်။

၇။ (၂၀၊ ၇၊ ၂၀၁၄)နေ့တွင်ကံပေါက်၊ ဗေသနိနှစ်ခြင်းအသင်းတော်ခန်းမဆောင်ဆောက်လုပ်ရန်အတွက် **(၁၀၀၀၀၀၀/ကျပ် - တစ်ဆယ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၈။ (၂၃၊ ၈၊ ၂၀၁၄)နေ့တွင် ကံပေါက် သေရေးကူညီမှုအသင်းခေါင်းဆောင်တွေ့ လျှုဒါန်းရေးအတွက် **(၂၀၀၀၀၀/ကျပ် - နှစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၉။ (၁၉၊ ၁၂၊ ၂၀၁၄)နေ့တွင် ကံပေါက်၊ ဗေသနိနှစ်ခြင်းအသင်းတော်ခန်းမဆောင် ဆောက်လုပ်ရန် အတွက် **(၂၅၀၀၀၀၀/ကျပ် - နှစ်ဆယ့်ငါးသိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၀။ (၂၄၊ ၁၂၊ ၂၀၁၄) ရက်နေ့တွင် ကံပေါက်၊ မြသီတာမမွာရုံဝမ်းစာမြေဖြည့်ရန်အတွက် စွန့်ပစ်မြေစာ (၆ခေါက် × ၅၀၀၀၀ နှုန်း = **၃၀၀၀၀၀ ကျပ်**) လျှုဒါန်းခဲ့ပါသည်။

၁၁။ ကံပေါက် နှစ်ကျိပ်ရှစ်ဆူဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ **(၆၀၀၀၀၀/ကျပ် - ခြောက်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၂၀၁၄ခုနှစ် စုစုပေါင်းလျှုဒါန်းငွေ (၁၅၄၀၅၀၀၀/ကျပ် - တစ်ရာငါးဆယ့်လေးသိန်းငါးထောင်တိတိ)

<u>၂၀၁၅ ခုနှစ်</u>

၁။ (၂၃၊ ၁၊ ၂၀၁၅)နေ့တွင် ကံပေါက်ကျေးရွာအုပ်စု စွန့်ပစ်အမှိုက်များဖယ်ရှားရှင်းလင်းခြင်းလုပ်ငန်းအား ကံပေါက်ရဲစခန်းမှူးနှင့် မြသီတာရပ်ကွက်မှဦးကိုကြီး၏အကူအညီတောင်းခံမှုကြောင့်Wheel loader ဖြင့် (၁၆:၀၀နာရီ မှ ၂၀:၀၀နာရီ)အထိရှင်းလင်းပေးခဲ့ပါသည်။

(၄နာရီ × ၆၀၀၀၀နှုန်း = ၂၄၀၀၀၀ ကျပ်)

၂။ (၂၈၊ ၁၊ ၂၀၁၅) နေ့တွင် ကံပေါက်၊ မြသီတာနှင့်ရွာသစ်ကုန်းရှိအသစ်ဆောက်လုပ်ထားသောတံတား အတွက် စွန့်ပစ်မြေများအား Excavatorဖြင့် (၁၅:၀၀ နာရီမှ ၂၀:၀၀ နာရီ)အထိ မြေသားဖြည့်ခြင်း၊ သိပ်သည်းအောင်ပြုလုပ်ပေးခြင်း၊ လိုအပ်သောမြေများကိုချောင်းဘေးမှကုတ်ယူဖြည့်ဆည်းပေးခြင်းများ ဆောင်ရွက်ပေးခဲ့ပါသည်။ **(၅နာရီ × ၆၀၀၀၀နှုန်း = ၃၀၀၀၀၀ကျပ်)**

၃။ (၃၀၊ ၁၊ ၂၀၁၅)နေ့တွင် ကံပေါက်သဲပုံစေတီဘုန်းကြီးကျောင်းအား ရေတိုက်စားခြင်းမှကာကွယ်ရန် အတွက်မြေထိန်းနံရံပြုလုပ်ခြင်းကို Excavatorဖြင့်(၁၂:၀၀ နာရီမှ ၁၇:၀၀ နာရီ)အထိ ကူညီဆောင် ရွက်ပေးခဲ့သည်။ **(၅နာရီ × ၆၀၀၀၀နှုန်း = ၃၀၀၀၀၀ကျပ်)**

၄။ (၁၅. ၂. ၂၀၁၅)နေ့တွင် ရွှေစေတီဘုရားရင်ပြင်တွင် စွန့်ပစ်မြေစာ(၇၂)ခေါက် သယ်ယူပေးပို့ခြင်း **(၇၂နာရီ × ၅၀၀၀၀နှုန်း - ၃၆၀၀၀၀၀ ကျပ်)** နှင့် Wheel loaderအား(၈:၃၀ နာရီမှ ၁၁:၃၀ နာရီ) အထိမြေညှိရန်ကူညီဆောင်ရွက်ပေးခဲ့သည်။ **(၃နာရီ×၆၀၀၀၀နှုန်း - ၁၈၀၀၀၀ကျပ်)**

၅။ (၆. ၃. ၂၀၁၅)နေ့တွင် မွန်ပြည်နယ်၊ သထုံမြို့၊ ဇရပ်ချောင်းအုပ်စုသာယာကုန်းဘုန်းတော်ကြီးသင်ပညာရေးကျောင်းအတွက် **(၁၀၈၀၀၀/ကျပ် - တစ်သိန်းရှစ်ထောင် တိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၆။ (၂၆. ၃. ၂၀၁၅)နေ့တွင် ဧရာဝတီတိုင်း၊ ကနုလေးကျေးရွာပုဒ္ဓရောင်ခြည်(မူလွန်) ပရဟိတကျောင်း အာဟာရကုသိုလ်ဒါနအတွက် **(၅၀၀၀၀/ကျပ် - ငါးသောင်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၇။ (၄. ၄. ၂၀၁၅)နေ့တွင် ကံပေါက်ဒေသ၊ လှည်းကုန်းရပ်ကွက် ကိုယ်ထူကိုယ်ထလမ်းခင်းရန်အတွက် ရှာပင်ကျောက် **(၁၀ကျင်း×၅၀၀၀၀နှုန်း=၅၀၀၀၀၀ကျပ်)** ငါးသိန်းတိတိ လျှုဒါန်းခဲ့ပါသည်။

၈။ (၄. ၄. ၂၀၁၅)နေ့တွင်ကံပေါက်၊ မြသီတာရပ်ကွက်မမ္မာရုံအမိုးနှင့်ပြဿဒ်အတွက် **(၂၇၀၀၀၀၀/ကျပ် - နှစ်ဆယ့်ခုနှစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၉။ (၆. ၄. ၂၀၁၅)နေ့တွင် ကံပေါက်၊ သီရိမင်္ဂလာရပ်ကွက်ဘုရားစံကျောင်းပြုပြင်ရန်အတွက် မြေဖို့ရန်စွန့် ပစ်မြေစာ (၄)ကား လျှုဒါန်းခဲ့ပါသည်။ **(၄ကား × ၅၀၀၀၀ နှုန်း - ၂၀၀၀၀၀ ကျပ်)**

၁၀။ (၅. ၅. ၂၀၁၅)နေ့တွင် ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာတွင် (၃. ၅. ၂၀၁၅)ရက်နေ့မှ(၅. ၅. ၂၀၁၅) ရက်နေ့အထိ ဖွင့်လှစ်သင်ကြားသော ကြက်ခြေနီရှေးဦးသူနာပြုစုခြင်း အခြေခံသင်တန်းအတွက် **(၃၀၀၀၀၀ကျပ် - သုံးသိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၁။ (၁. ၆. ၂၀၁၅)နေ့တွင် ရေဖြူမြို့နယ်၊ မယင်းကြီးကျေးရွာရှိလောကနာထအဘယစေတီတော်ထီးတော် တင်လျှုရန်အတွက် အလှူတော်ငွေ **(၂၀၀၀၀၀/ကျပ် - နှစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၂။ (၁. ၆. ၂၀၁၅)နေ့တွင် ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသသေရေးကူညီမှုခေါင်းတလားလျှုဒါန်းရေးအသင်း မှသဒ္ဓိုင်းလမ်းကွန်ကရစ်ခင်းရန်အတွက် အလှူတော်ငွေ **(၆၅၀၀၀/ကျပ် - ခြောက်သောင်းငါးထောင် တိတိ) နှင့် (ဘိလပ်မြေ၁၀အိတ်×၆၃၀၀နှုန်း - ၆၃၀၀၀ကျပ်) စုစုပေါင်း ကျပ် - တစ်သိန်းနှစ်သောင်း ရှစ်ထောင်တိတိ** လျှုဒါန်းခဲ့ပါသည်။

၁၃။ (၅. ၈. ၂၀၁၅) နေ့တွင် အလှူတော်ငွေ **(၅၀၀၀၀၀/ကျပ် - ငါးသိန်းတိတိ)**အား ရေဖြူမြို့နယ် အုပ်ချုပ်ရေးမှူးမှ တဆင့် မြန်မာနိုင်ငံရေဘေးသင့်ပြည်သူများအတွက် လျှုဒါန်းခဲ့ပါသည်။

၁၄။ (၁. ၁၀. ၂၀၁၅) နေ့တွင် ကျေးရွာပေါင်းစုံဘောလုံးပြိုင်ပွဲအတွက် အလှူတော်ငွေ **(၂၀၀၀၀၀/ကျပ် - နှစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၅။ (၂. ၁၁. ၂၀၁၅) နေ့တွင် ကံပေါက် ကြက်ခြေနီတပ်ဖွဲ့အတွက် ယူနီဖောင်းဝတ်စုံထောက်ပံ့ငွေ **(၇၀၀၀၀၀/ ကျပ် - ခုနှစ်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၁၆။ (၁၁. ၁၁. ၂၀၁၅) နေ့တွင် ကံပေါက် အ. ထ. ကကျောင်းအတွက် ထိုင်ခုံ + စားပွဲ (၃၀)စုံအတွက် **(၁၅၀၀၀၀၀/ကျပ် - တစ်ဆယ့်ငါးသိန်း တိတိ)**လျှုဒါန်းခဲ့ပါသည်။

၁၇။ ကံပေါက် နှစ်ကျိပ်ရှစ်ဆူဘုရားလှည့်လည်ပူဇော်ပွဲအတွက် အမှတ်(၂)သတ္တုတွင်းသို့ **(၆၀၀၀၀၀/ကျပ် - ခြောက်သိန်းတိတိ)** လျှုဒါန်းခဲ့ပါသည်။

၂၀၁၅ခုနှစ်စုစုပေါင်းလျှုဒါန်းငွေ (၁၂၃၀၆၀၀၀/ကျပ် - တစ်ရာနှစ်ဆယ်သုံးသိန်းခြောက်ထောင်တိတိ)

<u>၂၀၁၆ ခုနှစ်</u>၊

ဇန်နဝါရီလအတွင်း ကူညီမှုများမှာ

၁။ (၂၀. ၁. ၂၀၁၆)နေ့တွင်**သိန်းခြောက်ဆယ်တိတိ (၆၀၀၀၀၀၀/-)** တန်ကြေးရှိ ကြက်ခြေနီအဆောင် လျှုဒါန်းသည်။

၂။ (၂၀. ၁. ၂၀၁၆)ရက်နေ့ ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာအုပ်စု၊ ခိုင်သဇင်ရပ်ကွက် တံတား၊ လမ်း၊ နှင့်ရေမြောင်းများပြုပြင်ရန်အတွက် **၈၆၀၀၀၀၀/(ကျပ်-ရှစ်ဆယ့်ခြောက်သိန်း)တိတိ** လျှုဒါန်းပါသည်။

၃။ လှည်းကုန်းမူလတန်းလွန်ကျောင်းဝင်းတံခါး နှင့် ကျောင်းရှေ့ရေမြောင်းကွန်ကရစ်ပြုလုပ်ခြင်းအတွက် ကျသင့်ငွေကျပ် **၇၀၀၀၀၀/ (ကျပ် - ခုနှစ်သိန်း တိတိ)** လျှုဒါန်းပါသည်။

၄။ မိကျောင်းအိုင် ထန်းတပင်လမ်းပြုပြင်ခြင်းလုပ်ငန်းတွင် Wheel loaderဖြင့် (၂)ရက်ကူညီပေးခြင်း။ **(၂ရက် × ၈နာရီ × ၆၀၀၀၀နှုန်း) = ၉၆၀၀၀၀/ (ကျပ် - ကိုးသိန်းခြောက်သောင်း) တိတိ**။

၅။ ဘုရားမဲရွာ နှင့် ဦးအောင်သန်းခြံဘေးအတိုင်း ကားလမ်းဖောက်ခြင်းအတွက် Wheel loader ဖြင့် (၁)ရက် ကူညီပေးခြင်း။ **(၈နာရီ × ၆၀၀၀၀နှုန်း) = ၄၈၀၀၀၀/(ကျပ် - လေးသိန်းရှစ်သောင်း)တိတိ**။

၆။ ထန်းတစ်ပင်ရက်ကွက်လမ်းပြုပြင်ရန် မြေသယ်ကား (၂ကျင်းဆန့်) များအား ၂၀. ၁. ၂၀၁၆မှ ၂၃. ၁. ၂၀၁၆ အထိ ကားခေါက်ရေ (၃၀)အား Backhoe ဖြင့် မြေတင်ပေးခြင်း။ **(၂ကျင်း × ၃၀ခေါက်) = ၆၀ကျင်း × ၅၀၀၀ နှုန်း = ၃၀၀၀၀၀/ (ကျပ် - သုံးသိန်း) တိတိ**။

၇။ လွတ်လပ်ရေးနေ့အထိမ်းအမှတ်အဖြစ် အားကစားပြိုင်ပွဲပြုလုပ်ရန်အတွက်အလှူငွေ **ကျပ်-၂၀၀၀၀၀/ (ကျပ်-နှစ်သိန်းတိတိ)** အား လျှုဒါန်းပေးခဲ့ပါသည်။

၈။ ၂၀၁၆ခုနှစ်၊ ဇန်နဝါရီလမှဒီဇင်ဘာလအထိ တစ်နှစ်စာ၊ ကံပေါက်မီးသတ်ကား ထိန်းသိမ်းကြီးကြပ်မှု ကော်မတီသို့ ထောက်ပံ့လစာ **၈၇၆၀၀၀၀/(ကျပ် - ရှစ်ဆယ့်ခုနှစ်သိန်းခြောက်သောင်း)**၊ နှင့် ဒီဇယ်ဆီ ၁၂ပေပါ၊ (ဂါလံ၆၀၀ × ၂၂၅၀နှုန်း) **၁၃၅၀၀၀၀/(ကျပ်တစ်ဆယ့်သုံးသိန်းငါးသောင်း)တိတိ** အားပေးအပ်လျှုဒါန်းပါသည်။

ဇန်နဝါရီလအတွင်း (၂၇၃၅၀၀၀၀/-ကျပ် - နှစ်ရာခုနှစ်ဆယ်သုံးသိန်းငါးသောင်း) တိတိ။

ဖေဖော်ဝါရီလအတွင်းကူညီမှုများမှာ

၁။ အေးချမ်းသာဘုန်းကြီးကျောင်းသို့စွန့်ပစ်မြေစာ Dump Truckဖြင့် (၂၅)ခေါက် သယ်ယူပေးပို့ခြင်း။ **(၂၅ခေါက် × ၅၀၀၀၀နှုန်း) = ၁၂၅၀၀၀၀/ (ကျပ် - တစ်ဆယ့်နှစ်သိန်းငါးသောင်း)တိတိ။**

၂။ အောင်စစ်သည်ဘုန်းကြီးကျောင်းသို့ စွန့်ပစ်မြေစာ Dump Truck ဖြင့် (၁၀)ခေါက်သယ်ယူပေးပို့ခြင်း။ **(၁၀ခေါက် × ၅၀၀၀၀နှုန်း) = ၅၀၀၀၀၀/ (ကျပ် - ငါးသိန်း)တိတိ။**

၃။ ခိုင်သဇင်လမ်းမြေဖို့/လမ်းဖို့ပေးခြင်း နှင့် Backhoe အသေးဖြင့် (၇)ရက် လမ်းဘေးရေမြောင်းတူးဖော်ပေးခြင်းလုပ်ငန်းများ ဆောင်ရွက်ပေးထားပါသည်။

(၇ရက် × ၈နာရီ × ၃၀၀၀၀နှုန်း) = ၁၆၈၀၀၀၀/(ကျပ် - တစ်ဆယ့်ခြောက်သိန်းရှစ်သောင်း)တိတိ။

၄။ ၁၅. ၂. ၂၀၁၆တွင် ပုလောမြို့နယ်၊ ကျောက်ကာကျေးရွာမီးဘေးကယ်ဆယ်ရေးအတွက်**၁၀၀၀၀၀၀/ (ကျပ် - တစ်ဆယ်သိန်း)တိတိ**ကို လျှုဒါန်းပါသည်။

၅။ ၂၈. ၂. ၂၀၁၆နေ့တွင် သဲပုံစေတီကျောင်းတိုက် အသံမစဲပဌာန်းပွဲတွင်အလှူငွေ **၅၀၀၀၀/(ကျပ် - ငါးသောင်း)တိတိ**ကို လျှုဒါန်းပါသည်။

၆။ ၂၈. ၂. ၂၀၁၆နေ့တွင် ကံပေါက်ကျေးရွာရပ်ကွက်အသီးသီးသို့ ဆရာတော်၊ သံဃာတော်(၁၁)ပါးတို့မှ အန္တရာယ်ကင်းပရိတ်တရားတော်ရွတ်ဖတ်ပူဇော်ပွဲတွင် အလှူငွေ **၁၀၀၀၀၀/(ကျပ် - တစ်သိန်း)တိတိ** လျှုဒါန်းပါသည်။

ဖေဖော်ဝါရီလအတွင်း (၄၅၈၀၀၀၀/ကျပ် - လေးဆယ်ငါးသိန်းရှစ်သောင်းတိတိ)

ဧပြီလအတွင်း ကူညီပေးမှုများမှာ

၁။ ၁. ၄. ၂၀၁၆တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ ခိုင်သဇင်ရပ်ကွက်လမ်းပြုပြင်မွမ်းမံရာတွင် ငွေကျပ် **၁၉၂၈၀၀၀/(ကျပ် - တစ်ဆယ့်ကိုးသိန်းနှစ်သောင်းရှစ်ထောင်) တိတိ** အားလျှုဒါန်းပေးခဲ့ပါသည်။

၂။ ၁. ၄. ၂၀၁၆နေ့တွင် ၈၈မျိုးဆက်သစ်၊ စာပေဟောပြောပွဲအတွက်ငွေကျပ်**၅၀၀၀၀၀/(ကျပ်- ငါးသိန်း)** တိတိ လျှုဒါန်းပါသည်။

၃။ ၈. ၄. ၂၀၁၆နေ့တွင် ကံပေါက်ဒေသ၊မြသီတာရပ်ကွက်သက်ကြီးပူဇော်ပွဲအတွက် ငွေကျပ်**၂၀၀၀၀၀/ (နှစ်သိန်း)တိတိ** အားလျှုဒါန်းခဲ့ပါသည်။

၄။ သီရိမင်္ဂလာလမ်း၊ ကတ္တရာခင်းရာတွင် လိုအပ်သောကျောက်စရစ်အား ရေဖြူမှ (၁)ခေါက် (၁ခေါက်× ၁၀၀၀၀၀) = ၁၀၀၀၀၀/နှင့်၊ မိကျောင်းလောင်းမှ (၅)ခေါက် (၅ခေါက် × ၃၇၀၀၀) = ၁၈၅၀၀၀/

စုစုပေါင်း ၂၈၅၀၀၀/(ကျပ် - နှစ်သိန်းရှစ်သောင်းငါးထောင်)တိတိအား မိမိကုမ္ပဏီကားဖြင့်သယ်ယူပေးခဲ့ပါသည်။

၅။ (၂၈.၄.၂၀၁၆)နေ့ နံနက် ၇:၀၀ မှ ညနေ ၁၈:၀၀အထိ ကံပေါက်သချိုင်းကုန်းတွင် အမှိုက်များမီးရှို့ရန်အတွက် Bulldozerဖြင့် ကျင်းတူးခြင်း၊ အမှိုက်များရှင်းလင်းဖယ်ရှားခြင်းများဆောင်ရွက်ပေးပါသည်။ ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**
(၁၀နာရီ × ၆၀၀၀၀နှုန်း) = ၆၀၀၀၀၀၊ (ကျပ် - ခြောက်သိန်း) တိတိ။

၆။ ဇာဒီ၊ ခွေးမဖော၊ ပယ၊ ဖက်တောင် ကံပေါက်ကားလမ်းပျက်စီးနေသည်ကို မိမိကုမ္ပဏီမှ Bulldozer များအသုံးပြု၍ (၂၉.၄.၂၀၁၆)မှ စ၍ပြုပြင်ပေးခဲ့ပါသည်။ ပရဟိတလူမှုရေးအဖွဲ့အား နေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**
(၁၀ နာရီ×၆၀၀၀၀ နှုန်း) = ၆၀၀၀၀၀/ (ကျပ် - ခြောက်သိန်း)တိတိ။

၇။ ဇာဒီ၊ ခွေးမဖော၊ ပယ၊ ဖက်တောင် ကံပေါက်ကားလမ်းပျက်စီးနေသည်ကို မိမိကုမ္ပဏီမှ Bulldozer များအသုံးပြု၍ (၃၀.၄.၂၀၁၆)တွင် ဆက်လက်ပြုပြင်ပေးခဲ့ပါသည်။
(၁၀ နာရီ × ၆၀၀၀၀ နှုန်း) = ၆၀၀၀၀၀/ (ကျပ် - ခြောက်သိန်း)တိတိ။
ဧပြီလအတွင်း (၄၇၁၃၀၀၀/ကျပ် - လေးဆယ်ခုနစ်သိန်းတစ်သောင်းသုံးထောင်) တိတိ။

မေလအတွင်း ကူညီပေးမှုများမှာ

၁။ (၁.၅.၂၀၁၆)ရက်နေ့မှစ၍ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာတွင် Excavator၊ Bulldozer၊ Wheel loader၊ နှင့် မြေသယ်ကားများပါအသုံးပြု၍ ပံ့ပိုးကူညီပေးလျှက်ရှိပါသည်။
၁.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/ **(ကျပ် - ခြောက်သိန်း)တိတိ။**
လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၂။ ၂.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/ **(ကျပ် - ခြောက်သိန်း)တိတိ။**
လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၃။ ၅.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/ **(ကျပ် - ခြောက်သိန်း)တိတိ။**
လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၄။ ၆.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/ **(ကျပ် - ခြောက်သိန်း)တိတိ။**
၆.၅.၂၀၁၆ Excavator ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/ **(ကျပ် - ခြောက်သိန်း)တိတိ။**
လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၅။ (၉.၅.၂၀၁၆)ရက်နေ့တွင် ရေဖြူမြို့နယ်၊ ကံပေါက်၊ မောရဝတီရေတပ်ဌာနချုပ်သို့ ရောက်ရှိလာသော တပ်မတော်အခမဲ့ဆေးကုသရေး ရေယာဉ်သင်္ဘောပေါ်တွင် ရဟန်းသံဃာတော်များနှင့်

ဆေးကုသခံလူနာများအားကြိုပို့ရန် မှန်လုံကားတစ်ခေါက် (၄၀၀၀ဝိ/)နှုန်းဖြင့် ၂၅ခေါက်စာအတွက် အလှူငွေ **၁၀၀၀၀၀ဝိ/(ကျပ် - တစ်ဆယ်သိန်း)**တိတိအား ပေးအပ်လှူဒါန်းခဲ့ပါသည်။

၆။ ၁၁.၅.၂၀၁၆ Wheel loader ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀ိ/ **(ကျပ် - ခြောက်သိန်း) တိတိ။** ၆ဘီးမြေသယ်ကား ၁၀နာရီ×၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀ိ/ **(ကျပ် - တစ်သိန်းတိတိ)။**

၇။ ၁၁.၅.၂၀၁၆ ဘာလူးဒမ်သို့ရေပိုက်တင်ခ ၄ခေါက် × ၁၀၀၀၀၀နှုန်း = ၄၀၀၀၀၀ိ/**(ကျပ် - လေးသိန်း) တိတိ။**

၈။ (၁၂.၅.၂၀၁၆) ရက်နေ့တွင် ကံပေါက်ကျေးရွာ၊ ထန်းတစ်ပင်ရပ်ကွက် အများပြည်သူသွားလာသည့်လမ်း ရေစီးရေလာကောင်းမွန်ရန်ပြုပြင်ရာ၌ ၁၂လက်မသံပိုက်လုံး (၁၅ပေ)တစ်လုံး၊ နှင့် (၁၀ပေ) တစ်လုံးတို့အား လှူဒါန်းခဲ့ပါသည်။လုပ်အားပေးအဖွဲ့အား နေ့လည်စာစားစရိတ် **၂၀၀၀ဝိ/(ကျပ် - နှစ်သောင်း)တိတိ။ (၂၅ ပေ × ၁၀၀၀နှုန်း = ၂၅၀၀၀၀ိ/ကျပ် - နှစ်သိန်းငါးသောင်း)တိတိ။**

၉။ (၁၂.၅.၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ မြေသယ်ကားများနှင့် ကူညီပေးခဲ့ပါသည်။

၇။ ဇာဒီ၊ ခွေးမဖော၊ ပယ၊ ဖက်တောင် ကံပေါက်ကားလမ်းပျက်စီးနေသည်ကို မိမိကုမ္ပဏီမှ Bulldozer များအသုံးပြု၍ (၃၀.၄.၂၀၁၆)တွင် ဆက်လက်ပြုပြင်ပေးခဲ့ပါသည်။ လုပ်အားပေးအဖွဲ့အား နေ့လည်စာဧည့်ခံစရိတ် **၂၀၀၀ဝိ/(ကျပ် - နှစ်သောင်း)တိတိ။**

(၁၀ နာရီ × ၆၀၀၀၀ နှုန်း) = ၆၀၀၀၀၀ိ/ (ကျပ် - ခြောက်သိန်း)တိတိ။

ဧပြီလအတွင်း (၄၇၇၃၀၀၀/- ကျပ် - လေးဆယ်ခုနစ်သိန်းခုနှစ်သောင်းသုံးထောင်) တိတိ။

မေလအတွင်း ကူညီပေးမှုများမှာ

၁။ (၁.၅.၂၀၁၆)ရက်နေ့မှစ၍ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာတွင် Excavator၊ Bulldozer၊ Wheel loader၊ နှင့် မြေသယ်ကားများပါအသုံးပြု၍ ပံ့ပိုးကူညီပေးလျက်ရှိပါသည်။

၁.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀ိ/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀ဝိ/(ကျပ်-နှစ်သောင်း)တိတိ။**

၂။ ၂.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀ိ/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀ဝိ/(ကျပ်-နှစ်သောင်း)တိတိ။**

၃။ ၃.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀ိ/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀ဝိ/(ကျပ်-နှစ်သောင်း)တိတိ။**

၄။ ၆.၅.၂၀၁၆ Bulldozer ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀ိ/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၆.၅.၂၀၁၆ Excavator ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀ိ/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

လုပ်အားပေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၅။ (၉. ၅. ၂၀၁၆)ရက်နေ့တွင် ရေဖြူမြို့နယ်၊ ကံပေါက်၊ မောရဝတီရေတပ်ဌာနချုပ်သို့ရောက်ရှိလာသော တပ်မတော်အခမဲ့ဆေးကုသရေးရေယာဉ်သင်္ဘောပေါ်တွင် ရဟန်းသံဃာတော်များနှင့် ဆေးကုသခံ လူနာများအား ကြိုပို့ရန် မှန်လုံကားတစ်ခေါက် (၄၀၀၀၀/)နှုန်းဖြင့် ၂၅ခေါက်စာအတွက် အလှူငွေ **၁၀၀၀၀၀၀/(ကျပ် - တစ်ဆယ်သိန်း)**တိတိအား ပေးအပ်လှူဒါန်းခဲ့ပါသည်။

၆။ ၁၁. ၅. ၂၀၁၆ Wheel loader ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/ **(ကျပ် - ခြောက်သိန်း) တိတိ။** ၆ ဘီးမြေသယ်ကား ၁၀နာရီ × ၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀/**(ကျပ် - တစ်သိန်းတိတိ)။**

၇။ ၁၁. ၅. ၂၀၁၆ဘာလူးဒမ်သို့ရေပိုက်တင်ခ ၄ခေါက် × ၁၀၀၀၀၀နှုန်း = ၄၀၀၀၀၀/**(ကျပ် - လေးသိန်း)တိတိ။**

၈။ (၁၂. ၅. ၂၀၁၆) ရက်နေ့တွင် ကံပေါက်ကျေးရွာ၊ ထန်းတစ်ပင်ရပ်ကွက် အများပြည်သူသွားလာသည့် လမ်းရေစီးရေလာကောင်းမွန်ရန်ပြုပြင်ရာ၌ ၁၂လက်မသံပိုက်လုံး (၁၅ပေ)တစ်လုံး၊ နှင့် (၁၀ပေ) တစ်လုံး တို့အား လှူဒါန်းခဲ့ပါသည်။ လုပ်အားပေးအဖွဲ့အား နေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။ (၂၅ ပေ × ၁၀၀၀နှုန်း = ၂၅၀၀၀၀/ကျပ် - နှစ်သိန်းငါးသောင်း)တိတိ။**

၉။ (၁၂. ၅. ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ မြေသယ်ကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Wheel loader ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၆ ဘီးမြေသယ်ကား ၁၀နာရီ × ၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀/**(ကျပ် - တစ်သိန်း)တိတိ။**

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၁၀။ (၁၃. ၅. ၂၀၁၆)ရက်နေ့တွင် ကံပေါက်ဒေသ၊ တောင်ပယကျေးရွာ၊ ရှားကုန်း အမှတ်(၁)ရပ်ကွက်တွင် အရှေ့တံတားတည်ဆောက်ရန်အတွက် အလှူငွေ**၂၀၀၀၀၀၀/(ကျပ် - နှစ်ဆယ်သိန်း)တိတိ** ပေးအပ် လှူဒါန်းပါသည်။

၁၁။ (၁၃. ၅. ၂၀၁၆)ရက်နေ့တွင် ကံပေါက်ဒေသ၊ တောင်ပယကျေးရွာ၊ ကျွဲစာပြင် အမှတ်(၁)တံတား ပြန်လည်ပြုပြင်ရန်အတွက်အလှူငွေ **၂၀၀၀၀၀၀/(ကျပ် - နှစ်ဆယ်သိန်း)တိတိ** ပေးအပ်လှူဒါန်း ခဲ့ပါသည်။

၁၂။ (၁၃. ၅. ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ Backhoe, Excavator၊ ၆ဘီးကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Wheel loader ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

Excavator ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၆ ဘီးမြေသယ်ကား ၁၀နာရီ × ၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀/**(ကျပ် - တစ်သိန်း)တိတိ။**

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၁၃။ (၁၄. ၅. ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ Backhoe၊ ၆ဘီးမြေသယ်ကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Wheel loader ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

Backhoe ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၆ ဘီးမြေသယ်ကား ၁၀နာရီ × ၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀/**(ကျပ် - တစ်သိန်း)တိတိ။**

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၁၄။ (၁၅. ၅. ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ Backhoe၊ ၆ဘီးမြေသယ်ကား၊ ရေကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Wheel loader ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

Backhoe ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၆ ဘီးမြေသယ်ကား ၁၀နာရီ × ၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀/**(ကျပ် - တစ်သိန်း)တိတိ။**

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၁၅။ (၁၆. ၅. ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Backhoe၊ ၆ဘီးမြေသယ်ကား၊ ရေကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Backhoe ၉ နာရီ × ၆၀၀၀၀နှုန်း = ၅၄၀၀၀၀/**(ကျပ် - ငါးသိန်းလေးသောင်း)တိတိ။**

၆ ဘီးမြေသယ်ကား ၉ နာရီ × ၁၀၀၀၀နှုန်း = ၉၀၀၀၀/**(ကျပ် - ကိုးသောင်း)တိတိ။**

ရေကားဖြင့်လမ်းရေဖြန်း ၉ နာရီ × ၁၀၀၀၀နှုန်း = ၉၀၀၀၀/**(ကျပ် - ကိုးသောင်း)တိတိ။**

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၁၆။ (၁၇. ၅. ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ Backhoe၊ ၆ဘီးမြေသယ်ကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Wheel loader ၁၂ နာရီ × ၆၀၀၀၀နှုန်း = ၇၂၀၀၀၀/**(ကျပ် - ခုနှစ်သိန်းနှစ်သောင်း)တိတိ။**

Backhoe ၁၀ နာရီ × ၆၀၀၀၀နှုန်း = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၆ ဘီးမြေသယ်ကား ၁၀နာရီ × ၁၀၀၀၀နှုန်း = ၁၀၀၀၀၀/**(ကျပ် - တစ်သိန်း)တိတိ။**

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

၁၇။ (၁၇. ၅. ၂၀၁၆)ရက်နေ့ ပယကျေးရွာ အမှတ်(၁)ရပ်ကွက် လမ်းသွယ်တံတားအတွက် သံချောင်းများ လျှုဒါန်းပါသည်။

၁။ ၁ အချင်း x ၄၀ပေ x ၃၅ချောင်း x ၂၀၀၀ = ၇၀၀၀၀၀/**(ကျပ် - ခုနှစ်သိန်း)တိတိ။**

၂။ 1/2အချင်း x ၄၀ပေ x ၃၀ချောင်း x ၅၅၀၀ = ၁၆၅၀၀၀/**(ကျပ် - တစ်သိန်းခြောက်သောင်း ငါးထောင်)တိတိ။**

၃။ 3/8အချင်း x ၄၀ပေ x ၃၂ချောင်း x၄၀၀၀ = ၁၂၈၀၀၀/**(ကျပ် - တစ်သိန်းနှစ်သောင်း ရှစ်ထောင်)တိတိ။**

၁၈။ (၁၈၊ ၅၊ ၂၀၁၆)ရက်နေ့ပဲခူးတိုင်းဒေသကြီး၊ဖြူးမြို့နယ်၊ သင်္ဘောကျွန်းကျေးရွာ(မူ/လွန်)ဘုန်းတော်ကြီး ပညာရေး(ပရဟိတ)ကျောင်း၊ ကျောင်းသား(၂)ဦးအတွက် ပညာသင်ထောက်ပံ့စရိတ် - **၁၄၄၀၀၀/ (ကျပ် - တစ်သိန်းလေးသောင်းလေးထောင်)** လျှုဒါန်းပါသည်။

၁၉။ (၁၈၊ ၅၊ ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Wheel loader၊ Backhoe၊ ဓာတ်မြေသယ်ကားများနှင့်ကူညီပေးခဲ့ပါသည်။

ပရဟိတလူမှုရေးအဖွဲ့အားနေ့လည်စာစားစရိတ် **၂၀၀၀၀/(ကျပ် - နှစ်သောင်း)တိတိ။**

Wheel loader ၁၂ နာရီ × ၆၀၀၀၀နှုန်း = ၇၂၀၀၀၀/**(ကျပ် - ခုနှစ်သိန်းနှစ်သောင်း)တိတိ။**

Backhoe ၁၀၊ ၅ နာရီ × ၆၀၀၀၀နှုန်း = ၆၃၀၀၀၀/**(ကျပ် - ခြောက်သိန်းသုံးသောင်း)တိတိ။**

ဓာတ်မြေသယ်ကား ၁၁နာရီ × ၁၀၀၀၀နှုန်း = ၁၁၀၀၀၀/**(ကျပ် - တစ်သိန်းတစ်သောင်း)တိတိ။**

၂၀။ (၁၉၊ ၅၊ ၂၀၁၆)ရက်နေ့ ဇာဒီ၊ ပယ၊ ခွေးမဖော၊ ဖက်တောင်လမ်းပြုပြင်ရာ၌ Backhoe၊ ဓာတ်မြေသယ်ကားများနှင့်ကူညီပေးခဲ့ပါသည်။

Backhoe ၉နာရီ × ၆၀၀၀၀နှုန်း = ၅၄၀၀၀၀/**(ကျပ် - ငါးသိန်းလေးသောင်း)တိတိ။**

ဓာတ်မြေသယ်ကား ၇နာရီ × ၁၀၀၀၀နှုန်း = ၇၀၀၀၀/**(ကျပ် - ခုနှစ်သောင်း)တိတိ။**

၂၁။ (၂၀၊ ၅၊ ၂၀၁၆)ရက်နေ့ ပယကျေးရွာ၊ ရှားကုန်း (အမှတ်-၁) တံတားအတွက် သံချောင်းလျှုဒါန်းပါသည်။

၁။ ၁လက်မ အချင်း x ၄၀ပေ x ၃၀ချောင်း x ၂၀၀၀၀ = ၆၀၀၀၀၀/**(ကျပ် - ခြောက်သိန်း)တိတိ။**

၂။ ၃မူးအချင်း x ၄၀ပေ x ၃၀ချောင်း x ၄၀၀၀ =၁၂၀၀၀၀/**(ကျပ် - တစ်သိန်းနှစ်သောင်း)တိတိ။**

၃။ ၃မတ်အချင်း x ၄၀ပေ x ၄၀ချောင်း x ၁၈၀၀၀=၇၂၀၀၀၀/**(ကျပ်-ခုနှစ်သိန်းနှစ်သောင်း)တိတိ။**

၂၂။ (၂၈၊ ၅၊ ၂၀၁၆)ရက်နေ့ ကံပေါက်ရွှေစေတီကျောင်းတိုက်အတွင်း ဆောက်လုပ်သည့် ဆွမ်းစားဆောင်အတွက် ၁လက်မသံလုံး ၂၅ချောင်း ပေးအပ်လျှုဒါန်းပါသည်။

၁လက်မအချင်း၂၅ချောင်း x ၂၀၀၀၀ = ၅၀၀၀၀၀/**(ကျပ် - ငါးသိန်း)တိတိ။**

၂၃။ (၂၉၊ ၅၊ ၂၀၁၆)ရက်နေ့ စစ်ကိုင်းတိုင်းဒေသကြီး၊ ရွှေဘိုခရိုင်၊ ရေဦးမြို့နယ်၊ ထန်းကြီးအုပ်စု ရေကြီးပြီး တာပေါင်ကျိုး၍ပျက်စီးသွားသောသရက်ပင်တောရဓမ္မရိပ်သာကျောင်း သံဃာတစ်ပါး၀ါဆိုဆွမ်းစရိတ်အတွက် ၈၁၀၀၀/**(ကျပ် - ရှစ်သောင်းတစ်ထောင်)**တိတိ လျှုဒါန်းပါသည်။

မေလအတွင်း (၂၁၅၇၈၀၀၀/ ကျပ်-နှစ်ရာတစ်ဆယ့်ငါးသိန်း ခုနှစ်သောင်းရှစ်ထောင်)တိတိ။

ဇွန်လအတွင်း ကူညီပေးမှုများမှာ

၁။ (၇.၆.၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ အခြေခံပညာအထက်တန်းကျောင်းတွင် KGအတွက် လိုအပ်မှုများဆောင်ရွက်နိုင်ရန် အလှူငွေကျပ် ၁၀၀၀၀၀၀/**(ကျပ်တစ်ဆယ်သိန်းတိတိ)** လှူဒါန်းပါသည်။

၂။ (၁၂.၆.၂၀၁၆)နေ့တွင် ကံပေါက်ဒေသ၊ ရွာသစ်ကုန်းရပ်ကွက်တံတားတွင် ရေချောင်းအမှိုက်ဆို့/သဲပိတ်နေ၍ Backhoe ဖြင့် (၉း၀၀)နာရီမှ (၁၆း၀၀)နာရီအထိ သွားရောက်ကူညီပေးသည်။

၇နာရီ x ၆၀၀၀၀နှုန်း = ၄၂၀၀၀၀/(ကျပ် - **လေးသိန်းနှစ်သောင်း**)တိတိ။

၃။ (၁၉.၆.၂၀၁၆)နေ့တွင် မြသီတာရပ်ကွက်လမ်းပြုပြင်ရန် ကျောက်ပါသောမြေသယ်ပေးခြင်းကို (၆)ဘီးကားဖြင့် (၁၈)ခေါက် ကူညီပေးခဲ့သည်။

၁၈နာရီ x ၁၀၀၀၀နှုန်း = ၁၈၀၀၀၀/(ကျပ် - **တစ်သိန်းရှစ်သောင်း**)တိတိ။

၄။ (၂၀.၆.၂၀၁၆)နေ့တွင် ပယလမ်းပြုပြင်ရန် ကျောက်ပါသောမြေသယ်ပေးခြင်း

(၆)ဘီးကား 3K - 6499 (၈း၃၀ နာရီ မှ ၁၇း၀၀ နာရီ)

၈.၅ နာရီ x ၁၀၀၀၀နှုန်း = ၈၅၀၀၀/(ကျပ် - **ရှစ်သောင်းငါးထောင်**)တိတိ။

(၆)ဘီးကား 3K - 8284 (၁၂း၀၀ နာရီ မှ ၁၇း၀၀ နာရီ)

၅နာရီ x ၁၀၀၀၀နှုန်း = ၅၀၀၀၀/(ကျပ် - **ငါးသောင်း**)တိတိ ကူညီပေးခဲ့သည်။

၅။ (၂၁.၆.၂၀၁၆)နေ့တွင် ပယလမ်းပြုပြင်ရန် ကျောက်ပါသောမြေသယ်ပေးခြင်း

(၆)ဘီးကား ၂စီး (၈း၀၀ နာရီ မှ ၂၄း၃၀) အထိ

၁၆.၅နာရီ x ၂စီး x ၁၀၀၀၀နှုန်း = ၃၃၀၀၀၀/(**သုံးသိန်းသုံးသောင်း**)တိတိ

Wheeloader ၁စီး (၈း၀၀ နာရီ မှ ၂၄း၃၀ နာရီ)အထိ

၁၆.၅နာရီ x ၆၀၀၀၀နှုန်း = ၉၉၀၀၀၀/(ကျပ် - **ကိုးသိန်းကိုးသောင်း**)တိတိ

Backhoe ၂စီး (၈း၀၀နာရီမှ ၂၄း၃၀)အထိ

၁၆.၅နာရီ x ၂စီး x ၆၀၀၀၀နှုန်း = ၁၉၈၀၀၀၀/(ကျပ် - **တစ်ဆယ့်ကိုးသိန်းရှစ်သောင်း**)တိတိ ကူညီပေးခဲ့သည်။

၆။ (၂၂.၆.၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကလိန်အောင်မြို့နယ်ခွဲ၊ တိုက်နယ်ပြည်သူ့ဆေးရုံလူနာများအတွက် အလူမီနီယံချိုင်းထောက် (၈)စုံလှူဒါန်းပါသည်။

၈စုံ x ၁၅၀၀၀နှုန်း = ၁၂၀၀၀၀/(ကျပ် - **တစ်သိန်းနှစ်သောင်း**)တိတိ။

(၂၂.၆.၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ရေဖြူပြည်သူ့ဆေးရုံလူနာများအတွက် အလူမီနီယံချိုင်းထောက်(၈)စုံ လှူဒါန်းပါသည်။

၈စုံ x ၁၅၀၀၀နှုန်း = ၁၂၀၀၀၀/(ကျပ် - **တစ်သိန်းနှစ်သောင်း**)တိတိ။

၇။ (၂၆. ၆. ၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကံပေါက်တိုက်နယ် ဆေးရုံလူနာများအတွက် အလူမီနီယံချိုင်းထောက် (၈)စုံလျှုဒါန်းပါသည်။

၈စုံ x ၁၅၀၀၀နှုန်း = ၁၂၀၀၀၀/(ကျပ် - **တစ်သိန်းနှစ်သောင်း**)တိတိ။

၈။ (၃၀. ၆. ၂၀၁၆)နေ့တွင် မီးသတ်ရုံးအတွက် N100 3K Battery + Acid ပြေစာပါ ၁၁၅၀၀၀/(ကျပ် - **တစ်သိန်းတစ်သောင်းငါးထောင်**)တိတိ လျှုဒါန်းပါသည်။

ဇွန်လအတွင်း (၅၅၁၀၀၀၀/ ကျပ်- ငါးဆယ့်ငါးသိန်းတစ်သောင်း)တိတိ။

ဇူလိုင်လအတွင်း ကူညီပေးမှုများမှာ

၁။ (၁၆. ၇. ၂၀၁၆)နေ့တွင် DELCO LIMITED သတ္တုတွင်းမှာရုံဝါတွင်းကာလ အာရုံဆွမ်းကပ်လှူရန် ၂၀၀၀၀၀/(ကျပ် - **နှစ်သိန်းကျပ်**)တိတိ လျှုဒါန်းပါသည်။

၂။ (၁၆. ၇. ၂၀၁၆)နေ့တွင်မွန်ပြည်နယ်၊ ကျိုက်ထိုမြို့နယ်၊ တောင်ကလေးကျေးရွာ၊ ဓမ္မဝိဟာရ ဘုန်းတော်ကြီးသင်ပညာရေးကျောင်း အာဟာရကျွေးမွေးရန် ၁၅၅၀၀၀/(ကျပ် - **တစ်သိန်းငါးသောင်း ငါးထောင်**)တိတိ လျှုဒါန်းပါသည်။

၃။ (၁၇. ၇. ၂၀၁၆)နေ့တွင် ကံပေါက်ဒေသ(၆၉)ကြိမ်မြောက်အာဇာနည်နေ့အထိမ်းအမှတ်အခမ်းအနားအတွက် ၈၀၀၀၀၀/(ကျပ် - **ရှစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၄၊ ကံပေါက်ဒေသ စာသင်ကျောင်း(၅)ကျောင်းအတွက် (၂၄. ၇. ၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ ပိန္နဲတောရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျောင်းဆောင်များပြုပြင်ရန်အတွက် ၁၄၁၉၈၀၀/(ကျပ်-**တစ်ဆယ့်လေးသိန်းတစ်သောင်းကိုးထောင်ရှစ်ရာ**)တိတိ လျှုဒါန်းပါသည်။

(၂၄. ၇. ၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ဂန့်ဂေါတောင်ရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျောင်းဆောင်များပြုပြင်ရန်အတွက် ၁၈၆၂၈၀၀/(ကျပ် - **တစ်ဆယ့်ရှစ်သိန်းခြောက်သောင်းနှစ်ထောင်ရှစ်ရာ**)တိတိ လျှုဒါန်းပါသည်။

(၂၄. ၇. ၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ ဂန့်ဂေါတောင်ရွာ၊ ဘုရားမဲအခြေခံပညာမူလတန်းကျောင်းတွင် ကျောင်းဆောင်များပြုပြင်ရန်အတွက် ၁၄၃၂၂၈၀၀/(ကျပ် **တစ်ဆယ့်လေးသိန်း သုံးသောင်း နှစ်ထောင် ရှစ်ရာ**)တိတိ လျှုဒါန်းပါသည်။

(၂၅. ၇. ၂၀၁၆)နေ့တွင် တနင်္သာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ မိချောင်းအိုင်ရွာ၊ အခြေခံပညာမူလတန်းလွန်ကျောင်းတွင် ကျောင်းဆောင်များပြုပြင်ရန်အတွက် ၂၀၅၃၈၀၀/(ကျပ် - **နှစ်ဆယ်သိန်းငါးသောင်းသုံးထောင်ရှစ်ရာ**) တိတိ လျှုဒါန်းပါသည်။

(၂၅. ၇. ၂၀၁၆)နေ့တွင် တနသာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ဒေသ၊ လှည်းကုန်းရွာ၊ အခြေခံပညာမူလတန်းလွန်ကျောင်းတွင် ကျောင်းဆောင်များပြုပြင်ရန်အတွက် ၃၂၃၈၀၀၀/(ကျပ် - **သုံးဆယ့်နှစ်သိန်းသုံးသောင်းရှစ်ထောင်**)တိတိ လှူဒါန်းပါသည်။

စုစုပေါင်း (ကျပ် - ၁၀၀၀၇၂၀၀/)တွင် ကုမ္ပဏီမှလှူဒါန်းငွေ (**၁၀,၀၀၇,၂၀၀/(ကျပ် - တစ်ရာသိန်းခုနှစ်ထောင်နှစ်ရာ**)တိတိ။

၅။ (၂၆. ၇. ၂၀၁၆)နေ့တွင် တနသာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ အားကစားနှင့်ကာယဖွံ့ဖြိုးရေးကော်မတီသို့ ၁၀၀၀၀၀၀/(ကျပ် - **တစ်ဆယ်သိန်း**)တိတိ လှူဒါန်းပါသည်။

ဇူလိုင်လအတွင်း (၁၂၁၆၂၂၀၀/ကျပ် - တစ်ရာနှစ်ဆယ်တစ်သိန်းခြောက်သောင်းနှစ်ထောင်နှစ်ရာ) တိတိ။

ဩဂုတ်လအတွင်းကူညီပေးမှုများမှာ

၁။ (၁. ၈. ၂၀၁၆)နေ့တွင် တနသာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်ဓမ္မစကူးလ်အတွက် ၂၀၀၀၀၀/(ကျပ် - **နှစ်သိန်း**)တိတိ လှူဒါန်းပါသည်။

၂။ (၁၄. ၈. ၂၀၁၆)နေ့တွင် တနသာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ် အုပ်ချုပ်ရေးမှူးဖလား အလွတ်တန်း (အမျိုးသား)ဘောလုံးပြိုင်ပွဲ ပြိုင်ပွဲဝင်အသင်းများအား ထောက်ပံ့ငွေ ၁၆၁၀၀၀၀/(ကျပ်- **တစ်ဆယ်ခြောက်သိန်းတစ်သောင်း**)တိတိ လှူဒါန်းပါသည်။

၃။ (၁၅. ၈. ၂၀၁၆)နေ့တွင် တောင်ပယကျေးရွာအုပ်စုကျောင်းကောင်စီဖလားအတွက် ၁၃၅၀၀၀/(ကျပ် - **တစ်သိန်းသုံးသောင်းငါးထောင်**)တိတိ လှူဒါန်းသည်။

ဩဂုတ်လအတွင်း (၁၉၄၅၀၀၀/ကျပ် - တစ်ဆယ့်ကိုးသိန်းလေးသောင်းငါးထောင်)တိတိ။

စက်တင်ဘာလအတွင်းကူညီပေးမှုများမှာ

၁။ (၂၀. ၉. ၂၀၁၆)နေ့တွင် မိကျောင်းအိုင်ရပ်ကွက်မြေဖို့ပေး၊

Backhoe ၁ စီးဖြင့် (၁၀း၃၀ မှ ၁၇း၀၀)အထိ (၆း၃၀နာရီ x ၆၀၀၀၀နှုန်း = **၃၉၀၀၀၀/**)

Man Car ၂ စီးဖြင့် (၁၀း၃၀ မှ ၁၇း၀၀)အထိ (၆း၃၀နာရီ x ၂စီး x ၆၀၀၀၀နှုန်း = **၇၈၀၀၀၀/**)

Wheeloader ဖြင့် (၁၂း၃၀ မှ ၁၇း၃၀)အထိ (၅နာရီ x ၆၀၀၀၀နှုန်း = **၃၀၀၀၀၀/**)

စုစုပေါင်းလှူဒါန်းငွေ ၁၄၇၀၀၀၀/(ကျပ် **တစ်ဆယ့်လေးသိန်းခုနှစ်သောင်း**)တိတိလှူဒါန်းသည်။

၂။ (၂၃. ၉. ၂၀၁၆)နေ့တွင်တနသာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ် တိုင်းအဆင့်ပြိုင်ပွဲ အဆိုအကအရေးအတီးအတွက် ၃၅၀၀၀၀/(ကျပ် - **သုံးသိန်းငါးသောင်း**)တိတိ လှူဒါန်းပါသည်။

စက်တင်ဘာလအတွင်း (၁၈၂၀၀၀၀/ကျပ် - တစ်ဆယ့်ရှစ်သိန်းနှစ်သောင်း)တိတိ။

အောက်တိုဘာလအတွင်းကူညီမှုများမှာ

၁။ (၄.၁၀.၂၀၁၆)ရက်နေ့ သဲပုံစေတီဘုန်းကြီးကျောင်းသို့ ဘီရို(၁)လုံးအတွက် ၂၀၀၀၀၀/ (ကျပ် **နှစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၂။ (၇.၁၀.၂၀၁၆)ရက်နေ့ မြသီတာရပ်ကွက်လျှပ်စစ်မီးတိုင်အတွက် ၅၀၀၀၀/(ကျပ် **ငါးသောင်း**)တိတိ လျှုဒါန်းပါသည်။

၃။ (၁၅.၁၀.၂၀၁၆)ရက်နေ့ အသင်းအုပ်ဆရာတော်(ဧရာဝတီတိုင်း)အားအလှူငွေ ၂၀၀၀၀၀/(ကျပ် **နှစ်သိန်း**) တိတိလျှုဒါန်းပါသည်။

၄။ (၃၁.၁၀.၂၀၁၆)ရက်နေ့ခလရ(၂၇၃)တပ်ရင်းရေရှိရေးအတွက် ဘိလပ်မြေ ၄၀အိတ် x ၅၉၀၀နှုန်း ၂၃၆၀၀၀/ (ကျပ်**နှစ်သိန်းသုံးသောင်းခြောက်ထောင်**)တိတိ လျှုဒါန်းပါသည်။

၅။ (၁၇.၁၀.၂၀၁၆)ရက်နေ့ ရဲစခန်းသို့ $1^{3}/_{4}$သံချောင်း ၃ ချောင်း x ၁၇၀၀၀နှုန်းဖြင့် ၅၁၀၀၀/ (ကျပ် **ငါးသောင်းတစ်ထောင်**)တိတိ လျှုဒါန်းသည်။

၆။ (၂၉.၁၀.၂၀၁၆)ရက်နေ့ ကံပေါက်ဒေသတိုက်နယ်လုံးကျွတ်အုပ်ချုပ်ရေးဖလား ဘောလုံးပွဲအတွက် ၁၀၀၀၀၀၀/(ကျပ် **တစ်ဆယ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၇။ (၂၉.၁၀.၂၀၁၆)ရက်နေ့.၁၂ဘီးကား၊ Man carနှင့်(၁၀း၀၀ မှ ၁၆း၃၀)အထိ မိကျောင်းအိုင်ရွာလမ်းအတွက်ကားလမ်းမြေဖို့ပေး ၆း၃၀နာရီ x ၂စီး x ၆၀၀၀၀နှုန်း = ၇၈၀၀၀၀/(ကျပ်**ခုနှစ်သိန်းရှစ်သောင်း**)တိတိ လျှုဒါန်းပါသည်။

၈။ (၂၉.၁၀.၂၀၁၆)ရက်နေ့ (၁၀း၀၀ မှ ၁၆း၃၀)အထိ မိကျောင်းအိုင်ရွာလမ်းအတွက် Backhoe နှင့် မြေတင်ပေး ၆း၃၀နာရီ x ၆၀၀၀၀နှုန်း = ၃၉၀၀၀၀/(ကျပ် **သုံးသိန်းကိုးသောင်းတိတိ**)တိတိ လျှုဒါန်းပါသည်။

၉။ (၂၉.၁၀.၂၀၁၆)ရက်နေ့ (၁၂း၃၀ မှ ၁၇း၃၀)အထိ မိကျောင်းအိုင်ရွာလမ်းအတွက် Wheeloader နှင့်မြေညှိပေးခြင်း ၅နာရီ x ၆၀၀၀၀နှုန်း= ၃၀၀၀၀၀/(ကျပ် **သုံးသိန်းတိတိ**)တိတိ လျှုဒါန်းပါသည်။

၁၀။ (၂၄.၁၀.၂၀၁၆)ရက်နေ့ သီရိမင်္ဂလာရပ်ကွက်အတွက်(၁၂)ဘီးကားဖြင့် ကလိန်အောင်မှသဲသယ်ပေး (၇း၃၀ မှ ၁၃း၃၀)အထိ ၆နာရီ x ၆၀၀၀၀နှုန်း = ၃၆၀၀၀၀/(ကျပ် **သုံးသိန်းခြောက်သောင်း**) တိတိ လျှုဒါန်းသည်။

၁၁။ (၃၁.၁၀.၂၀၁၆)ရက်နေ့ မြသီတာရပ်ကွက်ဘုရားလှည့်ရန်အတွက် လမ်းပြင်ရန်ရဲစခန်းသို့(၆)ဘီးကားဖြင့်ကျောက်သယ်ပေး ၂ကျင်း x ၆၀၀၀၀နှုန်း = ၁၂၀၀၀၀/(ကျပ် **တစ်သိန်းနှစ်သောင်း**)တိတိ လျှုဒါန်းပါသည်။

၁၂။ (၃၁၊ ၁၀၊ ၂၀၁၆)ရက်နေ့ မြသီတာရပ်ကွက် ဘုရားလှည့်ရန်အတွက်Doosan ဖြင့်လမ်းပြင် (၇း၀၀ မှ ၁၅း၀၀)အထိ စနာရီ x ၆၀၀၀၀နှုန်း = ၄၈၀၀၀၀/(ကျပ် **လေးသိန်းရှစ်သောင်း**)တိတိ လျှုဒါန်းပါသည်။

အောက်တိုဘာလအတွင်း (၄၁၆၇၀၀၀/ ကျပ် - လေးဆယ့်တစ်သိန်းခြောက်သောင်းခုနှစ်ထောင်) တိတိ။

နိုဝင်ဘာလအတွင်းကူညီမှုများမှာ

၁။ (၂၊ ၁၁၊ ၂၀၁၆)ရက်နေ့(၆၈)ကြိမ်မြောက်နှစ်ကျိပ်ရှစ်ဆူဘုရားပွဲသတ္တုတွင်းမိသားစုအတွက် အလှူငွေ ၆၀၀၀၀၀/(ကျပ် **ခြောက်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၂။ (၄၊ ၁၁၊ ၂၀၁၆)ရက်နေ့ မောရ၀တီရေတပ်စခန်းဘုံကထိန်အလှူတွင် ရေသန့်လှူဒါန်းငွေ ၃၀၀၀၀/(ကျပ် **သုံးသောင်း**)တိတိ လျှုဒါန်းပါသည်။

၃။ (၈၊ ၁၁၊ ၂၀၁၆)ရက်နေ့ အမှတ်(၂၇၃)ခြေလျင်တပ်ရင်း၊ ရေရရှိရေးကော်မတီမှရေစုကန် ဆောင်ရွက်ခြင်းလုပ်ငန်းအတွက် ဘိလပ်မြေ(၄၀)အိတ် လှူဒါန်းငွေ ၂၃၆၈၀၀/(ကျပ် **နှစ်သိန်းသုံးသောင်းခြောက်ထောင်ရှစ်ရာ**)တိတိလှူဒါန်းပါသည်။

၄။ (၁၄၊ ၁၁၊ ၂၀၁၆)ရက်နေ့ (၆၈)ကြိမ်မြောက်တန်ဆောင်တိုင်ဘုရားပွဲတော်ဖြစ်မြောက်ရေးအလှူငွေ ၅၀၀၀၀၀/(ကျပ် **ငါးသိန်း**)တိတိ လှူဒါန်းပါသည်။

၅။ (၁၄၊ ၁၁၊ ၂၀၁၆)ရက်နေ့ ကံပေါက်ဆေးရုံအဝီစိတွင်းအတွက် $1^1/_2$PVC ပိုက်အတွက်အလှူငွေ ၁၄၆၂၀၀/(ကျပ် **တစ်သိန်းလေးသောင်းခြောက်ထောင်နှစ်ရာ**)တိတိ လှူဒါန်းပါသည်။

၆။ (၂၈၊ ၁၁၊ ၂၀၁၆)ရက်နေ့ကံပေါက်ဒေသ၊ မိကျောင်းအိုင်အမှိုက်သန့်ရှင်းရေးအတွက်အမှိုက်မီးရှို့စက်ဆောက်မည့်နေရာအား Wheeloader ဖြင့်ရှင်းပေး (၁၂း၀၀ မှ ၁၄း၀၀)အထိ ၂နာရီ ၆၀၀၀၀နှုန်း = ၁၂၀၀၀၀/(ကျပ် **တစ်သိန်းနှစ်သောင်း**)တိတိ လှူဒါန်းပါသည်။

၇။ (၃၀၊ ၁၁၊ ၂၀၁၆)ရက်နေ့ ကံပေါက်ဆေးရုံအဝီစိတွင်းတူးဖော်ရာတွင် လေပိုက်နှင့် ကွန်ပရယ်ဆာအိုးအသုံးပြုဆောင်ရွက်ခြင်းအတွက် ၂၆၂၀၀၀/(ကျပ်**နှစ်သိန်းခြောက်သောင်းနှစ်ထောင်**)တိတိ လှူဒါန်းပါသည်။

နိုဝင်ဘာလအတွင်း (၁၈၉၅၀၀၀/ ကျပ်- တစ်ဆယ့်ရှစ်သိန်းကိုးသောင်းငါးထောင်)တိတိ။

ဒီဇင်ဘာလအတွင်းကူညီမှုများမှာ

၁။ (၇၊ ၁၂၊ ၂၀၁၆)ရက်နေ့ရေဖြူမြို့နယ်လှေလှော်ပြိုင်ပွဲအတွက်အလှူငွေ ၁၀၀၀၀၀၀/(ကျပ်**ဆယ်သိန်း**) တိတိ လှူဒါန်းပါသည်။

၂။ (၂၀. ၁၂. ၂၀၁၆)ရက်နေ့ မွန်ပြည်နယ်၊ ကျိုက်ထိုမြို့နယ်၊ ဓမ္မဝိဟာရဘုန်းတော်ကြီးသင်ပညာရေးကျောင်း၏အဟာရဒါနအတွက် လှူဒါန်းငွေ ၁၃၅၀၀၀၀/ (ကျပ် **တစ်သိန်းသုံးသောင်းငါးထောင်**) တိတိလှူဒါန်းပါသည်။

ဒီဇင်ဘာလအတွင်း (၁၁၃၅၀၀၀၀/ ကျပ်- တစ်ဆယ့်တစ်သိန်းသုံးသောင်းငါးထောင်)တိတိ။

<u>၂၀၁၇ခုနှစ်</u>

ဇန်နဝါရီလအတွင်းကူညီမှုများမှာ

၁။ (၂. ၀၁. ၂၀၁၇)ရက်နေ့၊ရေဖြူမြို့နယ်လေ့လော်ပြိုင်ပွဲဝင်ရောက်မည့်ကံပေါက်ကျေးရွာအုပ်ချုပ်ရေးမှူးနှင့်ပြိုင်ပွဲဝင်များအတွက်ထောက်ပံ့လှူဒါန်းငွေ ၅၀၀၀၀၀/(ကျပ် **ငါးသိန်း**)တိတိ လှူဒါန်းပါသည်။

၂။ (၂. ၀၁. ၂၀၁၇)ရက်နေ့ ကံပေါက်ရွာ (၆၉)ကြိမ်မြောက် လွတ်လပ်ရေးနေ့အထိမ်းအမှတ် အားကစားပွဲတော်အတွက် လှူဒါန်းငွေ ၃၀၀၀၀၀/(ကျပ် **သုံးသိန်း**)တိတိ လှူဒါန်းပါသည်။

၃။ (၄. ၀၁. ၂၀၁၇)ရက်နေ့ အခြေခံပညာအထက်တန်းကျောင်းပညာရည်ချွန်ဆုပေးပွဲအခမ်းအနားသို့ လှူဒါန်းငွေ ၅၀၀၀၀/(ကျပ် **ငါးသောင်း**)တိတိလှူဒါန်းပါသည်။

၄။ (၄. ၀၁. ၂၀၁၇)ရက်နေ့ ၂၀၁၇ခုနှစ်၊ (၆၉)နှစ်မြောက်လွတ်လပ်ရေးနေ့အထိမ်းအမှတ် ရေဖြူမြို့နယ်မြန်မာ့ရိုးရာ ဖိတ်ခေါ်လေ့လော်ပြိုင်ပွဲအောင်မြင်ရေးအတွက် လှူဒါန်းငွေ ၂၀၀၀၀၀၀/(ကျပ် - **သိန်းနှစ်ဆယ်**)တိတိ လှူဒါန်းပါသည်။

၅။ (၆. ၀၁. ၂၀၁၇)ရက်နေ့ ရေဖြူမြို့နယ် ဓမ္မာရုံအတွက်လှူဒါန်းငွေ ၄၀၀၀၀၀/(ကျပ် **လေးသိန်း**)တိတိ လှူဒါန်းပါသည်။

၆။ (၁၃. ၁. ၂၀၁၇) ရက်နေ့ ကံပေါက်(အ. ထ. က)စကားရည်လုပွဲအတွက်အလှူငွေ ၅၀၀၀၀/(ကျပ် - **ငါးသောင်း**)တိတိ လှူဒါန်းပါသည်။

၇။ (၁၅. ၁. ၂၀၁၇)ရက်နေ့ တနင်္သာရီမြို့နယ်၊ ရေဘေးသင့်အလှူငွေ ၅၀၀၀၀၀/(ကျပ် - **ငါးသိန်း**) တိတိ လှူဒါန်းပါသည်။

၈။ (၁၇. ၁. ၂၀၁၇)ရက်နေ့ မိကျောင်းအိုင်လမ်းပြုပြင်ရန်(12)ဘီးကားဖြင့်မြေသယ်ကူညီပေးခြင်းအတွက် ၂၅ခေါက် × ၅၀၀၀၀နှုန်း = ၁၂၅၀၀၀၀/(ကျပ် **တစ်ဆယ်နှစ်သိန်းငါးသောင်း**)တိတိ လှူဒါန်းပါသည်။

၉။ (၁၇. ၁. ၂၀၁၇)ရက်နေ့ မိကျောင်းအိုင်လမ်းပြုပြင်ရန် (Wheel Loader)ကားဖြင့် မြေသယ်ကူညီပေးခြင်းအတွက် (၁နာရီ၊ ၂၅မိနစ်) ၁နာရီလျှင် ၆၀၀၀၀နှုန်းဖြင့် ၇၅၀၀၀/(ကျပ် **ခုနှစ်သောင်းငါးထောင်**)တိတိ လှူဒါန်းပါသည်။

၁၀။ (၁၇၊ ၁၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်သချိုင်းကုန်းမြေညီပေးခြင်းအတွက် (12) ဘီးကားဖြင့် မြေသယ်ကူညီပေးခြင်းအတွက် ၂ခေါက် × ၅၀၀၀၀နှုန်း = ၁၀၀၀၀၀/(ကျပ် - **တစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၁၁။ (၂၅၊ ၁၊ ၂၀၁၇) ရက်နေ့ ဆေးရုံစာသင်ကျောင်းအတွက် အဝိစိတွင်းအမိုးမိုးရန် သွပ်လျှုဒါန်းငွေ ၅၁၃၀၀၀/(ကျပ် - **ငါးသောင်းတစ်ထောင်သုံးရာ**)တိတိ လျှုဒါန်းပါသည်။

၁၂။ (၁၆၊ ၁၊ ၂၀၁၇) ရက်နေ့ ဆေးရုံစာသင်ကျောင်းအတွက် အဝိစိတွင်းအမိုးမိုးရန် သွပ်လျှုဒါန်းငွေ ၆၇၃၀၀၀/(ကျပ် - **ခြောက်သောင်းခုနှစ်ထောင်သုံးရာ**)တိတိ လျှုဒါန်းပါသည်။

ဇန်နဝါရီလအတွင်း (၅၃၄၃၃၀၀/ ကျပ်- ငါးဆယ်သုံးသိန်းလေးသောင်းသုံးထောင်သုံးရာ)တိတိ။

ဖေဖော်ဝါရီလအတွင်း ကူညီမှုများမှာ

၁။ (၅၊ ၀၂၊ ၂၀၁၇)ရက်နေ့ တနင်္သာရီတိုင်းဒေသကြီး၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ရွာပြည်သူ့ဆေးရုံနှင့် (အ၊ ထ၊ က)ကျောင်းအတွက်လိုအပ်သောရေတွင်းနှင့်ရေပိုက်လိုင်းတူးဖော်ခြင်းပြီးစီးသွားပါသဖြင့်ပေးအပ်ပွဲအခမ်းအနားဖြစ်မြောက်ရေးအလှူအတွက် ၁၀၀၀၀၀/(ကျပ် **တစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၂။ (၁၀၊ ၀၂၊ ၂၀၁၇)ရက်နေ့ စ၊ ရ၊ ဖမှ အကူအညီတောင်း၍ ဆေးရုံမုခ်ဦးပြုလုပ်ရန် (အုတ်ခဲ + ဘိလပ်မြေ) အလှူငွေ ၉၄၈၀၀/(ကျပ် **ကိုးသောင်းလေးထောင်ရှစ်ရာ**)တိတိ လျှုဒါန်းပါသည်။

၃။ (၂၈၊ ၀၂၊ ၂၀၁၇)ရက်နေ့ မြသီတာရပ်ကွက်၊ ရွာပတ်လမ်းကတ္တရာလမ်းခင်းရန်အတွက် လျှုဒါန်းငွေ ၂၇၄၀၀၀၀၀/(ကျပ် **နှစ်ရာခုနှစ်ဆယ်လေးသိန်း**)တိတိလျှုဒါန်းပါသည်။

ဖေဖော်ဝါရီလအတွင်း (၂၇၅၉၄၈၀၀/ ကျပ် - နှစ်ရာခုနှစ်ဆယ်ငါးသိန်းကိုးသောင်းလေးထောင်ရှစ်ရာ)တိတိ။

မတ်လအတွင်းကူညီမှုများမှာ

၁။ (၂၊ ၀၃၊ ၂၀၁၇)ရက်နေ့ 3/4 pipe ၃ခွေ၊ ကံပေါက်ရဲစခန်းအတွက် အလှူငွေ ၅၄၀၀၀/(ကျပ် - **ငါးသောင်းလေးထောင်**)တိတိ လျှုဒါန်းပါသည်။

၂။ (၆၊ ၀၃၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်ဒေသ၊ မြသီတာရွာပတ်လမ်းကတ္တရာခင်းရန်အတွက် Bulldozer ဖြင့် (၇း၀၀)နာရီမှ (၁၆း၀၀)နာရီအထိ သွားရောက်လုပ်အားပေးကူညီသည်။

၉နာရီ x ၆၀၀၀၀နှုန်း = ၅၄၀၀၀၀/(ကျပ် - **ငါးသိန်းလေးသောင်း**)တိတိ။

၃။ (၇၊ ၀၃၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်ဒေသ၊ မြသီတာရွာပတ်လမ်းကတ္တရာခင်းရန်အတွက် Bulldozer ဖြင့် (၇း၀၀)နာရီမှ (၁၆း၀၀)နာရီအထိ သွားရောက်လုပ်အားပေးကူညီသည်။

၉နာရီ x ၆၀၀၀၀နှုန်း = ၅၄၀၀၀၀/(ကျပ် - **ငါးသိန်းလေးသောင်း**)တိတိ။

၄။ (၁၉. ၀၃. ၂၀၁၇)ရက်နေ့ လှည်းကုန်းဓမ္မာရုံအတွက်ဆင်ဘိလပ်မြေ(၁၀)အိတ်လျှုဒါန်းခြင်း၆၅၀၀၀/ (ကျပ် **ခြောက်သောင်းငါးထောင်**)တိတိ လျှုဒါန်းပါသည်။

၅။ (၂၄. ၀၃. ၂၀၁၇)ရက်နေ့လောင်းလုံမြို့နယ်၊ ရေတွင်းတူးဖော်ရာတွင်ထောက်ပံ့လျှုဒါန်းငွေ ၅၀၀၀၀/ ကျပ် **ငါးသောင်း**)တိတိ လျှုဒါန်းပါသည်။

၆။ (၂၄. ၀၃. ၂၀၁၇)ရက်နေ့ ကံပေါက်မီးသတ်ဌာနသို့ ဒီဇယ်ဆီ၂ပေပါ နှင့် ထောက်ပံ့လျှုဒါန်းငွေ

၈၂၅၀၀၀/ (ကျပ် **ရှစ်သိန်းနှစ်သောင်းငါးထောင်**)တိတိ လျှုဒါန်းပါသည်။

မတ်လအတွင်း (၂၀၇၄၀၀၀/ ကျပ် - နှစ်ဆယ်သိန်းခုနှစ်သောင်းလေးထောင်)တိတိ။

ဧပြီလအတွင်းကူညီမှုများမှာ

၁။ (၂. ၀၄. ၂၀၁၇)ရက်နေ့ ရေဖြူမြို့နယ်၊ မဟာသင်္ကြန်ပွဲတော်ဖြစ်မြောက်ရေးအတွက် လျှုဒါန်းငွေ ၁၀၀၀၀၀၀၀/(ကျပ် **သိန်းတစ်ဆယ်**) တိတိလျှုဒါန်းပါသည်။

၂။ (၂. ၀၄. ၂၀၁၇)ရက်နေ့ပယ-မီးတိုင်တက်ရွာပတ်လမ်းအတွက်ကွန်ကရစ်ပိုက်လျှုဒါန်းငွေ ၁၂၀၀၀၀/ (ကျပ် **တစ်သိန်းနှစ်သောင်း**)တိတိ လျှုဒါန်းပါသည်။

၃။ (၅. ၀၄. ၂၀၁၇) ရက်နေ့ ကံပေါက်ရွာ၊ မဟာသင်္ကြန်ပွဲတော်ဖြစ်မြောက်ရေးအတွက် လျှုဒါန်းငွေ ၂၀၀၀၀၀၀၀/(ကျပ် **သိန်းနှစ်ဆယ်**)တိတိ လျှုဒါန်းပါသည်။

၄။ (၇. ၀၄. ၂၀၁၇)ရက်နေ့ အမှတ်(၂)သတ္တုတွင်းသို့ သင်္ကြန်အတွက်လျှုဒါန်းငွေ ၂၀၀၀၀၀၀/(ကျပ် **နှစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၅။ (၇. ၀၄. ၂၀၁၇)ရက်နေ့ ကံပေါက်ဒေသ ပရိတ်ရွတ်ဖတ်ပူဇော်ပွဲအတွက်လျှုဒါန်းငွေ ၁၀၀၀၀၀၀/

(ကျပ် **တစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

ဧပြီလအတွင်း (၃၄၂၀၀၀၀/ ကျပ် - သုံးဆယ်လေးသိန်းနှစ်သောင်း)တိတိ။

မေလအတွင်းကူညီမှုများမှာ-

၁။ (၀၁. ၀၅. ၂၀၁၇)ရက်နေ့ မြသီတာရပ်ကွက်၊ ရွာပတ်လမ်း ကတ္တရာလမ်းခင်းရန် လှူဒါန်းငွေ ၁၄၀၀၀၀၀၀ဝိ/(ကျပ် **တစ်ဆယ့်လေးသိန်း**)တိတိလှူဒါန်းပါသည်။

၂။ ၂၁. ၀၁. ၂၀၁၇ မှ ၃၀. ၀၄. ၂၀၁၇အထိမော်တော်ယာဉ်နှင့်ယာဉ်မောင်းတစ်ဦးဖြင့် ကံပေါက်ကျေးရွာအား အမှိုက်သိမ်းဆည်းပေးခဲ့ပါသောကြောင့်(၁. ၀၅. ၂၀၁၇)ရက်နေ့တွင် ဂုဏ်ပြုမှတ်တမ်းလွှာ ရရှိပါသည်။

၃။ (၂၇. ၀၅. ၂၀၁၇)ရက်နေ့ အမှတ်(၂၇၃)ခြေလျင်တပ်ရင်းအတွင်း ရာဘာပင်စိုက်ရန်အတွက် ဘက်ဟိုးဖြင့် ချိုန္ဒယ်များရှင်းလင်းဖယ်ရှားပေးခြင်း(၇း၀၀ မှ ၁၇း၀၀)အထိ(၁၀နာရီ x ၆၅၀၀၀နှုန်း) ၆၅၀၀၀ဝိ/-(ကျပ် **ခြောက်သိန်းငါးသောင်း**)တိတိကူညီလှူဒါန်းပေးခဲ့ပါသည်။

၄။ (၂၇. ၀၅. ၂၀၁၇)ရက်နေ့ အမှတ်(၂၇၃)ခြေလျင်တပ်ရင်းအတွင်း ရာဘာပင်စိုက်ရန်အတွက် ဘက်ဟိုးဖြင့် ချိုန္ဒယ်များရှင်းလင်းဖယ်ရှားပေးခြင်း(၇း၀၀ မှ ၁၇း၀၀)အထိ(၁၀နာရီ x ၆၅၀၀၀နှုန်း) ၆၅၀၀၀ဝိ/-(ကျပ် **ခြောက်သိန်းငါးသောင်း**)တိတိကူညီလှူဒါန်းပေးခဲ့ပါသည်။

၅။ (၂၉. ၀၅. ၂၀၁၇)ရက်နေ့၊ ကံပေါက်သချိုင်းကုန်းတွင် ဘက်ဟိုးဖြင့်အမှိုက်ကျင်းတူးပေး (၉း၀၀ မှ ၁၆း၀၀) အထိ (၇နာရီ ထ ၆၅၀၀၀နှုန်း)၄၅၅၀၀ဝိ/-(ကျပ် **လေးသိန်းငါးသောင်းငါးထောင်**)တိတိ ကူညီလှူဒါန်းပါသည်။

မေလအတွင်း(၃၁၅၅၀၀ဝိ/ ကျပ်- သုံးဆယ့်တစ်သိန်း ငါးသောင်းငါးထောင်) တိတိ။

ဇွန်လအတွင်းကူညီမှုများမှာ-

၁။ (၆. ၀၆. . ၂၀၁၇)ရက်နေ့ ဧရာဝတီတိုင်း၊ ဘိုကလေးမြို့နယ်၊ သရော်ချောင်းကျေးရွာအုပ်စု၊ သဲဖြူကျေးရွာ၊ ပဏ္ဍိတရာမကျောင်းတိုက်၊ ဆင်းရဲနွမ်းပါးကျောင်းသူ/သားများအတွက် လှူဒါန်းငွေ ၉၀၀၀၀ဝိ/-(ကျပ် **ကိုးသောင်း**)တိတိ လှူဒါန်းပါသည်။

၂။ (၂၁၇. ၀၆. ၂၀၁၇)ရက်နေ့ သိရီမင်္ဂလာရပ်ကွက်၊ ဘုရားမဏ္ဍပ်ရှေ့ကွန်ကရစ်ရေမြောင်းနှင့် ကွန်ကရစ်ခင်းခြင်းအတွက်လှူဒါန်းငွေ ၁၁၀၉၀၀ဝိ/-(ကျပ် **တစ်ဆယ့်တစ်သိန်းကိုးထောင်**)တိတိ လှူဒါန်းခဲ့ပါသည်။

၃။ (၂၆. ၀၆. ၂၀၁၇)ရက်နေ့ မြသီတာရပ်ကွက်၊ ရွာသစ်ကုန်းတံတား Dong Feng Car(၂)စီးဖြင့် (ကျောက်ကြီး ၃၂ကျင်း x ၂၀၀၀၀ကျင်း) ၆၄၀၀၀ဝိ/-(ကျပ် **ခြောက်သိန်းလေးသောင်း**) (ကျောက်သေး ၄ ကျင်း x ၈၀၀၀၀ကျင်း) ၃၂၀၀၀ဝိ/-(ကျပ် **သုံးသိန်းနှစ်သောင်း**) Doosan 300 (၈း၀၀နာရီမှ ၁၈း၃၀အထိ ၁၀း၃၀နာရီ x ၆၅၀၀နှုန်း)

စုစုပေါင်း ၆၈၂၅၀၀/- (ကျပ်- **ခြောက်သိန်းရှစ်သောင်းနှစ်ထောင့်ငါးရာ**)တိတိ ကူညီလှူဒါန်းပါသည်။

ဇွန်လအတွင်း(၂၈၄၁၅၀၀/ ကျပ်- နှစ်ဆယ့်ရှစ်သိန်းလေးသောင်းတစ်ထောင့်ငါးရာ) တိတိ။

ဇူလိုင်လအတွင်းကူညီမှုများမှာ-

၁။ (၁၃.၀၇.၂၀၁၇)ရက်နေ့ ကံပေါက်ရွာတွင် အာဇာနည်နေ့အထိမ်းအမှတ်အခမ်းအနားအတွက် လှူဒါန်းငွေ ၅၀၀၀၀၀/- (ကျပ် **ငါးသိန်း**)တိတိ လှူဒါန်းပါသည်။

၂။ (၁၇.၀၇.၂၀၁၇)ရက်နေ့ ကံပေါက်ကျေးရွာ မိုးရာသီဘောလုံးအားကစားအသင်းအတွက် ထောက်ပံ့လှူဒါန်းငွေ ၅၀၀၀၀၀/-(ကျပ် **ငါးသိန်း**)တိတိ လှူဒါန်းခဲ့ပါသည်။

၃။ (၁၈.၀၇.၂၀၁၇)ရက်နေ့ ရေဖြူမြို့နယ်၊ အာဇာနည်နေ့အခမ်းအနားကျင်းပရန်အတွက် လှူဒါန်းငွေ ၅၀၀၀၀၀/- (ကျပ်- **ငါးသိန်း**)တိတိ လှူဒါန်းပါသည်။

၄။ (၂၀.၀၇.၂၀၁၇)ရက်နေ့ သီရိမင်္ဂလာရပ်ကွက်နှင့်ခလရ(၂၇၃)သွားလမ်းသို့ ၃၀လက်မသံပိုက်လုံး(၆)လုံး မြှုပ်သည့်တံတားအမှိုက်များပိတ်ဆို့နေပြီး ကားလမ်းရေကျော်၍ လမ်းပျက်စီးမှုမဖြစ်စေရန် ကျောက်ကြီးနှင့်သဲများ ဖို့ပေးခြင်း၊ ပိုက်လုံးအတွင်း အမှိုက်သရိုက်များပိတ်ဆို့နေခြင်းအား လူအင်အားဖြင့် ဖယ်ရှားရှင်းလင်းပေးခြင်းအား (ဂူးဝဝ မှ ၁၆းဝဝ) နာရီအထိ သွားရောက်ကူညီပေးခဲ့ပါသည်။

Doosan-8 Ton ၉နာရီ x ၃၂၅၀၀ နှုန်း = ၂၉၂၅၀၀/

Wheeloader ၉နာရီ x ၆၀၀၀၀နှုန်း = ၅၄၀၀၀၀/

အလုပ်သမားခ ၁၃ဦး x ၅၀၀၀နှုန်း = ၆၅၀၀၀/

ကြီးကြပ်အရာရှိလုပ်အားခ ၂ဦး x ၁၀၀၀၀နှုန်း = ၂၀၀၀၀/

(Doosan+Wheeloader + အလုပ်သမားခ+ကြီးကြပ်ရေးမှူးခ)= ၉၁၇၅၀၀/(ကျပ်- **ကိုးသိန်းတစ်သောင်း ခုနှစ်ထောင့်ငါးရာ**)တိတိ ကူညီလှူဒါန်းထားပါသည်။

၅။ (၂၄.၀၇.၂၀၁၇)ရက်နေ့ မြသီတာရပ်ကွက်၊ သရက်တောကျောင်းသို့သွားလမ်းပြုပြင် Dong Feng ၁စီးဖြင့် ကျောက်တင်ကျောက်သေး ၂ကျင်း x ၈၀၀၀၀နှုန်း= ၁၆၀၀၀၀/

ကြီးကြပ် ၂ဦး + အလုပ်သမား(၃)ဦးလုပ်အားခ= ၃၀၀၀၀/

(ကျောက်သေး ၂ကျင်း + အလုပ်သမား၃ဦးလုပ်အားခ) ၁၉၀၀၀၀/(ကျပ်-**တစ်သိန်းကိုးသောင်း**) တိတိလှူဒါန်းထားပါသည်။

၆။ (၂၅.၀၇.၂၀၁၇)ရက်နေ့ မြသီတာရပ်ကွက်၊ ရွာသစ်ကုန်းတံတားပြုပြင်

Backhoe ဂူး၃၀မှ၁၅၀၀အထိ(ဂူး၃၀နာရီ x ၆၅၀၀၀နှုန်း= ၄၈၇၅၀၀/

ကြီးကြပ် ၂ဦး + အလုပ်သမား(၃)ဦးလုပ်အားခ= ၃၀၀၀၀/

(Backhoe + အလုပ်သမားခ) ၅၁၇၅၀၀/(ကျပ်- **ငါးသိန်းတစ်သောင်းခုနှစ်ထောင့်ငါးရာ**) တိတိလှူဒါန်းထားပါသည်။

ဇူလိုင်လအတွင်း(၃၁၂၅၀၀၀/ ကျပ်- သုံးဆယ့်တစ်သိန်းနှစ်သောင်းငါးထောင်) တိတိ။

ဩဂုတ်လအတွင်းကူညီမှုများမှာ-

၁။ (၁၀ ဝ၈၊ ၂၀၁၇)ရက်နေ့ တနသာရီတိုင်းဒေသကြီးအတွင်း ကျန်းမာရေးကဏ္ဍလုပ်ငန်းများဆောင်ရွက်ရန်အတွက်လျှုဒါန်းငွေ ၁၀၀၀၀၀၀၀/- (ကျပ် **သိန်းတစ်ရာ**)တိတိ လျှုဒါန်းပါသည်။

၂။ (၁၀ ဝ၈၊ ၂၀၁၇)ရက်နေ့ တနသာရီတိုင်းဒေသကြီးအတွင်း ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်းများ ဆောင်ရွက်ရန်အတွက်လျှုဒါန်းငွေ ၁၀၇၀၀၀၀၀/- (ကျပ် **တစ်ရာခုနှစ်သိန်း**)တိတိ လျှုဒါန်းပါသည်။

၃။ (၁၃၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ ၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာ၊ ကံပေါက်တိုက်နယ်ဆေးရုံ အတွက် လိုအပ်သော ကုသရေးစက်ပစ္စည်းများ ပေးအပ်လျှုဒါန်း ECG စက်(၁)ခု၊ Nebulizer (၁)ခု၊ SP O2 (၁)ခု၊ BP Cuffs (၁)ခု ငွေ ၁၀၃၈၀၀၀/- (ကျပ် **တစ်ဆယ်သိန်းသုံးထောင်ရှစ်ထောင်**)တိတိ လျှုဒါန်းပါသည်။

၄။ (၀၆၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်တိုက်နယ်ဆေးရုံသန့်ရှင်းရေးအတွက် ကားနစ်သဖြင့်Wheeloader ဖြင့်ကူညီဆောင်ရွက်ပေးခဲ့ပါသည်။

(စား၀၀ - ၁၂း၀၀) ထိ (၄နာရီ x ၆၀၀၀၀နှုန်း) = ၂၄၀၀၀၀/(ကျပ်- နှစ်သိန်းလေးသောင်း)

၅။ (၀၈၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ ဖြင့် မြသီတာတံတားရေမြောင်းရှင်းပေး (၉း၀၀-၁၅း၀၀)ထိ (၅နာရီ x ၆၀၀၀၀နှုန်း)= ၃၀၀၀၀၀/ကျပ် (ကျပ်-သုံးသိန်း)

၆။ (၀၉၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ သဲပုံစေတီအရှေ့ကျောက်မြေ(၂)စီးချပေးကူညီပေးခဲ့ပါသည်။

၇။ (၁၇၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ ကလိန်အောင်မြို့နယ် အထွေထွေအုပ်ချုပ်ရေးမှူးဒိုင်း ကျေးရွာပေါင်းစုံဘောလုံးအားကစားပြိုင်ပွဲရန်ပုံငွေအတွက်လျှုဒါန်းငွေ ၂၀၀၀၀၀/- (ကျပ် နှစ်သိန်းတိတိ)တိတိ လျှုဒါန်းပါသည်။

၈။ (၂၃၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်ဒေသရွှေစေတီကျောင်းတိုက်ဘိလပ်မြေ(၁၅)အိတ် လျှုဒါန်းငွေ ၉၃၀၀၀/- (ကျပ် ကိုးသောင်းသုံးထောင်)တိတိလျှုဒါန်းပါသည်။

၉။ (၂၉၊ ဝ၈၊ ၂၀၁၇)ရက်နေ့ ရေဖြူမြို့နယ် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးကြက်ခြေနီအဖွဲ့ တစ်နေ့တာဟောပြောပွဲကုန်ကျစရိတ်လျှုဒါန်းငွေ ၅၀၀၀၀၀/- (ကျပ် **ငါးသိန်း**)တိတိ လျှုဒါန်းပါသည်။

ဩဂုတ်လအတွင်း(၂၃၀၇၁၀၀၀/ ကျပ်- နှစ်ရာသုံးဆယ်သိန်း ခုနှစ်သောင်း တစ်ထောင်) တိတိ။

စက်တင်ဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၀၈၊ ၀၉၊ ၂၀၁၇)ရက်နေ့ တနသာရီတိုင်းဒေသကြီး၊ မေတ္တာမြို့နယ်၊ ဟိန္ဒူးကျေးရွာ၊ ချမ်းမြေ့တိုက် ကျောင်းအတွင်း အသစ်ဆောက်လုပ်မည့်ခမ္မာရုံအတွက်လျှဒါန်းငွေ ၃၀၀၀၀၀/- (ကျပ် **သုံးသိန်း**)တိတိ လျှဒါန်းပါသည်။

၂။ (၀၉၊ ၀၉၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်(အထက)ကျောင်းSun Shape အပြားတပ်ဆင်ရန်အတွက် လျှဒါန်းငွေ ၇၀၀၀၀၀/- (ကျပ် **ခုနှစ်သိန်း**)တိတိလျှဒါန်းပါသည်။

၃။ (၃၀၊ ၀၉၊ ၂၀၁၇)ရက်နေ့ ကံပေါက်ရဲစခန်း၊ မြန်မာနိုင်ငံရဲတပ်ဖွဲ့မွေးနေ့ပွဲနှင့် အဝီစိတွင်းရေစင် အတွက်လျှဒါန်းငွေ ၅၀၀၀၀၀/- (ကျပ် **ငါးသိန်း**)တိတိလျှဒါန်းပါသည်။

စက်တင်ဘာလအတွင်း(၁၅၀၀၀၀၀/ ကျပ်- တစ်ဆယ့်ငါးသိန်း) တိတိ။

အောက်တိုဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၀၂၊ ၁၀၊ ၂၀၁၇)ရက်နေ့ ရွှေစေတီဘုန်းကြီးကျောင်းအတွက် ကွန်ကရစ်လမ်းခင်းခြင်းအတွက် ဘိလပ်မြေ (၂၀၀အိတ် ၆၂၀၀ နှုန်း) အတွက်လျှဒါန်းငွေ ၆၂၀၀၀၀/- (ကျပ် **ခြောက်သိန်းနှစ်သောင်း**)တိတိ လျှဒါန်းပါသည်။

၂။ (၂၁၊ ၁၀၊ ၂၀၁၇)ရက်နေ့ ခလရ(၂၇၃)တပ်ရင်းဘောလုံးအသင်းဝတ်စုံစရိတ်ထောက်ပံ့ခြင်း အတွက် လျှဒါန်းငွေ ၂၁၀၀၀၀/- (ကျပ် **နှစ်သိန်းတစ်သောင်း**)တိတိ လျှဒါန်းပါသည်။

၃။ (၂၂၊ ၁၀၊ ၂၀၁၇)ရက်နေ့ (၆၉)ကြိမ်မြောက် တန်ဆောင်တိုင်ပွဲတော် မိုင်းခမ္မာရုံအတွက် ဧည့်ခံစရိတ် လျှဒါန်းငွေ ၆၀၀၀၀၀/- (ကျပ် **ခြောက်သိန်း**)တိတိ လျှဒါန်းပါသည်။

၄။ (၂၅၊ ၁၀၊ ၂၀၁၇)ရက်နေ့ တိုင်းဒေသကြီးအစိုးရအဖွဲ့ ဘုံကထိန်အတွက် လျှဒါန်းငွေ ၂၀၀၀၀၀/- (ကျပ် **နှစ်သိန်း**)တိတိ လျှဒါန်းပါသည်။

၅။ (၃၀၊ ၁၀၊ ၂၀၁၇)ရက်နေ့ ရေဖြူမြို့နယ်၊ အုပ်ချုပ်ရေးမှူးမှကြီးမှူးကျင်းပသောအသုံးလုံးသင်တန်း ကျွေးမွေးစရိတ်နှင့် အထွေထွေသုံးစွဲရန်အတွက်လျှဒါန်းငွေ ၇၀၀၀၀၀/- (ကျပ် **ခုနှစ်သိန်း**)တိတိ လျှဒါန်းပါသည်။

အောက်တိုဘာလအတွင်း (၂၃၃၀၀၀၀/ ကျပ်- နှစ်ဆယ့်သုံးသိန်းသုံးသောင်း) တိတိ။

နိုဝင်ဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၁၅.၁၁.၂၀၁၇)ရက်နေ့ မိုင်းဝင်းခမ္မာရုံတည်ဆောက်ရာသို့ Wheeloader ဖြင့် ကျောက်(၂) ခေါက်ပို့ခြင်း အတွက် လှူဒါန်းငွေ ၂၀၀၀၀/- (ကျပ် **နှစ်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၂။ (၁၇.၁၁.၂၀၁၇)ရက်နေ့ သံပုံစေတီကျောင်းရှေ့ တံတားပြုပြင်ပေးရန် ဘိလပ်မြေ(၂၀)အိတ် အတွက် လှူဒါန်းငွေ ၁၂၃၀၀၀/- (ကျပ် **တစ်သိန်းနှစ်သောင်းသုံးထောင်**)တိတိ လှူဒါန်းပါသည်။

၃။ (၁၇.၁၁.၂၀၁၇)ရက်နေ့ သဲပုံစေတီကျောင်းတိုက်သို့ Wheeloader ဖြင့် ကျောက်(၇)ခေါက်ပို့ခြင်း အတွက်လှူဒါန်းငွေ ၇၀၀၀၀/- (ကျပ် **ခုနှစ်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၄။ (၁၇.၁၁.၂၀၁၇)ရက်နေ့ သဲပုံစေတီကျောင်းတိုက်သို့ Wheeloader ဖြင့် သဲ(၂)ခေါက်ပို့ခြင်း အတွက်လှူဒါန်းငွေ ၂၀၀၀၀/- (ကျပ် **နှစ်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၅။ (၁၇.၁၁.၂၀၁၇)ရက်နေ့ မိုင်းဝင်းခမ္မာရုံတည်ဆောက်ရာသို့ Wheeloader ဖြင့် ကျောက်(၁) ခေါက်ပို့ခြင်း အတွက် လှူဒါန်းငွေ ၁၀၀၀၀/- (ကျပ် **တစ်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၆။ (၁၈.၁၁.၂၀၁၇)ရက်နေ့ မိုင်းဝင်းခမ္မာရုံတည်ဆောက်ရာသို့ (၆)ဘီးကားဖြင့် မြေကြီး(၅)ခေါက်ပို့ခြင်း လှူဒါန်းငွေ ၅၀၀၀၀/- (ကျပ် **ငါးသောင်း**) တိတိ လှူဒါန်းပါသည်။

၇။ (၁၉.၁၁.၂၀၁၇)ရက်နေ့ ခမ္မာရုံတည်ဆောက်ရာသို့ Wheeloader ဖြင့် ကျောက်(၁) ခေါက်ပို့ခြင်း နှင့် (၆)ဘီးကားဖြင့် မြေကြီး(၅)ခေါက်ပို့ခြင်း အတွက် လှူဒါန်းငွေ ၆၀၀၀၀/- (ကျပ် **ခြောက်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၈။ (၂၁.၁၁.၂၀၁၇)ရက်နေ့ သဲပုံစေတီသို့ Wheeloader ဖြင့် ကျောက်(၃) ခေါက်၊ သဲ(၁)ခေါက်ပို့ခြင်း ရေတပ်သို့(၆)ဘီးကားဖြင့် မြေကြီး(၆)ခေါက်ပို့ခြင်း အတွက် လှူဒါန်းငွေ ၁၀၀၀၀၀/- (ကျပ် **တစ်သိန်း**) တိတိ လှူဒါန်းပါသည်။

၉။ (၂၂.၁၁.၂၀၁၇)ရက်နေ့ သဲပုံစေတီသို့ Wheeloader ဖြင့် သဲ(၁) ခေါက် ပို့ခြင်း ၊ (၆)ဘီးကားဖြင့် မြေကြီး(၂)ခေါက်ပို့ခြင်းအတွက် လှူဒါန်းငွေ ၃၀၀၀၀/- (ကျပ် **သုံးသောင်း**) တိတိ လှူဒါန်းပါသည်။

၁၀။ (၂၃.၁၁.၂၀၁၇)ရက်နေ့ အုန်းပင်ကွင်းသို့ Wheeloader ဖြင့် သဲ(၁)ခေါက်ပို့ခြင်းနှင့် သဲပုံစေတီသို့ (၁၀)ဘီးကားဖြင့် မြေကြီး (၃)ခေါက်ပို့ခြင်း အတွက် လှူဒါန်းငွေ ၄၀၀၀၀/- (ကျပ် **လေးသောင်း**) တိတိ လှူဒါန်းပါသည်။

၁၁။ (၂၄.၁၁.၂၀၁၇)ရက်နေ့ သဲပုံစေတီသို့ Wheeloader ဖြင့် (၁၃း၂၅-၁၅း၄၅)အထိ ကျောက်ပို့ခြင်းနှင့် သဲပုံစေတီသို့(၁၀)ဘီးကားဖြင့် မြေကြီး(၁၀)ခေါက်ပို့ အတွက် လှူဒါန်းငွေ ၁၂၀၀၀၀/- (ကျပ် **တစ်သိန်းနှစ်သောင်း**) တိတိ လှူဒါန်းပါသည်။

နိုဝင်ဘာလအတွင်း (၆၄၃၀၀၀/ ကျပ်- ခြောက်သိန်းလေးသောင်းသုံးထောင်) တိတိ။

ဒီဇင်ဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၂၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ ရွှေစေတီသို့ (၆)ဘီးကားဖြင့် (၁၀း၁၅-၁၅း၂၀)အထိ မြေကြီး (၉)ခေါက်ပို့ခြင်း အတွက်လျှုဒါန်းငွေ ၅၀၀၀၀/- (ကျပ် **ငါးသောင်း**)တိတိ လှူဒါန်းပါသည်။

၂။ (၃၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ ဗောဓိကုန်းသို့ (၆)ဘီးကားဖြင့် (၀၉း၅၀-၁၈း၀၀)အထိ မြေကြီး (၆)ခေါက်ပို့ခြင်း အတွက်လှူဒါန်းငွေ ၈၀၀၀၀/- (ကျပ် **ရှစ်သောင်း**)တိတိ လှူဒါန်းပါသည်။

၃။ (၄၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ ဗောဓိကုန်းသို့ (၆)ဘီးကားဖြင့် (၀၈း၃၅-၁၆း၃၀)အထိ မြေကြီး (၁၀)ခေါက်ပို့ခြင်း အတွက်လှူဒါန်းငွေ ၈၀၀၀၀/- (ကျပ် **ရှစ်သောင်း**)တိတိ လှူဒါန်းပါသည်။

၄။ (၉၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ သဲပုံစေတီသို့(၁၀)ဘီးကားဖြင့် (၈း၅၀-၁၀း၀၀)အထိ မြေကြီး (၄)ခေါက်ပို့ခြင်း၊ သချိုင်းကုန်းသို့ Wheeloader ဖြင့် (၁၅း၃၀-၁၇း၁၅)အထိ အမှိုက်စွန့်ပေးခြင်းတို့ အတွက် လှူဒါန်းငွေ ၁၃၀၀၀၀/- (ကျပ် **တစ်သိန်း သုံးသောင်း**) တိတိ လှူဒါန်းပါသည်။

၅။ (၁၄၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ မြသီတာသို့ (၁၀)ဘီးကားဖြင့် (၁၀း၀၀-၁၀း၁၅)အထိ မြေကြီး (၁)ခေါက်ပို့ခြင်း၊ မိုင်းဓမ္မာရုံသို့ Wheeloader ဖြင့် (၁၆း၃၀-၁၇း၁၅)အထိ သဲ(၂)ခေါက်ပို့ခြင်းတို့ အတွက် လှူဒါန်းငွေ ၆၀၀၀၀/- (ကျပ် **ခြောက်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၆။ (၁၅၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ မိုင်းဓမ္မာရုံသို့(၁၀)ဘီးကားဖြင့် (၁၅း၄၀-၁၆း၂၅)အထိ ရေပို့ခြင်းတို့အတွက် အတွက် လှူဒါန်းငွေ ၄၅၀၀၀/- (ကျပ် **လေးသောင်းငါးထောင်**) တိတိ လှူဒါန်းပါသည်။

၇။ (၁၆၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ မိုင်းဓမ္မာရုံသို့ (၁၀)ဘီးကားဖြင့် (၁၂း၀၀-၁၂း၃၀)အထိ ရေပို့ခြင်းနှင့် Wheeloader ဖြင့် သဲ(၃)ခေါက်ပို့ခြင်းတို့ အတွက် လှူဒါန်းငွေ ၆၀၀၀၀/- (ကျပ် **ခြောက်သောင်း**) တိတိ လှူဒါန်းပါသည်။

၈။ (၁၉၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ မြသီတာမဓ္မာရုံသို့ (၁၀)ဘီးကားဖြင့် (၁၅း၀၀-၁၀း၂၀)အထိ မြေကြီး(၁) ခေါက်ပို့ခြင်း၊ သဲပုံစေတီသို့ (၁၀)ဘီးကာဖြင့် (၁၀း၅၅-၁၁း၁၀) အထိ မြေကြီး (၁)ခေါက်ပို့ခြင်းနှင့် သဲပုံစေတီသို့ (၁၀)ဘီးကာဖြင့် (၁၀း၅၅-၁၁း၁၅) အထိ မြေကြီး (၁)ခေါက်ပို့ခြင်းတို့ အတွက် လှူဒါန်းငွေ ၃၀၀၀၀/- (ကျပ် **သုံးသောင်း**) တိတိ လှူဒါန်းပါသည်။

၉။ (၂၆၊ ၁၂၊ ၂၀၁၇)ရက်နေ့ ၂၀၁၈ခုနှစ်လွတ်လပ်ရေးနေ့ အထိမ်းအမှတ်အားကစားပွဲအတွက်
(၁) အမှတ်စဉ်-၂ ပိုက်ကျော်ခြင်းအားကစားအတွက် ၁၃၀၀၀၀/-(ကျပ် တစ်သိန်းသုံးသောင်း)
(၂) အမှတ်စဉ်-၈ မြို့နယ်ပိုက်ကျော်ခြင်း အားကစားအတွက် ၄၀၀၀၀၀/-(ကျပ် လေးသိန်း)
စုစုပေါင်းလှူဒါန်းငွေ ၅၃၀၀၀၀/- (ကျပ် **ငါးသိန်းသုံးသောင်း**) တိတိ လှူဒါန်းပါသည်။

ဒီဇင်ဘာလအတွင်း စုစုပေါင်းလှူဒါန်းငွေ (၁၀၆၅၀၀၀/- (ကျပ် တစ်ဆယ်သိန်း ခြောက်သောင်း ငါးထောင်)

<u>၂၀၁၈ခုနှစ်</u>

ဇန်နဝါရီလအတွင်းကူညီမှုများမှာ-

၁။ (၅. ၁. ၂၀၁၈)ရက်နေ့ တိုင်းအထွေထွေမန်နေဂျာရုံးရှေ့လမ်း ကျောက်ခင်းခြင်းထည့်ဝင် လျှုဒါန်းငွေ ၅၀၀၀၀/- (ကျပ် **ငါးသိန်း**) တိတိ လျှုဒါန်းပါသည်။

၂။ (၂၅. ၁. ၂၀၁၈)ရက်နေ့ ကံပေါက်မိုင်းဝင်းဓမ္မာရုံအတွက် လျှုဒါန်းငွေ၂၇၆၄၇၅၀/ (ကျပ် **နှစ်ဆယ့်ခုနှစ်သိန်း ခြောက်သောင်းလေးထောင် ခုနှစ်ရာငါးဆယ်**) တိတိ လျှုဒါန်းပါသည်။

၃။ (၂၈. ၁. ၂၀၁၈)ရက်နေ့ (၂၇၃) တပ်ရင်းခန်းမပြုပြင်ရန်အတွက် အလှူငွေ ဘိလပ်မြေ (၂၀)အိတ် လျှုဒါန်းငွေ ၁၃၈၀၀၀/- (ကျပ် **တစ်သိန်းသုံးသောင်း ရှစ်ထောင်**) တိတိ လျှုဒါန်းပါသည်။

ဇန်နဝါရီလအတွင်း (၃၄၀၂၇၅၀/-(ကျပ် သုံးသိန်းလေးသောင်း နှစ်ထောင်ခုနှစ်ရာငါးဆယ်)

ဖေဖော်ဝါရီလကူညီမှုများမှာ-

၁။ (၁၂. ၂. ၂၀၁၈) ရက်နေ့ အမှတ် (၂၇၃) တပ်ရင်းပြည်ထောင်စုနေ့ အခမ်းအနားအတွက် လျှုဒါန်းငွေ ၅၀၀၀၀/- (ကျပ် ငါးသောင်း) တိတိလျှုဒါန်းပါသည်။

၂။ (၂၀. ၂. ၂၀၁၈)ရက်နေ့ သဲပုံစေတီပဌာန်းရွက်ဆို ပူဇော်ပွဲအတွက် လျှုဒါန်းငွေ ၅၀၀၀၀/- (ကျပ် ငါးသောင်း) တိတိ လျှုဒါန်းပါသည်။

ဖေဖော်ဝါရီလအတွင်း (၁၀၀၀၀၀/- ကျပ် တစ်သိန်း)

ဧပြီလအတွင်းကူညီမှုများမှာ-

၃။ (၆. ၄. ၂၀၁၈)ရက်နေ့ ရေဖြူမြို့နယ် သင်္ကြန်အတွက် သက်ကြီးပူဇော်ပွဲ နှင့် ဖျော်ဖြေရေးဖြစ်မြောက်ရေး အလှူငွေ၅၀၀၀၀၀/- (ကျပ် ငါးသိန်း) တိတိလျှုဒါန်းပါသည်။

၄။ (၆. ၄. ၂၀၁၈)ရက်နေ့ တိုင်းထွေဂျာရုံး အမှတ် (၂) သတ္တုတွင်း (၂၀၁၈ မဟာသင်္ကြန်ရုံပုံငွေ) အလှူငွေ ၂၀၀၀၀၀/- (ကျပ် နှစ်သိန်း) တိတိလျှုဒါန်းပါသည်။

၅။ (၈. ၄. ၂၀၁၈)ရက်နေ့ ရေဖြူမြို့နယ်၊ လ. ၀. က ရုံးတွင် ဆိုင်ကယ်စတန်းပြုလုပ်ရန် ၃၀၀၀၀၀/- (ကျပ် သုံးသိန်း)တိတိ လျှုဒါန်းပါသည်။

၆။ (၁၀. ၄. ၂၀၁၈)ရက်နေ့ ကံပေါက် သင်္ကြန်အတွက် သက်ကြီးပူဇော်ပွဲ နှင့် ဖျော်ဖြေရေးဖြစ်မြောက်ရေး အလှူငွေ ၂၀၀၀၀၀၀/- (ကျပ် နှစ်ဆယ်သိန်း)တိတိလျှုဒါန်းပါသည်။

ဧပြီလအတွင်း (၃၀၀၀၀၀၀/- ကျပ် သိန်းသုံးဆယ်)

ဇွန်လအတွင်းကူညီမှုများမှာ-

၇။ (၃၀. ၆. ၂၀၁၈)ရက်နေ့ ကံပေါက်ဒေသ ကျန်းမာရေးပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအထောက်အကူပြု ကံပေါက်-လှည်းကုန်း-မိကျောင်းအိုင် နေ့စဉ်အမှိုက်သိမ်းဆည်းရေးအတွက် အလှူငွေ ၅၀၀၀၀/- (ကျပ် ငါးသောင်း)တိတိလှူဒါန်းပါသည်။

ဇွန်လအတွင်း (၅၀၀၀၀/- ကျပ် ငါးသောင်း)

ဇူလိုင်လအတွင်းကူညီမှုများမှာ-

၁။ (၁၂. ၇. ၂၀၁၈)ရက်နေ့ ယားဖူးကျေးရွာ ခရစ်ယာန်အသင်းတော်၏ ကိုယ်ထူကိုယ်ထမူကြိုကျောင်း အတွက် သင်ထောက်ကူပစ္စည်း နှင့် အာဟာရအတွက်ထောက်ပံ့အလှူငွေ ၂၀၀၀၀၀/- (ကျပ် နှစ်သိန်း) တိတိလှူဒါန်းပါသည်။

၂။ (၁၄. ၇. ၂၀၁၈)ရက်နေ့ ရေဖြူမြို့နယ်၊ အာဇာနည်နေ့အခမ်းအနားအတွက် အလှူငွေ ၅၀၀၀၀၀/- (ကျပ် ငါးသိန်း) တိတိလှူဒါန်းပါသည်။

၃။ (၁၄. ၇. ၂၀၁၈)ရက်နေ့ ကံပေါက်ကျေးရွာ၊ အာဇာနည်နေ့အခမ်းအနားအတွက် အလှူငွေ ၅၀၀၀၀၀/- (ကျပ် ငါးသိန်း) တိတိလှူဒါန်းပါသည်။

ဇူလိုင်လအတွင်း (၁၂၀၀၀၀၀/- ကျပ် တစ်ဆယ့်နှစ်သိန်း)

ဩဂုတ်လအတွင်းကူညီမှုများမှာ-

၁။ (၁. ၈. ၂၀၁၈)ရက်နေ့ ရွာသစ်ကုန်း ပတ္တရားတံတားပြုပြင်လက်ခ (ကံပေါက်) ၆၀၀၀၀/ (ကျပ် ခြောက်သောင်း)တိတိလှူဒါန်းပါသည်။

၂။ (၆. ၈. ၂၀၁၈)ရက်နေ့ ကျေးရွာသန့်ရှင်းသာယာလှပရေးအဖွဲ့ လစဉ်အမှိုက်သိမ်းဆည်းခ ပြေစာအလှူငွေ ထည့်ဝင်ခြင်း ၅၀၀၀၀/-(ကျပ် ငါးသောင်း)တိတိလှူဒါန်းပါသည်။

၃။ (၃၁. ၈. ၂၀၁၈)ရက်နေ့ ရေဖြူမြို့နယ်၊ အလွတ်တန်းဘောလုံးအားကစားပွဲအတွက် Main Sponsor အဖြစ်ထောက်ပံ့ အလှူငွေ ၂၅၀၀၀၀၀/- (ကျပ် နှစ်ဆယ့်ငါးသိန်း)တိတိလှူဒါန်းပါသည်။

ဩဂုတ်လအတွင်း (၂၆၁၀၀၀၀/- ကျပ် နှစ်ဆယ့်ခြောက်သိန်း တစ်သောင်း)

စက်တင်ဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၆၊ ၉၊ ၂၀၁၈)ရက်နေ့ ကံပေါက်ကျေးရွာ၊ ဖွံ့ဖြိုးတိုးတက်ရေးလုပ်ငန်းအတွက် CSR အလျှောင့် ၅၀၀၀၀၀၀/- (ကျပ် သိန်းငါးဆယ်)တိတိလျှာဒါန်းပါသည်။

၂။ (၁၂၊ ၉၊ ၂၀၁၈)ရက်နေ့ လှည်းကုန်းအမှတ် (၂) လမ်းပြုပြင်ရန်အတွက် ငြုန်းကျောက် ၃ ခေါက်×၇၀၀၀၀ နှုန်းအတွက် ၂၁၀၀၀၀/- (ကျပ် နှစ်သိန်းတစ်သောင်း)တိတိလျှာဒါန်းသည်။

၃။ (၁၂၊ ၉၊ ၂၀၁၈)ရက်နေ့ လှည်းကုန်းအမှတ် (၂) လမ်းပြုပြင်ရန်အတွက် ငြုန်းကျောက် ၃ ခေါက်ပို့ (၃ နာရီ×၁၀၀၀၀ နှုန်း)အတွက် ၃၀၀၀၀/- (ကျပ် သုံးသောင်း)တိတိလျှာဒါန်းပါသည်။

၄။ (၁၉၊ ၉၊ ၂၀၁၈)ရက်နေ့ မြသီတာဓမ္မာရုံအတွက် ကျောက်တင်ပေး (၃ ခေါက်×၇၀၀၀၀ နှုန်း) ၂၁၀၀၀/- (ကျပ် နှစ်သိန်းတစ်သောင်း)တိတိလျှာဒါန်းပါသည်။

၅။ (၁၉၊ ၉၊ ၂၀၁၈)ရက်နေ့ မြသီတာဓမ္မာရုံအတွက် ကျောက်တင်ပေး (ဦးလိုဒါ ၂ နာရီ×၆၀၀၀၀ နှုန်း) ၁၂၀၀၀၀/- (ကျပ် တစ်သိန်း နှစ်သောင်း)တိတိလျှာဒါန်းပါသည်။

၆။ (၁၉၊ ၉၊ ၂၀၁၈)ရက်နေ့ လှည်းကုန်း (၁) ရပ်ကွက်လမ်းပြုပြင်ရန် (ချာပင်ကျောက် ၂ ခေါက်× ၇၀၀၀၀ နှုန်း) အတွက် ၁၄၀၀၀၀/- (ကျပ် တစ်သိန်းလေးသောင်း)တိတိလျှာဒါန်းပါသည်။

၇။ (၁၉၊ ၉၊ ၂၀၁၈)ရက်နေ့ လှည်းကုန်း (၁) ရပ်ကွက်လမ်းပြုပြင်ရန် (၆ဘီးကား ၂ နာရီ× ၁၀၀၀၀ နှုန်း) ၂၀၀၀၀/- (ကျပ် နှစ်သောင်း)တိတိလျှာဒါန်းပါသည်။

၈။ (၂၆၊ ၉၊ ၂၀၁၈)ရက်နေ့ မိကျောင်းအိုင်ရပ်ကွက်လမ်းပခုံးမြေဖို့ရန် (၆ဘီးကားဖြင့် ၃ နာရီ× ၁၀၀၀၀ နှုန်း)အတွက် ၃၀၀၀၀/- (ကျပ် သုံးသောင်း)တိတိလျှာဒါန်းပါသည်။

၉။ (၂၇၊ ၉၊ ၂၀၁၈)ရက်နေ့ မိကျောင်းအိုင်ရပ်ကွက်လမ်းပခုံးမြေဖို့ရန် (၆ဘီးကားဖြင့် ၁ နာရီ× ၁၀၀၀၀ နှုန်း)အတွက် ၁၀၀၀၀/-(ကျပ် တစ်သောင်း)တိတိလျှာဒါန်းပါသည်။

၁၀။ (၂၇၊ ၉၊ ၂၀၁၈)ရက်နေ့ ရေဖြူမြို့နယ်ရုံး ခြံကာရန်အတွက် သံဆူးကြိုး(၅)ခွေ ထောက်ပံ့ခြင်းအတွက် ၂၀၀၀၀၀/-(ကျပ် နှစ်သိန်း)တိတိလျှာဒါန်းပါသည်။

၁၁။ (၂၈၊ ၉၊ ၂၀၁၈)ရက်နေ့ မိကျောင်းအိုင်ရပ်ကွက်လမ်းမခုံးမြေဖို့ရန် (၆ဘီးကားဖြင့် ၂ နာရီ× ၁၀၀၀၀ နှုန်း)အတွက် ၂၀၀၀၀/- (ကျပ် နှစ်သောင်း)တိတိလျှာဒါန်းပါသည်။

၁၂။ (၂၈၊ ၉၊ ၂၀၁၈)ရက်နေ့ တနင်္သာရီရေဘေးသင့်သူများအား အလျှပေး (ဆန် ၁၀၀ /အိတ် သယ်ယူစရိတ်) စုစုပေါင်း၃၅၈၀၀၀၀/- (ကျပ် သုံးဆယ့်ငါးသိန်း)တိတိလျှာဒါန်းပါသည်။

စက်တင်ဘာလအတွင်း (၉၅၇၀၀၀၀/- ကျပ် ကိုးဆယ့်ငါးသိန်း ခုနှစ်သောင်း)

အောက်တိုဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၁၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်ဘောလုံးပြိုင်ပွဲအသင်းဝင် ရေကန်တောင်အသင်းအား ထောက်ပံ့ပေးငွေ ၅၀၀၀၀/- (ကျပ် ငါးသောင်း)တိတိလျှုဒါန်းပါသည်။

၂။ (၂၀ ၁၀ ၂၀၁၈)ရက်နေ့ ဦးကိုလေး (မြသီတာ) မြေကြီးတောင်းသဖြင့် ဝိုးလိုဒါဖြင့် (၃ နာရီ×၆၀၀၀ နှုန်း)အတွက် ၁၈၀၀၀/-(ကျပ် တစ်သိန်း ရှစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၃။ (၄၀ ၁၀ ၂၀၁၈)ရက်နေ့ ထွေ /အုပ် ရုံးမိသားစုနေ့အကြို ဝန်ထမ်းအားကစားပြိုင်ပွဲဝတ်စုံစရိတ်ထောက်ပံ့ ၁၂၀၀၀/- (ကျပ် တစ်သိန်း နှစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၄။ (၅၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်ဘောလုံးပြိုင်ပွဲအသင်းဝင် မြသီတာရပ်ကွက် ဘောလုံးအသင်းအား ထောက်ပံ့ငွေ ၁၀၀၀၀/- (ကျပ် တစ်သိန်း) တိတိလျှုဒါန်းပါသည်။

၅။ (၆၀ ၁၀ ၂၀၁၈)ရက်နေ့ ငြိမ်းချမ်းရေးအဖွဲ့အား ဆန်ဖိုးထောက်ပံ့စရိတ် (ဆန်အိတ် ၅၀) ၁၅၀၀၀၀၀/- (ကျပ် တစ်ဆယ့် ငါးသိန်း)တိတိလျှုဒါန်းပါသည်။

၆။ (၆၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက် မဂ္ဂင်လမ်း၊ ကျောင်းသစ်လမ်းပြုပြင်ရန်အတွက် ကျောက်စရစ် (၃စီး×၇၀၀၀ နှုန်း)၂၁၀၀၀/- (ကျပ် နှစ်သိန်း တစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၇။ (၆၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက် မဂ္ဂင်လမ်း၊ ကျောင်းသစ်လမ်းပြုပြင်ရန်အတွက် ဝိုးလိုဒါဖြင့် ကျောက်တင်ပေးခြင်း (၂ နာရီ×၆၀၀၀ နှုန်း)အတွက် ၁၂၀၀၀/- (ကျပ် တစ်သိန်း နှစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၈။ (၉၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်စာသင်ကျောင်း အမှိုက်သယ်ပေး ၆ ဘီးကားဖြင့် (၂နာရီ×၁၀၀၀၀ နှုန်း)အတွက် ၂၀၀၀/- (ကျပ် နှစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၉။ (၁၀၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်ဘောလုံးကွင်းသို့(သဲ ၁ စီး -၄၀၀၀) ၆ ဘီးကားဖြင့် (၁ နာရီ×၁၀၀၀၀ နှုန်း) အတွက် ၁၄၀၀၀/- (ကျပ် တစ်သောင်း လေးထောင်) တိတိလျှုဒါန်းပါသည်။

၁၀။ (၁၁၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်ကျောင်းသစ်လမ်းပို့ (ဦးသဲဇော်ကား) (သဲကျောက် ၁ ခေါက်-၅၀၀၀) ၆ ဘီးကားဖြင့် (၁နာရီ×၁၀၀၀၀ နှုန်း)အတွက် ၁၅၀၀၀/- (ကျပ် တစ်သောင်း ငါးထောင်)တိတိလျှုဒါန်းပါသည်။

၁၁။ (၁၁၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက် မဂ္ဂင်လမ်းဖို့ရန် ဦးခင်စိုးမှ အကူအညီတောင်း၍(ဦးသားကြီးကား) (ကျောက် ၃ ခေါက် × ၇၀၀၀၀နှုန်း) ဝိုးလိုဒါဖြင့် တင်ပေးခြင်း (၃နာရီ×၆၀၀၀ နှုန်း) ၃၉၀၀၀/- စုစုပေါင်း(ကျပ် သုံးသိန်း ကိုးသောင်း)တိတိလျှုဒါန်းပါသည်။

၁၂။ (၁၈၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်ရွာ ခိုင်သဇင်လမ်းပြုပြင်ရန် ဦးခင်စိုးမှ အကူအညီတောင်း၍ ဦးသားကြီးကား (ကျောက်စရစ် အသေး - ၁ခေါက် -၇၀၀၀) ၇၀၀၀/- (ကျပ် ခုနှစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၁၃။ (၁၈၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက် မဂ္ဂင်ရပ်ကွက်ကျောင်းသစ်လမ်းပြုပြင်ရန် ဦးတင်ညွှန့်မှ အကူအညီတောင်း(ဦးစိုးငယ်ကား) (ကျောက်စရစ်အသေး ၁ ခေါက် -၇၀၀၀) ၇၀၀၀/- (ကျပ် ခုနှစ်သောင်း)တိတိလျှုဒါန်းပါသည်။

၁၄။ (၁၈၀ ၁၀ ၂၀၁၈)ရက်နေ့ ကံပေါက်ရွာ မဂ္ဂင်ရပ်ကွက်ကျောင်းလမ်းပြုပြင်ရန် ဦးတင်ညွှန့်မှအကူအညီတောင်း(ဦးစိုးငယ်ကား) (ကျောက်စရစ်အသေး ၂ ခေါက် -၇၀၀၀) ၁၄၀၀၀/- (ကျပ် တစ်သိန်း လေးသောင်း)တိတိလျှုဒါန်းပါသည်။

၁၅။ (၂၁. ၁၀. ၂၀၁၈)ရက်နေ့ ကံပေါက်ဘောလုံးပြိုင်ပွဲအသင်းဝင် အုန်းပင်ကွင်းကျေးရွာ ဘောလုံးအသင်းအား ဝတ်စုံစုံစရိတ်ထောက်ပံ့ငွေ ၂၀၀၀၀၀/- (ကျပ် နှစ်သိန်း)တိတိလျှုဒါန်းပါသည်။

၁၆။ (၃၀. ၁၀. ၂၀၁၈)ရက်နေ့ ကံပေါက် ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်း CSR အတွက် ဒုတိယအကြိမ် အလှူငွေ ၅၀၀၀၀၀၀/- (ကျပ် ငါးသိန်း)တိတိလျှုဒါန်းပါသည်။

အောက်တိုဘာလအတွင်း (၃၁၉၉၀၀၀/- ကျပ် သုံးဆယ့်တစ်သိန်း ကိုးသောင်း ကိုးထောင်)

နိုဝင်ဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၁. ၁၁. ၂၀၁၈)ရက်နေ့ သီရိမင်္ဂလာရပ်ကွက် မိုင်းရုံးလမ်းပြုပြင်ရန်အတွက် ဦးကျော်ဇေယျာစိုးမှ အကူအညီတောင်း၍ ၆ ဘီးကားဖြင့် မြေကြီး ၃ ခေါက်ပို့ (၃ခေါက် × ၁၀၀၀၀) ၃၀၀၀၀/- (ကျပ် သုံးသောင်း) တိတိလျှုဒါန်းပါသည်။

၂။ (၉. ၁၁. ၂၀၁၈)ရက်နေ့ မိကျောင်းအိုင်ဘုန်းကြီးကျောင်းလမ်းမြေဖို့ရန် အုပ်ချုပ်ရေးမှူးမှအကူအညီတောင်း ပြင်ပမှကားဖြင့် မြေကြီး (၇) ခေါက် လှူဒါန်းပါသည်။

၃။ (၁၀. ၁၁. ၂၀၁၈)ရက်နေ့ မီးစက်ရုံလမ်း တံတားနံဘေးမြေဖို့ရန် အုပ်ချုပ်ရေးမှူးမှအကူအညီတောင်းခံ၍ ဦးဖြိုးအောင်+ဦးစိုးငယ်ကားဖြင့် မြေကြီး (၈) ခေါက်ပေးလှူဒါန်းပါသည်။

နိုဝင်ဘာလအတွင်း (၃၀၀၀၀/- ကျပ် သုံးသောင်း)

ဒီဇင်ဘာလအတွင်းကူညီမှုများမှာ-

၁။ (၁၇. ၁၂. ၂၀၁၈)ရက်နေ့ ထားဝယ်မြို့ လမ်းလျှောက်ပြိုင်ပွဲတွင် ဝန်ကြီးချုပ်မှပေးမည့်ကံစမ်းမဲဖောက်ရန် မဲပစ္စည်းဝယ်ရန်ထောက်ပံ့အလှူငွေ ၃၀၀၀၀၀/- (ကျပ် သုံးသိန်း)တိတိလျှုဒါန်းပါသည်။

၂။ (၂၈. ၁၂. ၂၀၁၈)ရက်နေ့ ရေဖြူမြို့နယ်၊ မြန်မာ့နုံးရာလေ့ပြိုင်ပွဲအတွက် Main Sponsor အဖြစ်အလှူငွေ ၂၅၀၀၀၀၀/- (ကျပ် နှစ်ဆယ့်ငါးသိန်း)တိတိလျှုဒါန်းပါသည်။

ဒီဇင်ဘာလအတွင်း (၂၈၀၀၀၀၀/- ကျပ် နှစ်ဆယ့်ရှစ်သိန်း)

<u>၂၀၁၉ ခုနှစ်</u>

ဇန်နဝါရီလအတွင်းကူညီမှုများမှာ-

၁။ (၁၊ ၁၊ ၂၀၁၉) ရေဖြူမြို့နယ်၊ လှေလှော်ပြိုင်ပွဲအတွက် ၁၂ ဘီးကားဖြင့်လှေပို့ / ပြန်သယ် (၂) ခေါက် (၂ခေါက်×၂၀၀၀၀၀ နှုန်း)ဖြင့် ၄၀၀၀၀၀/- (ကျပ် လေးသိန်း)တိတိလျှုဒါန်းပါသည်။

၂။ (၅၊ ၁၊ ၂၀၁၉) မြသီတာရပ်ကွက်လမ်းခင်းရန် ငြုန်းကျောက်ပို့ပေး ဦးလိုဒါဖြင့်တင်ပေး ၁ နာရီ×၆၀၀၀၀ ကျပ်၊ ငြုန်းကျောက် ၁ စီး × ၇၀၀၀၀ ကျပ် စုစုပေါင်း ၁၃၀၀၀၀/- (ကျပ် တစ်သိန်း သုံးသောင်း) တိတိလျှုဒါန်းပါသည်။

၃။ (၁၃၊ ၁၊ ၂၀၁၉) ရေဖြူမြို့နယ်တွင် NLD ရုံးဆောက်ရန်အတွက် အလှူငွေ ၁၀၀၀၀၀၀/- (ကျပ် တစ်ဆယ်သိန်း)တိတိလျှုဒါန်းပါသည်။

၄။ (၁၇၊ ၁၊ ၂၀၁၉) ကံပေါက်ကျေးရွာ၊ စက်ကုန်းလမ်းမြေဖို့ရန် ဘက်ဟိုးဖြင့်မြေတင်ပေး ၃၀ မိနစ်၊ (၁ နာရီ × ၆၀၀၀၀ နှုန်း)ဖြင့် ၃၀၀၀၀/- (ကျပ် သုံးသောင်း)တိတိလျှုဒါန်းပါသည်။

ဇန်နဝါရီလအတွင်း (၁၀၅၆၀၀၀၀/- ကျပ် တစ်ရာ့ ငါးသိန်းခြောက်သောင်း)

ဖေဖော်ဝါရီလအတွင်း ကူညီမှုများမှာ-

၁။ (၂၂၊ ၂၊ ၂၀၁၉)ရက်နေ့ ကံပေါက်စျေး၊ အမှိုက်သိမ်းရန်အတွက် ဦးလိုဒါဖြင့် ဒေး၃၀×၆၀၀၀၀ နှုန်း ဖြင့် ၉၀၀၀၀/-(ကျပ် ကိုးသောင်း) တိတိလျှုဒါန်းပါသည်။

ဖေဖော်ဝါရီလအတွင်း (၉၀၀၀၀/- ကျပ် ကိုးသောင်း)

ဧပြီလအတွင်းကူညီမှုများမှာ-

၁။ (၅၊ ၄၊ ၂၀၁၉) ထားဝယ်မြို့နယ် မြန်မာ့ရုံးရာသက်ိန်ပွဲတော် ဗဟိုမဏ္ဍပ်အတွက်ထောက်ပံ့ ၅၀၀၀၀၀/- (ကျပ် ငါးသိန်း) တိတိလျှုဒါန်းပါသည်။

၂။ (၆၊ ၄၊ ၂၀၁၉) ကံပေါက်ရွာ၊ မြန်မာ့ရုံးရာသက်ိန်ပွဲတော်အတွက်ထောက်ပံ့ ၁၀၀၀၀၀၀/- (ကျပ် တစ်ဆယ်သိန်း) တိတိလျှုဒါန်းပါသည်။

၃။ (၇၊ ၄၊ ၂၀၁၉) ရေဖြူမြို့နယ် မြန်မာ့ရုံးရာသက်ိန်ပွဲတော်အတွက်ထောက်ပံ့ ၁၀၀၀၀၀၀/- (ကျပ် တစ်ဆယ်သိန်း) တိတိလျှုဒါန်းပါသည်။

၄။ (၇၊ ၄၊ ၂၀၁၉) ကံပေါက်ရွာ၊ မြသီတာရပ်ကွက်မဏ္ဍပ်အတွက် ထောက်ပံ့ ၁၀၀၀၀၀/- (ကျပ် တစ်သိန်း) တိတိလျှုဒါန်းပါသည်။

၅။ (၁၂၊ ၄၊ ၂၀၁၉) ကံပေါက်တိုက်နယ် အုန်းပင်ကွင်းရွာတွင် ဝန်ကြီးချုပ်ဟောင်းဗဆွေ ရုပ်တုတင်ပွဲအတွက် အလှူငွေ ၁၅၀၀၀၀/- (ကျပ် တစ်သိန်းငါးသောင်း) တိတိလျှုဒါန်းပါသည်။

ဧပြီလအတွင်း (၂၇၅၀၀၀/- ကျပ် နှစ်ဆယ့်ခုနှစ်သိန်းငါးသောင်း)

Some photos of CSR activities

885ဖိုင်/A

လျှို့ဝှက်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ပြည်ထဲရေးဝန်ကြီးဌာန
ဝန်ကြီးရုံး

စာအမှတ်၊ ပထရ/ ၁- လခရ(၀၀၁၉၂)/ ဦး ၁
ရက် စွဲ ၊ ၂၀၁၈ ခုနှစ်၊ ဇန်နဝါရီလ ၂ ရက်

သို့

ရဲချုပ်
မြန်မာနိုင်ငံရဲတပ်ဖွဲ့

အကြောင်းအရာ။ **လုံခြုံရေးစီစဉ်ဆောင်ရွက်ပေးရန်ကိစ္စ**

ရည် ညွှန်း ချက် ။ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၏ ၂၈-၁၂-၂၀၁၇ ရက်စွဲပါစာအမှတ်၊ ဖင ခွဲ(၁) ၁၇/ သတ္တု (၁၄၆၂၄)

အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းနှင့် အကျိုးတူပူးပေါင်း၍ တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာ၊ ကံပေါက်သတ္တုတွင်းတွင် သတ္တုတူးဖော်ခြင်းလုပ်ငန်း ဆောင်ရွက်နေသည့် ဒယ်လ်ကိုကုမ္ပဏီလီမိတက်၏ လုပ်ငန်းများတွင် အသုံးပြုရန်လိုအပ်သည့် ယမ်းဘီလူးနှင့် ဆက်စပ်သုံးပစ္စည်းများကို အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း(ပန်းတောင်း)နှင့် အမှတ်(၁၃)ကာကွယ်ရေးပစ္စည်းစက်ရုံ(ဆင်ပေါင်ဝဲ)တို့မှ ထုတ်ယူ၍ တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်မြို့နယ်၊ အမှတ်(၄၈၂) ခြေမြန်တပ်ရင်းဝင်းအတွင်းရှိ ဌာနပိုင်ထားဝယ်ပင်မယမ်းတိုက်များသို့ အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းမှ လက်ထောက်မန်နေဂျာ (သတ္တုတွင်း) ဦးဇော်ဝင်းမိုး လိုက်ပါလျက် ၈-၁-၂၀၁၈ ရက်တွင် မော်တော်ယာဉ်(၂)စီးဖြင့် ပူးတွဲပါခရီးစဉ်အတိုင်း သယ်ယူပို့ဆောင်မည်ဖြစ်ရာ လုံခြုံရေးအားသက်ဆိုင်ရာတိုင်းစစ်ဌာနချုပ်နှင့် ပေါင်းစပ်ညှိနှိုင်းဆောင်ရွက်သွားရန် အကြောင်းကြား ပါသည်။

ပူးတွဲပါ- (၁)စုံ

ပြည်ထောင်စုဝန်ကြီး(လက်မှတ်ရာ)
(ဇော်ဇော်ဦး၊ လက်ထောက်အတွင်းဝန်)

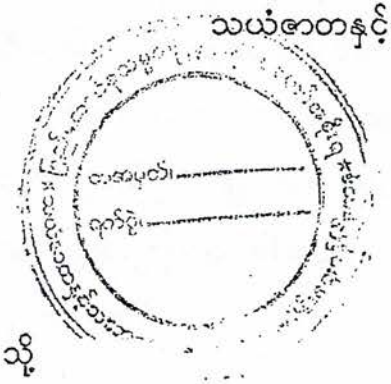
မိတ္တူကို

သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန

လျှို့ဝှက်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန



ဝန် ကြီး ရုံး

နေပြည်တော်

စာအမှတ်၊ ၆၄ ခွဲ(၁) ၁၇ / သတ္တု (ညဇ၊၂၄)

ရက်စွဲ၊ ၂၀၁၇ ခုနှစ်၊ ဒီဇင်ဘာလ ၂၈ ရက်

သို့

ကာကွယ်ရေးဦးစီးချုပ်ရုံး (ကြည်း)

ပြည်ထဲရေးဝန်ကြီးဌာန

ကာကွယ်ရေးဝန်ကြီးဌာန

အကြောင်းအရာ။ **ယမ်းဘီလူးနှင့်ဆက်စပ်သုံးပစ္စည်းများ သယ်ယူမည့် ခရီးစဉ်ကိစ္စ**

ရည် ညွှန်း ချက် ။ ပြည်ထောင်စုအစိုးရအဖွဲ့ရုံး၏ ၈.၄.၂၀၁၆ ရက်စွဲပါ စာအမှတ်၊ ၁၂ / ဂဖဂ - ကာ/လုံ (အဖရ) (၂၀၁၆)

၁။ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန၊ အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းနှင့်အကျိုးတူပူးပေါင်း၍တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကဲပေါက်ကျေးရွာ၊ကဲပေါက်သတ္တုတွင်းတွင် သတ္တုတူးဖော်ခြင်းလုပ်ငန်း ဆောင်ရွက်နေသည့် ဒယ်လ်ကို ကုမ္ပဏီလီမိတက်၏ လုပ်ငန်းများတွင် အသုံးပြုရန်လိုအပ်သည့် Emulsion Explosive(Ø 32 mm) (2000)Kg, Detonating Cord (Plastic) (3500) Mtrs, Safety Fuse(Plastic) (5000) Mtrs, No.8 Plain Detonator (4000) Nos. တို့ကို အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း (ပန်းတောင်း)နှင့်အမှတ်(၁၃)ကာကွယ်ရေးပစ္စည်းစက်ရုံ(ဆင်ပေါင်ဝဲ)တို့မှထုတ်ယူရန် ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)၏ (၇.၁၂.၂၀၁၇)ရက်စွဲပါစာအမှတ်၊ ၁၄ / ဖဝ၄၄ /၂၂ / ဦး ၃ နှင့် စစ်လက်နက်ပစ္စည်း ညွှန်ကြားရေးမှူးရုံး၏ (၁၁.၁၂.၂၀၁၇) ရက်စွဲပါ စာအမှတ်၊ ၃ / ၃ဖ၇၀ / ထပ-၂၀ /နက် တို့ဖြင့် ခွင့်ပြုချက်ရရှိပြီးဖြစ်ပါသည်။

၂။ သို့ဖြစ်ပါ၍ အထက်ဖော်ပြပါယမ်းနှင့်ဆက်စပ်ပစ္စည်းများကို အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း (ပန်းတောင်း)နှင့်အမှတ်(၁၃)ကာကွယ်ရေးပစ္စည်းစက်ရုံ(ဆင်ပေါင်ဝဲ)တို့မှ ထုတ်ယူ၍တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်မြို့နယ်၊ အမှတ်(၄၀၂)ခြေမြန်တပ်ရင်းဝင်းအတွင်းရှိ ဌာနပိုင်ထားဝယ်

ပင်မယမ်းတိုက်များသို့အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းမှ လက်ထောက်မန်နေဂျာ (သတ္တုတွင်း) ဦးဇော်ဝင်းမိုး(နိုင်ငံသားစိစစ်ရေးကတ်အမှတ်၊ ၇/ပတန (နိုင်) ၀၁၃၆၃၀) တာဝန်ခံအဖြစ် လိုက်ပါပြီး (၈.၁.၂၀၁၈)ရက်နေ့တွင် နောက်ဆက်တွဲပါခရီးစဉ်အတိုင်း မော်တော်ယာဉ်(၂)စီးဖြင့် သယ်ယူမည်ဖြစ်ပါ၍ လမ်းခရီးလုံခြုံရေးအတွက်လိုအပ်သည်များဆောင်ရွက်ပေးနိုင်ပါရန် ညှိနှိုင်းအကြောင်းကြားအပ်ပါသည်။

ပူးတွဲ(၂)ရွက်

ပြည်ထောင်စုဝန်ကြီး(ကိုယ်စား)
(ဌေးအောင်၊ အမြဲတမ်းအတွင်းဝန်)

မိတ္တူကို

ပြည်ထောင်စုအစိုးရအဖွဲ့ရုံး
ပဲခူးတိုင်းဒေသကြီးအစိုးရအဖွဲ့
မကွေးတိုင်းဒေသကြီးအစိုးရအဖွဲ့
မွန်ပြည်နယ်အစိုးရအဖွဲ့
တနင်္သာရီတိုင်းဒေသကြီးအစိုးရအဖွဲ့
ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)၊ တာဝန်ဌာနခွဲ
စစ်လက်နက်ပစ္စည်းညွှန်ကြားရေးမှူးရုံး
အမှတ်(၁၃)ကာကွယ်ရေးပစ္စည်းစက်ရုံ
ညွှန်ကြားရေးမှူးချုပ်၊ သတ္တုတွင်းဦးစီးဌာန
ဦးဆောင်ညွှန်ကြားရေးမှူး၊ အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်း
အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း

နောက်ဆက်တွဲ

ဒယ်လ်ကိုကုမ္ပဏီအတွက် ယမ်းနှင့်ဆက်စပ်ပစ္စည်းများ ထုတ်ယူသယ်ဆောင်မည့် ခရီးစဉ်

စဉ်	ပစ္စည်းအမျိုးအမည်	အရေအတွက်	ထုတ်ယူမည့် တပ်ရင်း	ခရီးစဉ် /နေ့စွဲ	မှတ်ချက်
1	Emulsion Explosive Ø (32 mm)	2,000 Kg	အမှတ်(၁၃) ကာကွယ်ရေး ပစ္စည်းစက်ရုံ (ဆင်ပေါင်ဝဲ) နှင့် အမှတ်(၂) ခဲယမ်းမီး ကျောက် တပ်ရင်း (ပန်းတောင်း)	(၈.၁.၂၀၁၈) က.ပ.စ(၁၃) (ဆင်ပေါင်ဝဲ)/ ခ.ယ.ရ(၂) (ပန်းတောင်း)	ခ.ယ.ရ(၂) ပန်းတောင်း တွင် ညအိပ်ပါမည်။
2	Detonating Cord (Plastic)	3,500 Mtrs.			
3	Safety Fuse (Plastic)	5,000 Mtrs.			
4	No.8 Plain Detonator	4,000 Nos.		(၉.၁.၂၀၁၈) ခ.ယ.ရ(၂) (ပန်းတောင်း)/ ပဲခူး	ပဲခူးတွင် ညအိပ်ပါမည်။
				(၁၀.၁.၂၀၁၈) ပဲခူး/ ရေး	ရေးတွင် ညအိပ်ပါမည်။
				(၁၁ .၁.၂၀၁၈) ရေး/ထားဝယ်	ထားဝယ်မြို့ အမှတ်(၄၀၂) ခြေမြန် တပ်ရင်းဝင်း အတွင်းရှိ ထားဝယ်ဝင်မ ယမ်းတိုက် များတွင် ပစ္စည်းများကို အပ်နှံပါမည်။

လိုက်ပါမည့် ကိုယ်စားလှယ်အရာရှိ

၁။ အမည် - ဦးဇော်ဝင်းမိုး
ရာထူး - လက်ထောက်မန်နေဂျာ(သတ္တုတွင်း)
နိုင်ငံသားစိစစ်ရေးကတ်အမှတ် - ၇/ပတန(နိုင်)၀၁၃၆၃၃၀

၂။ အမည် - ဦးမင်းထက်ဇော်
ရာထူး - ရုံးခွဲတာဝန်ခံ(ဒယ်လ်ကိုကုမ္ပဏီ)
နိုင်ငံသားစိစစ်ရေးကတ်အမှတ် - ၁/ မကန (နိုင်)၁၂၇၄၇၄၃
ယာဉ်အမှတ် - 5J-1177

-No.8 Plain Detonator 4,000 Nos.

၃။ ယာဉ်မောင်းအမည်	- ဦးသန်းဝင်း
နိုင်ငံသား၊စီစစ်ရေးကတ်အမှတ်	- ၁၁/ကတန(နိုင်)၀၇၇၃၆၈
ယာဉ်အမှတ်	- 6H/9622
	-Emulsion Explosive (32 mm)2,000 Kgs၊ Safety Fuse (Plastic) 5,000 Mtrs. နှင့် Detonating Cord (Plastic)(3,500) Mtrs.

လျှို့ဝှက်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်

ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)

စာအမှတ်၊ ၁၃ / ၆၀၄၄ / ၂၂ / ဦး ၃

ရက်စွဲ၊ ၂၀၁၇ ခုနှစ်၊ ဒီဇင်ဘာလ ၈ ရက်

သို့

စစ်လက်နက်ပစ္စည်းညွှန်ကြားရေးမှူးရုံး

အကြောင်းအရာ။ **ပေါက်ကွဲစေတတ်သောပစ္စည်းများ ထုတ်ပေးရေး**

ရည် ညွှန်း ချက် ။ အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်း၏ ၅-၁၂-၂၀၁၇ ရက်စွဲပါစာအမှတ်၊ ၁၁၀၅ / ဝရ / ယမ်း / သတလ(၂) / ၂၀၁၇

အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းနှင့်အကျိုးတူပူးပေါင်း၍ တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာ၊ ကံပေါက်သတ္တုတွင်း၌ သတ္တုတူးဖော်ခြင်း လုပ်ငန်းများ ဆောင်ရွက်နေသည့် ဒယ်လ်ကိုကုမ္ပဏီလီမိတက်၏ လုပ်ငန်းများတွင် အသုံးပြုရန်အတွက် လိုအပ်သော အောက်ဖော်ပြပါ ပေါက်ကွဲစေတတ်သောပစ္စည်းများအား အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်းမှ ထုတ်ယူနိုင်ရေးအတွက် လုပ်ထုံးလုပ်နည်းနှင့်အညီ ဆောင်ရွက်သွားရန် အကြောင်းကြားသည်-

EXPLOSIVE

(1)	EMULSION EXPLOSIVE (32 mm)	-2,000(2,000)Kgs.
(2)	DETONATING CORD	-3,500(3,500)Mtrs.
(3)	SAFETY FUSE	-5,000(5,000)Mtrs.
(4)	NO.8 PLAIN DETONATOR	-4,000(4,000)Nos.

(NO ; OF ITEMS 4 (FOUR) ONLY.)

ကာကွယ်ရေးဦးစီးချုပ်(ကြည်း)

မိတ္တူကို

ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)စစ်ဆင်ရေးဌာနခွဲ

ပြည်ထဲရေးဝန်ကြီးဌာန

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန

လျှို့ဝှက်

J

ကမ်းရိုးတန်းဒေသတိုင်းစစ်ဌာနချုပ်
တောင်ပိုင်းတိုင်းစစ်ဌာနချုပ်
အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း
သတ္တုတွင်းဦးစီးဌာန
အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်း
စစ်မှတ်တမ်း
စာတွဲ
၀၄

လျှို့ဝှက်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်

ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)

စာအမှတ်၊ ၁၎ / ဖဂ၄၄ / ၂၂ / ဦး ၃

ရက်စွဲ၊ ၂၀၁၇ ခုနှစ်၊ ဒီဇင်ဘာလ ၎ ရက်

သို့

အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်း

အကြောင်းအရာ။ **ပေါက်ကွဲစေတတ်သောပစ္စည်းများ သယ်ယူရေး**

ရည်ညွှန်းချက် ။ (၁) ဤရုံး၏ ၎-၁၂-၂၀၁၇ ရက်စွဲပါစာအမှတ်၊ ၁၃ / ဖဂ၄၄/၂၂/ ဦး၃
(၂) ယင်း၏ ၅-၁၂-၂၀၁၇ ရက်စွဲပါစာအမှတ်၊ ၁၁၀၅ / ၀ရ / ယမ်း / သတလ(၂) / ၂၀၁၇

၁။ အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းနှင့်အကျိုးတူပူးပေါင်း၍ တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာ၊ ကံပေါက်သတ္တုတွင်း၌ သတ္တုတူးဖော်ခြင်းလုပ်ငန်းများ ဆောင်ရွက်နေသည့် ဒယ်လ်ကိုကုမ္ပဏီလီမိတက်၏ လုပ်ငန်းများတွင် အသုံးပြုရန် ရည်ညွှန်း(၁)ပါစာဖြင့် ထုတ်ယူခွင့်ပြုထားသော အဆိုပါလုပ်ငန်းပိုင် ပေါက်ကွဲစေတတ်သောပစ္စည်းများအား အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်းမှ ထုတ်ယူ၍ အမှတ်(၄၀၂)ခြေမြန်တပ်ရင်းအတွင်းရှိ ဌာနပိုင်ထားဝယ်ပင်မယမ်းတိုက်များသို့ ၂၀၁၇ ခုနှစ်၊ ဒီဇင်ဘာလအတွင်း မော်တော်ယာဉ်များဖြင့် သယ်ယူခွင့်ပြုပါရန် ရည်ညွှန်း(၂)ပါစာဖြင့် တင်ပြလာခြင်းအား ခွင့်ပြုကြောင်း အကြောင်းကြားသည်။

၂။ အဆိုပါပစ္စည်းများ သယ်ဆောင်စဉ် လမ်းခရီးလုံခြုံရေးအတွက် ပြည်ထဲရေးဝန်ကြီးဌာနနှင့် သက်ဆိုင်ရာတိုင်းစစ်ဌာနချုပ်သို့ လုံခြုံရေးဆောင်ရွက်ပေးရန် တင်ပြတောင်းခံ၍ ခွင့်ပြုချက်ရရှိပြီးမှသာ သယ်ယူသွားရန်နှင့် သယ်ယူရာတွင်လည်းကောင်း၊ ထားသိုထိန်းသိမ်းရာတွင်လည်းကောင်း၊ လုပ်ငန်းခွင်၌ သုံးစွဲရာတွင်လည်းကောင်း အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းအနေဖြင့် စနစ်တကျတာဝန်ယူ ဆောင်ရွက်သွားရန်ဖြစ်ကြောင်း ဖြည့်စွက်ဖော်ပြသည်။

ကာကွယ်ရေးဦးစီးချုပ်(ကြည်း)( )

မိတ္တူကို

ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)စစ်ဆင်ရေးဌာနခွဲ

ကမ်းရိုးတန်းဒေသတိုင်းစစ်ဌာနချုပ်
တောင်ပိုင်းတိုင်းစစ်ဌာနချုပ်
အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း
သတ္တုတွင်းဦးစီးဌာန
အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်း
စစ်မှတ်တမ်း
စာတွဲ
၀၄

လျှို့ဝှက်

စောင်ရေအမှတ်(၇)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)
စစ်လက်နက်ပစ္စည်းညွှန်ကြားရေးမှူးရုံး

စာအမှတ်၊ ၃ / ၃၆၇၀ / ထပ - ၂၁ / နက်
ရက် စွဲ၊ ၂၀၁၇ ခုနှစ်၊ ဒီဇင်ဘာလ ၁၁ ရက်

သို့

အမှတ်(၂)ခဲယမ်းမီးကျောက်တပ်ရင်း

အကြောင်းအရာ။ **ပေါက်ကွဲစေတတ်သောပစ္စည်းများ ထုတ်ပေးခွင့်ပြုခြင်း**

ရည် ညွှန်း ချက်။ ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)၏ ၇-၁၂-၂၀၁၇ ရက်စွဲပါစာအမှတ်၊ ၁၃/ဖဝ၄၄/၂၂/ဦး ၃

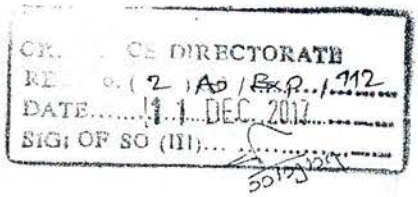
၁။ အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းနှင့် အကျိုးတူပူးပေါင်း၍ တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်ခရိုင်၊ ရေဖြူမြို့နယ်၊ ကံပေါက်ကျေးရွာ၊ ကံပေါက်သတ္တုတွင်း၌ သတ္တုတူးဖော်ခြင်းလုပ်ငန်းများဆောင်ရွက်နေသည့် ဒယ်လ်ကိုကုမ္ပဏီလီမိတက်၏ လုပ်ငန်းများတွင်အသုံးပြုရန်အတွက်လိုအပ်သော အောက်ဖော်ပြပါ ပေါက်ကွဲစေတတ်သော ပစ္စည်းများအား အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်းသို့ လုပ်ထုံးလုပ်နည်းများနှင့်အညီထုတ်ပေးရန် အကြောင်းကြားပါသည်-

Sr No.	Part No.	DESIGNATION	Q T Y.
1.	-	Emulsion Explosive Ø 32 mm (Two Thousand Kg Only.)	2000 Kg.
2.	-	Detonating Cord (Plastic) (Three Thousand Five Hundred Mtrs Only.)	3500 Mtrs.
3.	-	Safety Fuse (Plastic) (Five Thousand Mtrs Only.)	5000 Mtrs.
4.	-	No.8 Plain Detonator (Four Thousand Nos Only.)	4000 Nos.
		No. Of Items 4(Four) Only.	

၂။ အထက်ဖော်ပြပါ ပစ္စည်းများအနက် Emulsion Explosive များအား အမှတ်(၁၃) ကာကွယ်ရေးပစ္စည်းစက်ရုံမှ တိုက်ရိုက်ထုတ်ပေးပါကစက်ရုံမှလက်ခံခြင်း၊ ပြန်လည်ထုတ်ပေးခြင်းတို့အား စာရွက်စာတမ်းအရသာ ဆောင်ရွက်သွားရန် ထည့်သွင်းဖော်ပြပါသည်။

ORDNANCE DIRECTORATE

၃။ ၂၀-၁၂-၂၀၁၇ ရက်တွင် ထုတ်ပေးရန်အသင့်ဖြစ်စေရမည်။



စစ်လက်နက်ပစ္စည်းညွှန်ကြားရေးမှူးဗိုလ်မှူးအောင်

မိတ္တူကို

စောင်ရေအမှတ်

ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)စစ်ဆင်ရေးဌာနခွဲ (၂)
ကာကွယ်ရေးဦးစီးချုပ်ရုံး(ကြည်း)တာဝန်ဌာနခွဲ (၃)
ကာကွယ်ရေးပစ္စည်းထုတ်လုပ်ရေးအရာရှိချုပ်ရုံး (၄)
အမှတ်(၁၃)ကာကွယ်ရေးပစ္စည်းစက်ရုံ (၅)
သတ္တုတွင်းဦးစီးဌာန (၆)
အမှတ်(၂)သတ္တုတွင်းလုပ်ငန်း- ထုတ်ယူပါရန်နှင့်ဘေးအန္တရာယ်ကင်းရှင်း စေရေးအတွက် သယ်ဆောင်ရာတွင် ယာဉ်များ၌ အမိုး ၊ အကာ ၊ ကြမ်းခင်းများ ကောင်းမွန်စေရေး၊ စနက်တံများအား သီးခြား သယ်ဆောင်ရေး၊ မီးသတ်ဆေးဘူးများ ပါရှိစေရေးအတွက် စနစ်တကျ ကြပ်မတ်ဆောင်ရွက်နိုင်ပါရန်။ (၇)
လက်ခံစာတွဲ (၈)