

Initial Environmental Examination (IEE) Report

Aureum Palace Resort & Spa, Nyaung Shwe

E Guard Environmental Services

INSIDES

This report describes the findings of Initial Environmental Examination (IEE) including Environmental Management Plan (EMP) and Biodiversity Management Plan (BMP) of Aureum Palace Resort & Spa, proposed by Myanmar Treasure Hotel & Resort Group Co., Ltd. situated near Maing Thauk village, Nyaung Shwe township, Myanmar.

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1. Executive Summary

This Initial Environmental Examination (IEE) was conducted by E Guard Environmental in November and December 2014 for the proposed Aureum Palace Resort & Spa, situated at Inlay Lake Side, near Maing Thauk village, Nyaung Shwe township, southern Shan State in the Republic of the Union of Myanmar.

With a total investment plan of Kyat 7,260 million, Myanmar Treasure Hotel & Resort Group Co., Ltd. has proposed Myanmar Investment Commission (MIC) to establish a lake side resort, named Aureum Palace Resort & Spa, at about 1 mile south of Maing Thauk village, Nyaung Shwe township, southern Shan State, in the Republic of the Union of Myanmar. As the Myanmar Treasure Hotel & Resort Group Co., Ltd. is a Private Limited Company owned by Myanmar citizens, the proposed hotel project is a form of (100%) investment by Myanmar developers. The company aims to carry out construction and operation of international standard five-star grade hotel and resort services on the eastern bank of Myanmar's well known Inlay Lake.

Inlay Lake Wildlife Sanctuary is a wetland sanctuary and located in Nyaung Shwe, Pinlaung and Peh Kon townships of the southern Shan State. It recently covers an area of 215 square miles (556 km²) and was established in 1985 (FD 2014 October). This sanctuary aims to conserve and protect natural vegetation, wetland birds and fresh water fishes of the sanctuary. Total 255 woodland birds, 90 wetland birds, 59 fish species, 3 turtle species, 94 butterfly species, 25 amphibian and reptile species and several plant species including 184 orchid and 12 algae species are recorded in this wetland sanctuary.

Resort construction started in 2007 and Aureum Palace Resort & Spa was opened in September 2011. Myanmar Treasure Hotel & Resort Group Co., Ltd. has tried its best to address environmental conservation measures during the construction period and initial stage of the operation phase. However, as there was no clear law, rules, regulations and instructions in that period, on environmental conservation measures for hotel and tourism industry, the subject has not yet been properly documented and submitted to the concerned authorities. With the emergence of Environmental Conservation Law (2012) and Environmental Conservation Rules (2014), it has been clear that the hotel/resort developers have to conduct initial environmental examination and submit the IEE report to Environmental Conservation Department (ECD) as a compulsory requirement.

On the other hand, as the proposed resort site (30.17 acre) is situated inside the boundary of Inlay Lake Wildlife Sanctuary, Myanmar Treasure Hotel & Resort Group Co., Ltd. has made a long term land leased contract with the Forest Department (FD), the guardian government agency of the Inlay Lake Wildlife Sanctuary in 2014, to construct and operate a resort under B.O.T system. The land leased contract is made for a period of fifty years (from 2014 to 2064) and is extendable up to 20 more years (10 years – 2 times). Page 9, paragraph 21 of the land leased contract expressed that the land user, Myanmar Treasure Hotel & Resort Group Co., Ltd. shall:

- well protect and conserve the leased land
- carry out necessary control measures to avoid damages/pollutions on air, water, land and other negative environmental consequences and
- keep necessary environmental protection and impact mitigation plans in accordance with the existing Laws

With the full abidance of the above mentioned terms and conditions, the land user, Myanmar Treasure Hotel & Resort Group Co., Ltd. has prepared and submitted this IEE including EMP and BMP in accordance with the provisions of Environmental Conservation Law (2012), Environmental Conservation Rules (2014) and general guidelines provided by the Environmental Conservation Department (ECD) of MOECAAF. In addition, the developer has committed to perform ‘zero pollution policy’ upon Inlay lake (zero discharge of sewage, wastewater, solid waste and other pollutants into the Inlay Lake) as its hotel/resort business highly depends on sustainability of Inlay Lake and its surrounding environment on which tourists are very much interested.

Aureum Palace Resort & Spa site is situated on the western side of Nyaung Shwe – Nampan motor road about (7) miles south of Nyaung Shwe. It lies in a narrow valley between hills in the east and the Inlay Lake in the west. The surrounding is sparsely populated and generally surrounded by hotels, resorts, paddy fields, Inlay Lake and small scattered villages. Major power source of the resort is electricity from the national grid, with a back-up generator for emergency use. With regard to environmental conservation outlooks, this IEE study has carried out on two main steps of the proposed resort project operation of hotel/resort services and decommissioning of the resort after its lifespan.

Hotel/resort services will take maximum 70 years, initial 50 years and can be extendable for another 20 years (10 years two times). Then the resort is supposed to be transferred to the Forest Department or dismantled. The resort project has used/installed up-to-date machines, equipment and vehicles in its construction and operation phases and complied with rule 54, 58 and 59 of the Foreign Investment Rules for the construction period. During the operation phase, the resort shall abide international norms and standards of a five-star grade hotel/resort services, Myanmar Hotels and Tourism Law and other related laws, rules and regulations of relevant ministries.

In its full strength of operation, the resort project has planned to employ 106 local employees at the different levels of its services and operations. Through its capacity building process, local employees could improve their professional skills and made themselves valuable human resources in the hotel and tourism sector of the nation.

Upon careful examination of the activities of all operation and decommissioning phases of the proposed resort project, no significant adverse impacts on environment (on soil, water, air and human beings), particularly on the Inlay Lake Wildlife Sanctuary has been figured out.

Serious environmental damages, like unsustainable situations, significant impacts and low impacts are not identified. Only a number of insignificant impacts particularly on health and safety of guests and employees such as accidents, injuries, odour, noise, resources utilization, and fire risks are figured out by the study. However all these impacts are of minimal scales, limited to site level and able to be monitored and mitigated.

From the socio-economic point of view, implementation of the proposed project will create positive impacts on socio-economic environment of local communities mainly due to generation of local employment opportunities and capacity building for unskilled workers.

The Environmental Management Plan (EMP) and Biodiversity Management Plan (BMP) are prepared in chapter 11, based on finding of impacts and its significance. It has designed as a strict environmental management, protection of the biodiversity of Inlay Lake Wildlife Sanctuary and health and safety framework for both phases (operation and decommissioning) of Aureum Palace Resort & Spa. The environmental and biodiversity management practices, procedures and responsibilities are defined here in to get full compliance with the existing environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

This plan can be divided into four parts:

- Environmental Management Plan (EMP)
- Biodiversity Management Plan (BMP)
- Corporate Social Responsibility (CSR) plan
- Environmental Monitoring Plan (EMOP)

The Environmental Management Plan (EMP) identifies the activities, objectives, mitigation and enhancement measures to prevent even possible minor impacts on surround environment due to the proposed resort project, its estimated cost and responsible person or unit. The Biodiversity Management Plan (BMP) aims to contribute improve the Inlay Lake's biodiversity and ensure keeping healthy populations of its flora and fauna species and vegetation communities for a long term. The Corporate Social Responsibility (CSR) plan aims to secure social well-being of the resort guests, employees and their family members, better community living and transparent and friendly relationship with neighboring communities.

The concerns, opinions, feed backs, desired and needs of local communities and concerned stakeholders recorded in the public consultation meetings have been well addressed and incorporated in the formulation of EMP, BMP and CSR.

In brief, this IEE has scientifically explored all possible environmental impacts of the proposed resort project, identify and recommend strict prevention and mitigation measures of the impacts and regular monitoring system to ensure the implementation of prevention and mitigation measures.

အကျဉ်းချုပ် အစီအရင်ခံစာ

E Guard Environmental Services Co., Ltd. မှ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းစီရင်ခံစာကို ၂၀၁၄ခုနှစ်နိုဝင်ဘာလနှင့် ဒီဇင်ဘာလတွင်စတင်ဆောင်ရွက်ခဲ့ခြင်းဖြစ်ပြီး အဆိုပါစီမံကိန်းသည် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံ၊ ရှမ်းပြည်နယ်တောင်ပိုင်း၊ ညောင်ရွှေမြို့နယ်၊ မိုင်းသောက်ရွာ အနီးရှိ အင်းလေးကန်ဘက်ခြမ်းတွင် Aureum Palace ဟိုတယ်နှင့်အပန်းဖြေစခန်း တည်ဆောက်ရန်အတွက် ဖြစ်သည်။

Myanmar Treasure Hotel & Resort Group Co., Ltd. မှ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံ၊ ရှမ်းပြည်နယ်တောင်ပိုင်း၊ ညောင်ရွှေမြို့နယ်၊ မိုင်းသောက်ရွာတောင်ဘက် (၁)မိုင်အကွာတွင် Aureum Palace ဟိုတယ် နှင့်အပန်းဖြေစခန်းတည်ဆောက်ရန်လျာထားငွေမှာ ကျပ်သန်းပေါင်း (၇၆၀) ဖြစ်ကြောင်း MIC သို့တင်ပြထားသည်။ အဆိုပါစီမံကိန်းအတွက် Myanmar Treasure Hotel & Resort Group Co., Ltd. မှ ၁၀၀ % မြန်မာနိုင်ငံသား လုပ်ငန်းရှင်ရင်းနှီး မြှုပ်နှံမှုဖြစ်သည်။

ထိုစီမံကိန်းသည် မြန်မာနိုင်ငံ၏ ထင်ရှားကျော်ကြားသော အင်းလေးကန်၏ အရှေ့ဘက်ကန်ဘောင်တွင် နိုင်ငံတကာအဆင့်မီကြယ်ငါးပွင့်အဆင့်ရှိသော အော်ရီယမ်ပဲလေ့ (Aureum Palace) ဟိုတယ်နှင့်အပန်းဖြေစခန်း တည်ဆောက် ရန်ဖြစ်ပါသည်။

အင်းလေးကန် တောရိုင်းတိရစ္ဆာန်ထိန်းသိမ်းရေးစခန်းသည် ရှမ်းပြည်နယ်တောင်ပိုင်းညောင်ရွှေ၊ ပင်လောင်းနှင့် ဖယ်ခုံမြို့နယ်တို့တွင်တည်ရှိသော ရေတိမ်ဒေသထိန်းသိမ်းရေး စခန်းဖြစ်သည်။ ဧရိယာအားဖြင့် ၂၁၅၈၀၇ရန်းမိုင်ကျယ်ဝန်းပြီး၁၉၈၅ခုနှစ်တွင်တည်ထောင်ခဲ့သည်။ သဘာဝ ပေါက်ပင်များ၊ ရေပင်ဒေသရှိငှက်များနှင့် ရေချိုငါးများအား ထိန်းသိမ်းကာကွယ်ရန်ရည်ရွယ်သည်။ သစ်တောတွင်မှီတင်း နေထိုင်သော ငှက်မျိုးစိတ်(၂၂၅)မျိုး၊ ရေပင်ဒေသရှိငှက်မျိုးစိတ်ပေါင်း(၉၀)၊ ငါးမျိုးစိတ်(၅၉)၊ လိပ်မျိုးစိတ်(၃)၊ လိပ်ပြာမျိုးစိတ်(၉၄)မျိုး၊ တွားသွားမျိုးစိတ်ပေါင်း (၂၅)မျိုး၊ သစ်ခွမျိုးစိတ် (၁၈၄)မျိုးနှင့် ရေညှိမျိုးစိတ်(၁၂)မျိုးအပါအဝင် အခြားအပင်မျိုး စိတ်များစွာ မှတ်တမ်း တင်ထားသည်။

Aureum Palace ဟိုတယ်နှင့်အပန်းဖြေစခန်းကို ၂၀၀၇ခုနှစ်တွင်စတင်ပြီးတည်ဆောက်ပြီး ၂၀၁၁ ခုနှစ် စက်တင်ဘာလတွင် ဖွင့်လှစ်ခဲ့သည်။ Myanmar Treasure Hotel & Resort Group Co.,Ltd. သည် တည်ဆောက်နေသည့်အချိန်ကာလနှင့်လုပ်ငန်းအစပိုင်းလည်ပတ်ချိန်တို့တွင်သဘာပတ်ဝန်း ကျင်ထိန်းသိမ်းရေး နည်းများအား အတတ်နိုင်ဆုံး လိုက်နာရန်ကြိုးပမ်းခဲ့ပါသည်။ သို့သော်ထိုကာ တွင်ဟိုတယ်နှင့် ခရီးသွားလုပ်ငန်းအတွက် ကျသောဥပဒေများ၊ စည်းမျဉ်းစည်းကမ်းများ၊ နည်းဥပဒေများနှင့် လမ်းညွှန်ချက်များ မရှိသော ကြောင့်သက်ဆိုင်ရာ အာဏာပိုင်များ ထံမှတ်တမ်းတင်ပြီး တင်ပြခြင်းမရှိခဲ့ပေ။ သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၂) နှင့်သဘာဝပတ်ဝန်းကျင် ထိန်းသိမ်းရေးနည်းဥပဒေ (၂၀၁၄)အား ပြဋ္ဌာန်းပြီးနောက် လုပ်ငန်းရှင်များသည် ကနဦးပတ်ဝန်းကျင်စစ်ဆေးခြင်းကို ဆောင်ရွက်ရမှာဖြစ်ပြီး လုပ်ထုံးလုပ်နည်းအရ (IEE) အစီရင်ခံစာကိုပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဌာနသို့တင်ပြရ မည်ဖြစ်

သည်။ ထို့အပြင်စီမံကိန်း၏ (၃၀.၁၇၉က) သည်အင်းလေးကန်တောရိုင်းတိရစ္ဆာန်ထိန်းသိမ်းရေး စခန်းနယ်မြေအတွင်း ပါဝင်နေသဖြင့် Myanmar Treasure Hotel & Resort Group Co.,Ltd. သည် B.O.T စနစ်အရ ဟိုတယ်နှင့်အပန်းဖြေစခန်း တည်ဆောက်ရန် အင်းလေးကန်တောရိုင်း တိရစ္ဆာန်ထိန်းသိမ်းရေးစခန်း၏ အုပ်ချုပ်ခွင့်ရှိအစိုးရ အဖွဲ့အစည်း ဖြစ်သောသစ်တောဌာနနှင့် မြေငှားရမ်းခွင့်စာချုပ်ချုပ်ဆိုရမည်။ မြေငှားစာချုပ်မှာ ၂၀၁၄ ခုနှစ် မှ ၂၀၆၄ခုနှစ်ထိ နှစ် (၅၀) စာချုပ်ဖြစ်ပြီး နောက်ထပ် (၁၀) နှစ်စာနှစ်ကြိမ် စုစုပေါင်း နှစ် (၂၀)ထပ်မံငှားနိုင်သည်။ မြေငှားစာချုပ် စာမျက်နှာ ၉၊ အပိုဒ် ၂၁ တွင် ဖော်ပြထားသည့်အတိုင်း မြေအသုံးပြုမည့် Myanmar Treasure Hotel & Resort Group Co.,Ltd. သည်။

- ငှားရမ်းထားသောမြေအား ကောင်းစွာ ထိန်းသိမ်းကာကွယ်သင့်သည်။
- လေ၊ ရေ၊ မြေ ညစ်ညမ်းခြင်း နှင့် အခြားပတ်ဝန်းကျင်အတွက် မကောင်းသောအကျိုးဆက်များဖြစ်ပေါ်ခြင်း မှ ရှောင်ကြဉ်နိုင်ရန် လိုအပ်သောထိန်းချုပ်ရေးနည်းများကိုလိုက်နာဆောင်ရွက်သင့်သည်။
- ပြဋ္ဌာန်းသောဥပဒေနှင့်အညီလိုအပ်သောပတ်ဝန်းကျင်ကာကွယ်ရေးနှင့်ဆိုးကျိုးများလျော့ချရေးအစီအစဉ်များကိုရေးဆွဲထားသင့်သည်။

အထက်ဖော်ပြပါ သတ်မှတ်ချက်များ အပြည့်အစုံရရှိပါက မြေအသုံးပြုမည့် United Hotels & Resorts Co.,Ltd. သည် MOECFAF ၏ သဘာပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဌာန မှ ထုတ်ပြန်သော မြန်မာနိုင်ငံပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၂) နှင့် အခြေခံလမ်းညွှန်ချက်များနှင့်အညီ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုစီမံချက်(EMP)၊ ဇီဝမျိုးစုံမျိုးကွဲများစီမံခန့်ခွဲမှုစီမံချက်(BMP) နှင့် သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲမှုစီမံချက် (NDRMP) ပါဝင်သောကနဦးပတ်ဝန်းကျင်စစ်ဆေးခြင်း(IEE) ကိုပြင်ဆင်ပြီးတင်ပြရမည်။ လုပ်ငန်းရှင်များသည် ဟိုတယ်နှင့်အပန်းဖြေစခန်းသို့ လာရောက်လည်ပတ်သူများ အထူးစိတ်ဝင်စားသည့်ကျွန်းနှင့် ကျွန်းပတ်ဝန်းကျင်ရှိ သဘာဝအလှတရားများပေါ်တွင် မှီခိုနေရသောကြောင့် ရေ၊ အစိုင်အခဲ စသည့် စွန့်ပစ်ပစ္စည်းများ၊ ကျွန်း ၊ ကမ်းခြေနှင့် ပင်လယ်ကို ညစ်ညမ်းစေသောအရာများထုတ်လွှတ်မှုသုညလမ်းစဉ် (zero waste policy) ကိုဆောင်ရွက်ရန် ကတိပြုရမည်။

Aureum Palace ဟိုတယ်နှင့်အပန်းဖြေအချားယူစခန်းသည် ညောင်ရွှေမြို့အနောက်ဘက် ညောင်ရွှေတောင်ဘက် (၇) မိုင်အကွာနမ့်ပန်ကားလမ်းဘေးတွင်တည်ရှိသည်။ အရှေ့ဘက်တွင် တောင်တန်းများကာရံထားပြီး အနောက်ဘက်တွင် အင်းလေးကန်ရှိပြီး ကျဉ်းမြောင်းသော တောင်ကြားတွင်တည်ရှိသည်။ ပတ်ဝန်းကျင်တွင်လူနေနည်းပါးပြီး ယေဘုယျအားဖြင့်ဟိုတယ်များ၊ အပန်းဖြေစခန်းများ၊ လယ်ကွင်းများနှင့်ပြန့်ကျဲနေသော ရွာများဝန်းရံထားသည်။ အဓိက လျှပ်စစ်ကိုနိုင်ငံတော် ဓာတ်အားလိုင်းမှ ရရှိပြီး အရေးပေါ်မီးစက်များ လဲရှိသည်။ သဘာဝပတ်ဝန်းကျင် ထိန်းသိမ်းရေး သုံးသပ်ချက်အရ IEE ကို ဟိုတယ်နှင့် အပန်းဖြေစခန်း တည်ဆောက်ခြင်း၊ ဟိုတယ်နှင့်အပန်းဖြေစခန်း ဝန်ဆောင်မှုများ လုပ်ဆောင်ခြင်း (လုပ်ငန်းလည်ပတ်နေစဉ်)၊ သက်တမ်းကုန်ဆုံးချိန် အပန်းဖြေစခန်း ပယ်ဖျက်ခြင်း ဟူသော

အဓိက အဆင့် (၃) ဆင့်ဖြင့် လုပ်ဆောင်ရမည်။ ဝန်ဆောင်မှုများလုပ်ဆောင်ရန် အများဆုံး နှစ်(၇၀)ထိ ကြာမြင့်ပြီး ကနဦးတွင်နှစ်ငါးဆယ်နှင့်နောက်ထပ်နှစ်နှစ်ဆယ်လုပ်ကိုင်နိုင်သည်။ ထို့နောက် အပန်းဖြေစခန်းသည် သစ်တောဦးစီးဌာနထံလွှဲပြောင်းရမည် (သို့) ဖျက်သိမ်းရမည်။ အပန်းဖြေစခန်းစီမံကိန်းသည် ဆောက်လုပ်ရေးတွင် ခေတ်မှီစက်များ၊ ကိရိယာများ၊ သင်္ဘောများ၊ လှေများနှင့် ယာဉ်များ အသုံးပြုခဲ့ပြီး တည်ဆောက်ချိန်အတွင်း နိုင်ငံခြားရင်းနှီးမြုပ်နှံမှု နည်းဥပဒေ စည်းမျဉ်း ၅၄၊ ၅၈နှင့် ၅၉ အရလိုက်နာ ဆောင်ရွက်ခဲ့သည်။ လုပ်ငန်းများ လည်ပတ်နေသော ကာလအတွင်း အပန်းဖြေစခန်းသည် မြန်မာဟိုတယ်နှင့်ခရီးသွား ဥပဒေနှင့် အခြားသက်ဆိုင်သော ဥပဒေများ၊ ဆက်စပ်လျှက်ရှိသောဝန်ကြီးဌာနများ၏ ဥပဒေများ၊ စည်းမျဉ်းများ၊ နည်းဥပဒေများ၊ ကြယ်ငါးပွင့်အဆင့်ရှိဟိုတယ်နှင့် အပန်းဖြေစခန်း ဝန်ဆောင်မှုများ၏ နိုင်ငံတကာစံ သတ်မှတ်ချက်များနှင့် အညီပြုမှု လုပ်ဆောင်သွားမည်။ လုပ်ငန်းလည်ပတ်မှုအတွက် ဒေသခံ အလုပ်သမားပေါင်း (၁၀၆) ယောက် ခန့်အပ်ရန်စီစဉ်ထားပြီး ဒေသခံများ အလုပ်ကိုင်အခွင့်အလမ်း တိုးပွား လာမည်ဖြစ်သည်။ ထို့အပြင် အလုပ်သမားများသည် လုပ်ငန်းလည်ပတ်သည့် ကာလအတွင်း သူတို့၏ ကျွမ်းကျင်မှုဆိုင်ရာ အရည်အချင်းများ အရည်အချင်းမြှင့်/ တိုးတက်အောင်ပြုလုပ်နိုင်မည်ဖြစ်ပြီး နိုင်ငံ၏ဟိုတယ်နှင့်အပန်းဖြေစခန်း ကဏ္ဍအတွက်တန်ဖိုး ရှိသောလူ့စွမ်းအားအရင်းအမြစ်များ ဖြစ်လာနိုင်သည်။

အဆိုပါ ဟိုတယ်နှင့် အပန်းဖြေစခန်းစီမံကိန်း တည်ဆောက်ခြင်း၊ လည်ပတ်ခြင်းနှင့် ဖျက်သိမ်းခြင်း အဆင့်(၃) ဆင့်၏ ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း လုပ်ငန်းစဉ်လေ့လာမှုများတွင် သဘာဝပတ်ဝန်းကျင် (မြေ၊ ရေ၊ လေနှင့်လူ) အဓိကအားဖြင့် အင်းလေးကန် တောရိုင်းတိရစ္ဆာန်ထိန်းသိမ်းရေး စခန်း အပေါ်တွင် ဆိုးရွားသော သက်ရောက်မှုများမရှိသည်ကို လေ့လာခဲ့ရပါသည်။ ရေရှည်မကောင်းမွန် သောအခြေအနေ(သို့) လက်ရှိသဘာဝပတ်ဝန်းကျင်အရည်သွေးများကို ထိခိုက်ပျက်စီးမှုများနှင့် အကျိုးသက်ရောက်မှုအနည်းငယ်မရှိသည်ကို လေ့လာတွေ့ရှိခဲ့ပါသည်။ သို့သော်လည်းအနည်း ငယ်ထိခိုက်မှုများ ဖြစ်သည့် ဝန်းထမ်းများ၏ ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းမှု ဆိုင်ရာဆိုးကျိုး (မတော်တဆထိခိုက်မှု၊ အနံ့ဆိုးထွက်ရှိမှု၊ အသံဆူညံမှု)၊ သယံဇာတသုံးစွဲမှုနှင့် မီးဘေးအန္တရာယ်စသည့် ဆိုးကျိုးအနည်းငယ်ရှိ သည်ကို လေ့လာတွေ့ ရှိခဲ့ပါသည်။ သို့သော်လည်းနေရာများ ကန့်သတ်ပြီး အနည်းငယ်သော အကျိုးသက်ရောက်မှုမှ စပြီးအကျိုးသက်ရောက်မှုအားလုံးကို စောင့်ကြည့်စစ်ဆေးပြီး လျော့ချရမည်ဖြစ်သည်။ လူမှုစီးပွားရေးရှုထောင့်မှ ကြည့်မည်ဆိုပါက ထိုစီမံကိန်းကြောင့် မကျွမ်းကျင်သော အလုပ်သမားများ၏ အရည်အချင်းများ မြှင့်တင်ပေးပြီး ဒေသတွင်း အလုပ်အကိုင်အခွင့်အလမ်းများပြားလာသောခါ ဒေသခံများ၏လူမှုစီးပွားရေးကို ကောင်းမွန်စေသည်။ ပတ်ဝန်းကျင် အရည်သွေးဆိုင်ရာ စီမံခန့်ခွဲမှုအစီစဉ်၊ ဇီဝမျိုးစုံမျိုးကွဲများစီမံခန့်ခွဲမှုစီမံမှု (EMP, BMP) တို့ကို အထက်ဖော်ပြပါ သိသာထင်ရှားသည့် ဆိုးကျိုးနှင့်အကျိုးဆက်များ၏ သက်ရောက်မှုအပေါ် မူတည်ပြီးအခန်း (၁၁) တွင်ပြင်ဆင်ထားသည်။ Aureum Palace ဟိုတယ်နှင့်သဘာဝအပန်းဖြေအနား ယူစခန်းစီမံကိန်း၏ တည်ဆောက်ရေးကာလ၊ လုပ်ငန်းလည်ပတ်မှုကာလ၊ လုပ်ငန်းဖျက်သိမ်းသည့်ကာလ အဆင့်(၃)ဆင့်လုံးတွင်

အင်းလေးကန် တောရိုင်းတိရစ္ဆာန် ထိန်းသိမ်းရေးစခန်း၊ ဇီဝမျိုးစုံမျိုးကွဲများကာကွယ်ခြင်း၊ ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်း လုံခြုံရေးပုံစံများပါဝင်သောမူဘောင်ဖြစ်သည့် သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအဖြစ်ရေးဆွဲထားသည်။ သဘာဝပတ်ဝန်းကျင်နှင့် ဇီဝမျိုးစုံမျိုးကွဲ စီမံခန့်ခွဲမှုလက်တွေ့လုပ်ဆောင်မှုများ၊ သဘာဝ ဘေးအန္တရာယ်စီမံခန့်ခွဲမှု၊ လုပ်ထုံးလုပ်နည်း များနှင့် တာဝန်များကိုပြည်ထောင်စုသမ္မတမြန်မာ နိုင်ငံတော်၏ သဘာဝပတ်ဝန်းကျင် ဆိုင်မူဝါဒများ၊ ဥပဒေများ၊ စည်းမျဉ်းများနှင့် လမ်းညွှန်ချက်များ အရအပြည့် အဝလိုက်နာရန် အဓိပ္ပာယ်ဖွင့်ဆိုထားသည်။ ထိုစီမံခန့်ခွဲမှုအစီစဉ်များမှာအောက်ပါအတိုင်းဖြစ်ပါသည်

- သဘာဝပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုစီမံချက်(EMP)
- ဇီဝမျိုးစုံမျိုးကွဲစီမံခန့်ခွဲမှုစီမံချက်(BMP)
- သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲမှုစီမံချက်(NDRMP)
- အဖွဲ့တွင်းလူမှုရေးဆိုင်ရာတာဝန်ယူမှု (CSR)
- သဘာဝပတ်ဝန်းကျင်စောင့်ကြည့်စစ်ဆေးခြင်းစီမံချက်

ပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုအစီစဉ် EMP ဆိုသည်မှာ အဆိုပါ ဟိုတယ်နှင့်အပန်းဖြေစခန်း စီမံကိန်းကြောင့် ပတ်ဝန်းကျင်ပေါ်တွင် ကျရောက်နိုင်သောအကျိုးဆက်များ ကာကွယ်ရန် အတွက် လုပ်ဆောင်မှုများ၊ ရည်ရွယ်ချက်များ၊ လျော့ချမှုများနှင့် ကောင်းမွန်အောင် ပြုလုပ်သော နည်းလမ်းများ၊ ခန့်မှန်းကုန်ကျစရိတ်နှင့် တာဝန်ရှိသူများကိုဖော်ပြပေးသည်။ BMP သည် အင်းလေးကန် တောရိုင်းတိရစ္ဆာန်ထိန်းသိမ်းရေး စခန်းရှိ ဇီဝမျိုးစုံမျိုးကွဲများ တိုးပွားစေပြီး သဘာဝပေါက်ပင်များ၊ တိရစ္ဆာန်များကို ရေရှည်တွင် ကောင်းမွန်သော အရေအတွက် ရရှိစေရန် (မျိုးတုန်းပျောက်ကွယ်မှုလျော့နည်းစေရန်) ထိန်းသိမ်းထားရန် ရည်ရွယ်သည်။ NDRMP သည် စီမံကိန်းဧရိယာအတွင်း ဖြစ်နိုင်သော သဘာဝဘေး အန္တရာယ်ခြိမ်းခြောက်မှုများ၊ ဖြစ်နိုင်ချေရှိသောသဘာဝဘေးအန္တရာယ်များကို အချိန်မှီ သတင်းပေးခြင်း၊ ကြိုတင်ပြင်ဆင်မှုများ လုပ်ဆောင်ခြင်း၊ ကျရောက်ခဲ့က စနစ်တကျဘေးကင်း ရာ သို့ရွှေ့ပြောင်းခြင်းတို့ကိုဖော်ပြထားသည်။ CSRသည်အပန်းဖြေစခန်းရှိဧည့်သည်များ၊ အလုပ်သမားများနှင့် သူတို့၏မိသားစုများကြားပိုမိုကောင်းမွန်ပြီး ပွင့်လင်းသော အဖွဲ့အစည်း ဖြစ်စေပြီး အချင်းချင်း ပိုမိုရင်းနှီးသော ဆက်နွယ်မှုမျိုးဖြင့်လုံခြုံစိတ်ချမှုရှိစေရန် ရည်ရွယ်သည်။ လူထုညှိနှိုင်းအစည်အဝေးတွင် စီမံကိန်းကောင်စည်ဖော်ဆောင်ရွက်သူများနှင့် ဒေသခံများ၏ အမြင်များ၊ သုံးသပ်ချက်များ၊ ဆန္ဒများနှင့် လိုအပ်ချက်များကိုမှတ်သားပြီး EMP, BMP, NDRMP နှင့် CSR တို့ရေးသားရာတွင်ထည့်သွင်းရမည်။ အနှစ်ချုပ်ဆိုသော် IEE သည် စီမံကိန်းကြောင့်ဖြစ်နိုင်ချေရှိသည်သဘာဝပတ်ဝန်းကျင်အကျိုးဆက်များကိုသိပ္ပံနည်းကျရှာဖွေ ပြီးနောက် စည်းကမ်းတကျ ကာကွယ်ခြင်း နှင့် လျော့ချခြင်းနည်းလမ်းများအား အကြံပေးကာ လိုက်နာခြင်းရှိမရှိ ပုံမှန်စောင့်ကြည့်စစ်ဆေးခြင်း ဖြစ်သည်။

2. Introduction

Regarding the location (Inlay Lake Wildlife Sanctuary) of the resort project, the project proponent, Myanmar Treasure Hotel & Resort Group Co., Ltd. fully understand and committed that it needs to set up and conduct a strict environmental protection and conservation measures in all phases of the project.

Thus, the project proponent commissioned E Guard Environmental Services to conduct IEE in a comprehensive and systematic manner. Then the IEE report has been submitted as a proof of its environmental commitment and also to receive the Environmental Compliance Certificate (ECC) from the Environmental Conservation Department (ECD) of the Ministry of Environmental Conservation and Forestry (MOECAF).

This report identifies all possible environmental impacts on the surrounding water, air, land and biodiversity due to the operation and demolishing phases of the resort project. Then it reveals the findings along with the effective measures to mitigate the adverse impacts, if any. It also presents Environmental Management Plan (EMP), Biodiversity Management Plan (BMP), Environmental Monitoring Plan (EMOP) and Corporate Social Responsibility (CSR) plan for Aureum Palace Resort & Spa to be constructed near Maing Thauk village, Nyaung Shwe Township, southern Shan State, in the Republic of the Union of Myanmar by the Myanmar Treasure Hotel & Resort Group Co., Ltd. It also expresses day-to-day safety, health care and social welfare management plans to be accomplished by the proposed resort throughout its lifespan.

3. Scope of the Study and Study Organization

The study covers detailed examination of the each component of the proposed resort project plan, operation of hotel/resort services and its requirements, water supply, liquid waste management, solid waste management, landscaping, health, safety and corporate social responsibility measures and analyzing each component from the environment, safety and health care point of view.

As the proposed project site is situated inside the boundary of Inlay Lake Wildlife Sanctuary, special attention is paid for careful examination of the adverse environmental impacts on the Inlay Lake Wildlife Sanctuary. It also presents and recommends bests possible solutions to

keep zero or least impacts on the Inlay Lake Wildlife Sanctuary due to the proposed resort project.

The study has carried out with full consideration the potential impacts of the activities in all phases of the project: operation phase and decommissioning phase. Activities of the proposed project generally include servicing of five-star class hotel/resort business in the operation phase and dismantling of the resort and accessory buildings at the demolishing phase.

Based on the potential environmental, safety and health impacts figured out, the report attached Environmental Management Plan (EMP), Biodiversity Management Plan (BMP) and Environmental Monitoring Plan (EMOP) revealing comprehensive measures to mitigate or eliminate the adverse impacts.

E Guard Environmental Services Co., Ltd. has conducted the study and is fully responsible for this professional study. An E Guard specialist team including environmental, health, safety and social experts conducted preliminary scoping, field survey, assessment and analyzing of project activities, and finally compilation of this report.

The specialist team has conducted a field observation at the proposed project site using checklists and questionnaire forms. Qualitative data collection was also carried by interviews and discussions with responsible persons of Aureum Palace Resort & Spa, Myanmar Treasure Hotel & Resort Group Co., Ltd. and authorities of the Inlay Lake Wildlife Sanctuary. Secondary data collection was also made to get bio-physical, environmental, climatic and socio-economic information concerning with the proposed resort site and its surroundings. Up to date measuring devices were used to collect baseline environmental data (air, water and noise). The significance of potential impacts is then evaluated. For those impacts which require mitigation, suitable measures were identified to be able to eliminate or keep the impacts under acceptable limits.

Due to the fact that the proposed resort site is situated inside the boundary of Inlay Lake Wildlife Sanctuary and surrounded by hotels, resorts and settlement areas, E Guard Environmental Services did carried out public consultation process in order to provide opportunities to local public and concerned stakeholders to express their concerns, opinions, suggestions and requirements during IEE, EMP, BMP and CSR formulation of the project.

The public consultation includes PowerPoint presentation and verbal disclosure of the proposed project steps and activities, possible environmental impacts and prevention and mitigation measures in details. The viewpoints of the stakeholders are taken into account and their concerns and suggestions for possible improvements of the project have been integrated

in EMP, BMP and CSR. Local communities living nearest to the proposed resort site, concerned stakeholders of the Inlay Lake Wildlife Sanctuary and surrounding area of Nyaung Shwe township (including personnel from local authorities, concerned government departments and administrative body of nearby hotels and resorts) and project management staffs of Aureum Palace Resort & Spa and Myanmar Treasure Hotel & Resort Group Co., Ltd. have involved in the consultation process.

4. Existing Environmental Laws, Rules and Regulations to Comply

Prescribed national laws, rules and regulations of the Republic of the Union of Myanmar to be abided by project proponent/investor regarding to the prevention/mitigation of the environmental impacts are compiled and presented in Table 1. The Environmental Conservation Law (2012) is the main governing law and the Ministry of Environmental Conservation and Forestry (MOECAF) is the prime governing body for law enforcement. Other relevant policy/law include the constitution (2008), national environmental policy (1994), Environmental Conservation Rules (2014) to be abided in the process of environmental impact assessment and initial environmental examination. As a hotel/resort construction and operation project, the project proponent (Myanmar Treasure Hotel & Resort Group Co., Ltd.) shall also comply with Myanmar Hotel and Tourism Law (1993), The Social Security Law (2012) and Myanmar Citizens Investment Law (2013). On top of that, the investor shall fully aware and abide the Protection of Wildlife and Conservation of Natural Areas Law (1994) as its planned resort area is situated inside the boundary of internationally known Inlay Lake Wildlife Sanctuary. In addition, the project proponent shall follow the “Environment, Health and Safety Guidelines for Tourism and Hospitality Development by International Finance Corporation, World Bank Group, 2007” as mentioned in detailed in chapter 11.4.

Table1. Table1.Existing Environmental Policy, Laws, Rules and Regulations to be complied

Laws and Regulations	Description
Constitution 2008	
Section 45	The Union shall protect and conserve natural environment
Section 390 (b)	Every citizen has the duty to assist the Union carrying out the environmental conservation

Laws and Regulations	Description
National Environmental Policy (1994)	
To achieve harmony and balance between socio-economic, natural resources and environment through the integration of environmental considerations into the development process enhancing the quality of the life of all its citizens	
Environmental Conservation Law, 2012	
Objectives Section 3	<p>(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;</p> <p>(d) to reclaim ecosystems as may be possible which are starting to degenerate and disappear;</p> <p>(e) to enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially;</p>
Provisions of Duties and Powers relating to the Environmental Conservation of the Ministry: Section 7	<p>(a) To specify categories and classes of hazardous wastes generated from the production and use of chemicals or other hazardous substances in carrying out industry, agriculture, mineral production, sanitation and other activities;</p> <p>(b) To prescribe categories of hazardous substances that may affect significantly at present or in the long run on the environment;</p> <p>(c) To promote and carry out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances;</p> <p>(j) To prescribe the terms and conditions relating to effluent treatment in industrial estates and other necessary places and buildings and emissions of machines, vehicles and mechanisms;</p> <p>(m) To lay down and carry out a system of EIA and SIA as to whether or not a project or activity to be undertaken by any</p>

Laws and Regulations	Description
	<p>Government department, organization or person may cause a significant impact on the environment;</p> <p>(o) To manage to cause the polluter to compensate for environmental impact, cause to contribute fund by the organizations which obtain benefit from the natural environmental service system, cause to contribute a part of the benefit from the businesses which explore, trade and use the natural resources in environmental conservation works.</p>
<p>Environmental quality standards Section10.</p>	<p>The Ministry may, with the approval of the Union Government and the Committee, stipulate the following environmental quality standards:</p> <p>(a)suitable surface water quality standards in the usage in rivers, streams, canals, springs, marshes, swamps, lakes, reservoirs and other inland water sources of the public;</p> <p>(b) water quality standards for coastal and estuarine areas;</p> <p>(c) underground water quality standards;</p> <p>(d) atmospheric quality standards;</p> <p>(e) noise and vibration standards;</p> <p>(f) emissions standards;</p> <p>(g) effluent standards;</p> <p>(h) solid wastes standards;</p> <p>(i) other environmental quality standards stipulated by the Union Government.</p>
<p>Monitoring Section13.</p>	<p>The Ministry shall, under the guidance of the Committee, maintain a comprehensive monitoring system and implement by itself or in co-ordination with relevant Government departments and organizations in the following matters:</p> <p>(a) the use of agro-chemicals which cause to impact on the environment significantly;</p> <p>(b) transport, storage, use, treatment and disposal of pollutants and hazardous substances in industries;</p>

Laws and Regulations	Description
	<p>(c) disposal of wastes which come out from exploration, production and treatment of minerals, industrial mineral raw materials and gems;</p> <p>(d) carrying out waste disposal and sanitation works;</p> <p>(e) carrying out development and constructions;</p> <p>(f) carrying out other necessary matters relating to environmental pollution.</p>
Environmental Conservation Law, 2012: Responsibilities of project proponent/business owner for reducing environmental impact	
Section 14.	A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards
Section 15	The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods
Section 16	<p>A person or organization operating business in the industrial estate or business in the SEZ or category of business stipulated by the Ministry:</p> <p>(a) is responsible to carry out by contributing the stipulated cash or kind in the relevant combined scheme for the environmental conservation including the management and treatment of waste;</p> <p>(b) shall contribute the stipulated users' charges or management fees for the environmental conservation according to the relevant industrial estate, SEZ and business organization;</p> <p>(c) shall comply with the directives issued for environmental</p>

Laws and Regulations	Description
	conservation according to the relevant industrial estate, SEZ or business
Protection of Wildlife and Conservation of Natural Areas Law (1994)	
Chapter XI : Offences and Penalties Section 35	Whoever commits any of the following acts shall, on conviction be punished with imprisonment for a term which may extend to 3 years or with fine which may extend to Kyat 10,000 or with both: (a) hunting without a license; (b) violation of any condition of the hunting license; (c) raising without permission, for commercial purpose normally protected wild animals and seasonally protected wild animals; (d) causing water and air pollution, causing damage to a water-course or putting poison in the water in a natural area; (e) possessing or disposing of pollutants or mineral pollutants in a natural area; (f) establishing and operating a zoological garden or a botanical garden without a license.
Section 36	Whoever commits any of the following acts shall, on conviction be punished with imprisonment for a term which may extend to 5 years or with fine which may extend to Kyat 30,000 or with both:- (a) killing, hunting or wounding a normally protected wild animal or seasonally protected wild animal without permission, possessing, selling, transporting or transferring such wild animal or any part thereof without permission; (b) extracting, collecting or destroying in any manner any kind of protected wild plants within the prescribed area without permission; (c) destroying ecosystem or any natural state in the natural

Laws and Regulations	Description
	<p>area;</p> <p>(d) altering, removing, destroying or obliterating without permission. any boundary mark of a natural area or any boundary mark of a zoological garden or botanical garden administered by the Government or in which the Government has subscribed share capital.</p>
Section 37	<p>Whoever commits any of the following acts shall, on conviction be punished with imprisonment for a term which may extend to 7 years or with fine which may extend to Kyat 50,000 or with both:-</p> <p>(a) killing, hunting or wounding a completely protected wild animal without permission, possessing, selling, transporting or transferring such wild animal or any part thereof without permission;</p> <p>(b) exporting without the recommendation of the Director General a completely protected wild animal or a protected wild plant or any part thereof.</p>
Section 38	<p>The provisions of section 36 sub-section (a) or section 37 sub-section (a) shall not apply to:-</p> <p>(a) the possessing as a souvenir or wearing as a traditional custom of any part of normally protected wild animal or a seasonally protected wild animal;</p> <p>(b) the possessing or wearing with a certificate of registration issued under section 27 subsection (b) of any pad of a completely protected wild animal;</p> <p>(c) the possessing, use, sale, transport or transfer of a drug prepared from a part of a protected wild animal.</p>
Environmental Conservation Rules (2014)	
Rule 58	The Ministry shall form the EIA Report Review Body with the experts from the relevant Government departments,

Laws and Regulations	Description
	organizations
Rule 60	The Ministry may assign duty to the Department to scrutinize the EIA report prepared and submitted by third party or organization, and review report through the EIA Report Review Body.
Rule 61	The Ministry may approve and reply on the EIA report or IEE or EMP with the guidance of the Committee
Myanmar Hotel and Tourism Law (1993)	
Section 3 (b)	To enable tourists to observe Myanmar cultural heritage and natural scenic beauty
Section 3 (c)	To prevent destruction and damage of Myanmar cultural heritage and natural scenic beauty, due to the hotel and tourism industry
Section 3 (e)	To develop technical knowledge relating to hotel and tourism industry and to open up more employment opportunities
The Social Security Law (2012)	
Section 53 (a)	The employers and workers shall co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment;
Myanmar Citizens Investment Law (2013)	
Section 5	Any type of economic activities may be applied for investment, except otherwise restricted or prohibited businesses under this law, or any existing Law.
Section 6	The following investments shall be stipulated as the restricted or prohibited business: (a) Business which can affect the traditional culture and customs of the national races within the Union;

Laws and Regulations	Description
	<p>(b) Business which can affect public's environment, causing noise in the residing area;</p> <p>(c) Business which can affect public health;</p> <p>(d) Business which can cause damage to the natural environment and ecosystem;</p> <p>(e) Business which can affect the land and marine animals, trees, flowers, crops, antique heritage, resources;</p> <p>(f) Business which can bring the hazardous or poisonous waste into the Union;</p> <p>(g) The factory which produce or the business which use hazardous chemicals under international agreements.</p>

As per Comment and Review on Proposed Project from ECD Department, the following revision of Existing Environmental Laws, Rules and Regulations to comply for proposed project and responsible person is mentioned.

Required Laws, Rules and Regulation

(i) Forest Law (1992)

Section 17	Forest produce may only be extracted after obtaining a permit. However, if it is for domestic or agricultural or piscatorial use not on a commercial scale, forest produce may be extracted in an amount not exceeding the stipulated quantity, without obtaining a permit.
Section 21	<p>A person who has obtained permission for extraction of forest produce shall:</p> <p>(a) Abide by the conditions contained in the permit:</p> <p>(b) Abide by the orders, directives, prohibitions and restrictions issued by the Forest Department in accordance with this law:</p> <p>(c) Pay the royalties, security deposits and advances due:</p> <p>(d) Affix the mark after measuring in the manner prescribed or affix the property-mark which has been registered.</p>
Section 30	A private entrepreneur who is desirous of establishing a sawpit, sawmill, tongue-and groove mill, plywood mill, veneer mill or a wood- based industry with the exception of wood- based cottage industries and furniture industries has the right to establish the same only after obtaining a permit from the Forest Officer empowered for this purpose.

(ii) Protection of Wildlife and Protected Areas Law (1994)

(Already included in the Report)

(iii) 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 2nd 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 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.

(iv) The protection and preservation of cultural heritage regions law (1998)

Section 18	No person shall, without prior permission granted under this law, construct, extend, renovate a building or extend the boundary of its enclosure in the ancient monumental zone or ancient site zone.
Section 19	No person shall, without prior permission granted under this Law carry out any of the following with respect to a building within the protected and preserved zone:- <ul style="list-style-type: none">(a) Constructing or extending;(b) Renovating or extending the boundary of its enclosure.
Section 20	No person shall carry out any of the following in the cultural heritage region:- <ul style="list-style-type: none">(a) Destroying an ancient monument;(b) Willfully altering the original ancient form and structure or original ancient workmanship of an ancient monument;(c) Excavating to search for antiquities;(d) Exploring for petroleum, natural gas, precious stones or minerals.
Section 21	No person shall, without prior permission granted under this Law, carry out any of the following in the cultural heritage region:- <ul style="list-style-type: none">(a) Carrying out renovation and maintenance work on an ancient monument;(b) Carrying out archaeological excavation;(c) Building road, construction bridge, irrigation canal, embankment or extending the same;

	(d) Digging well, pond, fish-breeding pond or extending the same.
Section 22	No person shall construct a building which is not in conformity with the conditions prescribed region wise by the Ministry of Culture in the cultural heritage region.
Section 23	No person shall plough and cultivate or carry out any activity which may cause damage to the cultural heritage within the boundary notified by the Department in the cultural heritage region.

(v) National Food Law (1997)

Food and Drug Administration (FDA) enacted this law in 1997 to enable public to consume food of genuine quality, free from danger, to prevent public from consuming food that may cause danger or are injurious to health, to supervise production of controlled food systematically and to control and regulate the production, import, export, storage, distribution and sale of food systematically. Food Safety Responsibilities in this law are as follows: Recommendation on imported and exported food

- Post market surveillance (risk assessment)
- HACCP along with general practice for food inspectors and manufactures
- Food safety training for restaurants, street, vendors, etc.
- Laboratory training on basic food analysis

(vi) Labour Dispute Law (2012)

Section 38	No employer shall fail to negotiate and coordinate in respect of the complaint within the prescribed period without sufficient cause.
Section 39	No employer shall alter the conditions of service relating to workers concerned in such dispute at the consecutive period before commencing the dispute within the period under investigation of the dispute before the Arbitration Body or Tribunal, to affect the interest of such workers immediately.
Section 40	No party shall proceed to lock-out or strike without accepting negotiation, conciliation and arbitration by Arbitration Body in accord with this law in respect of a dispute.
Section 41	No person shall carry out lock-out or strike to amend such decision or agreement within the effective period of the decision of the Arbitration Body or the Arbitration Council or any collective agreement.
Section 42	No person shall prohibit the right to work independently of the workers who are not desirous to participate in the strike nor impede the right of a worker to strike.
Section 43	No person shall fail to abide by or carry out any condition contained in agreement concluded before the Conciliation Body in respect of individual

	dispute or collective dispute.
Section 44	No person, after having informed in advance by the Arbitration Body or Tribunal for settling the dispute, shall fail to arrange to enable to examine the trade under dispute or to produce the documents which is considered by the Arbitration Body or Tribunal that it concerns with the dispute or to appear as a witness when he is so summoned.
Section 45	No person, if he is sent notice for examination before the Arbitration Body or Tribunal, shall fail without sufficient cause to appear in person or to send legal representative within the stipulated period.

(vii) Prevention of Hazard from Chemical and Related Substances Law (2013)

The Pyidaungsu Hluttaw enacted this law by Law No.28 of 2013 on the date of 26th August, 2013. This law was enacted with the objectives of:

- (a) To protect from being damaged the natural environmental resources and being hazardous any living beings by chemical and related substances;
- (b) To supervise systematically in performing the chemical and related substances business with permission for being safety;
- (c) To perform the system of obtaining information and to perform widely educative and research for using the chemical and related substance systematically;
- (d) To perform the sustainable development for the occupational safety, health and environmental conservation.

Regarding the chemical management and storage, currently, regulations governing chemicals management are divided between various Acts, mostly dating from colonial times; hence the legislation is in many respects related to the British framework. The Factory Act and the Public Health Act contain the provisions for chemicals management and storage. Some chemicals are likely to require permits.

(viii) Development Committees Law (1993)

Section 18. The Committee may direct the owner of any building or land or the occupant thereof to comply with the following matters in respect of any building located within the town area in accordance with the relevant Laws, rules and bye-laws:-

- a) suspending or altering or demolishing the construction or renovation of any building which has been carried out without prior permission or without compliance with the specifications contained in the permission;
- b) removing any building or part of any building which encroaches upon any public road, drain, water supply pipe, sewage, etc;
- c) removing any building or part of any building which obstructs the construction or repair of public roads and bridges;
- d) repairing, demolishing or removing any dangerous building or building unfit for human habitation or any part thereof;

- e) white-washing or painting buildings and fences;
- f) erecting fences around unfenced land or repairing of unrepaired fences;
- g) clearing and removing any noxious or untidy trees, bushes and undergrowth and also filling up ravines, pitches.

Section 20. The Committee may direct the owner of the building or land or the occupant thereof comply with the following matters in respect of surface well, lake, drainage and sewage in accordance with the relevant laws, rules and bye-laws:-

- a) erecting enclosure or repairing any dangerous surface well, lake or pool of water;
- b) cleaning, repairing, filling tip or covering up any unhygienic surface well, lake, water storage tank or receptacle used for storing water;
- c) constructing or repairing drains, drainage pipe or drains for proper flow of water discharged from factories, workshops buildings and so as not to damage any street or public property;
- d) repairing and improving the lay-out of the earth-work so as to drain off water properly from factories, workshops and buildings;
- e) maintaining flushing-type toilet with, flush tank water-closet, sewage pipe and septic tank in factories, workshops, buildings and compounds;
- f) closing or demolishing or altering and repairing the toilet with flush tank, water-closet, sewage pipe and septic tanks which have been installed either without prior permission or without compliance with the specifications contained in the permission;
- g) constructing of sewage pipe or water pipe passing through adjacent land owned by some other person;
- h) compensating for damages if any, incurred to the owner in constructing sewage or water pipe passing through another person's land.

Section 21. The Committee may direct the owner of the building or land or the occupier thereof within the town area to comply with the following matters in accordance with the provisions contained in the relevant laws, rules and bye-laws:-

- a) keeping and maintaining suitable garbage bins for the collection of rubbish and offensive matters prior to their disposal;
- b) prohibiting the use of public or private water supply system found to be unhygienic;
- c) maintaining the rest house room or room rented in whole to be in a clean and sanitary condition;
- d) keeping and maintaining the buildings used for public entertainment in clean and sanitary condition as well as to ensure safety from fire hazards;
- e) prohibiting the use of or altering or maintaining the work premises dealing in dangerous enterprises if it becomes dangerous or nuisance to the neighborhood.

(ix) Underground Water Act (1930)

The underground water act enacted on the date of 21st June in 1930 whereas it is expedient to conserve and protect underground sources of water supply in the Union of

Burma. This act prohibits sinking of a tube for 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.

(x) Environmental Conservation Rules (2014)

(Already Described in IEE Report)

(xi) Environmental Impact Assessment Procedure (2015)

IEE and EIA Categorization

Type of Economic Activity	Criteria for IEE Type Economic Activities	Criteria for EIA Type Economic Activities
Tourism and Hospitality Development	≥ 80 rooms and <200 rooms Or total utilization area ≥ 200,000 m ² but < 500,000 m ²	≥ 200 rooms Or total utilization area is ≥ 500,000 m ²

The proposed hotel will occupy 122,093.66 m² (30.17 ac) and it will be included 65 rooms. Thus the proposed project is required to study (Initial Environmental Examination) IEE.

(xii) National Environmental Quality (Emission) Guideline (2015)

Tourism and Hospitality Development

This guideline applies to tourism and hospitality facilities, including hotels, resorts and other accommodation and catering facilities. Wastewater discharges should be managed through conventional treatment to achieve the indicated guideline values for discharge of sanitary water.

Effluent Levels	Parameter Unit Guideline	Value
5-day Biochemical Oxygen Demand	mg/l	50
Chemical Oxygen Demand	mg/l	250
Oil and Grease	mg/l	10
pH	Standard Unit	6-9
Total Coliform Bacteria	100 ml	400
Total Nitrogen	mg/l	10
Total Phosphorus	mg/l	2
Total Suspended Solids	mg/l	50

5. Description of the Project

5.1 Type of Project

Aureum Palace Resort & Spa project is a form of (100%) investment by and Myanmar Treasure Hotel & Resort Group Co., Ltd., a Yangon based Private Limited Company owned by Myanmar citizens. With a total authorized capital investment plan of Kyat 7,260 million, Myanmar Treasure Hotel & Resort Group Co., Ltd. planned to construct and operate a lake side resort on 30.17 acre leased land of, named Aureum Palace Resort & Spa near Maing Thauk village, Nyaung Shwe township, southern Shan State, in the Republic of the Union of Myanmar.

The project aims to construct a resort inside the boundary of Inlay Lake Wildlife Sanctuary and operate international standard five-star hotel/resort services for a maximum period of 70 years, initial 50 years and can be extendable for another 20 years (10-year two times). The proponent has already signed land leased contract with the Forest Department (FD), the guardian of Inlay Lake Wildlife Sanctuary, for the initial period of 50-year (from 2014 to 2064) and submit the investment proposal to the Myanmar Investment Commission (MIC) permit in August 2014 in accordance with the existing laws and rules. However, as described in chapter 1, the resort construction started in 2007, during the previous government's time. Aureum Palace Resort & Spa started open in September 2011, earlier than formation of MIC as independent board in 2012, the emergence of Environmental Conservation Law, 2012 and the Environmental Conservation Rules (2014).

5.2 Requirement of IEE

Myanmar Investment Commission (MIC) reviewed the proposal and asked for comments from concerned authorities including the Shan State Government, the Ministry of Environmental Conservation and Forestry (MOECAF), the Ministry of Hotels and Tourism and the Myanmar Engineer Association. MIC also requested MOECAF to make recommendations, on if there any environmental impacts due to the proposed project and if is allowable or not from the environmental conservation point of view.

In addition, page 9, paragraph 21 of the land leased contract between the Forest Department (FD) and the Myanmar Treasure Hotel & Resort Group Co., Ltd., expressed that the land user shall:

- well protect and conserve the leased land

- carry out necessary control measures to avoid damages/pollutions on air, water, land and other negative environmental consequences and
- keep necessary environmental protection and impact mitigation plans in accordance with the existing Laws.

On top of that, chapter VII, section 15 of the Environmental Conservation Law (2012) provides that “The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods”.

With full abidance to the above mentioned conditions and legal requirements, this Initial Environmental Examination (IEE) report has been prepared and submitted by the investor as preliminary environment impact assessment on the proposed resort project, in order to review and made comments and suggestions by the Environmental Conservation Department (ECD) of the Ministry of Environmental Conservation and Forestry (MOECAF).

5.3 Location of the Resort

The Aureum Palace Resort & Spa is located about one mile south of Maing Thauk village, Nyaung Shwe township, Taunggyi district, southern Shan State, in the Republic of the Union of Myanmar, at the coordinates of 20° 33' 56.31" N and 96° 56' 40.47" E. The resort site is situated on the western side of Nyaung Shwe – Nampan motor road, about (7) miles south of Nyaung Shwe. The proposed resort area (30.17 acre) is entirely situated inside the boundary of Inlay Lake Wildlife Sanctuary. The resort area is bordered by the Amazing Inlay Resort in the north, Akari hotel 2 in the south, the Inlay Lake in the west and Nyaung Shwe – Nampan motor road in the east.

The area is generally a narrow valley between hills in the east and the Inlay Lake in the west. It is a sparsely populated and landscape is generally dotted by hills, hotels, resorts, paddy fields, Inlay Lake with floating islands and small scattered villages. Sixteen feet wide Nyaung Shwe – Nampan motor road is the main access road in the area and there are small truck lanes connecting nearby villages and main road.

There is no major river or stream passing through the area but there are many small tributaries originated at nearby hills and entering into the Inlay Lake. The Inlay Lake covering average water body area of about 34 square miles (88 km²) with significant geographical conditions is the second largest freshwater lake of Myanmar. The Inlay Lake

Wildlife Sanctuary was established in 1985 and it was designated as an ASEAN Heritage Park in 2003. It is home to not only significant flora and fauna, but also different ethnic groups namely Intha, Shan, Pa Oo and Da Nu. The Lake is well-known for ecotourism and one of the most tourist attraction sites of Myanmar. There are about 40 hotels and resorts in and around the Inlay Lake. Man-made water ways are constructed to get boat access from the Inlay Lake to lake-side hotels/resorts passing through seasonally inundated grass/marsh land. The nearest settlement areas of the proposed resort site include Maing Thauk village about one mile north and Pay-pin-inn village about 2 furlongs (400 meter) west.



Figure Google Map of the Aureum Palace Hotel and Spa

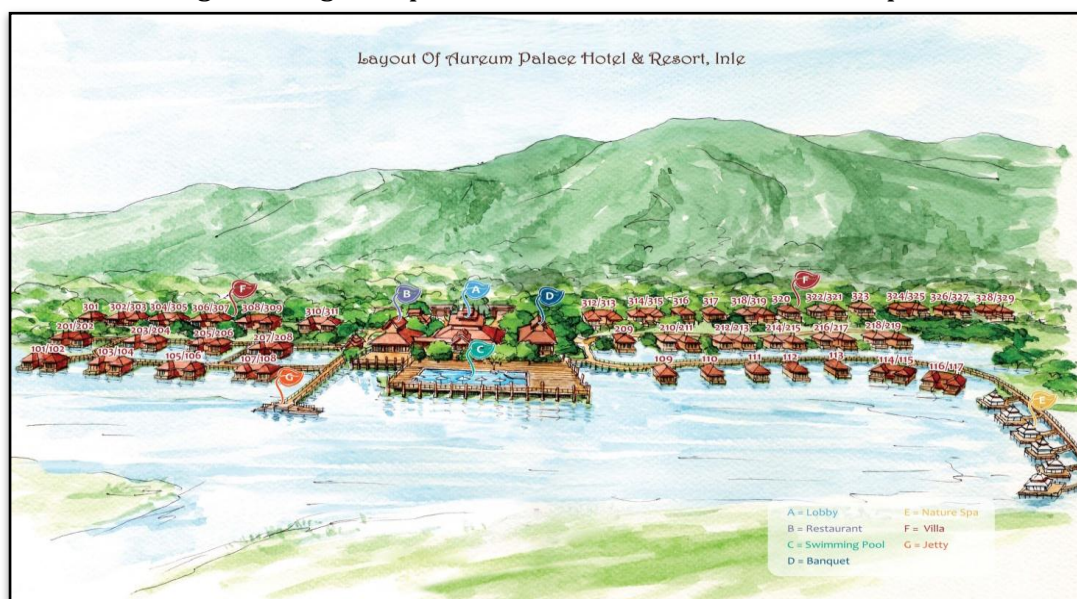


Figure 2: Layout Map of the Aureum Palace Hotel

5.4 Present Status of the Resort

Construction of Aureum Palace Resort & Spa started in 2007 and the resort was opened in September 2011. At the time of field observation for IEE in November 2014, the resort has been running in its full strength. Resort has a total of 65 villa rooms available throughout the year and average occupancy rate is about 50%.

The developer has bought about 10 acres of land on the eastern side of Nyaung Shwe – Nampan motor road, just outside of the boundary of Inlay Lake Wildlife Sanctuary and upstream to the proposed resort site. Construction of tube well and water treatment plant, staff dormitory, laundry, store, transformer and generator house are constructed in this outside purchased land to avoid unnecessary crowding, dirt and wastes inside the resort area. Developer has also made conservation of existing trees and planting of new trees in this purchased land as a natural barrier to prevent soil erosion and sedimentation into the Inlay lake.

In brief, construction works of Aureum Palace Resort & Spa has completed and the operation of the resort services is in full strength well before the time of IEE examination. However, as a refit action and as full compliance of the newly emerged Environmental Conservation Law, rules and regulations for investments and hotel and tourism business, Myanmar Treasure Hotel & Resort Group Co., Ltd., has submitted the investment proposal to Myanmar Investment Commission MIC in August 2014, after signing land leased contract with the Forest Department (FD).

5.5 Project Components

Construction Plan

The investor has constructed an international standard five-star resort, including one main building (lobby, restaurant, boutique shop, banquet and swimming pool) and 65 bungalows. Resort was designed by U Thaw, a well-known hotel/resort architect of the Myanmar Treasure Hotel & Resort Group Co., Ltd., and constructed by well experienced Htoo Trading Company. It was carefully designed not to have any disturbances on natural scene and beauty of the surrounding areas and to be environment friendly and in harmony with local customs and cultures.

As the natural landscape of the resort site is slightly sloping down from the motor road to the lake, its lay out plan includes a main entrance building with attached to dining hall, banquet, swimming pool and boutique shop and one line of bungalows on higher ground just beside

the road. Remaining 2 lines of lake view bungalows are constructed on the lower slope, partially in the lake water and connected by wooden platform (walkway). The resort has constructed a water way connection between the resort and the Inlay lake main water body, passing through traditional floating agriculture areas, in order to get all seasons boat access from resort's jetty deck into the lake.

All the buildings except the main entrance building are constructed as 1-storey reinforced-concrete basis structure with pleasurable Myanmar traditional style wooden furnished and decorations on the upper portions and roofs. Resort can provide a total of 65 units of villa type exclusive super-deluxe guest rooms, each having a private balcony, separate living area, elegant 100 square meter bedrooms, generous space for bathroom and lavishly equipped with five-star amenities. Recreation and sanitation facilities such as restaurant, banquet, bar & club, spa & beauty parlor, swimming pool, jetty deck, wastewater treatment system and waste management and sanitation system are appropriately attached to the resort. Aureum Palace Resort & Spa construction plan and layout plan is attached as Annex I.

Resort design also includes conservation of all existing trees of the area and to conduct pleasant landscaping for recreation on all remaining areas of the resort site. The biological engineering techniques are applied, using grass, bamboos, step by step hedgerows vegetation and evergreen tree species to keep the resort area clean, fresh and green, and also to prevent sedimentations and leakages into the Inlay Lake.

To avoid unnecessary crowding, dirt and wastes inside the resort area, the developer has constructed tube wells and water treatment plant, staff dormitory, laundry, store, transformer and generator houses and garbage collection tanks on its purchased land, outside of the proposed hotel site and the boundary of Inlay Lake Wildlife Sanctuary, a high ground on the eastern side of Nyaung Shwe – Nam Pan motor road.

The resort building are equipped with up-to-date electrical & communication system, MA TV system, fire protection system, lightning protection system, air conditioning & ventilation system and water supply and sanitation system.

With private outdoor terrace for viewing a spectacular sunset over the magnificent Inlay lake, Aureum Resort & Spa is poised to offer unsurpassed hotel experience at the unique destination.

Resort's Services

Hotel Services & Facilities of Aureum Palace Resort & Spa includes followings:

- 24 hours front desk
- Airport Transfer
- Swimming Pool
- Restaurant (Indoor/ Outdoor)
- Bar & Club
- Business Center
- Banquet Room
- Entertainment & Club
- Spa & Beauty Parlor
- Boat / Car Rental
- Boutique Shop
- Airport Transfer
- Trekking to Pa-O Tribal Village

However, business center, banquet room, restaurant, bar& club, entertainments, spa & beauty parlor, swimming pool, boutique shop and travel arrangement services are only for its guests. General public shall not get access to these services as the resort aims to provide maximum tranquility and relaxation to its guests and to keep the area less crowded and minimum waste generation.

Manpower Requirement

Manpower requirement of the proposed Aureum Palace Resort & Spa can be briefly described as follows:

Table 2: Manpower Requirement

Manpower Personnel Required		
Department	Type of Personnel	No. of Persons
Executive office, Finance, Front, Housekeeping, Food& Beverage, Restaurant & Banquet, Sale & Marketing, Engineering, Pool & Spa, Gardening, Security	Managerial level	10
	Other rank	156
	Total	106

Annual Electricity, Fuel and Water Requirement

Estimated annual requirement of electricity, fuel and water of the proposed resort project are mentioned in table 3.

Table 3: Estimated Annual Requirement of Electricity, Fuel and Water

Utilities	Source	Estimated Demand/Consumption per year
Power/ Electricity (Total)	- National Grid - Back-up Generator	100,000kWh
Fuel for vehicles and generator (Total)	- Petrol and Diesel from fuel stations	Petrol 0 gallon Diesel 5,000 gallon
Engine Oil & Lubricant for generator and other appliances	- Engine oil & Lubricant form fuel stations	50 gallon
Water (Total)	- 2 tube wells (diameter 2-inch wells) Water from tube well will be treated in ground water tank and then stored in elevated water tank	5,000 gallon per day 18,250,000 gallon per year

5.6 Proposed Implementation Schedule

The project implementation plan for Aureum Palace Resort & Spa proposed by Myanmar Treasure Hotel & Resort Group Company Limited is as follows:

- Period of the proposed capital to be brought in: Resort construction and installation of facilities and equipment already completed
- Proposed Duration of Investment : Maximum 70 years (50 years + extendable 10 years two times)
- Total land leased period : 50 years
- Commencement date of Construction: 2007
- Construction Period: about 4 years

5.7 Economic Feasibility

Aureum Palace Resort & Spa is a form of (100%) investment by a Private Limited Company, Myanmar Treasure Hotel & Resort Group Co., Ltd., owned by Myanmar citizens. Total authorized investment plan of the company for the resort project is Kyat 7,260 million. Upon completion of construction and installation of necessary equipment, Myanmar Treasure Hotel & Resort Group Company Limited starts operate international standard five-star lake side resort in September 2011. The company aims to operate its hotel/resort business for a maximum 70 years, at the vicinity of the internationally known ASEAN Heritage Park of Inlay Lake Wildlife Sanctuary. Resort's services include 24 hour room service, room rental service for long stay guests, restaurant/bar, entertainment, club, business center, spa & beauty parlor, boutique shop and travel arrangements (boat, car, air ticket, train ticket, bus ticket and guide services) for its guests.

With regard to section 12 and 13 of the Myanmar Citizens Investment Law, the investor has applied MIC for tax exemption and reliefs for the first five consecutive years including the year of commencement of the commercial operation, and is expected to be granted by MIC. With the room occupancy rate of 40 to 60%, the resort project expects to get net profit starting from year-1 of operation and expected amount is Kyat 1,293 million.

As the investor shall enjoy tax exemption and reliefs for the first five consecutive years, the net profit of the resort is expected to increase steadily in the early years, Kyat 1,344 million in year-2 and Kyat 1,349 million in year-4.

From year 6 to 10, despite higher occupancy rate expected, due to income tax 25% and high depreciation rate, net profit will become flattened, estimated around Kyat 1,400 million every year. From year-11 to year-50, due to less or zero depreciation rate, Aureum Palace Resort & Spa is expected to enjoy its highest net profit.

Recoupment period on cumulative cash flow is 4 years and 2 months. The Internal Rate of Return (IRR) on the investment is estimated to be 18.40%, with the calculation of income tax 25% on Gross Operating Profit and commercial tax 5% on total revenue after tax exemption period of first five years.

It is remarkable that the investor - Myanmar Treasure Hotel & Resort Group Company Limited has committed to allocate 3% of its net profit as Corporate Social Responsibility (CSR) fund. The Internal Rate of Return (IRR) Calculation is attached as Annex II and Investor's Commitment for 3% CSR Fund is attached as Annex III.

5.8 Purpose and Objective of IEE

As the fulfillment to terms and conditions of land leased contract and also as the full compliance with law, rules and regulations of MOECAAF and ECD, the Initial Environmental Examination (IEE) is conducted for the proposed Aureum Palace Resort & Spa, in order to identify the immediate and potential impacts of the project activities on physical, biological, socio-economic and cultural environment of the proposed project site. The specific objectives of this study include:

- identify the major issues that may arise as a result of the proposed activities on bio-physical, socio-economic and cultural environment of the project area, with special focus on the Inlay Lake Wildlife Sanctuary
- recommend practical and site specific measures for environmental impacts mitigation and environmental enhancement
- prepare and implement environmental management plan for the project
- prepare and implement biodiversity management plan for the project and
- make sure that IEE is done sufficiently and soundly for the proposed project

5.9 Adopted Procedure

This IEE report is prepared on the basis of the information supplied by the project proponent and quantitative and qualitative data collected during the reconnaissance field study of the proposed resort site and surrounding areas. Baseline environmental (noise, water and air quality) data are added after systematic measurements at the site. Secondary data collection was also carried out to get up to date data and information on physical, biological, ecological, socioeconomic, natural environment and cultural environment of the proposed resort site and surrounding areas. This was followed by evaluation of the information to determine the possible environmental impacts due to the proposed project activities particularly the Inlay Lake Wildlife Sanctuary. In the formulation of EMP, BMP and CSR opinions, comments, needs and suggestions recorded during the public consultation process are also taken into account.

The IEE approach, methodology and procedure of this study basically follow the guidelines provided by ECD of MOECAAF. The evaluations of environmental impacts in this study generally follow the method of the Institute of Environmental Management and Assessment (IEMA). In addition, it also follow the “Environment, Health and Safety Guidelines for

Tourism and Hospitality Development by International Finance Corporation, World Bank Group, 2007”.

6. Project Proponent Information

The following table 4 and table 5 describe detailed information of Aureum Palace Resort & Spa project proponent and its organization.

Table 4: Detailed Information of Proponent

Proponent name	U Tay Za
Father’s name	U MyintSwe
Citizenship	Myanmar
Passport/ NRC number	12/ Ka Ma Ya (Naing) 028090
Address in Myanmar	No. 86, Inya rRoad, Kamayut Township, Yangon
Residence abroad	-

Table 5: Detailed Information of Proposed Organization

Name of Principle Organization	Myanmar Treasure Hotel & Resort Group Co., Ltd.
Type of Business	Hotel/Resort and Recreation Services
Principle Company’s Address	No. 12 (A), Kha Boung Road, Hlaing township, Yangon
Authorized Capital	Kyat 7,260 million
Manufacturing	-
Production System	-
Investment Location	Maing Thauk village, Nyaung Shwe Township, southern Shan State, Union of Myanmar
Type of Land	Inlay Lake Wildlife Sanctuary

List of Executives of Myanmar Treasure Hotel & Resort Group Co., Ltd.,

- 1) U TayZa (Managing Director)
- 2) U Thi Ha (Director)
- 3) U Zaw Mynn @ Chang Kwang Lu (Director)
- 4) Daw June Lay Maung (Director)

7. Information on Experts Conducting IEE

Initial Environmental Examination (IEE) of Aureum Palace Resort & Spa for Myanmar Treasure Hotel & Resort Group Co., Ltd. is conducted by E Guard Environmental Services. U Aye Thiha, the Managing Director of E Guard Environmental Services is the head of organization and the study was carried out by the following consultants, experts and technicians of E-Guard.

Table 6: List of Consultants, Experts and Technicians of E-Guard, Conducting IEE

Name	Position	Responsibilities
U Saw Win	Environmental Advisor	Over all supervision and guidance of the study
U Soe Min	Director	Study team leader
Daw Jaint Yadanar	Research Assistant	Data collection and impacts analysis
Daw Aye Mya Thinzar	Research Assistant	Mitigation and EMP specialist
U Zin Ko Ko Oo	Research Assistant	Specialist on cooperate social responsibility
Daw Phyo Khaing Zar Wint	Engineer (Data Acquisition and Solution)	Collection of base line environment data, analysis and solutions

Full Address of the company conducting IEE is:

E Guard Environmental Services Co., Ltd.
 No. 99, MyaKanThar Lane, NyeinChanYay Street
 10 Miles, Pyay Road, Saw BwarGyi Gone
 Insein Township, Yangon 11011
 Union of Myanmar
 Tel: 01 667953, Fax: 01 6667953, Mobile +959 448001676
 URL: www.eguardservices.com
 Skype: eguardenvironmental

8. Description of the Existing Environment

8.1 Physical Resources

Topography and Soil

Aureum Palace Resort & Spa site is located at the heart of the eastern Shan Plateau of Myanmar, in Nyaung Shwe Township, Taunggyi District, about is 430 miles north east of Yangon by car. The project site is situated on the eastern bank of Inlay lake, lying on the western side of Nyaung Shwe – Nampan motor road, about (7) miles south of Nyaung Shwe. Nyaung Shwe township share the borders with Taunggyi township in the north, Taunggyi and Sesiang townships in the east, Pehkon towship in the south and Kalaw and Pinlaung

townships in the west. The proposed resort area (30.17 acre) is entirely situated inside the boundary of Inlay Lake Wildlife Sanctuary.

In general, the area is a narrow valley between hills in the east and Inlay Lake Wildlife Sanctuary in the west, with an average elevation of 2900 feet above sea level. Dominant forest type of the area includes low Indaing (*Dipterocarp*) and hill forests. Landscape is beautifully dotted by hills, sporadic forests, shifting cultivation sites, paddy fields, small scattered villages, Inlay Lake with floating islands, hotels and resorts.

The Red Earths and Yellow Earth soils (Acrisol) are the most dominating soils of the land area. The Shan Plateau is about completely covered with these soils. The Yellow Earths occur on the level lower slopes and they occupy a relatively small area, changing the Red Earths down the slopes. The Red Earths have a very deep profile having the texture varying sandy and silty to silty clay loam and with good structure. They are well drained and easy to plough. However inside the unique wetland ecosystem of Inlay Lake Wildlife Sanctuary, Gley Swampy Soil is dominant with seasonally inundated grass/marsh lands.

There is no major river or stream passing through the area. The Inlay Lake, seasonally average about 12 miles long, 5 miles wide and 12 feet deep and its tributaries are the only natural water collection site of the area. The total area of its drainage basin is 1428 square miles (3,700 km²) and is a major source of hydro electrical power for the southern Myanmar, specifically for Law-Pi-Ta hydroelectric power plant.

Nyaung Shwe is the common entry point to the area. It is 430 miles away from Yangon by car. Shwe Nyaung train station which is about 10 miles north of Nyaung Shwe is 320 miles away from Yangon by train. Shwe Nyaung to Nyaung Shwe is about 10 miles by car. The nearest airport is Heho Airport and it is about 14 miles from Nyaug Shwe by car.

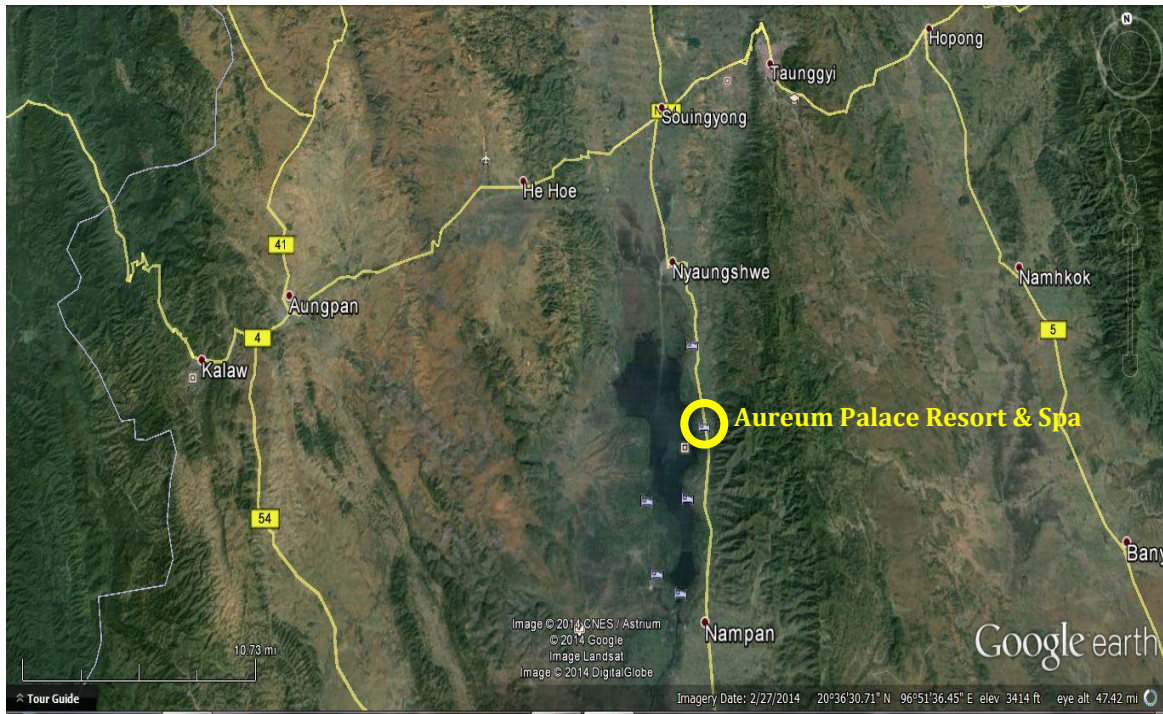


Figure 2: Landscape of Aureum Palace Resort & Spa site and surrounding area

Climate

The climate of the Shan Plateau is controlled by the great monsoon circulation system of south Asia, but this is modified by local relief. The Shan Plateau in general is characterized by a subtropical monsoon mountain climate. It has three distinct seasons; summer, rainy, and winter seasons. Temperatures are comfortably warm throughout the year, although the winter months (December–February) are milder and nights can be quite cool. It is commonly believed that the local weather is one of the nicest in the whole country. The average annual high temperature is 24.6°C and average annual low temperature is 13.8°C. The average annual rainfall of the area is 1,555 mm. The driest month is January with almost no precipitation. Most precipitation falls in August, with an average of 330 mm. The warmest month of the year is April with an average high temperature of 29 °C. In January, the average low temperature accounts only 7 °C and it is the coldest month of the whole year round. The difference in precipitation between the driest month and the wettest month is about 325 mm. The average high temperature varies during the year by 7 °C. The best time of the year to visit the area is during September and October.

The summer of 2010 was registered as very high temperatures, dropping the water level of the Inlay Lake to the lowest in nearly 50 years.

Air quality

During the site visit in November 2014, only very few activities effecting air quality (such as minor construction, normal road traffic etc.) were observed at the site. There has also been no apparent operation/activities causing air pollution (such as industries/production factories/mills etc.) in the surrounding area. Some neighboring hotels such as Novotel Hotel and Amazing Inlay Resort in the north and Akari hotel 2 in the south are also initiating their activities and maintaining clean and peaceful environment. Most of the lands in the eastern part of the proposed resort site are occupied by local farmers for rice and crop production and the Inlay Lake is situated in the west. The ambient air quality of Aureum Palace Resort & Spa site and its surroundings was quite good and normal.

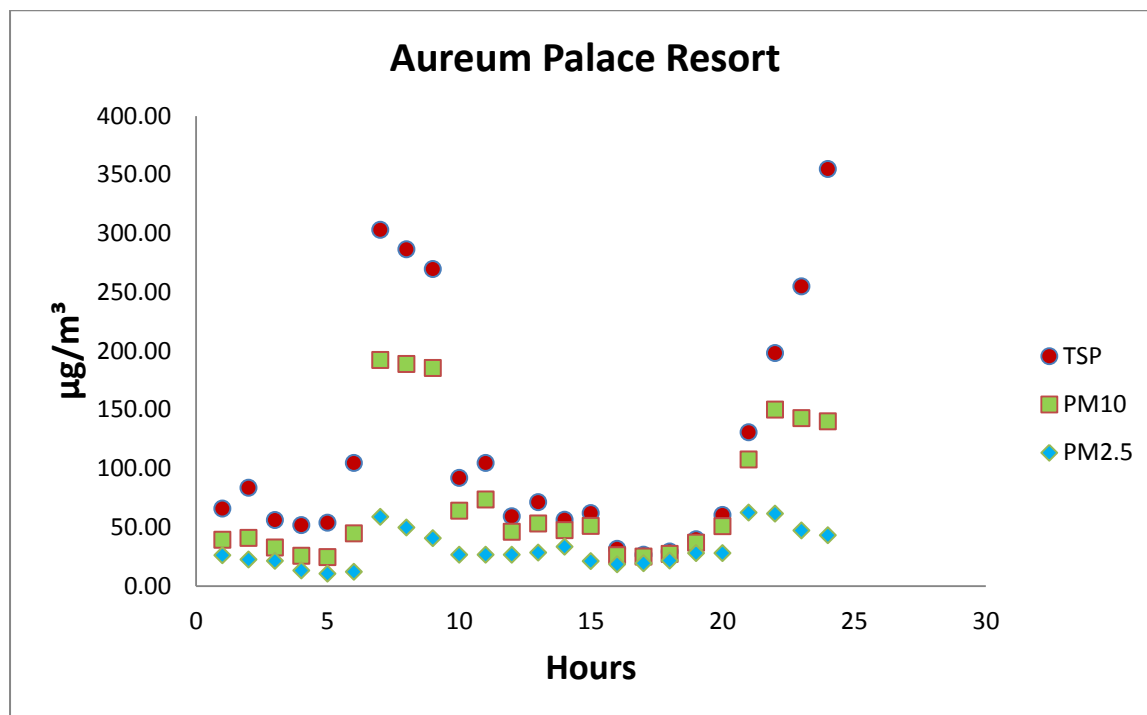


Figure 3: Environmental Dust Monitoring of Aureum Palace Resort & Spa site

In this environmental dust monitoring measurement study, TSP (total suspended particulates, particulate matters equal to or less than 50µm (0.05mm), PM10 (particulate matters equal to or less than 10µm (0.01 mm)), and PM2.5 (particulate matters equal to or less than 2.5µm (0.0025 mm)) as the contents of the particulates were measured by Grimm’s Dust Monitor for 24hrs on 12th and 13th December 2014. In this study of measurement, the Dust Monitor was set to measure the parameters at 1 min interval continuously in operation for 24 hrs. Measured results, in hourly average, are shown in the figure 3 above. Average TSP concentration is around 190µg/m³ and that of PM 10 is 130µg/m³. Average PM2.5

concentration is about $36\mu\text{g}/\text{m}^3$ and is significantly lower than WHO air quality guideline values of $25\mu\text{g}/\text{m}^3$ and $50\mu\text{g}/\text{m}^3$ in this measurement. Basically, the PM concentration values in the air is related to weather conditions such as wind speed and directions, humidity, rainfall, temperatures. Detailed result of hourly environmental dust monitoring is attached as Annex IV.

Odour

There are no factories, industries, mills or major emission sources within 5 kilometer radius of the proposed resort site and beyond. The area is naturally embraced with gentle breeze of the magnificent Inlay Lake. The odour of the surrounding air of Aureum Palace Resort & Spa site is normal and no significant bad smell or source of bad smell is observed.

Water quality

The developer has already established two tube wells of 2 inches in diameter on its extended area on the eastern side of Nyaung Shwe-Nampan road. Water samples from commonly used tube well of Maing-thauk area was collected on 4th November 2014 and water quality test was made at ISO-Tech Laboratory, Yangon.

The parameters of the test are pH, colour, turbidity, total hardness, total alkalinity, iron, chloride, lead, arsenic, ammonia (NH_3) and ammonium (NH_4). In comparison with standard limits (of WHO Drinking Water Guidelines, Geneva 1993), the test results provide some indications of the existing water quality of the project site.

Result of Tube Well Water

The test results showed that the tested water has pH of 7.5, quite acceptable compared to WHO drinking water standard range of 6.5 to 8.5. Water is also colorless. Turbidity is 5 NTU which is equal to the WHO standard limit and thus clear. Its total hardness is 198 mg/l as CaCO_3 , much less than the standard limit of 500 mg/L, soft. Total alkalinity is 250 mg/l as CaCO_3 . The Iron concentration is 0.29 mg/l, almost equal to WHO standard of 0.3 mg/l. Chloride concentration is also very minimal, only 3 mg/l compare to WHO standard 250 mg/l. No trace of lead, arsenic, ammonia (NH_3) and ammonium (NH_4) are tested.

In brief, water from existing tube wells of the Maing Thauk area can be directly used for construction and other purposes. However it needs proper treatments before using for drinking and cooking. It is observed that the resort has being establishing a water treatment plant including a ground water treatment tank of 10,000 gallon capacity and elevated water

tank of 4,000 gallon capacity to give proper treatments (such as sedimentation, filtrations and chlorination) to be able to provide sufficient clean and drinkable water for daily resort activities. Laboratory test result of water sample of existing tube well is attached as annex V.

Noise/Vibration

There are no factories, industries or significant source of noise and vibration within 5 kilometer radius of the resort site and beyond. In addition, traffic on nearby Nyaung Shwe-Nampan roads are very minimal for the whole day. The proposed site is bordered with similar hotels and resorts in the north and south putting their maximum efforts to keep the area peaceful and quiet. The Inlay lake is situated in the west and an estimated 3,000 feet long seasonally inundated grass/marsh land is situated as buffer area between the lake and resort site. Paddy fields occupied the eastern surroundings of the area. Therefore the noise and vibration of the Aureum Palace Resort & Spa site is normal. No significant or annoying noise or vibration is observed.

A 24 hour noise test done at the proposed resort site was carried out, from 09:05 AM of 12th December 2014 to 09:05 AM of 13th December 2014 by technicians of E-Guard Environmental Services. Test results can be summarized as follows:

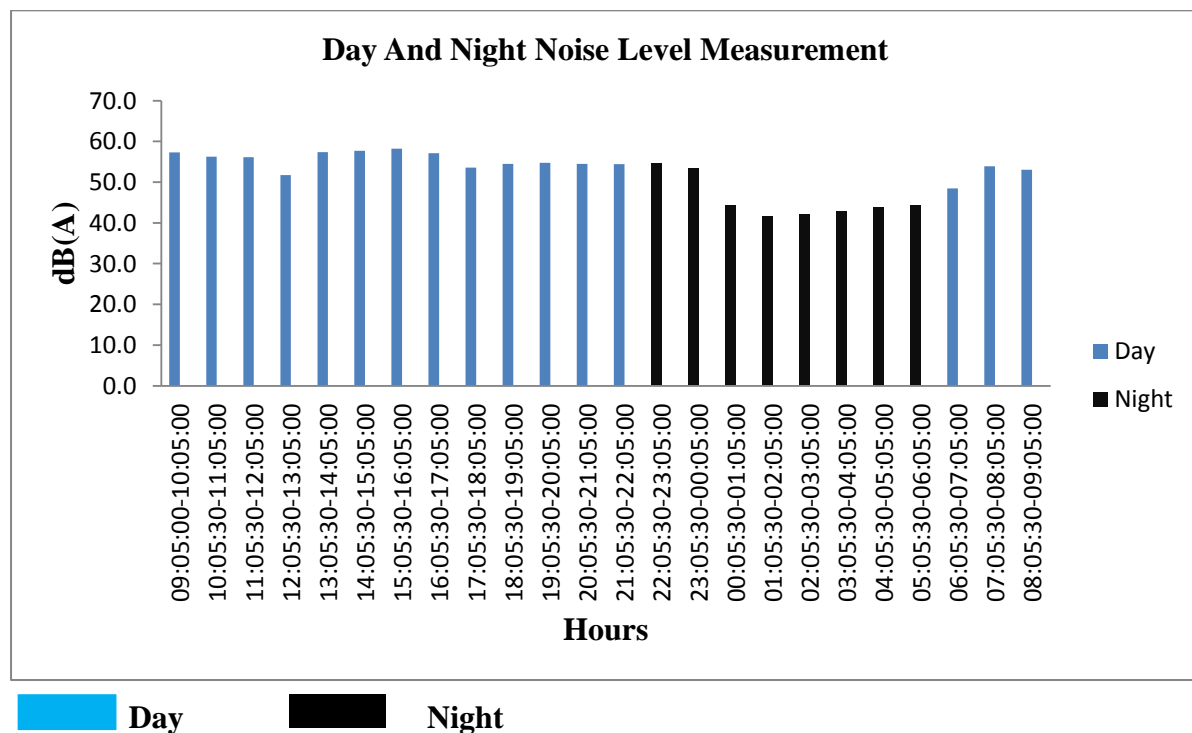


Figure 4: Comparison of Day and Night Noise Level

The noise levels at the resort site was measured for 24 hours and recorded values in hourly average are shown in the figure 4 above, and differentiating noise level of day and night period by different color. The noise level of day time is slightly higher than that of night time but not much different quantitatively. In general, the noise level is a bit higher for the period between 09:00 hour to 12:00 hour (about 56 dBA) and between 13:00 hour to 17:00 hour (about 57 dBA) probably due to daytime working activities and traffic concentration on nearby Nyaung Shwe-Nampan road. The lowest noise level is in the middle of the night between 01:00 hour to 04:00 hour (about 41/42 dBA). However, in brief, the figure clearly indicates that the noise level of the proposed resort site, both at day time and night time is well below the acceptable Noise Standards (of Myanmar National Ambient Environmental Quality Standards, EQS-DRAFT), L_{eq} 24 hour not exceeding 70 dB (A). Detailed result of the measurement of day and night noise level of resort site is attached as Annex VI.

National Environmental Quality (Emissions) Guidelines for Proposed Project of Aureum Palace Resort& Spa

According to the environmental health and safety guidelines established by National Environmental Quality (Emissions) Guidelines, International Finance Corporation, and information, major environmental issues in Aureum Palace Resort& Spa include (i) Emission to Air, (ii) wastewater and (iii) noise and vibration.

(i) Dust Emission

International Guidelines used to compare Dust condition of the Site

Parameter	Averaging Period	IFC Guideline value	NEQG value
PM ₁₀	24 Hour	50	50
PM _{2.5}	24 Hour	25	25

IFC = International Finance Corporation

NEQG= National Environmental Quality (Emission) Guideline

(ii)Wastewater (Effluent Levels)

International Guideline used to compare wastewater condition of the Site

No.	Parameter	NEQG Guideline Value	Unit
1	5-day Biochemical oxygen demand	50	mg /l
2	Chemical oxygen demand	250	mg /l
3	Oil and grease	10	mg /l
4	pH	6 - 9	S.U. ^a
5	Total coliform bacteria	400	100 ml
6	Total nitrogen	10	mg /l
7	Total phosphorus	2	mg /l
8	Total suspended solids	50	mg /l

^a Standard Unit

(iii) Noise

International Guideline used to compare current Noise Level

Receptor	IFC Guideline		NEQG	
	Daytime 10:00- 22:00	Nighttime 22:00- 10:00	Daytime 10:00- 22:00	Nighttime 22:00- 10:00
Residential, institutional, educational	55	45	55	45
Industrial, Commercial	70	70	70	70

8.2 Ecological/Biological Resources

Proposed Aureum Palace Resort & Spa site is situated inside the boundary of Inlay Lake Wildlife Sanctuary. Inlay Lake Wildlife Sanctuary is a wetland sanctuary and located in Nyaung Shwe, Pinlaung and PehKon townships of southern Shan State. The proposed resort is situated in the Territory of Nyaung Shwe Township. The Sanctuary was established in 1985 and designated as an ASEAN Heritage Park in 2003. It recently covers an area of 215 square miles (556 km²). The Inlay Lake, situated in the heart of the Sanctuary, covering average water body area of about 34 square miles (88 km²), with significant geographical conditions is the second largest freshwater lake of Myanmar.

Objectives of Inlay Lake Wildlife Sanctuary are:

- To conserve and protect wetland ecosystem; the natural vegetation, wetland birds and fresh water fishes of the Sanctuary
- To conserve geological features and scenic beauty of mountain areas
- To conserve Inlay watershed and maintain water resource for Law-Pi-Ta hydroelectric power plant
- To conserve and educate the local people in traditional floating agriculture practiced by "In" lake-dwellers
- To upgrade the Sanctuary so as to promote ecotourism

Total 255 woodland birds, 90 wetland birds, 59 fish species, 3 turtle species, 94 butterfly species, 25 amphibian and reptile species and several plant species including 184 orchid, 41 wetland tree species, 11 bamboo species, 527 medicinal plant species and 12 algae species are recorded in this wetland sanctuary (FD, 2014). It is also home for different ethnic groups namely Intha, Shan, Pa Oo and Da Nu.

There are altogether 281 villages situated inside the Inlay Lake Wildlife Sanctuary, 262 villages in Nyaung Shwe township territory, 3 villages in Pin Laung township territory and 16 villages in PehKon township territory. The unique traditional style of leg rowing,

fishing, floating market, floating vegetation, boat racing, and handicrafts of Intha are amazing for a

Table 7: Ecological Resources and its Existing Conditions

Ecological Resources	Existing condition
Protected areas	Inlay Lake Wildlife Sanctuary, established in 1985 and designated as an ASEAN Heritage Park in 2003, covers an area of 215 square miles (556 km ²). It is an ecotourism, mainly birds watching and birding site. In the core area, a two-storey bird watching house was established by Forest Department
Forests	East Inlay Reserved Forest, 53792 acre West Inlay Protected Public Forest, 35222 acre Total forest area 89,014 acre (360 km ²), about 25% of the whole NyaungShwe Township area of 1,452 km ² Dominant forest types are low Indaing (<i>Dipterocarp</i>) forest and hill forest. Major tree species of the forests are teak (<i>Tectona grandis</i>), Coral (<i>Erythrina crista</i>), Kusum Ceylon oak (<i>Schleich eraoleosa</i>), Emblicmyrobalan (<i>Embllica officinalis</i>), Chapalish (<i>Artocarpus calophyla</i>), Civit (<i>Swintonisa floribunda</i>) and Pine (<i>Pinus spp.</i>).

Ecological Resources	Existing condition
Fisheries, aquatic biology	The Inlay Lake, seasonally average about 12 miles long, 5 miles wide and 12 feet deep and its tributaries constitutes a significant wetland ecosystem in the area. The total area of its drainage basin is 1,428 square miles (3,700 km ²) and is a major source of hydro electrical power for the southern Myanmar, specifically for the Law-Pi-Ta hydroelectric power plant. Native aquatic plants include pondweed, coontail, bladder wort, stone wort, muster grass, and elephant grass. Pondweed is used as a food source by both people and fish. Elephant grass, known locally as Kaing is important in the structure of floating island for agriculture, as well as weaving mats. Water hyacinth, known as Baeda, is useful for floating land. Five fish families inhabit Inle water. They are mainly carp, catfish, murrel and also an endemic cyprinid. Intha fishermen harvest the carp with conical net stretched over wood and bamboo frames. A variety of harpoons are employed to spear fishes. The Inle carp, known as Nga-Phane plays an important role in the food supply to the area people.

Wildlife	<p>Inle is rich in birdlife. 254 bird species have been recorded there. Highlights would be rare Jerdon's Bushchat, White-tailed Stonechat, Collared Myna, Black-collared Starling, rare Sarus Crane, Glossy Ibis, Ferruginous Pochard, Spot-billed Duck, Garganey, Pheasant-tailed Jacana, Black-winged Stilt, Sandpipers, Sooty-headed Bulbul, Crimson Sunbird, Clamorous Reed Warbler, Red Avadavat and Yellow-breasted Bunting. And also breeding or roosting colonies of Little, Cattle, Intermediate and Great Egrets, Chinese Pond, Indian Pond and Black-crowned Night Herons, Vinous-breasted, Black-collared, Chestnut-tailed and Asian Pied Starlings, Collared, Jungle, White-vented and Common Mynas would be seen in this Myanmar (Burma) ecotourism, birds watching and birding site.</p> <p>The common mammals found in these forests are Barking Deer (<i>Muntiacus Rafinesque</i>), Asiatic Jackal (<i>Canis aureus</i>), Pangolins (<i>Manis pentadaetyla</i>), Common pulm civet (<i>Paradexurus hermaphrodites</i>) and Common Otter (<i>Lutralutra</i>).</p>																																									
Rare/ endangered species of Inlay Lake Wildlife Sanctuary	<table border="1"> <thead> <tr> <th data-bbox="600 981 1134 1025">Bird Species</th> <th data-bbox="1134 981 1398 1025">IUCN Category</th> </tr> </thead> <tbody> <tr> <td data-bbox="600 1025 1134 1104">Baer's Pochard <i>Aythya baeri</i></td> <td data-bbox="1134 1025 1398 1104">Critically Endangered</td> </tr> <tr> <td data-bbox="600 1104 1134 1182">Lesser Whistling-duck <i>Dendrocygna javanica</i></td> <td data-bbox="1134 1104 1398 1182">Least Concern</td> </tr> <tr> <td data-bbox="600 1182 1134 1261">White-rumped Vulture <i>Gyps bengalensis</i></td> <td data-bbox="1134 1182 1398 1261">Critically Endangered</td> </tr> <tr> <td data-bbox="600 1261 1134 1305">Greater Spotted Eagle <i>Clanga clanga</i></td> <td data-bbox="1134 1261 1398 1305">Vulnerable</td> </tr> <tr> <td data-bbox="600 1305 1134 1350">Sarus Crane <i>Antigone antigone</i></td> <td data-bbox="1134 1305 1398 1350">Vulnerable</td> </tr> <tr> <td data-bbox="600 1350 1134 1395">Indian Skimmer <i>Rynchops albigollis</i></td> <td data-bbox="1134 1350 1398 1395">Vulnerable</td> </tr> <tr> <td data-bbox="600 1395 1134 1473">Eastern Sarus Crane <i>Grus antigone sharpii</i></td> <td data-bbox="1134 1395 1398 1473">Vulnerable</td> </tr> <tr> <td data-bbox="600 1473 1134 1552">Yellow-breasted Bunting <i>Emberiza aureola</i></td> <td data-bbox="1134 1473 1398 1552">Vulnerable</td> </tr> <tr> <td data-bbox="600 1552 1134 1597">Fish species</td> <td data-bbox="1134 1552 1398 1597"></td> </tr> <tr> <td data-bbox="600 1597 1134 1641"><i>Cyprinus carpio intha</i></td> <td data-bbox="1134 1597 1398 1641">Endemic</td> </tr> <tr> <td data-bbox="600 1641 1134 1686"><i>Neolissochilus nigrovittatus</i></td> <td data-bbox="1134 1641 1398 1686">Endemic</td> </tr> <tr> <td data-bbox="600 1686 1134 1731"><i>Cirrhinus lu</i></td> <td data-bbox="1134 1686 1398 1731">Endemic</td> </tr> <tr> <td data-bbox="600 1731 1134 1776"><i>Physoschistura brunneana</i></td> <td data-bbox="1134 1731 1398 1776">Endemic</td> </tr> <tr> <td data-bbox="600 1776 1134 1821"><i>Physoschistura shanensis</i></td> <td data-bbox="1134 1776 1398 1821">Endemic</td> </tr> <tr> <td data-bbox="600 1821 1134 1865"><i>Yunnanilus brevis</i></td> <td data-bbox="1134 1821 1398 1865">Endemic</td> </tr> <tr> <td data-bbox="600 1865 1134 1910"><i>Sawbwa splendens</i></td> <td data-bbox="1134 1865 1398 1910">Endemic</td> </tr> <tr> <td data-bbox="600 1910 1134 1955"><i>Microrasbora rubescens</i></td> <td data-bbox="1134 1910 1398 1955">Endemic</td> </tr> <tr> <td data-bbox="600 1955 1134 2000"><i>Danio erythromicron</i></td> <td data-bbox="1134 1955 1398 2000">Endemic</td> </tr> <tr> <td data-bbox="600 2000 1134 2018"><i>Inlecypri saurpurpurea</i></td> <td data-bbox="1134 2000 1398 2018">Endemic</td> </tr> </tbody> </table>	Bird Species	IUCN Category	Baer's Pochard <i>Aythya baeri</i>	Critically Endangered	Lesser Whistling-duck <i>Dendrocygna javanica</i>	Least Concern	White-rumped Vulture <i>Gyps bengalensis</i>	Critically Endangered	Greater Spotted Eagle <i>Clanga clanga</i>	Vulnerable	Sarus Crane <i>Antigone antigone</i>	Vulnerable	Indian Skimmer <i>Rynchops albigollis</i>	Vulnerable	Eastern Sarus Crane <i>Grus antigone sharpii</i>	Vulnerable	Yellow-breasted Bunting <i>Emberiza aureola</i>	Vulnerable	Fish species		<i>Cyprinus carpio intha</i>	Endemic	<i>Neolissochilus nigrovittatus</i>	Endemic	<i>Cirrhinus lu</i>	Endemic	<i>Physoschistura brunneana</i>	Endemic	<i>Physoschistura shanensis</i>	Endemic	<i>Yunnanilus brevis</i>	Endemic	<i>Sawbwa splendens</i>	Endemic	<i>Microrasbora rubescens</i>	Endemic	<i>Danio erythromicron</i>	Endemic	<i>Inlecypri saurpurpurea</i>	Endemic	
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	<i>Poropuntius sp.</i>	Endemic
	<i>Percocypris compressiformis</i>	Endemic
	<i>Garragravelyi</i>	Endemic
	<i>Silurus burmanensis</i>	Endemic
	<i>Channaharcourtbutleri</i>	Endemic
	<i>Macroglyphus caudicellatus</i>	Endemic
Coastal resources	Nonexistent	

**Map of Inle Lake Wildlife Sanctuary
(ASEAN Heritage Park)**

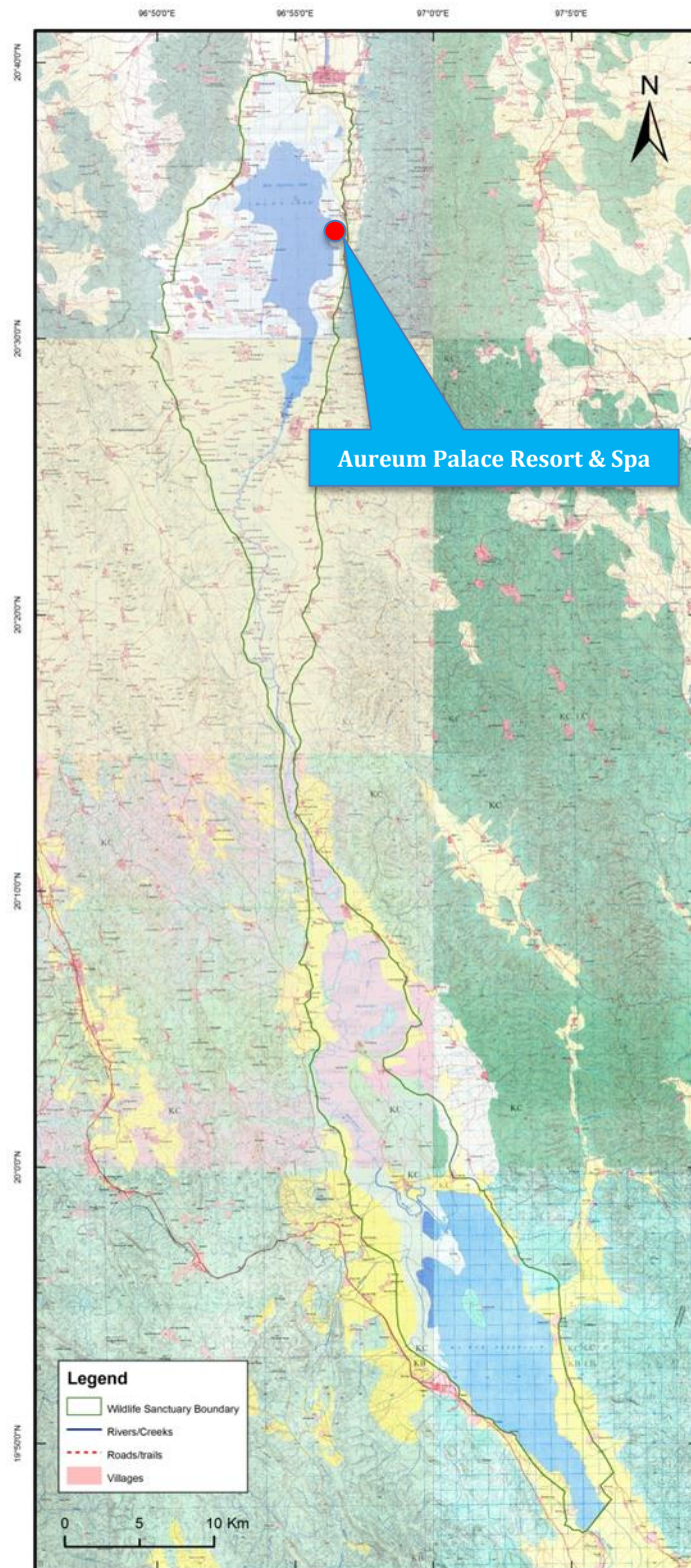


Figure 5: Map of Inlay Lake Wildlife Sanctuary and Aureum Palace Resort & Spa

8.3 Economic Development

Originally, Nyaung Shwe is a quiet little town of the southern Shan State, made up of eight wards in the town and 444 villages in the township territory, having a total population of 188,602 (2014). Township economy is traditionally based on agriculture (including floating garden agriculture inside the Inlay Lake), fishing, forestry and cottage industries.

Inlay Lake Wildlife Sanctuary, established in 1985 and later in 2003 designated as an ASEAN Heritage Park is the second largest freshwater lake in Myanmar and one of the best eco-tourism sites of the country. It is internationally famous for its unique wetland ecosystem, geological features and scenic beauty of the surrounding mountains. The traditional living style of indigenous ethnic groups namely Intha, Shan, Pa Oo and Da Nu such as one leg-rowers, fishing with conical net stretched over wooden and bamboo frames, floating market and floating agriculture added its attractions. Exploration the life styles and cottage industries (such as traditional waving and silver smith) of villages in the region by boat is a great pleasure and regular trip for most of the visitors. Experience of interacting with endemic people, including Padaung tribes who continue the practice of ringed neck is of special and exciting moment for both local and international visitors.

Inlay may be visited all the year round, but the best time for migratory birds and trekking activities is from November to May. In addition to observation of rare birds, aquatic plants and animals, butterflies and doing trekking, visitors can also pay homage to historical pagodas, such as Phaung Daw Oo, Alowdaw Pauk, Shwe In Daing, Taung Do around the lake and many other pagodas on the surrounding hills. The ceremonial Hpaung Daw Oo Festival, which lasts for almost three weeks, is closely followed by the Thadingyut festival of lights. Inthas and Shan turn out in their best clothes in great numbers to celebrate the Buddhist Lent. Traditional boat racing, with dozens of leg-rowers in Shan dress in a team on each boat, is a famous event during the Hpaung Daw Oo Festival.

This unique situation has led to significant development of hotel and tourism infrastructure. In combination with government's democratic transition policy, many small and large privately owned hotels and tour operations have arisen in the area during the past few years. Roads are being improved, nearby Heho airport is being extended and local shops are flooded with consumer items of both local and foreign, thus increased job opportunities for local residents. There are about 40 hotels and resorts already developed in and around the Inlay Lake and number increased to nearly 100 for the whole Nyaung Shwe Township.

Construction of the new Inlay Hotel Zone, on 620 acres (2.5 km²) of land between Kanbe and Chaungpa villages, 15 miles south to Nyaung Shwe, on the east side of Nyaungshwe-Nampan-Loikaw Road is being underway. In brief, Nyaung Shwe/ Inlay/ Heho basin is a potentially booming and vibrant area for ecotourism investors from all around the world.

On the other hand, due to growing population, unsustainable means of land utilization and agriculture, poor living conditions, declining of watershed forests, erosion and siltation, the lake is getting narrower and consequently threatening the existence of whole ecosystem including local communities. It is urgently required to work together in harmony among government, local people, investors and NGOs-INGOs, to keep the lake and its ecosystem clean, pleasant, sustainable and to prevent against any environmental disturbances.

Electrical Power Source: Within Nyaung Shwe- Inlay area, including new Inlay Hotel Zone, electricity is mainly supplied from National Grid arranged by the Ministry of Electric Power (MOEP) and the Myanmar Electricity Power Enterprise (MEPE). As new power supply plans and projects are being under way, there is a great tendency for improvement of power supply in the area in the near future. Currently, local people and businesses including hotels/resorts used to keep backup generators in case of power failure. Some villages/communities located nearby natural streams generated power by small scale hydro power plants.

Main Water Source: Major water sources of Nyaung Shwe township include natural springs, small tributaries, shallow wells and tube wells. Most of the villages in the area have own natural spring/shallow well/tube well and well preserved. Despite having a huge Inlay Lake in the area, studies of the lake's surface water quality indicates that the water is not safe for drinking as nitrite, nitrate and phosphate ranges are unusually high. Most of the hotels/resorts in the area have their own tube wells and water treatment plants to ensure the sufficient supply of clean drinkable water for the customers.

Transportation: There have been relatively good high-way connections to Nyaung Shwe from the major cities of the country such as Taunggyi, Mandalay, Nay Pyi Taw and Yangon. Nyaung Shwe is 430 miles (690 km) away from Yangon and 205 miles (330 km) away from Mandalay by car. Shwe Nyaung train station which is about 10 miles north of Nyaung Shwe is 320 miles (514 km) away from Yangon by train. Shwe Nyaung to Nyaung Shwe is about

10 miles by car. The nearest airport is Heho Airport and it is about 14 miles (22 km) from Nyaung Shwe by car. Daily flight services are available from Heho airport to the major cities of the county particular to Yangon and Mandalay. Yangon and Mandalay international airports are the main entry points for most of the foreign visitors coming to Heho/Nyaung Shwe/ Taunggyi area. Public transport bus lines and taxi services are also available in the town.

8.4 Social and Cultural Resources

Population and communities

Nyaung Shwe, a small town about 3 kilometers north of Inlay Lake is administratively belongs to Taunggyi District, Southern Shan State of Myanmar. It is composed of eight wards in the town and 444 villages in the township territory. The traditional living style of indigenous ethnic groups namely Intha, Shan, Pa Oo and Da Nu such as one leg-rowers, fishing with conical net stretched over wooden and bamboo frames, floating market and floating agriculture added its attractions. Exploration the life styles and cottage industries (such as traditional waving and silver smith) of villages in the region by boat is a great pleasure and regular trip for most of the visitors. Experience of interacting with endemic people, including Padaung tribes who continue the practice of ringed neck is of special and exciting moment for both local and international visitors. In addition to observation of rare birds, aquatic plants and animals, butterflies and doing trekking, visitors can also pay homage to historical pagodas, such as Phaung Daw Oo, Alowdaw Pauk, Shwe In Daing, Taung Do around the lake and many other pagodas on the surrounding hills. The ceremonial Hpaung Daw Oo Festival, which lasts for almost three weeks, is closely followed by the Thadingyut festival of lights. Inthas and Shan turn out in their best clothes in great numbers to celebrate the Buddhist Lent. Traditional boat racing, with dozens of leg-rowers in Shan dress in a team on each boat, is a famous event during the Hpaung Daw Oo Festival.

According to 2014 census report, whole population of Nyaung Shwe Township is 188,602, with population density of 129 per square kilometer. Original local communities have settled in the area since time immemorial and most of them are farmers, fishermen, traders, businessmen and small and median enterprise owners. Few of them work as government staff, military personnel and company/NGOs staff. There are also some new comers from other parts of the nation mostly related to hotel and tourism business, NGOs and INGOs.

Nyaung Shwe is the tourist hub for visiting Inlay Lake and Inlay Lake Wetland Sanctuary. It consists of one main thoroughfare with numerous side streets and a few parallel roads. The main street has numerous shops, several restaurants, a few stupas, travel agencies and a market. The town serves as a marina for the numerous long boats carrying tourists into the lake. The lake itself is located a few kilometers south through a river channel.

There are about 40 hotels and resorts in and around the Inlay Lake and total about 100 in whole Nyaung Shwe township. Construction of the new Inlay Hotel Zone, on 620 acres (2.5 km²) of land between Kanbe and Chaungpa villages, 15 miles south to Nyaung Shwe, on the east side of Nyaung Shwe- Nampan-Loikaw Road is being underway. Most of the hotels/resorts in and around the Inlay Lake are constructed in large compounds and far from settlement areas. Man-made water ways are usually constructed passing through seasonally inundated grass/marsh land by developers to get boat access from their lake-side hotels/resorts into the Inlay Lake.

Then nearest settlement areas of the proposed Aureum Palace Resort & Spa site are Maing Thauk village about one mile north with population of (255) and Pay-pin-inn village about 2 furlongs (400 meter) west with population of (211).

Health facilities

Nyaung Shwe Township Government Hospital, 25 bedded is the nearest public hospital from the proposed resort site. In addition, there is a government health care center in MaingThauk village only about one mile north of the resort site. There are also private/NGO clinics in Nyaung Shwe town and most of large villages. Local communities still rely on traditional Myanmar and Shan herbal medicines and a number of traditional medical experts and their clinics are also found in the area. The nearby towns of Sesiang, Pehkon, Kalaw and Pinlaung also have public township level hospitals. In serious/emergency cases, local inhabitants used to go Taunggyi and take treatments at Sao-San-Tun Hospital (500 bedded Shan State General Hospital) and many other private hospitals there.

Education facilities

Education level of the local residents is relatively low. There are altogether 239 basic education schools in the township mostly run by the Ministry of Education; 4 high schools, 21 middle schools, 213 primary schools and 1 monastic school. Primary education is accessible for most of the inhabitants, but access to middle school and high school education is still limited for many young people living in small villages. The nearest education center to

the proposed Aureum Palace Resort & Spa site is Maing Thauk village high school. There is no colleague/university level education center in Nyaung Shwe township. After matriculation, most of the students who want to get higher education have to go to large cities such as Taunggyi, Mandalay and Yangon. As the township has developed together with eco-tourism business, more and more pre-primary schools and child-day-care centers are being appeared in town and villages as well.

9. Scoping of Potential Environmental Impacts and Mitigation Measures

Construction and operation of the proposed Aureum Palace Resort & Spa site may possibly bring changes on the local environment in terms of physical, biological and socio-economic aspects. The impacts generated could be both positive and negative.

Possible impacts of the proposed resort have been studied using an Impact Screening Checklist (Attached as Annex VII), prepared based on the analysis of environmental baseline information and proposed activities of resort project. Potential impacts on existing environmental status are identified for two different phases of the project, implementing/operation phase and post-operation/decommissioning phase.

Possible impacts on surrounding environment due to various activities of the proposed resort project can be categorized as follows:

Impact on Environmental Resources

- Impact on Air Quality
- Impact on Noise
- Impact on surface Water Quality
- Impact on ground Water Quality
- Impact on Soils

Impact on Human Environment

- Health and Safety
- Socio-economics

Waste Disposal

- Solid waste disposal
- Liquid waste disposal
- Sanitary waste disposal
- Impact on Ecological Resources

- Impact on Inlay Lake Wildlife Sanctuary and its Wetland Ecosystem

On the other hand, the proponent of Aureum Palace Resort & Spa has committed in his application to MIC, to follow both national and international norms and standards of hotel/resort management and operation, to conduct IEE, to formulate and execute EMP and to avoid any environmental pollution or contamination due to its proposed activities. Commitment of environmental conservation by investor (original in Myanmar language) attached as Annex VIII.

9.1 Impacts on Environmental Resources

Impact on Air Quality

The investor has planned to construct and operate an international standard five stars grade resort, including one main building (lobby, restaurant, boutique shop, banquet and swimming pool) and 65 bungalows. Resort can provide total 65 units of villa type exclusive super-deluxe guest rooms, each having a private balcony, separate living area, elegant 100 square meter bedrooms, generous space for bathroom and lavishly equipped with five-star amenities. Recreation and sanitation facilities such as restaurant, banquet, bar & club, spa & beauty parlor, swimming pool, jetty deck, waste water treatment system and waste management and sanitation system are appropriately attached to the resort.

During the operation phase, emission of dust particles and CO₂, SO₂ and other greenhouse gas by transport vehicles of visitors and necessary goods for resort, by back-up generator, and by air conditions, refrigerators or ventilation system would be a factor affecting air quality at least in minimal scale. Smoke and odor from daily cooking at kitchen and dining house would also be a factor slightly affecting the local air quality.

In addition, negative impacts on surrounding air quality such as emissions of dust particles, CO₂ and SO₂ could be expected during the decommissioning or dismantling phase of the proposed resort after completion of its lifespan.

However, these impacts are controllable and can be reduced to minimum level by using environment friendly design, new machines, equipment and vehicles, and impact control/reduction techniques in all three phases of the project, as mentioned detailed in chapter 11, EMP of this report. Detailed list of machineries and equipment for resort attached as Annex IX.

All the buildings except main entrance building are designed to be constructed as 1-storey. It was carefully designed not to have any disturbances on natural scene and beauty of the

surrounding areas and to be environment friendly and in harmony with local customs and cultures.

The resort construction was carried out by Yangon based well experienced Htoo trading company, using control measures to avoid or reduce environmental impacts. During the construction, developer used construction vehicles/machines/equipment as minimal as possible.

Cooking is being carried out by natural gas and chimney and blowers are attached at the kitchen to avoid any air pollution in and around the resort site.

Resort design also include to conserve all existing trees of the area and to conduct pleasant landscaping for recreation on all remaining land areas (about 5 acres) of the resort site. The biological engineering techniques are applied using grass, bamboos, step by step hedgerows vegetation and evergreen tree species to keep the resort area clean, fresh and green, and also to prevent sedimentations and seepages into the Inlay Lake. Resort has raised its own nursery and appointed a gardener and garden crews for this purpose.

In addition, to avoid unnecessary crowd, dirt, wastes and smell inside the resort area, developer has constructed tube wells and water treatment plant, staff dormitory, laundry, store, transformer and generator houses and garbage collection tanks on its purchased land, situated outside of the boundary of Inlay Lake Wildlife Sanctuary and opposite to the proposed hotel site.

Impact on Noise

In operation phase, transport vehicles for goods and visitors, emergency electric generator, laundry machines, music and conversation form parties and receptions, noise form repair and maintenance activities could be the major sources of indoor noise pollution.

During the decommissioning phase, just like construction phase, heavy vehicles, machinery and equipment used for dismantling and transportation of demolished materials could affect the noise level of the area.

These impacts are actually not serious and could be minimized by using modern and new vehicles, devices, barriers, equipment and machines in operation and decommissioning process and by providing ear muff and ear plugs to those working near the noisy machineries, as described details in chapter 11.1, EMP of this report.

Currently the resort is using only 2 vehicles for management purpose and keeping battery type buggies for transportation inside the resort compound. The resort also keep a number of bicycles to rent free of charge to visitors for sight-seeing around.

As biological control of the noise impact of the resort, the investor has greening and landscaping plan including conservation and planting trees on the boundary line and gap areas and around each bungalow of the resort. Total number of trees estimated to be conserved and planted is about 2,500 as noise barriers.

Moreover, to keep noise generation as minimal as possible, the developer has constructed tube wells and water treatment plant, staff dormitory, laundry, store, transformer and generator houses and garbage collection tanks on the nearby land, out of the proposed resort site. The resort has also managed to get zero noise from its boat jetty, by ordering the boatmen to row the boat (do not use engine power) within 500 meter distance of the resort. In addition, resorts also institute a no-disturbing/noise restricted policy such as silent/quiet period between 9 pm to 8 am to all visitors and employees.

Impact on Soil, Surface Water and Ground Water Quality

Being a resort project, no apparent or serious negative impacts on soil, surface water and ground water quality is observed. However, if not properly handle, there is a tendency of soil and groundwater pollution during the dismantling phases due to oil, lubricant and other liquid spills from vehicles and machines and mismanagement of oil/lubricant storage facility.

The similar oil spills impacts could happen in operation phases, as the resort needs to use vehicles for transport of guests, employees and goods, and machines such as back-up generator, grass cutters and water pumps etc. for its daily activities.

To avoid or mitigate this impact, the resort shall use vehicles, machines and equipment as minimal as possible in all phases (only 2 vehicles, electric type buggies and bicycles in operation phase) of its project. It will also make to ensure that all the vehicles, machines and equipment used are updated standard quality and properly maintained.

The resort shall also establish standard maintenance house for vehicles, machines and equipment and oil and lubricant storage facility on the land outside of the resort site. Machines, equipment and vehicles maintenance and handling of oil and lubricants shall carry out with special care by technicians and experts as detailed mentioned in chapter 11.1, EMP of this report. Thus the impact may be minimal and limited to the maintenance/storage site.

Every day, all resort guests and more than 100 employees will use restaurant, bar& club, business center, boutique shop, swimming pool, spa & beauty parlor, washing machines and toilet facilities attached in various parts of the resort. Therefore, there is also a tendency to get soil and water pollution through improper waste water and sewage mismanagement. However, the resort plans to use separate wastewater channels, wastewater treatment plant,

septic type toilet system, bio-tank and sewer disposed system in accordance with the local municipal guidelines to avoid potential contaminations and hazards by wastewater and sewage.

In addition, the resort shall apply biological engineering techniques using locally available grasses, bamboos, step by step hedgerows vegetation and evergreen tree species to keep the resort area clean, fresh and green, and also to prevent sedimentations and undesirable seepages into the Inlay Lake.

9.2 Impacts on Human

Health and Safety

Being a project of hotel/resort services, hygiene, health and safety of both resort guests and employees is the most priority factor for Aureum Palace Resort & Spa. The developer, Myanmar Treasure Hotel & Resort Group Co., Ltd. believes that commitment on health and safety of its guests and employees is the most important parameter to make its business a great success.

Possible health and safety impacts on hotel/resort guests are small accidents like cuts and amputations, electric shock, food abnormality, allergies, fire hazards, headache and sickness due to poor sanitation, ventilation and noise, and small injuries due to slips and falls. As more than 100 employees are working at the proposed resort project, the same hygiene, health and safety risks could arise on resort employees.

In addition, similar health and safety problems, accidents and injuries such as cuts and amputations, electric shock, thermal burns, crushing injury from material handling/falling objects or vehicle operation, fire hazards, headache and sickness due to poor ventilation or noise and small injuries due to slips, trips and falls could happen during the construction and dismantling phases as well.

To avoid or minimize health and safety risks, the Myanmar Treasure Hotel & Resort Group Co., Ltd. have carefully designed the resort layout and safety plan in accordance with both Myanmar and international norms and standards of a 5-star hotel/resort. The plan includes assembly area, alarm system, first-aid boxes, fire extinguishers, emergency water pumping system, fire hoses, sidewalks, escape routes, emergency exits, daily housekeeping and cleaning services on guest rooms, toilets, bar & club, business center, boutique shop, kitchen, all public places (lobby, lounge, swimming pool, spa& beauty parlor, reception etc.) and even

outdoor greening and landscaping. The resort buildings are designed and constructed in careful consideration of physical stability, structural load capacity, proper ventilation, lighting, fire prevention, sanitation and general safety issues, and shall comply with all relevant health and safety requirements, mainly issued by the Ministry of Environmental Conservation and Forestry and the Ministry of Hotels and Tourism.

To ensure and monitor the health and safety standards of the resort, one Health, Safety and The Environment (HSE) coordinator has been appointed. Regular trainings/instructions regarding safety aspects such as utilization of Personal Protective Equipment (PPE) requirements, guidelines for machine safety, guidelines for housekeeping/lighting/electricity, guidelines for sanitation/hygiene, guidelines for first-aid and fire and emergency evacuation drills are to be given/imposed to all employees. Notice, warning and caution announcement or signs will be released to all guests and employees as necessary in accordance with basic health and safety guidelines for hotel/resort management as mentioned detailed in chapter 11, EMP of this report.

For the health and emergency medical care of all resort guests and employees, the first-aid kits will be kept ready at all public places of the resort and a limousine shall be kept 24-hour standby to send the injured guests/employees to the nearby hospitals or clinics within the few minutes, in case if it is required.

In case of fire, all the guests and employees shall be evacuated systematically and as soon as possible. In cooperation with Nyaung Shwe Township government fire stations, fire drills shall be conducted regularly and thirty young resort employees shall be trained and organized as volunteer firefighting group. Fire alarm system, fire hoses, fire extinguishers, escape routes and emergency exits shall be inspected regularly and followed by proper maintenance as necessary.

To prevent electric shocks and hazards, two electrical maintenance staff (handyman) shall be assigned under engineering department to do regular inspections and take preventive measures.

To prevent injuries and accidents caused by operating of machineries, proper Personal Protective Equipment (PPE) such as safety gloves, helmet, goggles, ear muffs etc., are to be provided as necessary.

Poor housekeeping can be a contributing factor causing injuries, infections and illnesses leading to accidents and injuries such as slips, trips and falls, falling objects, fires and property damages. To avoid/mitigate this, a housekeeping department with a manger and

total strength of 24 experts and employees shall be developed to carry out regular and proper housekeeping, monitoring and prevention measures.

Socio-economic

The proposed hotel/resort project is a form of (100%) investment by a Private Limited Company, the Myanmar Treasure Hotel & Resort Group Co., Ltd. owned by Myanmar citizens. Total authorized investment plan of the company for resort project is Kyat 7,260 million. Upon completion of construction and installation of necessary equipment, in September 2011, Myanmar Treasure Hotel & Resort Group Co., Ltd. started operate international standard five-star grade lake side resort, at the vicinity of the internationally known ASEAN Heritage Park of Inlay Lake Wildlife Sanctuary.

This investment aims to contribute development of hotel and tourism business in the area and to boost local employment opportunities and consequently the socio-economic development of local communities.

During the 4-year construction phase, local technicians and general workers had to be employed, estimated average about 50-100 labors per day. In the operating phase of maximum 70 years, resort need to employ 106 employees (technicians, experts and workers) of all Myanmar nationals, out of which more than 80% will be local inhabitants. By working together with and by getting trainings from experienced managers, experts and technicians of Myanmar Treasure Hotel & Resort Group Co., Ltd., local inhabitants will get opportunities to improve their skills in hotel and tourism business and thus contribute the capacity building of local citizens. Similar job opportunities as construction phase will again happen in dismantling phase.

In addition, after tax exemption period of first 5-year, resort shall pay income tax (25% of gross operating profit) and commercial tax (5 % of total revenue) to the Government of the Union of Myanmar. Therefore, the proposed investment shall bring long-term opportunities for socio-economic development of local communities and the nation as a whole.

9.3 Waste Disposal

Solid Wastes

As a resort project situated on the bank of Inlay Lake Wildlife Sanctuary, the developer has put special emphasis on waste management and control. The resort authority shall comply zero tolerance with any kind of waste disposal into the lake.

In the operation phase, major solid wastes generated are from daily room cleaning, kitchen, bar & club, restaurant, boutique shop, reception/office and staff quarters. Different kinds of solid wastes, such as personal left overs, food residues (organic wastes), glasses, tins, bottles, packing materials, papers, stationeries, damaged/ expired devices or appliances and other miscellaneous are generated every day. All these solid wastes are collected separately in standard garbage recycle tanks base on their types and wet and dry status. Daily management, transport and disposal of these collected wastes has been done in accordance with the Nyaung Shwe township municipal guidelines, in such a manner to avoid the creation of health risks and to maintain proper sanitary conditions in and around the resort area. Organic wastes (mainly food residues) together with leaves and litters shall be kept in 10-feet depth pits outside the resort area, to be naturally decomposed as bio-fertilizer. Then this natural fertilizer shall be distributed free of charge to local farmers to be used at their agriculture land and also to be used in organic-garden raised by the resort outside the resort premises.

During the resort decommissioning phases, various kinds of solid wastes will also be generated. These wastes will be collected and clean every day to avoid any undesirable working condition and environmental impacts. Based on their types (glass, metal, plastic, wood, cement residues, oil spills and paper based or hazardous/ non-hazardous), these solid wastes will be collected separately in rubbish bins, and regular and proper disposal will be done in accordance with Nyaung Shwe township municipal guidelines.

For the disposal of the solid wastes, it is planned to dispose by contacting with the **Nyaung Shwe Township Municipal**. Before sent to NSTM, the wastes will be collected with the rubbish bin with different labels for the segregation of wastes and the collected wastes will be stored in a room. The warning signs and signboards with fine will be placed in all area especially at the dining room, walk way and more and enough amount of bins will be placed not to disposed to the Inlay lake by the guests. The following figures show the location of the Bio Septic Tanks and layout of the sewer line.

Liquid Wastes and Sanitary Wastes

The developer shall strictly apply the policy of zero waste discharge into the Inlay Lake. Even in the construction period, it had used readymade, pre-cut, pre-designed materials. Also it purchased required construction materials such as bricks, sand, lumber and steel under on-site transported basic. These arrangements had significantly reduced the requirement of transport vehicles for construction and so as to reduce use of water, fuel and lubricant at the site. Under such careful control and management, no liquid waste with significant extent and adverse impacts on surrounding environment is expected in decommissioning phases as well. In addition, to avoid unnecessary crowd, dirt, wastes (including liquid wastes) and smell inside the resort area, developer has constructed tube wells and water treatment plant, staff dormitory, laundry, store, transformer and generator houses and garbage bins on its purchased land, situated outside of the boundary of Inlay Lake Wildlife Sanctuary.

The resort has also established standard maintenance house for vehicles, machines and equipment and oil and lubricant storage facility on the land outside of resort site. Machines, equipment and vehicles maintenance and handling of oil and lubricants are being carried out with special care by trained technicians and experts to avoid any kind of oil, fuel and liquid wastes contamination into the surrounding environment particularly into the Inlay Lake.

During the operation phase, all resort guests and over 100 employees will be use toilet facilities, kitchen, restaurant, bar& club, business center, swimming pool and washing machines in daily basis. Two different types of liquid wastes are generated, used water (grey water) and sewer from toilets. All the used water (grey water) which may include cleaning agents, disinfectants, and linen washing agents are collected through separated channels or pipe lines into waste water treatment plant. Proper treatments are given there, before transport and discharge in accordance with Nyaung Shwe township municipal guidelines.

To ensure zero contamination or seepage by toilet wastes, resort has used two types of toilet waste management system, standard three-steps septic type toilet system for main entrance building which is constructed on higher ground and bio-tank sewer disposed system for cottages constructed on lower ground. Bio-tank system is not just a septic tank, it also a build-in waste water treatment system. It contains 3 different steps/chambers of clean-up mechanism in a same tank, an-aerobic and aerobic filtration and cleaning, sedimentation and disinfection processes. It can clean up the influent waste waters with up to 90% removal rate and can treat any type of waste water, kitchen, toilet, laundry or shower. The proposed

Kubota Johkasou sewage treatment plant is accepted and recommended by international environmental conservation organizations. Detailed design and function of Kubota Johkasou Bio-tank attached as Annex X. Special cautions and regular monitoring are being taken to make sure that the septic tanks and bio-tanks are not overloaded. Resort shall also comply with Nay Nyaung Shwe township municipal guidelines for proper and regular collection, transport and disposal of all liquid wastes to avoid any contaminations and hazards by waste water and sewages into the Inlay lake and wetland ecosystem.

The resort design also include to conserve all existing trees of the area and to conduct pleasant landscaping for recreation on all remaining areas (about 5 acres) of the resort site. The biological engineering techniques are applied using grass, bamboos, step by step hedgerows vegetation and evergreen tree species to keep the resort area clean, fresh and green, and also to prevent sedimentations and waste water seepages into the Inlay Lake.

9.4 Impacts on Ecological Resources

Impact on Inlay Lake Wildlife Sanctuary and its Wetland Ecosystem

As resort site is located just on the eastern bank of Inlay Lake, inside the territory of Inlay Lake Wildlife Sanctuary, there has been a public concerned of possible negative impacts on lake's water body, its wildlife and consequently its wetland ecosystem as a whole.

However, as the hotel/resort and tourism business in Nyaung Shwe area mainly based on undisputed attractions of the Inlay Lake, its wetland ecosystem and beautiful surroundings, it is an ethical and moral duty and ultimately a great business interest for developer to keep/enhance the existing beautiful nature. In this regard, as detailed described in chapter 9.1, 9.2 and 9.3 the resort project has carefully planned to implement all necessary precaution measures to avoid any potential negative impact on the lake and its ecosystem.

The resort shall be facilitated with up-to-date equipment, human control measures and bio-engineering techniques to avoid/minimize air, noise, soil and water pollution. In addition, the developer shall strictly apply the policy of zero waste discharge (both solid and liquid wastes) into the Inlay Lake. Two steps action is being taken in this regard, first maximum reduction of waste generation and the second systematic collection, proper treatment and regular transport and disposal of these wastes in accordance with local municipal guidelines. In this way the resort aims not only to maintain but also to enhance existing natural attractions of the lake and its surroundings. Thus, it can be expected that there shall be no significant negative

impacts on the Inlay Lake’s water body, aquatic ecology, wildlife, existing vegetation and surrounding natural environments due to the activities of proposed resort project.

10. Assessment of Significance

10.1 Assessment Procedure

In order to assess the significance of the impacts of the proposed hotel/resort project, potential impacts of the project activities are classified into two types, environmental impact and business impact.

For environmental impact, three criteria, *Severity (S)*, *level of control (C)* and *Occurrence (O)* are used to identify its significant. Again each criterion has three levels of weighting 1 to 3. Therefore an environmental impact is the most significant: when its severity level is high, its level of control is low and its occurrence is high.

For the business impact which includes legislative and stakeholder concerns, two criteria *Compliance (Com)* with the existing national, regulations and *Complaint (Cop)* from stakeholders are used to identify the significant. Here also three levels of weighting 1 to 3 are applied for each criterion.

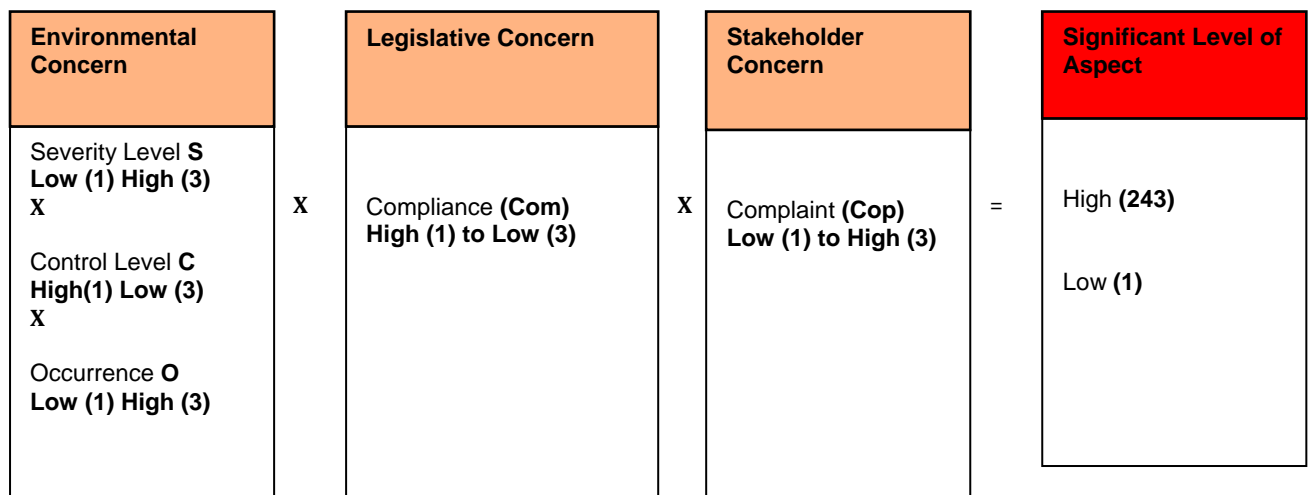


Figure 6: Method to Calculate the Significance of Impact

The basic principles in order to figure out the significant aspect are as in the following;

Severity (S)

This criterion is used to evaluate the effects on man and environment, depending on the toxicity, quantity and impact of the activities.

- 1 Low severity: low toxicity, low quantity, low impact on man and environment.
- 2 Medium severity: medium toxicity, averaged quantity, low effect on environment
- 3 High severity: high toxicity, very important quantity, high impact on environment

Occurrence (O)

This criterion is corresponding to the frequency of the impact occurrence.

- 1 Low: Annual frequency or never occurred
- 2 Medium: Monthly or Weekly Frequency
- 3 High: Daily frequency or chronicle

Level of Control (C)

This criterion is used to evaluate the level of control of the aspect, depending on the detection, available means, the operating procedures and the precautions taken.

- 1 High, easy detection and control with operating procedures regularly checked and/or important precautions taken to lower impact.
- 2 Medium detection and control with operation procedures not regularly checked and/or average precautions taken to lower impact.
- 3 No control, no detection and/or no precaution taken to lower impact.

Legal Compliance

- 1 Subject to be existing regulatory controls (local, international and TEPM regulations)
- 2 Subject to regulatory control in the near future (Impending or amending legislation within the next 5 years)
- 3 No regulatory control

Complaint from Stakeholders

- 1 No complaint
- 2 Potential to a cause of serious complaint
- 3 Serious complaint raised by partners, neighbors, customers, employees and communities

Scoring evaluation for significant environmental impacts

Score evaluation corresponds to:

- 1-60 No significant impact
- 61-121 Low impact, try to improve
- 122-182 Significant impact, real necessity to improve
- 183-243 Unsustainable situations

Based on the scores, considerable and significant impacts which need control/ improvement measures are those whose scores are above 60 and between 182.

If the score of an impact is more than 183, the whole process must be re-designed and re-planned.

10.2 Environmental Impacts and Significance

The following table indicates the evaluation of potential environmental impacts due to proposed Aureum Palace Resort & Spa project and its significance.

Table 8: Evaluation of Potential Environmental Impacts of the Proposed Aureum Palace Resort & Spa and its significance

Activities	Aspects of the risks	Possible Impacts	Severity	Occurrence	Control	Compliance	Complaint	Result score	Significance
Operation phase									
<i>Logistics</i>									
Transport, storage and handling of diesel/engine oil and lubricating oil (place of purchase to resort)	Accidental Spillage/Leakage/ Accidents/Fire	Ground water & Soil contamination/Injury/ Mortality	2	1	2	2	1	8	No Significance
Transportation of guests, employees, necessary goods and materials	Oil spillage/ CO ₂ , SO ₂ emissions/Noise/ Dusts/Accidents	Soil & water contamination/ Air pollution/ Injury/Mortality	2	2	2	2	1	16	No Significance
Vehicle maintenance and washing, Laundry services	Excessive use of water/ Noise/ Spillage/ Effluent discharge with cleaning chemicals or detergents/ Accidents	Soil contamination/water pollution/Sound pollution/ Injury	1	2	2	2	1	8	No Significance
Air-condition units and its maintenance	CFC release to atmosphere	Ozone depletion/Global warming	1	3	1	2	1	6	No Significance
<i>Administration</i>									

Activities	Aspects of the risks	Possible Impacts	Severity	Occurrence	Control	Compliance	Complaint	Result score	Significance
Resort maintenance	Dust/Noise/Waste generation/ Odour/ Accidents	Air pollution/ Nuisance/ Resource depletion/ Sound pollution/ Injury	2	1	2	2	1	8	No Significance
Reception/Offices/ Lobby	Solid Wastes/ Sewage/Effluent generation	Soil contamination/Resource depletion/ Water pollution	1	3	2	2	1	12	No Significance
<i>General Hotel/ Resort Services</i>									
Guest rooms/ Staff dormitory	Waste generation/ Odour/Sewage & effluent Discharge with chemical detergents / Noise/ Infection/ Accidents/ Fire	Resource depletion/ Water pollution/ Sound pollution/ Soil and water contamination/ Air pollution/ Nuisance/ Injuries / Illness	2	3	2	2	1	24	No Significance
Kitchen/ Restaurants/ Bar & Club	Waste generation including food chemicals/ Odour/Sewage & effluent Discharge/ Noise/ Infection/ Accidents/ Fire	Resource depletion/ Water pollution/ Sound pollution/ Soil and water contamination/ Air pollution/ Nuisance/ Injuries / Illness	2	3	2	2	1	24	No Significance
Entertainments/ Shows/ Parties/ Gatherings	Waste generation/ Odour/ Sewage & effluent Discharge/ Noise/ Accidents	Resource depletion/ Water pollution/ Sound pollution/ Soil and water contamination/ Air pollution/ Nuisance/ Injuries	1	2	2	2	1	8	No Significance

Activities	Aspects of the risks	Possible Impacts	Severity	Occurrence	Control	Compliance	Complaint	Result score	Significance
Boutique Shop	Waste generation/ Noise/ Accidents	Resource depletion/ Water pollution/ Sound pollution/ Soil and water contamination/ Air pollution/ Nuisance/ Injuries	2	3	2	2	1	24	No Significance
Spar& Beauty Parlor / Swimming pool	Excessive use of water, Waste generation/ Odour/ Sewage & effluent Discharge/ Noise/ Infection/ Accidents	Resource depletion/ Water pollution/ Sound pollution/ Soil and water contamination/ Air pollution/ Nuisance/ Injuries / Illness	2	3	2	2	1	24	No Significance
Toilets	Septic tank& Bio-tank Overload/Spillage/Odour generation/ Infections	Soil contamination/ Water Pollution/ Air pollution/ Illness and health problems	2	3	2	2	2	48	No Significance
Emergency diesel generator running	Noise/ Smoke/ Odour generation/ CO ₂ , SO ₂ emissions /Resource Depletion/ Spills/ Accidents	Nuisance (noise)/Air pollution/ Soil and water contamination/ injury	1	1	2	2	1	4	No Significance
Employment Opportunity	Local people get employed/ Skills improved	Socio-economic standard of local communities improved	-	-	-	-	-	-	Positive Socio-economic impact
<i>Safety & Health</i>									

Activities	Aspects of the risks	Possible Impacts	Severity	Occurrence	Control	Compliance	Complaint	Result score	Significance
Fire Accident	Odour/Smoke/Noise/ Heat Generation/ Accidents/ Loss of life and property/ Unrest	Air Pollution/ Soil and water contamination/ Resource depletion/ Property damaged and loss/ Nuisance/ Injury/ Mortality/ Looting/ Theft	3	1	1	2	3	18	No Significance
Electrical Hazards	Electrical shocks/ Odour/ Accidents/ Loss of property	Air Pollution/ Thermal burns/ Injury/ Mortality/ Property damaged and loss	2	1	1	2	2	8	No Significance
Occupational Accidents	Accidents and injuries	Cuts and amputations, Thermal burns, Slip and falls/ Crushing injury from material handling and falling objects/ Nuisance/ Respiratory problems/ Headache and sickness	2	2	1	2	2	16	No Significance
Poor Housekeeping	Accidents/ Contamination/ Bad smell/ Infections	Air Pollution/ Soil and water contamination/ Slips/falls/Trip/ Nuisance/ Headache and sickness/ Diseases	2	2	1	2	2	16	No Significance
Decommissioning phase									

Activities	Aspects of the risks	Possible Impacts	Severity	Occurrence	Control	Compliance	Complaint	Result score	Significance
Dismantling of machines/ buildings	Noise/Dust/ Solid Waste /Odour form painting/ Spills/ Accidents (limited to the site and construction period)	Nuisance/Air pollution/Sound Pollution/ Resource Depletion/ Injuries / Illness	2	2	2	2	1	16	No Significance

In brief, **No** significant and severe impacts are found on surrounding natural environment (air, water, soil, noise) and human environment (health and safety of resort guests, employees and surrounding communities) due to activities of proposed Aureum Palace Resort & Spa.

11. Environmental Management and Monitoring Plan and Institutional Requirements

In order to prevent or mitigate the non-significant impacts identified in chapter 10, the following Environmental Management and Monitoring Plan has prepared as an environmental management and health and safety framework for all phases (operation and decommissioning) of Aureum Palace Resort & Spa project. The environmental and biological management practices, procedures and responsibilities are defined here in to get full compliance with the existing environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

This plan is composed of four parts:

- Environmental Management Plan (EMP)
- Biodiversity Management Plan (BMP)
- Cooperative Social Responsibility Plan (CSR) and
- Environmental Monitoring Plan

Environmental Management Plan (EMP) identifies the activities, objectives, mitigation & enhancement measures to prevent or avoid all possible impacts of resort project on surrounding environment (even for minor/non-significant impacts as well), estimated cost for action and responsible person or responsible unit for action. The Biodiversity Management Plan (BMP) aims to contribute improve the Inlay Lake's biodiversity and ensure keeping healthy populations of its flora and fauna species and vegetation communities for long term. Cooperative Social Responsibility (CSR) Plan set up the local social welfare, environmental conservation and sanitation activities to be contributed by resort in cooperation with nearby hotels/resorts, businesses and concerned authorities. Environmental Monitoring Plan identifies the plan and schedule to monitor the environmental concerns, management activities, timing, cost and responsible person and unit for action.

All the feed backs, desired and needs of local public recorded in public consultation meetings are well addressed and incorporated in formulation of EMP, BMP, CSR and environmental monitoring plan.

11.1 Environmental Management Plan

The detailed **Environmental Management Plan** (EMP) is as follows.

Table 9: Environmental Management Plan (EMP)

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
Operation Phase				
Water Quality	To minimize water consumption and contamination	Water-saving equipment, including ultra-low-flush toilets, spray nozzles, urinals, and low-flow showerheads, and pressure-control valves shall be installed for optimal use of water at guest rooms, staff dormitory and all public places with proper maintenance. Minimum use of environmental friendly/ allowed cleaning chemicals or detergents. Minimizing use of the laundry by asking guests to reuse towels and bedding. Install water meter for control of water use. Special care and preventions in transport, storage and handling of oil and lubricants. Implementation of pool/spa water sanitization program to prevent the growth of microorganisms. Construct tube wells and water treatment plant, staff dormitory, laundry, store, transformer and generator houses and garbage bins on	4,000/yr.	Aureum Palace Resort & Spa And Construction Company

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
		nearby purchased land, outside of the resort site and boundary of Inlay Lake Wildlife Sanctuary		
Energy Saving/ Conservation	To minimize energy consumption but without bothering the guests	Adopt energy management and control system, including centralized monitoring and reporting of energy and water use, switched time schedules, chiller optimization, load-based reset, and demand control. Use of direct gain and day lighting techniques, allowing maximum sunlight to penetrate building to provide light to illuminate interiors and to provide heat. Installation of renewable energy systems where local conditions permit (e.g. solar water heating, photovoltaic cells, etc.). Use of high-efficiency light bulbs (e.g. compact fluorescent light bulbs) where possible. Regular maintenance of these systems and devices	4.0/yr.	Aureum Palace Resort & Spa and Construction Company
Air Quality	To reduce greenhouse gas emission. To avoid complaints due to air pollution and health problems	Minimal use update and new vehicles, machines, equipment for daily hotel operation with proper maintenance. Use of battery type buggies and bicycles for inside resort and nearby transport. Avoid use of ozone depleting air-conditions and	5.0/yr.	Aureum Palace Resort & Spa

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
		refrigerants and use low Global Warming Potential (GWP) types. Install blower and chimney of proper height at kitchens and back-up generator. Daily checkup and maintenance of septic/bio tanks, waste water collection and treatment system and garbage collection and disposed system to make sure that no over flow or bed smell form these sources. Keep the landscape green with original &planted trees as absorbents/biological control.		
Indoor Air Quality (Odour/Smoke/ Dust)	To keep indoor air quality of hotel pleasant and hygienic	Construct the buildings with high ceiling, large windows, sidewalks and verandas for proper natural air circulation. Use low-VOC-emitting products (e.g. water base paints and adhesives rather than oil based. Avoid use of aerosols and sprays. Use housekeeping and cleaning products during unoccupied hours. Avoid the use of “air fresheners”. Institute a no-smoking/ smoking restricted policy. Proper maintenance of machines, wires and electrical appliances. Install blower, exhaust fans and chimney kitchens. Put indoor potted plants for air refreshment and regular maintenance.	4.0/yr.	Aureum Palace Resort & Spa and Construction Company

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
Noise	To ensure cumulative noise impact is under acceptable level	Minimum use of update and new vehicles, machines, devices and equipment for daily operations with proper maintenance. Use of battery type buggies and bicycles for inside resort and nearby transport. Isolation of noisy areas. Installing double doors between guest rooms and noisy areas (e.g. kitchens, lobby and restaurant). Installing windows with sound-reduction materials. Provide appropriate Personal Protective Equipment (PPE) to workers who work nearby noisy places to reduce noise impacts. Institute a no-disturbing/ noise restricted policy (e.g. quiet period between 9 pm to 8 am). Conserve natural vegetation and plant trees as natural noise barrier. Tour boats shall not use engine power within 500 distance of the resort (move only by rowing).	3.0/yr.	Aureum Palace Resort & Spa and Construction Company
Oil and Lubricant Spillage	To prevent spillage and soil and water contamination	Minimum use and proper maintenance of vehicles and equipment. Use of battery type buggies and bicycles for inside resort and nearby transport. Establish standard maintenance house for vehicles, machines and equipment and oil and lubricant storage facility on the land outside of	2.5/yr.	Aureum Palace Resort & Spa

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
		resort site. Proper transport, storage and handling of oil and lubricants. Provide secondary containment. Provide oil separator.		
CFC release form air-conditions/ refrigerators and its maintenance	To minimize release of CFC	Construct the buildings with high ceiling, large windows, sidewalks and verandas for proper natural air circulation. Minimum use of air-conditions. Install environmental friendly and low global warming potential (GWP) type air-conditions/ refrigerators and regular maintenance with trained technicians	2.0/yr.	Aureum Palace Resort & Spa and Construction Company
Health& Safety	To minimize accidents, injuries and disease	Minimum use of update and new vehicles, machines, equipment for resort with proper maintenance. Daily housekeeping and sanitation service to all public and private places with trained technicians. Provide appropriate Personal Protective Equipment (PPE) as necessary. Provide emergency health care to all guests and employees. First aid training to all employees. Equip shower stalls with nonslip surfaces or anti-slip strips, secure handles, and ready access to emergency phones. Maintain frequently transited areas as dry as possible. Design of swimming pool depths and	5.0/yr.	Aureum Palace Resort & Spa

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
		configuration to reduce or avoid the risk of injuries or drowning. Institution of lifeguard supervision and water sanitization policies. Strict rule on working hour, vacations, regular medical checkup and vaccination for employees		
Fire	To prevent fire accident	Daily cleaning of leaves, litters and all kinds of debris inside resort compound. Ensure sufficient emergency firefighting tools (fire alarm, fire extinguishers, fire hoses, standby water tanks, water pumps, and first-aid boxes) are installed and standby at all corners of resort and regular check and maintenance. Training on fire fighting, evacuation and first aid. Organize a volunteer firefighting team with 30 young employees and get consultation by Nyaung Shwe Township Fire Station. Keep enough spaces for sidewalks, escape routes, emergency exits, assembly area with regular inspection and maintenance. Proper maintenance of machines, wires and electrical appliances.	5.0/yr.	Aureum Palace Resort & Spa
Food and Water Quality	To ensure that food and water provided by resort is hygiene and standard	Install additional water purification system at kitchen. Use only purified drinking water for all cooking and food	3.0/yr.	Aureum Palace Resort & Spa

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
	quality	preparing. Do not use banned substances, ingredients or chemicals in food making. Compliance with food hygiene and water-quality standards of government authorities and international standards of food-handling, preparation and storage and water-quality. Supply of safe and hygiene foods, drinks and water. Regular testing of food and water according to World Health Organization (WHO) standards as a minimum		
Solid waste disposal	To minimize generation of different types of solid waste and proper disposal	Strictly apply the policy of zero waste discharge into the Inlay Lake. Use of refillable, bulk dispensers (e.g. toiletries) rather than individually packaged products. Working with suppliers to limit use of, and establish recycling for, product packaging. Use of glass or durable plastic instead of disposable plastic items (e.g. straws, cups). Use reusable cotton handkerchief than tissue paper. Proper segregation in collection of waste. All the recyclable wastes such as plastic bottles, glass bottles, cans, plastic and papers shall be selling to local recyclable factories. Implementing organic-waste composting. Follow NSTM	5.0/yr.	Aureum Palace Resort & Spa

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
		guidelines for proper disposal.		
Use of Chemical Cleaners or Detergents	To prevent soil/water contamination due to chemical residues and health problems	Ensure use of nontoxic, hypoallergenic cleaning products and limiting skin exposure through the use of PPEs (gloves and other personal protection Equipment). Chemical cleaners and detergents stored in standard storage facilities. Ensure optimal use of cleaning chemicals. Provide emergency washing facilities and health care to employees.	3.0/yr.	Aureum Palace Resort & Spa
Grey (used) water and Sewage disposal	To prevent soil/water contamination due to grey water discharge and overload or spillage of septic/bio tanks	Strictly apply the policy of zero waste discharge into the Inlay Lake. Collect grey water through separate channels or pipe lines. Install grey water treatment plant. Proper treatments are given before transport and discharge in accordance with NSTM guidelines. Standard septic type/bio-tank toilets of well-lit, well-cleaned and well-maintained will be used. Special cautions shall be taken to make sure that the septic tanks/ bio-tanks are not overloaded. Regular monitoring and follow NSTM guidelines for final disposal of sewage& sludge (Carry by sewage tanker and disposed in designated	5.0/yr.	Aureum Palace Resort & Spa

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
		site). Conserve and plant trees, grasses and bamboos and hedgerows vegetation to keep the resort site clean, fresh and pleasant and also to prevent any liquid seepage into the Inlay lake.		
Decommissioning Phase				
Flora and Fauna	To minimize damage to Flora and Fauna nearby	Demolishing is limited to the proposed project site. Minimal use of transport vehicles/ machines. Excavation and filling be kept minimal. Conserve existing trees and natural landscape, reused all recyclable items at other sites.	-	Demolishing Company
Hydrological Impacts	To minimize hydrological and drainage impacts during demolishing	Water, Oil & lubricant usage, excavation and filling be kept minimal. Paid special attention not to disturb natural water course and tributaries	-	Demolishing Company
Noise	To ensure cumulative noise impact is under acceptable level	Minimal use updated and good vehicles, machines, equipment such as backhoe, dozer, compactor, tipper, cutter, trucks, etc. for demolishing with proper maintenance. Provide appropriate Personal Protective Equipment (PPE) to workers as necessary reduce noise impacts	5.0	Demolishing Company
Waste disposal	To ensure adequate disposal options for all kinds of	Strictly apply the policy of zero waste discharge into the Inlay Lake. Separate	3.0	Demolishing Company

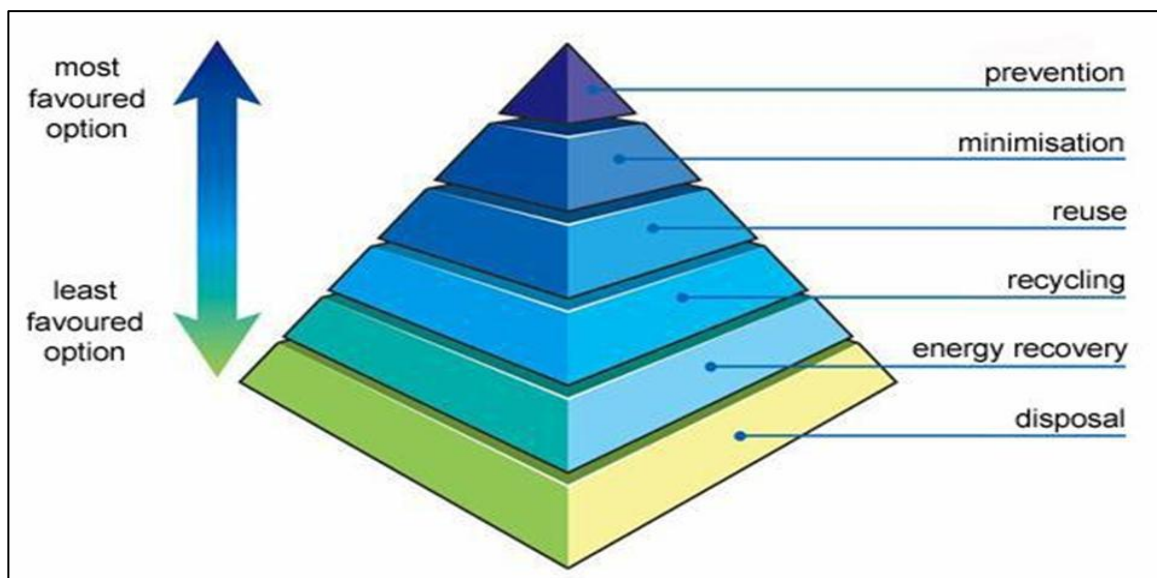
Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
	demolishing wastes including glass, metal, wood, cement residues, plastic, paper based wastes, oil spills etc.	collection and storage of wastes based on different types (hazardous or non-hazardous). Reuse all reusable items in other sites. Contact and follow Nyaung Shwe Township Municipal (NSTM) guidelines for final disposal. Special care and preventions in transport, storage and handling of oil and lubricants.		
Air Quality	To minimize dust effectively. To reduce greenhouse gas emission. To avoid complaints due to air pollution and health problems	Minimal use of transport vehicles/ machines. Excavation and filling be kept minimal. Watering on dusty area before operation. Install side cover (nets) on dusty work sites. Use update and good vehicles, machines, equipment for construction. Provide appropriate Personal Protective Equipment (PPE) to employees working at dusty sites	2.0	Demolishing Company
Water Quality	To minimize water consumption and contamination	Minimal use of water during demolishing. Install water meter for control of water use. Special care and preventions in transport, storage and handling of oil and lubricants	2.0	Demolishing Company
Health& Safety	To minimize accidents, fire, injuries and disease during	Avoid using toxic and hazardous substance in demolishing. Use update and	10.0	Demolishing Company

Project / Activity Phase	Objectives	Mitigating & Enhancement Measures	Estimated Cost of Proposed Measures (Million Kyat)	Responsible Person / Unit
	demolishing period	good vehicles, machines, equipment are used for demolishing with proper maintenance. Strict rule on working hour. Provide appropriate Personal Protective Equipment (PPE) as necessary. Provide emergency health care and sanitation to employees. Ensure sufficient emergency firefighting tools (fire extinguishers, hooks, buckets and water tanks) are standby at demolishing site		

Waste Management Plan

As a resort project situated on the bank of Inlay Lake Wildlife Sanctuary, the developer has put special emphasis on waste management and control. The resort authority shall comply zero tolerance with any kind of waste disposal into the lake. There are two type of wastes (solid waste and liquid waste) will be generated from proposed project.

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



Waste Management Areas/ Facilities

Wherever practical, waste should be transported by the resort operator (or appointed waste service provider) from the point of generation directly to the centralized waste storage area or temporary storage facilities where it can be safely stored prior to offsite disposal. For efficiency it is permissible to establish intermediate storage area/ collection points; this would be at the discretion of the resort management, and all such area would have to comply with safe storage requirements.

Identification of Waste Generated from proposed project

The proposed resort will produce various kind of waste such as non-hazardous waste and hazardous waste during construction phase, operation phase and decommissioning phase.

- 1. None Hazardous Waste**
- 2. Hazardous Waste**

Non - Hazardous Wastes

Type	Components	Source
Household wastes	Food/kitchen waste, used or dirty paper and wrapping, plastic wrapping, or bags composite wrappers	Hotel's different departments
Paper	Printed documents, brochures, menus, maps, magazines, newspaper	Administration, reception, guest rooms, restaurants
Plastic	Bags, bottle (that did not contain hazardous materials), household goods, individual portion wrappers for various products	Kitchen, restaurants, bars, guest rooms
Metal	Tin cans, jar lids, soda cans, food containers, mayonnaise mustard and tomato puree tubes, aluminum packaging	Kitchen, restaurants, bars, guest rooms
Glass	Bottles, jars, flasks	Kitchen, restaurants, bars, guest rooms
Wood	Wooden packaging, pallets	Purchasing department
Organic Wastes	Fruit and vegetable peelings, flowers and plants, branches, leaves, grass	Kitchen, restaurants, bars, guest rooms, gardens

Hazardous Wastes

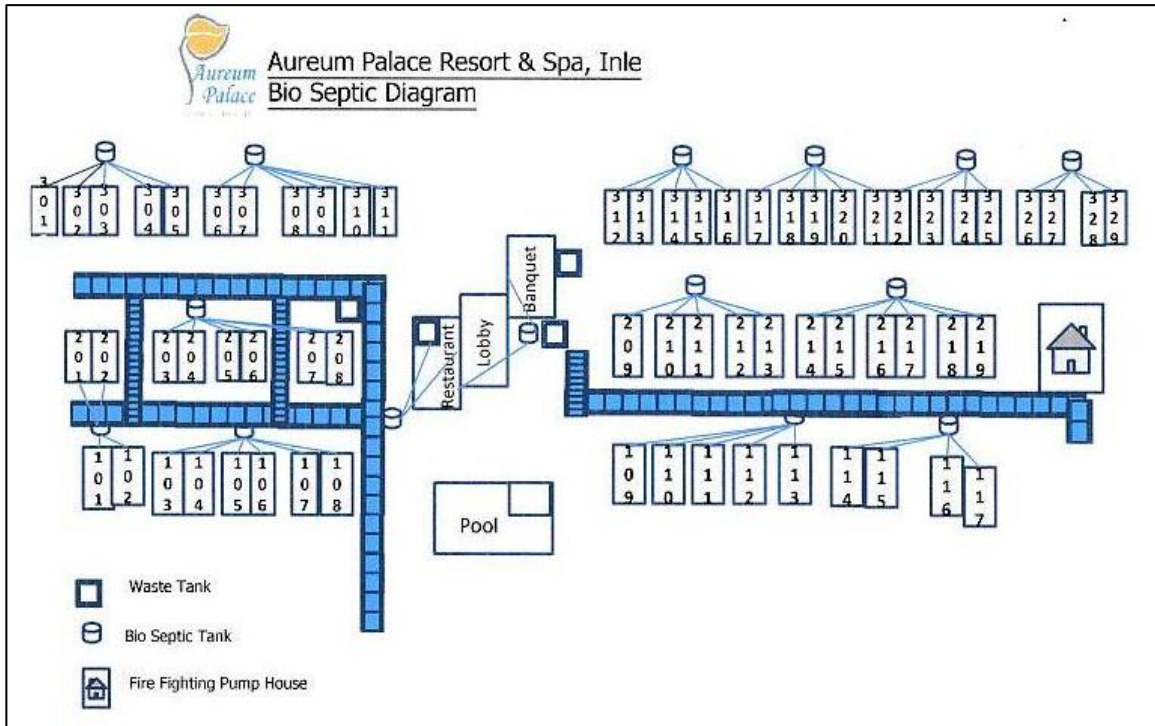
Type	Source
Frying Oil	Kitchen, restaurants
Mineral Oil	Maintenance service
Paint and solvent residues	Maintenance service
Flammable materials (gas, petrol, etc)	Kitchen, garden, Maintenance service
Fertilizers and chemical	Garden
Cleaning chemicals	Maintenance service
Ink cartridges	Administration, guest rooms
Batteries	Maintenance service, administration, guest rooms
Cleaning chemicals	Laundry room
Solvents used in dry cleaning	
Fluorescent lights, neon tubes and long-life bulbs	Maintenance service

Waste Management Facilities

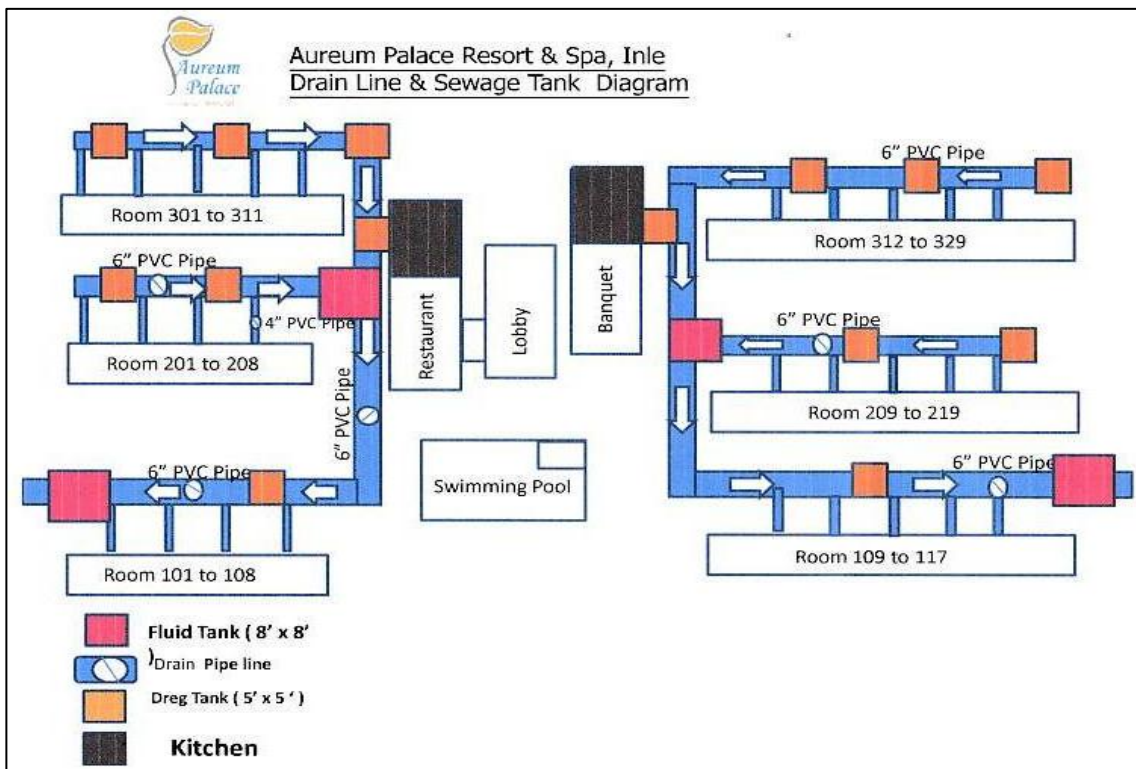
It is essential that the generated wastes are handled, stored and managed in a safe and environmentally responsible manner. Wastes types segregated are disposed of in accordance with the “Best Practicable Environmental Option” with the intention of least impacts on the environment. Aureum Palace Resort & Spa has the option of waste management facilities produced waste from different departments. Segregation and identification of produced waste

from Aureum Palace Resort & Spa. The generated and segregated wastes will be collected by using the garbage bin, plastic container, recyclable plastic bags and organic waste will be composted and used as fertilizer.

Waste Stream	Description	Handling Methods	Disposal Method
Organic Wastes	Residue Food waste, vegetable scraps, meat bones, fish bones, etc. Paper Garden waste such as dry leaves	<ul style="list-style-type: none"> ▪ Placed in designated bins or containers and then packed with recyclable bags at the premises of each department. ▪ Stored at temporary storage area at the site. ▪ Daily management, transport and disposal of these collected wastes has been done in accordance with the Nyaung Shwe township municipal guidelines ▪ Office used paper other newspaper will be collected and stored for other reuse of packing materials ▪ Composting at site 	Organic waste will be disposed of at sanitary landfill within the project site. Food waste will be disposed of by composting.
Inorganic Wastes	Wooden crates, glass bottles, glass jars, metal cans, etc.	<ul style="list-style-type: none"> ▪ These waste will be collected separately in rubbish bins, and segregate into recyclable and non-recyclable waste and then regular and proper disposal will be done in temporary storage at the site 	Wooden crates, glass bottles, glass jars and metal cans have resale value and will be reused or recycled.
Waste Water Sewage	All human excreta and associated products	<ul style="list-style-type: none"> ▪ Kubota Johkasou Bio-tank will be used and then discharge into clean water 	When the Bio-tank is full, contact Shwe Nyaung Municipal Committee for final disposal



Location of the Bio Septic Tanks (Kubota Johkasou)



Sewer Line Layout Plan

Segregated Waste Streams and Recommended Mitigation Measure

Waste Stream	Best Implemented Practices or Recommended Mitigation Measures	Responsibility
Non-Hazardous Waste		
Household wastes Domestic Waste, Organic Wastes (food waste, vegetable waste)	<ul style="list-style-type: none"> ▪ The resort should develop a comprehensive system for waste separation at the relevant generation points to facilitate composting. ▪ Waste should be separated into items which can be used, composted, or recycled, and the remaining portion sent to the general waste stream for disposal at landfill. ▪ Significant quantities of vegetation trimmings can be shredded and used to stabilize the entrances and access paths 	Aureum Palace Resort & Spa
Paper	<ul style="list-style-type: none"> ▪ Double side printing and using one-side printouts as scrap 	Aureum Palace Resort & Spa
Plastic	<ul style="list-style-type: none"> ▪ Use of refillable dispensers for soap and shampoo ▪ Use of dosing systems instead of individual cleaning bottles ▪ Purchases of reusable or durable materials ▪ Turning the glasses in guestrooms upside down instead of using plastic covers 	Aureum Palace Resort & Spa
Metal	<ul style="list-style-type: none"> ▪ Purchase of reusable or durable material 	Aureum Palace Resort & Spa
Glass	<ul style="list-style-type: none"> ▪ Use of post mix instead of glass bottles 	Aureum Palace Resort & Spa
Wood	<ul style="list-style-type: none"> ▪ Reusing as raw materials for other wooden products 	Aureum Palace Resort & Spa
Hazardous Waste		
Used oil and oil contaminated material	<ul style="list-style-type: none"> ▪ Used oil should be stored away from drains or watercourses in bunded roofed and sealed areas ▪ Used oil waste storage areas should be color coded clearly signposted as “Use Oil Waste”. Storage areas must be protected from the elements (rain, sun etc.), away from open flames and should be accessible for removal trucks ▪ Sufficient absorbent spill cleanup kits should be placed nearby the used oil waste storage area 	Aureum Palace Resort & Spa
Used cooking oil	<ul style="list-style-type: none"> ▪ All used cooking oil generated from the kitchen must have a designated area for the storage of used cooking oil waste. This area should be clearly signposted “cooking oil waste” and protected from 	Aureum Palace Resort & Spa

Waste Stream	Best Implemented Practices or Recommended Mitigation Measures	Responsibility
	<p>the elements, away from open flames and should be accessible by vehicles for the transfer to the collection area</p> <ul style="list-style-type: none"> ▪ The storage area should be situated on a concrete base. ▪ These oils must be kept separate from fats and greases extracted from kitchen fans and filters 	
Chemicals	<ul style="list-style-type: none"> ▪ Chemical waste (unwanted, expired etc. chemicals) should be ▪ Stored in color coded, not corrosive containers, clearly signpost as “chemical waste “. Care must be taken to not store in chemicals together or close to one another ▪ Be stored away from any source that release heat, especially flammable chemicals ▪ Not to be stored in walkways, entrances or windowsills. Stock only in shelves available ▪ Used dry, concentrated chemicals in dispensers to reduce chemical spills and waste 	Aureum Palace Resort & Spa
Battery Waste	<ul style="list-style-type: none"> ▪ All batteries should be stored in a cool dry place, away from flammable materials and heat sources ▪ Spent batteries must be placed in a plastic bag or have non-conductive electrical tape over the terminals. ▪ Lead acid batteries should be with the terminals on top to prevent spillage ▪ Batteries should be sorted according to their chemistry/supplier, disposed in non-metal or lined steel containers, and labeled as “ Used batteries”. 	Aureum Palace Resort & Spa
Sewage Sludge	<ul style="list-style-type: none"> ▪ The septic tanks will need to be de-sludged periodically (e.g. every 3-5 years), it is recommended that and approved sludge removal contractor must be appointed to undertake the de-slugging ▪ Water conservation practices should be encouraged wherever possible in order to reduce the amount of sewage requiring treatment ▪ The sewage treatment plant is to be operated and maintained by suitably qualified personnel at all times, in strict accordance with the operating 	Aureum Palace Resort & Spa

Waste Stream	Best Implemented Practices or Recommended Mitigation Measures	Responsibility
	procedures <ul style="list-style-type: none"> ▪ In the event of a failure or overflow situation at the sewage treatment plant, the resort is required to implement a back-up system which will ensure that no sewage is discharged into the environment 	
E - Waste	<ul style="list-style-type: none"> ▪ E-waste is waste generated from electronic equipment. Electronics are potentially recyclable but contain lead, which can be harmful to the environment if disposed of improperly 	Aureum Palace Resort & Spa

General Waste Reduction

There are a number of options for reducing the amount of waste produced at the resort

✚ **Awareness:** Staff must be made aware of the aim to reduce, minimize and reuse waste by means of posters, training, staff meetings, etc.

✚ **Greener Purchasing :**

- Purchase recycled , durable and reparable products
- Use and environmentally friendly manufactured paper product range to replace convectional paper stationary
- Buy products with less packaging , or packaging that can be recycled
- Refillable amenity dispensers should replace soap, lotion, shampoo and conditioner bottles in the resort’s guest rooms
- Purchase bio-degradable bags for waste bins

✚ **General Office and Housekeeping practices**

- Reuse office equipment, files, folders, boxes ,etc. wherever possible
- The resort operator should develop an office paper reduction program including the reuse of paper,
- The resort management should aim to reuse toner printer cartridge by shipping them to companies that remanufacture them
- Reuse stained cloths and towels for cleaning

11.2 Biodiversity Management Plan (BMP)

The detailed Biodiversity Management Plan (BMP) as an attempt to be a responsible eco-tourism center is as follows.

Table 10: Biodiversity Management Plan (BMP)

Sr.	Activity	Responsibility	Timing	Estimated Budget (Million MMK/year)
1.	<p>Awareness raising and comprehensive information of “DOs” and “DONTs” to all visitors and employees within Inlay Lake Wildlife Sanctuary at their arrival to the resort</p> <ul style="list-style-type: none"> - not to enter restricted areas - not to discharge any kind of waste - to inform any kind of irregularities (such as dead birds and fishes) to authorities of wildlife sanctuary through resort management unit - not to hunt or catch any wild life including their eggs and offspring - not to bring or left-over any non-native species of plants and animals - not to purchase any kind of wildlife and products related to wildlife - to be fully compliance with Protection of Wildlife and Conservation of Natural Areas Law (1994) 	HSE Team/ Aureum Palace Resort & Spa	<p>Distribution of “DOs” and “DONTs” pamphlets and thorough explanation to all new visitors and employees/ Daily monitor and control</p>	3.0
2.	<p>Cooperation with nearby hotels/resorts, communities and local authorities to keep and enhance the quality of Inlay Lake Wildlife Sanctuary</p> <ul style="list-style-type: none"> - form a responsible eco-tourism society in Nyaung 	HSE Team/ Aureum Palace Resort & Spa	Regular contacts and cooperation with nearby hotels/resorts, communities and local authorities	2.0

Sr.	Activity	Responsibility	Timing	Estimated Budget (Million MMK/year)
	<p>Shwe – Inlay area and conduct awareness raising campaigns, such as public education on threatened species and debate on protection of alien invasive species</p> <ul style="list-style-type: none"> - encourage to use less noisy boats (with soundproof engines) inside the lake - initiate to develop more restricted areas for endangered, endemic and threatened species (such as stock exclusion fences, breeding boxes, etc.) and build more viewing platforms and watching towers - organize to observe common silent time (e.g. from 9 pm. to 8 am) among all hotels and resorts - encourage all hotels/resorts and local communities to protect, conserve and enhance native plants and animals - advice authorities to develop proper and better rules and regulations to enhance responsible ecotourism and quality of Inlay Lake Wildlife Sanctuary 			
3.	<p>Cooperation with nearby hotels, resorts and concerned authorities (particularly with Nyaung Shwe Township Municipal) for local environmental safety and sanitation</p> <ul style="list-style-type: none"> - develop a common waste management system (both solid and liquid wastes) 	HSE Team/ Aureum Palace Resort & Spa	Regular contacts and cooperation with nearby hotels/resorts, and Nyaung Shwe Township Municipal	5.0 per annum initial 3 years 2.0 per annum in the following years

Sr.	Activity	Responsibility	Timing	Estimated Budget (Million MMK/year)
	transportation and discharging at appropriated site - raise a fund to buy required facilities for common waste management system (e.g. garbage trucks, sewer tankers, etc.) - Organized and implement a policy “Zero Waste Discharge” into the Inlay Lake Wildlife Sanctuary by all hotels and resorts of the area			
	Total (for initial 3 years)			10.0
	Total (for following years)			7.0

11.3 Corporate Social Responsibility (CSR) Plan

The developer, Myanmar Treasure Hotel & Resort Group Company believes that a hotel/resort and tourism business can expect sustainable profits, only by reducing environmental footprint and by sharing the benefits with people involved, employees and nearby communities.

Along with EMP and BMP, Corporate Social Responsibility (CSR) Plan is also formulated to be implemented by Aureum Palace Resort & Spa during its 70-year operation period. The aim of CSR is to ensure social well-being of the resort’s guests, employees and their family members, better community living and transparent & friendly relationship with neighboring communities. Myanmar Treasure Hotel & Resort Group Company has allocated 3% of its net profit for CSR plan. The Internal Rate of Return (IRR) Calculation is attached as Annex II and Investor’s Commitment for 3% CSR Fund is attached as Annex III.

Table 11: Corporate Social Responsibility (CSR) Plan

Sr.	Activity	Responsibility	Timing	Estimated Budget (Million MMK/year)
1.	Provide free emergency medical care. Annual medical checkup and vaccination for all employees	HSE Team/ Aureum Palace Resort & Spa	Annually	2.0
2.	Social and environmental assistance to nearest villages, Maing Thauk Village and Pay-pin-inn Village of Nyaung Shwe	HSE Team/ Aureum Palace Resort & Spa	Annually	1.5

Sr.	Activity	Responsibility	Timing	Estimated Budget (Million MMK/year)
	Township (provide teaching materials to schools, basic medicines to clinics, conduct environmental education program, tree planting program, contribute for local pagoda festival and orphanages)			
3.	Cooperation with nearby hotels, businesses and concerned authorities for local environmental safety and sanitation (contribution to Nyaung Shwe Township Municipal for collective sewage/waste water disposed system, cleaning and maintenance of drainages, roads, power lines)	HSE Team/ Aureum Palace Resort & Spa	Annually	1.5
4.	Contributions to local infrastructure development (for better development of power supply, water supply, roads, health and sanitation facilities in the area in cooperation with nearby hotels, businesses and concerned authorities)	HSE Team/ Aureum Palace Resort & Spa	Annually	1.0
	Total			6.0

As mention in above and Annex III, the developer commits to the MIC for CSR Fund for 3% of the net profits. The following will be included in the CSR Plan.

Item	Type of CSR	% of net profit
1	Educational Affair	0.9%
2	Health Affair	0.9%
3	Philanthropy	0.6%
4	Orphanages	0.6%
	Total	3.0%

11.4 Roles and Responsibilities of EHS Team

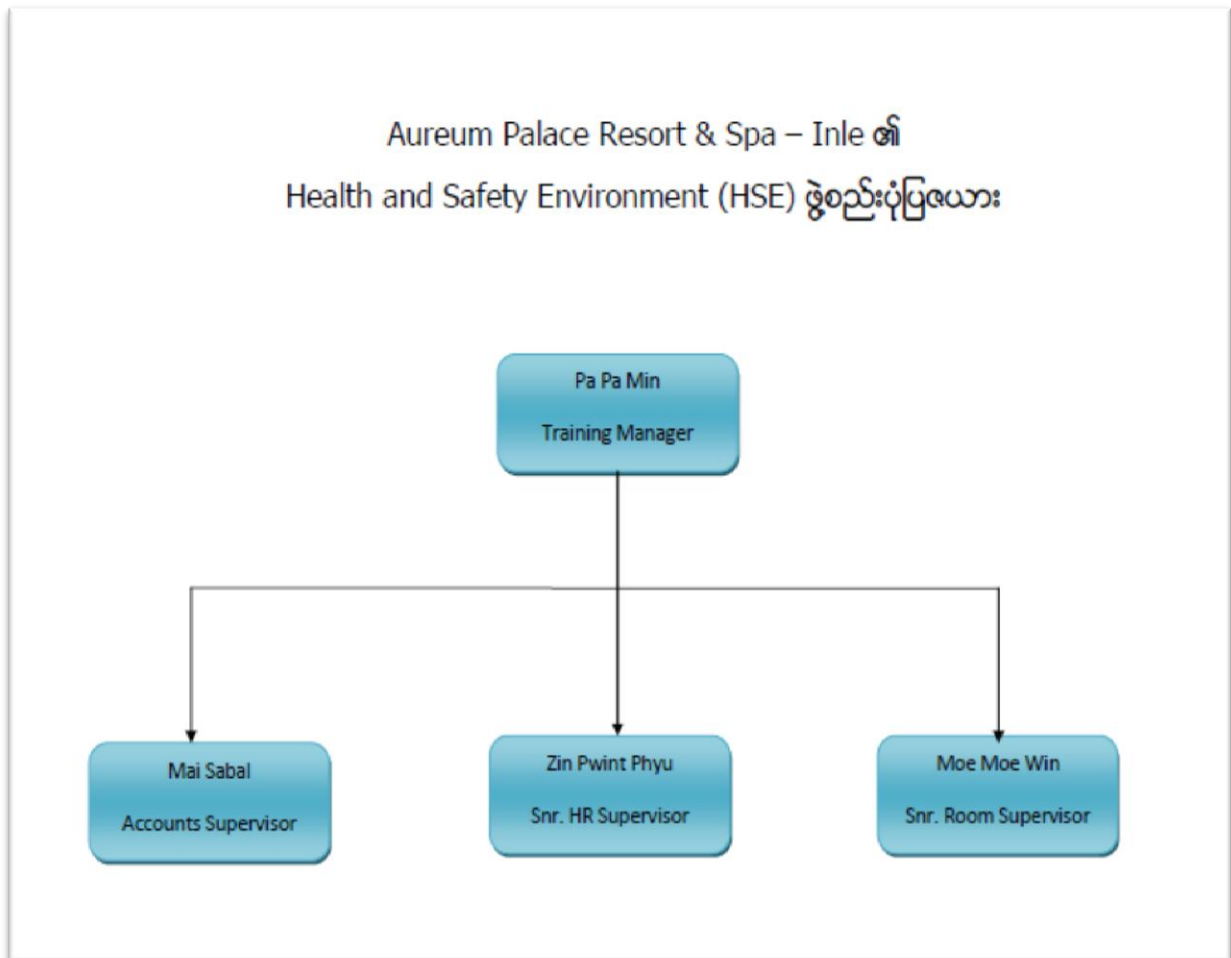
Roles and Responsibilities for EMP Implementation

This section describes the organizational structure and responsibilities for implementation of the EMP as shown below in table.

Activity	Organization	Responsibility
Construction Phase & Decommissioning Phase	Supervising Engineer / Contractor/ Aureum Palace Resort & Spa	<ul style="list-style-type: none"> ▪ Preparation and implementation of the Environmental Supervision Plan during construction ▪ Preparation and implementation of the Environmental Monitoring Plan during construction ▪ Supervision of contractor performance of implementation of the construction and Work Camp Management Plan ▪ Reporting any incidents or non-compliance with the EMP to the project proponent ▪ Ensuring adequate training and education of all staff involved in environmental supervision part of an overall commitment to continuous improvement preparation and implementation of the Construction and Worker Camp Management Plan will be the responsibility of the Construction Contractor. ▪ The Independent Environmental Monitor will review compliance of plan implementation against the plan terms of reference.
Operation Phase Biodiversity Management Plan	HSE manager / Aureum Palace Resort & Spa	<ul style="list-style-type: none"> ▪ Project Proponent shall be primarily responsible for development and implementation of the Biodiversity and Protected Areas Management Plan in conjunction with the Natural Resources Management Board. ▪ The Construction Contractor shall be responsible for implementation of a worker code of conduct and arrangements with the

		catering contractor and local restaurants to prohibit consumption of illegally caught fish and wildlife.
Environmental Monitoring Plan	HSE manager / Aureum Palace Resort & Spa	<ul style="list-style-type: none"> ▪ Monitoring shall be implemented throughout all project phases and managed by the project proponent ▪ The project proponent will also be responsible for ensuring that the surrounding environment and social communities are protected throughout the life of the proposed project. ▪ The Independent Environmental Monitoring Consultant shall be responsible for oversight and performance assessment of all environmental monitoring activities.
CSR Plan	HSE manager / Aureum Palace Resort & Spa	<ul style="list-style-type: none"> ▪ To implement Corporate Social Responsibility (CSR) plan together with EMP during its lifespan of operation period.

Organization Chart for Implementation of Environmental Monitoring Plan



11.5 Environmental Monitoring Plan

The detailed **Environmental Monitoring Plan** is as follows.

Table 12: Environmental Monitoring Plan

Environmental Concern	Management Activities	Frequency/Timing	Cost (Million Kyats)	Responsible Person/Unit
Health, Safety and Environment (HSE) issues	<ul style="list-style-type: none"> • Appoint one Health, Safety and Environment (HSE) Coordinator and two assistant 	Throughout Resort Lifespan (maximum 70-year)	3.0 per month	Aureum Palace Resort & Spa / Myanmar Treasure Hotel & Resort Group Co., Ltd.
Review of EMP/BMP	<ul style="list-style-type: none"> • Regular Review EMP&BMP to cover any unidentified impacts and amendments 	Monthly	No extra cost	HSE Team
Operation Phase				
Water Quality	<ul style="list-style-type: none"> • Test the water quality of daily consumed water and ensure siltation and filtration system is installed and regularly maintained • Make sure that water-saving equipment are installed and maintained properly, minimum use of laundry and cleaning chemicals • Make sure that transport, storage and handling of oil and lubricants is under standard procedure • Regular checks and propose counter measures on excessive water consumption and water contamination 	Water quality test - twice a year Regular check– once a month	1.0 per year	HSE Team/Aureum Palace Resort & Spa

	<ul style="list-style-type: none"> • Implement pool/spa water sanitization program • Listen to guests employee and local communities' perception and complaints on water quality and propose the company for proper respond/ react properly 			
Energy Saving/ Conservation	<ul style="list-style-type: none"> • Regular checks to ensure that energy efficiency, management and control system is utilized and renewable energy system (e.g. solar energy) is installed as appropriate and regularly maintained 	Regular check– once a month	No extra cost	HSE Team/ Aureum Palace Resort & Spa
Air Quality	<ul style="list-style-type: none"> • Measure air quality and consider necessary counter measures based on results • Make sure that blower & chimneys are installed, keep resort landscape green and avoid use of ozone depleting air-conditions and refrigerants • Ensure minimal use of update and new vehicles, machines, equipment for daily resort operation with proper maintenance • Encourage utilization of battery type buggies and bicycles for inside resort transport and sight-seeing • Daily checkup and maintenance of septic/bio tanks, waste water collection and treatment system and garbage collection and disposed system to make sure that no over flow or bad smell form these sources • Field observation and propose counter measures to minimize air pollution 	<p>Air quality measurement - once a year</p> <p>Regular check– daily</p>	0.5 per year	HSE Team/Aureum Palace Resort & Spa

	<ul style="list-style-type: none"> • Listen to guests, employee and local communities' perception and complaints on water quality and propose for proper respond/ react 			
Indoor Air Quality (Odour/Smoke/ Dust)	<ul style="list-style-type: none"> • Regular inspection to ensure proper maintenance of machines, wires and electrical appliances and installation& regular maintenance of exhaust fans, blower, chimney • Put indoor potted plants in all guest rooms with regular maintenance • Make sure housekeeping is carried out properly everyday • Apply non-smoking/ smoking restricted policy (instituting no smoking areas, smoking corners etc.) 	Daily check for housekeeping Others-monthly	No extra cost	HSE Team/Aureum Palace Resort & Spa
Noise	<ul style="list-style-type: none"> • Measure noise levels and consider necessary counter measures against noise pollution • Regular checks to ensure minimal use and maintenance of vehicles, machines and equipment • Encourage utilization of battery type buggies and bicycles for inside resort transport and sight-seeing • Ensure that noisy areas (e.g. kitchens, laundries, lobby, conference rooms) are isolated from guest rooms • Make sure proper PPE is provided as necessary • Conserve natural vegetation and plant 	Noise level measurement - twice a year Regular check– once a month Boat control- daily	1.0 per year	HSE Team/Aureum Palace Resort & Spa

	<p>trees as natural noise barrier</p> <ul style="list-style-type: none"> • Control and ensure that tour boats do not use engine power within 500 distance of the resort (move only by rowing) • Make sure that no-disturbing/ noise restricted policy (e.g. quiet period between 9 pm to 8 am) is instituted • Listen to guests, employee and local communities' perception and complaints on noise level and propose for proper respond/ react properly 			
Spillage of Oil and Lubricants	<ul style="list-style-type: none"> • Ensure minimum use and proper maintenance of vehicles, machines and equipment • Make sure that maintenance house for vehicles, machines and equipment and oil and lubricant storage facility are constructed on the land outside of resort site • Regular inspection to make sure transport, storage and handling of oil and lubricants are carried out under standard procedure • Make sure spillage prevention measures are carried out regularly • Inspect if secondary containments are installed properly and oil separators are provided 	Monthly check	No extra cost	HSE Team// Aureum Palace Resort & Spa
CFC release form air-conditions/ refrigerators and its maintenance	<ul style="list-style-type: none"> • Ensure minimum use of air-conditions and maximum use of natural air and sunlight 	Monthly check	No extra cost	HSE Team// Aureum Palace Resort & Spa

	<ul style="list-style-type: none"> • Install environmental friendly and low global warming potential (GWP) type air-conditions/ refrigerators and regular maintenance with technicians 			
Safety	<ul style="list-style-type: none"> • Inspect and assured that measures for prevention of accidents and injuries are properly practiced such as machine guards, insulation of electrical equipment, hand rails for ladders, anti-slip strips, swimming pool cautions,etc. • Make sure proper PPE is provided as necessary and all employees get first aid training • Ensure that vehicles, machines, equipment are in good conditions and with regular maintenance. • Test emergency lights regularly and keep in proper working order • Make sure that safety and emergency rescued procedures are practiced at swimming pool • Keep battery-operated emergency lights in all guest rooms and useful locations in order to light aisles, halls, and stairways along evacuation routes. • Review of existing safety plan by ResortManagement Committee and HSE Coordinator • Modify if necessary 	Daily check	No extra cost	HSE Team/ Aureum Palace Resort & Spa

Health	<ul style="list-style-type: none"> • Provide free emergency medical care for all guests and employees • Provide annual free medical checkup and vaccination for all employees • Strictly apply official working hour rule (8 hour per day), and seasonal vacations for employees • Maintain a record of occupational accidents and diseases occurrences • Review of existing health care plan by Resort Management Committee and HSE Coordinator • Modify if necessary 	Emergency care- Instantly Others - Yearly	3.0 per year	HSE Team// Aureum Palace Resort & Spa
Fire	<ul style="list-style-type: none"> • Regular check for proper maintenance of machines, wires and electrical appliances • Follow rules and procedures to make sure that aisles and exits are kept clear, are properly and clearly marked, and allow guests and employees to quickly and safely evacuation in emergency case • Conduct drills for emergency evacuation participated by all employees and guests of resort. During a drill, all guests and employees should leave the building after emergency alarm, go to an assigned location (assembly area), check-up and remain there until a signal is given to return to the resort. The focus should be on orderly and calmly evacuation, rather than speedy disorder • Hold at least one emergency evacuation 	Drills: Twice a year Inspection: Monthly	0.5 per drill No extra cost	HSE Team// Aureum Palace Resort & Spa

	<p>drill every year during which all guests and employees are evacuated within 5 minutes</p> <ul style="list-style-type: none"> • Make sure fire extinguishers, fire hoses and emergency water tanks & pumps match the potential fire hazard and accessible by all guests and employees • Make sure fire extinguishers, fire hose and emergency water tanks & pumps have maintenance tags attached, indicating the date they were last checked and serviced. In addition, there should be a diagram that shows guests and employees how to use fire extinguishers and fire hose • Install two separate fire alarms: one that has a sound that only means “fire” and one for general • Alarms should have back-up battery or an uninterruptible power supply • Test alarms regularly and maintain in proper working order 			
Food and Water Quality	<ul style="list-style-type: none"> • Regular check and maintenance on additional water purification system at kitchen • Ensure the use purified drinking water for all cooking and food preparation • Daily inspection on supplied food and water to make sure the compliance with food hygiene and water-quality standards • Ensure that banned substances, ingredients or chemicals are not used in food 	<p>Daily check of supplied food and drinking water</p> <p>Food and water test – Quarterly</p>	<p>No extra cost</p> <p>4.0 per year for food and water test</p>	<p>HSE Team/ Aureum Palace Resort & Spa</p>

	<ul style="list-style-type: none"> Regular testing of food and water according to World Health Organization (WHO) standards as a minimum 			
Housekeeping	<ul style="list-style-type: none"> Make sure all guest rooms, staff dormitory, toilets, kitchens, restaurants, bar, club, swimming pool, boutique shop, and all public places such as lobby, spa & beauty parlor and reception are kept clean and hygiene Make sure that sufficient trained housekeeping staff are assigned Inspect resort areas on a regular basis 	Daily Inspection	No extra cost	HSE Team/Aureum Palace Resort & Spa
Solid Waste Disposal	<ul style="list-style-type: none"> Strictly apply the policy of zero waste discharge into the Inlay Lake and make sure that all employees and guests follow the policy Check and control for use of reusable items rather than single use items Make sure all the wastes of resort including recyclable and reusable wastes are collected separately based on their type and stored properly at garbage tanks Ensure all the recyclable wastes are purchased by local recyclable factories Make sure collection, segregation, storage and disposal of wastes are in accordance with NSTM procedure and guidelines 	Daily	0.025 per truck load of waste disposal (NSTM)	HSE Team/Aureum Palace Resort & Spa
Use of Chemical Cleaners or Detergents	<ul style="list-style-type: none"> Ensure use of nontoxic, hypoallergenic cleaning products with limiting skin exposure through the use of PPEs (gloves) 	Monthly	No extra cost	HSE Team/Aureum Palace Resort & Spa

	<p>and other personal protection Equipment)</p> <ul style="list-style-type: none"> • Make sure chemical cleaners and detergents stored in standard storage facilities and used optimally • Make sure that emergency washing facilities and health cares are provided to employees dealing with chemical cleaners or detergents 			
Grey (used) water and Sewage Disposal	<ul style="list-style-type: none"> • Strictly apply the policy of zero waste discharge into the Inlay Lake and make sure that all employees and guests follow the policy • Inspect and ensure that grey water is collected through separate channels or pipe line and treatments given before transport and discharge • Ensure that standard septic type/ bio-tanks toilets of well-lit, well-cleaned and well-maintained is used • Regular inspection of Waste water Treatment Plant and Septic Tanks/ Bio-tanks to prevent overload or spillage • Make sure that final transport and disposal of sewage& sludge follow NSTM guidelines • Conserve and plant trees & vegetation to prevent any liquid seepage into the Inlay lake 	Daily	0.05 per truck load of sewage/ sludge disposal (NSTM)	HSE Team Aureum Palace Resort & Spa

Monitoring Measures to be taken on BMP				
Implementation of BMP	<ul style="list-style-type: none"> • Ensure that activities mentioned in BMP is implemented under regular check and monitoring scheme • Review of existing BMP by Resort Management Committee and HSE Coordinator • Modify if necessary 	Daily/Monthly check on implementation Annual review on BMP	No extra cost	HSE Team/Aureum Palace Resort & Spa
Decommissioning Phase				
Flora and Fauna	<ul style="list-style-type: none"> • Regular check to ensure minimal use of transport vehicles/ machines and excavation and filling are kept minimal • Conserve existing trees natural landscape • Make sure that all the recyclable wastes are used in other sites 	Daily check and control during demolishing	No extra cost	Demolishing Company
Hydrological Impacts	<ul style="list-style-type: none"> • Check and strict control to keep minimal use of water, oil & lubricants • Keep excavation and filling minimal • Ensured not to disturb natural water course and tributaries 	Daily check and control during construction	No extra cost	Demolishing Company
Noise	<ul style="list-style-type: none"> • Measure noise levels • Ensured minimal use of updated and good vehicles, machines, equipment • Check and record conditions and maintenance of working vehicles, machines and equipment as necessary • Make sure proper PPE is provided 	Noise level measurement – once during demolishing Field observation – once a month	0.5 per year	Demolishing Company

	<ul style="list-style-type: none"> • Regular field observation • Listen to employee and local communities' perception and complaints on noise level and respond/ react properly 			
Waste Disposal	<ul style="list-style-type: none"> • Daily check and strict control not to discharge any kind of waste into the Lake • Make sure wastes are collected regularly and collection, segregation, storage and disposal of wastes are in accordance with NSTM procedure and guidelines • Make sure that all the recyclable wastes are used in other sites • Make sure that transport, storage and handling of oil and lubricants is under standard procedure 	Daily check and control	No extra cost	Demolishing Company
Air Quality	<ul style="list-style-type: none"> • Measure air quality and consider proper counter measures based on results • Ensured minimal use of updated and good vehicles, machines, equipment • Check and record conditions and maintenance of working vehicles, machines and equipment as necessary • Field observation and counter measures to minimize air pollution • Make sure that appropriate Personal Protective Equipment (PPE) are provided as necessary • Listen to employee and local communities' perception and complaints on water quality and respond/ react properly 	Air quality measurement - once during demolishing Field observation – once a month	0.5 per year	Demolishing Company

Water Quality	<ul style="list-style-type: none"> • Test the water quality of daily consumed water • Field observation and counter measures to ensure minimal use of water • Special care and cautions in transport, storage and handling of oil and lubricants • Listen to employee and local communities' perception and complaints on water quality and respond/ react properly 	<p>Water quality test – once during demolishing</p> <p>Field observation – once a month</p>	0.5 per year	Demolishing Company
Health and Safety	<ul style="list-style-type: none"> • Regular field checks to make sure minimal use of update and good vehicles, machines, equipment with proper maintenance • Strict control to avoid use of toxic and hazardous substance in demolishing • Make sure that appropriate Personal Protective Equipment (PPE) are provided as necessary • Make sure that emergency health care and sanitation is provided to employees • Ensure sufficient emergency firefighting tools (fire extinguishers, hooks, buckets and water tanks) are standby at demolishing site 	Field observation – once a month	1.0 per year	Demolishing Company

Monitoring Parameters for Implementation of EMP Plan

During operation phase, the effluent should be monitored twice a year by comparing with *National Environmental Quality (Emission) Guideline* including following parameters.

Parameter	Unit	Guideline Value
Biochemical oxygen demand (5-day)	mg/l	50
Chemical oxygen demand	mg/l	250
Oil and grease	mg/l	10
pH	mg/l	6-9
Total coliform bacteria	100 ml	400
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Total Suspended Solid	mg/l	50

Monitoring of the Environmental Quality

no.	Environmental Concerns	Parameters	Frequency
1	Water quality	As Mentioned as above table	Twice every year
2	Ambient air quality	PMs, SO ₂ , NO ₂	Annually
3	Occupational health and safety	PPEs and outfit for workers	Annual

11.6 Environment, Health and Safety Guidelines for Tourism and Hospitality Development

Most of the guidelines mentioned in this chapter refer to Environment, Health and Safety Guidelines for Tourism and Hospitality Development by International Finance Corporation, World Bank Group, 2007.

11.5.1 Energy conservation

Reduction of energy consumption associated with heating, ventilation, and air conditioning systems through:

- Specification of well insulated building fabric to minimize heat transfer
- Energy recovery of from exhaust to supply air in the building ventilation systems
- Variable air volume air handling systems;
- Use of inverter-driven variable speed fans;
- Adoption of temperature control settings which avoid simultaneous heating and cooling;
- Building zoning according to temperature needs and heat gains (e.g. a north zone and a south zone);
- Use of enthalpy control to vary volumes of fresh and recycled air according to ambient and internal building conditions;
- Adoption of relatively high ($\sim +10^{\circ}\text{C}$ chilled water flow temperature) and inverter-driven, variable speed chilled and hot water pumps
- Selection of chillers which are efficient over wide ranging operating and load conditions (e.g. efficiency rates of at least 0.60 kW/TR, which is equivalent to a coefficient of performance [COP] of approximately 5.9)

Reduction of energy consumption associated with lighting:

- Use of occupancy sensors
- Use of high-efficiency light bulbs (e.g. compact fluorescent light bulbs) where possible
- Daylight controls (e.g. to adjust interior lighting, based on incoming daylight, using a photoelectric sensor)

- Dimming-control retrofits for fluorescent, high-intensity discharge, and incandescent lamps
- Adoption of an energy management and control systems, including centralized monitoring and reporting of energy and water use, switched time schedules, chiller optimization, load-based reset, and demand control

Reduction of energy consumption associated with cooking and refrigeration equipment:

- Match use of cooking range burners to facility needs
- Use of appropriate lids
- Select high efficiency refrigerators and walk-in coolers;
- Use of an exhaust system that automatically varies fan speeds

11.5.2 Wastewater management

Wastewater management strategies include:

- Minimizing use of the laundry by asking guests to reuse towels and bedding;
- Controlling consumption of cleaning chemicals;
- Substitution of cleaning chemicals with biodegradable products, when possible;
- Avoiding or minimizing the use of cleaning chemicals containing phosphates, nitrilotriacetic acid or any of its salts, ethylene diaminetetr a acetic acid and ethylene dinitrilotetraacetic acid or any of their salts, alkylphenoethoxylate, halogenated organic solvents (e.g. 1,1,1- trichloroethane and other Ozone Depleting Substances (ODSs), butoxy-ethanol, and VOCs in excess of 10 percent by mass.

11.5.3 Waste management

Waste Management Plan includes:

- Buying in bulk quantities whenever possible;
- Use of refillable, bulk dispensers (e.g. toiletries) rather than individually packaged products;
- Working with suppliers to limit use of, and establish recycling for, product packaging;
- Avoiding use of polystyrene foam in all operations;
- Providing in-room recycling procedures and appropriate receptacles;
- Use of glass or durable plastic instead of disposable plastic items (e.g. straws, cups);

- Implementing organic-waste composting;
- Disposing of wastes only after all waste prevention and recycling strategies have been explored and maximized.

11.5.4 Noise control

Recommended control techniques to reduce indoor and outdoor noise pollution include:

- Installing double doors between guest rooms and between rooms and noisy environments (e.g. kitchens, laundries);
- Installing windows with sound-reduction materials;
- Positioning, enclosing, and isolating noisy equipment (e.g. permitting space or buffer zones encompassing two walls between the laundry and public areas).

11.5.5 Indoor air quality control

The following control techniques are recommended to keep indoor air quality acceptable:

- Use low-VOC-emitting products (e.g. water-base paints rather than oil based paints, low VOC containing adhesives for flooring and wall decorations);
- Avoid aerosols and sprays;
- Use housekeeping and cleaning products during unoccupied hours taking care to follow safety precautions including appropriate ventilation;
- Avoid the use of “air fresheners”;
- Expose products in open or ventilated areas before installation and increase ventilation rates during and after installation.
- Institute a no-smoking policy;
- Use exhaust ventilation with pressure control for major local sources;
- Avoid paper clutter;
- Provide specific staff-training and guest information.

11.5.6 Water and food quality

Food and water provided to workers and guests should be safe.

The following food hygiene measures should be adopted:

- Compliance with food hygiene and water-quality standards defined by central authorities or, in their absence, application of international food-handling, preparation and storage and water-quality recommendations;

- Supply of safe potable water for drinking, bathing, food preparation, and other purposes where it may be ingested;
- Regular testing of potable water according to World Health Organization (WHO) standards as a minimum.

11.5.7 Emergency response procedures

Site Fire Control

1. Alert other people
2. If small, control using an extinguisher or fire hose reel
3. Contact fire brigade if not under immediate control
4. Attend to human life in immediate danger
5. For electrical fires turn off power before fighting
6. For oil and lubricant fire DO NOT USE WATER, rather use fire extinguisher
7. Once out of the building, stay out. Do not allow people to go back into the burning building to collect valuables. While exiting the building, close doors (but do not lock) to slow down the spread of fire
8. Obey all instructions
9. Proceed to emergency evacuation area

Fuel Spills

1. Turn off engines and equipment and notify manager
2. No engine or equipment is started until clean up completed
3. Secure the spill area and ensure that there are no sources of ignition
4. Clean up the spill using absorbent material from site spill kit
5. Dispose of contaminated materials as per procedure

12. Public Consultation and Information Disclosure

E Guard Environmental Services Co., Ltd.		
Subject: Public Consultation, Initial Environmental Examination for East Inle Hotels Group	Date: 15 March 2015	
Venue: Maing Thauk village monastery, Nyaung Shwe Township, Eastern Shan State	Time: 10:00 to 13:00 hour	
Attendees: 128 persons		
Note Taker: Saw Maung Theim, Jaint Yadanar, Aye Mya Thinzar (E Guard)		

Agenda:

Opening of the Ceremony

Opening remark by U Kyaw Zaw Hla, Township Administrator, General Administration Department, Nyaung Shwe Township

Explanation of IEE by Daw Sein Ma Ma, Director, Environmental Conservation Department, Shan State

Presentation of Project Summary by U Myo Thett Tin, Consultant, E Guard Environmental Services Co., Ltd.

Presentation of Initial Environmental Examination (IEE) Report by U Tin Aung Moe, Director, E Guard Environmental Services Co., Ltd.

Recommendation, comments and suggestion by participants

Words of thanks and closing

Key Points :

Opening Remark

U Kyaw Zaw Hla (Township Administrator, General Administration Department, Nyaung Shwe Township): first, he warmly welcomed all participants including parliament members, government officials, delegates from political parties, NGOs, INGOs, CBOs, CSOs, local communities and medias to the public consultation meeting. Then, he briefly explained the idea of “development and environment go hands in hands”. He expressed that the development of hotels and resorts in the region is very much necessary to boost local ecotourism and national economic development at large. At the same time, development projects must take the environmental conservation and impact mitigation actions in accordance with existing law, rules, procedures and international standards as well. Finally, he called upon all participants for active discussions, contributions and free expression of concerns, needs, worries and desires in the meeting, in order to find out better means and ways for implementation of intended 12 hotel/resort projects with minimal environmental and social impacts.

Explanation of IEE

Daw Sein Ma Ma (Director, Environmental Conservation Department, Shan State): first, outlined the background policy, strategy, law, rules and procedures of IEE process. Then, she explained the requirement of IEE for hotel/resort projects with regard to 2012 Environmental Conservation Law and instructions and guidelines of Environmental Conservation Department (ECD). She stressed that developers must comply with Environmental Conservation Law, 2012 and Environmental Conservation Rules, 2014. According to rule 54 and 55 of Environmental Conservation Rules (2014), IEE must be conducted by third party and IEE report together with EMP must be submitted to MOECA for review. IEE report shall include surrounding environmental conditions of the project site, possible impacts of the project, results of public consultation, recommendations, EMP, responsible person/team for implementation and monitoring of EMP and its costs. In conclusion, she urged the developers to take responsibility, not to have any pollution or environmental damages due to their project activities.

Presentation of Project Summary

U Myo That Tin (Consultant, E Guard Environmental Services Co., Ltd.) explained the objectives and plans of 12 hotel/resort projects, established in east Inle side of Nyaung Shwe Township. Then he disclosed the detailed description of each project, including location, area extent, construction plan, capacity, services, employment opportunities, landscaping and waste control measures. He also expressed the strong commitment of developers on environmental conservation and regional development.

Explanation of IEE Report

U Tin Aung Moe (Director, E Guard Environmental Services Co., Ltd.): First, explained the components and methodology of hotel/resort project IEEs conducted by E-Guard Environmental Services. That was followed by detailed description of possible environmental impacts of the projects and mitigation measures. He also presented the proposed Environmental Management Plan (EMP), Biodiversity Management Plan (BMP) and Monitoring Plan for three phases of hotel/resort projects: the construction phase, the operating phase and the demolishing phase. He also stressed that this public consultation process is a part of IEE and outcomes the results of the process will be applied for the improvement of EMP and BMP in final IEE report. Finally, he pointed out the good intention of developers of 12 hotel/resorts, collectively trying to organize a responsible ecotourism society in the region.

Comments and Discussions

Question: U Win Myint, State Government Minister, Shan State: When did the land lease contract made for hotel construction? With regard to environment conservation, 70 years land lease period is quite long and need to be reconsidered.

Answer: Daw Theingyi Win, Director, Amata hotel: Contract has already made with forest department (FD). It was registered at Nyaung Shwe Township Registration Office. According to Myanmar Citizens Investment Law (2013), it is a 50-year land lease and extendable 10-year two times.

Answer: Daw Tin Tin Yi, Managing Director, Ann Heritage Hotel: Ann Heritage Hotel signed contract with FD in 2012. Dates of contracts of hotels/resorts are not the same, due to MIC's different approval dates.

Comment: UAung Kyi Win, State Parliament member-2, Nyaung Shwe: There has been no lake authority and Inle Lake Conservation Law. There has been only 12 restrictions with regards to Inle Lake conservation. However, hotel/resort projects are being allowed based on special economic development grounds. Local communities should also get the same privileges.

Answer: Daw Tin Tin Yi, Managing Director, Ann Heritage Hotel: New hotel/resort projects are allowed due to accommodation requirements for visitors coming to the region.

Question: A local community member: Donations by hotel/resort projects to local communities are highly appreciated. Is it only once in 50-year land leased period? Are there any priority areas where hotels/ resorts are aiming to do nature conservation and landscaping?

Answer: TinAung Moe (Director, E Guard Environmental Services Co., Ltd.): Donations by hotels/ resorts to local communities are not only once. They will repeat the action in accordance with their CSR plans. Hotels/ resorts shall concentrate their nature conservation and landscaping activities mainly on the areas where Inle lake's water body and hotel/resort areas are adjacent.

Question/Suggestion: A local community member: How can communities monitor the CSR activities? Hotels/resorts which have total 20 or 30 acres of land should contribute for community forestry (CF) programs as a kind of compensation.

Answer: Daw Tin Tin Yi (Ann Heritage Lodge): Hotels/resorts are very willing to contribute for CFs as appropriated.

Answer: Daw Khin Htway Than (HR and Admin Manager, Pristine Lotus): Hotels/resorts will implement their CSR activities in cooperation with nearby village communities. Activities may include establishment of CF for providing poles and posts, monthly fund contribution for community development and environmental conservation activities such as garbage collection campaigns.

Answer: U Aung Ko Ko, General Manager (Villa Inle): Existing trees around hotel are well conserved and hotel construction plan based on the idea of "harmony with nature".

Question/Suggestion: U Win Naing, Pe Pin Gone Village, Maing Thuak Village Track: There have been land conflicts over hotel/resort projects, such as Aureum Palace Hotel case. Hotels/ resorts should take responsibilities on clearing abandoned floating gardens and maintaining connecting water ways.

Question: Dr. U Tun Aung, State Parliament member-2, Nyaung Shwe: This public consultation is made only for 12 hotels/ resorts. EIA and SIA should be done collectively for all hotels/ resorts of the Inle Lake. Hotels/ resorts should take responsibilities not to discharge wastewater into nearby Nyaung Shwe creek and improvement and maintenance of local roads. It would be very effective if legal actions could be immediately taken on discharged wastewater into nearby natural waterways.

Answer: Daw Tin Tin Yi, Managing Director, Ann Heritage Hotel: It is difficult to conduct EIA/SIA altogether, due to different dates of MIC permission and forest department's land approval received by different hotels/ resorts.

Suggestion: U Thet Tun, Chairman, Innthar Literature and Cultural Association: Land proposition and area demarcation should be done formally and must be approved by concerned department.

Answer: U Kyaw Zaw Hla, Township Administrator, General Administration Department, Nyaung Shwe Township: There have been bank erosion/land loss problems in the region. Department will send surveyors to examine the cases and fix the boundaries.

Suggestion: U Thet Tun, Chairman, Innthar Literature and Cultural Association: Contact numbers of hotels and resorts should be disseminated.

Answer: Daw Sein Ma Ma, Director, Environmental Conservation Department, Shan State: In accordance with section 14 of 2012 Environmental Conservation Law, legal actions can be taken against hotels/resorts which discharged wastewater into nearby natural waterways.

Words of thanks

Tin Aung Moe (Director, E Guard Environmental Services Co., Ltd.): thanked all the participants for their active participation and all comments, suggestions, insights and technical details leading towards the common goal of No or Least negative environmental impacts out of proposed 12 hotel/resort projects of east Inle area. In conclusion, he assured to take comprehensive consideration and response to each and every comment and suggestion made by the participants. He also extended contact addresses of 12 hotels/resorts for further comments, suggestions and recommendations.

13. Conclusion and Recommendations

13.1 Conclusion

This Initial Environment Examination (IEE) study was carried out at the beginning stage of the proposed Aureum Palace Resort & Spa, established inside the territory of Inlay Lake Wildlife Sanctuary, just one mile south of Maing Thauk village, Nyaung Shwe township, southern Shan State, in the Republic of the Union of Myanmar, by Myanmar Treasure Hotel & Resort Group Company. The main aim of the study is to identify the major environmental impacts due to implementation of the project activities in all phases (operation phase and decommissioning phase).

The primary and secondary data were used to assess the environmental impacts. The potential environmental impacts were assessed in a comprehensive and scientific screening procedure. The report has provided a full picture of all potential environmental impacts associated with proposed resort, and recommended suitable prevention and mitigation measures.

The results after scoring evaluation of significant environmental impacts can be summarized as follows:

Table 13: Summary of Impacts Significance

Level of Significance	No. of Impacts
No Significant Impact	18
Low Impact	-
Significant Impact	-
Unsustainable Situations	-

Low impacts, significant impacts and unsustainable situations, are not identified. Only (18) non-significant environmental impacts are found out in all three phases of the project.

For **operation and decommissioning phases**, all non-significant impacts recorded are minor environmental impacts such as dust particles dispersion, noise, waste generation and potential health and safety impacts on employees such as accidents. All these impacts are minimal, limited to the site and controllable.

Proposed Aureum Palace Resort & Spa aims to operate international standard five stars grade hotel/resort services for maximum period of 70 years. Its services include rooms/accommodations for guests, restaurants, bar& club, business center, entertainments,

parties & gatherings, boutique shop, spa & beauty parlor, swimming pool and travel arrangements for guests. Being a hotel/resort and tourism service project, all these activities are mostly in-door and resort has strict policy and mechanism to prevent/mitigate all possible environmental & social impacts such as pollution, contamination, health and safety. Thus, no significant adverse environmental impacts are identified concerning with air pollution, water pollution and damaging to the land and biodiversity around the resort site, particularly on famous Inlay Lake Wildlife Sanctuary and its wetland ecosystem.

A total eighteen numbers of possible non-significant impacts are identified in this regard as described detailed in chapter 10.2. However all these impacts are of small scales at site level and able to be monitored, prevent and mitigate.

As about 20-30 guests and all 100 employees are living and working at the resort every day, a number of non-significant potential health and safety impacts, such as cuts and amputations, thermal burns, slip and falls/ crushing injury from material handling and falling objects, nuisance, respiratory problems, headache and sickness, fire and electrical hazards are figured out for operation and decommissioning Phases of proposed hotel/resort project. However, preventive measures are already planned in all phases of the project to reduce and mitigate these risks, such as using new machines, vehicles and equipment in minimal scale, providing sufficient personal protection equipment (PPE) as necessary, providing health care, sanitation, following NSTM procedure and guidelines for waste management and disposal and creating vegetated landscaping as noise, air-pollution, water-pollution and sedimentation buffers in and around the resort compound, as described detailed in chapter 11.1 Environmental Management Plan (EMP).

On the other hand, it has been figure out that, the proposed 5-star hotel/resort is going generate local employment opportunity and enhance capabilities and working skills of employees; most of them are local inhabitants. Consequently, their socio-economic standard is expected to be improved.

Thus, it can be revealed that the proposed project have only minor possible impacts on surrounding Physical, Biological and Natural Environments. All potential impacts identified are limited to the site and can be easily prevent/mitigated through adequate mitigation measures and regular monitoring during the Operation and Decommissioning Phases of the project.

Based on possible impacts figured out, an Environmental Management Plan (EMP), Biodiversity Management Plan (BMP), Corporate Social Responsibility (CSR) Plan together

Environmental Monitoring Plan are prepared and attached in this IEE, as a comprehensive and collective solutions for environmental management, biodiversity/ecology protection and enhancement, health and safety and corporate social responsibility framework for all phases (operation and decommissioning) of Aureum Palace Resort & Spa. The EMP, BMP and CSR, presented as major institutional requirement, aim to minimize or offset the potential environmental and ecological impacts generated by resort's activities, to provide maximum occupational health and safety and to ensure better community living. The environmental management, biodiversity management and monitoring practices, procedures and responsibilities are comprehensively expressed here to get full compliance with the existing environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

Environmental Monitoring Plan of the report proposed appointment of a Health, Safety and Environment (HSE) team including one HSE Coordinator and two assistants to implement and enforce EMP and BMP. The main responsibility of HSE team is to carry out strategic working procedure of "Plan, Do, Check, Act" for proper care and handling of health, safety and environmental issues of the hotel in accordance with both local and international norms and standards.

In conclusion, it can be verified that **No** adverse or harmful impacts of any significance are expected by proposed Aureum Palace Resort & Spa. A full scale Environmental Impact Assessment (EIA) shall be done if necessary, based on comments and suggestions made by ECD after reviewing this IEE.

13.2 Recommendations

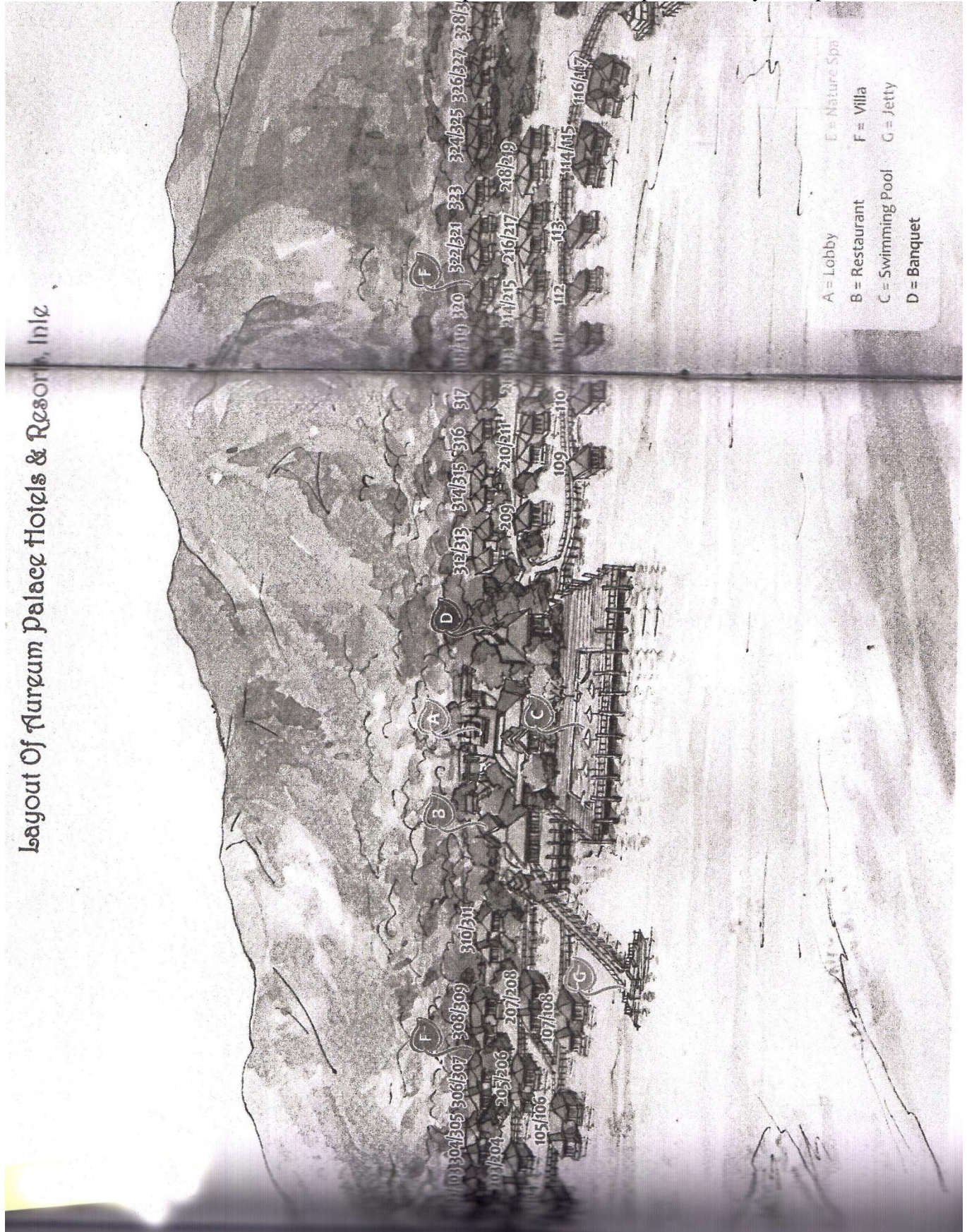
Following recommendations have been made for efficient and effective implementation of environmental conservation, biodiversity/ecosystem management, health & safety, social responsibilities measures through the lifespan of the proposed resort.

- Follow the comments and suggestions made by ECD after reviewing this IEE report
- Once EMP is approved by concerned authorities, strict implementation is essential
- For full and proper implementation of EMP, well understanding and supports by resort owner and its administrative authority is deem necessity
- Fully implement Corporate Social Responsibility (CSR) Plan as an ethical business obligation, so as to be regarded as good neighbor/investor in the neighborhood
- Well experienced and knowledgeable HSE Coordinator and HSE assistants shall be selected and appointed

- Daily, monthly and annual action plan shall be formulated based on EMP/BMP and shall be fully practiced
- Keep full records of environmental management, biodiversity management, health & safety management and social responsibility management activities and present to annual independent third party environment audit
- Follow the annual audit report and comments
- Abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar

ANNEXES:

Annex I: Aureum Palace Resort & Spa construction plan and layout plan



Annex II: Internal Rate of Return (IRR) Calculation

Internal Rate of Revenue

Investment

7,260.13 (ကျပ်သန်းပေါင်း)

ရင်းနှီးငွေ	ပိုငွေ	Discount factor		Net Present Value	
		18%	18%	19%	19%
		7260.13	0.8475	6152.65	6100.95
YR.1		1700.72	0.7182	1221.43	1200.99
YR.2		1752.06	0.6086	1066.36	1039.70
YR.3		1814.27	0.5158	935.78	904.72
YR.4		1802.02	0.4371	787.68	755.13
YR.5		1440.78	0.3704	533.71	507.36
YR.6		1457.84	0.3139	457.65	431.40
YR.7		1457.84	0.2660	387.84	362.52
YR.8		1457.84	0.2255	328.68	304.64
YR.9		1457.84	0.1911	278.54	256.00
YR.10		1457.84	0.1619	236.05	215.13
		<u>15799.04</u>		<u>6233.72</u>	<u>5977.59</u>
				81.07	-123.36

$$IRR = r1 + \frac{N1}{N1 - N2} \times (r2 - r1)$$

$$IRR = 18 + \frac{81.07}{81.07 - (-123.36)} \times 1$$

$$IRR = 18 + \frac{81.07}{81.07 + 123.36} \times 1$$

$$IRR = 18 + \frac{81.07}{204.43}$$

$$IRR = 18 + 0.40\% = 18.40\%$$



MYANMAR TREASURE HOTEL & RESORT GROUP COMPANY LTD.

No. 12-A, Khapaung Street, Hlaing Township,
Yangon, Myanmar, Tel: (951) 538549, (951) 535226

ဥက္ကဋ္ဌ

မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်
နေပြည်တော်။

နေ့စွဲ။ ။ ၂၀၁၄ ခုနှစ်၊ ဩဂုတ်လ (၁၄) ရက်

အကြောင်းအရာ။ ။ ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ စောင့်ကြည့်လေ့လာမည့် လုပ်ငန်းများနှင့် ဝန်ထမ်းများ၊ အလုပ်သမားများအတွက် ရန်ပုံငွေများ စီစဉ် ဆောင်ရွက်မှု တင်ပြခြင်း။

အထက်ပါအကြောင်းအရာနှင့် ပတ်သက်၍ မြန်မာနိုင်ငံသားများ ရင်းနှီးမြှုပ်နှံမှု ဥပဒေအရ ရတနာအပန်းဖြေစခန်း အုပ်စု ကုမ္ပဏီလီမိတက်သည် မြေအကျယ်အဝန်း(၃၀.၁၇)ဧက ရှိ အင်းလေးကန် အောက်ရှိ ရိက္ခာန်ဘေးမဲ့တောနယ်မြေအတွင်းတွင် ပြည်တွင်းပြည်ပမှ ဧည့်သည်များ အနားယူ အပန်းဖြေနိုင်ရန်နှင့် ဧည့်သည်များ လေ့လာနိုင်ရန်အတွက် နိုင်ငံတကာအဆင့်မီ အော်ရီယမ်ပဲလေ့ ဟိုတယ်နှင့် အပန်းဖြေအင်းလေး တည်ဆောက်ခြင်းလုပ်ငန်း လုပ်ကိုင်နိုင်ရန်အတွက် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်သို့ မြန်မာနိုင်ငံသားများ ရင်းနှီးမြှုပ်နှံမှု ခွင့်ပြုမိန့်ကို လျှောက်ထားသော ကုမ္ပဏီ ဖြစ်ပါသည်။

အော်ရီယမ်ပဲလေ့ ဟိုတယ်နှင့်အပန်းဖြေစခန်း-အင်းလေး အနေဖြင့် လုပ်ငန်းလည်ပတ်မှုမှ ရရှိမည်ဟု မြန်မာနိုင်ငံသားသည့် အသားတင် အမြတ်ငွေမှ (၃%) ကို ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာ ထိခိုက်မှု အနည်းဆုံး ဖြစ်စေရန် လုပ်ငန်းအစီအစဉ်များအတွက် စောင့်ကြည့်လေ့လာမည့် လုပ်ငန်းများအတွက် ကျန်းမာရေး၊ လူမှုရေး၊ အင်အားချောင်ချိရေးစသည့် ကိစ္စရပ်များတွင် သုံးစွဲနိုင်ပါရန် အောက်ပါအတိုင်း ရန်ပုံငွေ လျာထားပါကြောင်း အကြံပြုအပ်ပါသည်-

- (က) ပညာရေးဆိုင်ရာ ကိစ္စရပ်များ - ၃၀%
- (ခ) ကျန်းမာရေးဆိုင်ရာ ကိစ္စရပ်များ - ၃၀%
- (ဂ) ပရဟိတလုပ်ငန်းများ - ၂၀%
- (ဃ) မိဘမဲ့ကလေးများဂေဟာအတွက် - ၂၀%

လေးစားစွာဖြင့်

(ဦးတေဇ)

ရင်းနှီးမြှုပ်နှံသူ/ ကမကထပြုသူ
မြန်မာရတနာဟိုတယ်နှင့်အပန်းဖြေ
စခန်းအုပ်စု ကုမ္ပဏီလီမိတက်

Annex IV: Detailed result of hourly environmental dust monitoring of the resort site

Project Name: Inlay Hotel

Location:Aureum Palace Resort

Lat: 20° 33' 56" N

Long: 96° 56' 40" E

Measured Time: 10:00:00AM-10:00:00AM

Date: 12.12.2014 to 13.12.2014

No.	Times	Average			Maximum			Minimum		
		TSP	PM10	PM2.5	TSP	PM10	PM2.5	TSP	PM10	PM2.5
1	10:00-11:00	65.76	39.31	26.04	83.6	45.80	33.40	39.9	31.1	20.5
2	11:00-12:00	83.58	40.79	22.44	146.8	54.80	30.80	30	25.5	16.8
3	12:00-13:00	56.19	32.61	21.38	91.7	39.80	26.10	39.4	22.8	14.6
4	13:00-14:00	51.70	25.76	13.23	103.6	36.40	15.40	18.5	16.4	10
5	14:00-15:00	53.87	24.53	10.41	166.3	61.90	12.00	21.6	14.3	8.6
6	15:00-16:00	104.58	44.84	12.08	309.9	129.30	19.00	22.5	16.3	9
7	16:00-17:00	303.08	192.23	58.88	1113.6	741.50	139.70	28.9	23.1	12
8	17:00-18:00	2165.56	1501.54	185.64	6500	5771.70	628.40	531.2	314.3	47.7
9	18:00-19:00	269.68	185.55	40.60	1191.9	904.80	133.80	131.4	70.8	26.6
10	19:00-20:00	91.891667	63.92	26.54	149.5	108.40	41.90	56.2	36.6	20.3
11	20:00-21:00	104.62	73.48	26.58	318.1	182.40	47.90	40.8	37	20.3
12	21:00-22:00	59.33	46.14	26.49	110.1	89.20	68.90	42	33.2	19.2
13	22:00-23:00	71.33	53.12	28.50	144.1	107.40	61.30	36.9	32.2	18.1
14	23:00-0:00	56.36	47.50	33.33	162.5	127.60	94.10	26.3	25.2	17.5
15	0:00:0-1:00	62.09	51.18	21.08	316.2	246.70	43.60	25.1	22.7	17.2
16	1:00:0-2:00	31.53	26.14	18.40	50.2	30.70	19.60	24.4	23.6	17.5
17	2:00:0-3:00	26.58	24.96	19.39	31.1	28.70	20.30	24.5	23.7	18.9
18	3:00:0-4:00	29.28	27.35	21.58	36.3	35.90	30.00	23.9	23.8	18.8
19	4:00:0-5:00	39.72	36.72	27.95	66.7	55.70	35.60	26.8	26.3	21
20	5:00:0-6:00	60.49	50.94	28.04	117.2	90.30	39.50	33.3	32.6	22.6

21	6:00:0-7:00	130.77	107.71	62.50	249.7	202.10	127.70	48.3	45.2	29.5
22	7:00:0-8:00	198.25	150.05	61.63	390	284.70	101.00	84.3	78.9	47.1
23	8:00:0-9:00	254.98	142.81	47.31	1128.5	584.00	93.40	50.5	46.8	31.9
24	9:00-10:00	354.89	140.11	43.07	1927.6	626.90	61.50	71.6	50.2	33.2
	24 Hours	196.92	130.39	36.79	621.05	441.11	80.20	61.60	44.69	21.62

Annex V: Laboratory test result of water sample of existing tube well



LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung

B.Sc Engg. (Civil), Dip S.E (Delft) Lecturer of YIT (Retd), Consultant (Y.C.D.C), LWSE 001.

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



ISO 9001:2008 Cert. No.688283

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W1114 040

WATER QUALITY TEST RESULTS FORM

Client E - Guard Environmental Services Co.,Ltd.
 Nature of Water Ground Water (ISO - GW - 02) Amazing Mine Thaut
 Location Inlay Initial Environmental Examination (IEE) Project
 Date and Time of collection 4.11.2014
 Date and Time of arrival at Laboratory 5.11.2014
 Date and Time of commencing examination 6.11.2014
 Date and Time of completing 8.11.2014

Results of Water Analysis

WHO Drinking Water Guideline (Geneva - 1993)

pH	7.5		6.5 - 8.5
Colour (True)	Nil	TCU	15 TCU
Turbidity	5	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	198	mg/l as CaCO ₃	500 mg/l as CaCO ₃
Calcium Hardness		mg/l as CaCO ₃	
Magnesium Hardness		mg/l as CaCO ₃	
Total Alkalinity	250	mg/l as CaCO ₃	
Phenolphthalein Alkalinity		mg/l as CaCO ₃	
Carbonate (CaCO ₃)		mg/l as CaCO ₃	
Bicarbonate (HCO ₃)		mg/l as CaCO ₃	
Iron	0.29	mg/l	0.3 mg/l
Chloride (as CL)	3	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO ₄)		mg/l	200 mg/l
Total Solids		mg/l	1500 mg/l
Suspended Solids		mg/l	
Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity		ppt	

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

Tested by

Signature: Zaw Hem Oo
 Name: B.Sc (Chemistry)
 Chemist

Approved by

Signature: Soe Thit
 Name: B.R (Civil) 1980,
 Technical Officer
 ISO TECH Laboratory

(a division of WEG Co.,Ltd.) ISO TECH Laboratory

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.

Ph: 01-640955; 09-73225175, 09-73242162, Fax: 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

Annex V: Laboratory test result of water sample of existing tube well



LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E (Delft) Lecturer of YIT (Retd), Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)



WTL-RE-001

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Issue No - 1.0/Page 2 of 2

W1114 040

WATER QUALITY TEST RESULTS FORM

Client E - Guard Enviromental Services Co.,Ltd.
 Nature of Water Ground Water (ISO - GW - 02) Amazing Mine Thaut
 Location Inlay Initial Enviromental Examination (IEE) Project
 Date and Time of collection 4.11.2014
 Date and Time of arrival at Laboratory 5.11.2014
 Date and Time of commencing examination 6.11.2014
 Date and Time of completing 8.11.2014

Results of Water Analysis

WHO Drinking Water Guideline (Geneva - 1993)

Temperature (°C)	°C	
Fluoride (F)	mg/l	1.5 mg/l
Lead (as Pb)	Nil mg/l	0.01 mg/l
Arsenic (As)	Nil mg/l	0.01 mg/l
Nitrate (N.NO ₃)	mg/l	50 mg/l
Chlorine (Residual)	mg/l	
Ammonia (NH ₃)	Nil mg/l	
Ammonium (NH ₄)	Nil mg/l	
Dissolved Oxygen (DO)	mg/l	
Chemical Oxygen Demand (COD)	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	mg/l	
Cyanide (CN)	mg/l	0.07 mg/l
Zinc (Zn)	mg/l	3 mg/l
Copper (Cu)	mg/l	2 mg/l
Silica (Si)	mg/l	

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

Tested by

Signature: *Hein*

Name: Zaw Hein Oo
B.Sc (Chemistry)
Chemist
ISO TECH Laboratory

Approved by

Signature: *Soe Thit*

Name: Soe Thit
B.E (Civil) 1980,
Technical Officer
ISO TECH Laboratory

(a division of WEG Co.,Ltd.)

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.

Project Name : Measuring for air quality by Inle Hotels

Location :Aureum Palace Resort

Lat: 20° 33' 56'' N

Long : 96° 56' 40'' E

Measured By: MyoKyawHtun

Interval : 30 Seconds (24 Hrs)

12/12/2014 09:00 PM To 13/12/2014 09:00 PM

No.	Date	Time	Mean Value	Weight	Day/ Night
1	12/12/2014	09:05:00-10:05:00	57.3	A	Day
2	12/12/2014	10:05:30-11:05:00	56.3	A	Day
3	12/12/2014	11:05:30-12:05:00	56.1	A	Day
4	12/12/2014	12:05:30-13:05:00	51.8	A	Day
5	12/12/2014	13:05:30-14:05:00	57.3	A	Day
6	12/12/2014	14:05:30-15:05:00	57.7	A	Day
7	12/12/2014	15:05:30-16:05:00	58.2	A	Day
8	12/12/2014	16:05:30-17:05:00	57.1	A	Day
9	12/12/2014	17:05:30-18:05:00	53.6	A	Day
10	12/12/2014	18:05:30-19:05:00	54.5	A	Day
11	12/12/2014	19:05:30-20:05:00	54.7	A	Day
12	12/12/2014	20:05:30-21:05:00	54.5	A	Day
13	12/12/2014	21:05:30-22:05:00	54.4	A	Day
14	12/12/2014	22:05:30-23:05:00	54.7	A	Night
15	12/12/2014	23:05:30-00:05:00	53.4	A	Night
16	13/12/2014	00:05:30-01:05:00	44.2	A	Night
17	13/12/2014	01:05:30-02:05:00	41.7	A	Night
18	13/12/2014	02:05:30-03:05:00	42.0	A	Night
19	13/12/2014	03:05:30-04:05:00	42.9	A	Night
20	13/12/2014	04:05:30-05:05:00	43.8	A	Night
21	13/12/2014	05:05:30-06:05:00	44.3	A	Night
22	13/12/2014	06:05:30-07:05:00	48.4	A	Day
23	13/12/2014	07:05:30-08:05:00	53.9	A	Day
24	13/12/2014	08:05:30-09:05:00	53.0	A	Day

Date:

Respondent:

Checklist for

Hotel IEE, NyaungShwe, Inlay

Sr.	Item	Existing	Construction Phase	Operation Phase	Decommissioning Phase
1	Location of hotel (near Wildlife sanctuary, settlements?/ population density/ major river and streams etc.), map attached Nearest villages, HH, Population, Profile?				
2	Area extent of hotel (Total area, main building area and other housing or building area, area of spare land, area for tree planting etc.) Detailed site plans and Landscape Map attached				
3	Existing natural environment of the site? - soil - water - air - vegetation - weather - wildlife/endangered species - surrounding inhabitants				
4	Number of hotel workers, their welfare and legal rights Hours per shift, shifts per day Trainings for new recruits Workers daily transport Food and drinks provided Other supplements by factory Medical care for workers, hotel clinic etc., nearest hospitals or clinic				
5	Construction process Design company? Size of main hotel building and subsidiary buildings, building type (No. on land/in water?)				

	<p>Land area required for construction? Remaining land area? Distance between bulidings/water?</p> <p>Landscaping plan? How many trees planting?</p> <p>Other environmental protection measures?</p> <p>Time frame for construction</p> <p>Construction plans/maps</p> <p>Company to be constructed, its reputation, compliance with environmental rules and regulations?</p>	
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Annex VII: Impact screening checklist

Sr.	Item	Existing	Construction Phase	Operation Phase	Decommissioning Phase
6	<p>Materials used for construction (estimate)</p> <ul style="list-style-type: none"> - Machines and equipment - Earth work (excavation) volume - Earth work (compaction) volume - Steel /Cement volume - Water consumption at construction site per day - Energy consumption at site - Number of labour to be used for construction - Amount of fuel to be used at the site - Others (harmful) - 				
7	<p>Fire control and management system</p> <ul style="list-style-type: none"> - Sketch Plan? - fire extinguishers - hoses, water tanks - built-in fire alarm system - Sprinkler system - emergency exits and walk 				

	<p>ways</p> <ul style="list-style-type: none"> - notices - fire drills for extinguishing and evacuation - volunteer fire fighters and training - contact local fire department - fire protection system plan map/drawing - separate fuel tank or storage facility -Centralized building Management system? - Others 				
8	<p>Emission to air</p> <p>Dust emission form earth work?</p> <p>Emissions form machines and equipment?</p> <p>Other possible emissions during construction</p> <p>During Operation: from cooking, washing, air conditions, transport, engines, etc.?</p> <p>Preventive measures?</p> <p>GHG free air-con system/centralize or single unit type?</p> <p>Others</p>				

Annex VII: Impact screening checklist

Sr.	Item	Existing	Construction Phase	Operation Phase	Decommissioning Phase
9	<p>Emission to water</p> <p>Fuel leakage, chemical, waste water, other</p> <p>liquid in construction?</p> <p>During operation:</p> <p>Domestic water with detergents</p>				

	<p>Sewage water</p> <p>Fuel leakage (on which step, what kind of chemicals, dangerous or not, amount, how to collect, discharge?/ preventive measures for less waste?)</p> <p>Preventive measures</p>				
10	<p>Solid Waste</p> <p>During construction?</p> <p>Plastic, glass, wood, iron, papers, etc.</p> <p>During operation?</p> <p>Food wastes, clothing, stationary, household waste, expired items, etc.</p> <p>(how to collect, discharge?/ preventive measures for less waste?)</p> <p>Separate waste collection point/ bins</p>				
11	<p>Noise</p> <p>(Major sources of noise during construction and during operation, level, control measures etc.)</p> <p>Traffic/ Engines etc.</p>				
12	<p>Traffic</p> <p>Main access roads/means to hotel</p> <p>During construction (are there any problem on local traffic, loading/unloading of raw materials, number of vehicles in and out per day, road system in and around hotel site etc.)</p> <p>During operation (are there any problem on</p>				

	local traffic, loading/unloading of guests/labours, number of vehicles in and out per day, road system in and around hotel site etc.)				
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Annex VII: Impact screening checklist

Sr.	Item	Existing	Construction Phase	Operation Phase	Decommissioning Phase
13	Ventilation system of hotel (high, width, window system, digital ventilation, indoor plotted plants, etc.) air-con system/ centralize or single unit type?				
14	Swage management system of the hotel Waste water treatment plant? (grey water/ toilet) (Source of water, major discharge ways and discharge point of waste water and sewage,)				
15	Regular monitoring system -on emission to air -on emission to water -on noise -on traffic (if any problem)				
16	Mitigation and prevention measures -on emission to air -on emission to water -on noise -on traffic (if any problem)				
17	Cost for 14 and 15				
18	Compliance with existing Environmental Policy, Law and Rules of Myanmar				

19	Public opinion on hotel project (mainly by surrounding inhabitants) Approval by Regional Authority, Hotel and Tourism Ministry, Local Municipal etc.	
20	CSR activities	

Annex VII: Impact screening checklist

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Annex VIII: Commitment of environmental conservation by investor

MYANMAR TREASURE HOTEL & RESORT GROUP COMPANY LTD.

No. 12-A, Khapaung Street, Hlaing Township,
Yangon, Myanmar, Tel: (951) 538549, (951) 535226

နေ့စွဲ။ ။ ၂၀၁၄ ခုနှစ်၊ ဇူလိုင်လ (၁၄) ရက်

ပတ်ဝန်းကျင်သဘာဝထူးနှင့်အညီ ပြင်ဆင်တင်ပြမည်ဖြစ်ပါကြောင်း

ဆိုခြင်း။

အထက်ပါအကြောင်းအရာနှင့် ပတ်သက်၍ မြန်မာနိုင်ငံသားများ ရင်းနှီးမြှုပ်နှံမှု၊ အုပ်စု ကုမ္ပဏီ လီမိတက်သည် မြေအကျယ်အဝန်း(၃၀.၁၇)ဧက အကျယ်အဝန်းရှိသည့် မြေအတွင်းတွင် ပြည်တွင်းပြည်ပမှ ဧည့်သည်များ အနားယူ စားသောက်ရန်အတွက် လေ့လာနိုင်ရန်အတွက် နိုင်ငံတကာ အဆင့်မီ အော်ရီယမ်ပီလေ့လာရေးအဖွဲ့အစည်းအား တည်ဆောက်ခြင်းလုပ်ငန်း လုပ်ကိုင်နိုင်ရန်အတွက် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုနှင့် အခြားအဖွဲ့အစည်းများ ရင်းနှီးမြှုပ်နှံမှု ခွင့်ပြုမိန့်ကို လျှောက်ထားသော ကုမ္ပဏီ ဖြစ်ပါသည်။

ထိုကယ်ဆောင်မှုလုပ်ငန်း လုပ်ဆောင်ရာတွင် စွန့်ပစ် ပစ္စည်းများ၊ ရေဆိုးများ စသည်တို့ ပတ်ဝန်းကျင် လေထုနှင့်ရေထု ညစ်ညမ်းမှု မရှိစေရန် နှင့် ပတ်ဝန်းကျင်ရှိ လူတို့၏ အကျိုးအမြတ်အရ တို့အတွက် အကာအကွယ်ပေးဆောင်ရွက်ရမည့် နည်းလမ်းများ၊ စွန့်ပစ်ပစ္စည်းများ ဆောင်ရွက်သွားရမည့် နည်းလမ်းများအတိုင်း ထည့်သွင်း ဆောင်ရွက်သွားပါမည်။

အထက်ဖော်ပြပါအတိုင်း ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးစီမံချက် (Initial Environmental Examination- IEE) တို့ကို ပြုလုပ်ပြီး တွေ့ရှိချက်များအပေါ် အခြေခံလျက် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး စီမံချက် (Environment Management Plan -EMP) ကို ရေးဆွဲတင်ပြ၍ အကောင်အထည်ဖော် ဆောင်ရွက် သွားပါမည်ဟု ဆိုလိုပါသည်။

ထို့အပြင် ထုတ်ပြန် ပြဋ္ဌာန်းထားသည့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ မူဝါဒ၊ ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး ဥပဒေတို့နှင့်အညီ လိုက်နာအကောင်အထည်ဖော် ဆောင်ရွက်သွားပါမည်ဟု လည်း ဝန်ခံကတိပြု ဆိုလိုပါသည်။

လေးစားစွာဖြင့်



(ဦးတေဇ)

ရင်းနှီးမြှုပ်နှံသူ/ ကမကထပြုသူ
မြန်မာရတနာဟိုတယ်နှင့်အပန်းဖြေ
စခန်းအုပ်စု ကုမ္ပဏီလီမိတက်
အုပ်စု ကုမ္ပဏီလီမိတက်

Annex IX: Detailed list of machineries and equipment for resort

Schedule - 6

Particulars	Amount Kyat
	495,410,213
	38,222,228
	314,105,164
	407,346,225
Painting Work- Hotel Decoration Work (Sinma)	169,784,000
Lighting System	74,049,786
Background Music System	8,209,980
	1,507,127,596

Schedule - 7

Water Treatment System, PABX and Others

Particulars	Amount Kyat
Water Materials & Installation	
Water Treatment System	13,003,200
Water Supply- External	41,388,576
Water Supply- External Sewage Line	45,822,717
Electrical - External	120,199,946
Ceiling Work	111,346,800
Baseline, PABX Materials & Installation	43,472,000
Door Lock & Accessories	23,916,610
	399,149,849

Schedule - 8

Development Cost

Particulars	Amount Kyat
Daily Wages & General Labour Cost	
1 Daily Wages	270,000
2 Labour Charges	4,650,450
3 Labour Charges -General	1,045,500
Site Development Overhead Cost	
4 Site Supplied	16,821,157
5 Site Supplied- Scaffolding Materials	720,000

41

Annex IX: Detailed list of machineries and equipment for resort

Schedule - 8 continued

10 Loading / Unloading Charges	10,977,435
11 Quarantine Expense (Pest Control)	11,925,000
12 Travelling Allowance	2,633,800
13 Travelling Allowance (China Trip)	1,713,093
14 Transportation Charges	113,151,188
15 Packing Charges	105,000
16 Landscaping Charges	50,000
Material Supporting Cost	
17 Materials use for M & E Contractor	8,655,166
Vehicles Supporting Cost	
18 Oil & Lubricant - Diesel Expenditure	56,993,305
19 Backhoe Expenditure (for Water Land Earth Work)	4,674,000
Professional Expenditure	
20 Design Fees	4,050,000
Total -	238,435,094

Schedule - 9

Administrative Overhead Expenses

Particulars	Amount Kyat
Staff Cost	
1 Staff Salary	80,140,323
2 Staff Meal Allowance	11,036,550
3 Staff Tip Money	5,599,700
4 Staff Bonus	6,347,000
Office Overhead Expenses	
5 Stationery	1,493,199
6 Printing Paper & Cartridge	224,660
7 Telex & Fax	1,401,217
8 Registration Fees	3,526,500
9 Water Land Agricultural Expense	8,632,540
10 Depreciation	1,638,175
11 Damage & Loss on Disposal	4,211,932
12 Loss on sales - Wood , Door & Window	370,565
13 Profit & (Loss) on Disposal	(154,619)
14 Hotel room rent charges	192,900
Vehicle Expense	
15 Repair & maintenance of vehicles	8,888,050
16 Repair & maintenance of Machine	2,352,300
17 Repair & maintenance of Heavy Machine	4,157,402
18 Vehicle Licence	387,800

Annex IX: Detailed list of machineries and equipment for resort

Schedule - 9 continued

Marketing & Entertainment Expenses		
19	H/O Entertainment	5,113,343
20	Donation	4,107,289
21	Gift & Present	1,021,700
22	Discount received	(2,770,303)
Finance Expenses		
23	Remittance charges	5,035,692
24	Exchange Gain (Loss)	(34,922,487)
25	Other Income	(1,412,096)
		116,619,332

Schedule - 10

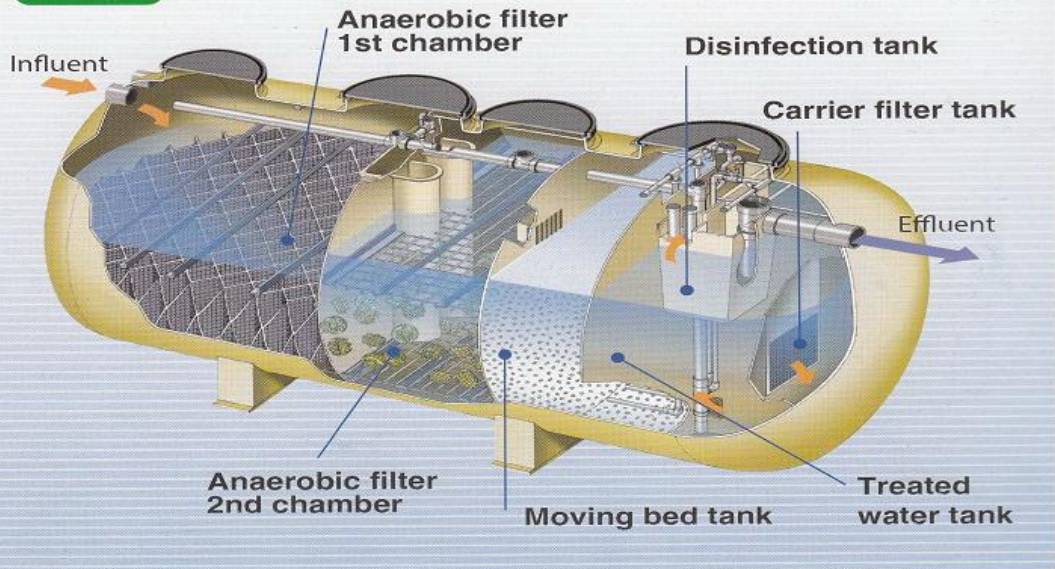
Fixed Assets

No	Particulars	Amount Kyat
1	Furniture, Fitting & Equipment	382040803
2	Electrical Equipment	329383356
3	Data processing Equipment	10696800
4	Machinery	94897920
5	Operating Supply	7985016
6	Others	161257953
	Total	986261848

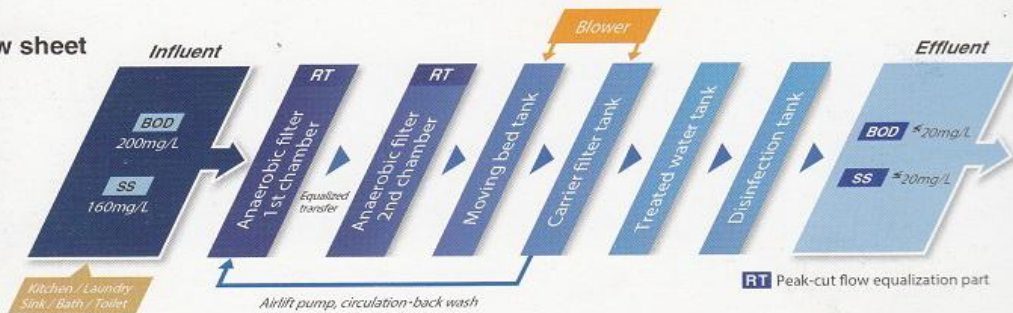
Annex X: Detailed design and function of Kubota Johkasou Bio-tank

Johkasou system

HC-A



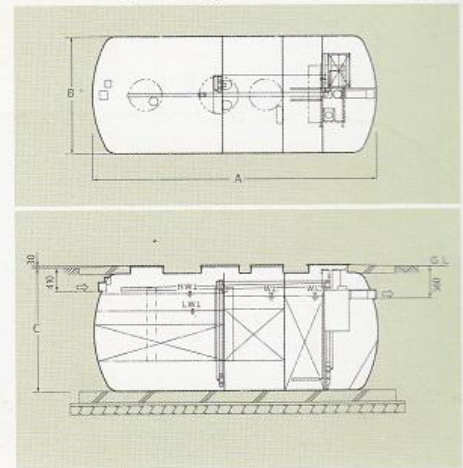
Flow sheet



Specifications (200 L/person day, inf. BOD 200 mg/L, influent 12 hrs/day)
The data shown as 200L / person day is calculated for the japan standard.

	14 persons	30 persons	40 persons	50 persons	
Population for the treatment unit	14 persons	30 persons	40 persons	50 persons	
Model	HC-14B	HC-30B	HC-40A	HC-50A	
Flow rate (m ³ /day)	2.8	6.0	8.0	10.0	
Dimensions (mm)	Length A	3,100	4,300	5,160	
	Width B	1,660	2,000	Φ2,050	
	Height C	1,990	2,180	2,180	
Manhole number	Φ500 / Φ600	2/1	2/2	2/1	
Checker plate number	600 × 1,000	-	-	1	
Inf. eff. pipe dia. (mm)	Φ125				
Air pipe dia. (mm)	Φ13		Φ20		
Capacity (m ³)	Peak-cut flow equalization part	0.298	0.939	1.192	1.440
	Anaerobic filter 1st chamber	2.542	4.746	6.346	7.677
	Anaerobic filter 2nd chamber	1.771	2.754	3.170	3.849
	Moving bed tank	0.489	1.593	2.123	2.660
	Media filter tank	0.112	0.150	0.253	0.253
	Treated water tank	0.860	1.292	1.371	1.371
	Disinfection tank	0.030	0.063	0.105	0.105
Total capacity	5.804	10.598	13.368	15.915	
Blower air flow rate (L/min)	80	200	250	300	

Drawing example



What is Johkasou . . . ?

For Earth, For Life
Kubota

Johkasou ဆိုတာဘာလဲ... ?

- Not just a septic tank. It is the wastewater treatment system.
ရေဆိုးများကို သိုလှောင်ရုံသာမက သန့်စင်အောင်ပြုလုပ်သည့် စနစ်ပါဝင်သော ကန်ဖြစ်ပါသည်။
- Includes various functions in one tank called anaerobic, aerobic, sedimentation and disinfection.
ကန်တစ်ကန်ထဲမှာပင် လုပ်ဆောင်ချက်များစွာပါဝင်သည်။ ဘတ်တီးရီးယားကို "လေမဲ့" မျိုးပွား၍ သန့်စင်သည့် စနစ်၊ ဘတ်တီးရီးယားကို "လေဖြင့်" မျိုးပွား၍ သန့်စင်သည့်စနစ်၊ အနယ်ချခြင်း၊ ပိုးသတ်ခြင်း စသည့် လုပ်ဆောင် များ ပါဝင်သည်။
- Treat wastewater as same quality as centralized sewage system.(BOD) removal rate $\geq 90\%$, effluent BOD $\leq 20\text{mg/l}$
"Johkasou" သည် မြို့နယ် "ရေဆိုး" ပိုက်လိုင်း စနစ်များကဲ့သို့ ရေဆိုးစွန့်ပစ်ရုံသာမက မဟုတ်ဘဲ ရေဆိုးများ ကို ၉၀% နှင့် အထက် သန့်စင်ဆောင် ထုတ်ပေးနိုင်သည်။ တစ်လီတာလျှင် ၂၀ မီလီဂရမ်အောက်သာ အညစ်အကြေး ပါဝင်သော ရေကို ပြန်ထုတ်ပေးသည်။
- Treat any type of wastewater; kitchen, toilet, laundry or shower.
မီးဖိုချောင်၊ အိမ်သာ၊ ရေချိုးခန်းနှင့် အဝတ်လျှော်ရာမှ ထွက်လာသည့် ရေဆိုး အမျိုးမျိုးကိုလည်း သန့်စင်ပေးနိုင်သည်။
- Wa Minn Company Ltd, as a sole distributor in Myanmar, is providing all services including import, installation and maintenance with skilled technicians.
ဝမ်းကုမ္ပဏီလီမိတက်မှ Johkasou စက်များအား တစ်ဦးတည်းကိုယ်စားလှယ်ဖြင့် မှာယူတင်သွင်းပေးခြင်း၊ တပ်ဆင်ပေးခြင်း၊ Maintenance ပြုလုပ်ပေးခြင်း တို့အား ကျွမ်းကျင်ပညာရှင်များဖြင့် ဆောင်ရွက်ပေးလျက်ရှိပါသည်။
- Kubota Johkasou sewage treatment plant is accepted and recommended by international environment conservation organization.
နိုင်ငံတကာရှိ သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ အဖွဲ့အစည်းများ၏ ထောက်ခံမှု အပြည့်အဝရရှိထားသော Kubota Johkasou ရေဆိုးသန့်စင်စက် ဖြစ်ပါသည်။



Kubota FRP Johkasou, Sewage Treatment Equipment [Suitable for 5 ~ 5,000 persons]

Annex XI: Record photos of field survey



Beautiful scene of Aureum Palace Resort & Spa



Lake side bungalow surrounded by green landscape



Tube well facilities & laundry outside of resort site



Bio-tank installed under bungalow



Water purification system attached to the kitchen



Emergency water pump



Solid waste collection by type to recycle



Bicycles to encourage green travel