INITIAL ENVIRONMENTAL EXAMINATION REPORT

ON

SAYTAN ISALND RESORT
FOR
GOOD SHAN BROTHER INTERNATIONAL CO.,LTD

Prepared by
HRD Environmental Training and Services Company Limited
Room.3, Bdg.2,Quarter 3, Insein Road, Mayangon Township,Yangon Mayangon Township,Yangon,Myanmar

JUNE 2019

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

အိတ်ချ်အာဒီ အင်ဗားရွန်းမန်တယ် ထရိန်းနင်း အန်းဒ် ဆားဗစ် ကုမ္ပဏီ လီမိတက်

HRD ENVIRONMENTAL TRAINING AND SERVICES COMPANY LIMITED

Company Registration No. 117441881

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ

အိတ်ချ်အာဒီ အင်ဗားရွန်းမန်တယ် ထရိန်းနင်း အန်းဒ် ဆားဗစ် ကုမ္ပဏီ လီမိတက်

အား ၂၀၁၆ ခုနှစ် နိုဝင်ဘာလ ၄ ရက်နေ့တွင်

အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ

အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that

HRD ENVIRONMENTAL TRAINING AND SERVICES COMPANY LIMITED

was incorporated under the Myanmar Companies Act 1914 on 4 November 2016 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ

Registrar of Companies

ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန

Directorate of Investment and Company Administration

Former Registration No. 3633/2016-2017(YGN)

HRD Environmental Training and Services Co., Ltd.
Human Resource Development Environmental Training and Services
Register Address: Room.3, Bdg.2,Quarter 3, Insein Road, Mayangon Township,Yangon
Phone : +95 49201658, +95 9256036414
Email :, hrd.environment2019@gmail.com

တနသ်ာရီတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့မှ အနောက်တောင်ဘက် ပင်လယ်ပြင်ရေပြင်မှိုင် 32.72 MILES (52.66 Km) အကွာအဝေး၊ မြောက်လတ္တီကျူ 9°47'50.69"N, နှင့်အရှေ့လောင်ဂျီကျူ 98° 6'30.88"E ပေါ်ရှိ စေတန်ကျွန်းပေါ်တွင် အပန်းဖြေဟိုတယ် Resort များ တည်းဆောက်ခြင်းလုပ်ငန်းနှင့်စပ်လျဉ်း၍ ကနဦး သဘာဝပတ်ဝန်းကျင် ထိခိုက်မှု ဆန်းစစ်ခြင်း ဆိုင်ရာလုပ်ငန်းအတွက် HRD Environmental Training and Services Co.,Ltd မှ ဆောင်ရွက်ပြီး မိမိတို့ကျွမ်းကျင်မှုနယ်ပယ်အလိုက် တာဝန်ယူဆောင်ရွက်ကြသည်မှာ မှန်ကန်ကြောင်း ဝန်ခံ ကတိပြုပါသည်။

Prof. Dr. Aung Lay Tin
(Professor and Head of Mining Engineering Department, Yangon Technological University)
Senior ESIA Team Leader
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THE REPUBLIC OF THE UNION OF MYANMAR
Ministry of Natural Resources and Environmental Conservation
Environmental Conservation Department
CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

No. 10071 Date 24 MAY 2019

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the organization under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(a) Name of Organization — HRD Environmental Training and Services Co., Ltd
(b) Name of the representative as the organization — Dr. Aung Lay Tin
(c) Citizenship of the representative in the organization — Myanmar
(d) Identity Card /Passport Number of the representative person in the organization — 7/ PAKHATA(N) 042418
(e) Address of organization — Room.3, Bdg.2, Quarter 3, Insein Road, Mayangon Township, Yagon, Myanmar. Telephone (office): 09256036414, 09975851358 Mobile phone: 09256036414 E mail: aunglaytin@gmail.com Organization
(f) Type of Consultancy
(g) Duration of validity — 31 December 2019

Director General
Environmental Conservation Department
Ministry of Natural Resources and Environmental Conservation

Project Team of HRD Environmental Training and Services Co.,Ltd

Serial No.	Full Name	Education	Responsibility
1	Dr.Aung Lay Tin	BE,ME,Ph.D (Mining,YTU)	Management and Others, Air and Noise, Pollution Control
2	Mr.Kyaw Soe	BE(Metallurgy),YTU,2002 M.Sc Beihang University (China),2006 Ph.D Beihang University (China),2011	Management and Others
3	Dr. Kyaw Zay Moe	Ph.D (Batany)	Ecological Consultant, Biodiversity
	Dr. Ko Myint	Ph.D (Batany)	Ecological Consultant , Biodiversity
4	Daw Swe Mar Kyaw	A.G.T.I (EP),Pyay, B.Sc (Phys;),2003, Dip.EIA/EMS,MS (EAM)	Socio-Economy
5	Daw Thazin Htwe	BE(IT),Thanlyni,2009 Dip.EIA/EMS,MS (EAM)	Socio-Economy
6			
7	Daw Khin Than Sin Aye	BE(Civil),Magaway TU,2014 ,ME (CIVIL),YTU	Ground water and Hydrology; Construction
8	Daw Thin Naing Aye	BE(Civil),Hmawbi,2013 ME (CIVIL),YTU	Ground water and Hydrology;
9	Daw Nilar lwin	BE(Civil),Hmawbi,2013 ME (CIVIL),YTU	Ground water and Hydrology;
10	Yuzana Moe Myint	Bsc(Forest), 2014, Dip. in EIA & EMS	Biodiversity
11	Nanda Nwe	BE(CEIT),Hmawbi, Dip.EIA/EMS,MS (EAM)	Socio-Economy;
12	Phyo Maung Maung	BE(Mining),WYTU,2012	Socio-Economy
13	U San Oo	Bsc(geology),Magway,2007, M.Eng(Gadjah mada University, Indonesia,2012	Geology and Soil
14	Mg Aung Ze Yar Wint	Bsc(Forest), 2015, Dip. in EIA & EMS	Pollution Control
15	Mg Tint Naing Zaw	Bsc(Forest), 2015, Dip. in EIA & EMS	Lawer
16	Mg Si Thu		Facilitator
17	Dr.Myo Min Htun	Ph.D (Metallurgy)	Waste Management, Hazard

ဝန်ခံကတိပြုလွှာ

တနင်္သာရီတိုင်းဒေသကြီး ၊ ကော့သောင်းခရိုင်၊ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ စေတန်ကျွန်းပေါ်တွင် အပန်းဖြေ Resort Hotel များတည်ဆောက်ခြင်းလုပ်ငန်းနှင့်ပက်သက်ပြီး ကနဦးပတ်ဝန်းကျင်ထိခိုက်မှု အစီရင်ခံစာများမှာ ပြည့်စုံမှန်ကန်ကြောင်းနှင့် အဆိုပါအစီရင်ခံစာ Environmental Monitoring Plan များကို လိုက်နာဆောင်ရွက်မည်ဖြစ်ပါကြောင်း ဝန်ခံကတိပြုပါသည်။

စီမံကိန်းဒါရိုက်တာ

အကောင်အထည်ဖော်ဆောင်ရွက်မည့်ကုမ္ပဏီ-- Good Shan Brother International Co., Ltd

Contact Phone No-	**: 09-977999919, 09969444900, 095351002**
Contact Person-	**: Daw Stella Kyaw Win**
Company Address	**: 3rd Floor, Co-Operative Business Center, Corner of Sayarsan Rd & New University Avenue Rd, Bahan Township, Yangon**
Project Location;	**Saytan Island, kawthaung District, Thanintharyi Division,**
Land Use	**: 15.8 Acre**

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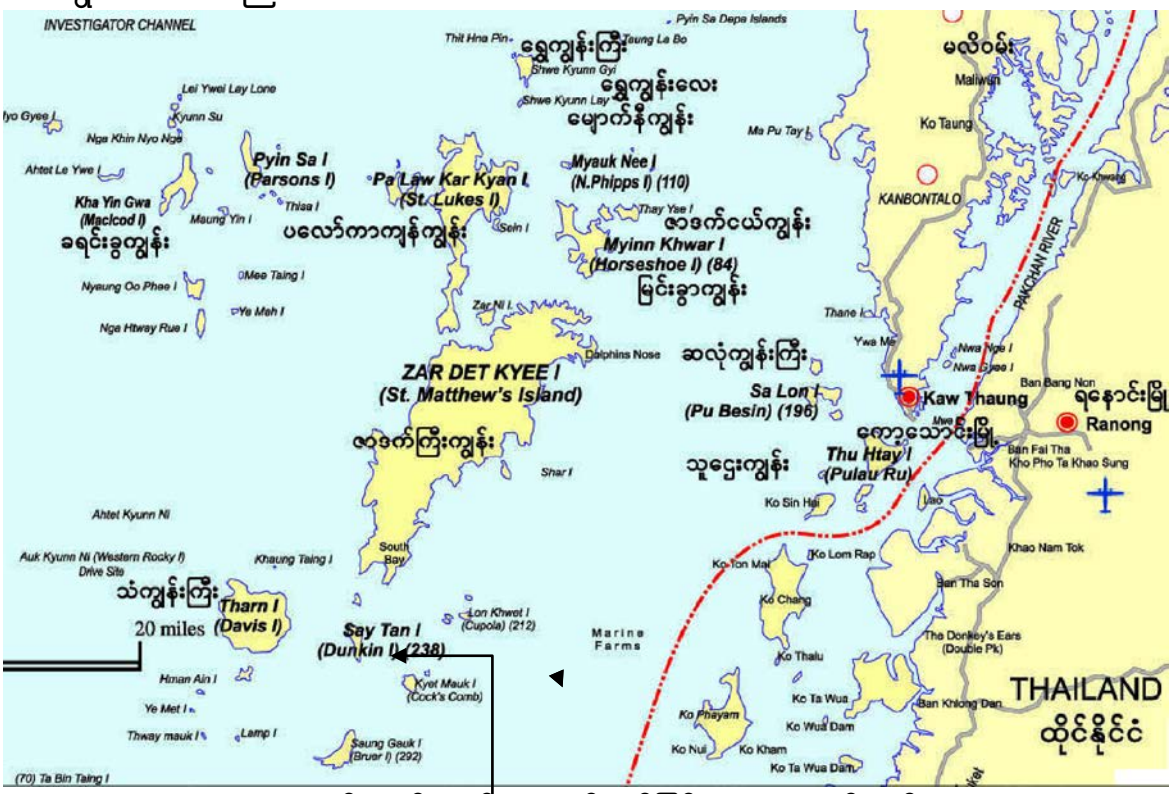
၁။ နိဒါန်း

တနင်္သာရီတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့နယ်၊ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ စေတန်ကျွန်းပေါ်တွင် - Good Shan Brother International Co., Ltd မှ ဟိုတယ်အပန်းဖြေစခန်း စီမံကိန်းအား အကောင်အထည်ဖော် ဆောင်ရွက်လျက်ရှိပါသည်။ စီမံကိန်းဧရိယာသည် ကော့သောင်းမြို့၏ အနောက်တောင်ဘက် ရေမိုင် 32.72 MILES (52.66 Km) မိုင်အကွာ မြောက်လတ္တီကျူ (9°47'50.69"N နှင့် အရှေ့လောင်ဂျီကျူ 98° 6'30.88"E တည်ရှိသည့် ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ စေတန်ကျွန်း၌ မြေကွက်အမှတ် (၂၅/OSS)၊ ဇာဒက်ကြီးကြေးပြင်တိုင်ကွင်းပေါ်တွင် BOT စနစ်ဖြင့် ငှားရမ်းပြီး မြေဧက (၁၅.၈) ပေါ်တွင် နိုင်ငံတကာ အဆင့်မှီ အပန်းဖြေဟိုတယ်လုပ်ငန်းအား အကောင်အထည်ဖော် ဆောင်ရွက်ရန် ရှိပါသည်။ စေတန်ကျွန်း၏ အရှေ့တောင်ဘက်တွင် ကြက်မောက်ကျွန်းနှင့် အနောက်ဘက်တွင် သံကျွန်းတည်ရှိသည်။စီမံကိန်းသည် နိုင်ငံသားရင်နှီးမြှုပ်နှံမှု ၁၀၀ % ဖြစ်ပြီး ယခုစီမံကိန်းအတွက် နိုင်ငံတော်မှ နှစ်ပေါင်း (၃၀) ငှားရပ်ပြီး ရင်းနှီးမြှုတ်နှံမှုမှာ ကျပ်သန်း (၄၈၀၀) ကျော် ဖြစ်ပါသည်။ ဤစီမံကိန်းလုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) လုပ်ငန်းအား HRD Environmental Training and Service Co.,Ltd က ၂၀၁၉ ခုနှစ်၊ ဇူလိုတွင် စတင်ဆောင်ရွက်ခဲ့ပြီး လုပ်ငန်းများကို ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး ဥပဒေ ၂၀၁၂၊ ပတ်ဝန်းကျင်ထိန်းသိမ်ရေးနည်းဥပဒေ(2016)၊ မြန်မာနိုင်ငံ ရင်နှီးမြှုတ်နှံမှုဥပဒေ နှင့် ၂၀၁၅ ပတ်ဝန်းကျင်ထိခိုက်ဆန်းစစ်ခြင်း လုပ်ထုံးလုပ်နည်းပါ ပြဋ္ဌာန်းချက်များအတိုင်း လိုက်နာ ဆောင်ရွက်ထားပါသည်။



ပုံ (၁) ဟိုတယ်တည်ဆောက်မည်ဖြစ်သောစေတန်ကျွန်း

၂။ ရည်ရွယ်ချက်

Good Shan Brother International Co., Ltd မှ ဆောက်လုပ်မည်ဖြစ်သော ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့၏ အနောက်တောင်ဘက် ရေမိုင် (၃၃) မိုင်အကွာရှိ ဟိုတယ်စီမံကိန်းလုပ်ငန်းရပ်များ၏ တည်ဆဲ ဥပဒေနှင့် ညီ ညွတ်မှု ရှိ/မရှိအား အကဲဖြတ်ရန်၊ စီမံကိန်းတည်ရှိရာ ဒေသ၏ နောက်ခံ လူမှုစီးပွား အခြေအနေများ၊ ပတ်ဝန်းကျင် ဆိုင်ရာ အချက်အလက်များကို လေ့လာသုံးသပ်ရန်၊ စီမံကိန်းဆိုင်ရာ အချက်အလက်များကို အများပြည်သူအား ထုတ်ဖော်ကာ ဆွေးနွေးညှိနှိုင်းခြင်း၊ အကြံပြုချက်များရယူခြင်းဆောင်ရွက်ရန်၊ စီမံကိန်းကြောင့် ဖြစ်ပေါ်လာနိုင်သည့် ပတ်ဝန်းကျင် နှင့်လူမှုစီးပွားအပေါ်သက်ရောက်မှုများကို လေ့လာတွက်ဆရန်နှင့် ဆိုးကျိုးသက် ရောက်မှုများကို လျော့ချကုစားရန်နည်းလမ်းများ၊ ကောင်းကျိုးသက်ရောက်မှုများကို ဆပ်ွားမြှင့်တင်ရန် နည်းလမ်း များ ရှာဖွေဖော်ထုတ်ရန်ဟူသည့် ရည်ရွယ်ချက်များဖြင့် Good Shan Brother International Co., Ltd မှ ဆောက်လုပ်သော ဟိုတယ်အပန်းဖြေစခန်း စီမံကိန်းလုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင်ထိုက်ခိုက်မှုဆန်းစစ်ခြင်း (IEE) လုပ်ငန်းများကို ဆောင်ရွက်ခဲ့ပါသည်။

၃။ ဥပဒေရေးရာ သုံးသပ်ချက်

ပတ်ဝန်းကျင်ထိုက်ခိုက်မှုဆန်းစစ်ခြင်း ပညာရှင်အဖွဲ့သည် စီမံကိန်းလုပ်ငန်းရပ်များအား ဥပဒေနှင့် ညီ ညွတ်မှု ရှိ/မရှိ ကို သက်ဆိုင်ရာ တည်ဆဲဥပဒေများနှင့် တိုက်ဆိုင်စိစစ်ခဲ့ပါသည်။ တိုက်ဆိုင်စစ်ဆေးခဲ့သည့် ဥပဒေအချို့မှာ နိုင်ငံခြားရင်းနှီးမြှုတ်နှံမှုဥပဒေနှင့် နည်းဥပဒေ၊ ၂၀၁၂ The Environmental Conservation Law၊ အလုပ်အကိုင်နှင့် ကျွမ်းကျင်မှု ဖွံ့ဖြိုးတိုးတက်ရေး ဥပဒေ၊ ၁၉၅၁ အလုပ်ရုံအလုပ်သမား အက်ဥပဒေ ၊ ၁၉၅၃ မြန်မာနိုင်ငံ ဟိုတယ်နှင့် ခရီးသွားလာရေး ဥပဒေ၊ 1990 The Myanmar Marine Fisheries Law၊ ရပ်ကွက်သို့မဟုတ် ကျေးရွာအုပ်စု အုပ်ချုပ်ရေး ဥပဒေနှင့် အခြားသက်ဆိုင်ရာ ဥပဒေများ ဖြစ်ကြပါသည်။

၄။ လေ့လာရေး လုပ်ငန်းရပ်များ

တနင်္သာရီတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့နယ်၊ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ စေတန်ကျွန်းပေါ်တွင် Good Shan Brother International Co., Ltd မှ ဟိုတယ်အပန်းဖြေစခန်း စီမံကိန်းအား အကောင်အထည်ဖော် ဆောင်ရွက်လျက်ရှိပါသည်။ စီမံကိန်းဇရိယာသည် ကော့သောင်းမြို့၏ အနောက်တောင်ဘက် ရေမိုင် 32.72 MILES (52.66 Km) မိုင်အကွာ မြောက်လတ္တီကျူ (9°47'50.69"N နှင့် အရှေ့လောင်ဂျီကျူ 98° 6'30.88"E တည်ရှိသည့် ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ စေတန်ကျွန်း၌ မြေကွက်အမှတ် (၂၅/OSS) ၊ဇာဒက်ကြီးကြေးပြင်တိုင်ကွင်းပေါ်တွင် BOT စနစ်ဖြင့် ငှားရမ်းပြီး မြေဇက (၁၅.၈) ပေါ်ရှိ မြေဇရိယာ ဇကကို အခြေပြုဆောင်ရွက်ခဲ့ပါသည်။ လေ့လာရေး လုပ်ငန်းစဉ်တွင် ပါဝင်သည့် လုပ်ငန်းရပ်များမှာ ကနဦးလေ့လာမှု၊ နယ်ပယ်အတိုင်းအတာ သတ်မှတ်ခြင်း၊ ဒေသခံလူ့အဖွဲ့အစည်းများနှင့်တွေ့ဆုံခြင်း၊ စီမံကိန်းကြောင့် ထိခိုက်ခံစားရနိုင်ခြေရှိသည့်သူများ၊ ဒေသဆိုင်ရာ အုပ်ချုပ်ရေးအဖွဲ့အစည်းများ၊ ရပ်ရွာအခြေပြုအဖွဲ့များ၊ လူမှုအဖွဲ့အစည်းများ

နှင့်တွေ့ဆုံခြင်းများ၊ အသေးစိတ်အချက်အလက်များအား တိုင်းတာကောက်ယူခြင်း၊ သက်ရောက်မှု ဖော်ထုတ်ခြင်းနှင့် အကဲဖြတ်ခြင်း၊ အစီရင်ခံစာ မူကြမ်းပြုစုခြင်း၊ တွေ့ရှိချက်များကို အများပြည်သူအား ထုတ်ဖော်ခြင်းနှင့် အပြီးသတ် အစီရင်ခံစာ ပြုစုခြင်း တို့ဖြစ်ကြပါသည်။
အသေးစိတ်အချက်အလက်များ ကောက်ယူရာတွင် တိုက်ရိုက်လေ့လာခြင်း၊ တစ်ဦးတစ်ယောက်ချင်းဖြစ်စေ အဖွဲ့လိုက်ဖြစ်စေ တွေ့ဆုံမေးမြန်းခြင်း၊ သာဘာဝ အရင်းအမြစ်များကို လေ့လာခြင်း၊ ရာသီဥတု အခြေအနေများကိုလေ့လာခြင်း၊ စီမံကိန်းအတွင်းနှင့် စီမံကိန်းပြင်ပရှိ ရေအရည်အသွေး တိုင်းတွာစစ်ဆေးခြင်းများ ပါဝင်ပါသည်။ သက်ရှိအရင်းအမြစ်များကို လေ့လာရာတွင် စီမံကိန်းတည်ရှိရာ နေရာတွင် ပေါက်ရောက်သည့် သစ်ပင်များကို လေ့လာခြင်း၊ ကျေးငှက်တိရွစ္ဆာန်များနှင့် ရေနေသတ္တဝါများကို လေ့လာခြင်းများ ပါဝင်သည်။
လူမှုစီးပွားနှင့်ဆိုင်သော အချက်အလက်များကို ကောက်ယူရာတွင် စီမံကိန်းဝန်းကျင်တွင် အခြေချနေထိုင်သော လူဦးရေအခြေအနေ၊ စီးပွားရေးအခြေအနေ၊ အလုပ်အကိုင်၊ လူထု၏ ပညာရေးအခြေအနေ လေ့လာမှုများ ပါဝင်ပါသည်။

၅။ စီမံကိန်းလုပ်ငန်းစဉ်များ

ဘန်ဂလိုများ မဆောင်ရွက်မီ စီမံကိန်းဇရိယာရှိ ချုံနွယ်များ၊ အပင်များ နှင့် အဟန့်အတားအပင်းများကို ဖယ်ရှား ရှင်းလင်းရမည်ဖြစ်ပါသည်။ ပထမနှစ်တွင် ကျွန်း၏ ကမ်းခြေနေရာ ပြင်ဆင်ခြင်း၊ ဆိပ်ခံတံတားနေရာနှင့် ဆိပ်ကမ်းမြေယာများ ပြင်ဆင်ခြင်း၊ အဆောက်အဦများ ဆောက်လုပ်ရန် မြေညှိခြင်း၊ Bench Villa (၇၂) လုံး၊Panaroma Swimming Pool (၁၀) လုံး၊ ၊ Boat House (24) လုံး ဆောက်လုပ်ခြင်း လုပ်ငန်းများ ပါဝင်ပါသည်၊ Out door facility များအဖြစ် Floating Themative Pool and Floating Jacuzzy Hut (၆) လုံးတည်ဆောက်မည်ဖြစ်သည်။

၆။ စီမံကိန်း၏ ရည်ရွယ်ချက်

(က) ဟိုတယ်လုပ်ငန်းခွဲကို ရင်းနှီးမတည် လုပ်ကိုင်ခြင်းဖြင့် ရင်းနှီးမြှုပ်နှံမှုကဏ္ဍတိုးတက်မြင့်မားလာစေရန်
(ခ) ဟိုတယ်လုပ်ငန်းဖြင့် နိုင်ငံခြားသား ခရီးသွားဧည့်သည်များ ပိုမိုဝင်ရောက်လာနိုင်ပြီး နိုင်ငံတော်အတွက် အခွန်ငွေ ပိုမိုရရှိလာစေရန်
(ဂ) မြန်မာ့ရေပိုက်နက်အတွင်းရှိ ကျွန်း၊ရေမြေ၊ သဘာဝသယံဇာတ အလှအပများကို ထိန်းသိန်းစောက်ရှောက်သွားရန်နှင့် ဒေသအတွက် အကျိုးရှိရှိ အသုံးချသွားနိုင်ရန်
(ဃ) ကော့သောင်းဒေသအတွင်း လုပ်သားများ အလုပ်အကိုင်အခွင့်အလမ်းများ ရရှိစေပြီး ဆင်းရဲနွမ်းပါးမှု လျော့ကျစေရန်
(င) နိုင်ငံခြားသား ခရီးသွားလုပ်ငန်း တိုးတက်လာခြင်းဖြင့် ဒေသအတွင်း လက်မှုအရောင်းဆိုင်များ၊ ကမ်းခြေအပန်းဖြေလုပ်ငန်းများ၊ စားသောက်ဆိုင်လုပ်ငန်းများ ဝင်ငွေတိုးတက်ရရှိစေပြီး နိုင်ငံခြားဝင်ငွေ ရရှိလာစေရန်

၇။ စီမံကိန်းဒါရိုက်တာ အဖွဲ့ဝင်များ

(က) ဦးသန်းထွန်း - Managing Director
(ခ) ဦးဝင်းမင်းသန်း - Project Manager
(ဂ) ဒေါ်စတယ်လ်လာကျော်ဝင်း - General Manager
(ဃ) ဒေါ်ဆုကေခိုင်ဦး - Admin Manager

၈။ တွေ့ဆုံဆွေးနွေးမှုများမှ ဆွေးနွေးချက်များ

(၁) လူနေပတ်ဝန်းကျင်နှင့် အလွန်ဝေးကွာသောကြောင့် မည်သို့မျှ မပြောလိုပါကြောင်း
(၂) လျောက်ထားသောမြေသည် လယ်မြေ၊ယာမြေ၊ ဥယျာဉ်မြေ၊ စားကျက်မြေများ ပါဝင်မှု မရှိခြင်းကြောင့် ထောက်ခံပါကြောင်း
(၃) တောင်သူလယ်သမားများ၏ စိုက်ပျိုးမြေများ မရှိသည်အတွက်ကြောင့် ထောက်ခံပါကြောင်း
(၄) ကျွန်းပေါ်တွင် သဘာအလျောက်ပေါက်ရောက်နေသော အပင်များရှိခြင်းကြောင့် မခုတ်စေလိုကြောင်း
(၅) လျောက်ထားသော ဇရိယာသည် သစ်တောကြိုးဝိုင်းဇရိယာနှင့်လွတ်ကင်းပြီး သစ်ပင်ကြီးများနှင့် ဒီရေတောများ ပေါက်ရောက်မှု မရှိခြင်းကြောင့် ထောက်ခံပါကြောင်း
(၆) လျောက်ထားသောမြေသည် သစ်တောဦးစီးဌာနမှ စိုက်ပျိုးထားသော စိုက်ခင်းများ မရှိခြင်းကြောင့် သဘောတူပါကြောင်း
(၈) ခရီးသွားလုပ်ငန်များ တိုးတက်လာနိုင်ကြောင်း
(၉) ဒေသခံများအတွက် အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိလာနိုင်မှာ ဖြစ်ပါကြောင်း
(၁၀) နိုင်ငံတော်အတွက် အခွန်ဝင်ငွေများ တိုးတက်လာမှာ ဖြစ်ကြောင်း
(၁၁) တရားမဝင် ငါးဖမ်းလုပ်ငန်းများအား တားဆီးကာကွယ်နိုင်မှာ ဖြစ်ကြောင်း
(၁၂) ပင်လယ်ပြင် သဘာဝအရင်းအမြစ်များကို ထိန်းသိမ်းကာကွယ်စောက်ရှောက်နိုင်ပြီး စဉ်ဆက်မပြတ် ဖွံ့ဖြိုးတိုးတက်သော ခရီးသွားလုပ်ငန်းများ ဖြစ်ထွန်းလာနိုင်မှာ ဖြစ်ပါကြောင်း
(၁၃) ကော့သောင်းမြို့နယ် သစ်တောဦးစီးဌာနမှ ကွင်းဆင်းစစ်ဆေးမှု ပြုလုပ်ပြီး ထောက်ခံချက်များ ရထားပြီး ဖြစ်ပါကြောင်း
(၁၃) ဘန်ဂလိုအပန်းဖြေစခန်းအား သဘာဝပတ်ဝန်းကျင် ထိခိုက်ပျက်စီးမှု၊ ကျွန်းများ၏ဂေဟစနစ်နှင့် ရေသယံဇာတများ ပျက်ဆီးဆုံးရှုံးမှု မရှိစေဘဲ ထိန်းသိမ်းမည် ဆိုပါက လုပ်ကိုင်ခွင့်ပြုသင့်ပါကြောင်း စစ်ဆေးတွေ့ရှိရပါသည်။
(၁၄) ယခင်က မည်သူတစ်ဦးတစ်ယောက်မျှ လုပ်ကိုင်ရန် လျောက်ထားခြင်းမရှိကြောင်း
(၁၅) ကျွန်းပေါ်တွင် လမ်းများဖောက်လုပ်ထားခြင်းကို လက်မခံနိုင်ကြောင်း တွေ့ရှိရသည်။

၉။ သက်ရောက်မှုဖေါ်ထုတ်ဆန်းစစ်ခြင်းနှင့် ကာစားရန်နည်းလမ်းများ

ဖြစ်ပေါ်လာနိုင်သည့် လူမှုစီးပွားသက်ရောက်များကို ဖေါ်ထုတ်ရန် စီမံကိန်းလုပ်ငန်းစဉ်များကို သက်ရောက်ခံ ပတ်ဝန်းကျင်နှင့် ချိတ်ဆက်ကာ ဆက်စပ်ဖေါ်ထုတ်ခဲ့ပါသည်။ စီမံကိန်းကြောင့် စီမံကိန်းဇရိယာ၏ ပတ်ဝန်းကျင်တွင် ဖြစ်ပေါ်သည့် ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားသက်ရောက် များကို ရှင်းလင်း ဆွေးနွေးထားပါသည်။

(က) မြေထုပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှု

စီမံကိန်းအကောင်ထည်ဖော် ဆောင်ရွက်မှုကြောင့် မူလပေါက်ရောက်နေသော အပင်ငယ်များကို ခုတ်ထွင် ရှင်းလင်းမှု ပြုလုပ်ရာတွင် အဖိုးတန် သစ်ပင်များကို ထိခိုက်နိုင်သလို မြေသားများ ပြင်ဆင်ရာတွင် ပင်လယ်အတွင်းသို့ ရွှံ့မြေများ ၊ နုန်းမြေများ ကျရောက်နိုင်ပါသည်။ ဟိုတယ်သုံး စွန့်ပစ် ပစ္စည်းများဖြစ်သော ပုလင်းခွံ၊ ဗူးခွံ ၊သံဖူး၊ ပလပ်စတစ် စသည့် ပစ္စည်းများကြောင့် ပတ်ဝန်းကျင်မြေသားများအပေါ် ညစ်ညမ်းမှု ဖြစ်စေနိုင်ပါသည်။ အဆောက်အဦး ဆောက်လုပ်ရန် အတွက် အုတ် သဲ ဘိလပ်မြေများ သစ်များ ဝါးများ သယ်ယူပို့ဆောင်ရာတွင် ကမ်းခြေတွင် ညစ်ညမ်းမှု ရှိနိုင်ပါသည်။ ဟိုတယ်လုပ်ငန်းသုံး စွန့်ပစ်ပစ္စည်းများ၊ အမှိုက်သရိုက်များကို စနစ်တကျ မစွန့်ပစ်ပါက မြေသားများအပေါ် ညစ်ညမ်းမှု ဖြစ်စေနိုင်ပါသည်။ ဒီဇယ်ဂျင်နရေတာ များသုံးစွဲခြင်းကြောင့် စက်သုံးဆီများ ဖိတ်ဆင်မှုကြောင့် ညစ်ညမ်းမှု ဖြစ်စေနိုင် ပါသည်။

သက်ရောက်မှုကုစားရန် နည်းလမ်းများ

1. အဆောက်အဦးဆောက်လုပ်ရန်အတွက် စုပုံထားသော သစ်များ၊ဝါးများ၊ အုတ် ကျောက် ဘိလပ်မြေများကို စနစ်တကျ စုပုံရန်
2. အဆောက်အဦး ဆောက်လုပ်ပြီးပါက စွန့်ပစ် အမှိုက် သစ်စ ဝါးစ များကို မီးရှို့ဖျက်ဆီးရန်
3. ဟိုတယ်သုံး စွန့်ပစ် ပစ္စည်းများဖြစ်သော ပုလင်းခွံ၊ ဗူးခွံ ၊ ပလပ်စတစ် စသည့် စွန့်ပစ်ပစ္စည်းများကို ကော့သောင်းမြို့သို့ ပြန်သယ်လာပြီး မြို့နယ်စည်ပင်သာယာရေးကော်မတီမှ သတ်မှတ်ထားသော နေရာတွင်သာ စွန့်ပစ်ရန်
4. ဒီဇယ်ဆီ ဓါတ်ဆီများကို အသုံးပြုရာတွင် မြေပေါ်သို့ မကျရောက်အောင် စနစ်တကျ သုံးစွဲရန်
5. စွန့်ပစ်ပစ္စည်းများကို ပစ္စည်းအမျိုးအစားအလိုက် သတ်မှတ်နေရာများတွင် စနစ်တကျ စွန့်ပစ်နိုင်ရန်

(ခ) လေထုပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှု

စီမံကိန်းကြောင့် လေထုအပေါ်သက်ရောက်မှု လွန်စွာနည်းပါးကြောင်းတွေ့ရပါသည်။ ယခုအချိန်တွင်ဆောက်လုပ်ရေးလုပ်ငန်းခွင်များမရှိခြင်းကြောင့်ဖုန်မှုန့်များ ထွက်ရှိခြင်းမရှိကြောင်း တွေ့ရပါသည်။ သို့သော် သစ်သားဘန်ဂလိုများ ဆောက်လုပ်ရာတွင် သစ်မှုန်များ ထွက်သော်လည်း အနည်းငယ်များသာ ထွက်ရှိပြီး ညစ်ညမ်းမှု မရှိကြောင်းစစ်ဆေးတွေ့ရှိရပါသည်။ စားဖိုဆောင်သော ထွက်သော မီးခိုးများသည်လည်း မရှိကြောင်း ၊ ဂျန်နရေတာလျှပ်စစ်မီးကိုသာ သုံးစွဲသောကြောင့် လေထုအပေါ် သက်ရောက်မှု နည်းပါးကြောင်းတွေ့ ရှိရပါသည်။

သက်ရောက်မှု လျော့ချရန်/ ကုစားရန်

1. ပတ်ဝန်းကျင်လေထု အရည်အသွေးထိန်းသိမ်းရေးအတွက် လျှပ်စစ်မီးကိုသာ သုံးစွဲရန်
2. ထင်းမီးများ သုံးစွဲခြင်းမှ ရှောင်ကြဉ်ရန်
3. တောမီးလောင်ကျွမ်းမှုများ ဖြစ်ပေါ်ပါက မီးဘေးကြိုတင်ကာကွယ်ရေး အတားအဆီးများ ဆောင်ရွက်ထားရန်
4. လေထုထဲသို့ အနံသက်ဆိုးများ မရောက်နိုင်အောင် စွန့်ပစ်ပစ္စည်းများကို နေ့စဉ် ကြပ်မတ် ဆောင်ရွက်ရန်၊ မီးရှို့ဖျက်ဆီးခြင်းကို အနည်းငယ်သာ ပြုလုပ်ပြီး ကုန်ကဲ့လေ့များဖြင့် ကောင်းမြို့သို့ ပြန်သယ်ကာ သတ်မှတ်နေရာများတွင်သာ စနစ်တကျ စွန့်ပစ်ရန်

(ဂ) ရေထုပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှု

စီမံကိန်း အကောင်ထည်ဖော် ဆောင်ရွက်ခြင်းကြောင့် ဟိုတယ်လုပ်ငန်းများမှ ထွက်ပေါ်လာသော စွန့်ပစ်ရေများကို စနစ်တကျ သန့်စင်ပြီး မစွန့်ပစ်ပါက ပင်လယ်ရေပြင်ကို ညစ်ညမ်းစေနိုင်သလို စက်သုံးဆီများကြောင့် ပင်လယ်တွင် ကျက်စားသော ရေနေသတ္တဝါများကို အန္တရာယ်ဖြစ်စေနိုင်ပါသည်။

သက်ရောက်မှု လျော့ချရန်/ကုစားရန်

1. (၁) ပတ်ဝန်းကျင်ရေထု ညစ်ညမ်းမှု မဖြစ်အောင် သန့်စင်ခန်းများအား စနစ်တကျ လုပ်ဆောင်ရန်
2. (၂) စွန့်ပစ်ရေများကို ရေပိုက်ကြီးများအသုံးပြုကာ ရေလှောင်ကန်များဖြင့်ထားရှိကာ သန့်စင်ပြီးမှသာ ပင်လယ်တွင်းသို့ စွန့်ပစ်ရန်
3. (၃) စက်လှေများမှ စက်သုံးဆီများကို ပင်လယ်တွင့် ဖိတ်စင်မှုမရှိအောင် စနစ်တကျ ကိုင်တွယ်အသုံးပြုရန်
4. (၄) မီးစက်များတွင် အသုံးပြုသော စက်သုံးဆီများကို ဖိတ်စင်ခြင်း၊ ယိုဖိတ်ခြင်းမရှိအောင် သုံးစွဲရန်
5. (၅) ရေအောက်သယံဇာတများ ပင်လယ်ရေနေသတ္တဝါများ၊ ပင်လယ်ရေအောက်ရှိ သဏ္ဌာကျောက်ဆောင်များ၊ မပျက်ဆီးအောင် ထိန်းသိမ်းစောက်ရှောက်ကာကွယ်နိုင်မည့် အစီအမံများထားရှိရန်
6. Biofilter ၂ လုံးတပ်ဆင်ပြီး သုံးစွဲပြီးရေများကို သန့်စင်ကာ စွန့်ပစ်မည်ဖြစ်သည်။

(ဃ) ဇီဝမျိုးစုံ မျိုးကွဲအပေါ်သက်ရောက်မှု

စီမံကိန်းဇရိယာအတွင်း စေတန်ကျွန်းပေါ်တွင် သဘာဝပေါက်ပင်များအနေဖြင့် ရေဗန်ဒါ၊ ကြက်ရိုး၊ ဆိတ်ချေး၊တောမယ်ဇလီ၊ တောဒညင်း၊ သပြေ။လက်ခုတ်၊ သစ်ဖြူလန်၊ ဇင်ပြွန်း၊ နှင့်ချဲ့နွယ်ပေါင်းပင်များသာ ပေါက်ရောက်ပြီး အဖိုးတန်သစ်ပင်ကြီးများ၊ဒီရေတောများ ပေါက်ရောက်မှုမရှိကြောင်း တွေ့ရှိရသည်။ တစ်ပေလုံးပါတ်နှင့်အထက် သစ်ပင် 32 ပင်ခန့် ရှိပါသည်။ လေ့လာတွေ့ရှိခက်များအရ စီမံကိန်း သက်ရောက်မှု ဇရိယာအတွင်း

ဗျိုင်း၊ဂျိုး၊စာကလေး၊ပျံလွှား၊ လိပ်ပြာ၊ ပုစဉ်း ၊အင်းဆက် ၊ ပင်လယ်ရေမှော်များ၊ ကျောက်ခက်ကျောက်ပန်းများ၊ ငါးခုံးမ၊ငါးနီတူ၊ ငါးလိပ်ကျောက်၊ ရွှေငါး၊ ငါးခရမ်း၊ ရောင်စုံငါးကလေးများစွာ ရှိပါသည်။ မျိုးတုန်းပျောက်ကွယ်လုနီးပါးဖြစ်သော ပင်လယ်ရေနေ သတ္တဝါ ရောင်စုံ ငါးကလေးများစွာ ရှိသည်ကို တွေ့ ရပါသည်။

သက်ရောက်မှု လျော့ချရန်/ကုစားရန်

(၁) ပတ်ဝန်းထိခိုက်မှုမရှိအောင် စီမံခန့်ခွဲမှု အစီအစဉ်ပါ မြေထု၊ ရေထု၊ လေထု ညစ်ညမ်းမှု လျော့ချရေး ကာကွယ်ရေးဆိုင်ရာ အစီအမံများကို အပြည့်အဝ အကောင်ထည်ဖော်ဆောင်ရွက်ရန်

(၂) သစ်ပင်များကို ခုတ်ထွင်ခြင်း မပြုလုပ်ရ

(၃) မီးဘေးကြိုတင်ကာကွယ်ရေးဆိုင်ရာ အစီအမံများကို စနစ်တကျ ဆောင်ရွက်ရန်

(၄) တရားမဝင် ငါးဖမ်းလုပ်ငန်းများ မလုပ်နိုင်အောင် အတားအဆီးများ စနစ်တကျ ဆောင်ရွက်ထားရန်

(၅) မြို့နယ်အုပ်ချုပ်ရေးအဖွဲ့များ၊ နယ်ခြားစောင့်တပ်များဖြင့် ပူးပေါင်းကာ တရားမဝင် ငါးဖမ်း လုပ်ငန်းများကို တားဆီးကာကွယ်ရန်

(ဇ) ဆူညံသံနှင့်တုန်ခါမှု သက်ရောက်မှု

စီမံကိန်းသည် ဆူညံသံနှင့် တုန်ခါမှုဖြစ်ပေါ်စေသော လုပ်ငန်းမျိုးမရှိပါ။ သစ်သားဘန်ဂလိုများ ဆောက်လုပ်ရာတွက် လွှတိုက်သံ၊ သိပ်မိုးသံများ ထွက်နိုင်သော်လည်း အနည်းငယ်မျှသာ ထွက်ရှိပြီး လူနေပတ်ဝန်းကျင်နှင့်ဝေးကွာသောကြောင့် ပတ်ဝန်းထိခိုက်မှု လုံးဝမရှိပါ။ စီမံကိန်းသည် ကော့သောင်းမြို့အနောက်မြောက်ဘက် ရေမိုင် (၃၃) အကွာတွင် တည်ရှိပါသည်။

သက်ရောက်မှု လျော့ချရန်/ ကုစားရန်

(၁) အသံထွက်သော မီးစက်များ၊ အင်ဂျင်များတွင် အသံထိန်းစနစ် (Silencer/Muffler) များ တပ်ဆင်အသုံးပြုရန်

(၂) လုပ်သားများ ကျန်းမာရေးနှင့် လုပ်ငန်းခွင်အန္တရာယ် ကင်းရှင်းစေရေးအတွက် စနစ်တကျ စီမံဆောင်ရွက်ထားရန်၊ ဆေးဝါးများ နှင့် သူနာပြုတစ်ယောက် ခန့်အပ်ပြီး ဆောင်ရွက်ရန်

(၃) အလုပ်သမားများအတွက် ကျန်းမာရေးနှင့်ညီညွတ်ပြီး သန့်ရှင်းသော အလုပ်သမားတန်းလျားများ စီမံဆောင်ရွက်ထားရှိရန်

(၄) လုပ်ငန်းခွင် အန္တရာယ်ကင်းရှင်းရေးအတွက် ပညာပေးအစီအစဉ်များ ဆောင်ရွက်ရန်

(စ) လုပ်သားကျန်မာရေးနှင့် အလုပ်အကိုင် အခွင့်အလမ်း ရရှိနိုင်မှု

စေတန်ကျွန်း ဟိုတယ်နှင့်ခရီးသွားလာရေးလုပ်ငန်းတွင် ဒေသတွင်း အလုပ်သမားများ အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိမည်ဖြစ်ပါသည်။ လုပ်ခလစာများကိုလည်း ခေတ်နှင့် လျော်ညီစွာ ခန့်အပ်ပြီး အလုပ်သမားများ နစ်နာမှု မရှိအောင် စီမံဆောင် ရွက်ထား ရမည်ဖြစ်ပါသည်။ လုပ်ငန်းခွင်သို့ရောက်ကြောင်းဖြင့်သာ သွားရမည် ဖြစ်သောကြောင့် အလုပ်သမား၊

ရိက္ခာနှင့် ဆောက်လုပ်ရေးပစ္စည်းများ ပို့ဆောင်ရာတွင် အန္တရာယ် ရှိနိုင်ပါသည်။ သို့ပါသောကြောင့် ကုန်ကဲ့လေ့၊ ပဲ့ချိတ်လေ့ငယ်၊ Speed Boat များတွင် အသက်ကယ်အင်္ကျီများကို လုံလောက်စွာ ထားရှိရန်၊ လုပ်ငန်းခွင်တွင် လျှပ်စစ်ဓါတ်အားပိုမိုသုံးစွဲခြင်း၊ ဝါယာလျှော့ဖြစ်ခြင်း၊ ဇည့်သည်များ၏ စီးကရက်မီးကြွင်းမီးကျန်များမှ မီးလောင်နိုင်ခြင်း၊ တောမီးများမှ ကူးစက်လောင်နိုင်ခြင်း၊ လေပြင်းတိုက်ခြင်း၊ မိုးကြိုးပစ်ခြင်းကြောင့် မီးလောင်နိုင်ခြင်းကြောင်း လုပ်ငန်းခွင်တွင် အန္တရာယ် ဖြစ်စေနိုင်ပါသည်။

သက်ရောက်မှု မြှင့်တင်ရန် နည်းလမ်းများ

(၁) အလုပ်ခန့်ထားရန်၊ ခန့်အပ်ရန် လိုအပ်ပါက မြို့နယ်အုပ်ချုပ်ရေး၊ ရပ်ကွက် အုပ်ချုပ်ရေးမှူးများ ချိတ်ဆက်ကာ အလုပ်သမားခန့်အပ်နိုင်ရေး စီစဉ်ဆောင်ရွက်ရန်

(၂) အလုပ်သမား ခန့်အပ်ရာတွင် ဒေသခံများကို ဦးစားပေးစနစ်ဖြင့် ခန့်အပ်နိုင်ရေး ဆောင်ရွက်သွားရန်

(၃) အလုပ်အကိုင်နှင့် ကျွမ်းကျင်မှုနှင့်ဖွံ့ဖြိုးတိုးတက်ရေး ဥပဒေပါ ပြဋ္ဌာန်းချက်များနှင့်အညီ အလုပ်သမား ခန့်ထားမှုဆိုင်ရာ စာချုပ်ချုပ်ဆိုခြင်းများ ပြုလုပ်ရန်

(၄) ၁၉၅၁ အလုပ်ရုံသမား အက်ဥပဒေပါ ကျန်းမာရေး၊ ဘေးရန်ကင်းရှင်းမှု၊ သက်သာချောင်ချိရေး၊ အလုပ်လုပ်ချိန်၊ နားချိန် များကို စနစ်တကျ ဆောင်ရွက်ထားရှိရန်

(၅) အနည်းဆုံးလုပ်ခလစားများကို သတ်မှတ်ပေးခြင်းများကို ဆောင်ရွက်ရန်

(၆) အလုပ်အကိုင်နှင့်တည်ဆဲဥပဒေများနှင့်အညီ ဆောင်ရွက်ရန်

(၇) လေ့ငယ်များ၊ ကုန်ကဲ့လေ့များ၊ ရေယာဉ်များတွင် အသက်ကယ်အင်္ကျီ များကို လုံလောက်စွာ ထားရှိပေးရန်

(၈) မီးဘေးနှင့် သဘာဝဘေးအန္တရာယ် ကြိုတင်ကာကွယ်ခြင်းများ ပြုလုပ်စီမံဆောင်ရွက်ထားရန်

(၉) အလုပ်သမားများ၊ခရီးသွားဧည့်သည်များ အန္တရာယ်ကင်းရှင်းစွာ တည်းခိုနိုင်ရန်အတွက် ဘန်ဂလိုများတွင် မီးဘေးကြိုတင် သတိပေးစနစ်များ တပ်ဆင်ခြင်း၊ ကမ်းခြေတွေ့ကယ်ဆယ်ရေးဝန်ထမ်းများခန့်ထားပြီး စောင့်ကြည့်စေခြင်း၊ ဧည့်သည်များ မတော်တဆ ထိခိုက်ဖျားနာပါက ကုသပေးနိုင်ပေးနိုင်ရန်အတွက် သူနာပြုနှင့် ဆေးဝါးကျွမ်းကျင်သူများအား ဝန်ထမ်းခန့်ထားပြီး ဆောင်ရွက်စေခြင်း၊ အရေးပေါ်ဆေးဝါးများ လုံလောက်စွာ ထားရှိစေခြင်း

(၁၀) ဆက်သွယ်ရေးစနစ်ကောင်းမွန်အောင် စီမံထားရှိရန်၊ အီးမေး၊တယ်လီဖုန်း၊ လက်ကိုင်စကားပြောစက်များ စသည်များ

(၁၁) ဝန်ထမ်းများ သက်သာချောင်ချိရေးနှင့် သာယာပျော်ရွှင်ရေးအတွက် ရက်မှန်ကြေး၊ အချိန်ပိုကြေးနှင့် နှစ်သစ်ကူးကာလများတွင် ဝန်ထမ်းများလျှဒါန်းသုံးစွဲနိုင်ရေးအတွက် နှစ်သစ်ကူးအပိုဆုကြေးများ ထုတ်ပေးခြင်းများ ဆောင်ရွက်ပေးရန်

(၁၂) ဝန်ထမ်းများအား မြို့နယ်လူမှုဖူလုံရေးအသင်းတွင် အသင်းဝင်အဖြင့် ဝင်ရောက်ကာ နာမကျန်းဖြစ်ပါက ရသင့်သည့် အခွင့်အရေးများ အပြည့်အဝ ခံစားခွင့်ရရှိရေး ဆောင်ရွက်သွားရန်

(၁၃) မိမိကုမ္ပဏီဝန်ထမ်းများ၏ လစာဝင်ငွေ (၁) နှစ်လျှင် ကျပ် (၂၀၀၀၀၀၀) နှင့် အထက် ရရှိသောဝန်ထမ်းများ၏ ဝင်ငွေခွန်ကို သတ်မှတ်ထားသော နှုန်းထားများအတိုင်း ပေးဆောင်နိုင်ရေးအတွက် ကုမ္ပဏီမှ တာဝန်ယူ ဆောင်ရွက်ပေးရန်

၁၀ ။ လူမှုစီးပွားတာဝန်သိ အစီအစဉ် (CSR)

အဆိုပြုလုပ်ငန်း၏ နှစ်စဉ် အမြတ်ဝင်ငွေမှ ၂ % အား CSR ရံပုံငွေအဖြစ် ထားရှိမည် ဖြစ်ပါသည်။ အဆိုပါ အမြတ်ဝင်ငွေ ၂ %၏ ၂၀ % အား ပညာရေးအတွက်လည်းကောင်း၊ ၂၅% အား ကျန်းမာရေးအတွက်လည်းကောင်း၊ ၂၀ % အား လမ်းပန်းဆက်သွယ်ရေး အတွက်လည်းကောင်း နှင့် ကျန် ၃၅% အား လူမှုရေးနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးလုပ်ငန်းများအတွက် သုံးစွဲမည် ဖြစ်ကြောင်း တွေ့ရှိရသည်။ အဆိုပါလုပ်ငန်းများ စနစ်တကျ အကောင်ထည်ဖော် ဆောင်ရွက်နိုင်ရန်အတွက် မြို့နယ်အုပ်ချုပ်ရေးမှူး၊ မြို့နယ်ပညာရေးမှူး၊ မြို့နယ်ကျန်းမာရေး မှူးများနှင့် ဒေသအုပ်ချုပ်ရေး၊ ရပ်မိရပ်ဖများဖြင့် အဖွဲ့ဖွဲ့ကာ ဆောင်ရွက်သွားရမည်ဖြစ်ပါသည်။

၁၁။ ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြည့် အဖွဲ့

စေတနာကျွန်း ဟိုတယ်နှင့်ခရီးသွားလာရေးလုပ်ငန်းအတွက် စီမံခန့်ခွဲမှု (Environmental Management Plan) ကို အောင်မြင်စွာ အကောင်အထည်ဖော် ဆောင်ရွက်နိုင်ရန် အတွက် ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြည့် ရေး အဖွဲ့ကို ဖွဲ့စည်းရန် လိုအပ်မည်ဖြစ်ပါသည်။ စောင့်ကြည့်အဖွဲ့တွင် ဌာနဆိုင်ရာ ကိုယ်စားလှယ်များ၊ ဒေသခ ကိုယ်စားလှယ် များနှင့် စီမံကိန်း လုပ်ငန်းရှင်ကိုယ်စားလှယ်များ ပါဝင်သင့်ပါသည်။ ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်ကို အပြည့်အဝ အကောင်အထည်ဖော် ဆောင်ရွက်ရန် လုပ်ငန်းရှင်တွင် တာဝန်ရှိပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်၏ အစိတ်အပိုင်းတစ်ရပ်ဖြစ်သော ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြည့် တိုင်းတာရေး အစီအစဉ် (Environmental Monitoring Programme) ကို လုပ်ငန်းရှင်က လိုက်နာဆောင်ရွက်ကာ တိုင်းတာတွေ့ရှိချက် အစီရင်ခံစာများကို ပတ်ဝန်းကျင် ရေးရာ စောင့်ကြည့်အဖွဲ့မှ အဖွဲ့ဝင် ကိုယ်စားလှယ်များ မိတ္တူပေးပို့ရမည် ဖြစ်ပါသည်။ လူမှုစီးပွား တာဝန်သိ အစီအစဉ် (Corporate Social Responsibility) အနေဖြင့် စီမံ ကိန်းက ဒေသခံများအတွက် ပေးအပ်သော ကူညီထောက်ပံ့မှုများကို လေ့လာ စောင့်ကြည့်ရေးအဖွဲ့ ကိုယ်စားလှယ်များမှ တဆင့် ဒေသခံများသို့ ပေးအပ်ရမည် ဖြစ်ပါသည်။ ပတ်ဝန်းကျင်ရေးရာနှင့် စပ်ဆိုင်သော အကြောင်းတစ်စ တစ်ရာ ပေါ်ပေါက်ပါက ဒေသခံများ အနေဖြင့် စောင့်ကြည့်အဖွဲ့မှ အဖွဲ့ဝင် ဒေသခံ ကိုယ်စားလှယ်များမှတစ်ဆင့် စီမံကိန်းနှင့် ဆက်သွယ် ဆောင်ရွက်နိုင်မည် ဖြစ်ပါသည်။

(က) ရည်ရွယ်ချက်

1. စီမံကိန်း၏ ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှု အစီအစဉ်များအား လိုက်နာဆောင်ရွက်မှု အခြေအနေ များကို ဒေသခံများ စဉ်ဆက် မပြတ် သိရှိနိုင်ရန်
2. ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြည့် တိုင်းတာရေး အစီအစဉ် တိုင်းတာတွေ့ရှိချက် အစီရင်ခံစာ များကို ဒေသခံများ သိရှိနိုင်ရန်

3. ပတ်ဝန်းကျင်ရေးရာနှင့် စပ်ဆိုင်သော အကြောင်းကိစ္စများအတွက် အပြန်အလှန် ဆက်သွယ် ဆောင်ရွက်နိုင်ရန်
4. လူမှုစီးပွား တာဝန်သိ အစီအစဉ်အရ ပေးအပ်သည့် ကူညီ ထောက်ပံ့မှုများကို စနစ်တကျ စီမံခန့်ခွဲမှုများအား စောင့်ကြည့် ထိန်းကြောင်းနိုင်ရန်

(ခ) ပတ်ဝန်းကျင်ရေးစောင့်ကြည့်ရေးအဖွဲ့ဖွဲ့စည်းပုံ

ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြည့် အဖွဲ့တွင် အဓိကအားဖြင့် သက်ဆိုင်ရာ အစိုးရဌာနများ၊ စီမံကိန်းမှ တာဝန်ရှိသူများ နှင့် ဒေသခံ ကိုယ်စားလှယ်များဟူ၍ အဖွဲ့ (၃) ဖွဲ့ ပါရှိပါသည်။ ဒေသခံကိုယ်ခံကိုယ်စားလှယ်များကို သက်ဆိုက်ရာ ကျေးရွာ များက အများသဘောတူညီချက် အရ ရွေးကောက်ထားသော ရပ်မိရပ်ဖများဖြင့် ဖွဲ့စည်းရမည် ဖြစ်ပါသည်။ အဆိုပြု ကိုယ်စားလှယ် ပါဝင်မှု လူဦးရေ အချိုးအစားမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

ဇယား (၂) ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြည့်အဖွဲ့ ကိုယ်စားလှယ်ဦးရေပြ ဇယား

စဉ်	ကိုယ်စားလှယ်	ဦးရေ
အစိုးရဌာနများ		
၁*	မြို့နယ် အထွေထွေအုပ်ချုပ်ရေး ဦးစီးဌာန (ကော့သောင်းမြို့နယ်)	၁
၂*	မြို့နယ်သစ်တောဦးစီးဌာန	၁
၃*	မြို့နယ်မြေ စာရင်း ဦးစီးဌာန	၁
၄*	မြို့နယ် ပညာရေးမှူး	၁
၅*	မြို့နယ် ကျန်းမာရေး ဦးစီးဌာန	၁
စီမံကိန်းမှ တာဝန်ရှိသူ များ		
၁	အုပ်ချုပ်မှုဒါရိုက်တာ	၁
၂	စီမံကိန်းမန်နေဂျာ	၁
၃	လူမှုဆက်ဆံရေး တာဝန်ခံ	၁
ဒေသခံ ကိုယ်စားလှယ်များ***		
၁*	ရပ်ကွက်အုပ်ချုပ်ရေးမှူး	၁
၂**	ရပ်မိရပ်ဖများ	၂

* အစိုးရဌာနများတွင် လက်ရှိတာဝန်ထမ်းဆောင်နေသူများ

** မိမိတို့ မြို့နယ်ရပ်ကွက်အလိုက် အများသဘောတူ ရွေးကောက်တင်မြှောက်ထားသူများ၊ မိမိတို့မြို့နယ်အလိုက် အများသဘောတူညီအလျောက် လွှဲပြောင်းခြင်း၊ ခန့်အပ်ခြင်းများ ပြုလုပ်နိုင်သည်

(ဂ) တာဝန်များ

(က) စီမံကိန်းနှင့် ဒေသခံများကြား ပတ်ဝန်းကျင်ကိစ္စများ ဆောင်ရွက်ရာတွင် ကြားနေအဖြစ် ဆောင်ရွက်ပေးရန်

(ခ) စီမံကိန်းမှ လျှဒါန်းသော အလှူငွေများကို ဒေသခံများသို ကြားမှတဆင့်လက်ခံပြီး ဆောင်ရွက်ပေးရန်

(ဂ) စီမံကိန်းမှ စောင့်ကြည့်တိုင်းတာမှုများကို ဒေသခံများအား သိရှိနိုင်ရန် စာရွက်စာတမ်းများ ဖြန့်ဝေကာ ဒေသခံများ သိရှိနိုင်အောင် ဆောင်ရွက်ရန်

(ဃ) စီမံကိန်းမှ အလုပ်သမားများ ခန့်ထားရေးဆိုင်ရာ ကိစ္စရပ် များအတွက် ဒေသခံကိုယ်စားလှယ်များ၏ အကူအညြဖင့် ဒေသခံများ သိရှိနိုင်အောင် ဆောင်ရွက်ရန်

(င) ဒေသခံများ၏ လူမှုရေး၊ ဘာသာရေးနှင့် ယဉ်ကျေးမှုဆိုင်ရာ ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်းများတွင် စီမံကိန်းမှ ပူးပေါင်း ပါဝင်ဆောင်ရွက်နိုင်ရေးအတွက် ဟိုတယ်မှ တာဝန်ရှိသူများနှင့် ပူးပေါင်း ဆောင်ရွက်ရန်

(စ) ပတ်ဝန်းကျင်ရေးရာ စောင့်ကြည့်အဖွဲ့ကို စီမံကိန်း အကောင်အထည် ဆောင်ရွက်သော တာဝန်ရှိသူများက တာဝန်ယူကာ ဖွဲ့စည်းရန်

(ဆ) ဟိုတယ်လုပ်ငန်းများ စတင်လည်ပတ်နေကြောင်း လက်ကမ်းစာစောင်များထုတ်ဝေကာ အများပြည်သူဒေသခံများ သိရှိအောင် ဆောင်ရွက်ပေးရန်

(ဇ) စီမံကိန်းမှ နှစ်စဉ် အမြတ်ဝင်ငွေ ခွဲဝေပြီး တစ်ပတ်အတွင် ဒေသဖွံ့ဖြိုးရေးလုပ်ငန်းများ လုပ်ကိုင်နိုင်ရန် လူမှုတာဝန်သိ အစီအစဉ်များ ဆောင်ရွက်နိုင်ရန် ပတ်ဝန်းကျင်စောင့်ကြည့်ရေးအဖွဲ့နှင့် ဆက်သွယ်ဆောင်ရွက်ရန်

(စျ) စီမံကိန်းမှ တာဝန်ရှိသူများနှင့် ဒေသခံများ တွေ့ဆုံပွဲကို တစ်နှစ်လျှင် တစ်ကြိမ်ခန့် ပြုလုပ်ရန်

၁၂။ တွေ့ရှိချက်များအား ထုတ်ဖော်ခြင်း

ယခု အစီရင်ခံစာ အကျဉ်းချုပ်ပါ အချက်အလက်အလက်များသည် စေတန်ကျွန်းပေါ်ရှိ အပန်းဖြေဟိုတယ်တည်ဆောက်ခြင်းလုပ်ငန်းအတွက် ကနဦးပတ်ဝန်းကျင် ပတ်ဝန်းကျင်ထိခိုက်မှု ပဏာမ ဆန်းစစ်ချက်များကို အနှစ်ချုပ် ဖေါ်ပြထားခြင်းဖြစ်ပါသည်။ ယခုအစီရင်ခံစာပါ အချက်အလက်များသည် ၂၀၁၉ ခုနှစ် ဧပြီလနှင့် မတ်လဆန်းတွင် HRD Environmental Training and Serivces Group မှ ကနဦးလေ့လာတွေ့ရှိချက်များကို တင်ပြထားခြင်းဖြစ်ပါသည်။

၁၃။ နိဂုံး

တနင်္သာရီတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့နယ်၊ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ စေတန်ကျွန်းပေါ်တွင် Good Shan Brother International Co., Ltd မှ ဟိုတယ်အပန်းဖြေစခန်း စီမံကိန်းအား အကောင်အထည်ဖေါ် ဆောင်ရွက်လျက်ရှိပါသည်။ စီမံကိန်းဧရိယာသည် ကော့သောင်းမြို့၏ အနောက်တောင်ဘက် ရေမိုင် 32.72 MILES (52.66 Km) မိုင်အကွာ

မြောက်လတ္တီကျူ (9°47'50.69"N နှင့် အရှေ့လောင်ဂျီကျူ 98° 6'30.88"E တည်ရှိသည့် ဇာဒက်ကြီးကျေးရွာအုပ်စု ၊စေတန်ကျွန်းၭ မြေကွက်အမှတ် (၂၅/OSS) ၊ဇာဒက်ကြီးကြေးပြင်တိုင်ကွင်းပေါ်တွင် BOT စနစ်ဖြင့် ငှားရမ်းပြီး မြေဇာ (၁၅.၈) ပေါ်တွင် နိုင်ငံတကာအဆင့်မှီ ဟိုတယ်လုပ်ငန်းအား အကောင်အထည်ဖော်ဆောင်ရွက်နေမှုအပေါ် HRD Environmental Training and Serivces Group မှ ကနဦးပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ချက်တွေ့ရှိချက်များကို ဖော်ပြထားပါသည်။ စီမံကိန်းသည် ယခုအခါ ရွှေ့နိုင်ပြောင်းနိုင်သော အဝတ်ထူပိုးကာစ ဘန်ဂလိုများသာ တည်ဆောက်ထားပြီး နောက်ပိုင်းတွင် သစ်သား၊ အုတ်များဖြင့်တည်ဆောက်မည်ဖြစ်သော ဘန်ဂလိုများ၊ အလုပ်သမားတန်းလျားများကို တည်ဆောင်သွားမည်ဖြစ်ပါသည်။ စီမံကိန်းမှ ထွက်ရှိသော စွန့်ပစ်ညစ်ညမ်းရေးများကို စနစ်တကျသန့်စင်ပြီးမှသာ ပင်လယ်ထဲသို့ စွန့်ထုတ်မည် ဖြစ်ပါကြောင်းနှင့် အမှိုက်များ မီးရှို့ဖျက်ဆီးခြင်းနှင့် မီးရှို့ချက်ဆီးရန် မသင့်သော စွန့်ပစ်အစိုင်အခဲ အမှိုက်သရိုက် ပလပ်စတစ် ပုလင်းခွံ သံဗူးခွံများကို ကော့သောင်းမြို့သို့ ကုန်သယ်လှေဖြင့် သယ်ကာ ကော့သောင်းမြို့နယ် စည်ပင်သာယာရေးကော်မတီမှ သတ်မှတ်ထားသော နေရာများတွင်သာ စွန့်ပစ်မည်ဖြစ်ကြောင်း တွေ့ရှိရပါသည်။ စီမံကိန်းကြောင့် လေထုညစ်ညမ်းမှု၊ မြေထုညစ်ညမ်းမှု၊ ရေထုညစ်ညမ်းမှု မရှိကြောင်း စစ်ဆေးတွေ့ရှိရပါသည်။ စီမံကိန်းတွင် လူမှုစီးပွားတာဝန်သိအစီအစဉ်များ၊ မီးဘေးကြိုတင်ကာကွယ်ရေး စီမံချက်များ၊ သဘာဝဘေးအန္တရာယ်ကာကွယ်ရေး အစီအစဉ်များ ထားရှိမည်ကိုလည်း တွေ့ရပါသည်။ စီမံကိန်းသည် လူနေပတ်ဝန်းကျင်နှင့် ဝေးကွာလွန်းသောကြောင့် စီမံကိန်းကြောင့် ထိခိုက်ခံစားရသူများ လုံးဝမရှိကြောင်း စစ်ဆေးတွေ့ရှိရပါသည်။

1. EXECUTIVE SUMMARY

1.1 Introduction

Good Shan Brother International Co., Ltd. is planning to set up an island resort in the Saytan Islands in Southern Myanmar. Saytan Island is around 33 nautical miles southwest off the mainland from Kawthoung Township, Tanintharyi region. The proposed project includes of a resort comprised of deluxe rooms, suites, pool villa, hill tent, rock house boat jacuzzy, rock club and water sport areas. The proposed development is basically a beach resort project and the total built-up area is (15.8) acre on each of the islands.

In Myanmar, as per the comments of the Ministry of the Natural Resources and Environmental Conservation (MONREC), Annex 1 of the EIA (Environmental Impact Assessment) Procedure dated 29th December 2015, an Initial Environmental Examination (IEE) is required for the proposed island resort project. The project proponent, Good Shan Brother International Co., Ltd has retained HRD Environmental Training and Services Co., Ltd to conduct the Initial Environmental Examination (IEE) study for the proposed project.

1.2 Project Need and Its Significance

The tourism development in Myanmar is substantial and vibrant, and the country is quickly becoming a major global destination. There are two existing island resorts and permits granted to quite a few resorts near the Mergui Archipelago area. This upcoming island resort will become a pleasant alternative with its unique location and facilities that it will provide. The proposed project will lead to following benefits.

- Tourism is a growing industry; therefore there is need for more hospitality services. The proposed resort aims at fulfilling the need to satisfy the tourism market through provision of quality services and accommodation.
- Improvement in local area by providing additional employment opportunities to the skilled as well as unskilled people;
- The planned development with modern infrastructure facilities would add-on to the local aesthetics

1.3. Scope of the IEE Study

This IEE study involves, detailed reconnaissance visit to the site to assess the existing environmental baseline condition of the area, subsequent assessment of potential environmental and social impacts from the construction activity and during the operation

phase of the proposed project in order to suggest the necessary mitigation measures, required to be taken for the protection of the environment. Apart from this, Environmental Management Plan (EMP) and Disaster Management Plan (DMP) will also be prepared in order to prevent any hazard during construction and operation phase.

1.4. Policy, Legal and Other Requirements

The IEE has been undertaken in accordance with the Myanmar Environmental Impact Assessment Procedure which was promulgated on December 29th, 2015, and provides legislation for environmental and social governance of economic development in Myanmar, under the Environmental Conservation Law 2012 and Environmental Conservation Rules 2014 of the National Environmental Policy for Myanmar 1994.

In addition, the IEE assessment was undertaken in accordance with Myanmar's National Environmental Quality (Emission) (NEQ) Guidelines which were promulgated on December 29th, 2015. The guidelines include noise and vibration, air emissions, and effluent discharges. An overview of the approval of the IEE process (from the EIA Procedure, 2015) is shown in Figure 1.1.

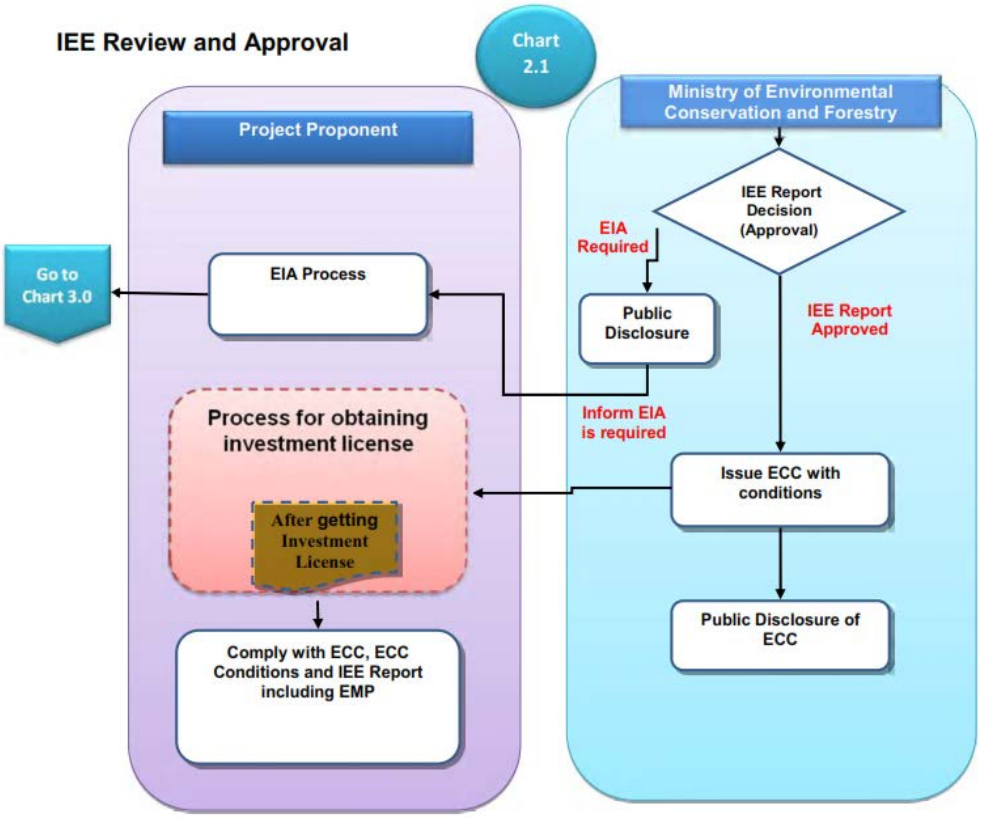


Figure 1.1 IEE Review and Approval Process

According to the above figure, IEE report has to be submitted to ECD (Nay Pyi Daw) through ECD (Tanintharyi). After the review process IEE report have been granted by ECD and will issue ECC.

1.5 Project Description

(a) Location of the Project

The proposed Saytan Island is located to the South-west of Kawthong Township, Tanintharyi Region. Approximately, the distance from Kawthong Town to Say-tan Island is 52 km in straight line, at the coordinates of 9° 47′ 48.84″ N Latitude and 98° 6′ 34.96″ E Longitude. The location map of project area is shown in the following figure.

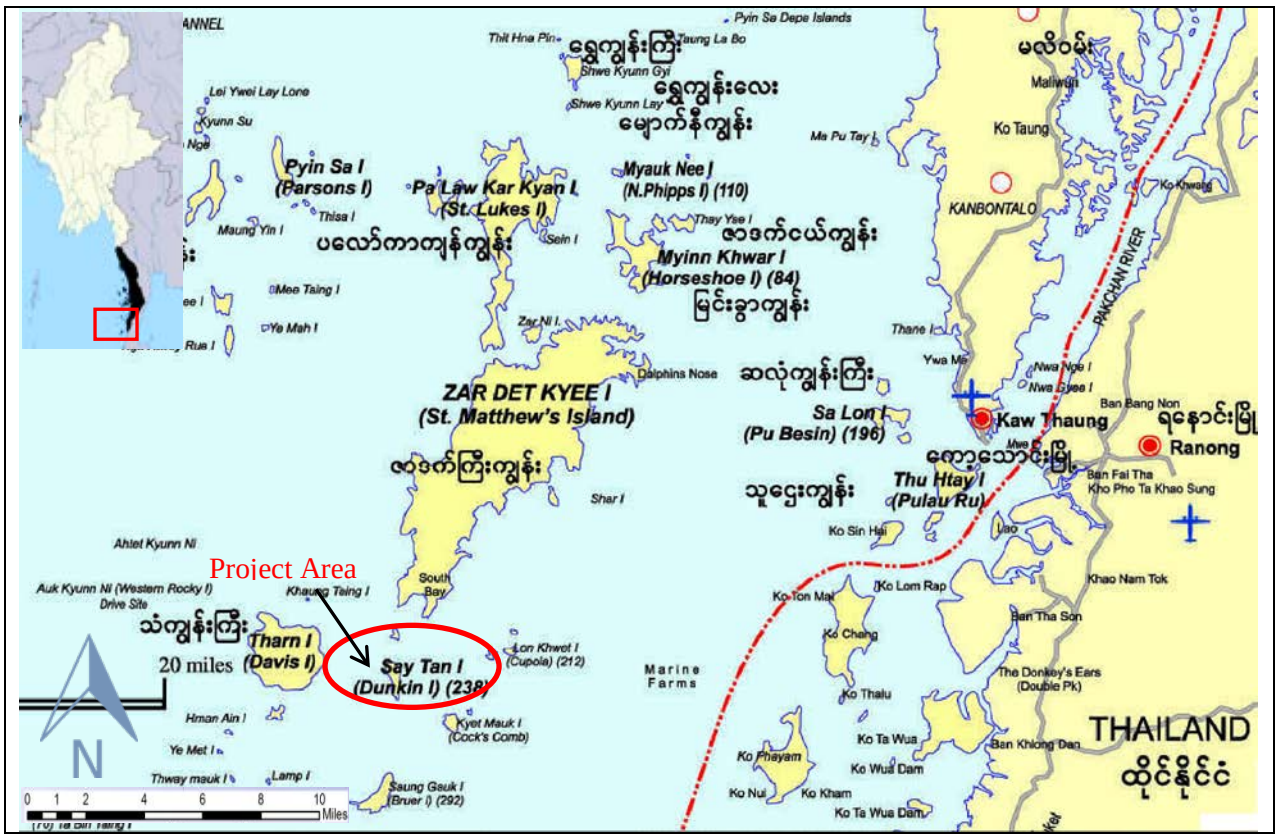


Figure 1.2 Location Map of the Proposed Project

(b) Land Use

The proposed project will use (15.8) acres containing Plots No.25/OSS Zadetkyi land mark area and land grants received permission to operate (30 years) for business purposes. This area is only found scattered forests area including shrub climber and small trees plantation land without residential area.

(c) Building Construction Infrastructure

The purpose projects will include total numbers of 131 rooms. Which is deluxe rooms 100 Nos., suite rooms 30 Nos. and president suite 1 No. The supporting services infrastructure (restaurant, swimming pool, jauzzi and water sports activities) will be centralized and located at a site on the property south of the site, as will be the waste water treatment plant, the transformer, and the temporary construction camp.

The project will also involve internal development of basic infrastructure such as internal roads, power supply, water supply, sewer and storm water pipe network and waste management system. All building materials include wood, brick with reinforces concrete and steel structure. Hotel buildings are planned to be equipped with up-todate electrical and communication system and air conditioning system with environmentally friendly refrigerants.

Construction camp: The establishment of the camp (access roads, temporary office buildings, earth materials stockpiles, equipment and material stores, maintenance yard, etc.) will entail loss of trees occurring at that site.

Water supply: The plant nursery, construction camp and site works will require a supply of water. The water requirement for the all construction activities and workers except drinking water will be supported from the tube wells; two installed 4-inch diameter (Ø) pipe. There is one overhead tank existing near the staff quarter. This tank is meant for temporary storage of water during primary stage of construction. The total estimated demand for water by the resort during full operation is approximately about (300,000 gallons) of water a year. These are meant for use in washing, bathing, cooking, gardening, toilets water and other cleaning activities. Drinking water as purified water will be outsourced. It is planned to install wastewater treatment system for wastewater and grey water. The treated water will be used in gardening, vehicles washing and watering to the roads not to be dusty. The chemical used for treating pond water is liquid chlorine so as to clean up the water.

(d) Employment

It is estimated that 95 persons (skilled and unskilled) will be employed during operation of the resort. Detail statement of employee in hotel resort is shown in Chapter 4 of the report.

1.6. Biodiversity Environment

Field study is used to collect the data information of flora and fauna existing in and around the proposed project area. The area is far from about 172 Km from proposed protected area of Myeik Archipelago. But the area was listed as the one of the High Priority Key Biodiversity Areas (KBAs) because of the island (geological isolation) and forest (intact). In the proposed project area, the flora and fauna species area unique because of the geological isolation. The proposed project area is moderately significant for biodiversity as well as the important ecosystem and environmental values of marine sources. A total of (69) flora species and (43) species of fauna were recorded, Plant and animal species are not found in IUCN Red list but two fish species of Shark and Ray were observed as protected species by Fishery law is considered as conservation importance. Plant density and species abundance are moderate in and around the project area. Vegetation with trees are mainly composed of land area. According to the data, there will be an impact on biological community especially to the existing aquatic organisms and land vegetation. The extent of the impact on fauna and flora is investigated as only in the site specific and the duration of the impact is assumed as may be long term.

1.7. Public Consultation and Participation Process

In this study, effective public consultation and participation approaches in the form of stakeholder identification, focus group discussions, public meetings and public disclosure will be conducted. Public participation will be conducted by the following procedures:

(a) Stakeholder Engagement and Identification;

(b) Household survey;

(c) Public meetings; and

(d) Public disclosure process.

(a) Stakeholder Engagement and Identification

The following communities, authorities and NGOs will be considered as key stakeholders who are directly or indirectly related to the proposed project according to the above consideration.

(a) Good Shan Brother International Co., Ltd. (GSB)

(b) Local People (Kawthaung)

(c) City Administrative Offices

(d) Environmental Conservation Department (Kawthoung, Tanintharyi)
(e) Head of Local Administration Office (Kawthoung);
(f) City Development Committee (Kawthoung);
(g) Department of Public Health (Kawthoung);
(h) Department of Hotels and Tourism (Kawthoung);
(i) Planning and Statistics Department (Kawthoung);
(j) Department of Settlement and Land Record (Kawthoung)
(k) Forest Department (Kawthoung)
(l) Department of Water Resources Utilization Department (Kawthoung);
(m) Department of Labour (Kawthoung);
(n) Myanmar Police Force (Kawthoung) and
(o) Local Media, NGOs and CBOs

(b) Household Surveys

Household sample survey was not conducted to evaluate primary socio-economic conditions of the project area and to understand the mood, perceptions and extent of preparedness of the people towards the proposed project. The household survey was not carried out to tap the baseline socio-economic conditions of project area and to assess project perceptions and attitudes of the local people over a period of five days. To get the accurate data, primary data collection will be conducted by social specialist, social consultants, local authorities and local people.

(d) Public Meetings

The public meeting was completed in (13.5.2019) Kawthoung, during the IEE study. There were about 50 people from local communities who are directly or indirectly affected by the proposed project are attended in this meeting. The aim of this public meeting are -

(i) To announce the process and procedure of IEE;
(ii) To discuss about the possible environmental and social impacts;
(iii) To discuss the scope of anticipated impacts zone; and
(iv) To discuss about the alternative ways to avoid the possible impacts.
(i) To discuss about the identification and evaluation of possible environmental impacts and mitigation measures; and
(ii) To discuss about the alternative ways to avoid the possible impacts.

Most Public Needs and Concerns during Household Survey and Public Meeting

During household survey and public meeting for scoping proposal, the most important positive outcomes from the project expected by the local people and most of their concerns about proposed project are as follow:

Most Public Needs	Most Pubic Concerns
• Expanding and Upgrading of village road • Want to create job opportunity	• Will be Strong wind from the sea because less windy shield trees • Blockage of road to the sea • Land compensation
• Upgrading of Educational facilities • Supporting for health care facilities • Electricity • Maintenance to the seashore roads • CSR program for village development	• Ground water depletion

(e) Public Disclosure Process

Summary of IEE report in Myanmar Language was also distributed to all key stakeholders as public disclosure process.

Draft IEE report was distributed to all key stakeholders and will be made available for public comment for a period of 30 days in the following ways:

- By raising comments during a series of public meetings where the content of the draft IEE Report will be presented;
- By completing a comment sheet made available together with the report at the public places, and by submitting additional written comments, by email or fax, or by telephone, to the HRD Office.

All comments and issues raised during the comment period on the draft IEE report will be added to the comment and response report that will accompany the Final Report.

1.8. Environmental Management Plan (EMP)

EMP is a site specific plan developed to ensure that the project is implemented in an environmental sustainable manner where all contractors and subcontractors, including consultants, understand the potential environmental impacts arising from the proposed

project and take appropriate actions to properly manage that risk. EMP also ensures the project implementation is carried out in accordance with the design by taking appropriate mitigation actions to reduce adverse environmental impacts during its life cycle. EMP for proposed hotel will include the following essential parts.

(a) Mitigations and enhancement measures for all anticipated impacts;
(b) Consideration of residual and cumulative impacts after mitigation measures;
(c) Environmental monitoring plan,
(d) Monitoring guidelines and standards,
(e) Training Program,
(f) Record Keeping and Reporting, and
(g) Audit and Corrective Action Plan.

(a) Environmental Monitoring Program

The purpose of environmental monitoring is to evaluate the effectiveness of implementation of Environmental Management Plan (EMP) by periodically monitoring the important environmental parameters within the impact area, so that any adverse effects are detected and timely action can be taken. Main objectives of environment monitoring plan include:

(a) Identify all environment changes which may cause adverse effects on environment by the project implementation;
(b) Monitor discharge sources (gas emission, waste water and solid waste) and operation of environmental protection equipments in order to ensure that these activities will comply with legislative requirements;
(c) Check monitoring process and inspect installation system and equipments in respect of pollution prevention and control;
(d) Prevent potential incidents;
(e) Propose appropriate environment protection measures based on results of environmental monitoring;
(f) Overcome and repair all weak-points based on results of environment monitoring program.

(b) Occupational Safety and Health Management Plan

Occupational safety and health management plan for the proposed hotel will include the following:

(a) Potential Safety and Health Impacts on Workers
(b) Emergency and First-aid Procedures
(c) Medical Precautionary Measures
(d) Maintenance and Troubleshooting Precautions
(e) House Keeping
(f) Safety awareness
(g) Safety training

(c) Emergency Response Plan (ERP)

An emergency is an unplanned event when a project operation loses control, or could lose control, of a situation that may result in risks to human health, property, or the environment, either within the facility or in the local community. Emergency incident response plan for proposed hotel is proposed to mitigate harms on humans and environment in the project area and its vicinity in case of incident. This plan provides the management structure, key responsibilities, emergency assignments and general procedures to follow during and immediately after an emergency. Moreover, it is necessary to establish ERP to address the immediate requirements for a major disaster or emergency in which normal operations are interrupted and special measures must be taken to:

(a) Save and protect the lives of employees;
(b) Manage immediate communications and information regarding emergency operations and work site safety;
(c) Provide essential services and operations;
(d) Provide and analyze information to support decision-making and action plans; and
(e) Manage resources effectively in an emergency operation.

(d) Natural Disaster Management Plan

Disaster means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made cause, or by accident or negligence which result in substantial loss of life or human suffering or damage to, or degradation of, environment, and is of such nature or magnitude as to be beyond the coping capacity of the community of the affected

area. Disaster Management implies continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary as expedient for

Prevention of danger or threat to any disaster.

- Mitigation or reduction of risk of any disaster or its severity or consequences.
- Capacity building.
- Preparedness to deal with any disaster.
- Prompt response to any threatening disaster situation or disaster.
- Assessing the severity of magnitude of effect of every disaster.
- Evacuation rescue & relief.
- Rehabilitation and reconstruction

2. INTRODUCTION

2.1. Purpose and Background

Good Shan Brother International Co., Ltd. has proposed to build island resort located in Saytan Island Southwest of Kawthoung Township, Thanitharyi Region.

On behalf of MONREC, the Environmental Conservation Department (ECD) which is one of the six departments under the MONREC, responsible for implementing National Environmental Policy, strategy, framework, planning and action plan for the integration of environmental consideration into the national sustainable development processes. Good Shan Brother International Co., Ltd. has been engaged by HRD Environmental Training and Services Co., Ltd to prepare the IEE and to provide assistance in related activities. This is an Initial Environmental Examination (IEE) report for construction of an island resort and its related facilities proposed by Good Shan Brother International Co., Ltd named Saytan Island Resort. This IEE report is prepared to assess the potential impacts of the proposed project and to formulate, implement and monitor the environmental protection measures in the phases of its construction, operation and decommissioning in order to reduce the environmental impacts or have to minimum impacts to the environment and to increase its operating efficiency.

2.2. Detail Information of the Project Proponent

The following are the detailed information about the project proponent.

Company Name	Good Shan Brother International Company Limited
Project Type	Hotel resort
Project location	Saytan Island, Kawthoung Township, Thanitharyi Region
Company Address	**Contact Phone No- 09-977999919, 09969444900, 095351002** **Contact Person- : Daw Stella Kyaw Win** **Company Address : 3rd Floor , Co-Operative Business Center, Corner of Sayarsan Rd & New University Avenue Rd, Bahan Township, yangon** **Project Location : Saytan Island, kawthaung District, Thanintharyi Division,**
Company Type	Public Company Limited

2.3. The Aim of the Proposed Project

The developer statements publicly that the proposed project will need in Myanmar due to the following reasons:

(a) To satisfy the tourism market through provision of quality services and accommodation.

(b) To improve national foreign currency income

(c) To improve in local area by providing additional employment opportunities to the skilled as well as unskilled people

(d) To improve the educational, health and social status of local residents and obtain safe and better life., and

(e) To get benefits for both customers and supplier together with increasing employment opportunities for local people as well as resulting in government revenues.

2.4. Aim and Objectives of the Report

The objectives of the IEE report for Good Shan Brother International Co. Ltd are to;

(i) Assess the project's potential positive and negative, direct and indirect impacts to physical, biological, socioeconomic, and physical cultural resources in the vicinity of the project area,

(ii) Identify the stakeholders, hold consultation meeting with project affected people and consider their concerns in the implementation of the project,

(iii)Present mitigation measures to help reduce and/or mitigate, and/or compensate for the negative environmental impacts from the proposed project,

(iv)Describe the monitoring measures and reporting procedures to ensure the operations of the project meet with proposed mitigation measures, and identify the responsible person or team to proceed the proposed mitigation and monitoring measures.

2.5. Study Team

Serial No.	Full Name	Education	Responsibility
1	Dr.Aung Lay Tin	BE,ME,Ph.D (Mining,YTU)	Management and Others, Air and Noise, Pollution Control
2	Mr.Kyaw Soe	BE(Metallurgy),YTU,2002 M.Sc Beihang University (China),2006 Ph.D Beihang University	Management and Others

		(China),2011	
3	Dr. Kyaw Zay Moe	Ph.D (Batany)	Ecological Consultant, Biodiversity
	Dr. Ko Myint	Ph.D (Batany)	Ecological Consultant , Biodiversity
4	Daw Swe Mar Kyaw	A.G.T.I (EP),Pyay, B.Sc (Phys;),2003, Dip.EIA/EMS,MS (EAM)	Socio-Economy
5	Daw Thazin Htwe	BE(IT),Thanlyni,2009 Dip.EIA/EMS,MS (EAM)	Socio-Economy
6			
7	Daw Khin Than Sin Aye	BE(Civil),Magaway TU,2014 ,ME (CIVIL),YTU	Ground water and Hydrology; Construction
8	Daw Thin Naing Aye	BE(Civil),Hmawbi,2013 ME (CIVIL),YTU	Ground water and Hydrology;
9	Daw Nilar lwin	BE(Civil),Hmawbi,2013 ME (CIVIL),YTU	Ground water and Hydrology;
10	Yuzana Moe Myint	Bsc(Forest), 2014, Dip. in EIA & EMS	Biodiversity
11	Nanda Nwe	BE(CEIT),Hmawbi, Dip.EIA/EMS,MS (EAM)	Socio-Economy;
12	Phyo Maung Maung	BE(Mining),WYTU,2012	Socio-Economy
13	U San Oo	Bsc(geology),Magway,2007, M.Eng(Gadjah mada University, Indonesia,2012	Geology and Soil
14	Mg Aung Ze Yar Wint	Bsc(Forest), 2015, Dip. in EIA & EMS	Pollution Control
15	Mg Tint Naing Zaw	Bsc(Forest), 2015, Dip. in EIA & EMS	Lawer
16	Mg Si Thu		Facilitator
17	Dr.Myo Min Htun	Ph.D (Metallurgy)	Waste Management, Hazard

2.6. Impact Assessment Scope

This IEE report identifies the potential environmental and social impacts that could be associated with the proposed project activities including those of an indirect and cumulative nature. The study area for IEE covers all within 1.5km radius (3km diameter) which covers all of the project operational areas (hotel resort), including where supporting activities (jetty, public areas and amenities.) take place.

2.7. Data Collections

The project related data, site layout plans and design parameter are will be provided by Good Shan Brother International Co., Ltd (GSB). Secondary data on demographic distribution in

the area will be collected from Head of Local Administration Office (Kawthoung) and data on public health will be collected from Public Health Department (Kawthoung). Primary data for public concerns, socio-economic and health profiles will be conducted by household survey.

2.8. Structure of the Report

The IEE for proposed project is structured as follows:

Section 1: **Executive Summary –** Summary of the IEE report

Section 2: **Introduction –** provides the introduction and background of the proposed project, introduces the Proponent, objectives and scope;

Section 3: **Policy, Legal and Institutional Framework –** provides details of applicable Environmental legislation; National regulations are reviewed and summarized.

Section 4: **Description of the Project and Alternatives. –** provides details of the proposed project including design features, proposed infrastructure, project inputs and outputs and alternatives considered;

.

Section 5: **Description of the Surrounding Environment–** provides a summary of knowledge about the existing physical, biological, social and cultural Environment in the study area that the project may influence;

Section 6: **Impact Assessment and Mitigation Measures –** describes the impact assessment methodology and the PP process, summarises the potential Environmental and social impacts associated with the proposed project;

Section 7: **Cumulative Impacts –** describes general and specific mitigation measures to reduce, or avoid residual and cumulative impacts to environmental and social receptors associated with the proposed project;

Section 8: **Environmental Management Plan (EMP) –** describes the EMP draws together the possible mitigation measures; group them logically into components with common themes; define the specific actions required and timetable for implementation; identifies

training needs, institutional roles and responsibilities for implementation; develops a monitoring programme and estimates the costs of the measures.

Section 9: **Public Consultation and Disclosure Process –** describes the objectives of public consultation and results of consultations in an IEE to be followed during the Impact Assessment phases;

Section 10: **Conclusion–** summarizes conclusions that are made based on the assessment of the IEE Study.

3.0. POLICY, LEGAL AND OTHER REQUIREMENTS

This chapter sets out the relevant legal and policy context in Myanmar and documents the environmental and social standards with which the project has to comply with, as well as the international standards that the project will follow.

National Requirements

The IEE has been undertaken in accordance with the Myanmar Environmental Impact Assessment Procedure which was promulgated on December 29th, 2015, and provides legislation for environmental and social governance of economic development in Myanmar, under the Environmental Conservation Law 2012 and Environmental Conservation Rules 2014 of the National Environmental Policy for Myanmar 1994.

In addition, the IEE assessment was undertaken in accordance with Myanmar's National Environmental Quality (Emission) (NEQ) Guidelines which were promulgated on December 29th, 2015. The guidelines include noise and vibration, air emissions, and effluent discharges. An overview of the approval of the IEE process (from the EIA Procedure, 2015) is shown in Figure below.

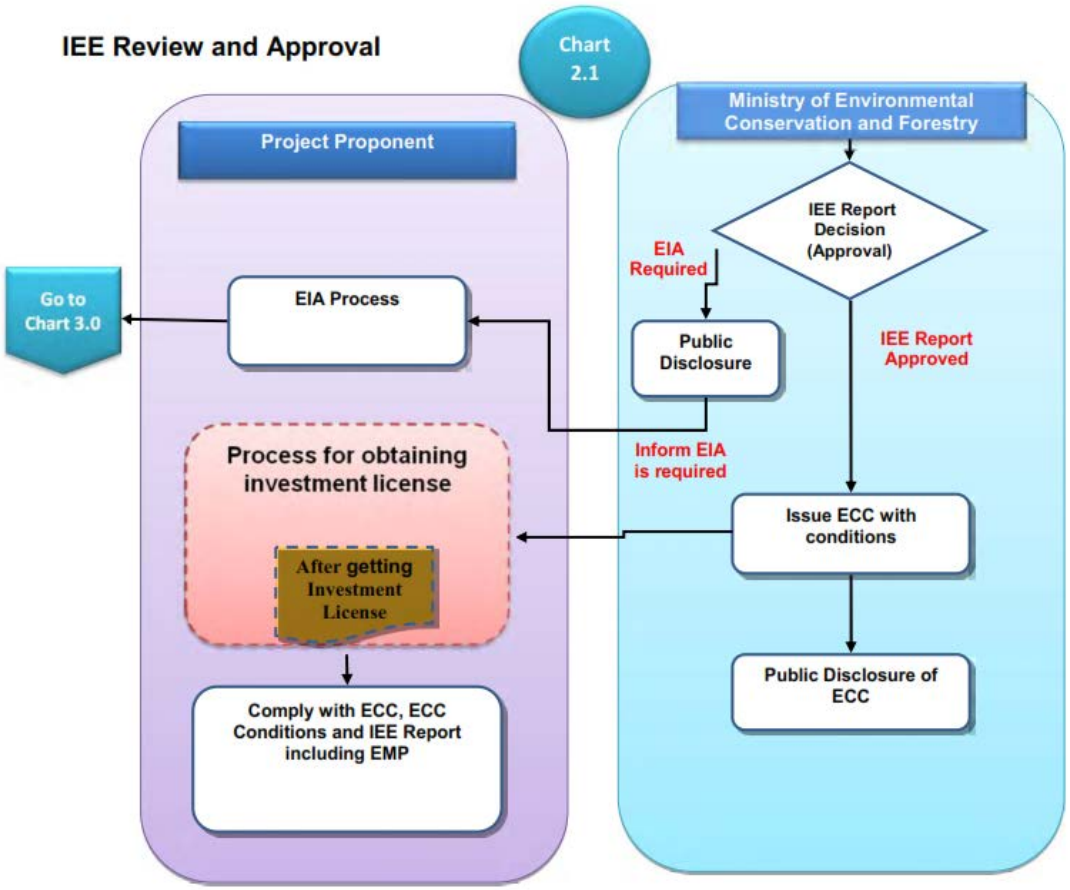


Figure 3.1- IEE Review and Approval Process

3.1. Proponent's Environmental, Social and Health Policies

The main policy and commitment of Good Shan Brother International Co., Ltd. (GSB) will be identified in the following points:

- the protection of public safety, the health and safety of the workforce and the local communities;
- the protection of the environment and the conservation of biodiversity and ecosystems;
- the compliance with Myanmar laws, regulations and industrial standards regarding the environment, health, safety and hygiene at work in all of our operations;
- seek and achieve continuous improvement in our processes, consistent with our strategic objectives and priorities, by adopting the most advanced systems for environmental protection and energy efficiency; and
- creating a culture in which GSB employees, Contractors and Visitors share these commitments and understand that working safely is a condition of employment.

Sustainability Policy

GSB's sustainability model is "To operate in a sustainable manner means to create value for stakeholders, and to use resources so that the needs of future generations will not be compromised, respecting people, the environment and the society as a whole." ----- adheres to a sustainability policy, which is composed of the following principles:

- *Stakeholder relations* – "Engaging stakeholders and involving them in company's business are both prerequisites for sustainability and for the construction of reciprocal value."
- *Human Rights* – "The respect of Human Rights represents the basis for an inclusive growth of societies, of the territories and, consequently, of the companies that work there."
- *Relations with communities and contribution to local development* – "Dialogue, the respect of local communities, the evaluation of impacts are all preconditions for an effective cooperation, targeted at creating territorial value."
- *Climate strategy* – "To satisfy the world's energy demand, by containing, at the same time, emissions of gases that have an impact on climatic change, is one of the greatest challenges of modern society."

3.2. Laws and Regulations Related to the Proposed Project

Myanmar has promulgated several laws and regulations concerning protection of the Environment. The following table describes laws and regulations directly or indirectly associated with the proposed project.

Table 3.1. Relevant Environmental Laws and Regulations in Myanmar

Laws and Regulations	Year	Purposes
Constitution of the Republic of the Union of Myanmar (Articles 24,45,349,359)	2008	To conserve the natural environment, To prevent and upgrade the rights and lives of the workers
Environmental Conservation Law (Law No.7(o), 14,15,24,25,29)	2012	To enable to implement the Myanmar National Environmental Policy; To enable to lay down the basic principles and give guidance for systematic integration of the matters of environmental conservation in the sustainable development process;

Environmental Conservation Rules (Rule 55, 69 (a), (b))	2014	To implement correctly according to the environmental management plan
IEE Procedures (Article 102 to 110, 113, 115, 117)	2015	To develop the environmental impacts and to draw the environmental management plan;
National Environmental Quality (Emission) Guidelines (Section 2.1.9)	2015	These national Environmental Quality (Emission) Guidelines (hereafter referred to as Guidelines) provide the basis for regulation and control of noise and vibration, air emissions, and liquid discharges from various sources in order to prevent pollution for purposes of protection of human and ecosystem health.
The Protection of rights of National Race Law, (Law No. 5)	2015	Consists of four bills, as submitted to the legislature; Buddhist Women's Special Marriage Bill, Religious Conversion Bill, Monogamy Bill and Population Control Bill.
Myanmar Investment Law (Law No. 50(d), 51, 73)	2016	To develop responsible investment businesses which do not cause harm to the natural environment and the society for the benefit of the Union and its citizens
Labour Organization Law, (Law No. 1,7 to 11)	2011	This Law was enacted, to protect the rights of the workers, to have good relations among the workers or between the employer and the worker, and to enable to form and carry out the labour organizations systematically and independently
The Settlement of Labour Dispute Law, (Law No. 38, 39, 40, 51)	2012	The Pyidaungsu Hluttaw hereby had enacted this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace.
Employment and Skill Development Law, (Law No. 5, 14, 30(a,b))	2013	To facilitate employment which is appropriate to the age and ability of the job seeker To help workers obtain employment and to provide stability of employment and skills development for employees To help employers obtain appropriate employees
The Leave and Holiday Act, 1951 (Law Amended July, 2014)	2014	To allow worker for leave and holiday allowances, religious or social activities with earn allowance, and benefits for Health allowances. Concerned workers: Daily wage workers/ temporary workers/permanent workers.
Minimum Wages Law (Law No. 12, 13 (a to g)	2013	This Law was enacted to meet with the essential needs of the workers, and their families, who are working at the commercial, production and service, agricultural and livestock breeding businesses and with the purpose of increasing the capacity of the workers and for the development of competitiveness,
Payment of	2016	(a) Pay in local currency or foreign currency recognized by

Wages Act (Law No. 3,4, 5, 14, 8 with 7,10)		the Central Bank of Myanmar. This may be in cash, check or deposit into the bank account of Employee. (b) Moreover, pay can be in the means of… (1) Totally in cash OR half the cash and half in things set according to the local price to those employees working in trade, manufacturing and service sectors. (2) Totally in cash OR half the cash and half in things set as local price according to local traditions or common agreement to those working in agriculture and livestock sectors. But, this must be for the sake of the employees and their families. And, it also must be reasonable/fair. (3) An employee shall receive the payment for 60 days when he/she is in Alternative Civil Service.
The Myanmar Insurance Law (Law No. 15, 16)	1993	(a) to overcome financial difficulties by effecting mutual agreement of insurance against social and economic losses which the people may encounter, due to common perils; (b) to promote the habit of savings individually by effecting life assurance, thus contributing to the accumulation of resources of the State; (c) to win the trust and confidence of the people in the insurance system by providing effective insurance safeguards which may become necessary in view of the social and economic developments.
The Social Security Law (Law No. 11(a), 15(a), 18(b), 48, 49, 75)	2012	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.
Workman Compensation Act	1951	To protect personal injury caused to a workman by accident arising out of and in the course of his employment and to compensate in accordance with the provisions of Workman Compensation Act
Myanmar Fire Force Law, (Law No. 25)	2015	To take precautionary and preventive measure and loss of state own property, private property, cultural heritage and the lives and property of public due to fire and other natural disasters To organize fire brigade systemically and to train the fire brigade To prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs To educate, organize an inside extensively so as to achieve public corporation -To participate if in need for national security, peace for the citizens and law and order
National Food Law,	1997	a) Recommendation on imported and exported food b) Post market surveillance (risk assessment)

		c) HACCO along with general practice for food inspectors and manufactures d) Food safety training for restaurants, street, vendors, etc.
Public Health Law (Law No. 3, 5)	1972	To promote and safeguard public health and to take necessary measures in respect of environmental health.
The Myanmar Tourism Law, (Section 6 ,7 ,8,9 and 10)	1990	A person desirous of operating any of the following businesses of tourism industry for international tourists or foreign visitors shall apply for a license to the Directorate in the prescribed form:- a) Tourist Enterprise; b) Hotel Business; c) Lodging-House Business; d) Tourist Transport Business; e) Tour Guide Business; f) Businesses, prescribed from time to time as a Tourism Industry by the commission The Directorate may prescribe the types of business to be operated under a license for domestic tourists among the businesses contained in Section 6.
Myanmar Hotel and Tourism Law, (Section 6 ,7 and 8)	1993	A Government Department, Government Organization, an organization in joint-venture with the Government, Municipality, Co-operative Society, other organization or person desirous of operating a hotel business or lodging-house business shall, before commencing implementation of the project proposal apply for prior permission to the Ministry in the manner prescribed**.**
Private Industrial Enterprise Law	1990	To narrow down the gap between rural development and urban development by the development and improvement of industrial enterprises; to avoid or reduce the use of technical know-how which cause environmental pollution; to cause the use of energy in the most economical manner.
Forest Law	1992	To implement forest policy and environmental conservation policy, to promote public cooperation in implementing these policies, to develop the economy of the State, to prevent destruction of forest and biodiversity, to carry out conservation of natural forests and establishment of forest plantations and to contribute towards the fuel requirement of the country.
Protection of Wildlife and Wild Plants and Conservation of Natural Areas Law	1994	To protect wildlife, wild plants and conserve natural areas, to contribute towards works of natural scientific research, and to establish zoological gardens and botanical gardens.
Protection and Preservation of Cultural Heritage Regions Laws (Law No. 15, 16)	1998	To implement the protection and preservation policy with respect to perpetuation of cultural heritage that has existed for many years; to protect and preserve the cultural heritage regions and the cultural heritage.
Prevention and	1995	To prevent the outbreak of Communicable Diseases, by

Control of Communicable Diseases Law (Law No. 3, 4, 9, 11)		implementing following project activities:- (a) immunization of children by injection or orally; (b) immunization of those who have attained majority, by injection or orally, when necessary; (c) carrying out health educative activities relating to Communicable Disease.
The Control of Smoking and Consumption of Tobacco Product Law (Law No. 9)	2006	To convince the public that health can be adversely affected due to smoking and consumption of tobacco product and to cause refraining from the use of the same; To protect from the danger which affects public health adversely by creating tobacco smoke-free environment; To obtain a healthy living style of the public including child and youth by preventing the habit of smoking and consumption of tobacco product;
Conservation of Water Resources and Rivers Law (Law No. 8, 11(a), 13, 19, 24(b), 30)	2006	To conserve and protect the water resources and rivers system for beneficial utilization by the public; to prevent environmental impact.
Myanmar Port Authority Law	2015	"Any person who by himself or another so casts or throws any ballast or rubbish or any such other thing or so discharges any oil or water mixed with oil, or the master of any vessel from which the same is so cast, thrown or discharged, shall be punishable with fine not exceeding fifty thousand kyats, and shall pay any reasonable expenses which may be incurred in removing the same".
Agricultural Land Law	2012	To protect the rights of the people who are working on the farm.
The Protection and Preservation of Antique Objects Law (Law No. 12,15 20)	2015	To implement the policy of protection and preservation for the perpetuation of antique objects; To protect and preserve antique objects so as not to deteriorate due to natural disaster or man-made destruction; To uplift hereditary pride and to cause dynamism of patriotic spirit by protection and preservation of antique objectives; To have public awareness of the high value of antique objectives; To carry out in respect of protection and preservation of antique monuments in conformity with the International Convention and Regional Agreement ratified by the

		State.
The Protection and Preservation of Ancient Monuments Law (Law No. 12,15 20)	2015	To implement the policy of protection and preservation for the perpetuation of ancient monuments; To protect and preserve ancient monuments so as not to deteriorate due to natural disaster or man-made destruction; To uplift hereditary pride and to cause dynamism of patriotic spirit by protecting and preserving ancient monuments; To have public awareness of the high value of ancient monuments; To protect and preserve ancient monuments from destruction; To search and maintain ancient monuments; To carry out in respect of protection and preservation of ancient monuments in conformity with the International Convention and Regional Agreement ratified by the State.
the Prevention of Hazard from Chemical and Related Substances Rules (Law No. 8,15,16,17, 20, 22, 23, 27)	2013	Performing the sticking pictogram for being least the health impacts and accident injuries in the occupational area according to the prescribed standards and norms of the Globally Harmonized System GHS); Making the necessary arrangements to be safety of the occupational area and issuing orders and directives for preventing and decreasing the accident; Laying down the proliferation plans on knowledge, and safety of chemical and related substances to administrators, license holders, public and workers; Cooperating with local and foreign governmental departments, organizations and non-governmental organizations in respect of safety management for chemicals hazard.
The Freshwater Fisheries Law (Law No. 36,40,41)	1991	To further develop the fisheries; To prevent the extinction of fish; To safeguard and prevent the destruction of freshwater fisheries waters; To obtain duties and fees payable to the State; To manage the fisheries and to take action in accordance with the Law.
(The Pyidaungsu Hluttaw Law No.14, 2017) Myanmar Territorial Sea and Maritime Zones Law(Law No.8 (g),(h),(i))	2017	To have security, rule of law and tranquility for the interests of the State in the territorial sea, contiguous zone, exclusive economic zone and continental shelf; To protect and conserve, and excavate natural resources systematically for long term in the territorial sea and maritime zones of the State and to do marine scientific researches; To protect and conserve from the pollutions on the sea, airspace and impact on marine environment through the territorial sea and maritime zones of the State.

3.3 International Agreements and Conventions

In addition to the domestic laws listed above, Myanmar is also a signatory to the following international conventions, and these may have relevance to the proposed survey activities. Refer to the following Table.

Table 3.2. International Agreements and Conventions Relevant to the Proposed Project

International Agreements and Conventions	Status	Purposes
Vienna Convention for the Protection of the Ozone Layer, 1985	1998	Aims at the protection of the ozone layer, including requirements for limiting the production and use of ozone depleting substances.
Montreal Protocol on Substances that Deplete the Ozone Layer, 1989	1993	Aims at the protection of the ozone layer, including requirements for limiting the production and use of ozone depleting substances.
Basel Convention, 1989	2015	The Convention regulates the trans boundary movements of hazardous wastes and provides obligations to its parties to ensure that such wastes are managed and disposed of in an environmentally sound manner.
United Nations Framework Convention on Climate Change (UNFCCC), New York, 1992 and Kyoto Protocol 1997	1995 and 2005	Provide a framework for intergovernmental efforts to tackle climate change. Recognises that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases.
Convention on Biological Diversity, Rio de Janeiro, 1992	1994	Aims to promote national policies for the conservation of wild flora, fauna and habitat that needs to be included in planning policies. The three main goals are: (1) the conservation of the biological diversity; (2) the sustainable use of its components; (3) fair and equitable sharing of the benefits.
Asia Least Cost Greenhouse Gas Abatement Strategy (1998 ALGAS)	1998	Develop national and regional capacity for preparation of GHG inventories. Assist in identifying GHG abatement options and preparation of a portfolio of abatement projects for each country.
United Nations Agenda 21	1997	Formed by the National Commission for Environmental Affairs (NCEA) in Myanmar. Provides a framework of programmes and actions for achieving sustainable development in the country. Building on the National Environment Policy of Myanmar, takes into account principles contained in the Global Agenda 21. Myanmar Agenda 21 also aims at strengthening and promoting systematic environmental management in the country.
Relevant ILO		Sets out legal instruments drawn up by the ILO's

Conventions in force in Myanmar • C1 Hours of Work (Industry) • C14 Weekly Rest (Industry) • C17 Workmen's Compensation (Accidents) • C19 Equality of Treatment (Accident Compensation) • C26 Minimum Wage Fixing Machinery • C29 Forced Labour Convention • C42 Workmen's Compensation (Occupational Diseases) Revised 1934 • C52 Holidays with Pay • C87 Freedom of Association and Protection of the Right to Organize		constituents (governments, employers and workers) and setting out basic principles and rights for workers.

3.4 National and International Guidelines for Proposed Project

National Guidelines and Internal standard guidelines are referred for Environmental Management Plan of the proposed project.

1. Environmental Impact Assessment Procedure (2015)
2. National Environmental Quality (Emission) Guidelines (NEQG) (2015)
3. World Health Organization Guidelines (WHO)
4. National Ambient Air Quality Standard (NAAQS), USEPA
5. IFC Guidelines for Waste Management Facilities, 2007
6. IFC Guidelines for Water and Sanitation, 2007
7. IFC, Environmental Health and Safety Guideline for Tourism and Hospitality Development

3.5 National Environmental Quality (Emissions) Guideline for Proposed Project

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.

Table 3.3 - Effluent Levels for Tourism and Hospitality Development

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	S.U.[a]	6-9
Total coliform bacteria	100 ml	400
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Total suspended solids	mg/l	50

[a] Standard unit

Air Quality

General guideline values for air emissions are described in current NEQG and the project shall apply theses guideline values for air quality parameters such as SO_2, NO_2, particulate matters (PM_{10} and $PM_{2.5}$).

Noise

Noise prevention and mitigation measures should be taken by all projects where predicted or measured noise impacts from a project facility or operation exceed the applicable noise level guideline at the most sensitive point of reception. Noise impacts should not exceed the levels shown below, or result in a maximum increase in background levels of three decibels at the nearest receptor location off-site.

In NEQG, the noise level is set as shown in Table below and noise prevention and mitigation measures should be taken by all projects where the predicted or measured noise impacts from a project facility or operation exceed the applicable noise level guideline at the most sensitive point of reception. Noise impact should not exceed the levels shown below, or result in a maximum increase in background levels of three decibels at the nearest offsite receptor location.

Table 3.4- Noise Level Set in NEQG

Receptor	One Hour L_{Aeq} (dBA)	
	Daytime (7:00-22:00) (10:00-22:00 for public holidays)	Night Time (22:00-7:00) (22:00-10:00 for public holidays)
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Source: NEQG (December 2015)

3.6. Statement of Commitments

We, Good Shan Brother International Co., Ltd commit to comply with the followings:

a) Comply with the commitments of the environmental and socio-economic development revealed in the Initial Environmental Examination report.
b) Acknowledge and comply the laws, regulations and guidelines associated with the project, included in the report.
c) Give priorities for the occupational health and safety of the workers.
d) Utilize the exact amount of fund as stated in proposed expenditure for cooperate social responsibility funds.
e) Take responsibility for all of the works and absence of the contractors, sub-contractors, officers and representatives of the company in operating the processes.
f) Take responsibility to support after discussion for the impacted people to ensure for their stable livelihood not lower than before the project; and resettlement and rehabilitate the impacted local people, government organizations and other related people and organizations.
g) We, Good Shan Brother International Co., Ltd. commit to follow the environmental commitments, mitigation measures, management plans illustrated in the IEE report. We also commit to follow the Environmental Conservation Laws 2012, the Environmental Conservation Rules 2015 that stated in IEE.

(Signature)

Name -

Position -

Date -

Commitment of Third-Party Organization

The IEE report was written by HRD Environmental Training and Services Co., Ltd. and IEEs in this report were designed by the following criteria;

(a) The designed IEE complied with the National Constitution, Environmental Conservation Law, EIA Procedures, and National Environmental Quality Guideline.

(b) These environmental impact protection procedures are designed of incident avoiding, mitigation and replacing for the project proponent who commits to follow the environmental impact protection procedure.

(c) This Initial Environmental Examination report is systematically designed not only for environmental impact protection procedures and occupational safety and health but also emergency management planning and social welfare programs.

(d) All facts including in this report are systematically surveyed without bias. As a third party, we commit and take full responsibility for all facts in this report.

Dr. ----------
Principal of Environmental and Social Consultant
HRD Environmental Training and Services Co., Ltd.

4. DESCRIPTION OF PROJECT AND ALTERNATIVES

4.1. Project Background

The Saytan island resort project is a modification of the original concept for the development of the beachfront at in the Saytan Kyun Island in Southern Myanmar. It intends to create a high-end local and tourism resort that is environmentally friendly and which will directly contribute to the economic development of the region.

4.2 Location of the Project

Saytan Island Resort is located to the South-west of Kawthong Township, Tanintharyi Region, at the coordinates of 9° 47′ 48.84″ N Latitude and 98° 6′ 34.96″ E Longitude. Saytan Island is around 33 nautical miles southwest off the mainland from Kawthoung. The location map of project area is shown in the following figure.

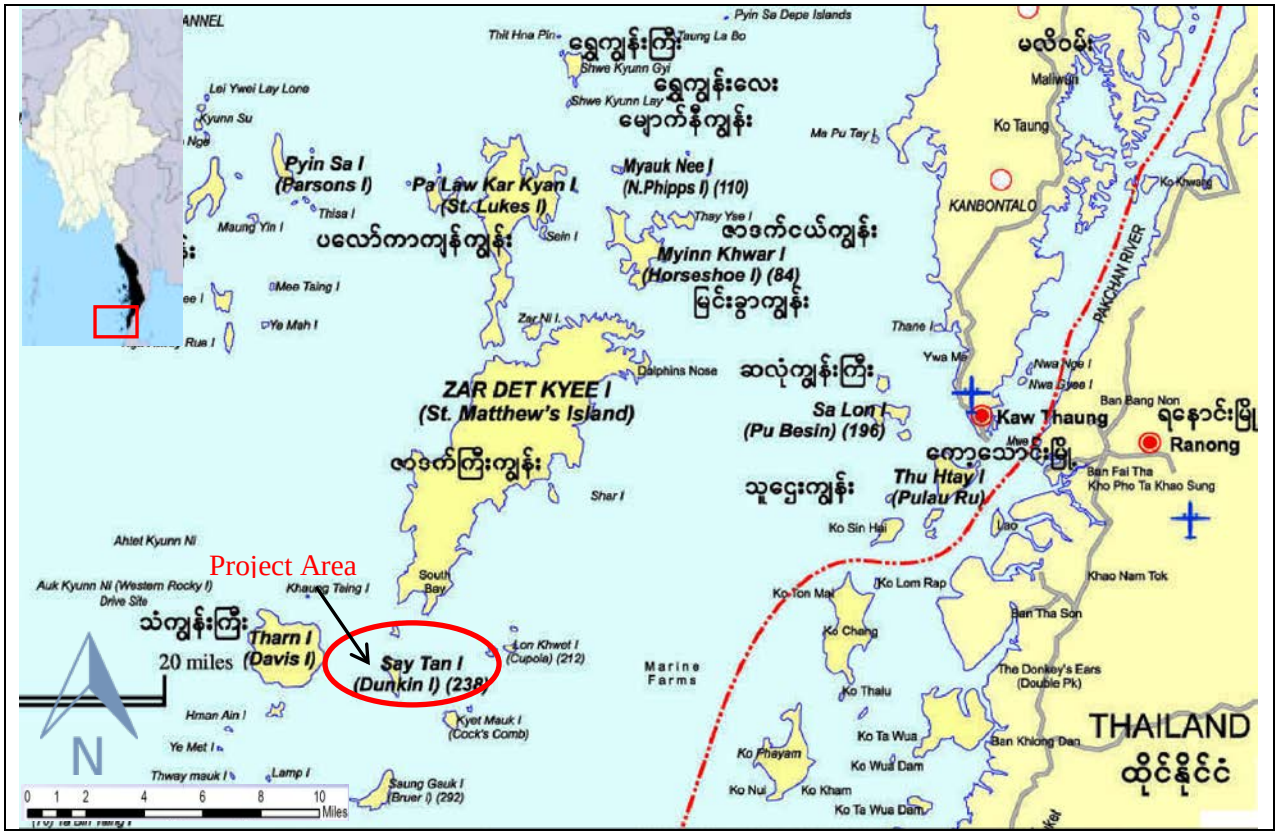


Figure 4.1- Location of Proposed Project

4.3. Land Use

The proposed project will use (15.8) acres containing Plots No.25/OSS Zadetkyi land mark area and land grants received permission to operate (30 years) for business purposes. This area is only found scattered forests area including shrub climber and small trees plantation land without residential area.

Figure 4.2- Satellite View of Proposed Project Location

4.4. Site Character

Saytan Island is one of the islands Mergui, access from Kawthoung travel by speed boat takes about 45 minutes. Location project is a beach in the west and southwest of the island. The area along the long narrow beach, combining approximately 600 meters, beach was divided into two parts with large rocks along the dunes (sand dune) along the left long beach. The back of the hillside beach tree original dissemination. The end of area is the hill slope, Access to qualify from the beach front alone.

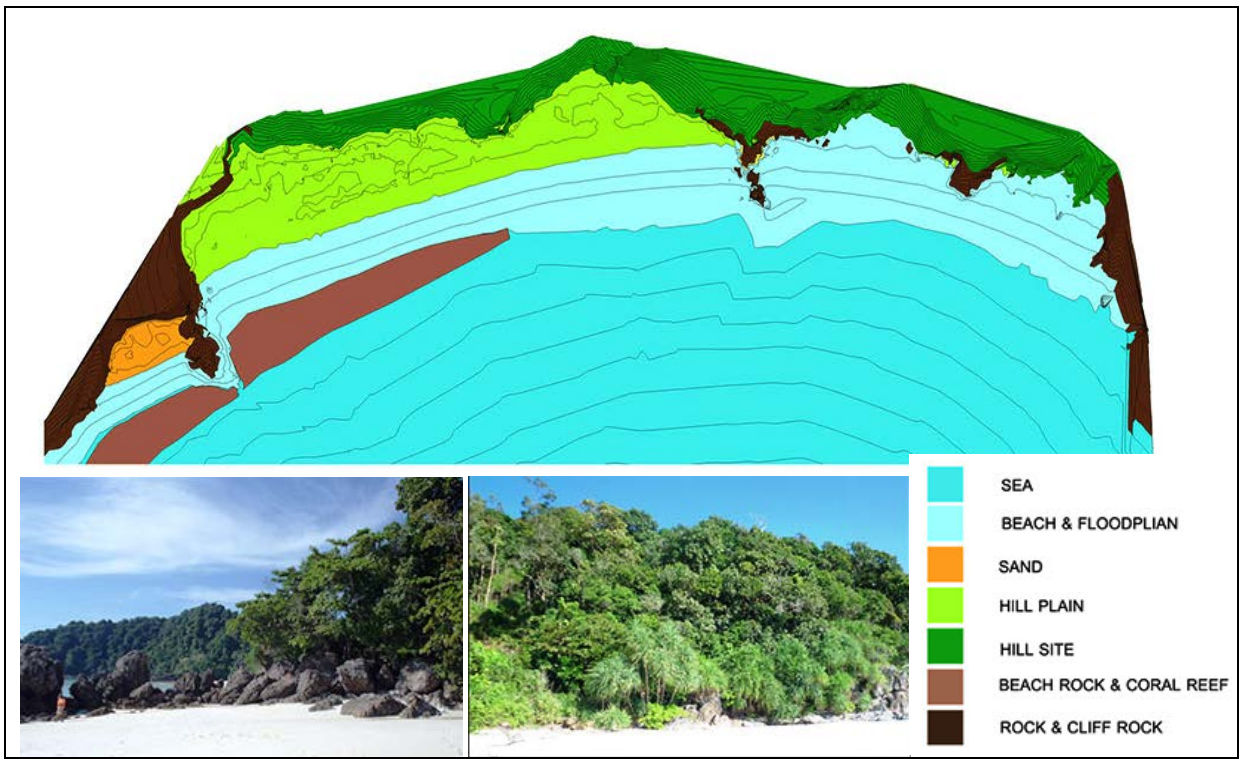


Figure 4.3 - Site Characteristic of Project

4.5 Site Layout

GSB intend to build level 4 stars to 5 stars resort construction activities on the 15.8 acres site. The layout of the building footprints of the site is shown at Figure 4.3. Also indicated is the proposed master plan for the construction works. It can be noted that the main building hotel and beach front tents will occupy flat and gently sloping land, tree house, private pool villas and hill tents will take up end flat of costal land that has either been previously cleared or is covered by disturbed landscape. The supporting facilities and services infrastructure (rock club, climbing station, swimming pool, water sport, boat jauzzy, etc.) will be centralized and located at a site on the property eastern of the site, as will be the waste water treatment plant, the transformer, and the temporary construction camp. It is to be noted that the resort footprint does not encroach on the forest area to the east of the site. The purpose projects construction activities including total numbers of 131 rooms. Which is deluxe rooms 100 Nos., suite rooms 30 Nos. and president suite 1 No.

Figure 4.4 - Master Plan of Proposed Project

4.6. Construction Schedule

The total construction period for the proposed development is approximately one year i.e. the starting of the project will be start date is subject to government approval process.

4.6.1. Site Preparation Activities

Plant rescue and nursery: Initial activities on the site will entail identifying and establishing the plant nursery to which will be removed selected plants and seedlings taken from the areas to be covered by buildings. This will be done by a landscape contractor in charge of a team engaged in the selection and removal of desirable plant material. This will be done more or less simultaneously with the general clearance of the underbrush on the building areas such that all large trees are left and the buildings and adjacent access areas can be pegged out. To the greatest extent possible, building footprints will be laid out and oriented so as to minimize the removal and loss of trees. The area of removal will also take into account the need for clear space around each building for the passage of construction equipment.

Construction camp: This site will allow use of the existing underpass to access the site and minimize highway traffic disruptions caused by movement of construction works equipment. The establishment of the camp (access roads, temporary office buildings, earth materials stockpiles, equipment and material stores, maintenance yard, etc.) will entail loss of trees occurring at that site (approx. 1 acre).

Water supply: The plant nursery, construction camp and site works will require a supply of water. The water requirement for the all construction activities and workers except drinking water will be supported from the existing tube wells; two installed 4-inch diameter (Ø) pipe. There is one overhead tank existing near the staff quarter. This tank is meant for temporary storage of water during primary stage of construction.

4.6.2 Resort Facilities Infrastructure

The construction phase has planned according to master plan. The proposed Island Resort will include the following main infrastructures;

- Main building
- Tree house
- Exclusive tent
- Hill tent

- Rock house
- Boat jacuzzy
- Rock club
- Pool & Private villa

The guidelines and publications provided by the internationally accepted eco-friendly and sustainable ways of design, construction and operation of resorts and buildings. The modular components that will be used for the resort buildings will aim at minimum consumption of plastic, glass and steel materials to be sustainable and eco-friendly. The design is in such a way that uses a lot of open and empty spaces to aid ventilation and air supply will be prominent. The roof is covered by imitation thatch made from recycled plastic. The construction is by assembling these modular components at site reducing the effect of construction.

(a) Main Building

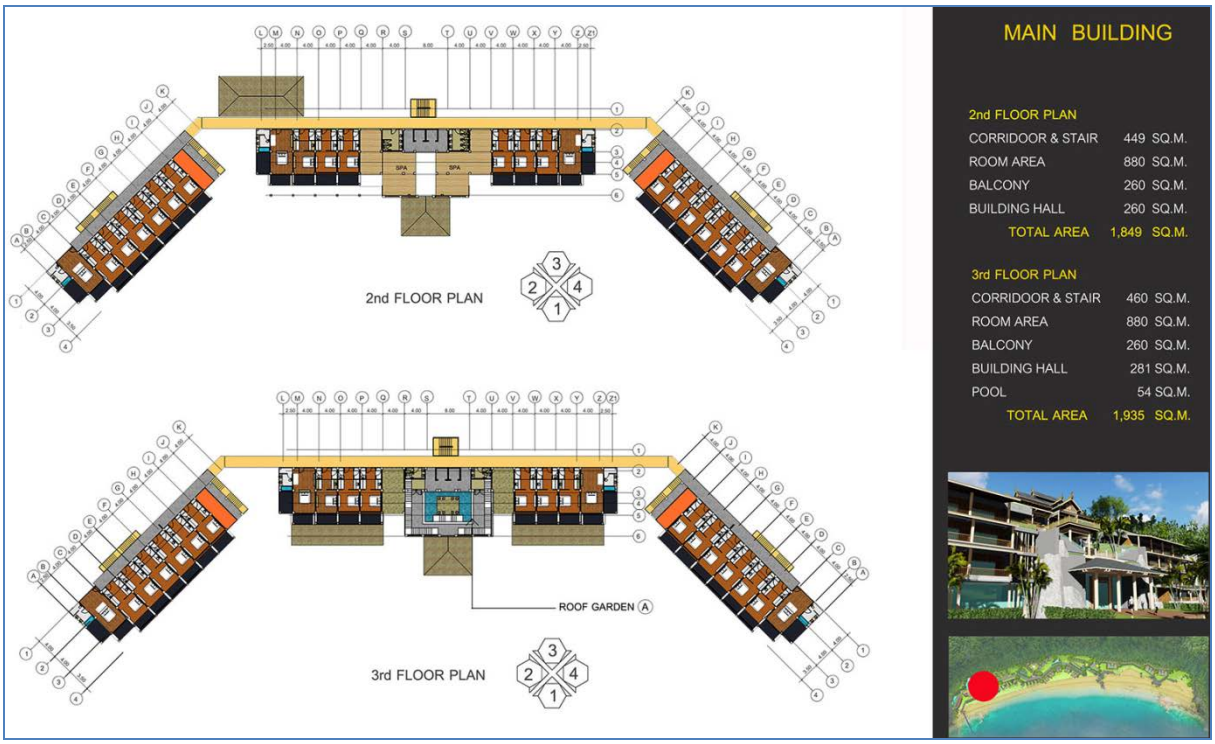
Main building is five stories arrival building consists of main lobby hotel facility, fitness library and 70 keys guest rooms. The total building area is 7149 sq.m. The building located down on the widest area of land. Background the building is the slope up to the hills, cliff rock and forest. Main conceptual design of building is unity into nature like a hill.

Main building area in square meter			
Ground Floor (1st floor & beach pool area)	Corridor & stair Room area Balcony Building hall Swimming pool Wooden pool deck	539 800 240 507 800 75	2,916
2nd Floor	Corridor & stair Room area Balcony Building hall	449 880 260 260	1,849
3rd Floor	Corridor & stair Room area Balcony Building hall Pool	460 880 260 281 54	1,935
4th Floor	Corridor & stair Room area Balcony Building hall	261 320 100 172	853
5th Floor	Corridor & stair Building hall	208 263	471
Total area			8,024 sq.m

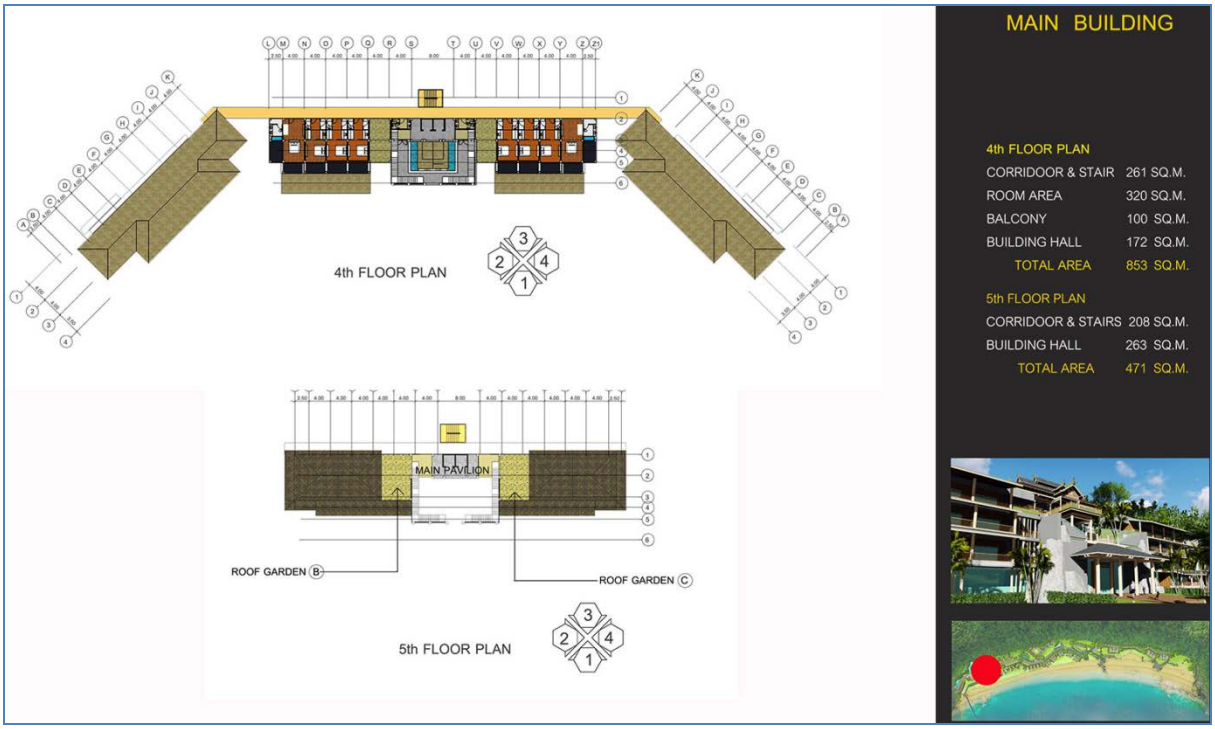
Figure - Main Building Perspective

Elevation of Main Building

Ground Floor Plan



2nd and 3rd Floors Plan



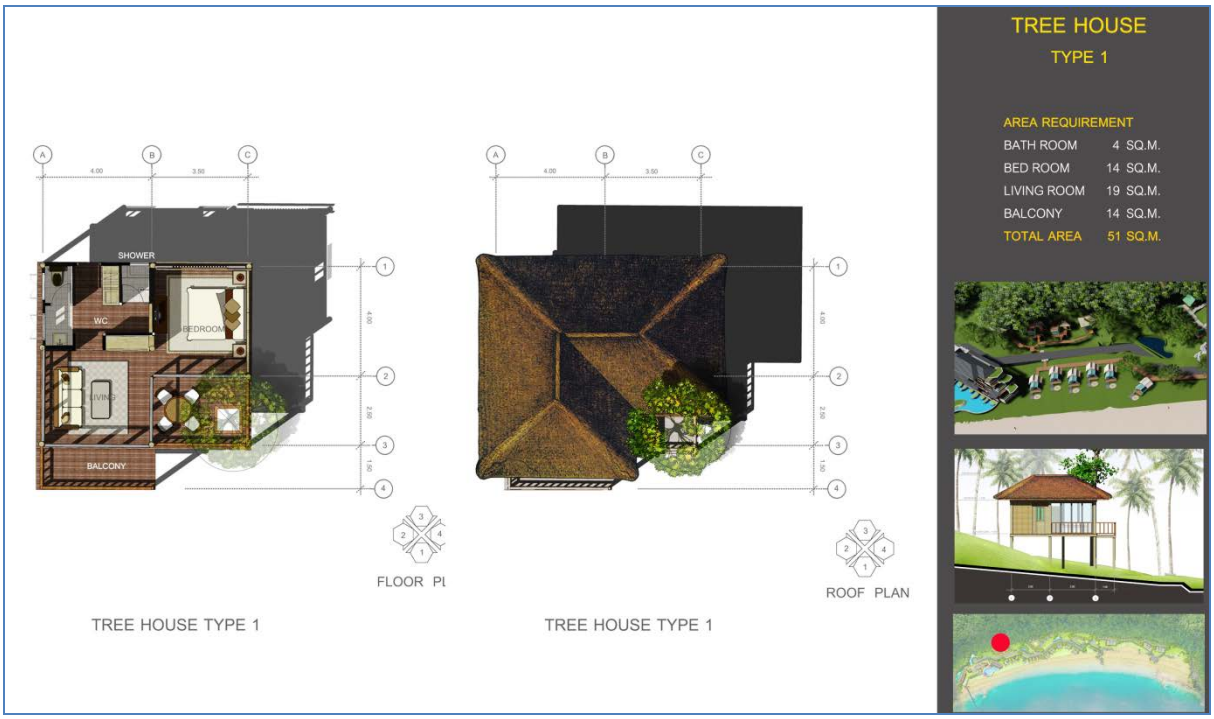
4th and 5th Floors Plan

(b) Tree House

Bring the site character used to benefit and it's the effect that a point interest of the project. Guest room 51 sq.m per room and create interest by outdoor hanging terrace in "wind" concept.

Tree House area in square meter		
For One unit	Bath room Bed room Living room Balcony	4 14 19 14
Total area		51 sq.m

Tree House Perspective



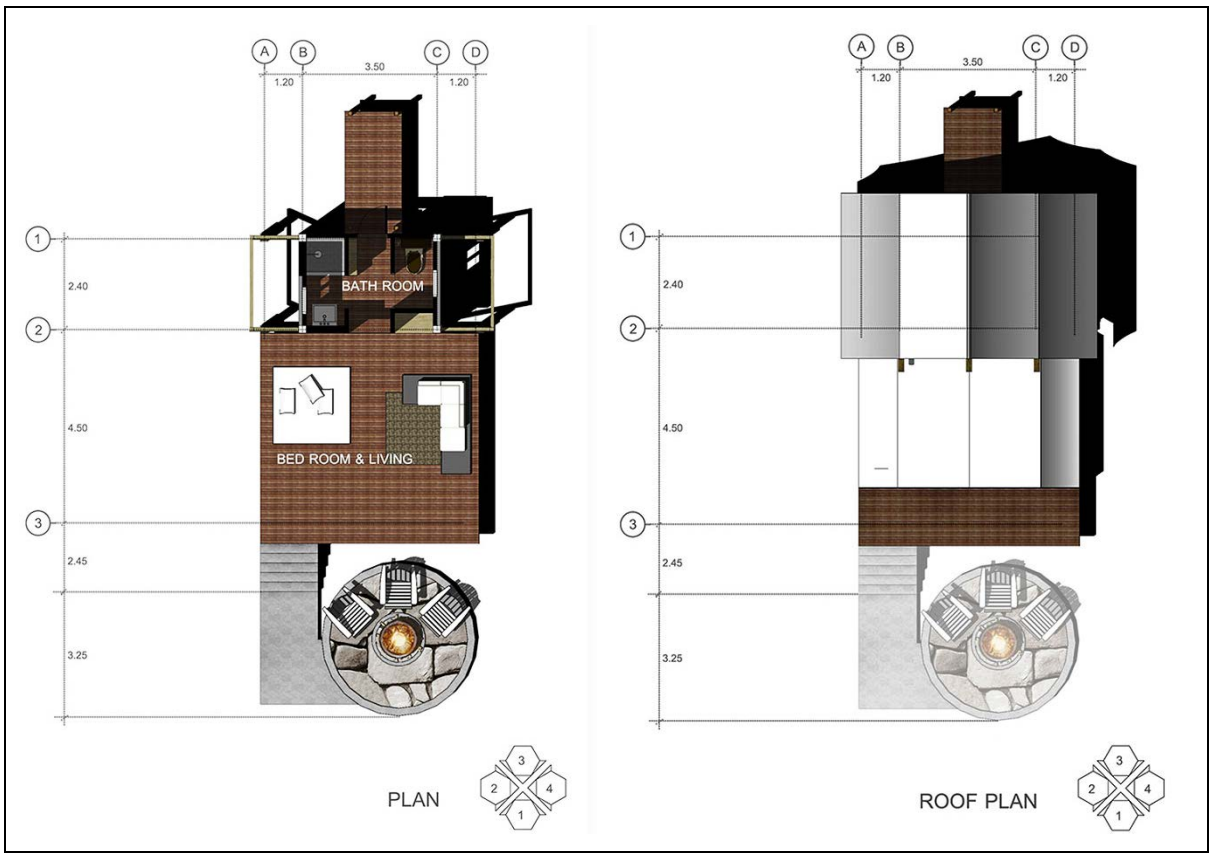
Tree House Plan

(c) Exclusive Tent

Exclusive Tent located in front of site and near the beach. Guest room 58 sq.m per room and create interest by outdoor wooden terrace in “beach view” concept.

Exclusive Tent area in square meter		
For One unit	Wooden terrace WC & toilet Fire camp	32 10 16
Total area		58 sq.m

Exclusive Tent Perspective



Exclusive Tent Plan

Exclusive Tent Elevation

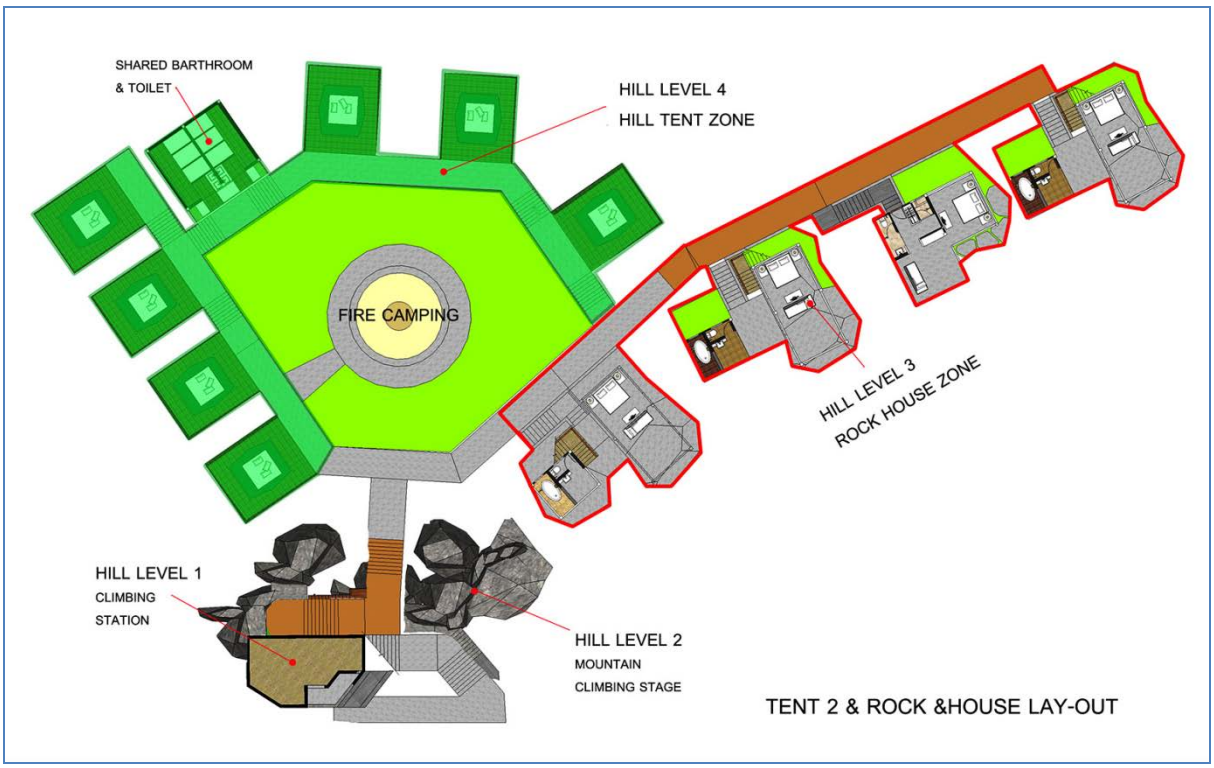
(d) Hill Tent & Rock House

Hill Tent & Rock House located on wooden deck and hill area in the same zone. Those are hill tent with climbing station and the rock house by bring the site character used to benefit and it's the effects that a point interest of the project.

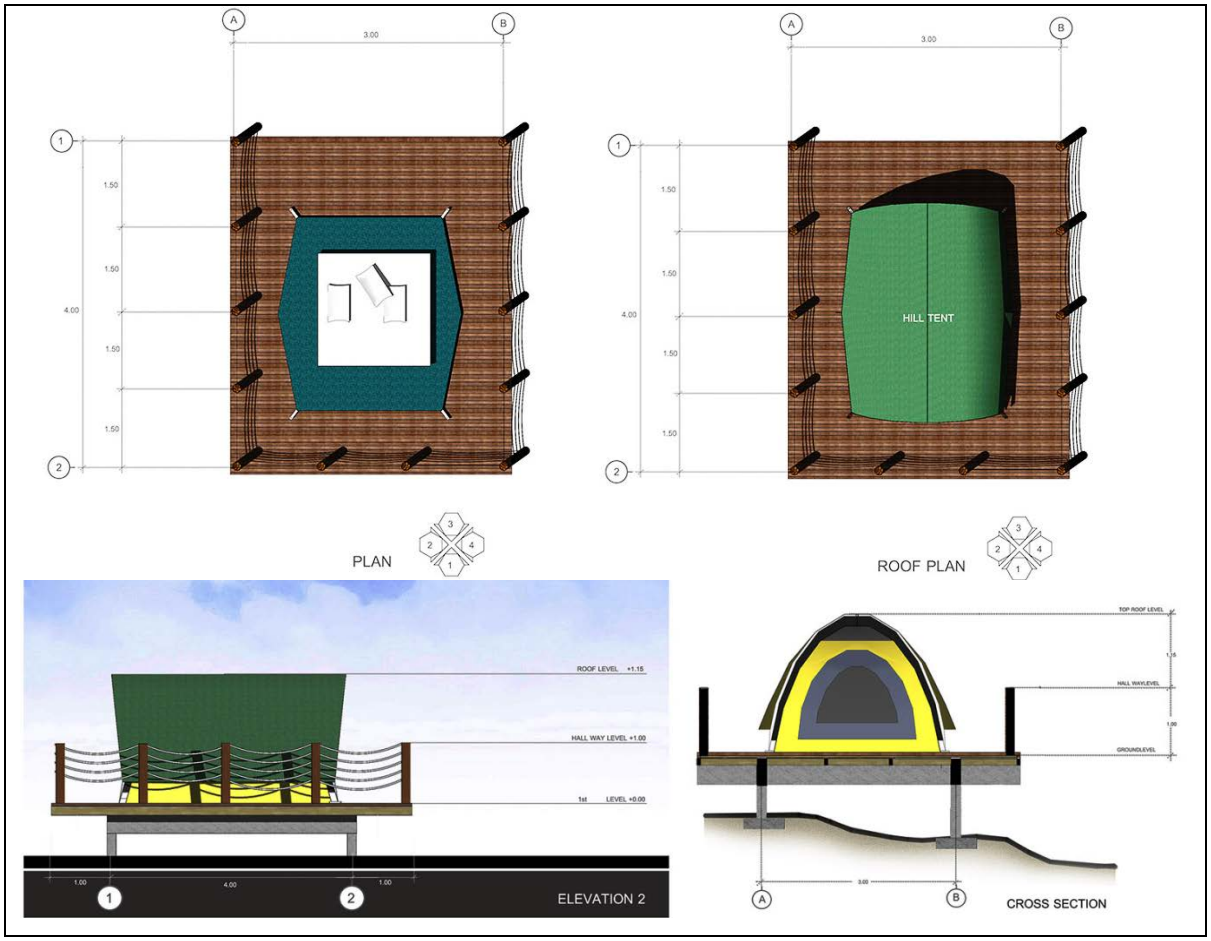
Guest room (30 & 72) sq.m per room and create interest by living combine with the exiting rock in "earth" concept.

Hill Tent & Rock House area (square meter / unit)			
Hill tent			30
Rock house	Bath room Bed room Stair Balcony Open space	11 25 18 12 6	 72
Total area			102 sq.m

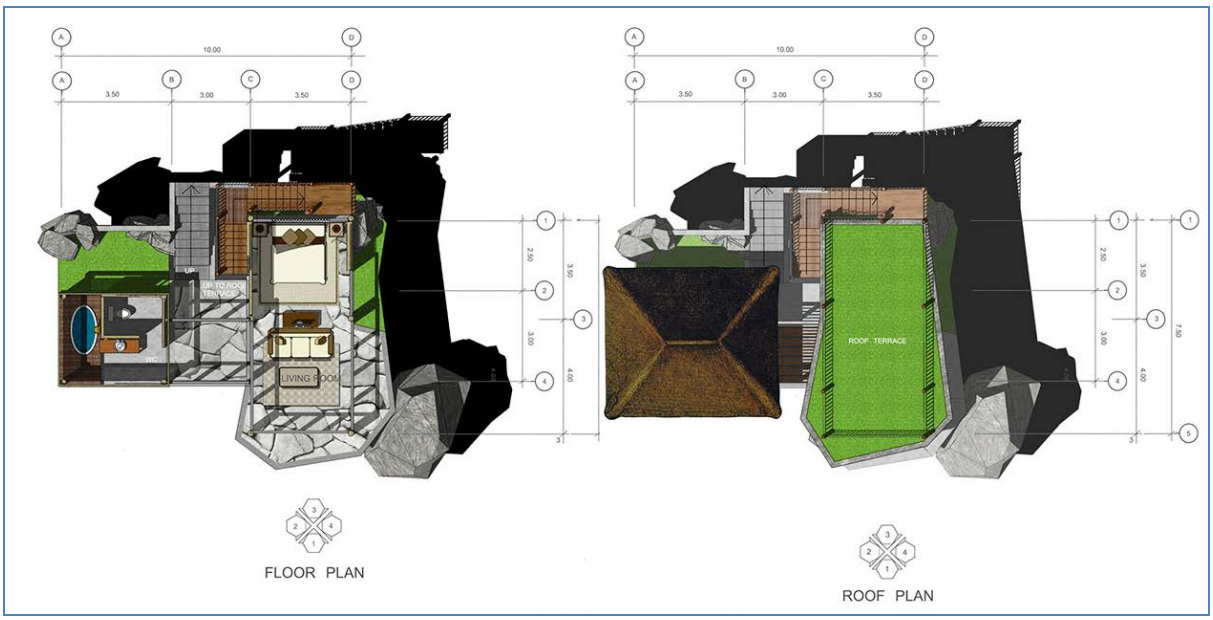
Hill Tent & Rock House Perspective

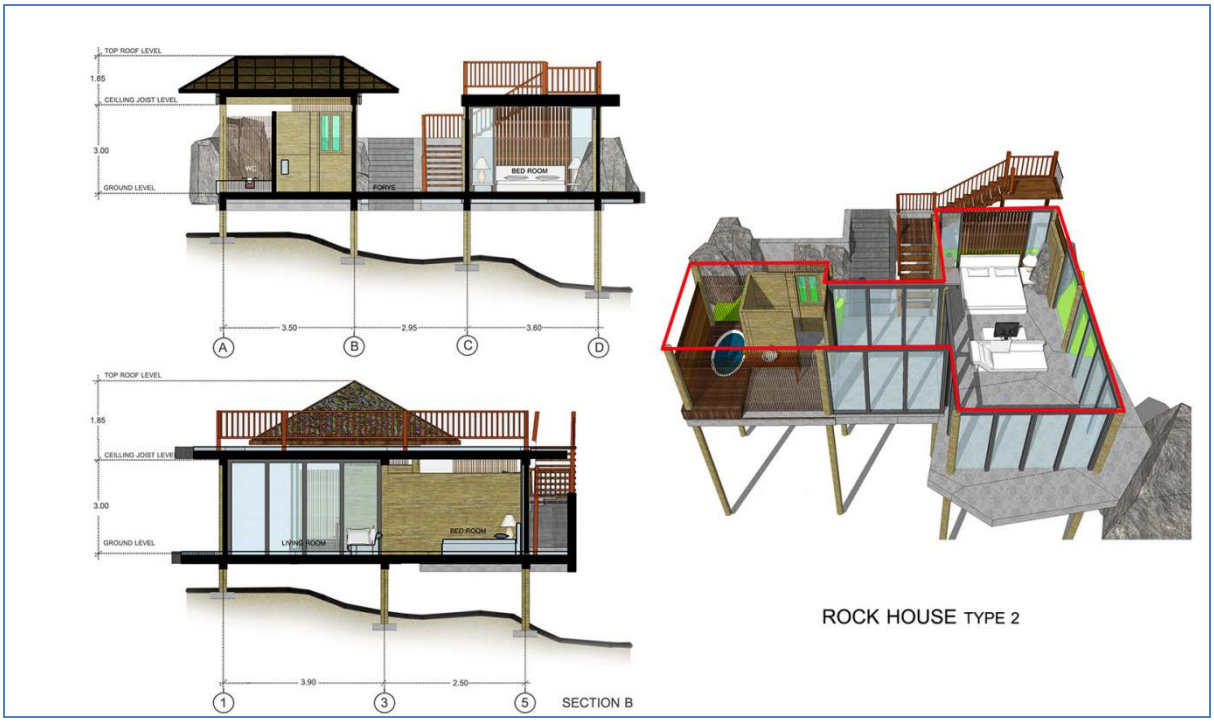


Hill Tent & Rock House Plan



Plan and Elevation of Hill Tent





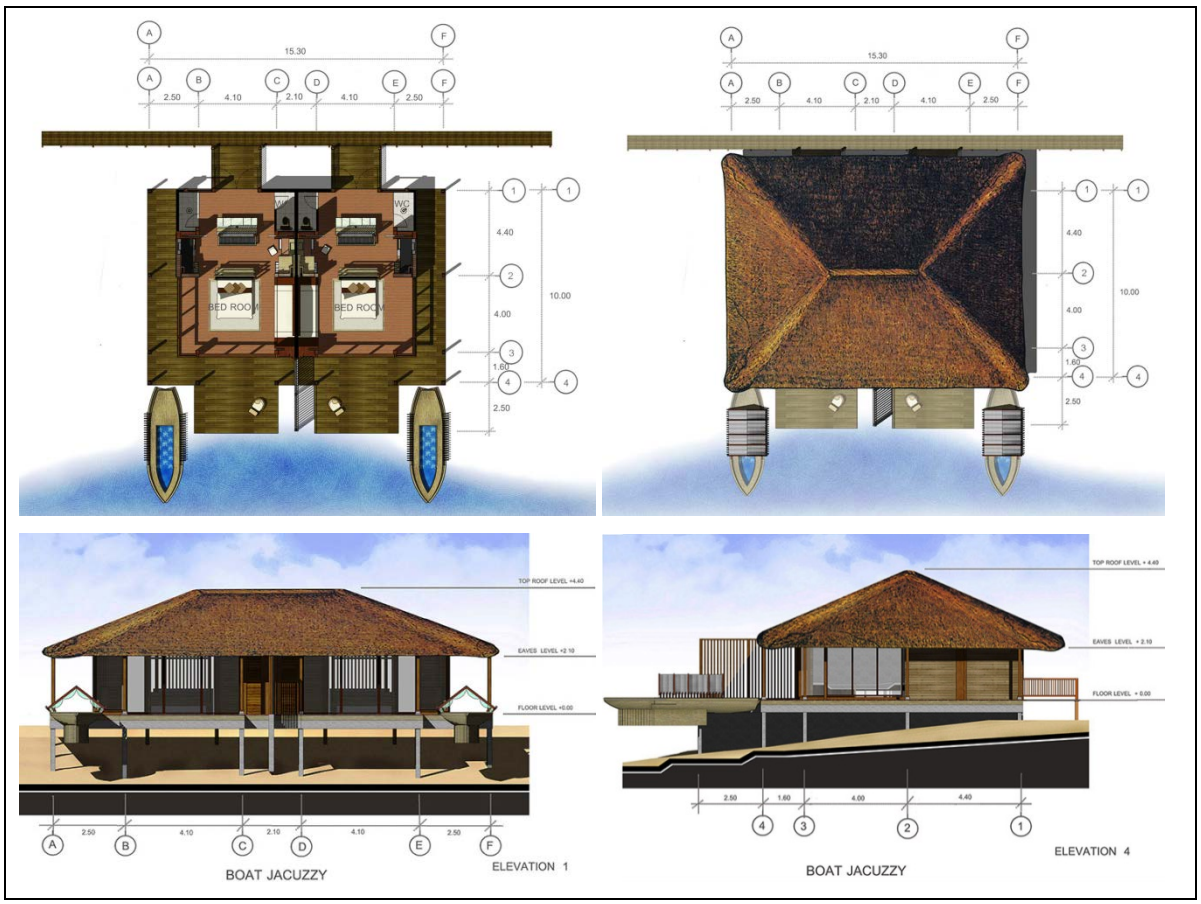
Plan and Elevation of Rock House

(e) Boat Jacuzzy House

Boat jacuzzy house is a residence located along the line of beach sand dune and hide under the shade of the trees. It looks the characteristics of the traditional vermicular house (Moken House) as a concept in the design of a twin houses two bed room. Guest room 63-66 sq.m per room.

Boat Jacuzzy House area in square meter		
For One unit	Forye	9
	Bed room	26
	WC & toilet	12
	Dressing room	9
	Balcony	18
	Terrace	12
Total area		86 sq.m

Boat Jacuzzy House Perspective



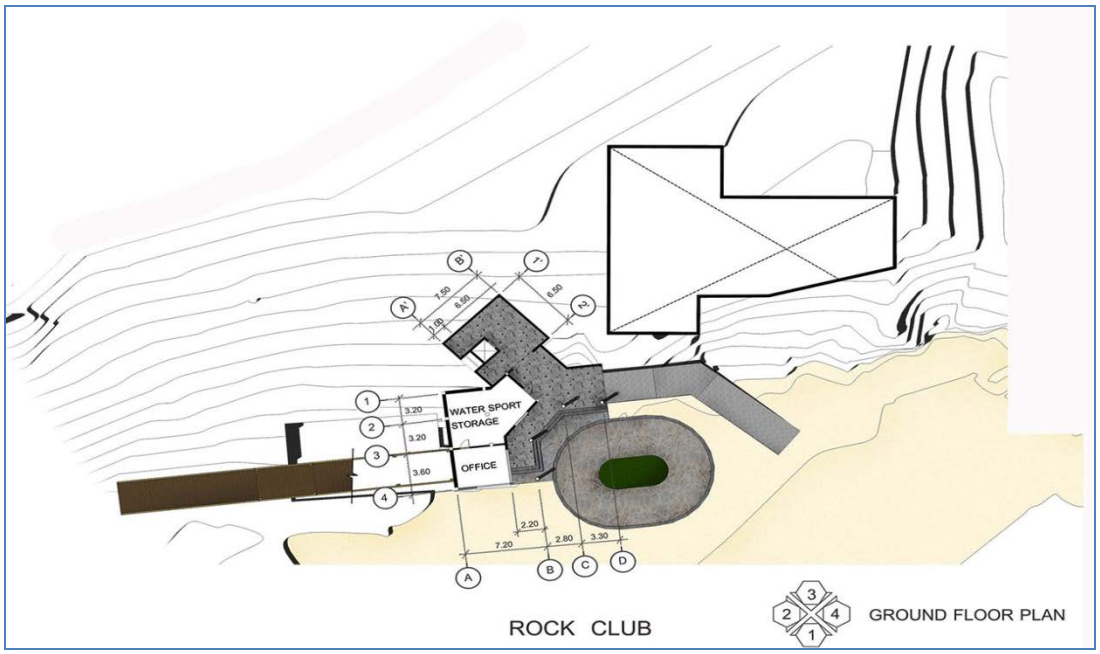
Boat Jacuzzy House Plan

(f) Rock Club

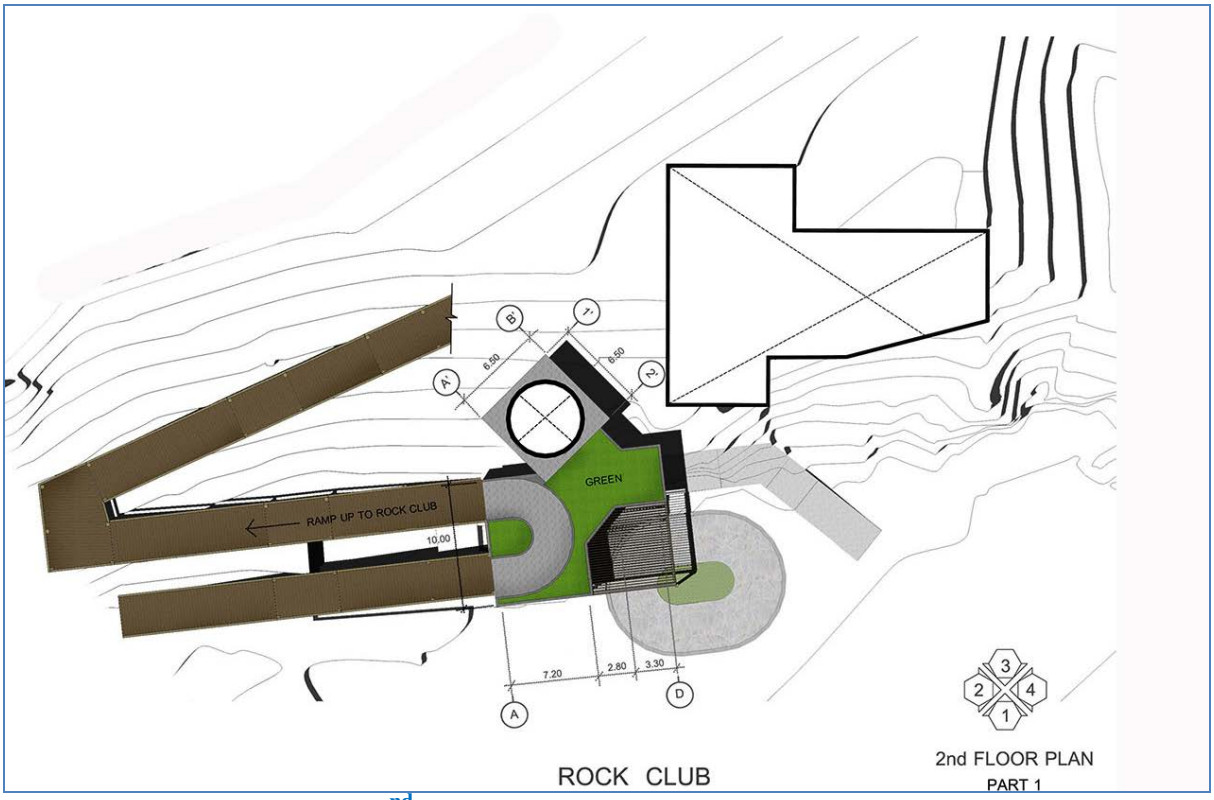
Rock Club is a multi-purpose building, located middle along the beach. The area is divided into existing giant rocks at the beach and is designed to be a building, unify into the rocks. Consist of integrated activities of project. Water sport and sub center of pool villa house. Area requirement is 1223 sq.m.

Rock Club area (square meter)			
Ground floor	Lift hall Circulation Water sport storage	33 47 60	 140
2nd floor	Lift hall Sky walk & Stair Rock bar Service area Green & terrace 2 part	16 60 195 100 245	 616
Roof garden	Helipad Roof garden Sky walk Stair & lift hall Green area	100 195 40 36 20	 391
Roof top			76
Total area			1223 sq.m

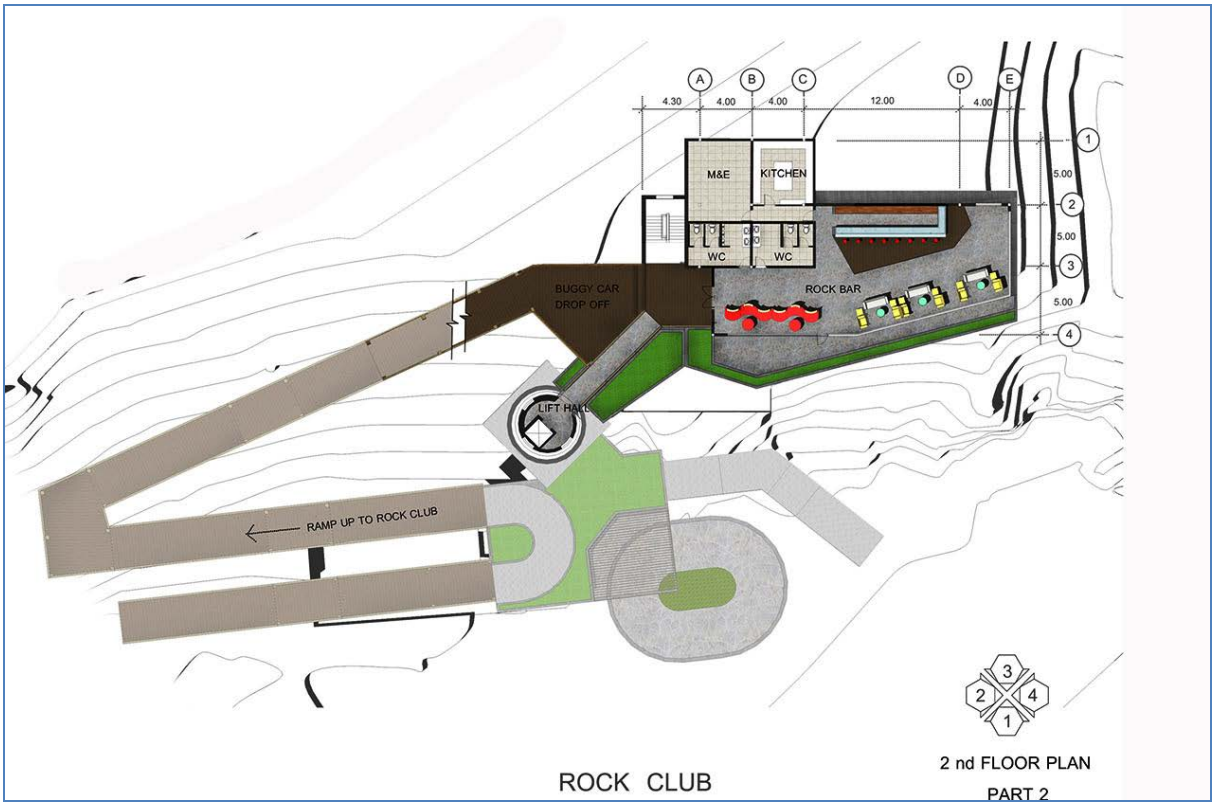
Rock Club Perspective



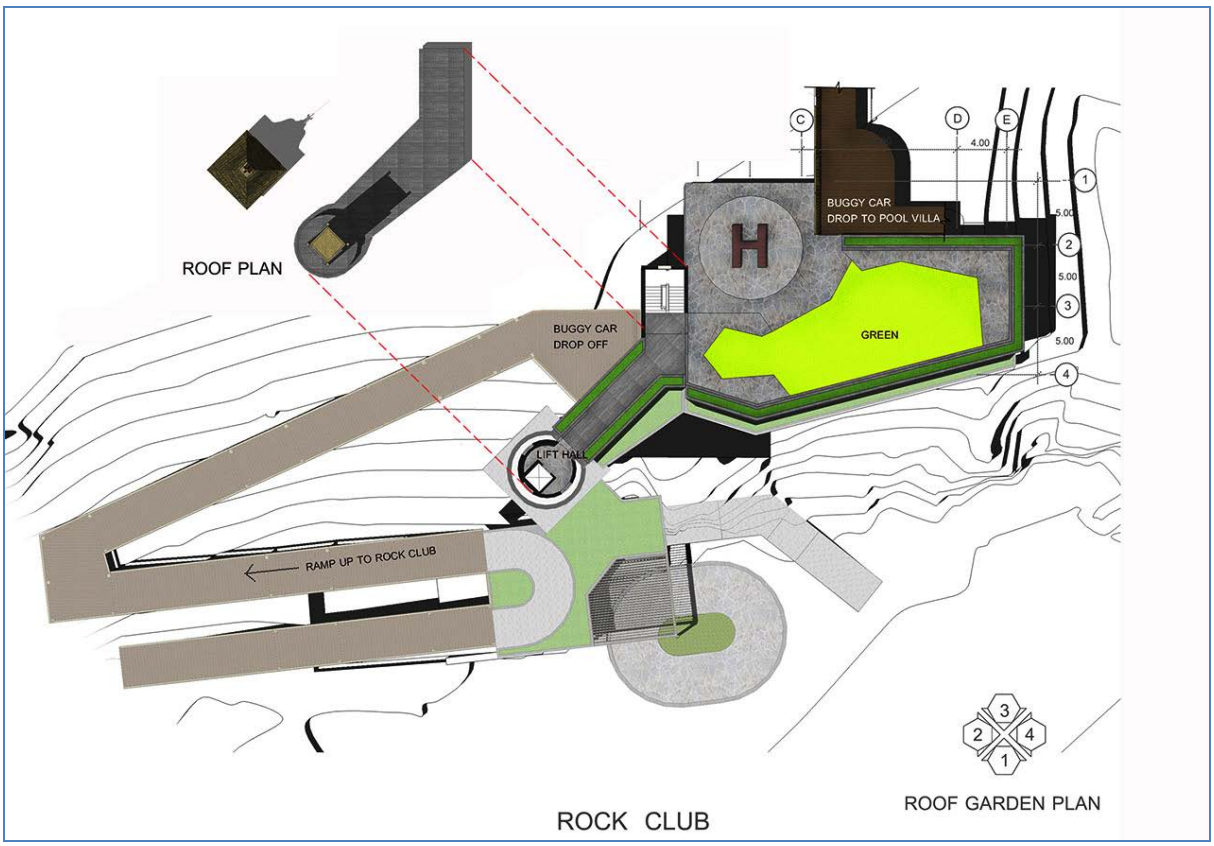
Ground Floor Plan of Rock Club



2nd Floor Part I Plan of Rock Club



2nd Floor Part II Plan of Rock Club



Roof Garden Plan of Rock Club

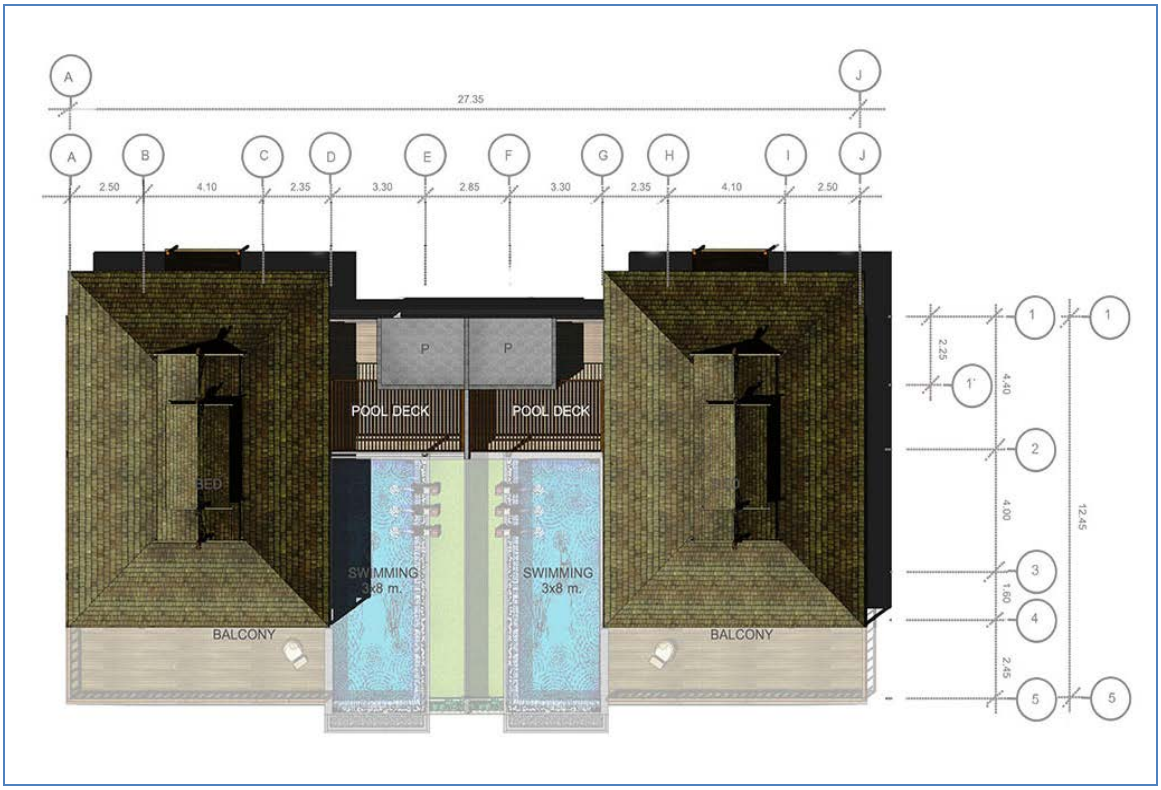
Rock Club Elevation

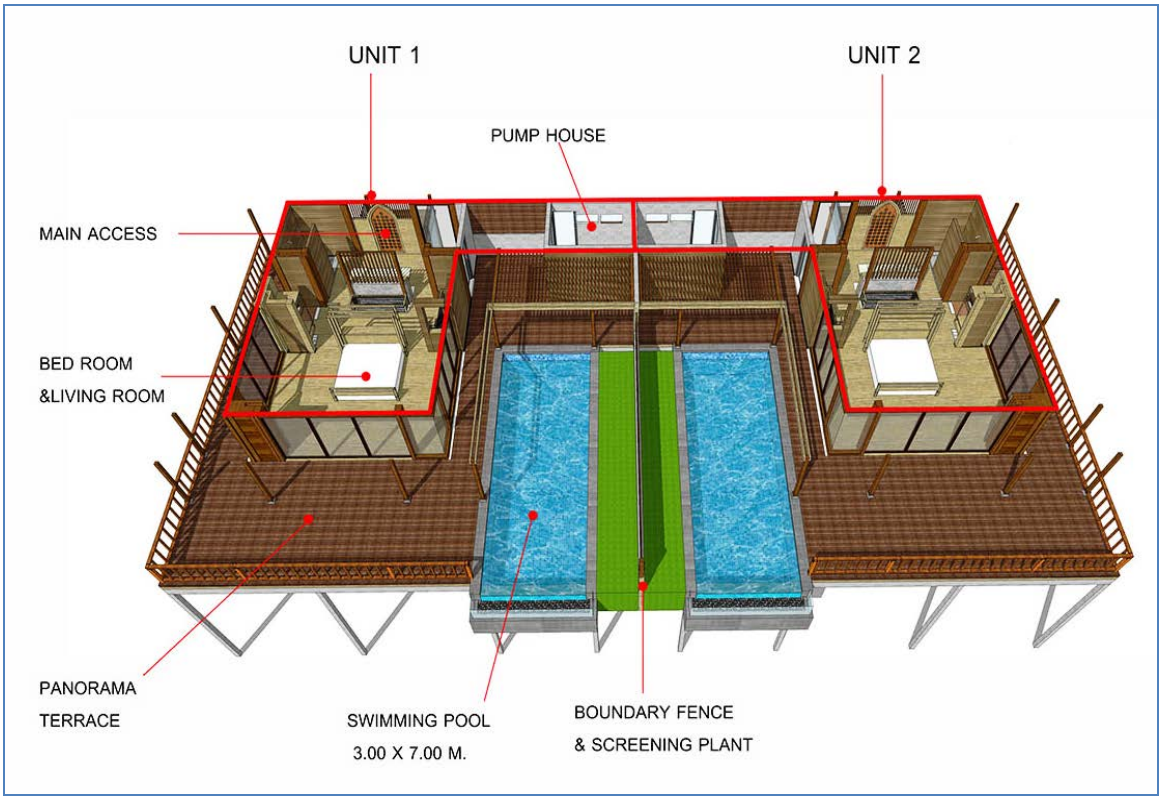
(g) Pool Villa

Pool villa is located on the right side of beach, with an area of steep slopes as the backdrop wooden deck. Total areas include 171.5 sq.m, and consisting of two guest rooms that connected with the pool terrace.

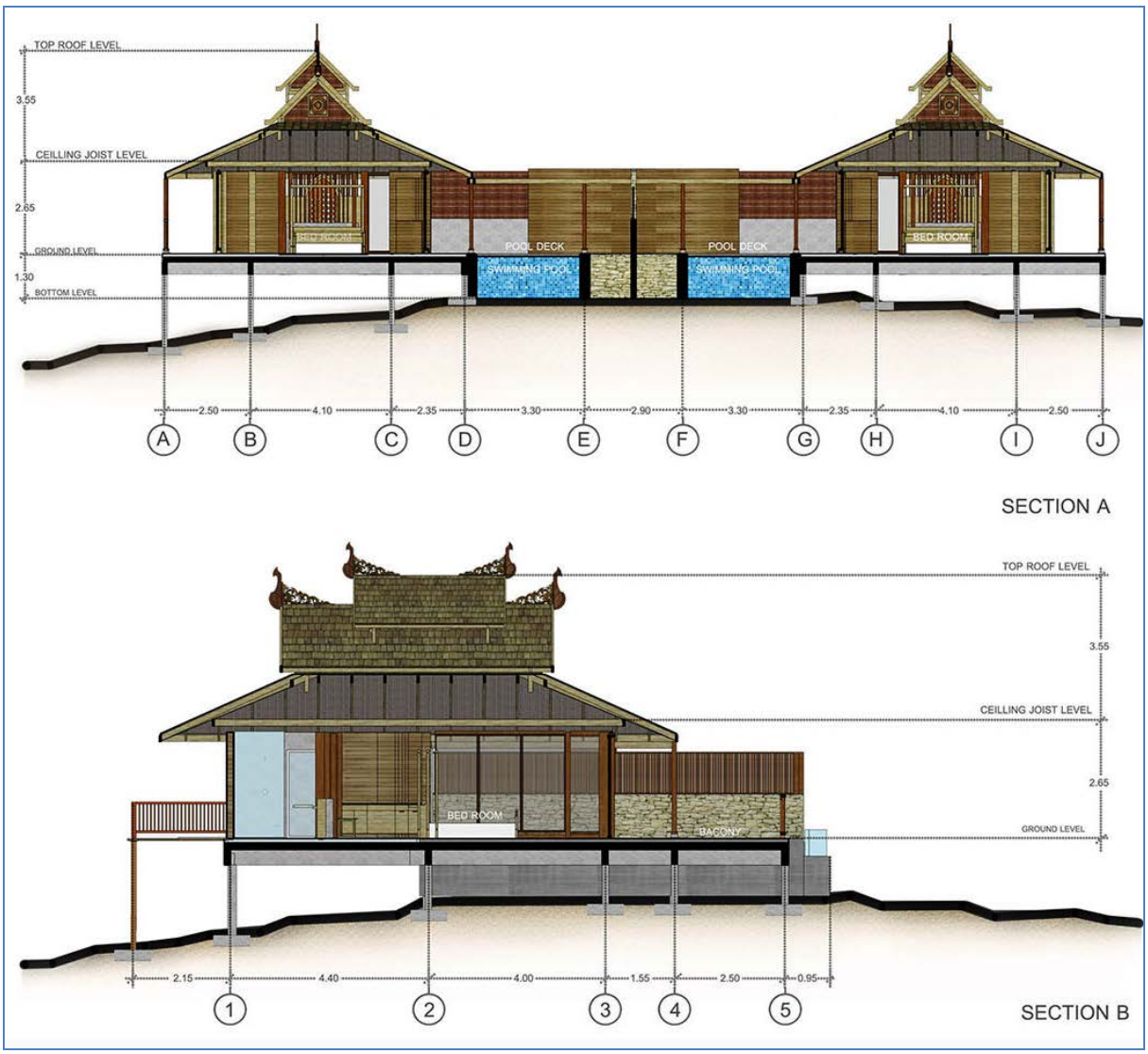
Pool Villa area in square meter		
Pool Villa	Bath room	12
	Bed room	53
	Balcony	57
	Pool deck	18
	Pool	24
	Pump house	7.5
Total area		171.5 sq.m

Pool Villa Perspective





Pool Villa Plan



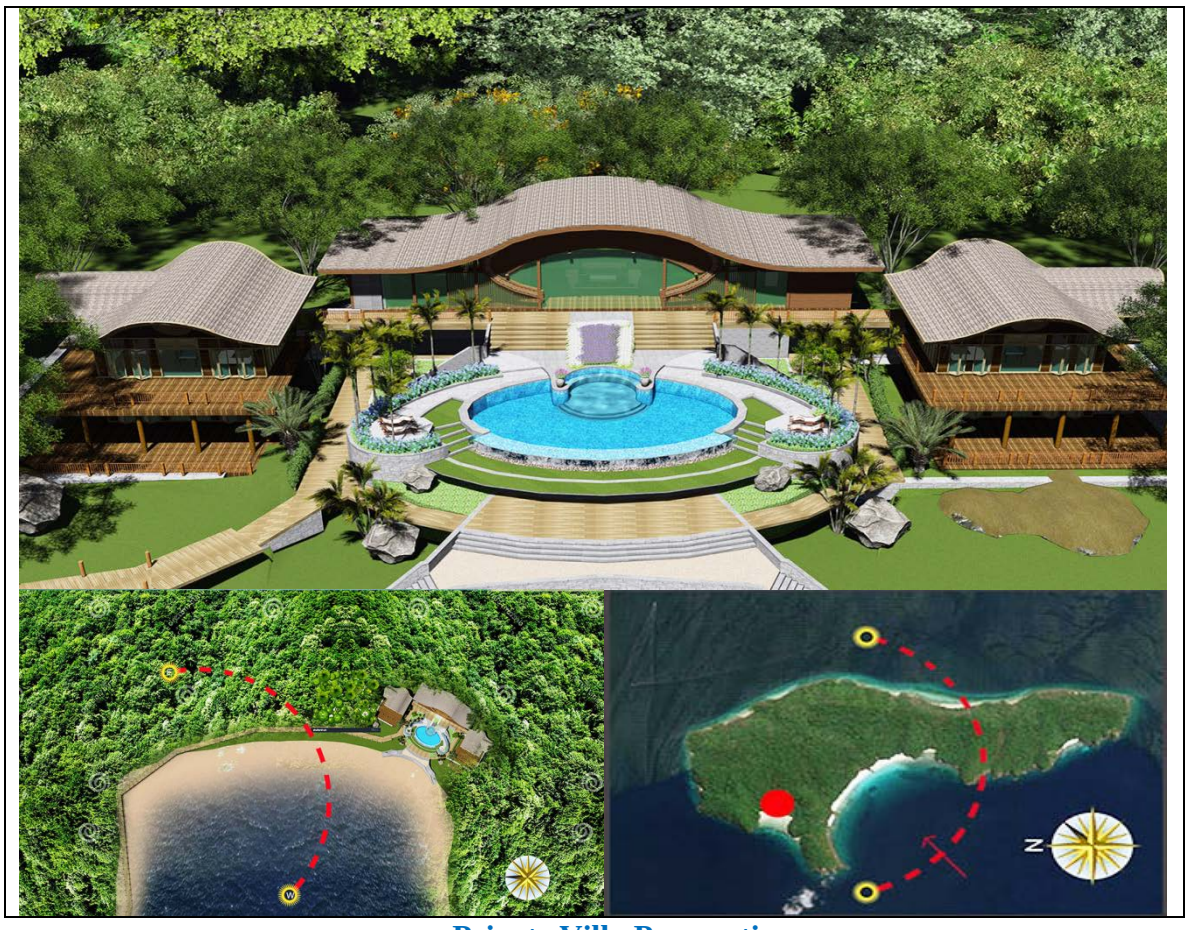
Pool Villa Elevation

(h) Private Villa

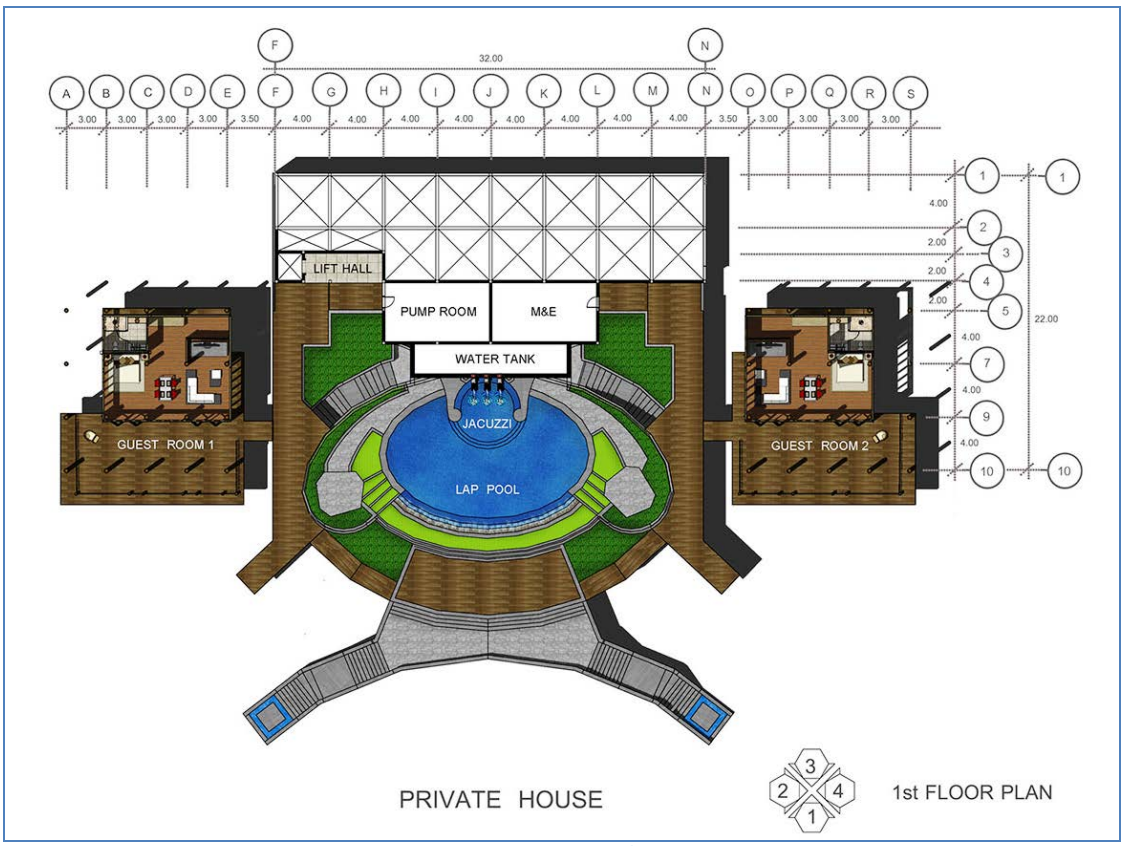
Private Villa is located on a private beach, with an area of steep slopes as the backdrop-positioning position of building. It is destined to be on the right side of the beach. Total areas include 1093sq.m, consisting of 3 building 2 vip rooms and 2 guest rooms that connected with the pool terrace and dining room. It is completely encapsulated by nature.

Private Villa area (square meter)			
Guest RM 1st floor	Guest room Living & forye Bed room Balcony	9 52 16 96	 173

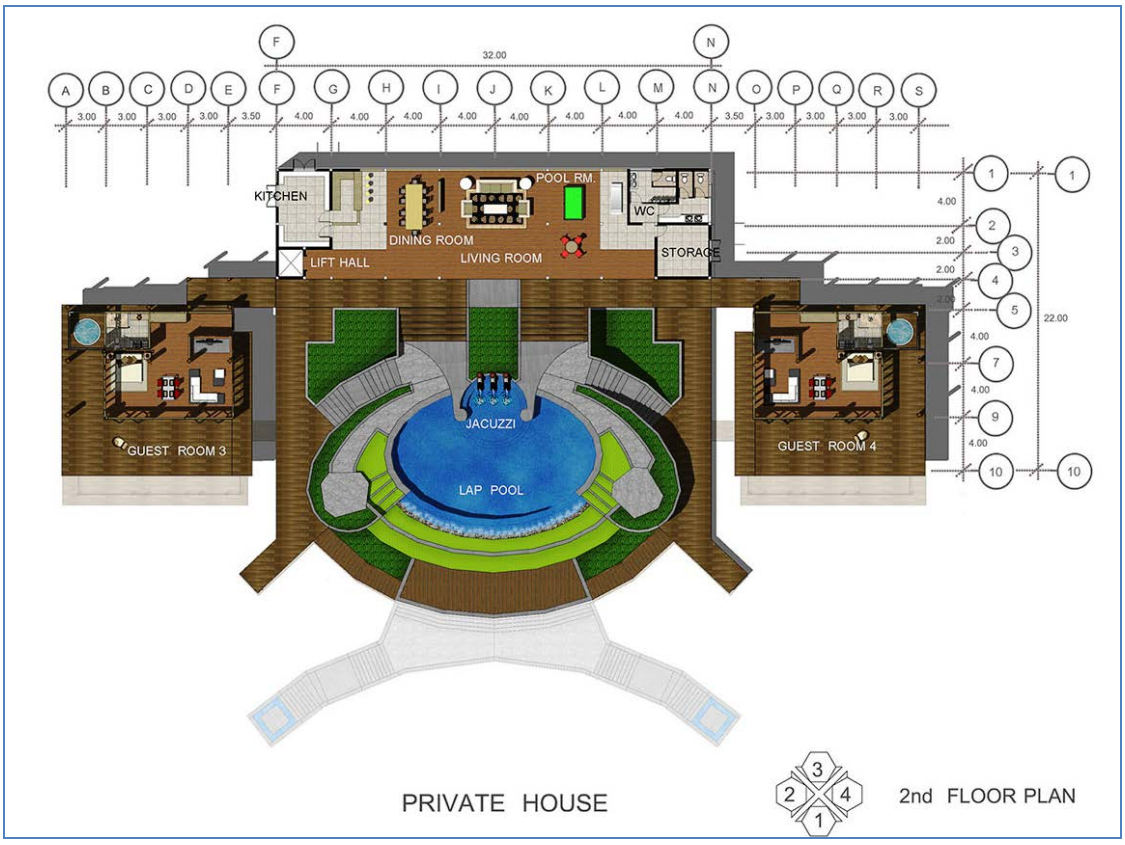
Swimming pool area and service	Walkway & terrace Lift hall Swimming pool Pump house & storage M&E Storage Surge tank	164 20 106 35 35 35 32	472
Guest RM 2nd floor	Bath room Living & forye Bed room Balcony	30 52 16 86	184
Main pavillion 2nd floor	Lift hall Living hall Dining room Pantry Kitchen WC&toilet Storage	20 140 33 24 24 26 17	264
Total area			1093 sq.m



Private Villa Perspective



Private Villa 1st Floor Plan



Private Villa 2nd Floor Plan

4.7. Employment

It is estimated that 90 persons (skilled and unskilled) will be employed during construction of the resort. Employee statement of hotel resort is shown in following Table.

Table 4.1- Employee Statement of Hotel Resort

Sr. No.	Designation	No of Employee
1	Manager	1
2	Accountant	1
3	Marketing Officer	1

4	Admin / HR Officer	1
5	Technician (Engineering)(M&E)	1
6	Cashier	4
7	Office Staff	5
8	Technician (Assistant)(M&E)	12
9	Housekeeping Supervisor	5
10	Security Head	1
11	Receptionist	6
12	Landscaping Expert	1
13	Housekeeping Staff	15
14	Bell Man	15
15	Security	15
16	Landscaping Wages	5
17	Driving Range Attendants	6
	Total	95

4.8. Water Supply and Demand

There are the same water supply sources for operation phase as the construction phase. The water requirement will be planning of from the existing tube wells; two installed 4-inch diameter (Ø) pipe. The total estimated demand for water by the resort during full operation is approximately about (300,000 gallons) of water a year. These are meant for use in washing, bathing, cooking, gardening, toilets water and other cleaning activities. Drinking water as purified water will be outsourced. There is a plan to construct a big ground level tank. This ground level tank is meant for guest only. It is planned to install wastewater treatment system for wastewater and grey water. The treated water will be used in gardening, vehicles washing and watering to the roads not to be dusty. The chemical used for treating pond water is liquid chlorine so as to clean up the water.

4.9. Transportation

Operation of the resort will require the transport of guests to and from the airport, primarily in relation to Kawtaung. This will involve scores of speed boat movements in addition to the traffic caused by hotel staff, suppliers, and local visitors.

4.10. Power Requirement and Supply

The estimated power load for the proposed project is approximately 200 KVA. The source of power for the resort will be will be supplied by 2 No. Diesel Generators of capacity 300KVA (including one DG set standby) on the islands considering energy consumption associated with lighting, heating, ventilation, air conditioning (HVAC) systems, cooking and refrigeration equipment. Some critical loads such as emergency lighting, headed equipment of ELV systems etc. shall be additionally backed up using UPS system. The vessels and speed boats also will consume fossil fuels for their operation. The estimated maximum consumption of fossil fuels in the proposed project is approximately 92,000 Gallons per year. The resort is planning to have solar power to reduce the fuel consumption.

4.11. Wastewater Treatment System

The total wastewater generated from the project site will be 300 m3/day. Two different types of liquid wastes are expected, used water (grey water) and sewer (black water) form toilets. The used water may include wastewater from laundry with detergents and wastewater from the kitchen with oil and grease. This wastewater generated will be treated in an on-site sewage treatment plant based on Biofiltration process upto tertiary level having total design capacity of 375 m3/day. Raw sewage from various sources is subjected to following treatment to obtain the treated water quality.

The raw sewage will be received at the inlet of the bar screen to trap any floating particles and debris.

A belt type oil skimmer and grease trap will be provided to remove the floating oil and grease. The oil free effluent overflows to the collection cum equalization tank. The sewage generation is not uniform and is subjected to fluctuation. Hence to maintain a constant flow and to homogenize the sewage quality a suitable retention time is provided in the Equalization tank. Air mixing is also provided to enhance the above process. Aeration tank is designed for average daily flow of 10 hrs retention. A fine screen is placed in between to trap any sharp objects or small particles.

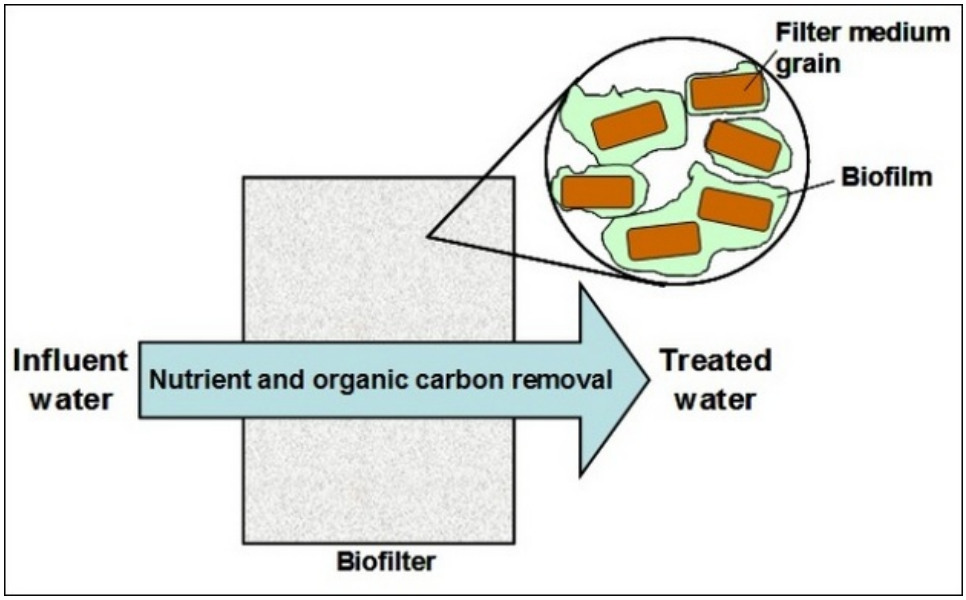
A biofilter is a bed of media on which microorganisms attach and grow to form a biological layer called biofilm. Biofiltration is thus usually referred to as a fixed–film process. Generally, the biofilm is formed by a community of different microorganisms (bacteria,

fungi, yeast, etc.), macro-organisms (protozoa, worms, insect's larvae, etc.) and extracellular polymeric substances (EPS) The aspect of the biofilm is usually slimy and muddy.

Water to be treated can be applied intermittently or continuously over the media, via upflow or downflow. Typically, a biofilter has two or three phases, depending on the feeding strategy (percolating or submerged biofilter):

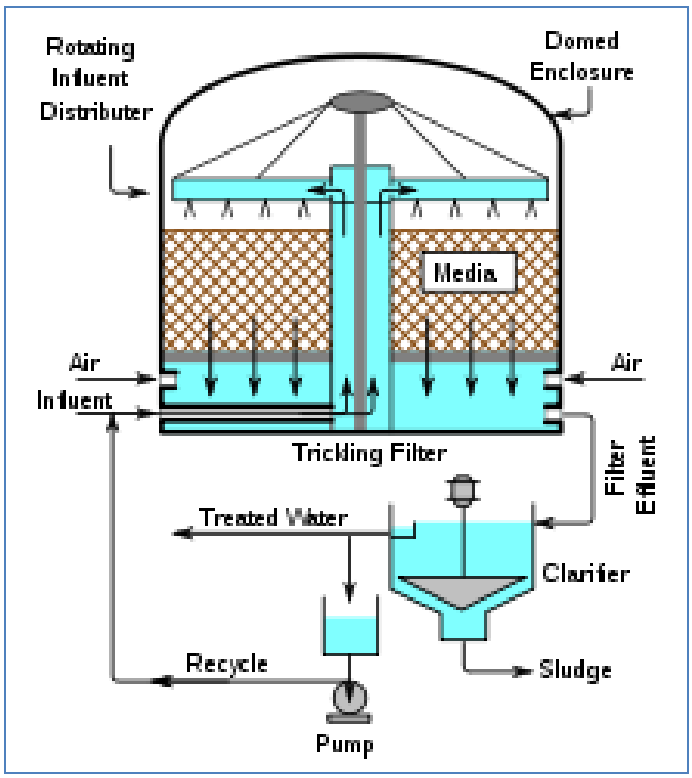
- a solid phase (media);
- a liquid phase (water);
- a gaseous phase (air).

Organic matter and other water components diffuse into the biofilm where the treatment occurs, mostly by biodegradation. Biofiltration processes are usually aerobic, which means that microorganisms require oxygen for their metabolism. Oxygen can be supplied to the biofilm, either concurrently or countercurrently with water flow. Aeration occurs passively by the natural flow of air through the process (three phase biofilter) or by forced air supplied by blowers.



The arrow indicates the direction of water flow. Biofilters contain filter medium grains (e.g., sand, granular activated carbon) that are covered with biofilms. The biofilm activities break down nutrients (e.g., nitrogen and phosphorous-containing compounds) and organic carbon as well as capture other unwanted contaminants in the influent water. In wastewater treatment, nutrient removal is an essential outcome to protect the natural environment from eutrophication and unwanted contamination. Nutrient removal is achieved primarily by biological means; the most common is through the use of activated sludge, which is a mixture

of flocs. Flocs are equivalent to biofilms formed in suspension, rather than attached to surfaces, where cells of various species are glued together by EPS, forming a suspended biofilm having a complex microbial community. This community of cells then breaks down a wide variety of organic compounds as well as nitrogen and phosphorous compounds. Similarly, surface-attached biofilms are used in some wastewater treatment plants in the form of trickling filters.



A Typical Complete Trickling Filter System for Treating Wastewaters

The advantage of utilizing biofilms in water and wastewater treatments is attributed to the 'stickiness' of the biofilm matrix. The complex and heterogeneous EPS matrix often captures and immobilizes organic and inorganic contaminants that need to be removed, such as pathogens, heavy metals, and nanoparticles. The generation of biomass reduces the incoming BOD and COD to greater than 95%.

4.12. Alternatives Analysis

An analysis of reasonable alternatives for meeting the project objectives may lead to designs that are more environmentally, socio-culturally or economically sound. It is also the requirement of IEE procedure in Myanmar.

4.12.1. "NO-GO" Alternative

The proposed project does not proceed (the "no-go" alternative), the adverse impacts identified in this report would be avoided. The main adverse impacts are if the proposed project does not proceed, According to the IEE study, all of the impacts can be mitigated proper mitigation measures as proposed in this report. Moreover, the project proponent said he will close the project at any time if there will have any impact on the natural environment and local people. So, no-go alternative is not acceptable for current conditions of the nearest villages, local economy and local GDP.

4.12.2. Project Alternatives

Not so much an alternative to the proposed land use but rather as an adjunct to the resort development is the designation and development of the Saytan Island Resort. This area has a designated beautiful island beach but with the cooperation of the local fishermen and the provision of alternative means of livelihood as reserve keepers and tour guides the few fisher folk may be induced to adopt a more sustainable mode of living.

5.0. DESCRIPTION OF SURROUNDING ENVIRONMENT

5.1.Topography

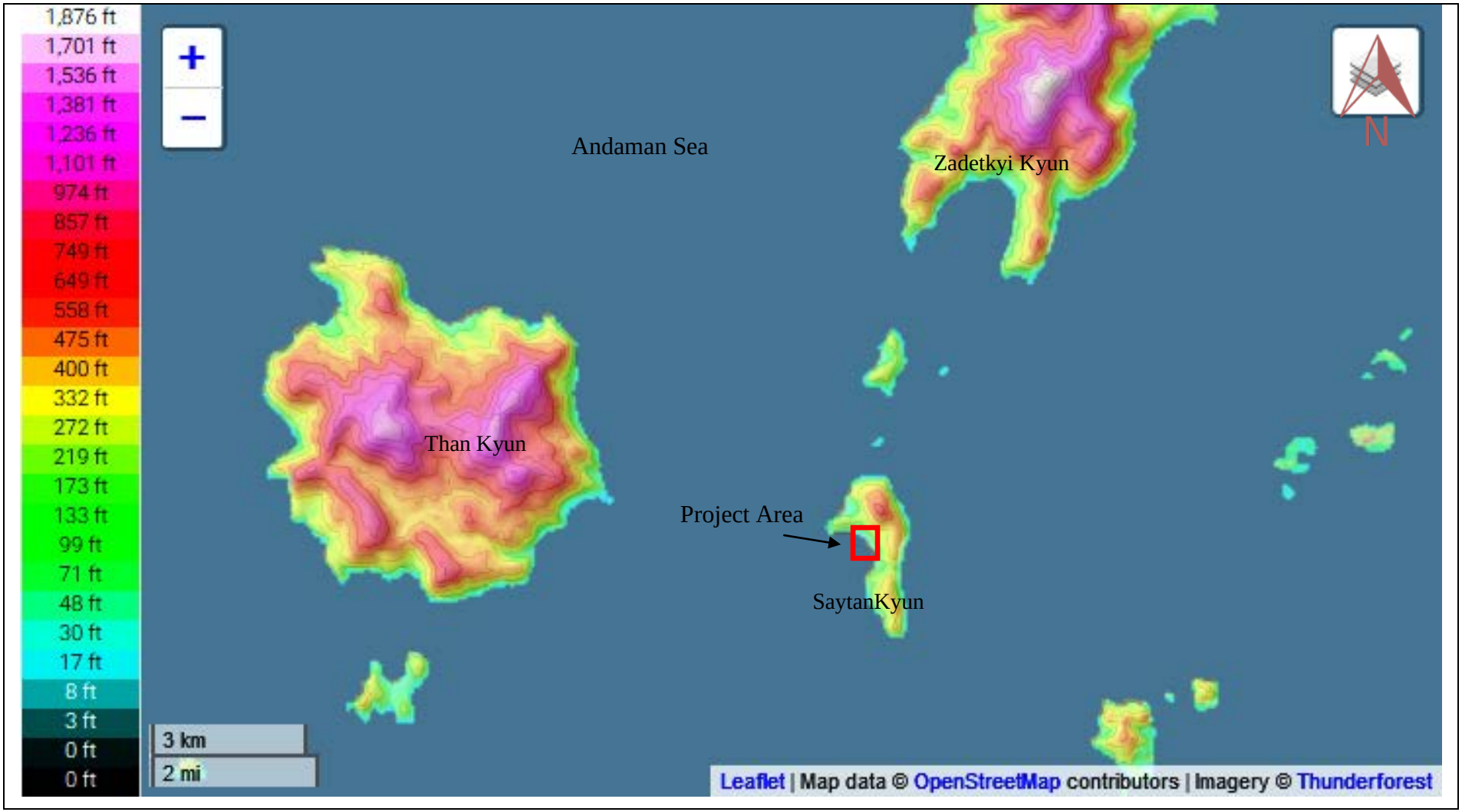
The topography of Tanintharyi coast is greatly influenced by tectonic movement and volcanic activity resulting from the docking of the Indian tectonic plate with the Eurasian plate in the early Miocene. The twisting of the Eurasian plate as the Indian plate dragged its margins northwards formed many rocky shorelines and the rocky headlands and capes jutting out into the sea. The region's granitic islands began as intrusions of hot magma that rose through weak spots in the Earth's crust hundreds of million years ago, working their way through thick layers of sedimentary rock laid down at least 100 million years earlier still.

Saytan Kyun or Dunkin Island is an island at the southern end of the Mergui Archipelago, Myanmar. It is the largest and highest island of the Alladin Islands, a scattered cluster of islands extending to the W and SSW of Zadetkyi Island. This densely wooded island has two main peaks, each with a height of around 225 metres (740 feet). The island has a roughly long flat or fish shape with a length of about 3.5 kilometres (2.2 miles). Off its eastern shore rises a 4-metre-high (15.0-foot) rock surrounded by a reef. Saytan Kyun lies 4.5 kilometres (2.8 miles) west of the southern end of Zadetkyi Island.

The Saytan Island has three points that are above 75 metre in altitude. This island topography is mostly flat and two points that are above 50 metre in altitude. The locations selected for villas are flat and within 5 metre altitude.

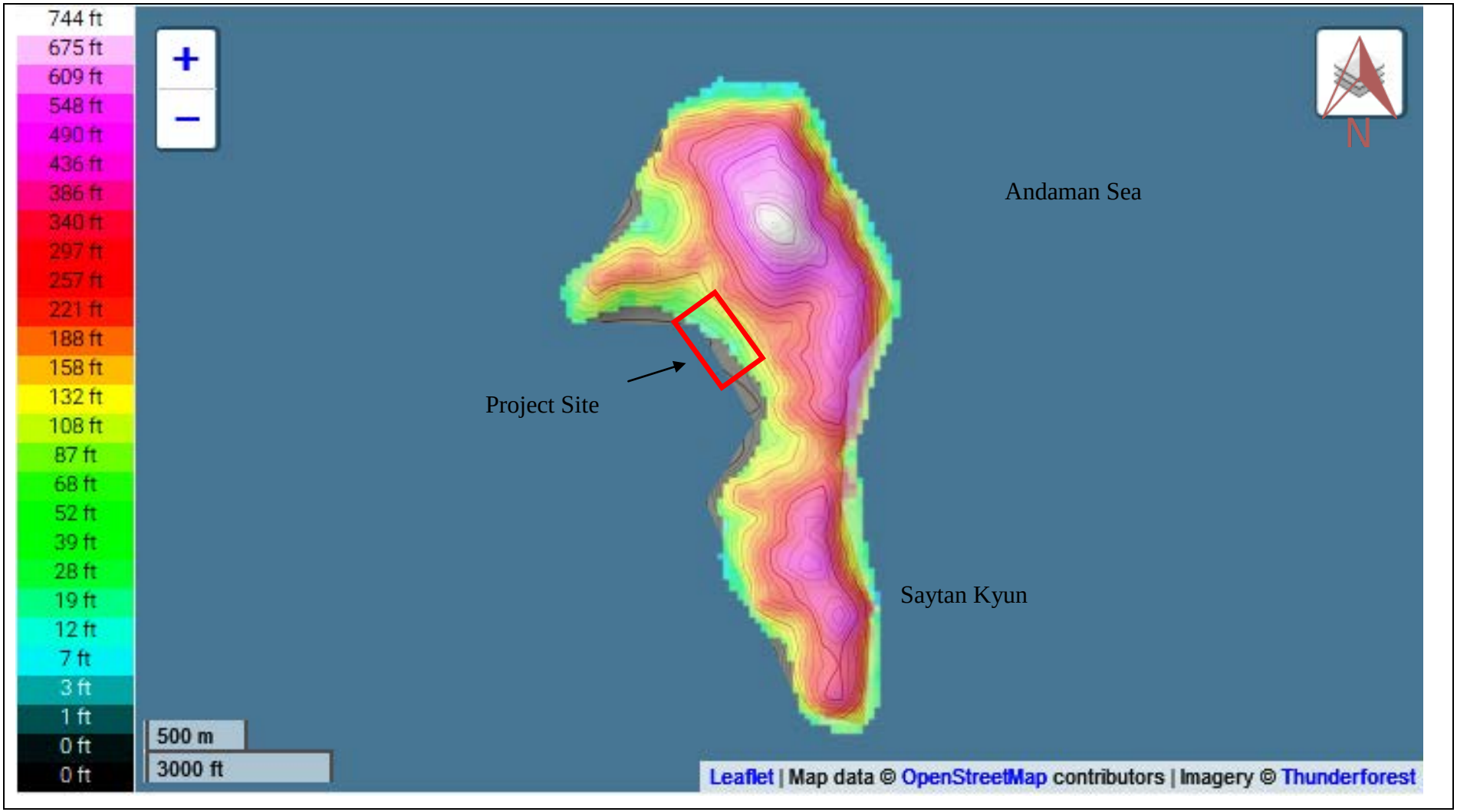
The project site is relatively flat with a low-lying flat area close to sea level in east and rising to a height of 5 m (17 ft) in the central section of the site. From the northeast the land rises gently towards the east. Here the elevation at the coastline is in the order of 1.5 to 2 m (5-7 ft) (Figure 5.2).

The project site itself is relatively flat and has distinct drainage features on the slopes. Storm runoff from the slopes is intercepted by the east-west running and therefore should prevent any significant storm runoff from flowing onto the site. The resort development does not require change in the topography of the islands.



Source: http://en-us.topographic-map.com

Figure 5.1-Digital Elevation Map of Project Area



Source: http://en-us.topographic-map.com

Figure 5.2. Site Topography

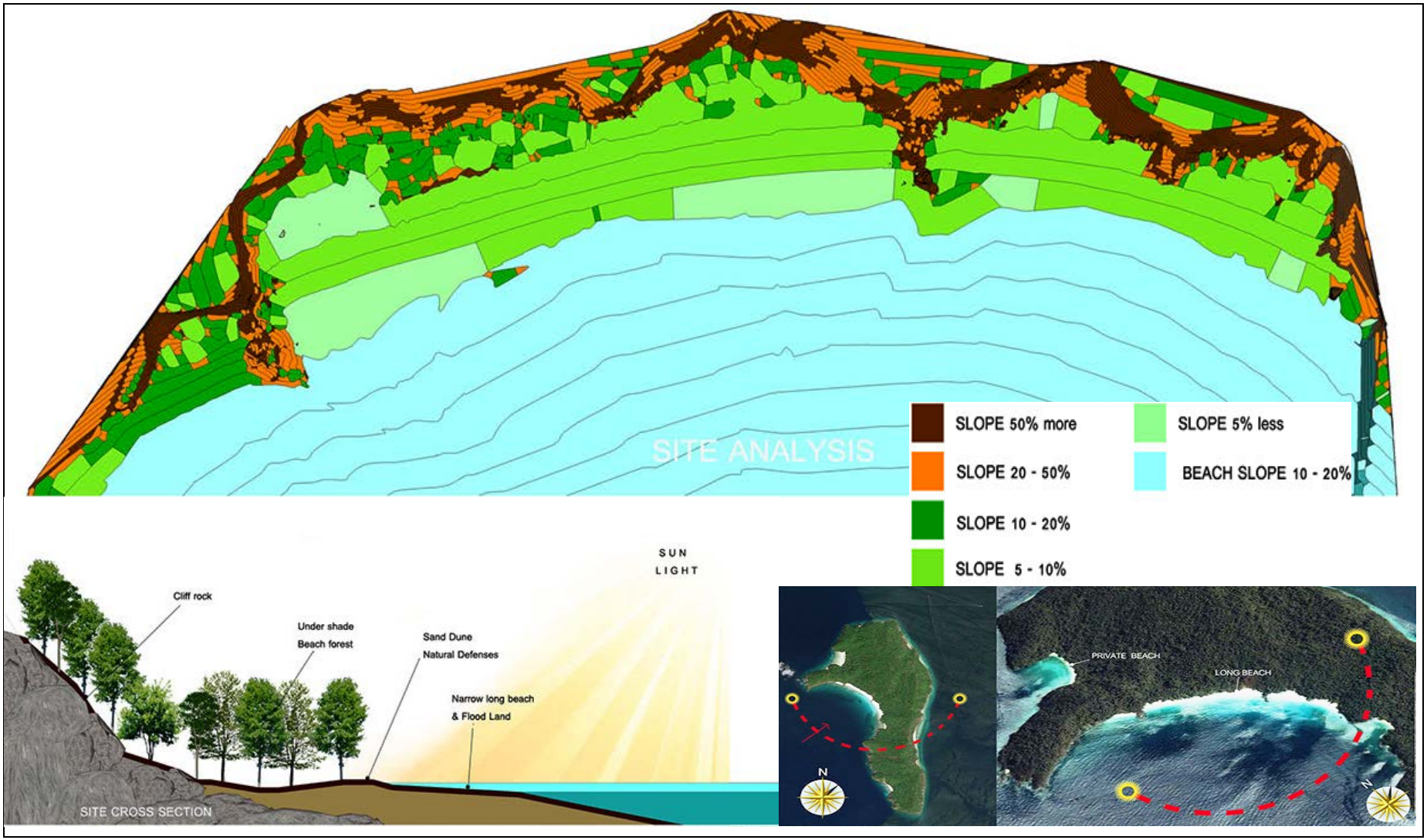


Figure 5.3. Slope Condition of Project Site

5.2. General Geology

The investigated area lies on the southern part of Shan-Taninthayi massif and northern continuation of Taninthayi ranges, It is covered with Late Paleozoic rocks. The western part of the study area, which is in Taungnyo Range, are Carboniferous rock units (Taungnyo Series) arranged and systematically described (Leicester, 1930). Further up to the northwestern part, also in Mottama Range, Late Permian rocks (Martaban Beds, Pascoe, 1959) and Mesozoic granitic rocks are exposed.Along the Tanintharyi area, quaternary deposit of gray and gray swampy soil and red brown forest soil types are present. Soil Map of Tanintharyi region is shown in Figure 5.3. The project site is underlain by limestones belonging to the coastal formation, whichare found at depths below ground level. The soil at the surfaceof the project site consists of a layer of reddish-brown silty clay and coarse to finecalcareous sand that is up to 6 meters deep. This soil type covers the entire site and overlays four different other soil types, the arealdistribution of which is shown in Figure 5.3. The soil type near the costal in the islands are sandy clay and these consist of dense calcareous sand, sand gravels, compact to dense medium to fine sands, soft peaty clays and compact sands.

The inner part of the islands the soil type is Coastal Group of rock formations consists of a variety of limestones deposited in shallow coastal environments comprised of reef deposits, limestone muds, and gravels, colluvium and rubbly reworked materials. Further to the south the Coastal Group limestones are overlain by limestones belonging to the Montpelier Formation.

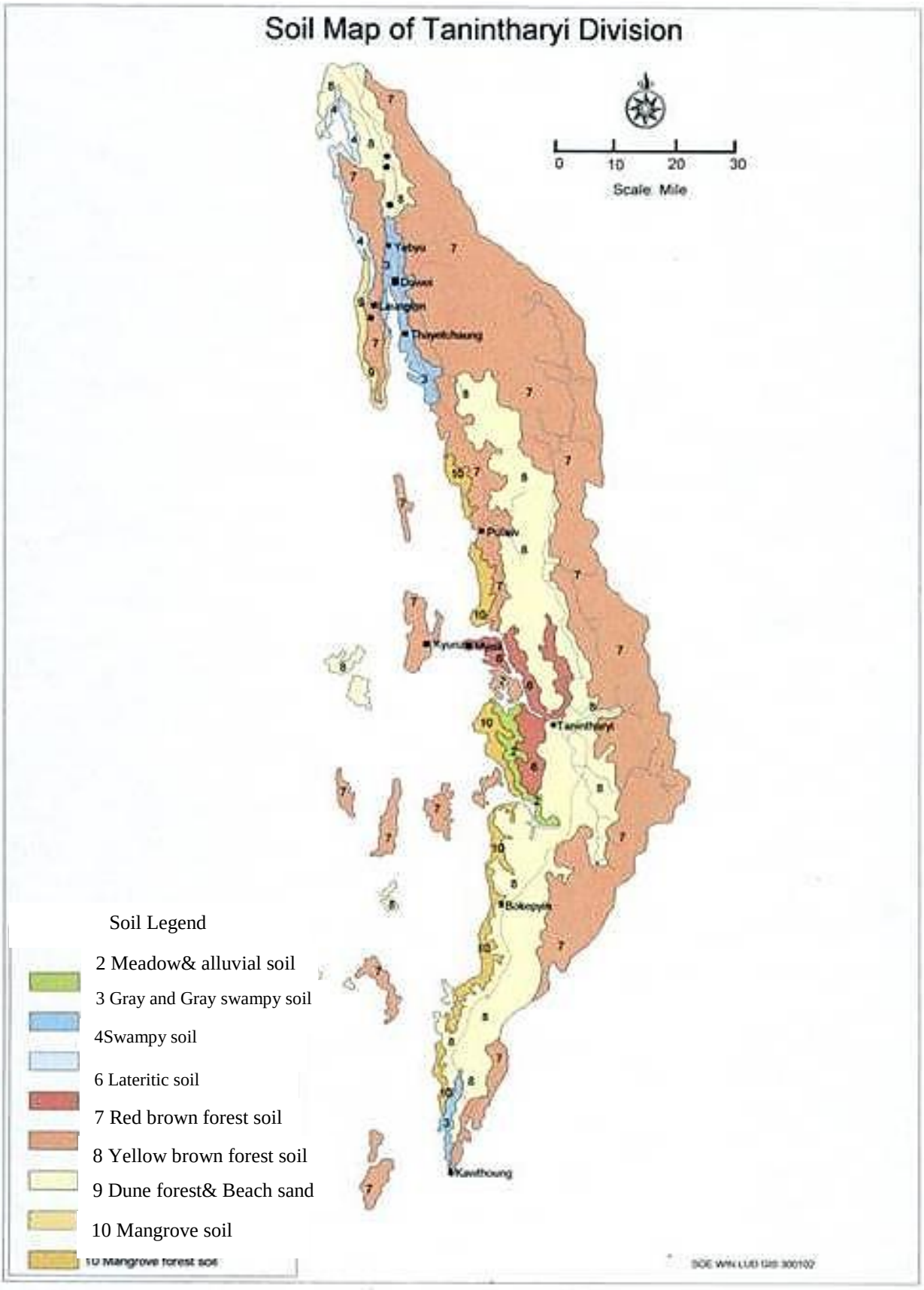


Figure 5.4. Soil Map of Tanintharyi Region

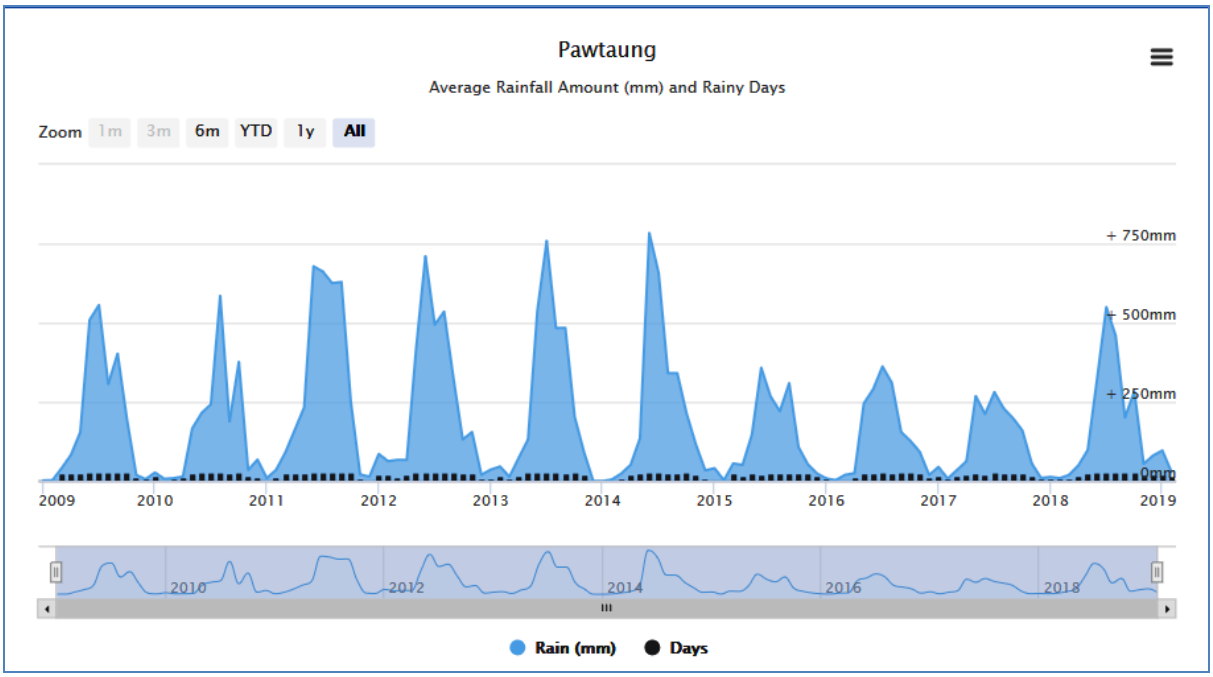
5.3 Climate and Meteorology

Tanintharyi region has a tropical climate. The region has only slight changes in temperature. The climate of Kawthoung is tropical (Am as per Köppen climate classification) with significant rainfall during most months of the year and a short dry season. The average annual temperature is 26.9 °C and the rainfall here averages 3681 mm. The driest month is February, with 21 mm of rain. Most precipitation falls in August, with an average of 664 mm. April is the warmest month of the year. The temperature in April averages 28.4 °C. In December, the average temperature is 25.9 °C. It is the lowest average temperature of the whole year. Some important meteorological data which are collected from Meteorological Station (Myeik) are as follow:

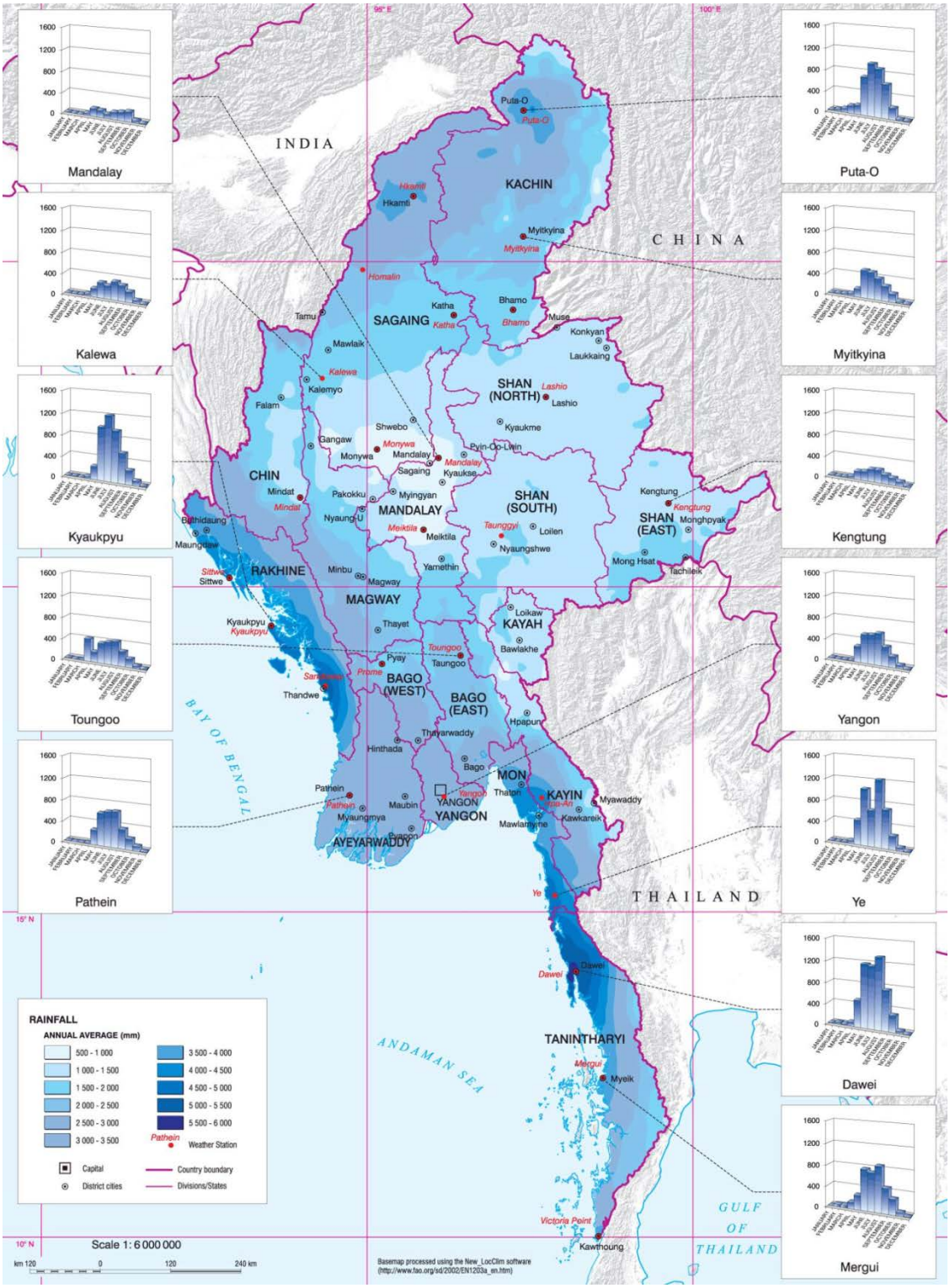
5.3.1 Rainfall

The project area is warm and wet season. Yearly rainfall and temperature are as follow:

No.	Year	Rainfall		Temperature	
		Raining Days	Total Rainfall	Summer Maximum	Winter Minimum
1	2012	183	169.58	35.5	23.0
2	2013	182	185.39	35.5	15.5
3	2014	161	177.28	38.2	16.0
4	2015	146	158.23	38.7	17.5
5	2016	167	182.04	40.5	17.0
6	2017	178	176.95	38.8	16.5



Average Rainfall and Rainy Day over Project Area



[Source: http://dwms.fao.org/atlases/myanmar/atlas_en.htm]

Figure 5.5: Rainfall Map of Myanmar with Monthly Distribution Patterns

5.3.2 Wind

Winds approach the project area primarily from the east and northeast. Long-term wind data obtained from the station of Myeik (Department of Meteorology and Hydrology Myanmar). During the pre-monsoon months of onset date to June, the wind blew Southeast, South and Southwest direction over the country. In the Southwest monsoon months of July and August, the wind blew South and Southwest direction and in the post monsoon months of September to withdrawal date, the wind blew from North and Northeast direction over the country. For the wind speed, the coastal areas have stronger wind than the inland areas and also stronger wind prevailed monsoon season than the pre and post monsoon. Figures 5.6 to 5.8 show the results for the wind direction and speed representing the regions of Kawtaung during the study period 2001-2010 (10yrs). The data indicates that greater than 4 mph of the wind speed are more frequently from the southwest in pre-monsoon season and monsoon season. In post monsoon season southwest, southeast and northeast sectors are greater than 4 mph of wind speed.

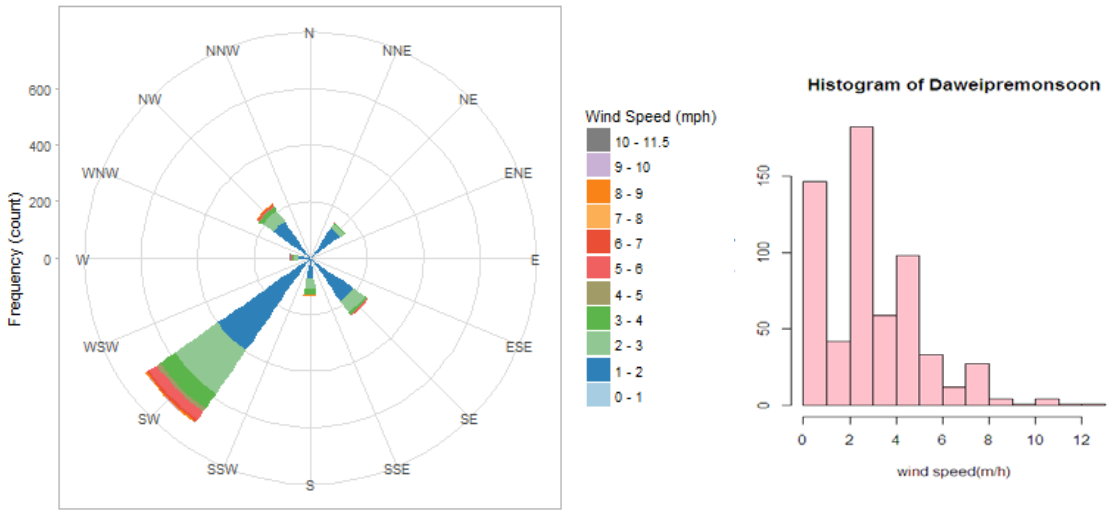


Figure 5.6 -Wind Rose and Frequency of Wind Speed for Pre-monsoon Season

(Source: Myanmar Climate Report, No. 9/2017)

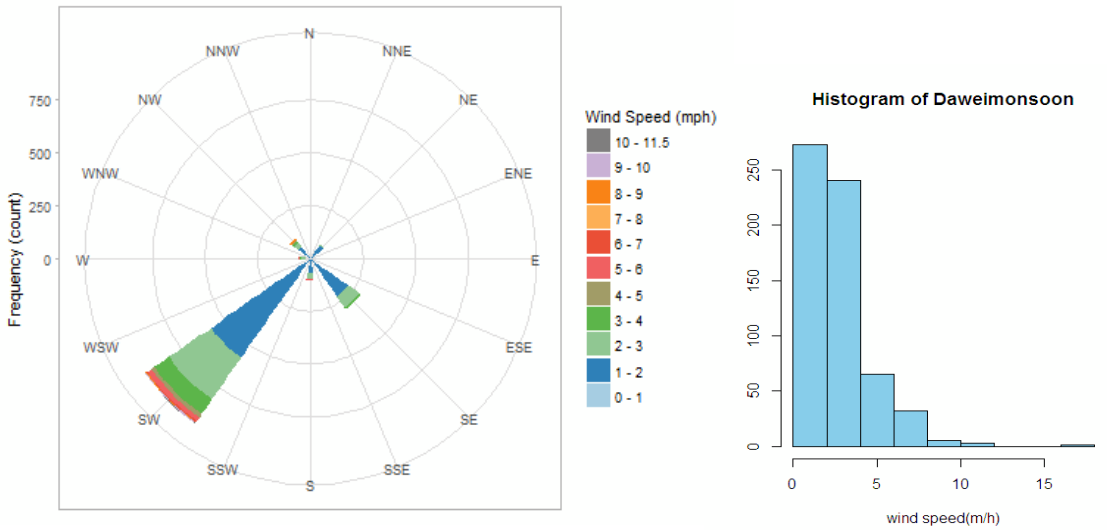
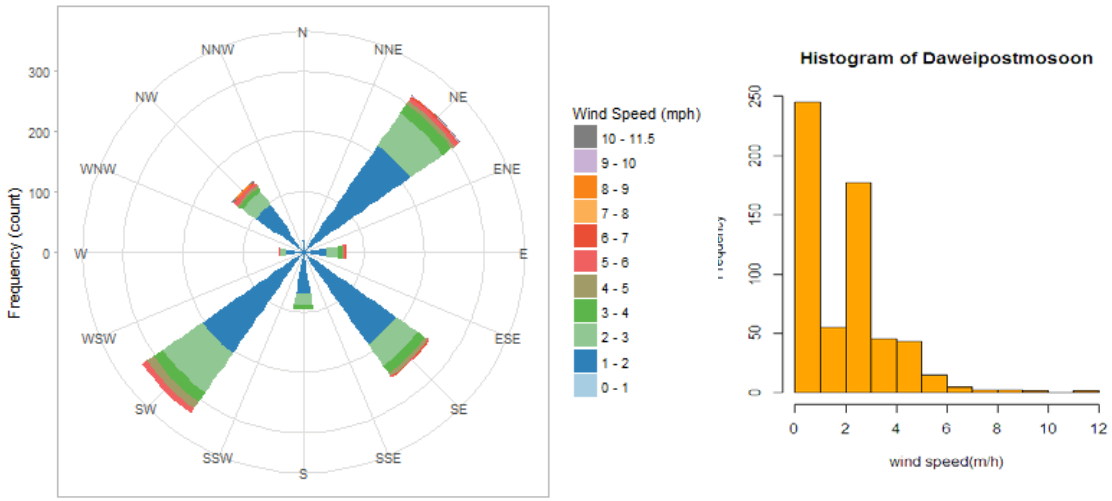


Figure 5.7: Wind Rose and Frequency of Wind Speed for Monsoon Season

(Source: Myanmar Climate Report, No. 9/2017)



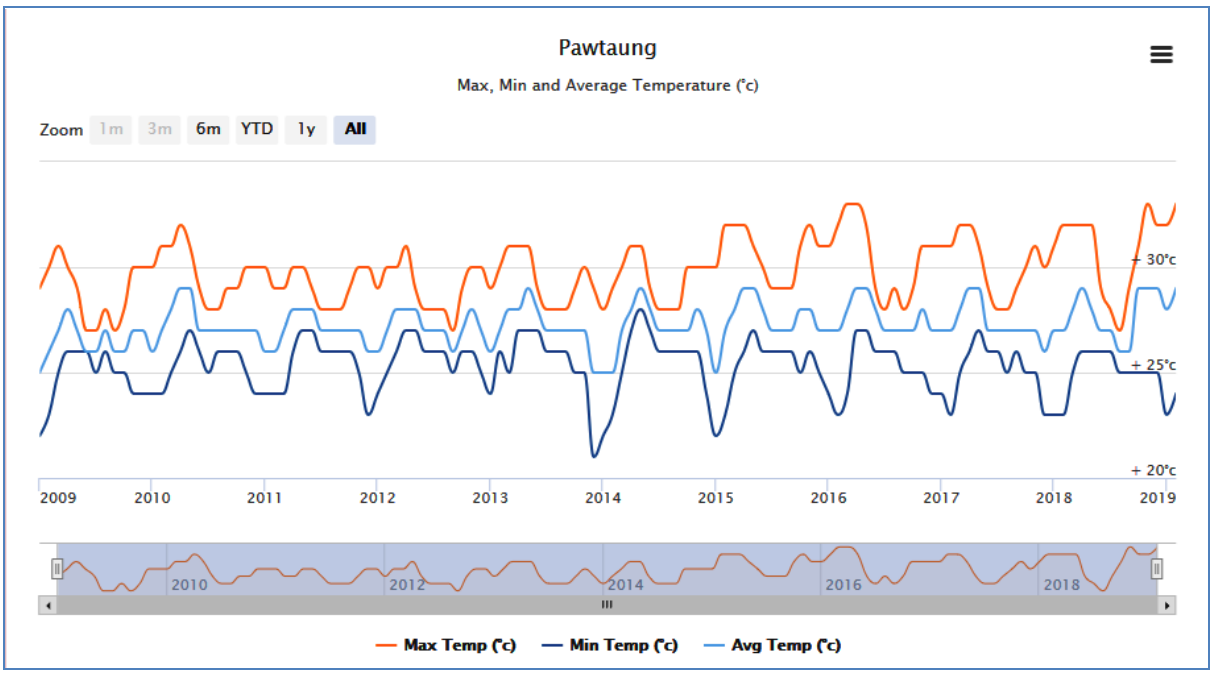
(Source: Myanmar Climate Report, No. 9/2017)

Figure 5.8: Wind Rose and Frequency of Wind Speed for Post Monsoon Season

5.3.3 Temperature Trends

It was very clear from temperature trend analysis that the maximum temperature showed increasing trends and decreasing trend for minimum temperature over all parts of the years in the project site.

The deviation for T_{max} was calculated following the formula: $T_{maxn} - T_{max}$, andthe deviation for T_{min} was calculated by $T_{minn} - T_{min}$, where "n" represents eachyear and "normal" is the T_{max} or T_{min} normals calculated for the period 2009-2018



Source: www.worldweatheronline.com/kawtaung-weather-averages/tenasserim/mm.aspx

Maximum and Minimum Temperature Deviation Trend over Kawtaung

5.4 Oceanography

The project area is including Myeik archipelago, lies in the Andaman Sea off the coast of southern Tanintharyi, consists of some large offshore islands, and the near-shore areas between these and the coastline are marshy and partly covered with mangrove forests.

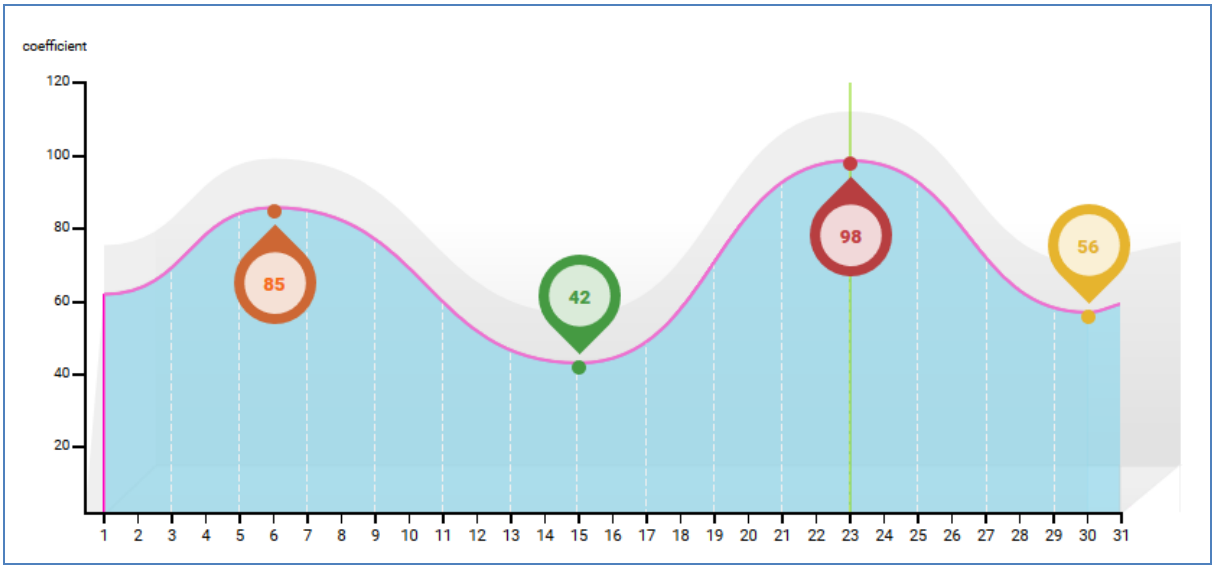
5.4.1 Waves

Wave climates at the project site are consistent with the local wind conditions. Predominant waves are from the easterly and westerly directions. Current wave conditions of Project area is *significant height*, about 14% of waves will be higher than the significant wave height (about 1 in every 7 waves). The average wave height is 0.1m.The project seashore has a smooth beach slope and is very little potential to wave impacts. The waves on the shore can be slightly affected by the orientation of the coastline and the seabed of the beaches, although in most cases they are usually equivalent.

5.4.2 Tides

Tidal variation at Kawthoung is relatively low. The tide at the project site will only depend on the situation of the moon (especially in full moon day).

The following graph shows the *progression of the tidal coefficient* in the month of *December of 2018*.These values give us a rough idea of the tidal amplitude in Kawthoung, forecast in December. Large coefficients indicate important high and low tides; major currents and movements usually take place on the sea bed. But bear in mind that this tidal amplitude may be greatly affected by the weather



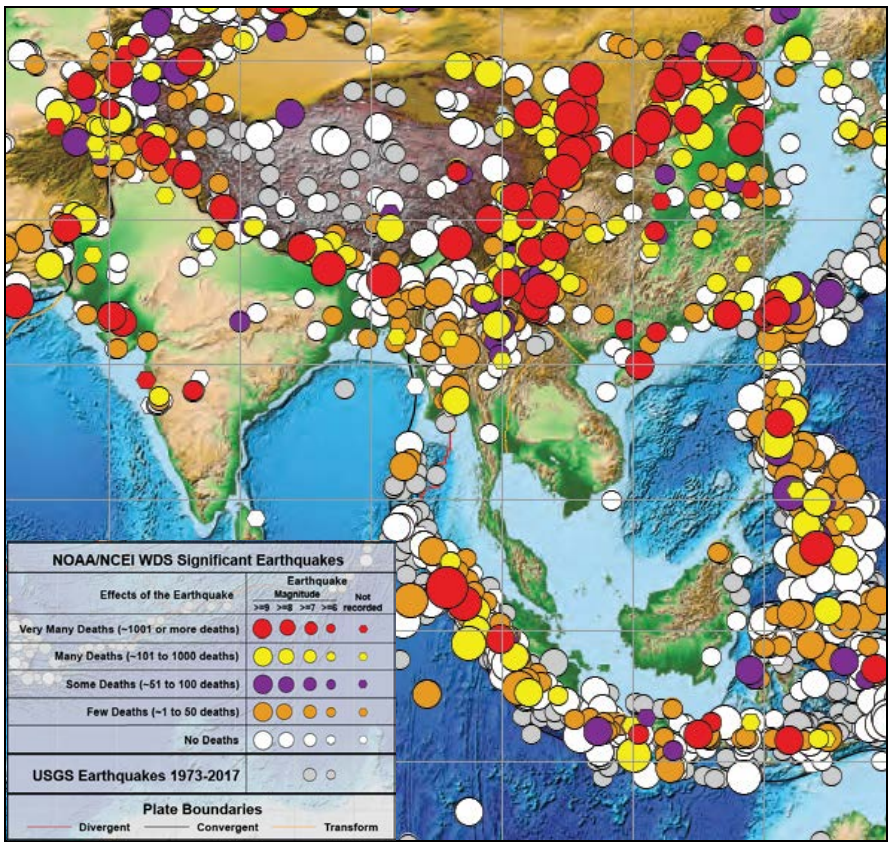
Progression of the Tidal Coefficient in Kawthoung Area

5.5 Seismicity

Myanmar is an earthquake-prone country because it lies in a one of the world major earthquake belt, Alpide Belt, which extends from northern Mediterranean through Iran, Himalaya region and Myanmar. Most of the earthquake in central and delta region of Myanmar have resulted from movement of Sagaing Fault which extends from the northwest of Katha, through Sagaing, along the eastern flank of Pegu Yoma and finally into the western Gulf of Martaban for a distance of about 600 miles. Structurally, Hpa-pon fault and Three - pagoda fault are situated at the northern and southern part of the area and their trend in nealy NW - SE direction. Earthquake intensity in the area can be seen in Figure **5.9.**

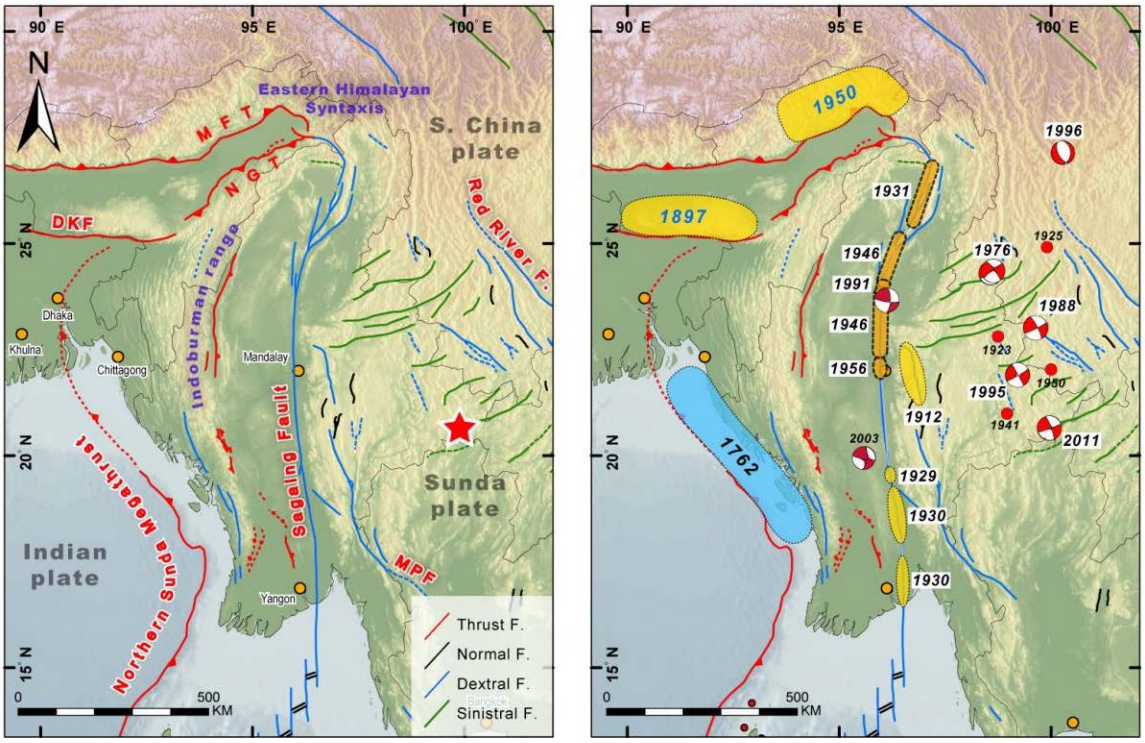
The approach is mainly empirical and historical in the sense that it makes use of past seismic events and history to make educated guesses about region wide intensities in the future.Recent earthquakes include one in April 2016 near Mawtaik on the India and Sunda (Eurasia) plates at 6.9 magnitudes on the Richter scale, as well as a magnitude 6.8 earthquake that occurred on the Sagaing fault in Myanmar on November 11, 2012. The Sagaing fault is a major fault in Southeast Asia between the India and Sunda (Eurasia) plates. This strike-slip fault (side-to side motion) is part of a broad zone of deformation that includes the India Asia collision zone to the north and extension of the Andaman Sea to the south. The November 11 earthquake and its four aftershocks (with magnitudes ranging from M-5 to M-5.8) occurred north of the city of Mandalay, along a stretch of the Sagaing fault. A map of earthquakes in the SE Asian region is shown in Figure 5.9 and a historical earthquake map of Myanmar is shown in Figure **5.10.**

As per map the proposed project is located within the Zone II (Moderate zone) of earthquake hazard, as shown in prbabilistic seismic hazard Assessment Map (PSHA Map) of Myanmar showing expected peak ground acceleration (PGA) values with 100% probability in 500 years.



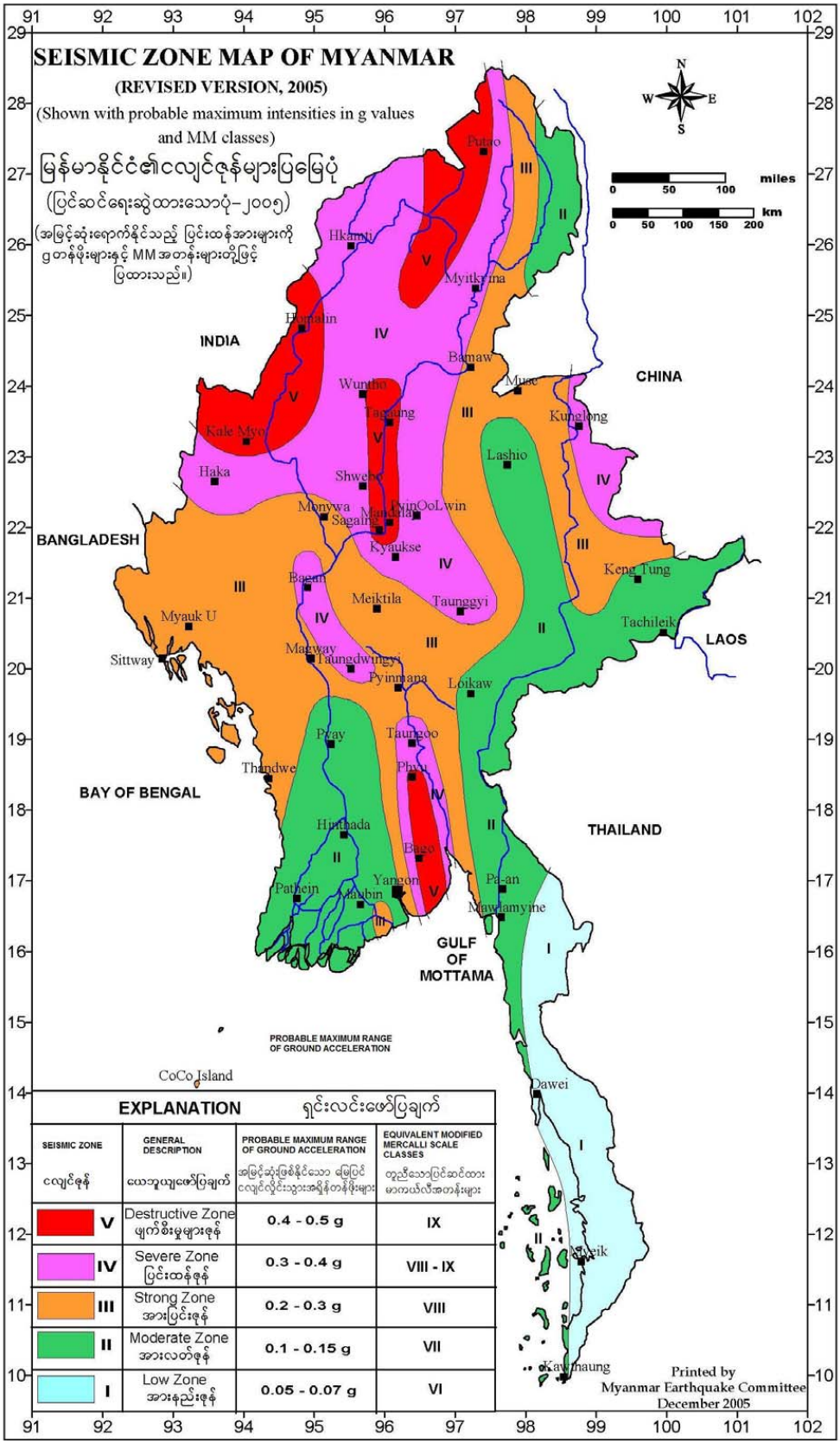
[Source: USGS]

Figure 5.9 Map of Significant Earthquakes 2150 B.C. to A.D. 2017



[Source: http://www.earthobservatory.sg/news/strong-quake-myanmar#.U4wB1ncxXmQ , Accessed 2016]

Figure 5.10 Neotectonic Map of Myanmar



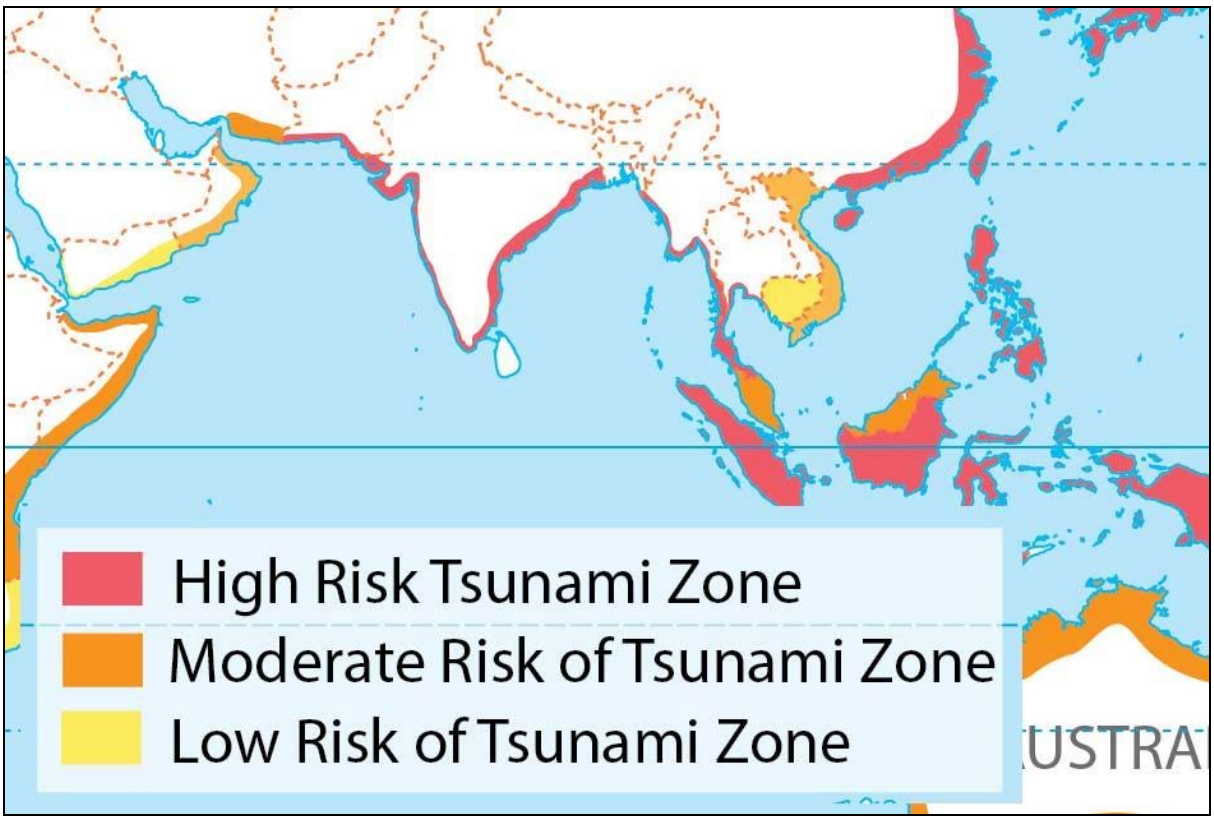
Source: MIMU [Myanmar Information Management Unit]

Figure 5.11 Seismic Zone Map of Myanmar

5.6 Tsunamis

In Myanmar there were records of moderate tsunamis, generated by two large magnitude earthquakes, which originated in the Andaman-Nicobar Islands [these are the 31 December 1881 Car Nicobar Earthquake (7.9 Richter scale [RS]) and the 26 June 1941 Andaman Island Earthquake (7.7 RS)]. The tsunami generated by the giant 2004 Sumatra Earthquake also caused moderate damage in some parts of the Myanmar Coast. It is evident that Myanmar is vulnerable to hazards from moderate and large tsunami along its long coastline.

Previous Indian Ocean tsunamis have not been properly documented. The southern Tanintharyi Coast consists of some large offshore islands, and the near-shore areas between these and the coastline are marshy and partly covered with mangrove forests. This setting therefore provides partial protection from tsunami waves.



Source: World Tsunami Zones (www.mapsofworld.com)

Figure 5.12- Tsunami Risk in the Bay of Bengal

However, the northern Tanintharyi Coast is generally flat and sandy areas. Thus, this area is comparatively more vulnerable to the tsunami hazard. The probable earthquake and tsunami hazards along the Myanmar coastal areas are summarised in the following Table.

Table 5.1- Probable Earthquake and Tsunami Hazards along the Myanmar Coastal Areas

Coastal Region	Area	Earthquake Hazard (Modified Mercalli Intensity Scale)	Tsunami Hazard
Rakhine Coast	Northern Part	Strong Zone with MMI 8	Moderate
	Southern Part	Moderate Zone with MMI 7	Moderate
Delta Area	Ayeyarwady Delta	Moderate Zone with MMI 7	Moderate
	Sittaung Estuary	Severe Zone with MMI 8 - 9	Moderate
Tanintharyi Coast	Northern Part	Moderate Zone with MMI 7	Moderate
	Southern Part	Moderate Zone with MMI 7	Light

Source: Hazard Profile of Myanmar (2009)

By studying the above facts and figures, there will be moderate impact of Tsunami on the proposed project.

5.7. Social Environment

5.7.1. Socio-economic Profile by Secondary Data Collection

The following are the secondary data of Kawthoung Township. Some data are collected from Kawthoung Administration Office and some data are sourced from the Department of Population, Ministry of Immigration and Population "The 2014 Myanmar Population and Housing Census– Tanintharyi Region- Kawthoung Township Report" October 2017.

(a) Population

In 2017, there are about 107,000 people in Kawthoung Township as shown in the following Table. The percentage of urban population is about 49.5% in township.

Township	Total (Male/Female)				Total (Urban/Rural)			Households
	Male	Female	Total	Sex Ratio	Urban	Rural	Urban Population	
Kawthoung	55123	51787	106,910	96.3	11063	9717	49.5	20780

Source: Kawthoung Township Administrative Offices (2017)

According to the above table, the male percentage is a little higher than the male percentage and so the job opportunities for male and gender equality is important in this region. The

proposed project will create job opportunities for local people especially for female due to the nature of hotel project. So, the proposed hotel project will be great benefit for local people.

(b) Ethnicity

Most of the people who live in Kawthoung are Bamar, followed by Mon, Kayin and Bangladeshi people. A small number of Kayar and Kachin live in Kawthoung Township. The races residing in Kawthoung Township are shown in the following table.

No.	Race	Number	%
1	Kachin	22	0.02
2	Kayar	13	0.01
3	Kayin	1001	0.94
4	Chin	79	0.07
5	Mon	5145	4.81
6	Bamar	83374	77.9
7	Rakhine	860	0.80
8	Shan	398	0.37
9	Salone	844	0.79
10	China	1028	1.01
11	Indian	452	0.42
12	Pakistan	1113	1.04
13	Bangladeshi	1153	1.08
Total		106,910	100

Source: Kawthoung Township Administrative Offices, 2017

(c) Religion

All of 100% of the people living in the township are Buddhists. There are many religious places in the region including four historic and well-known pagodas, 272 pagodas and 153 monasteries for Buddhists. The different kinds of religion present in Kawthoung Township are shown in in the following Table.

Township	Religion	Buddhist	Christian	Hindu	Muslim	Total
Kawthoung	Number	90166	737	395	13948	106910
	(%)	84.34	0.69	0.37	14.60	100.0

Source: Kawthoung Township Administrative Offices, 2017

So, the proposed hotel project will have a plan for sustaining of Buddhist Cultural in proposed hotel project (architecture design for cultural heritage and donation of Baddish Image or pagoda inside the project campus).

(d) Land Use

Kawthoung Township mainly use its land for agriculture followed by grazing land. Detailed acres for land uses in Kawthoung Township are shown in in the following table.

Land Category	Acres
Agricultural Land	132909
Forest and Natural Area	365794
Grazing land	771
Industrial Land	229
Settlement Land	2300
Wastelands	58148
Forest wild	19192
wild land	43
Other	85662
Total Area	666492

Source: Kawthoung Township Administrative Offices, 2017

(e) Living Profile

Type of housing unit

The majority of the households in Kawthoung Township are living in wooden houses (39.7%) followed by households in bungalow/brick house (20.4%). About 30.1 per cent of urban households and 49.0 per cent of rural households live in wooden houses.

Table 5.2 - Conventional households by type of housing unit by urban/rural

Residence	Total	Apartment/ Condominium	Bungalow/ Brick house	Semi-pacca house	Wooden house	Bamboo house	Hut 2 - 3 years	Hut 1 year	Other
Total	25481	12.9	20.4	14.4	39.7	9.2	2.0	0.4	1.2
Urban	12580	19.2	25.4	20.4	30.1	3.6	0.6	0.1	0.6
Rural	12901	6.7	15.5	8.5	49.0	14.6	3.2	0.7	1.8

Source: Department of Population, Ministry of Immigration and Population "The 2014 Myanmar Population and Housing Census– Taninthayi Region- Kawthoung Township Report" October 2017

Water Usage

In Kawthoung Township, 79.8 per cent of households use improved sources of drinking water (tapwater/piped, tube well, borehole, protected well/spring and bottled water/water purifier). Compared to other townships in Tanintharyi Region, this household proportion belongs to the highest group in use improved sources for drinking water and it is also higher than the Union average (69.5%). About 39.9 per cent of the households use water from protected well/spring and 26.7 per cent use water from bottled water/water purifier. About 20.2 per cent of the households use water from unimproved sources. In rural areas, 27.3 per cent of the households use water from unimproved sources for drinking water.

Table 5.3 - Source of Drinking Water in Kawthoung Township

Source of drinking water		Total	Urban	Rural
Tap water/ Piped		9.9	9.6	10.3
Tube well, borehole		3.3	1.7	4.8
Protected well/ Spring		39.9	23.9	55.5
Bottled water/ Water purifier		26.7	51.9	2.1
Total improved drinking water		*79.8*	*87.1*	*72.7*
Unprotected well/Spring		5.8	0.6	10.9
Pool/Pond/ Lake		0.2	0.1	0.3
River/stream/ canal		2.2	0.1	4.3
Waterfall/ Rain water		5.7	1.1	10.1
Other		6.3	11.0	1.7
Total unimproved drinking water		*20.2*	*12.9*	*27.3*
Total	**Per cent**	**100.0**	**100.0**	**100.0**
	Number	**25,481**	**12,580**	**12,901**

Source: Department of Population, Ministry of Immigration and Population "The 2014 Myanmar Population and Housing Census–Tanintharyi Region- Kawthoung Township Report" October 2017

Lighting

In Kawthoung Township, 6.4 per cent of the households use electricity for lighting. This proportion belongs to the lowest group in electricity usage compared to other townships in

Tanintharyi Region. The use of generator (private) for lighting is the highest in the township with 66.9 per cent. In rural areas, 46.7 per cent of the households use generator (private) for lighting.

Table 5.4 - Conventional households by source of lighting by urban/rural

Source of lighting		Total	Urban	Rural
Electricity		6.4	5.1	7.7
Kerosene		2.4	0.3	4.4
Candle		19.4	5.0	33.5
Battery		1.3	0.2	2.4
Generator (private)		66.9	87.6	46.7
Water mill (private)		1.0	1.5	0.5
Solar system/energy		1.0	-	3.2
Other		0.9	0.2	1.5
Total	**Per cent**	**100.0**	**100.0**	**100.0**
	Number	**25,481**	**12,580**	**12,901**

Source: Department of Population, Ministry of Immigration and Population "The 2014 Myanmar Population and Housing Census– Tanintharyi Region- Kawthoung Township Report" October 2017

Cooking Fuel

In Kawthoung Township, households mainly use wood-related fuels for cooking with 14.7 per cent using firewood and 71.1 per cent using charcoal. Only 3.4 per cent of households use electricity for cooking. About 25.3 per cent of households in rural areas use firewood and 68.0 per cent use charcoal.

Table 5.5 - Conventional households by type of cooking fuel by urban/rural

Type of cooking fuel	Total	Urban	Rural
Electricity	3.4	4.9	1.9
LPG	6.2	11.2	1.3
Kerosene	0.1	-	0.2

Bio-Gas		2.1	2.7	1.5
Firewood		14.7	3.9	25.3
Charcoal		71.1	74.2	68.0
Coal		1.5	1.6	1.4
Other		0.9	1.4	0.3
Total	**Per cent**	**100.0**	**100.0**	**100.0**
	Number	**25,481**	**12,580**	**12,901**

Source: Department of Population, Ministry of Immigration and Population "The 2014 Myanmar Population and Housing Census–Tanintharyi Region- Kawthoung Township Report" October 2017

(f) Occupational Patterns

Data shows that agriculture and trade are the common livelihood means of households in Kawthoung Township. The other main economic activities in the area are fisheries, arbitrary, and public services. According to official statistics, Kawthoung has a total of 89,733 people as the township workforce and 65,804 are employed with an unemployment rate of 26.67%. Per capita income in the township is estimated to be 2021,002 Kyats in 2015-2016.

Table 5.6- Occupational Patterns

Government Employee	Services	Agriculture	Livestock	Trade	Industry	Fisheries	Arbitrary	Others
3527	1576	39661	63	2071	297	1845	13763	12514

Table 5.7 - Employment

Workforce	Employed	Unemployed	Unemployment rate
89733	65804	23929	26.67%

Table 5.8- Per Capita Income

Year	Income
2014-15	1773,760 Ks.
2015-16	2021,002 Ks
2016-17	-

(g) Education

Over sixteen percent of the total township population is students. For education sector, although primary school education is compulsory and fee-free, school enrollment rate of 5-year-olds is relatively half over of (65.8%) in the overall township. Percentage of students passing the matriculation is 36.54%. The teacher-student ratios are 1:23 in BEPS, 1:58 in BEMS, and 1:26 in BEHS. Data on education and literacy report that literacy rate in Kawthoung Township was 100%. Detailed for educational facilities in Kawthoung region are as below:

Table 5.9 -Educational Facilities

School	No. of Schools	No. of Teachers	No. of Students	Teacher/ Student Ratio
BEHS	6	212	5704	1:26
BEHS (Extan)	6	173	5046	1:29
BEMS	4	42	2453	1:58
BEMS (Extan)	11	158	4481	1:28
Post (BEPS)	20	200	5944	1:30
BEPS	50	169	3048	1:23
Monastery school	6	48	1098	1:22
Preschool	4	5	103	1:21

Table 5.10- Scholl Enrollment

No. of 5 yrs-old children			Enrollment			Enrollment Rate
Male	Female	Total	Male	Female	Total	
2525	2415	4940	2525	2415	4940	100%

Table 5.11- Literacy Rate

Population	Above 15 Years of Age	Literate	Literacy Rate
106910	78241	78241	100%

According to the above tables, educational facilities, enrollment rate, literacy rate are in good conditions. Nevertheless, the GSB should have a plan to encourage local education facilities, especially scholarship program for

(k) Healthcare Profile

As described in the following tables, there are 16-bed township hospital, and two 16-bed hospital in the village tract. There are also 38 rural healthcare centers and sub- centers. Infrastructures for health care services are also seemed to be insufficient especially for rural people.

Table 5.12- Hospitals

Sr. No.	Hospital	Govt./Private	Bed
1.	Township hospital (Kawthoung)	Govt.	100
2.	Military Hospital	Govt.	100
3.	Station Hospital (Khamaukkyi)	Govt.	16
4.	Station Hospital (Chan Hpan)	Govt.	16
5.	Station Hospital (Aung Bar)	Govt.	16
6.	Station Hospital (Mar Yun)	Govt.	16

Table 5.13- Healthcare Centers

Sr. No.	Type of Healthcare Center	No. of Healthcare Center
1.	Rural Healthcare Center	5
2.	Rural Healthcare Sub-Center	21

Table 5.14- Healthcare Facilities

Population	No. of Doctors	Ratio	No. of Nurses	Ratio	No. of Healthcare Assistant	Ratio
105987	25	1:4276	69	1:1549	8	1:13364

Common Diseases

According to secondary data available, the most common diseases include Diarrhoea, Hepatitis, malaria, stomach ailment, and tuberculosis. It was also found out that there was substantial amount of incidence of Diarrhoea, and TB in the township.

Table 5.15- Common Diseases

Sr. No.	Disease	Incidence
1.	Malaria	189
2.	Diarrhoea	2030
3.	TB	529
4.	Stomach Ailment	374
5.	Hepatitis	50

Table 5.16- HIV/AIDS

2015-16		2016-17	
Infected	Dead	Infected	Dead
194	17	167	14

Table 5.17- Health Indices

No. of Maternal	No. of Infant	Per 1000			
		Birth Rate	Maternal Mortality Rate	Infant Mortality Rate	Abortion Rate
2697	1825	23.6	3.90	12.7	7.4

In public health sector, the ratios of medical service personnel and local population indicate the existing conditions of the insufficient health care facilities, especially for rural people. As described in the above tables, the health care facilities of Kawthoung Region are in good conditions.

5.8. Living Environment

The living environment will include the overall conditions of air quality, water quality and noise levels. The locations of the baseline environmental monitoring for living environment are shown in Figure 5.13.

Figure 5.13. Location of Environmental Survey for Overall Conditions

Location	GPS Coordinate	
SW	N9°47′50.46″	E98°06′29.43″
TW	N9°47′49.59″	E98°06′28.57″
AQ	N9°47′50.69″	E98°06′30.88″
N1	N9°47′50.07″	E98°06′31.81″
N2	N9°47′50.61″	E98°06′32.04″

5.8.1 Air Quality

The project site is located in a rural environment that is largely characterized by scattered households, beach restaurants and fish framing. No industry has been identified within the area. The primary sources of air pollution are therefore anticipated to include dust arising from unpaved roads and vehicle movements, and domestic fuel burning from rural households (fuel wood and charcoal for cooking and space heating during winter).

Air Quality Monitoring

ESIA Team used Haz Scanner EPAS air quality monitoring station to detect ambient air quality inside the project. The methodology used by ESIA Team are as follow:

(a) Monitoring Parameters

The parameters for ambient air quality monitoring were SO_2, NO_2, CO_2, CO, H_2S, O_3, $PM_{2.5}$ and PM_{10}.

(b) Methodology

Determination and analysis of ambient air qualities were conducted by using Haz-Scanner Environmental Perimeter Air Station (EPAS).

Haz-Scanner EPAS Air Quality Monitoring Station

Sampling rate of air quality were recorded automatically every one minute for important gases (Sulfur dioxide, Nitrogen dioxide, Carbon dioxide, Carbon monoxide, Hydrogen sulfide, Particulate matter, Hydrogen sulfide and Ozone) to describe ambient air quality. Sampling pump was adjusted to 2 liter/min. Different analysis methods are integrated in the instrument, such as particulates 90° Infrared Light Scattering for particulate matters (PM_{10}, $PM_{2.5}$), electrochemical sensors for toxic gases (SO_2, NO_2, CO, H_2S), NDIR (optional sensor) for (CO_2) and Gas Sensing Semiconductor- GSS technology (optional sensor) for O_3.

Monitored Gases for Ambient Air Quality

No.	Parameters	Analysis Methods
1.	Sulfur dioxide (SO_2)	Electrochemical sensors
2.	Nitrogen dioxide (NO_2)	Electrochemical sensors
3.	Carbon Dioxide (CO_2)	NDIR (optional sensor)
4.	Carbon monoxide (CO)	Electrochemical sensors
5.	Hydrogen Sulfide (H_2S)	Electrochemical sensors
6.	Particulate matter 2.5 ($PM_{2.5}$)	Infrared Light Scattering
7.	Particulate matter 10 (PM_{10})	Infrared Light Scattering
8.	Ozone (O_3)	Gas Sensing Semiconductor- GSS technology (optional sensor)

(c) Location of Air Quality Monitoring Points

The air quality monitoring was conducted near the costal Line.

Air quality monitoring at Day Time (7:00 am to 7:00 pm)

Air quality monitoring at Night Time (7:00 pm to 7:00 am)

(d) Monitored Period

Air quality was monitored by 12 hours for day time and 12 hours for night time. Detailed for measured periods are shown in following table.

Monitoring Points	Duration
Night Time	(07:00 pm to 07:00 am)
Day Time	(07:00 am to 07:00 pm)

(e) Air Quality Monitoring Results

The air quality monitoring results obtained by every minute were combined to make average values for day time (12 hours) and nigh time (12 hours) for evaluation and comparison with standard values.

Air Quality Monitoring Results of Day Time

Parameters	Unit	Measured Values
Barometric Pressure	mBar	1021
CO	Ppm,	443
CO_2	$\mu g/m^3$	164
H_2S	$\mu g/m^3$	0.00
NO_2	$\mu g/m^3$	4.72
O_3	$\mu g/m^3$	29.5
PM_{10}	$\mu g/m^3$	84.13
$PM_{2.5}$	$\mu g/m^3$	41.48
SO_2	$\mu g/m^3$	70.4

Air Quality Monitoring Results for Night Time

Parameters	Unit	Measured Values
Barometric Pressure	mBar	1049
CO	ppm	443
CO_2	$\mu g/m^3$	107
H_2S	$\mu g/m^3$	0.00
NO_2	$\mu g/m^3$	6.4
O_3	$\mu g/m^3$	22.62
PM_{10}	$\mu g/m^3$	42.72
$PM_{2.5}$	$\mu g/m^3$	27.46
SO_2	$\mu g/m^3$	41.5

(f) Comparison with Guidelines Values

Monitoring results are compared with National Environmental Quality (Emission) Guidelines (2015); World Health Organization Guideline Value (Global Update 2005); National Ambient Air Quality Standard Central Pollution Control Board (Ministry of Environment and Forests, 2003) as shown in following table.

Pollutants	Day Time (12 hours)	Night Time (12 hours)	NEQG Value	WHO Guideline Value	NAAQS
CO_2 ($\mu g/m^3$)	164	107	-	-	-
CO ($\mu g/m^3$)	4.3	3.0	5(mg/Nm^3)	-	10,000 for Industrial, 4,000 for residential, (1 hour)
H_2S ($\mu g/m^3$)	0.00	0.00	2 (30 min) for Agriculture, Livestock and Forestry	-	-
NO_2 ($\mu g/m^3$)	4.72	6.4	200 (1 hour)	200 (1 hour)	120 for Industrial, 80 for residential, rural and other areas (24 hour)
O_3 ($\mu g/m^3$)	29.5	22.62	100 (8 hour)	100 (8 hour)	-
PM_{10} ($\mu g/m^3$)	84.13	42.72	50 (µg/m3) (24 hour)	50 (µg/m3) (24 hour)	150 for Industrial, 100 for residential, rural and other areas
$PM_{2.5}$ ($\mu g/m^3$)	41.48	27.46	25(µg/m3) (24 hour)	25(µg/m3) (24 hour)	-
SO_2 ($\mu g/m^3$)	70.4	41.5	500 (10 min)	500 (10 min)	120 µg/m3 (24 hour) for Industrial, 80 for residential, rural and other areas

Note:

NEQG = National Environmental Quality (Emission) Guidelines 2015)

WHO Guideline = World Health Organization Guideline Value, Global Update 2005

NAAQS = National Ambient Air Quality Standard, 2003 (Central Pollution Control Board, Ministry of Environment and Forests)

According to the monitoring results, the concentrations of $PM_{2.5}$ and PM_{10} in daytime are a little higher than the ambient air quality standard. Monitoring results of CO_2 are also higher

and the most possible source will be open space burning of domestic wastes within the village.

However, no guideline values were provided for carbon dioxide. Other measured gases are below the National Environmental Quality (Emission) Guidelines (NEQG) value, WHO guideline value and NAAQS.

5.8.2 Water Quality

As the proposed project can impact on water environment (depletion of natural water source and impact on water quality), water samples are collected and some parameters of water quality are measured on site and some parameters are sent to respective laboratories. Water samples are tested for drinking water purpose in ISO-TECH Laboratory (one of the national approved laboratory).

Sampling of Water at Saytan Island

Table 5.18- Tube Well Water Quality Testing Results inside the Project Site

Analyses	Results	Unit	WHO- Drinking Water Guideline
pH	6.9		6.5-8.5
Color (True)	10	TCU	15
Turbidity	28	NTU	5
Electro conductivity	168	µS/cm	1500
Total Hardness	50	mg/l as $CaCO_3$	500
Calcium Hardness	34	mg/l as $CaCO_3$	
Magnesium Hardness	16	mg/l as $CaCO_3$	
Total Alkalinity	56	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	Nill	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	Nill	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	56	mg/l as $CaCO_3$	
Iron	0.58	mg/l	0.3
Chloride	25	mg/l	250
Sodium Chloride	41	mg/l	
Sulphate	30	mg/l	500
Total Solid	119	mg/l	1500
Suspended Solid	35	mg/l	
Dissolved Solid	84	mg/l	1000
Manganese	Nill		0.05
Phosphate	Nill		
Phenolphthalein Acidity	3	mg/l	
Methyl Orange Acidity	Nill	mg/l	
Salinity	0.1	ppt	
Temperature	25	C°	
Fluoride (F)	1.2		1.5
Lead (as Pb)	Nill		0.01
Arsenic (As)	Nill	mg/l	0.01
Nitrate (N,NO_3)		mg/l	50
Chlorine (Residual)		mg/l	
Ammonia (NH_3)		mg/l	
Ammonium (NH_4)		mg/l	
Dissolved Oxygen		mg/l	
Chemical Oxygen Demand (COD)		mg/l	
Biochemical Oxygen Demand (BOO)		mg/l	
Cyanide (CN)	Nill	mg/l	0.07
Zinc	Nill	mg/l	3
Copper (Cu)	Nill	mg/l	2
Silica (Si)	10.7	mg/l	
Calcium (Ca)		mg/l	
Magnesium		mg/l	

The following Table shows results of sea water quality (location point SW_2) at near the proposed project.

Table 5.19 - Sea Water Quality at near the Proposed Project

Analyses	Results	Unit	WHO- Drinking Water Guideline
pH	7.6		6.5-8.5
Color (True)	Nill	TCU	15
Turbidity	4	NTU	5
Electro conductivity	51700	µS/cm	1500
Total Hardness	6000	mg/l as $CaCO_3$	500
Calcium Hardness	4000	mg/l as $CaCO_3$	
Magnesium Hardness	2000	mg/l as $CaCO_3$	
Total Alkalinity	116	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	Nill	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	Nill	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	116	mg/l as $CaCO_3$	
Iron	0.22	mg/l	0.3
Chloride	19850	mg/l	250
Sodium Chloride	32753	mg/l	
Sulphate	450	mg/l	500
Total Solid	25856	mg/l	1500
Suspended Solid	6	mg/l	
Dissolved Solid	25850	mg/l	1000
Manganese	0.05		0.05
Phosphate	0.8		
Phenolphthalein Acidity	2	mg/l	
Methyl Orange Acidity	Nill	mg/l	
Salinity	25.8	ppt	
Temperature	25	C°	
Fluoride (F)	3.8		1.5
Lead (as Pb)	Nill		0.01
Arsenic (As)	Nill	mg/l	0.01
Nitrate (N,NO_3)		mg/l	50
Chlorine (Residual)		mg/l	
Ammonia (NH_3)		mg/l	
Ammonium (NH_4)		mg/l	
Dissolved Oxygen		mg/l	
Chemical Oxygen Demand (COD)		mg/l	
Biochemical Oxygen Demand (BOO)		mg/l	
Cyanide (CN)	Nill	mg/l	0.07
Zinc	Nill	mg/l	3
Copper (Cu)	Nill	mg/l	2
Silica (Si)	Nill	mg/l	
Calcium (Ca)		mg/l	
Magnesium		mg/l	

According to the testing results for surface water qualities, all of the water is not suitable as drinking water.

5.8.3. Noise

To monitor the existing noise level, the (IEE) team used TES-1353H Integrating Sound Level Meter which is applicable with IEC61672-1: 2003, IEC60651: 1979, ANSI S1.4: 1983 and IEC60804: 1985 standards. Existing noise level are monitoring in both day time (07:00 to 22:00) and night time (22:00 to 07:00).

The results of noise levels (Leq) in April 2018 are shown in the following Table. The noise levels at AN1 located eastward 150 m away of the proposed project site was at 47.7 dB(A) during daytime and at 40.4 dB(A) during nighttime. On the other hand, the noise levels at AN2 located southward 30 m away of the project site was at 49.2 dB(A) during daytime, and at 41.2 dB(A) during nighttime.

Table 5.20- Noise Levels Monitoring Results

Receptors and distances from project		**Existing noise levels monitored by integrated noise level meter (dBA)**	
		Daytime	**Nighttime**
AN1	Costal line (15 m)	47.7	40.4
AN2	In land(30m)	49.2	41.2
MEG Target Value*	Residential, institutional, educational	55	45
	Industrial, commercial	70	70

Given the generally costal nature of the existing environment, noise levels can be predicted to be low. Primary contributions to noise as observed in the project area is emit from diesel generators. Noise receptors would include individual residents, wild and domesticated animals.

5.9 Biodiversity Environment

5.9.1. Introduction

The construction industry is growing exponentially in Myanmar. It is mainly focusing on the civil construction buildings especially in commercial, services, hotels, offices and luxury apartment complexes, under the Government's urbanization strategy as infrastructure developments are immediately required in many sectors for country's economy development. With those developments, environmental concerns are increasing among the people who are living around the project area. However, the infrastructure development and environmental sustainability are important enable to be growing for ecological balance and economy development. Biodiversity is the part of the nature and plays in important role in natural environment and human benefits. Thus with those reasons, biodiversity sustainability and conservation plans are more important for balance of nature and future perspectives.

The Initial Environmental Examination (IEE) on Biodiversity will be conducted systematically and scientifically to find the possible environmental impacts of the proposed hotel project as well as to see the solution for the mitigation measures on impacts which could be happened in the project activities.

The purposes of IEE are to identify:

- the important issues to be considered in all developmental processes;
- the information necessary for decision-making; and
- the facts to support the mitigation measures and management plan.

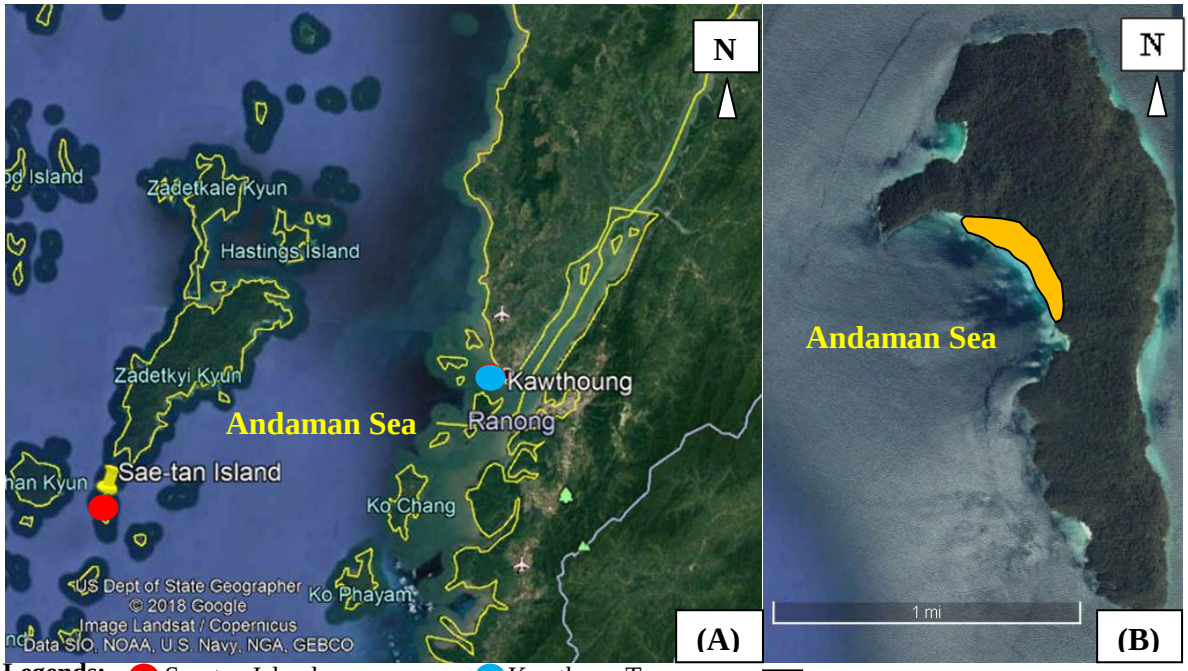
Regards on biodiversity conservation and sustainable use, Myanmar's Environmental laws relating to biological conservation and management issued by the Ministry of Natural Resources and Environment Conservation (MONREC) are listed below (Table 5.21).

Table 5.21- Environmental law related to biological matters

1. The Forest Law, 1992	Provisions to conserve water, soil, biological diversity and the environment; sustain forest produce yields; protect forest cover; establish forest and village firewood plantations; sustainably extract and transport forest products
2. Forest Rule, 1994	Provision of the sustainability of ecosystems and biodiversity
3.Forest Policy 1995	Provision of the sustainability of ecosystems, habitats and biodiversity
4. Biodiversity and Protected Area Law 2018	Provision of biodiversity and wildlife protection, natural areas conservation, carrying out the protection and conservation of biodiversity, ecosystems and protected areas as well as protection of migratory birds in accordance with International Conventions acceded by the State, protecting the endangered species of wildlife and their natural habitats and contribution for the development of research on natural science.

Biological environment of the project site

The proposed project area is not located in biodiversity important area. The area is far from about 172 Km from proposed protected area of Myeik Archipelago. ***But the area was listed as the one of the High Priority Key Biodiversity Areas (KBAs) because of the island (geological isolation) and forest (intact)***. The proposed project site of Say-tan Island is located to the South-west of Kawthong District, Tanintharyi Region. Approximately, the distance from Kawthong Town to Say-tan Island is 52 km in straight line. The total land area of Say-tan Island is about 529. 23 acres and the project site area is about 15 acres at the base of the island. The central coordinate point of the project site is at 09°47'48.84"N and 98° 6'34.96"E. The forest type of the project area is tropical evergreen forest (Figure 5.14). At present situation, old resort with small bungalows is readily situated in the project site. At the base of the island, there is a rocky shore and small white sandy beach about 200m with mixing rocks. There was no information of IUCN red list species such as for sea turtles, their nesting on the beach and in the water, and sea mammal of Dugong in the sea nearby the island. Remarkable animal species on the island known as Rhesus macaque or long tail macaque and Python and Black Kate were observed as a small population. For the plants in the study area, there was observed as common species. The forest type is found as tropical evergreen forest and intact.



Legends: Say-tan Island Kawthong Town The proposed project area(15 acres)

Figure (5.14) Location map of Say-tan Island from Kawthong Town (A); Aerial view of Say-tan Island (B); Close up view of Say-tan Island (C); Vegetation of Say-tan Island (D)

5.9.2. IEE Survey Methodology

Survey scope

- listing the flora (herbs, shrubs and trees) and fauna (amphibian & reptiles, birds, mammals and fish) species and recording their abundance status in both terrestrial and aquatic
- Listing the Red List species of Flora (herbs, shrubs and trees) and Fauna (amphibian & reptiles, birds, mammals and fish) in both terrestrial and aquatic
- Listing the Endemic and Invasive species of flora (herbs, shrubs and trees) and Fauna (amphibian & reptiles, birds, mammals and fish) in both terrestrial and aquatic
- Identify the potential impacts on flora (herbs, shrubs and trees) and Fauna (amphibian & reptiles, birds, mammals and fish)
- Identify the mitigation measures and monitoring plan

- Survey areas assign for 1 km radius of the proposed project site
- Conduct two days for flora and fauna survey in dry season

Survey and data collection

Both direct observation and interview method were used to collect necessary data and information. Specimen collection, taken photographs and interview were carried out in and around the proposed project site. Data collection for flora and fauna were assigned for 1 km radius of project site. GIS site mapping is also created for biological sample study area. Identification, list of the plant and animal species and their abundance status were made. IUCN listed species were targeted for special attention.

A total of (20) sampling point for flora and fauna survey recorded (Figure 5.15 and Table 5.22). A Global Positioning System (GPS) was used to present the recorded survey points in field. Field survey points based on Google map and GPS are created by using Adobe Phtoshop software in computer (Figure 5.15 and 5.16).

Data collection of plant species

Random sampling method was used. The plant species from the project site and its surrounding areas was observed and listed by walking within 1 km radius of the project site in which most survey was conducted on island. Interviews with some people who they live in island conducted (Figure 5.16).

Data analysis of plant species

Samples of species were not directly identified in field. After field trip, plant identification was conducted based on available literatures such as key to the families of the flowering plants, issued by Department of Botany, Yangon University (1994), Backer *et. al.*(1963), Kress *et. al.* (2003), Gardner *et al.* (2000), Caton *et al.*etc., and verification was also conducted by recorded field photographs and some useful internet websites. In this scoping report, most scientific names and family names of flora were based on the literature of "A checklist of the trees, shrubs, herbs and climbers of Myanmar" (2003). In flora identification, some species have not Myanmar name, and also some species can only be identified in genus levels. Finally, the threatened levels of plant species of the survey area were checked and mentioned in accordance with "The IUCN Red List of Threatened Species, 2018".

Data collection of animal species

Direct observation in the field was taken to collect the primary data and information. Secondary data and interview survey were also done for manipulation and for the reference. For terrestrial animal species, four groups such as birds, reptiles and amphibians, fish and mammals were targeted to collect the samples. Appropriate biological survey methods for each kind of animal are used to collect the data and information. Specimen collection was taken around 1km radius of the project area. Identification and list of animal species inhabiting in the surrounding area are made. Observed frequency and abundance of individual species of animals are also recorded. Interview survey was taken with fisherman to investigate fish species richness and abundance. Some specimens were recorded by photograph.

Data collection of Herpetofauna

The Survey work mainly involved walking and visual inspection. No traps or Snares were used. Snakes and other reptiles including lizards are observed in their habitats (resting and foraging habitats). Guide books and camera were used to identify the snake species. Interview survey was also used for information.

Bird survey

Birds were studied using the line transect and point count methods. Observation was be made along the line transect (500 m) at 50 m interval. Species identification, observed numbers of birds, habitat utilization was examined. Species richness and abundance of birds in the study area were investigated.

Specimen collection of Fish

Fish specimens were collected with the help of fishermen who they are fishing along the coastal waters nearby the project area. Fish sample collection was made by use of drifted gill net, trammel-net and line & hook fishing. Identification was made by FAO (2012) and Fishbase 2015.

Mammal survey

Mammals were studied using direct sighting method. Track and sign observation were used to investigate the presence of mammals around the project area. Interview survey was undertaken for the secondary data source. No trapping methods were used in this study

Data analysis for animal species

Encountered rate

Encountered rate for each species is equal to the individual recorded by two observers divided by observation time and multiplied by ten to give a result in units individuals recorded per ten hours of survey. This analysis was done according to the method of Bibby, Jones and Marsden (2001).

$$\text{Encountered rate} = \frac{\text{Total number of individuals}}{\text{Number of hours}} \times 10$$

Encountered rate data was split into ordinal categories of abundance as follows:

Abundance category	Abundance score	Ordinal scale
<0.1	1	Rare ®
0.1-2,0	2	Uncommon (UC)
2.1-10.0	3	Frequent (F)
10.1-40.0	4	Common ©
40.1 +	5	Abundant (A)

Classification of Impact levels

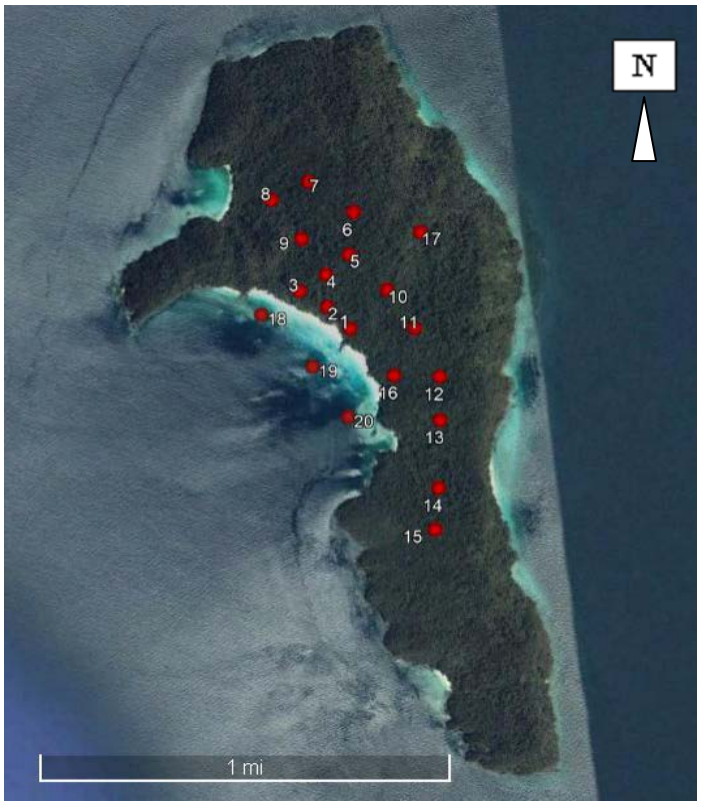
Impacts might be happened by the project activity were classified into four categories: Small, Moderate, Large and Very large followed by the Bureau of Land Management by the US (2016).

Table 5.22- Classification of impact levels and caused event on biodiversity

	Impact level	Caused events
1	Low (L)	This is an impact that is limited to the immediate project area, affects a relatively small proportion of the local population (less than 10%), and does not result in a measurable change in carrying capacity or population size in the affected area.
2	Moderate (M)	This is an impact that extends beyond the immediate project area, affects an intermediate proportion of the local population (10 to 30%), and results in a measurable but moderate (not destabilizing) change in carrying capacity or population size in the affected area.
3	High (H)	This is an impact that extends beyond the immediate project area, could affect more than 30% of a local population, and could result in a large, measurable, and destabilizing change in carrying capacity or population size in the affected area.
4	Very High (VH)	This is an impact that extends beyond the immediate project area, could affect more than 50% of a local population, and could result in a very large, measurable, and destabilizing change in carrying capacity or population size in the affected area.

Impact analysis

Impact levels with the associate significant points by the project activities which might be falling on flora and fauna existing in and around the project area were anticipated followed by the Bureau of Land Management by the US (2016). According to the Bureau, the following factors are used in determining impact significance and magnitude. These factors are: area of influence, percentage of resource affected, persistence of impacts, sensitivity of resources, status of resources, regulatory status, and social values.



Map source: Google map

Figure 5.15- Sampling Points of Flora and Fauna Survey on Say-tan Island

Table 5.23- Representative coordinates points of flora and fauna survey

GPS no.	Latitude	Longitude
Terrestrial sampling points		
1	9°47'47.02"N	98° 6'36.34"E
2	9°47'50.18"N	98° 6'33.80"E
3	9°47'52.67"N	98° 6'30.53"E
4	9°47'54.26"N	98° 6'34.19"E
5	9°47'56.38"N	98° 6'37.46"E
6	9°48'1.51"N	98° 6'38.69"E
7	9°48'6.20"N	98° 6'33.58"E
8	9°48'4.76"N	98° 6'28.53"E
9	9°47'59.25"N	98° 6'31.70"E
10	9°47'51.32"N	98° 6'41.65"E
11	9°47'45.99"N	98° 6'44.48"E
12	9°47'39.40"N	98° 6'46.86"E
13	9°47'33.82"N	98° 6'46.23"E
14	9°47'25.14"N	98° 6'44.92"E
15	9°47'19.92"N	98° 6'43.78"E
16	9°47'40.27"N	98° 6'41.14"E
17	9°47'58.00"N	98° 6'46.72"E
Aquatic sampling points		
18	9°47'50.29"N	98° 6'25.23"E
19	9°47'42.75"N	98° 6'30.91"E
20	9°47'35.65"N	98° 6'34.64"E

Figure 5.16- Field activities: (A-B) Trip to Say-tan Island; (C to G) Flora and fauna survey on island; (H) interview

5.9.3. IEE Results

1. Flora and Fauna species recorded in and surrounding area of the project site

FLORA

Plant species of the project site and surrounding areas

In this survey, plant species in and around the proposed project area (1 km radius of the central project site) was recorded and listed. In flora portion, a total of (69) species from (30) families was recorded in which trees were (59.42%) species, followed by small trees (18.84%), shrubs (10.14%), Climbers (8.69%), and finally each bamboo and herb (1.44%) respectively included (Table 5.24 and Figure 5.17). In family composition, the significant families were Fabaceae (with 7 species), followed by Arecaceae (with 6 species), and finally Malvaceae and Moraceae (with each 5 species). The other remaining families were composed of (4) to (1) species respectively (Table 5.24 and Figure 5.18). Grass species were omitted.

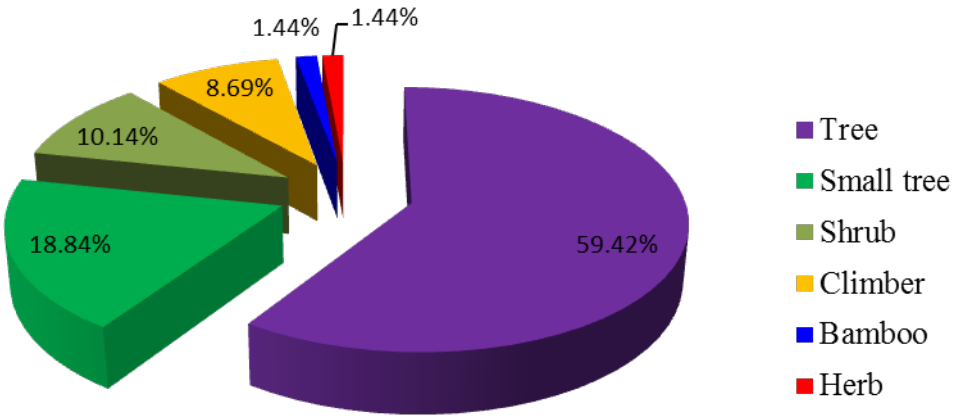


Figure 5.17- Species Composition of the Project Area

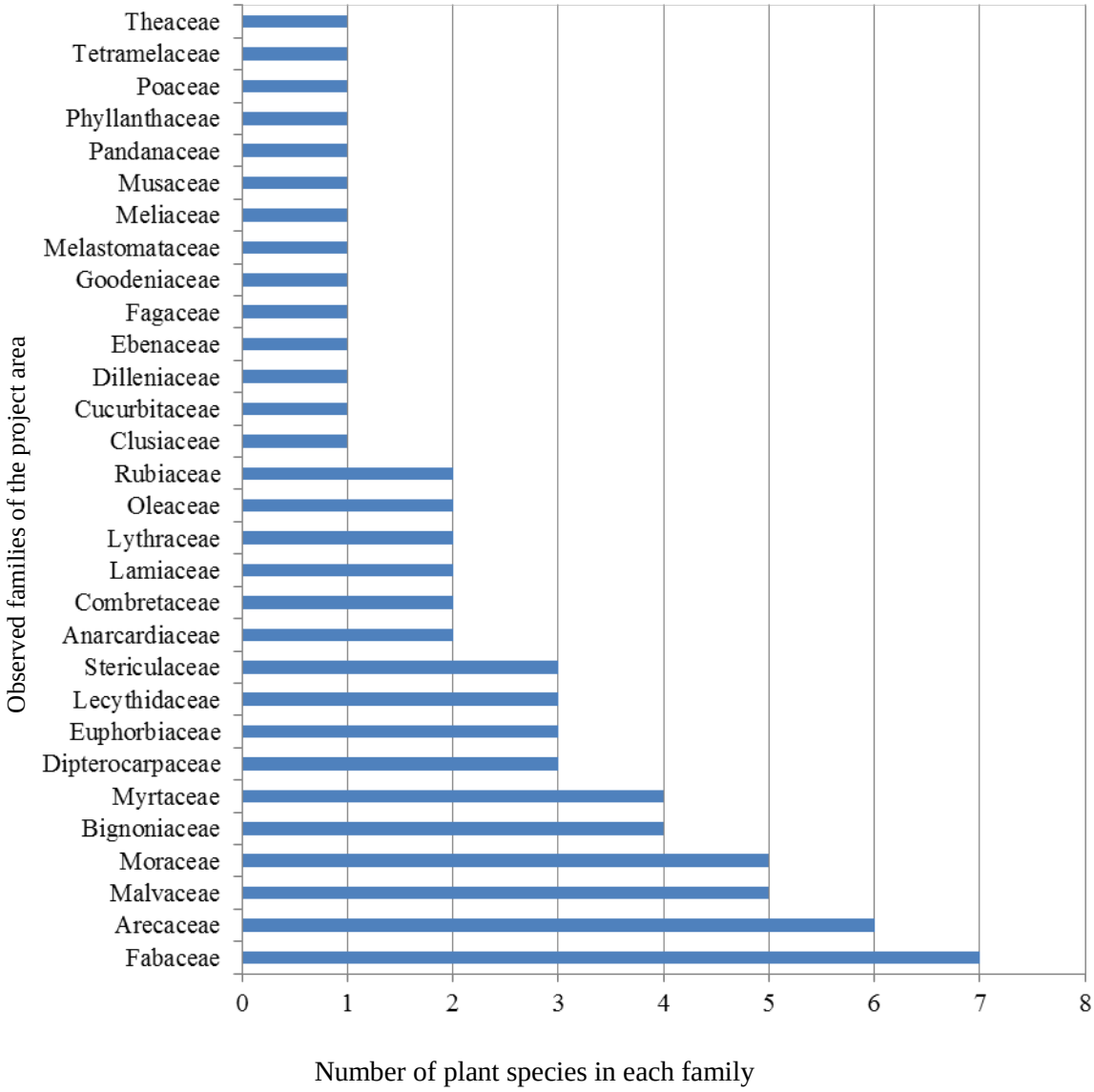


Figure 5.18- Family composition of the project area in accordance with observed number of plant species

Table 5.24- Recorded plant species together with Scientific names, Family names, Habits, Myanmar names and IUCN status

No.	Scientific Names	Family	Habit	Myanmar Name	IUCN status
1	*Abrus* sp.	Fabaceae	Climber=6	Ywe-ngwe	NL
2	*Adenanthera pavonina* L.	Fabaceae	Tree	Ywe-gyi	NL
3	*Archidendron jiringa* (Jack) I.C. Nielsen	Fabaceae=7	Tree	Danyin	NL
4	*Artocarpus heterophyllus* Lam.	Moraceae=5	Tree	Peinne	NL
5	*Atalantia monophylla* A. DC.	Rubiaceae=2	Shrub=7	Taw-shauk	NL
6	*Bambusa nigrociliata* Munro.	Poaceae=1	Bamboo=1	Waya	NL
7	*Barringtonia asiatica* (L.) Kurz.	Lecythidaceae	Tree	Kyi-gyi	NL
8	*Barringtonia conoidea* Griff.	Lecythidaceae	Small tree	Nil	NL
9	*Bridelia retusa* (L.) Spreng.	Euphorbiaceae=3	Tree	Seikchi	NL
10	*Calamus erectus* Roxb.	Arecaceae=6	Climber	Thaing-kyein	NL
11	*Calamus gregisectus* Burret	Arecaceae	Climber	Kyein	NL
12	*Calamus platyspathus* Mart. ex Kunth	Arecaceae	Climber	Kyet-u-kyein	NL
13	*Callerya atropurpurea* (Wall.) Schot	Fabaceae	Tree	Kywe-danyin	NL
14	*Careya arborea* Roxb.	Lecythidaceae=3	Tree =41	Bambwe	NL
15	*Caryota mitis* Lour.	Arecaceae	Tree	Tamibaw	NL
16	*Colona floribunda* (Kurz) Craib	Malvaceae	Small tree	Phet-shat	NL
17	*Dillenia parviflora* Martelli	Dilleniaceae=1	Tree	Zinbyun	NL

Table (5.24) Contd. (a)

No.	Scientific Names	Family	Habit	Myanmar Name	IUCN status
18	*Diospyros ehretioides* Wall.	Ebenaceae=1	Tree	Aukchinsa	NL
19	*Duabanga grandiflora* (Roxb.) Walp.	Lythraceae=2	Tree	Myauk-ngo	NL
20	*Eriolaena* sp.	Stericulaceae	Tree	Tayaw	NL
21	*Ficus fistulosa* Reinw	Moraceae	Small tree	Nil (Nyaung)	NL
22	*Ficus glandulifera* Wall.	Moraceae	Small tree	Nil (Nyaung)	NL
23	*Ficus heteropleura* Blume	Moraceae	Tree	Nil (Nyaung)	NL
24	*Ficus hispida* L.f.	Moraceae	Small tree	Kadut	NL
25	*Garcubua cowa* Roxb.	Clusiaceae=1	Tree	Taung-thale	NL
26	*Gmelina arborea* Roxb.	Lamiaceae=2	Tree	Yemane	NL
27	*Heritiera javanica* (Blume) Kosterm.	Stericulaceae=3	Tree	Taung-kanazo	NL
28	*Heterophragma adenophyllum* Seem.	Bignoniaceae	Tree	Petthan	NL
29	*Hibiscus macrophyllus* Roxb.	Malvaceae=5	Small tree	Petwun-gyi	NL
30	*Hopea sangal* Korth.	Dipterocarpaceae	Tree	Thingan-magale	NL
31	*Jasminum multiflorum* (Burm.f.) Andrews	Oleaceae	Climber	Tawsabe	NL
32	*Lagerstroemia villosa* Wall. ex Kurz	Lythraceae	Tree	Zaungbale	NL

Table (5.24) Contd. (b)

No.	Scientific Names	Family	Habit	Myanmar Name	IUCN status
33	*Lannea coromandelica* (Houtt.) Merr.	Anacardiaceae	Tree	Nabe	NL
34	*Lithocarpus* sp.	Fagaceae=1	Tree	Nil	NL
35	*Macaranga denticulata* Muell. Arg.	Euphorbiaceae	Small tree	Phet-wun	NL
36	*Melanorrhoea usitata* Wall.	Anarcardiaceae=2	Tree	Thitsi	NL
37	*Melastoma malabathricum* L.	Melastomataceae=1	Shrub	Kyet-gale	NL
38	*Morinda tetrandra* Roxb.	Rubiaceae	Small tree=13	Nibase	NL
39	*Musa laterita* E. E. Cheesm.	Musaceae=1	Herb=1	Taw-nget-pyaw	NL
40	*Olax psittacorum* (Willd.) Vahl	Oleaceae=2	Shrub	Lelu	NL
41	*Oroxylum indicum* (L.) Benth. ex Kurz	Bignoniaceae	Tree	Kyaungsha	NL
42	*Pandanus odoratissimus* Lam.	Pandanaceae=1	Small tree	Sat-thapoo	NL
43	*Phyllanthus niruri* L.	Phyllanthaceae=1	Shrub	Yaung-ma-ywet	NL
44	*Pongamia pinnata* (L.) Pierre	Fabaceae	Tree	Thinwin-phyu	NL
45	*Salacca secunda* Griff.	Arecaceae	Small tree	Yin-ngan	NL
46	*Sandoricum indicum* Cav.	Meliaceae=1	Tree	Thittto	NL
47	*Scaevola koenigii* Vahl	Goodeniaceae=1	Shrub	Pinle-tan	NL
48	*Schima wallichii* (DC.) Korth.	Theaceae=1	Tree	Thityah	NL
49	*Shorea assamica* Dyer.	Dipterocarpaceae	Tree	Kyilan	NL
50	*Shorea gratissima* Dyer	Dipterocarpaceae=3	Tree	U-ban-kaya	NL

Table (5.24) Contd. (c)

No.	Scientific Names	Family	Habit	Myanmar Name	IUCN status
51	*Sterculia* sp.	Stericulaceae	Tree	Nil	NL
52	*Stereospermum fimbriatum* (Wall. ex G. Don) A. DC.	Bignoniaceae	Tree	Than-that	NL
53	*Stereospermum glandulosum* Miq.	Bignoniaceae=4	Tree	Thakut	NL
54	*Syzygium cumini* (L.) Skeels.	Myrtaceae	Tree	Thabye-kyet-chi	NL
55	*Syzygium inophyllum* DC.	Myrtaceae	Tree	Thabye-satche	NL
56	*Syzygium kurzii* (Duthie) N. P. Balakr.	Myrtaceae	Tree	Thabye-nyo	NL
57	*Syzygium zeylanicum* (L.) DC.	Myrtaceae=4	Tree	Thabye-ni	NL
58	*Taliparitiliaceum* (L.) Elliott.	Malvaceae	Small tree	Ye-ngan-shaw	NL
59	*Terminalia bellerica* Roxb.	Combretaceae=2	Tree	Thitsein	NL
60	*Terminalia catappa* L.	Combretaceae	Tree	Banda	NL
61	*Tetrameles nudiflora* R. Br.	Tetramelaceae=1	Tree	Thitpoke	NL
62	*Thespesia lampas* (Cav.) Dalzell & A. Gibson	Malvaceae	Shrub	Thaman-shaw	NL
63	*Thespesia populnea* (L.) Sol. ex Correa	Malvaceae	Small tree	Pinle-swedaw	NL
64	*Trewia nudiflora* L.	Euphorbiaceae	Tree	Setkadon	NL
65	*Trichosanthes tricuspidata* Lour.	Cucurbitaceae=1	Climber	Kyi-arh	NL
66	*Vigna lutea* (Sw.) A. Gray	Fabaceae	Shrub	Nil	NL
67	*Vitex pubescens* Vahl	Lamiaceae	Tree	Kyet-yo	NL
68	*Wallichia disticha* T. Anderson	Arecaceae	Small tree	Min-baw	NL
69	*Xylia xylocarpa* (Roxb.) Taub.	Fabaceae	Tree	Pyinkado	NL

Note: IUCN- International Union for Conservation of Nature; NL- Not listed in IUCN red list (2018)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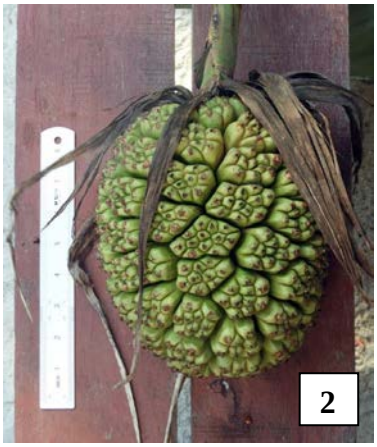
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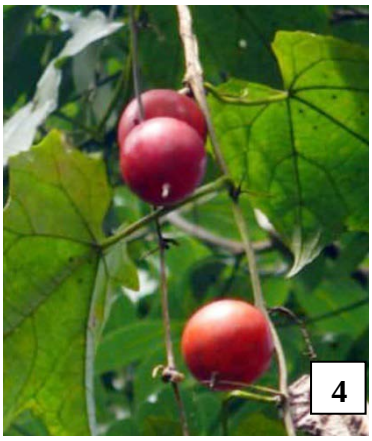
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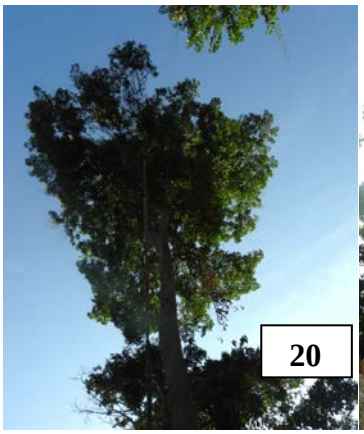
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Figure 5.19- Some photo-recorded plant species of Say-tan Island: (1) *Barringtonia asiatica* (Kyi-gyi); (2) *Pandanus odoratissimus* (Sat-thapoo); (3) *Terminalia catappa* (Banda); (4) *Trichosanthes tricuspidata* (Kyi-arh); (5) *Calamus platyspathus* (Kyet-u-kyein); (6) *Thespesia populnea* (Pinle-swedaw); (7) *Pongamia pinnata* (Thinwin-phyu); (8) *Musa laterita* (Taw-nget-pyaw); (9) *Xylia xylocarpa* (Pyinkado); (10) *Hopea sangal* (Thingan-magale); (11) *Atalantia monophylla* (Taw-shauk); (12) *Adenanthera pavonina* (Ywe-gyi); (13) *Talipariti tiliaceum* (Ye-ngan-shaw); (14) *Wallichia disticha* (Min-baw); (15) *Macaranga denticulate* (Phet-wun); (16) Eriolaena sp. (Ta-yaw); (17) *Shorea assamica* (Kyikan); (18) *Lithocarpus* sp. (Nil); (19) *Syzygium zeylanicum* (Thabye-ni); (20) *Gmelina arborea* (Yemane); (21) *Sterculia* sp. (Nil); (22) *Ficus glandulifera* (Nil); (23) *Careya arborea* (Bambwe); (24) *Callerya atropurpurea* (Kywe-danyin); (25) *Calamus gregisectus* (Kyein); (26) *Colona floribunda* (Phet-shat); (27) *Lagerstroemia villosa* (Zaungbale); (28) *Scaevola koenigii* (Pinle-tan)

Discussion for plants

In flora survey, not only monocotyledonous but also dicotyledonous flora species are abundantly found within 1 km radius of the project site. According to angiosperm diversity, a total of (7) monocotyledonous species of *Calamus gregisectus* (Kyein), *Calamus platyspathus* (Kyet-u-kyein), *Calamus erectus* (Thaing-kyein), *Caryota mitis* (Taminbaw), *Salacca secunda* (Yin-ngan), *Wallichia disticha* (Min-baw) and Musa laterita (Taw-nget-pyaw) are abundantly growing on this island. The resting (62) species were recorded as

dicotyledonous species. At present situation, land preparation was not occurred in the proposed project site (15 acres) but road construction beyond it on the island was occurred. Road construction can cause the direct impacts on flora and fauna because of cutting down the flora species from which habitat losses for fauna species or fragmentation of forest areas. To mitigate this problem, the developer should be done nursery for native flora species on island to grow on the road side areas and damage areas. And also, the native flora species from the flora nursery should be grown on the road areas and fragmented areas of the forest after closing the hotel resort project.

In this survey, plant species in and around the proposed project area within 1 km was recorded and listed. Most flora survey was conducted on island. A total of (69) species from (30) families was recorded in which trees were (59.42%) species, followed by small trees (18.84%), shrubs (10.14%), Climbers (8.69%), and finally each bamboo and herb (1.44%) respectively included. In family composition, the significant families were Fabaceae (with 7 species), followed by Arecaceae (with 6 species), and finally Malvaceae and Moraceae (with each 5 species). The other remaining families were composed of (4) to (1) species respectively.

In conclusion, recorded flora species were not found in threatened categories of IUCN red list (2018) when all specimens check through IUCN web address after identification.

FAUNA

Four groups for animals are classified according to their presence in the surrounding area of the project site. The study is to investigate their abundance status and possible impacts caused by the project activities. According to survey result, the abundance of individual recorded species in terrestrial habitat in and around the project area are low and moderate. However aquatic fauna species are intentionally observed as ecological important which includes fish. Stingray fish was recorded which listed IUCN as nearly threatened species (NT) during the observation period. Four fauna groups are as follow,

- -Herpetofauna (Reptiles and Amphibians)
- -Avifauna/birds
- -Mammals
- -Fish

Herpetofauna (Amphibian and reptiles)

Herpetofauna with low population and small diversity are recorded. A total of 11 species belong to (9) families were recorded during the scoping survey (Figure 5.20 and Table 5.25). The abundance status of individual species based on observed frequency was

recorded as rare in the study area. All recorded amphibians and reptiles are common species. Amphibians and reptiles are one of the important members of aquatic and terrestrial ecosystems as they serve as both predators and prey.

Table 5.25- Recorded amphibian and reptile species in the project area

Sr. No	Family	Common name	Scientific name	Conservation status IUCN 2016	Habitats	Abundance status
Frog and Toad						
1	Dicroglossidae	Indian cricket frog	*Fejervarya limnocharis*	LC	Shrub	R
2	Rhacophoridae	Common tree frog	*Polypedates leucomystax*	LC	Shrub	R
3	Bufonidae	Asian common toad	*Duttaphrynus melanostatus*	LC	Ground	R
Snake						
4	Colubridae	Long-nosed whip snake	*Ahaetulla nasuta*	LC	Shrub/Tree	R
5	Colubridae	Copper head racer	*Elaphis radiatus*	LC	Shrub/grass	R
6	Colubridae	Indo-Chinese Rat Snake	*Ptyas korros*	LC	Shrub/grass	R
7	Elapidae	Monocellate cobra	*Naja kaouthia*	LC	Shrub	R
8	Pythonidae	Reticulated python	*Python reticulatus*	LC	Forest	R
Lizard						
9	Agamidae	Garden fence lizard	*Calotes versicolor*	LC	Shrub	S
10	Gekkonidae	Tockay	*Gekko gecko*	LC	Tree	S
11	Veranidae	Clouded monitor	*Varanus bengalensis*	LC	Tree	S

Notes: Abundance status in the study area. Rare=R, Uncommon=UC, Frequent=F, Common=C and Abundant=A

Python reticulatus

Ahaetulla nasuta

Figure 5.20- Snakes Recorded from the Project Area

Birds

A total of 12 species of bird belongs to 9 families are recorded around the project area (Table 5.26 and Figure 5.21). Among them Black-eared Kite *Milvus lineatus* was remarkable bird species found in the study area with small number about 5 individuals. This species is also found as widely distributed in the islands of this region. No migratory and threatened species are observed during the observation period. Birds are taking play in ecological important role as they serve as in food-chain and food web, seed dispersal and propagation, pollination, pest control and rodent control.

Table 5.26- Recorded bird species around the project area

Sr. No	Family	Common name	Scientific name	Conservation status (IUCN 2016)	Habitats	Abundance Status
1	Accipitridae	Black-eared Kite	*Milvus lineatus*	LC	Tree	R
2	Columbidae	Spotted dove	*Streptopelia chinensis*	LC	Tree	R
3	Corvidae	House crow	*Corvus spledens*	LC	Tree	R
4	Dicruridae	Black drongo	*Dicrurus macrocercus*	LC	Tree	R
5	Hirundinidae	Barn swallow	*Hirundo rustica*	LC	Sky/branch	R
6	Sturnidae	Common myna	*Acridotheres tristis*	LC	Tree	R
7	Sturnidae	Hill myna	*Gracula religiosa*	LC	Tree	R
8	Pycnonotidae	Red whiskered bulbul	*Pycnonotus jocosus*	LC	Tree	UC
9	Passeridae	House sparrow	*Passer domesticus*	LC	Terrestrial	UC
10	Ardeidae	Little egret	*Egretta garzetta*	LC	Aquatic	R
11	Ardeidae	Great egret	*Ardea alba*	LC	Aquatic	R
12	Ardeidae	Indian pond heron	*Ardeola grayii*	LC	Aquatic	R

Notes: Abundance status in the study area. Rare=R, Uncommon=UC, Frequent=F, Common=C and Abundant=A

Black-eared Kite *Milvus lineatus*

Little egret *Egretta garzetta*


Ardeola grayii *Streptopelia chinensis*

Figure 5.21- Some Recorded Birds around the Project Area

Mammals

Mammal species are very less in the project area. But some mammal species such as monkeys known as Rhesus macaque or long tail macaque (*Macaca mulatta*) and squirrel belong to Family Sciuridae, are observed in the forest of Mountain. About 20-25 individual numbers of monkey are estimated during the survey period. This species is one of the best-known species of Old World monkeys. It is listed as Least Concern in the IUCN Red List of Threatened Species in view of its wide distribution with large population, and its tolerance of a broad range of habitats. This species should be protected. Native to South, Central, and Southeast Asia, Rhesus macaque have the widest geographic ranges of any nonhuman primate, occupying a great diversity of altitudes and a great variety of habitats, from grasslands to arid and forested areas, but also close to human settlements.

Fish

Fish sample collection was made with the help of local people. Those people are fishing for their home consumption. No commercial fishing was observed around this area. Both commercial fish and small fish with small population are recorded during the survey period. Fish species richness is moderate and abundance is low in each species. All recorded fish species, the fish *Scatophagus argus*, *Plotosus canius* and *Chelon macrolepis* were found as moderate and Uncommon status in the assessed category. A total of 18 species under 15 families were recorded (Table 5.27 and Figure 5.22). All recorded fishes are common species and widely distributed in this region. But the sting-ray fish or mangrove whipray (*Himantura walga*), and small size shark, *Scoliodon sp* a cartilaginous fish in the family Dasyatidae was recorded. It is a demersal fish and is found in coastal water. The IUCN has assessed it as being "Near-Threatened (NT) and (LC)" and which should be protected as prohibited fishing these species by Myanmar Fishery Law.

Table 5.27- Recorded fish species in the water around the project area

Sr. No	Family	Common name	Scientific name	IUCN 2018	Habitats	Abundance status/remark
1	Carangidae	Giant trevally	*Caranx ignobilis*	LC	Rocky shore	R
2	Carangidae	Slender queenfish	*Scomberoides tol*	LC	Coastal sea	R
3	Scaridae	Parrotfish	*Scarus sp*	LC	Rocky shore	R/information
4	Disyatidae	Mangrove whipray	*Himantura walga*	NT	Coastal Sea flow	R
5	Carcharhinidae	Spadenose shark	*Scoliodon sp*	LC	Coastal sea	R/information
6	Serrinidae	Gropper/Kyauk nga	*Epinephelus tauvina*	LC	Rocky shore	R
7	Polynemidae	Indian Threadfin/Ka Ku Yan	*Polinemus indicus*	LC	Coastal	R
8	Litadae	Seabass/Kakatit	*Lates calcarifer*	LC	Coastal	R
9	Sciaenidae	Caroun croaker/Nga Poke thin	*Johnius carouna*	LC	Rocky shore/coastal	R
10	Scatophaguidae	Spotted scat/Nga pathon	*Scatophagus argus*	LC	Rocky shore	UC
11	Gobiidae	Golden tank goby/Kathaboe	*Glossogobius aureus*	LC	River	R
12	Hemiramphidae	Needlefish/ Nga Phaung Yoe	*Hyporhamphus limbatus*	LC	Coastal & surface water	R
13	Mugilidae	Large scale mullet/Kabilu	*Chelon macrolepis*	LC	Open and coastal water	UC
14	Plotosidae	Canine Catfish eel/Nga Khu	*Plotosus canius*	LC	Coastal water	UC
15	Cynoglossidae	Fourlined tonguesole/Nga Hway Shar	*Paraplagusia bilineata*	LC	Sea flow	R
16	Sciaenidae	Croaker/Ngapokethin	*Johnius coitor*	LC	Coastal	UC
17	Lutjanidae	John's snapper/Ngapani	*Lutjanus johnii*	LC	Rocky shore	R
18	Terapontidae	Tiger Bass	*Threapon jarbua*	LC	Rocky shore	R

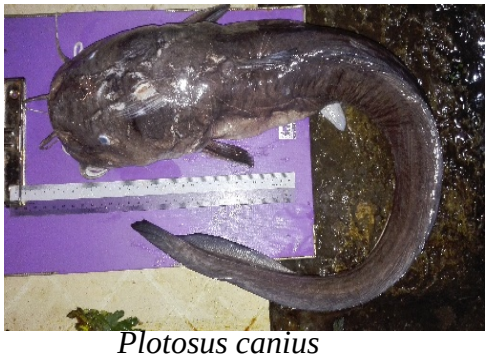
Notes: Abundance status in the study area. Rare=R, Uncommon=UC, Frequent=F, Common=C and Abundant=A

Epinephelus tauvina

Spotted scat *Scatophagus argus*

Gerres filamentosus

Threapon jarbua



Plotosus canius

Himantura walga

Figure 5.22- Some Photo-Recorded Fishes nearby the Project Area

IUCN Red list species, Endemic species and Invasive species

There were no recorded of those species of flora and fauna in the study area during the survey period. However, the flora and fauna diversity in the study area are suggested to protect them according to the island was listed as one the high priority KBAs and geological isolation.

5.9.4. Management

- Wildlife poster described key information of remarkable animals and plants such as Long-tailed monkey and Black Kate bird, Python snake and Yemane tree found in the

area with pictures should be set up in suitable place of the project area for conservation purpose.

- It should be included A Notice of prohibiting the killing of any wildlife, fishing and cutting of the trees around the project area,
- Plastic waste, liquid waste disposal and any rubbish management plan should be for special attention, no plastic and rubbish to water is very important in the plan.

5.9.5. Conclusion

In the proposed project area, the flora and fauna species area unique because of the geological isolation. The proposed project area is moderately significant for biodiversity as well as the important ecosystem and environmental values of marine sources. A total of (41) flora species and (43) species of fauna were recorded, Plant and animal species are not found in IUCN Red list but two fish species of Shark and Ray were observed as protected species by Fishery law is considered as conservation importance. Plant density and species abundance are moderate in and around the project area. Vegetation with trees are mainly composed of land area. According to the data, there will be an impact on biological community especially to the existing aquatic organisms and land vegetation. The extent of the impact on fauna and flora is investigated as only in the site specific and the duration of the impact is assumed as may be long term.

6. IMPACT ASSESSMENT AND MITIGATION MEASURES

6.1. Impact Assessment Methodology and Approach

6.1.1 Introduction

The impact assessment methodology used in this Initial Environmental Examination (IEE) Report provides a basis to characterise the potential environmental and social impacts of the Project. The methodology is based on models commonly employed in impact assessment, and takes into consideration the International Finance Corporation (IFC) Performance Standards (PS). The IEE has been undertaken following a systematic process that evaluates the potential impacts the Project could have on aspects of the physical, biological, social/ socio-economic and cultural environment; identifies preliminary measures that the project will take to avoid, minimise/reduce, mitigate, offset or compensate for potential adverse impacts; and identifies measures to enhance potential positive impacts where practicable.

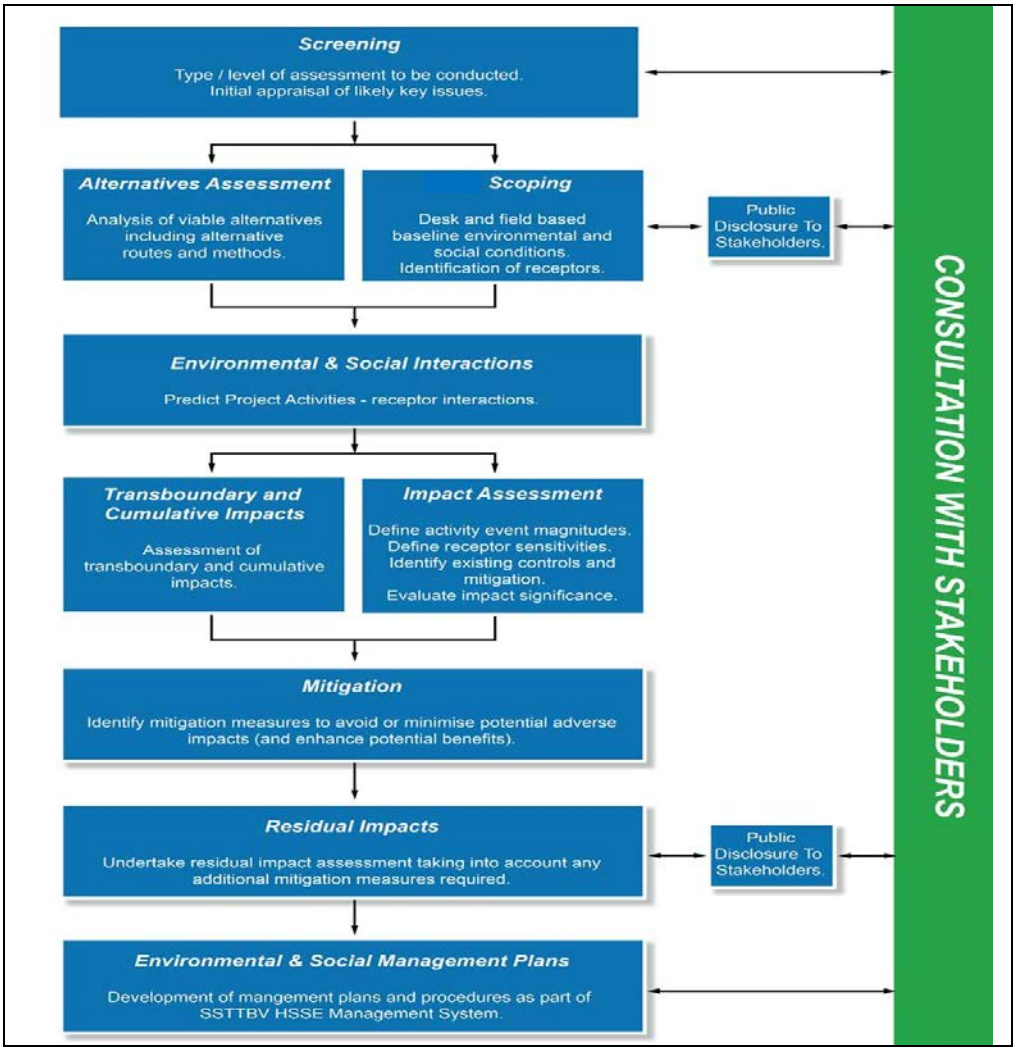


Figure 6.1 - Overall Impact Assessment Process

6.1.2 Screening

Screening was the first stage undertaken during the IEE process to identify potential interactions between the project and existing physical, ecological, and human receptors. The screening process of this project has been conducted and the project proponent has discussed and agreed with the relevant authorities that an Initial Environmental Examination (IEE) study is required for the project.

6.1.3 Scoping

.Scoping has been undertaken to provide further detail of potential environmental and social effects of the project using additional engineering and baseline data, to identify potential interactions between the project and resources/receptors in the area of influence and the impacts that could result from these interactions, and to prioritize these impacts in terms of their likely significance. The resources/receptors considered in the scoping stage, together with the potential impact changes are shown in the following table.

Table 6.1 - Resources/Receptors and Potential Impacts Considered in Scoping

Resources/Receptors	Potential Impacts Changes
Environmental	
Geology	Changes to geology, geomorphology, topography
Air	Emissions of NOx, SOx, PM, CO, VOC, greenhouse gases (CO_2, CH_4 and N_2O), ozone, TSP etc.
Noise and Vibration	Change in noise or vibration levels
Surface Water	Changes to physical, chemical or biological quality of rivers, lakes, seas and other surface water bodies; Introduction of exotic species, changes in habitat quality, abundance, diversity; Effluent discharge.
Groundwater	Contamination of shallow or deep groundwater resources, change in ground water resources
Soil	Changes to physical and chemical properties and soil ecology
Vegetation	Changes to vegetation population, health, species abundance and diversity and impact on endangered and economic species, food chain effects
Wildlife	Changes to wildlife assemblages, impact on endangered and economic species, food chain effects
Sediments	River/waterbed morphology, physical and chemical properties, benthic organisms
Fisheries	Changes in fisheries productivity
Aesthetics	Physical presence of facilities, increased night time light
Waste	Generation of wastes – hazardous and non-hazardous
Social / Socio-economic	
Population and physical displacement	Changes in total population, gender ratio, age distribution. Physical displacement from residence as a result of Project and its activities

Social and Cultural Structure	Disruption in local authority and governance structure; change in social behaviours; alterations to social and cultural networks; intra and inter-ethnic conflict
Economy and employment	Change in national/local economy, employment, standard of living, occupation
Resource ownership and use	Temporary or permanent restriction for accessing or using land or water, changes in livelihood activities based on natural resources; changes in ownership of such resources.
Cultural Resources	Physical disturbance of shrines, burial grounds, archaeological resources or other desecration or change in access to cultural resources, rituals or celebrations carried out in their premise.
Education and skills	Change in availability or quality of education or skills provision, supply and demand in certain skill sets etc.
Infrastructure and public services	Improvement or pressure on existing urban/rural infrastructure or Services including: transportation; power, water, sanitation, security, waste handling facilities etc.
Community Health and Safety	
Mortality and Key Health Indicators	Change in the mortality profile of the community; changes in life expectancy, birth rates, death rates, maternal mortality rates etc.
Environmental Change	Decreased air quality (e.g. NOx, SOx, VOC, CO, PM), contamination of surface waters and potable ground water, increased vibration and noise, increased night time light beyond acceptable limits, changes to the visual environment.
Communicable and Non Communicable Diseases	Change in incidence and /or prevalence of communicable and non-communicable diseases or disease causing factors
Vector Borne Diseases	Changes in the incidence and or prevalence of vector borne diseases, the density of these vectors and their breeding grounds.
Sexually Transmitted Diseases	Changes in the incidence and /or prevalence of sexually transmitted diseases and the factors that contribute to this (external workforce, transport routes etc.)
Nutritional Status	Changes to nutritional status and food security
Health Care/ Recreational Facilities	Changes in availability of and access to health care and recreational facilities including green space
Psychosocial /Lifestyle Factors	Drug use/abuse, prostitution, communal violence, crime, suicide and depression; changing expectations of quality of life
Community Safety	Risk to community safety includes water sanitization and drowning hazards in pool and sea place.

6.1.4. Impact Assessment Framework

The process for assessing potential project impacts is illustrated in figure below and involved:

- *Prediction*: What will happen to the environment as a consequence of this project (i.e. defining Project Activities and impacts)?
- *Evaluation*: Will it have a beneficial or adverse effect? How big is the change expected to be? How important will it be to the affected receptors?
- *Mitigation*: If the impact is of concern, can anything be done to avoid, minimise, or offset the impact? Or to enhance potential benefits?

- *Residual Impact*: After mitigation, is the impact still of concern?

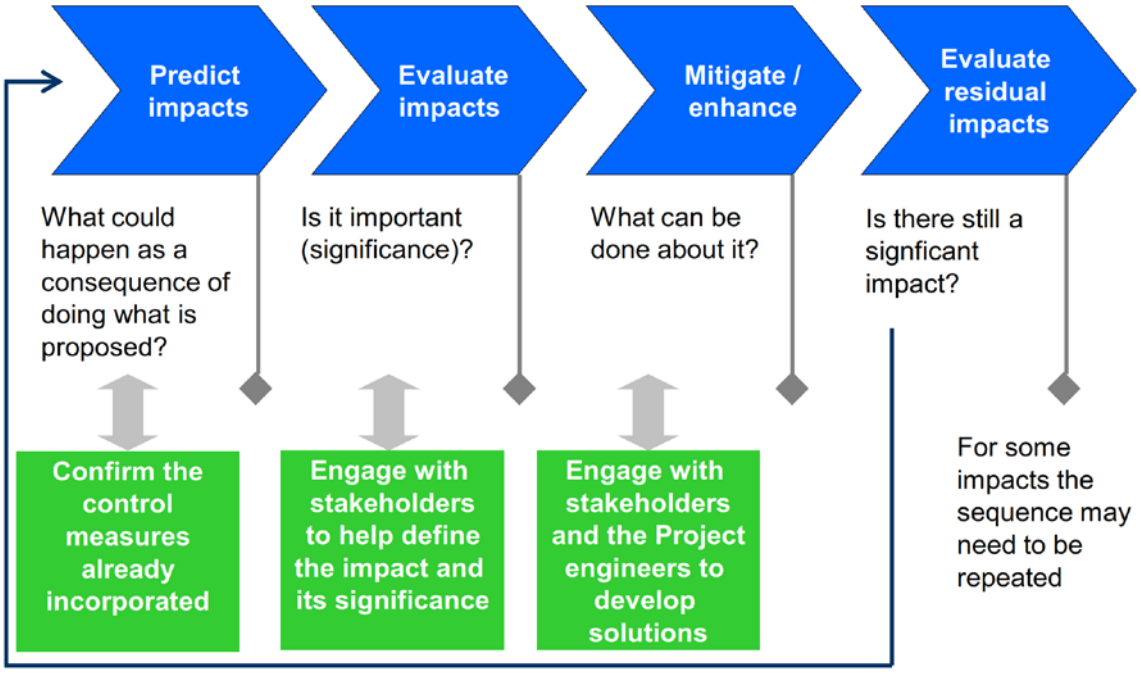


Figure 6.2 - Impact Identification and Assessment Process

Impact significance was assessed with and without mitigation measures in place. The impact significance without mitigation measures was assessed with the design controls in place. Impacts without mitigation measures in place are not representative of the Project's actual extent of impact, and are included to facilitate understanding of how and why mitigation measures were identified.

The residual impact is what remains following the application of mitigation and management measures, and is thus the final level of impact associated with the development of the Project. Residual impacts also serve as the focus of management and monitoring activities during Project implementation to verify that actual impacts are the same as those predicted in this IEE report.

For some types of impact there are empirical, objective and established criteria for determining the potential impact significance (e.g. if a standard is breached or a protected area is damaged). However, in other cases assessment criteria are more subjective and require professional judgement to a greater degree. The criteria against which the significance of planned impacts was evaluated, for the purposes of this Project, has been described in terms of two components: impact magnitude (Section 6.1.4.3) and receptor sensitivity (Section 61.4.4). The assessment of unplanned impacts is described in Section 6.1.4.6.

6.1.4.1 Activities and Impacts

Building upon the process conducted during the Scoping Stage, Project activities and potential environmental, socio-economic and cultural heritage impacts upon receptors were further defined. For this purpose, the definition of a Project impact was adapted from ISO14001:2004 as:

- "Any change to the environment [or social receptors], whether adverse or beneficial, wholly or partially resulting from an organization's environmental [or social] aspects."

Definitions of an 'activity' and a 'receptor' are not included within ISO 14001:2004, but for the purposes of this Project the following definitions are provided:

A Project activity is considered to be:

- A physical action or presence of infrastructure associated with the operation of Project plant, equipment or vehicles, or the actions of Project employees.

A Project receptor is considered to be:

- Someone or something that could be influenced by the Project, including human health, water resources, air quality, ecological habitats or species, cultural heritage assets, and the wider environment.

An impact therefore represents the effect of an interaction of a Project activity with the physical, ecological and human receptor. Two examples of these relationships are provided in the following figure.

Term	Example 1	Example 2
ACTIVITY	Use of diesel generator set	Generation of wastewater
RECEPTOR	Air quality and climate	Seawater quality
IMPACT	Deterioration of air quality, global warming	Environmental degradation, economic losses

Figure 6.3- Examples of Project Activity - Impact Pathways

Project activities were identified through a review of the Project Description (Chapter 4 Project Description). Potential impacts were identified based on the details of Project

activities and their potential interactions with the surrounding environment (and physical, ecological, and/or human receptors). This also required an understanding of the potential sources of impacts and impact pathways, and was supported by:

- An understanding of baseline conditions and potential receptors (Chapters 5);
- The spatial and temporal extent of the Project Area of Influence (Chapter 1 Introduction);
- Information from stakeholders, including authorities, experts, and the public (Chapter 8 Stakeholder Engagement); and
- Professional knowledge and experience of comparable projects or developments.

To some extent, the identification and understanding of Project Activities and impacts was an iterative process conducted throughout the IEE process as more project and environmental and social baseline information became available.

6.1.4.2 Impacts Nature and Type

Whether an impact is considered to be beneficial or adverse (impact nature), and the way in which it is related to the project (impact type, e.g. direct, indirect) are relevant to the IEE process. In particular, the degree to which an impact may be managed or modified by the mitigation measures is dependent upon the impact nature and type.

Table 6.2- Impact Assessment Terminology

Term	Definition
Impact Nature	
Adverse Impact	An impact that is considered to represent an adverse change from the baseline condition or introduces a new undesirable factor.
Beneficial Impact	An impact that is considered to represent an improvement on the baseline condition or introduces a new desirable factor.
Impact Type	
Direct Impact	Impacts that result from a direct interaction between a Project Activity and the receiving environment (e.g. between occupation of an area of seabed and the habitats which are lost).
Indirect Impact	Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g. Project implementation promotes service industries in the region).
Secondary Impact	Impacts that follow on from the primary interactions between the Project and its environment as a result of subsequent interactions within the environment (e.g. loss of part of a habitat affects the viability of a species population over a wider area).
Cumulative Impact	Impacts that act together with other impacts, from other projects or unrelated activities, to affect the same environmental resource or receptor.

In considering impacts related to this project, both adverse and beneficial impacts have been identified. Where appropriate, the impact assessment chapters further identify impacts as direct, indirect or secondary impacts. Where appropriate, both impact nature and type definitions have been applied throughout the IEE report to provide clarity regarding the significance of the impacts.

6.1.4.3. Impact Magnitude

The magnitude of an impact is a measure of change from baseline conditions. This measure of change can be described in terms of its:

- Extent: spatial extent (e.g. area impacted) or population extent (e.g. proportion of the population or community affected) of an impact;
- Duration: how long the impact will interact with the receiving environment;
- Frequency: how often the impact will occur; and
- Reversibility: how long before impacts on receptors cease to be evident.

Thus, these characteristics collectively describe the nature, physical extent, and temporal condition of the impact.

To facilitate a structured description of impact magnitude, a qualitative scale was applied, ranking the magnitude of changes as negligible, low, moderate, or high developed for each of the magnitude characteristics.

The criteria for each of these impact magnitude categories (i.e. negligible, low, moderate and high ranking criteria) were developed as appropriate for each discipline

6.1.4.4. Receptor Sensitivity (Resilience and Value)

Receptor sensitivity is the degree to which a particular receptor is more or less susceptible to a given impact. Receptor sensitivity takes into consideration the receptor's resilience and value. Receptor resilience (or conversely, vulnerability) describes the ability of the receptor to withstand adverse impacts. It takes into consideration not only activity-impact-receptor pathways, but also environmental characteristics of the receptor that might make it more or less resilient to change.

As such, a receptor can be considered as existing within a spectrum of 'vulnerable' to 'resilient', with the former more likely to experience significant impacts as a result of a given change.

Receptor value takes into consideration its quality and its importance as represented, for example, by its conservation status, its cultural importance and / or its economic value. It

recognises that, for a given magnitude impact, different receptors (either directly or indirectly) may be deemed to be of greater importance and as such the significance of the impact is greater than the impact magnitude alone.

Table 6.3- Example Definitions of Receptor Sensitivity

Sensitivity of Receptor	Example Definitions of Receptor Components			
	Abundance or quantity	**Condition**	**Adaptability**	**Value**
Low	Typically found/ Similar abundance in all area.	In a good and tolerant condition. Has experienced similar levels of change, which was acceptable.	Immediately adapts and accepts changes without difficulties.	Valuable but not site specific.
Medium	Abundance is limited in some areas.	Under some stressed condition.	Adapts/ accepts changes with some difficulties.	Valuable at local level, in current situation or under the protection of the law.
High	Very scarce. Specific characteristics.	Under high pressure and tends to worsen.	Cannot withstand the increasing pressure and experiences negative, permanent changes.	Highly valuable at the national and international level, or under the protection of the law.

6.1.4.5. Impact Significance

Impact magnitude and receptor sensitivity were used to assess impact significance according to the impact assessment matrix and the impact assessment definitions are shown in the following Table.

The matrix and significance definitions below have been used to assess adverse impacts of the project. It is important to note that impact prediction and evaluation take into account any embedded controls (i.e., physical or procedural controls that are already planned as part of the project design, regardless of the results of the IEE Process). This avoids the situation where an impact is assigned a magnitude based on a hypothetical version of the Project that considers none of the embedded controls. Although beneficial impacts of the project are identified within this IEE, beneficial impacts have not been assessed in terms of receptor sensitivity or impact magnitude.

Table 6.4- Impact Significance

		Sensitivity/Vulnerability/Importance of Resource/Receptor			
		Negligible	**Low**	**Medium**	**High**
Magnitude of Impact	**Negligible**	Not significant	Not significant	Not significant	Not significant/Low*
	Small	Not significant	Low	Low/ Moderate†	Moderate
	Medium	Not significant	Low/ Moderate	Moderate	High
	Large	Low	Moderate	High	High

* Allows technical discipline author to decide if impact significance is Not Significant or Low.
† Allows technical discipline author to decide if impact significance is Low or Moderate.

Table 6.5 - Impact Significance Definitions

Adverse Impacts	**High**	**Significant**. Impacts with a "high" significance are likely to disrupt the function and value of the resource/receptor, and may have broader systemic consequences (e.g. ecosystem or social well-being). These impacts are a priority for mitigation in order to avoid or reduce the significance of the impact.
	Moderate	**Significant**. Impacts with a "moderate" significance are likely to be noticeable and result in lasting changes to baseline conditions, which may cause hardship to or degradation of the resource/receptor, although the overall function and value of the resource/receptor is not disrupted. These impacts are a priority for mitigation in order to avoid or reduce the significance of
	Low	**Detectable but not significant**. Impacts with a "low" significance are expected to be noticeable changes to baseline conditions, beyond natural variation, but are not expected to cause hardship, degradation, or impair the function and value of the resource/receptor. However, these impacts warrant the attention of decision-makers, and should be avoided or mitigated where
	Not significant	**Not Significant**. Any impacts are expected to be indistinguishable from the baseline or within the natural level of variation. These impacts do not require mitigation and are not a concern of the decision-making process.

6.1.4.6. Unplanned Events

Environmental and social impacts that might result from unplanned events (e.g. fuel spill or wet buckle). In addition to impact magnitude and receptor sensitivity, the impact assessment methodology for unplanned events also considered the likelihood of occurrence of the event(s). The likelihood of an unplanned event occurring is designated using a qualitative scale, as described in the following Table.

Table 6.6 - Definitions of Likelihood Designations (for Unplanned Events only)

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions.
Possible	The event is likely to occur at some time during normal operating conditions.
Likely	The event will occur during normal operating conditions (i.e., it is essentially inevitable).

6.1.5. Impact Mitigation

As part of the IEE process, where the impact assessment identified impacts as potentially arising, mitigation measures were developed (including avoidance, management and monitoring strategies). Where an adverse impact is identified, the next step is to find a way to avoid or minimise the impact.

The process of identifying "design controls" and "mitigation measures" considered the mitigation hierarchy (Figure below), as specified in IFC PS1, which is widely regarded as a best practice approach to managing risks.

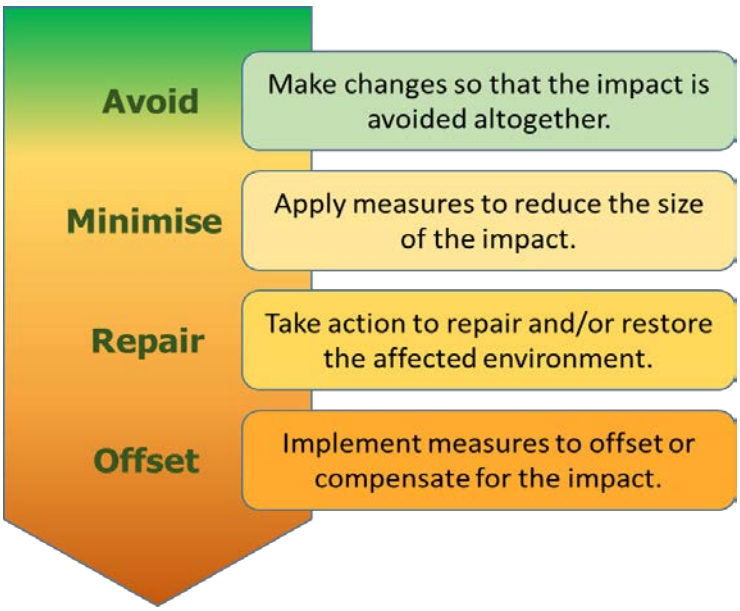


Figure 6.4 - The Mitigation Hierarchy

Avoid

Avoid at Source: avoiding at source through the design of the project (e.g., avoiding by siting or re-routing activity away from sensitive areas);

Minimise

Reduce at Source: reducing at source through the design of the project (e.g., reducing by restricting the working area or changing the time of the activity);

Abate on Site: add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping);

Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site);

Repair

Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures; and

Offset

Compensate in Kind, Compensate Through Other Means: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

The priority in mitigation is to first apply mitigation measures to the source of the impact (i.e., to avoid or reduce the magnitude of the impact from the associated Project activity), and then to address the resultant effect to the resource/receptor via abatement or compensatory measures or offsets (i.e., to reduce the significance of the effect once all reasonably practicable mitigation measures have been applied to reduce the impact magnitude).

6.1.6. Residual Impact Assessment

Once feasible mitigation measures were identified and agreed, the IEE team reassessed the potential impacts, assuming the mitigation measures were effectively implemented as planned.

In general, impacts with "Not Significant" or "Low" significance residual impact significance were not considered to be of concern to the development of the project. For adverse impacts of "Moderate" and "High" significance, an iterative process is undertaken to further investigate opportunities for mitigation, according to the hierarchy above. Where the significance cannot be further reduced, an explanation is provided of why further reduction is not practicable. Monitoring is required to confirm the measures used to mitigate adverse impacts are working properly and that the impact is not worse than predicted.

6.2. Impact on Physical Environment

(a) Land Use

The proposed site is in the coastal plains and is slightly undulating on the Saytan Island. The site surroundings comprise of virgin forest land and the land use in the surrounding area comprises of no residential set up. No industrial area is observed in nearby vicinity.

Therefore, it can be adhered that the proposed development of beach resort will change the present land use pattern of the area.

(b) Topography

The proposed development will involve some change in the topography of the area by the erection of buildings and this will change the existing pattern of surface drainage. As the proposed site is lying in the coastal plain and have slightly undulating terrain with a contour difference of 5 m in the highest and lowest part of the land. The construction activities will proceed in a manner so as to maintain the natural slope of the area by proper leveling of land, as and when required. Therefore no significant impact is anticipated on the local topography of the area.

(c) Mature and Coastal Vegetation

Removal of mature island vegetation for construction of infrastructure can generate environmental effects that can reduce protection of the island from increased wind speed as well as affect low vegetation types such as bushes and shrubs due to decreased shelter. Similarly, removal of coastal peripheral vegetation for construction of beach bars, jetties, piers and other coastal structures can lead to accelerated beach erosion and alteration of natural ecological succession of the island vegetation. This vegetation removal will result in reduction in habitat cover for the birds and animals in the island. The project owner has selected location that does not have many trees to be removed during land clearing for construction of buildings; enough vegetation is required to be left untouched to conceal buildings as much within the vegetation. They are only clearing of shrubs and small trees in the small area identified for the construction of villas. The rest of the islands will be left as it is and hence will not hamper the habitats significantly.

6.3. Air Environment

6.3.1. Impact on Air Environment during Construction Phase

Construction activities related to the proposed Project will result in limited short term air quality impacts. Dust in term of Total Suspended Particulates (TSP) and fine particles (PM_{10} and PM) are the key pollutants during construction. Emissions from construction worker vehicles and construction equipment are anticipated to have minimal short-term impacts.

Potential impacts to air quality and dust from the project may occur due to the following activities:

- Deforestation of around 1 acres each in the islands to make it suitable for making buildings and roads
- Site preparation activities of hotel building and relates facilities including site clearing and grubbing, excavation and filling, and construction of access road; and
- Vehicle movement on dirt road.

The construction phase will long approximately as 12 months and all of the impacts during construction phase are short-term, temporary and will not be significance. The following table shows the number of vehicles will use in the construction phase.

No.	Construction activities	vehicles	workers	Duration
1	Deforestation	-	(10)	1 month
2	Minor Site/ land clearing	Dozer (1)	(10)	15 days
3	Sand leveling	Track (2)	(15)	1 month

4	Manpower site clearing	-	(30)	1 month
5	Building Infrastructure	-	(55)	8 month

(a) Fugitive Dust Emissions

Fugitive dust emissions from site preparation activities and vehicles transportation on dirt roads are anticipated to have short-term impacts for approximately 12 months of Phase 1 construction phase. This might lead to increase in dust particles near construction site and roads, but those increases would be short-term in duration. The sensitive receptors/resources may be affected by potential impacts to air quality. The nearest sensitive receptor is construction workers only because no residences/communities on the island. The receptor sensitivity is considered low.

The significance of potential impacts to air quality is assessed in the following table

Impact	Fugitive dust emissions associated with the site preparation activities of resort development and related facilities including site clearing and grubbing, excavation and filling, and vehicle movement on dirt road. Dust dispersion can lead to a temporary deterioration in air quality by increasing TSP and PM_{10}	
Dimension	**Rating**	**Description**
Nature	Negative	Potential Impact to air quality is considered to be negative.
Type	Direct	Direct impact through the generation of dust from site preparation and transportation on unpaved roads.
Duration	Short-term	Particulate matter will be produced during the construction phase
Extent	Local	Be restricted to the immediate vicinity of the site
Magnitude	Large	Air quality is possible and could increase TSP and PM_{10}. The highest cumulative dust concentration is expected to exceed the ambient PM_{10} standard of 24-hour Interim 1 (150 µg/m3) in some locations. Impact magnitude is considered to be large. However, the impacts are expected to be limited, localized (within 100 m from the worksite boundary) and short-term (i.e., throughout the construction period of 12 months).
Receptor/ Resource Sensitivity	Low	Existing air quality in the project area is shown to be within the Myanmar National Environmental Guideline which is typical in forest Island areas and receptors in the vicinity are expected to potential impact to air quality. The nearest sensitive receptor is construction workers only because no residences/communities on the island. The receptor sensitivity is considered low.
Significance	Moderate	The combination of a Large Impact Magnitude and Low Resource Sensitivity will result in an overall Moderate Impact.

Mitigation Measures

The following dust suppression measures and good site practices are recommended for the construction phase:

- Minimize the amount of disturbance and areas cleared of vegetation
- Re-vegetate disturbed areas as soon as possible after disturbance
- Use dust abatement techniques on unpaved, un-vegetated surfaces
- Enact fugitive dust and vehicle emission controls
- Establish and enforce speed limits to reduce airborne fugitive dust
- Water spraying of or covering all exposed areas, access roads and stockpiles;
- Cleaning wheels and the lower body parts of trucks at all exits of the construction site;
- Watering the main haul road regularly to suppress dust emissions during truck movement;
- Prohibiting the burning of waste or vegetation on site;
- Maintaining and checking the construction equipment regularly;
- When feasible, shut down idling construction equipment
- Keep soil moist while loading into dump trucks to minimize fugitive dust
- Keep soil loads below the freeboard of the truck to minimize fugitive dust
- Minimize drop heights when loaders dump soil into trucks
- Tighten gate seals on dump trucks
- Cover dump trucks before traveling on public roads
- When possible, schedule construction activities during periods of low winds to reduce fugitive dust

(b) Vehicular Emission

During construction, the project will involve the movement of equipment in the construction areas such as dozer, trucks and transportation boats etc., which will contribute to gases emissions from the combustion of fuel. The most prevalent gases emitted from vehicle exhaust by fuel combustion are CO, CO_2, C_6H_6, and NOx. The gases or greenhouse gas (GHG) emissions that are likely to be emitted by the project, as related to the issue of climate change.

The significance of potential impacts to gases emission during construction of project is assessed in the following table.

Impact	Potential impacts on climatic condition due to gases emissions.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential Impact to air quality is considered to be negative.
Type	Direct	Potential impacts would likely be direct impacts through the release of emissions from combustion process of construction equipment.
Duration	Long-term	Many of the major greenhouse gases can remain in the atmosphere for tens to hundreds of years after being released.

Extent	International	Greenhouse gases can potentially affect the Earth's climate.
Magnitude	Negligible	Minor emissions of gases will be emitted as a result of the project. Magnitude is considered Negligible.
Receptor/ Resource Sensitivity	Low	Minor emissions of gases will be emitted as a result of the project, and not likely to significantly change atmospheric GHG concentrations. Receptor/resource sensitivity is rated as Low.
Significance	Not significant	The combination of a Low resource sensitivity and Negligible impact magnitude will result in an overall Not significant potential impact.

Mitigation Measures

The following measures will be put in place for the project during construction to reduce gases emissions:

- Huge reduction in emissions from vehicle and equipment can be achieved by upgrading the engines
- Maintain vehicle and equipment according to manufacturers' specifications.
- Switching off engines when idling.
- Vehicle / equipment exhausts observed to be emitting significant black smoke from their exhausts will be serviced/ replaced.

6.3.2. Impact on Air Environment during Operation Phase

Potential air emissions generated from operation of resort facilities include products of combustion (e.g. carbon dioxide, nitrogen and sulfur oxides, and hydrocarbons) and particulates from fossil fuel- operated stoves and power generators. Tourism facilities may emit greenhouse gases (GHG) and volatile organic compounds (VOC) from dry-cleaning, refrigeration, air conditioning services and cooking in restaurant.

The significance of potential impacts to greenhouse gas during operation phase is assessed in the following table.

Impact	Potential impacts on climatic condition due to gases emissions.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential Impact to air quality is considered to be negative.
Type	Direct	Potential impacts would likely be direct impacts through the release of emissions from combustion process of power generators and tourism facilities equipment.
Duration	Long-term	Many of the major greenhouse gases can remain in the atmosphere for tens to hundreds of years after being released.
Extent	International	Greenhouse gases can potentially affect the Earth's climate.
Magnitude	Negligible	Minor emissions of gases will be emitted as a result of the project. Magnitude is considered Negligible.
Receptor/ Resource Sensitivity	Low	Minor emissions of gases will be emitted as a result of the project, and not likely to significantly change atmospheric GHG concentrations. Receptor/resource sensitivity is rated as Low.

Significance	Not significant	The combination of a Low resource sensitivity and Negligible impact magnitude will result in an overall Not significant potential impact.

Mitigation Measures

The following measures will be put in place for the project during operation to reduce gases emissions:

- Gases Filters are installed to reduce the GHG emissions from power generator.
- Use of ozone depleting refrigerants should be avoided, and refrigerants with low global warming potential (GWP) should be selected.
- Maintain vehicle and equipment according to manufacturers' specifications.

6.4 Noise Environment

6.4.1. Impact on Noise Environment during Construction Phase

The noise emission sources during construction phase will include construction machineries/equipments to be employed at site. The expected noise levels from the operation of equipment and machineries are provided in Table below:

Typical Construction Equipment Noise Emission Levels

Equipment Type	Noise Level (dBA at 50 Feet)
Dozer	87
Truck (Medium and Heavy)	84
Concrete Mixer	85
Generator	82

Source: Harris, C.M. "Handbook of Noise Control," 1979

All of the predicted noise level during construction phase will be based on Patrick Breysse, and Peter S.J. Lees., School of Public Health, Johns Hopkins University, Bloomberg, 2006.
It is necessary to calculate the overall noise level produced by the simultaneous operation of several pieces of equipment. The overall noise level at a receptor is simply the sum (on an energy basis) of the individual contributions of each piece of equipment. Mathematically, the overall noise level at a receptor from several sources can be calculated using Equation 6-1:

$$L_{eq}(site) = 10 * \log_{10}\left(\sum_{i=1}^{n} 10^{Leq\ (equipment)_i/10}\right) \quad \text{Equation 6-1}$$

Where
Leq(site) = the A-weighted, overall equivalent sound level obtained by summing the

individual equipment noise levels on an energy basis.
n = Number of sources
Leq(equipment) = the A-weighted, equivalent sound level at a receptor resulting from the operation of a single piece of equipment at distance D from source, dB(A).

Site clearing and earth working vehicle (1 dozer) and delivery vehicles (2 trucks) traveling to and from the site will produce noise which increase existing noise in construction phase 1 land clearing activities, leveling and excavation work. This overall equivalent sound level obtained about 85.2 dB(A) at 15 m (about 50 feet) distance as follow:

$$Leq = SPL_{site} = 10\log\left(\frac{10^{8.7} + 10^{8.4} + 10^{8.4}}{3}\right)$$

= 85.2 dB(A)

The major noise generating sources during the construction phase 2 (hotel building and related facilities) will be movement of trucks, operation of concrete mixer and generator. If most of the construction machineries (concrete mixer, generator, truck etc.) are running at the same time, This overall equivalent sound level obtained about 83.87 dB(A) at 15 m (about 50 feet) distance as follow:

$$Leq = SPL_{site} = 10\log\left(\frac{10^{8.5} + 10^{8.4} + 10^{8.4} + 10^{8.2}}{4}\right)$$

= 83.87 dB(A)

The sound pressure level in dependence of the distance from a source can be calculated using the equation 6.2 as follow;

$$L_2 = L_1 - |20 \cdot \log\left(\frac{r_1}{r_2}\right)| \qquad \text{Equation 6-2}$$

Where

L_2 = the A-weighted, equivalent sound level at a receptor resulting from the operation of a single piece of equipment at distance D (dB(A))
L_1 = Noise emission level of the particular piece of equipment at reference distance D (dB(A)
r_1 = Distance from the receptor to the piece of equipment (m)
r_2 = Reference distance where the source noise emission level was measured (m), i.e.50 ft (15.24 m)

The noise level expected at various distances from sources during the construction phase is shown in the following Table.

Distance from Source (m)	Noise Level (dB)	
	construction phase 1	construction phase 2
1	108.72	107.39
5	94.74	93.41
15	**85.2**	**83.87**
30	79.18	77.85
50	74.74	73.41
100	68.72	67.39
200	62.7	61.37
500	54.74	53.41
1000	48.72	47.39
1500	45.2	43.87
Myanmar National Environmental Quality (Emission) Guidelines value	55 (Residential, Institutional, Educational)	

The noise levels in dependence of the distance from a source (above table) are expected to be a major source of noise generation within the project site and its surroundings. If improperly managed, there is risk of nuisance and health effects to nearby residents and construction workers onsite. Although there are no residential area on the island, impacts on fauna diversity is considerable. According to the Myanmar National Environmental Quality (Emission) Guidelines value, a distance from construction site boundary to acceptable sensitive receiver is 500 m and above. The impact rating for long term exposure (for construction period of twelve months) and a Daytime Noise Level (Leq) of less than 55 dB is equivalent to a negligible potential impact magnitude.

The significance of potential impacts to noise during construction phase is assessed in table below.

Impact	Potential impacts on increased noise from construction equipment.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to noise would be considered to be adverse (negative).
Type	Direct	Potential impacts would likely be direct impacts through the noise emission sources from construction activities.
Duration	Short-term	noise will be produced during the construction phase
Extent	Local	Noise impacts would be limited to the project area and vicinity, and hence would be considered to be local.

Magnitude	Negligible	Outside 500m around of project site daytime Noise Level (Leq) of 74.47dB and 53.41 dB are equivalent to negligible potential impact magnitude.
Receptor/ Resource Sensitivity	Low	There are no residential area on the island, the representative NSR of fauna diversity is located away from the project approximate 1 km, the receptor/resource sensitivity is rated as Low.
Significance	Not significant	The combination of a Low resource sensitivity and Negligible impact magnitude will result in an overall Not significant potential impact.

Mitigation Measures

- Avoid running construction machineries at the same time; and also to avoid working at night.
- No employee should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C);
- Ensure that all contractors on site have effectively controlled noise levels from equipment. Effective noise controls include: regular inspection and maintenance of all vehicles and construction equipment working onsite, installation of sound suppressive devices (such as mufflers) on all mechanical plants as necessary, where practicable, vehicles and machinery that are used intermittently should not be left idling for long periods of time;

6.4.2. Impact on Noise Environment during Operation Phase

During operation, the areas and sources of noise emissions include power generator room, kitchens and laundries, garages, entertainment areas, and lobby areas. All equipment will be accommodated inside building, quantitative assessment is considered not necessary for the operation phase. There may be some minor noise emitted from the operation of power generator. The generators are proposed to be installed during the operation phase for power supply and hence the noise pollution load will be increase. However, the generators sets will be provided with silent type (acoustic enclosures) so as to keep the noise level within the prescribed standards.

Noise management is largely an issue relevant to indoor environmental quality and guest comfort. It is, however, important to include noise management measures in the overall

external design concept to prevent potential impacts on nearby human and environmental receptors.

The significance of potential impacts to noise during operation phase is assessed in the table below.

Impact	There are no significant sources of noise associated with the operational phase of the proposed project. There may be minor noise from operation of power generator.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to noise would be considered to be adverse (negative).
Type	Direct	Potential impacts would likely be direct impacts through the noise emission sources from project activities.
Duration	Long-term	Noise impacts are considered long-term throughout the project operation phase.
Extent	Local	Noise impacts would be limited to the project area and vicinity, and hence would be considered to be local.
Magnitude	Negligible	The additional noise from operation of project would not result in any change in the existing total ambient noise Impact magnitude is considered negligible.
Receptor/ Resource Sensitivity	Low	The representative NSR of fauna diversity is located away from the project approximate 1 km, the receptor/resource sensitivity is rated as Low.
Significance	Not significant	The combination of a Low resource sensitivity and Negligible impact magnitude will result in an overall Not significant potential impact.

Mitigation Measures

- The generators sets will be provided with silent type (acoustic enclosures)
- Selecting equipment with lower sound power levels
- Installing silencers for fans
- Installing suitable mufflers on engine exhausts and compressor components
- Installing acoustic enclosures for equipment casing radiating noise
- Improving the acoustic performance of constructed buildings, apply sound insulation
- Installing acoustic barriers without gaps and with a continuous minimum surface density of 10 kg/m in order to minimize the transmission of sound through the barrier. Barriers should be located as close to the source or to the receptor location to be effective

6.5. Surface Water Environment

6.5.1. Impact on Surface Water Environment during Construction Phase

(a) Sedimentation

Potential construction-induced impacts to surface water quality will be soil erosion and sedimentation resulting from excavation and grading activities necessary for the construction of infrastructure during rainy seasons. Drainage and seepage from construction waste dumping site will have potential to surface water pollution. Mobilization and transport of soil particles due to construction activities may result in sedimentation of surface drainage networks, which may result in impacts to the water quality in to the nearby seawater bodies via drains. This could result in localised impacts such as runoff and erosion of exposed bare soil, slopes and earth, and release of cement materials into sea water bodies with storm water runoff.

Dredging of the lagoons are commonly carried out to place pylon footings for jetties or piers of main building. Dredging of harbours is also an activity proposed in most instances during the construction stage of a resort. Dredging of the inner lagoon, for harbour development alters the current movement through creation of rip currents and also causes greater sedimentation on the coral colonies during the process of dredging leading to coral death by suffocation. Dredging physically disturbs or removes the bottom substrate, deposits sediments on the substrate, suspends sediments in the water column, reduces light penetration, increases turbidity, changes circulation, reduces dissolved oxygen and increases nutrient levels in the water column. Dredging also results in the direct elimination of the benthic habitat in the dredged area and a reduction of associated demersal species. The magnitude of the physical impacts on the reef varies considerably depending on the method used for dredging.

Stormwater runoff will be drained to a common settlement tank to remove solids, before being discharged to a common drain. Potential impacts to surface water quality due to sedimentation are expected to be short-term and localised in nature, and can be controlled if runoff is adequately managed.

The significance of potential impacts to surface water due to sedimentation during the construction phase is assessed in the following table.

Impact	Potential for impacts to surface water due to sediment-laden runoff.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to surface water would be considered to be adverse (negative).
Type	Direct	Impacts to surface water would be direct impacts from Project activities.
Duration	Long-term	The construction phase will last approximately 12 months. The duration of potential impacts is therefore long-term.
Extent	Local	Potential impacts would be limited to the project area and vicinity, and hence would be considered to be local.

Magnitude	Medium	Potential impacts to sea water quality in the project area from sedimentation/runoff are expected to be of Medium magnitude.
Receptor/ Resource Sensitivity	Medium	The generation of sediment laden run off will be transferred to the nearby seawater bodies, which will increase total suspended solids and turbidity in receiving waters. And dredging also results in the direct elimination of the benthic habitat in the dredged area and a reduction of associated coral species. Overall sensitivity is rated as Medium
Significance	Moderate	The combination of a Medium resource sensitivity and Medium impact magnitude will result in an overall Moderate potential impact.

Mitigation Measures

The following measures will be put in place for the project during the construction phase:

- Install silt trap to treat surface run-off from bunded areas prior to discharge to the stormwater system;
- Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion and subsequent sedimentation;
- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms;
- Provision of channels, earth bunds or sand bag barriers on site to direct stormwater to silt removal facilities;
- Provide measures to reduce the ingress of site drainage into excavations. If trenches have to be excavated during the wet season, excavate and backfill them in short sections wherever practicable. Discharge any water pumped out from trenches or foundation excavations into storm drains via silt removal facilities;
- Provide measures to prevent the washing away of construction materials, soil, silt or debris into any drainage system of open stockpiles of construction materials;
- Surface run-off from bunded areas should pass through oil/water separators prior to discharge to the stormwater system.
- Wherever possible, extend the jetties to the deep lagoon, such that near shore dredging will not be required.
- Where dredging is required, silt screens shall be used to retain the fine sediment and to reduce the impact on the marine environment.
- Use bund walls to reduce the impact of sedimentation from dredging activities.

(b) Construction and Domestic Wastes

The solid waste generated during construction will include steel pipes, steel plates, structural steel, wooden crates and domestic solid waste from the construction workers. In addition, there will also be biomass waste associated with the clearance of trees, shrubs and grass.

Small vessel and speed boats can leak fuel oil during transportation of construction materials and workers during construction phase. Moreover, lubricants and grease from construction machineries can also leak during construction phase.

Improper disposal of domestic waste, construction waste and hazardous waste such as waste oil and paints can have serious implications on the environment. Significant impacts associated with waste disposal include reduced aesthetic beauty of the surrounding beaches and the reef environment, marine pollution, water quality deterioration, increased sedimentation, increased turbidity as well as changes in the reef community structure. Construction material and waste if disposed into the marine environment will become a tremendous task to cleanup and will take long after operation of the resort for the reef to recover.

A small amount of domestic waste will be generated from construction workforce (about 100 workers). The establishment of labour camps will also effect on environment through improper waste (solid & garbage /sewage) disposal. A man can produce 0.4 kg per day of solid waste and the total waste produced from construction workers will be as follow:

Total Domestic Waste Produced during Construction Phase = 100 × 0.4 kg

= 40 kg / day

= 0.04 ton/day

A large workforce is often temporarily accommodated on the island during the construction stage, and if raw sewage runs into the marine environment, lagoon environment gets contaminated with increases in faecal coliform bacteria, eutrophication and water pollution problems. Disposal of sewage can also lead to increase in the nutrient level of the water and result in growth of seagrass patches. The sewage generated onsite will be collected through underground pipes into a holding tank, from where the sewage will be routed to an onsite septic tank.

The significance of potential impacts to surface water due to construction and domestic wastes during the construction phase is assessed in the following table.

Impact	Potential impact for surface water contamination from inappropriate waste management.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to surface water would be considered to be adverse (negative).
Type	Direct	Impacts to surface water would be direct impacts from project activities.
Duration	Long-term	The construction phase will last approximately 12 months. The duration of potential impacts is therefore long-term.
Extent	Local	Potential impacts would be limited to the project area and nearby marine environment.
Magnitude	Small	Potential impacts to surface water quality in project area due to inappropriate waste disposal are expected to be of Small magnitude.
Receptor/ Resource Sensitivity	Medium	Significant impacts associated with waste disposal include reduced aesthetic beauty of the surrounding beaches and the reef environment, marine pollution, water quality deterioration, increased sedimentation, increased turbidity as well as changes in the reef community structure. Overall sensitivity is rated as Medium
Significance	Low/Moderate	The combination of a Medium resource sensitivity and Small impact magnitude will result in an overall Low/Moderate potential impact.

Mitigation Measures

The following measures will be put in place for the project during the construction phase:

- The contractor shall put in place a waste management plan aimed at minimizing the production of all wastes, which may lead to disposal of the surplus materials at the end of the construction period;
- Construction waste or domestic waste during construction process should not be dumped into the marine environment.
- All the waste from construction shall be separated categorically and stored for future waste management practices.
- Domestic waste such as food items and leaf litter should be composted in designated areas to enhance future gardening and landscaping.
- Non-recyclable materials will be stored in plastic bins, collected and disposed of through the municipal waste system.
- Potentially hazardous wastes shall be stored separately, i.e., hydrocarbon containers, used batteries.

- Segregate hazardous and non-hazardous waste and provide appropriate containers for the type of waste type (e.g. enclosed bins for putrescible materials to avoid attracting pests and vermin and to minimise odour nuisance);
- Sanitary toilet systems with septic tanks should be laid out prior to initiation of all mass construction activities.

6.5.2. Impact on Surface Water Environment during Operation Phase

The most significant wastewater flow generated by proposed project is domestic sewage from bathing and toilet flushing, but important streams are also produced by the laundry and dry-cleaning, housekeeping, maintenance, and kitchen departments. These streams may include cleaning agents, disinfectants, and linen washing agents, including liquid bleach and ionic and nonionic detergents, which may release excessive phosphates and cause eutrophication of natural waterways. Effluents from kitchens may contain oils and grease. There are significant impacts related to disposal of untreated sewage and wastewater effluent, which may affect lagoon water or sea water quality. The proposed resort should be planned to use proper wastewater drainage systems and water efficient equipment should be used in the laundry department and kitchen. The wastewater treatment systems are planned to install for treating grey water from kitchen and black water from the toilet. After the wastewater is treated, the water released from the treated system should be reused in toilets, gardening, spraying ground.

The significance of potential impacts to surface water due to untreated sewage and wastewater effluent during the operation phase is assessed in the following table.

Impact	Potential impact for surface water contamination due to untreated sewage and wastewater effluent.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to surface water would be considered to be adverse (negative).
Type	Direct	Impacts to surface water would be direct impacts from project activities.
Duration	Long-term	Potential impacts are considered long-term throughout the project operation phase.
Extent	Local	Potential impacts would be limited to the project area and nearby marine environment.
Magnitude	Medium	Potential impact for surface water contamination due to untreated sewage and wastewater effluent are expected to be of Medium magnitude.
Receptor/ Resource	Medium	Significant impacts may affect lagoon water or sea water quality associated with untreated sewage and wastewater

Sensitivity		effluent has excessive levels of harmful bacteria such as E-Coliform and also have high levels of nutrients such as nitrogen and phosphorus. Overall sensitivity is rated as Medium
Significance	Moderate	The combination of a Medium resource sensitivity and Medium impact magnitude will result in an overall Moderate potential impact.

Mitigation Measures

The following measures will be put in place for the project during the operation phase:

- In order to avoid any contamination of the aquifer and the lagoon with nutrients, organic material and pathogens; as well as to ensure highest recreational water quality, all sewage and wastewater resulting from operation shall preferably be treated in a Biological (Biofiltration) Wastewater Treatment Plant installed on the resort.
- Kitchens, laundry and restaurants shall be equipped with grease traps to enhance wastewater treatment process. The sanitary sewer should then be treated prior to discharge or reuse as grey water.
- Implement adequate sanitary facilities for onsite personnel.
- Design drainage pipes and culverts for the controlled release of storm flows.
- The sewage from the entire plant area will be collected and treated in a sewage treatment plant (STP). No untreated sewage will be directly discharged into the lagoon and sea near the site, or disposed of on land, for the duration of the project life cycle.
- The stormwater drainage system will be periodically inspected for blockages and cleaned at least once before the monsoon season each year; and
- Liquid effluents arising from operations will be treated to the applicable MEQG guideline prior to discharge.

6.6 Soils and Groundwater

6.6.1. Impact of Soil and Groundwater Environment during Construction Phase

During construction phase, the following potential soil and groundwater impacts are anticipated: Soil and groundwater contamination due to improper construction and domestic wastes soil and groundwater contamination due to potential leaks, spills and contaminated fill materials during all phases of project construction.

Construction debris such as packing materials and domestic wastes from construction workers will produce during construction phase,. There will have potential to soil contamination and ground water pollution if these solid wastes are not properly disposed. Moreover, seepage and drainage from construction waste dump site will also impact on soil and ground water qualities.

The significance of potential impacts to soil and ground water due to construction and domestic wastes during the construction phase is assessed in the following table.

Impact	Potential impact for soil and ground water contamination from inappropriate waste management.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to soil and ground water would be considered to be adverse (negative).
Type	Direct	Impacts to surface water would be direct impacts from project activities.
Duration	Long-term	The construction phase will last approximately 12 months. The duration of potential impacts is therefore long-term.
Extent	Local	Potential impacts would be limited to the project area and nearby marine environment.
Magnitude	Small	Potential impacts to soil and ground water quality in project area due to inappropriate waste disposal are expected to be of Small magnitude.
Receptor/ Resource Sensitivity	Medium	Significant impacts associated with waste disposal include reduced aesthetic beauty of the surrounding beaches and the reef environment, soil and ground water quality deterioration, increased sedimentation, increased turbidity as well as changes in the reef community structure. Overall sensitivity is rated as Medium
Significance	Low/Moderate	The combination of a Medium resource sensitivity and Small impact magnitude will result in an overall Low/Moderate potential impact.

Mitigation Measures

It is noted that soil and groundwater contamination due to improper Construction and Domestic Wastes would be the result of contaminated surface water runoff being discharged from waste storage and disposal areas. The production and discharge of this contaminated surface water is assessed extensively within ***Section 6.5***. It is considered that this impact has therefore already been covered to soil and groundwater. This is also the case with the impacts due to improper discharge of waste water and runoff which if direct to either a surface water, groundwater or soil receptor would all be subject to similar impacts and thus mitigation measures. In addition, recommended methods to prevent and control damage to soil and ground water are following;

- periodically checking equipment and machinery for leaks
- placing drip pans underneath equipment to collect hydrocarbon leaks or unavoidable motor oil drips
- implementing a Waste Management Plan to prevent spillages of wastes
- constructing bunds around fuel storage areas to contain 110% of the maximum capacity of the largest storage tank or container of hydrocarbons or waste fuel
- implementing a Spill Prevention Plan
- placing smaller fuel, oil and/or lubricant containers within secondary containment systems
- maintaining equipment to minimise or eliminate fuel and oil leaks.

6.6.2. Impact of Soil and Groundwater Environment during Operation Phase

During operation, Soil and groundwater contamination due to improper solid waste storage and disposal of proposed resort.
The following solid and liquid wastes will have potential to soil and groundwater pollutions if they are not properly managed. Major solid wastes will be generated from daily room cleaning, kitchen, bar, restaurant, cafeteria, souvenir desk, reception/office and staff quarters. Different kinds of solid wastes, such as tissue paper, food residues (organic wastes), glasses, tins, bottles, packing materials, stationeries, damaged/expired devices or appliances and other miscellaneous will be generated every day. Food wastes can generate offensive odor and make the people unpleasant and finally can affect to the health of employees and guests.

The significance of potential impacts to soil and ground water due to improper solid waste storage and disposal during the operation phase is assessed in the following table.

Impact	Potential impact for soil and ground water contamination from inappropriate waste management.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to soil and ground water would be considered to be adverse (negative).
Type	Direct	Impacts to surface water would be direct impacts from project activities.
Duration	Long-term	Potential impacts are considered long-term throughout the project operation phase.
Extent	Local	Potential impacts would be limited to the project area and nearby marine environment.
Magnitude	Small	Potential impacts to soil and ground water quality in project area due to inappropriate waste disposal are expected to be of Small magnitude.
Receptor/ Resource Sensitivity	Medium	Significant impacts associated with waste disposal include reduced aesthetic beauty of the surrounding beaches and the reef environment, soil and ground water quality deterioration, increased sedimentation, increased turbidity as well as changes in

		the reef community structure. Overall sensitivity is rated as Medium
Significance	Low/Moderate	The combination of a Medium resource sensitivity and Small impact magnitude will result in an overall Low/Moderate potential impact.

Mitigation Measures

It is noted that soil and groundwater contamination due to improper Construction and Domestic Wastes would be the result of contaminated surface water runoff being discharged from waste storage and disposal areas. The production and discharge of this contaminated surface water is assessed extensively within ***Section 6.5***. It is considered that this impact has therefore already been covered to soil and groundwater. This is also the case with the impacts due to improper discharge of waste water and runoff which if direct to either a surface water, groundwater or soil receptor would all be subject to similar impacts and thus mitigation measures. In addition, recommended methods to prevent and control damage to soil and ground water are following;

- 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;
- Implementing a Waste Management Plan to prevent spillages of wastes

6.7. Biodiversity Environment

The proposed project area, Say-tan Island is considered to be affected directly or indirectly on both flora and fauna diversity during the processes such as in site preparation, exploration and hotel resort closure. The impacts are investigated during these processes such as habitat damage and change, fragmentation and loss, species disturbance and loss. Cumulative impacts can affect biodiversity and ecosystem services in many ways, from site to landscape level. The impact level on existing flora and fauna was investigated as moderate. The extent of the impact on fauna and flora is investigated as only in the site specific and the duration of the impact is assumed as long term.

6.7.1. Impacts on Biodiversity Environment during Construction Phase

Impacts to biodiversity have been evaluated in the context of the Project Facilities fully described in Chapter 5, including details of planned construction and operation activities. Anticipated Impacts on biodiversity environment during pre-construction and construction phase will be as follows:

(a) Impacts on Flora Diversity

In construction phase, Site and habitat clearance and construction of the new roads, lighting and noise will disturb the animal behavior and movement and loss of the plant species which might be impacted in moderate level. Generation of dust, lighting and noise will disturb the animal behavior and movement,

- Damage and removal of existing vegetation will loss the habitats
- Land contamination will disturb the vegetation.

(b) Impacts on Fauna Diversity

Clearing away trees and natural vegetation can cause hazards to the habitats of birds and butterflies. Noise due to construction activities at the site involving human and vehicular movement will disturb aril and wild animals in the area. If waste disposal are not properly done, there will be increased in the habitat loss of native species. Terrestrial micro flora at the site are also affected.The construction of solid jetties and piers restrict seawater circulation, and obstruct sand movement around the island. The physical changes from jetty construction result in changes to the biological life around the concrete structures. The diversity of fish is changed considerably and only certain species of fish are found near these structures.

Significant of Impacts on Biodiversity Environment

Significant points were anticipated based on the presence of flora and fauna status in and around the project area. The points are assumed with the respective measuring factors in the left column of the following table. According to the analysis, the points are non-significant affected on flora and fauna as shown in the following table.

Table -Significant Points in the Respective Flora and Fauna Groups through Measuring Factors

Factors affected on biodiversity	M	S	ST	Amphibians & Reptiles	Fishes	Birds	Small mammal	Zooplan-kton
Area of	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%

influence								
percentage of resource affected	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%
sensitivity of resources	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%	1-25%
status of resources	important	normal	normal	normal	normal	normal	normal	normal
regulatory status	normal	normal	normal	normal	normal	normal	normal	normal
Social value	normal	normal	normal	normal	normal	normal	normal	normal

Notes: M=Mangrove vegetation, S=Shrub vegetation, ST= Scatter trees, A&R=Amphibian and reptiles,

Significant points

Low=1-25%, Moderate= 26-50%, High= 51-75%, Very High=>76%

During the construction period these species might get disturbed, however, this situation will be for a very shorter period of time and multilayered peripheral greenbelt will provide an excellent habitat for these species once the project landscape becomes fully grown. Hence, no long term impact to this local avifauna is envisaged from this resort beach development.

So, impacts on biodiversity environment during construction phase will be low or Moderate as follows:

Impact	Potential impact on flora and fauna diversities from Construction of proposed project.	
Dimension	**Rating**	**Description**
Nature	Negative	The impact on the terrestrial and aquatic biodiversity is negative.
Type	Direct	Impacts on flora and fauna diversities would be direct impacts from project activities.
Duration	Long-term	Although construction is estimated to take 12 months, the loss/ conversion of habitats will be long term.
Extent	Local	Potential impacts would be limited to the project area and nearby marine environment.
Magnitude	Small	Potential impact on flora and fauna diversities in project area due to construction activities are expected to be of Small magnitude.
Receptor/ Resource Sensitivity	Medium	Given the large proportion of the area affected is covered by habitats with medium sensitivity.
Significance	Low/Moderate	The combination of a Medium resource sensitivity and Small impact magnitude will result in an overall Low/Moderate potential impact.

Mitigating Measures

Mitigation measures should be carried out during constructional phase as below:

- Avoid the over exploitation of forest products from natural forests.
- Restrictions on location of worker rest shelters and offices for project staff near the project area with vegetation to avoid human induced secondary additional impacts on the left over flora and fauna species of the surrounding areas.
- Cutting, uprooting, of trees or small trees present around the project site for cooking, burning or heating purposes by the laborers shall be prohibited and suitable alternatives for this purpose shall be made available.
- Maintain the plants and vegetation which existing around the project area will reduce in a natural way of the pollution in water and terrestrial environment.
- Growing the native tree species and create a green belt around the project area to control the air pollutants and natural balance of the environment.

6.7.2. Impacts on Biodiversity Environment during Operation Phase

The likely impacts of the proposed development during the operation phase include air and noise pollution and disturbance generated due to area lighting and human activities. This may affect the mammals and birds in the vicinity. Operational activities that have potential to disturb native fauna include the use of night lighting at infrastructure and facility locations. Lighting required for operation and safety at the facilities can influence nocturnal foraging behaviours as well as disrupt sleep patterns of crepuscular species.

The landscape development will consider the nativity of the species so that local faunal species are supported further.

Potential impacts on biodiversity environment during operation phase will be low or negligible as follows:

Impact	Potential impact on flora and fauna diversities from operation of proposed project.	
Dimension	**Rating**	**Description**
Nature	Negative	The impact on the terrestrial and aquatic biodiversity is negative.
Type	Direct	Impacts on flora and fauna diversities would be direct impacts from project activities.
Duration	Long-term	the loss/ conversion of habitats will be long term.
Extent	Local	Potential impacts would be limited to the project area and nearby marine environment.
Magnitude	Small	Potential impact on flora and fauna diversities in project area due to operation activities are expected to be of Small magnitude.

Receptor/ Resource Sensitivity	Low	Given the large proportion of the area affected is covered by habitats with low sensitivity.
Significance	Low	The combination of a Low resource sensitivity and Small impact magnitude will result in an overall Low potential impact.

Mitigating Measures

Mitigation measures should be carried out during operation phase as below:

- machinery such as generator and water pumps will be maintained in accordance with standard to minimise unnecessary noise generation;
- For areas requiring night-time lighting, lights will be used only where necessary and will be directed toward the subject area and away from habitat areas where possible;
- Hunting wild animals will be strictly prohibited to apply for all staff and visitors;
- Fishing and using of illegal fishing gear will be prohibited.
- Well waste and plastic management system (eg. no plastic to the water and land, no burning the rubbish which might be impacted negatively to the animals and human health) should be more emphasized and conducted not to be impacted on marine and terrestrial living things.
- During the development of the green belt within the project area, it will be emphasized that the plant species likely to be planted belong to the existing forest type .Existing trees will be included in the landscape plan of proposed project in order to maintain the existing biological environment of the area.

6.8. Resource Consumption

During construction phase, there will be no high resource consumption.

The following resources will be consumed during the operation of the proposed project.

6.8.1. Water Consumption

Operation of proposed resort, water consumption is related to personal use by guests and facility requirements for housekeeping, laundry, cooking, swimming pools, spa facilities, and grounds maintenance. Total water usage in proposed resort may range from less than 200 l/day per person to over 1200 l/day per person. Main building hotel and pool villas with full-service restaurant and on-site laundry facilities typically exhibit the highest water usage on a per room basis. Moreover, a can increase freshwater consumption by as much as 10 percent.

Apart from seasonal aspects, the main factors influencing the amount of water used are the presence of swimming pool, sauna and steam bath facilities at resort. The water requirements are planned to be met through exiting tube well and if in case, ground water extraction is required. The project proposes to recycle treated wastewater for flushing, and landscaping thereby reducing the fresh water requirement.

The Project is not expected to have a significant impact on current water users (i.e. no residential area on the Island) and have negligible to low significant impact on ground water resource consumption.

The significance of potential impacts to water consumption during operation of project is assessed in the following table.

Impact	Potential impacts on increased water consumption from resort operation activities.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to water consumption would be considered to be (Negative).
Type	Direct	Impacts to ground water would be direct impacts from resort activities.
Duration	Long-term	The impact is long-term because it happens during operation phase.
Extent	Local	Water use impacts from the project would be local to the project area
Magnitude	Negligible	The resort during full operation is approximately about (300,000 gallons) of water a year to negligible potential impact magnitude.
Receptor/ Resource Sensitivity	Low	There is no residential area on the island, the representative NSR of ground water resource consumption is low to moderate, and the overall receptor/resource sensitivity is rated as Low.
Significance	Not significant	The combination of a Low resource sensitivity and Negligible impact magnitude will result in an overall Not significant potential impact.

Mitigating Measures

Mitigation measures should be carried out during operation phase as below:

- Use by communities and /Rainwater collection practiced through a network of gutters and pipes, and channeled into a cistern or a catchment basin. Rainwater collected can be used for irrigation, for evaporative cooling equipment, and for replacing pool water lost through evaporation and normal use;
- Biological treatment should be used to enable reuse of grey water, which can be reused for irrigating grounds or other non-potable purposes. Grey water from bathrooms, sinks, and kitchens has limited toxicity, requiring minimal treatment, has good reuse potential, and can be easily separated into one stream. Wastewater

streams used for this purpose should be carefully monitored to ensure that grey water is not mixed with other sewage resulting in potentially hazardous situations;

- Garden design and plant selections to enable irrigation water requirements to be met by rainwater and natural water percolation in soils;
- Water-saving equipment, including ultra-low-flush toilets, spray nozzles, urinals, faucet aerators, and low-flow showerheads, infrared and ultrasonic sensors, water spigots, and pressure-control valves.

6.8.2. Power Consumption

Normally, hotel process will consume electrical power especially for air conditioner, hot water system, and lighting decoration. The estimated power load for the proposed project is approximately 200 KVA. The source of power for the resort will be will be supplied by 2 No. Diesel Generators of capacity 300KVA (including one DG set standby) on the islands considering energy consumption associated with lighting, heating, ventilation, and air conditioning (HVAC) systems. Impact significance for electricity can be rated as negligible electricity consumption and distribution because the proposed hotel will not use electricity from the national grid and will run by its own generator.

The significance of potential impacts to water consumption during operation of project is assessed in the following table.

Impact	Potential impacts on increased power consumption from resort operation activities.	
Dimension	**Rating**	**Description**
Nature	Neutral	Potential impacts to power consumption would be considered to be (Neutral).
Type	Direct	Impacts to power consumption would be direct impacts from resort activities.
Duration	Long-term	The impact is long-term because it happens during operation phase.
Extent	Local	Water use impacts from the project would be local to the project area
Magnitude	Negligible	The resort during full operation is approximately (200 KVA) of power conservation needed to negligible potential impact magnitude.
Receptor/ Resource Sensitivity	Low	The receptor/resource sensitivity is rated as negligible; the proposed hotel will not use electricity from the national grid and will run by its own generator.
Significance	Not significant	The combination of a Negligible resource sensitivity and Negligible impact magnitude will result in an overall Not significant potential impact.

Mitigating Measures

The following aspects of building design can all reduce energy use when correctly applied:

- Use of passive solar design to take advantage of natural sunlight and airflow;
- Optimized building orientation;
- Use of direct gain and day lighting techniques, allowing sunlight to penetrate a building to provide light to illuminate interiors and to provide heat;
- Implementation of Trombe walls (glazing-encased thin airspace in front of a thermally massive wall);
- Installation of a renewable energy systems where local conditions permit (e.g. solar water heating, photovoltaic cells, geothermal heat pumps, and use of biofuels).

Energy use of hotel building services may be reduced by the following methods:

Reduction of energy consumption associated with heating, ventilation, and air conditioning (HVAC) 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;

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

6.9. Waste Management

During construction and operation, there are a range of activities which have the potential to generate a range of liquid and solid waste streams.

6.9.1. Construction Phase

During the construction phase, a range of solid waste materials will be generated either due to the daily activities of the construction workforce (e.g. generation of putrescible waste) as well as a range of general construction waste such as biomass, concrete, steel pipes, plastic pipes, steel plates, structural steel and wooden crates during the civil works phase of construction. In addition, hazardous waste will be generated such as oil rags and paints.

These solid wastes, will apart from attracting stray animals and other rodents, but will also constitute a visual impact of untidiness that does not tally with the notion of improvement of quality of life expected of the proposed project. The potential impacts could include soil and groundwater impacts, human health impacts, impacts to surface water and indirect impacts to community health and safety due to contamination of drinking water or food. These impacts associated with improper storage are related directly to management of impacts to surface water soils and groundwater as discussed above Sections 6.5 and 6.6.

The significance of potential impacts to the capacity of the existing waste management network to deal with the solid waste and hazardous waste from the construction phase is assessed in the following table.

Impact	Impacts of solid and hazardous waste generation, storage and disposal upon the existing waste management infrastructure.	
Dimension	**Rating**	**Description**
Nature	Negative	Potential impacts to soil would be considered to be adverse (negative).
Type	Direct	Impacts to the existing waste management infrastructure would be direct.
Duration	Long-term	The construction phase will last approximately 12 months Impacts from the Project could potentially last longer than this duration. The duration of impacts is therefore long-term.
Extent	Local	Potential impacts would likely be restricted to the local area.
Magnitude	Small	Potential impacts to soil quality in Project area due to inappropriate waste disposal is expected to be of Small magnitude.
Receptor/ Resource Sensitivity	Low	If the solid waste and hazardous waste is disposed offsite within their designated waste storage areas the resource sensitivity should be medium as the waste disposal will be confined to that area.

Significance	Minor	The combination of a Medium resource sensitivity and Small impact magnitude will result in an overall Minor impact.

Mitigating Measures

The following measures will be put in place for the Project during construction phase

- The contractor shall put in place a waste management plan aimed at minimizing the production of all wastes.
- Segregate hazardous and non-hazardous waste and provide appropriate containers for the type of waste type (e.g. enclosed bins for putrescible materials to avoid attracting pests and vermin and to minimise odour nuisance);
- Store wastes in closed containers away from direct sunlight, wind and rain;
- Store waste systematically to allow inspection between containers to monitor leaks or spills;
- Ensure that storage areas have impermeable floors and containment, of capacity to accommodate 110% of the volume of the largest waste container;
- Contractors employed to manage the waste should clearly identify within their bidding documents how the collected waste will be managed. All end points for collected waste are to be inspected and audited and noted to be developed such that all waste is able to be disposed of in an environmental responsible manner; and
- Monitoring of appointed waste contractors using chain-of custody documentation for the disposal of waste to ensure that it is able to be disposed of in an environmental responsible manner and in accordance with all prevailing regulations.

6.9.2. Operation Phase

During the operation phase waste generated by resort facilities normally includes paper and cardboard items, glass and aluminum products, plastic items, organic waste, building materials and furniture, and used oils and fats. Hazardous wastes may include batteries, solvents, paints, antifouling agents, and some packaging wastes. The solid waste generation for 131 rooms and restaurants will be within 800 kg per day at the peak of operations. Of this waste generated, will include 80% to 90% organic matter (mostly food waste, garden trash and packaging material), and the rest inorganic material such as glass, and metal.

Impact	Impacts of solid and hazardous waste generation, storage and disposal upon the existing waste management infrastructure.

Dimension	Rating	Description
Nature	Negative	Potential impacts to soil would be considered to be adverse (negative).
Type	Direct	Impacts to the existing waste management infrastructure would be direct.
Duration	Long-term	The impact is long-term because it happens during operation phase.
Extent	Local	Potential impacts would likely be restricted to the local area.
Magnitude	Small	Potential impacts to soil quality in project area due to inappropriate waste disposal is expected to be of Small magnitude.
Receptor/ Resource Sensitivity	Low	If the solid waste and hazardous waste is disposed offsite within their designated waste storage areas the resource sensitivity should be medium as the waste disposal will be confined to that area.
Significance	Minor	The combination of a Medium resource sensitivity and Small impact magnitude will result in an overall Minor impact.

The following measures will be put in place for the project during operation phase:

- A waste management plan is to be developed which includes specific requirements to manage, avoid, reduce and reuse waste during the operation phase for all of the waste streams identified;
- Waste disposal facilities shall be sited and signposted throughout the site;
- Provide training to workers for waste disposal in designated areas and use of sanitation facilities;
- Segregate hazardous and non-hazardous waste and provide appropriate containers for the type of waste type (e.g. enclosed bins for putrescible materials to avoid attracting pests and vermin and to minimise odour nuisance);
- Store wastes in closed containers away from direct sunlight, wind and rain;
- Store waste systematically to allow inspection between containers to monitor leaks or spills;
- Ensure that storage areas have impermeable floors and containment, of capacity to accommodate 110% of the volume of the largest waste container
- Waste clean-up measures are to be undertaken on at least a fortnightly basis to collect any waste or unused materials from the Project site. All waste collected should be managed and disposed of in accordance with the required regulations;
- Monitoring of appointed waste contractors using chain-of custody documentation for the disposal of waste to ensure that it is able to be disposed of in an environmental responsible manner and in accordance with all prevailing regulations.

The following principles of waste reduction in tourism and hospitality facilities should also be considered as part of a formal Waste Management Plan:

- 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.

6.10. Socio-Economic Environment

Social Impact Assessment involves the processes of analyzing, monitoring and managing the intended and unintended social consequences both positive and negative of planned interventions and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment. This section discusses the proposed development, project activities and the extent of potential impacts anticipated from the proposed resort development.

In this instance, there are no existing settlements or the villagers located within 10 kilometers radius of the project study area. However, the impact assessment identified focusing base on Kawthong Township, 52 kilometers away of project area.

Economy and Livelihoods

The proposed project will have a positive effect in creation of job opportunities for the people in the project area. During construction phase, the proposed project will provide about 100 temporary employment opportunities for local people. It is anticipated that approximately 95 direct employment opportunities will be created during the operation phase. There will be a need for employing technical, nontechnical, administrative and support staff during this phase, for which due preference will be given to the locals based on their skill sets. In addition, the project will require goods and services throughout its lifecycle. There are opportunities for local businesses to provide these goods and services (e.g. trips & tours, construction equipment, food suppliers). As a result, existing local businesses may expand or

new businesses may be established locally to meet these demands – providing employment opportunities. This is referred to as indirect employment. The improvement in the physical infrastructure and land use change will lead to significant appreciation of the land value. Scope will be widened for other investors and developers also to invest in the area.

Increased employment will improve household income levels and livelihood of local people. According to the secondary data collections, there is significant number of unemployment in Kawthoung Region as follow:

Workforce	Employed	Unemployed	Unemployment rate
89733	65804	23929	26.67%

Moreover, according to the primary data collection, most of the workable aged people are relied on fishing and young people are going to Boarder City (Thialand) for jobs. So, long-term job opportunities in native town will be great benefit to local people, especially for local women in getting involved in such jobs. Job opportunities will provide an alternative livelihood to people in the project area other than going to Thailand (Boarder City) for jobs.

The resulting impacts such as increase in employment opportunities, increase in income for local employed by the resort were assessed as a positive beneficial to the local people.

The impact significance on economy and livelihoods during construction is provided in the following table

Impact	Impacts to Economy and Livelihoods	
Dimension	**Rating**	**Description**
Nature	Positive	An increase in employment opportunities and demand for goods and services are positive. The project proponent is committed to capitalizing on local content opportunities.
Type	Direct	It directly impacts local people.
Duration	Short-term	The impact is short-term because it occurs during the construction phase.
Extent	Regional	The project will provide employment opportunities for local people in Kawthoung and possibly villages from within the surrounding areas. Therefore, the impact is regional.
Scale	Small	The impact scale is small.
Magnitude	Positive	The impact is positive

The impact significance on economy and livelihoods during operation is provided in the following table

Impact	Impacts to Economy and Livelihoods	
Dimension	**Rating**	**Description**
Nature	Positive	An increase in employment opportunities and demand for goods and services are positive. The project proponent is committed to capitalizing on local content opportunities.
Type	Direct	It directly impacts local people.
Duration	Long-term	The impact is long-term because it happens during operation phase.
Extent	Regional	The project will provide employment opportunities for local people in Kawthoung and possibly villages from within the surrounding areas. Therefore, the impact is regional.
Scale	Small	The impact scale is small.
Magnitude	Positive	The impact is positive

Mitigating Measures

The following measures will be put in place for the potential project benefits and manage

- Whenever necessary, collaboration between project authority and local bodies will be done on regular basis with an objective to build and maintain a good relationship which is necessary for smooth functioning of the project as well as progress and welfare of the people in the study area.
- Develop and implement a local content plan. The plan should establish measures to facilitate local recruitment and procurement. This should include targets so that performance can be tracked and evaluated. Development of the plan should involve consultation with relevant stakeholders, including government authorities and local villagers;
- Review opportunities to establish a skills training program with an aim of training interested local villagers to contribute to the project, including the operation phase. This should include a skills audit to determine what skills will be required by the project and what skills are available within the local villagers. This will need to be undertaken as early as possible so that a training program can be developed and implemented and villagers are able to meaningfully contribute to the project;

6.11. Potential Impacts on Guests and Workers

Occupational health and safety issues associated with the proposed resort during operations potentially affecting facility workers and, where noted, facility guests primarily include the following:

1. Noise
2. Physical hazards
3. Biological / Chemical hazards
4. Swimming pool safety
5. Fire safety

(1) Noise

Workers and guests may be subject to noise, including from the kitchen, laundry, housekeeping, and other guest rooms. In the case of the workforce, repetitive exposure over long periods may impact hearing. For guests, unnecessary noise in public areas and rooms is a nuisance. Noise management measures should be developed to a significant extent during the design and construction stages of hotel development.

Mitigation Measure

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).

(2) Physical Hazards

Slips and Falls

Facility guests and workers may also be susceptible to slip and fall accidents in hotel room showers or common areas (e.g. lobbies, restaurants, and recreational areas).

Mitigation Measure

Recommended prevention and management methods include the following:

- Equipping shower stalls with nonslip surfaces or antislip strips, secure handles, and ready access to emergency phones;
- Installing nonslip surfaces in areas with potentially slippery floors or subject to frequent wetting (e.g. open hallways or swimming pool decks);
- Maintaining frequently transited areas as dry as possible;
- Placing of temporary or permanent warning signs on wet floors during cleaning or after rain.

(3) Biological / Chemical Hazards

Water and Food Quality

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

Mitigation Measure

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.

Indoor Air Quality

Indoor air quality is the quality of air inside buildings, as represented by concentrations of pollutants and thermal conditions that affect the health, comfort, and performance of hotel occupants and employees. Providing good indoor air quality is critical to asthma and allergy prevention and the prevention of other health effects and discomfort situations, such as headaches and nausea. Typical indoor air-quality contaminants may include ammonia (from cleaning products), VOCs (from use of interior products, such as solvents, paints, adhesives, dry cleaning, and cosmetics), odors, dust, formaldehyde (from fabrics, insulation, furniture, and cigarette smoking), carbon dioxide and nitrogen oxides, and bacteria and fungi (mold and mildew from carpets, HVAC filters).

Respiratory irritation from breathing fumes (e.g. chlorine, hypochlorite, ammonia, and sulfur dioxide) may present potential health impacts for laundry department workers.

Mitigation Measure

The following control techniques are recommended for contaminant sources associated with housekeeping and maintenance (e.g. cleaning products, waxes and polishes, air fresheners, drain cleaners, solvents, pesticides, lubricants, paints, and coatings, as well as those applicable to technical standards of building, such as construction adhesives, carpet–carpet adhesives, insulation, vinyl–plastic floor coverings and wall coverings, and asbestos products):

- 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.

For contaminant sources associated with guest rooms [e.g. tobacco products, cooking, tracked-in dirt or pollen, and personal products (perfumes, hairsprays, or deodorants)], recommended control techniques include the following:

- Institute a no-smoking policy;
- Use exhausts ventilation with pressure control for major local sources;
- Avoid paper clutter;
- Provide specific staff-training and guest information.

For contaminant sources associated with the HVAC system (e.g. contaminated filters, contaminated duct lining, dirty drain pans, humidifiers, refrigerants, and mechanical rooms), recommended control techniques include the following:

- Implement a program of periodic preventive maintenance, including cleaning drain pans and changing filters;
- Keep duct lining dry;
- Maintain clean mechanical rooms;
- Rapidly fix leaks and clean spills.

Use of Chemical Cleaners

Occupational dermatitis from chemical cleaners is one of the main occupational hazards for housekeeping and laundry workers.

Mitigation Measure

Prevention measures are focused on using nontoxic, hypoallergenic cleaning products and limiting skin exposure through the use of gloves and other personal protection equipment.

Exposure to pesticides

Potential exposures to pesticides include dermal contact (e.g. in storage rooms or from leaking containers) and inhalation during their preparation, storage, and application. The effect of such impacts may be increased by climatic conditions, such as wind, which may

increase the chance of unintended drift, or high temperatures, which may be a deterrent to the use of personal protective equipment (PPE) by the operator.

Recommendations or the management of chemicals hazards related to pesticides include the following:

- Train personnel to apply pesticides and ensure that personnel have received the necessary certifications or equivalent training where such certifications are not required;
- Respect post-treatment intervals to avoid operator exposure during reentry to crops with residues of pesticides;
- Ensure hygiene practices are followed (in accordance to FAO and PMP) to avoid exposure of family members to pesticides residues.

(4) Swimming Pool Safety

Environmental issues related to the operation of swimming pools include water consumption and energy use for heating, and have been described in previous sections of this document.

Additional swimming pool issues are related to the health and safety of workers and guests and include water sanitization and drowning hazards.

Mitigation Measure

Recommended health and safety management methods include

- Design of swimming pool depths and configuration to reduce or avoid the risk of injuries or drowning, including posting of depth warning information;
- Institution of lifeguard supervision policies;
- Implementation of a pool water sanitization program to prevent the growth of microorganisms that can cause stomach upset, diarrhea, and infections in the ear, nose, and throat. Bacterial control may be achieved by adding a sanitizer (usually chlorine based, such as sodium and calcium hypochlorite, and chlorinated isocyanurates although ozone and UV-based systems are also becoming common), a flocculant to help mass together particulates and bacteria in the water, and filtration to remove it. The pool water sanitation program should include monitoring of water quality to establish treatment need and frequency.

(5) Fire Safety

Fire presents a safety risk to hotel workers and guests alike.

Mitigation Measure

The nature and extent of life and fire safety systems required will depend on the building type, structure, construction, occupancy, and exposures. Project proponent should prepare a Life and Fire Safety Master Plan identifying major fire risks, applicable codes, standards and regulations, and mitigation measures. The Master Plan should be prepared by a suitably qualified professional, and adequately cover, but not be limited to, the issues addressed briefly in the following points. The suitably qualified professional selected to prepare the Master Plan is responsible for a detailed treatment of the following illustrative, and all other required, issues.

Fire Prevention

Fire prevention addresses the identification of fire risks and ignition sources, and measures needed to limit fast fire and smoke development. These issues include:

- Fuel load and control of combustibles
- Ignition sources
- Interior finish flame spread characteristics
- Interior finish smoke production characteristics
- Human acts, and housekeeping and maintenance

Means of Egress

Means of Egress includes all design measures that facilitate a safe evacuation by residents and/or occupants in case of fire or other emergency, such as:

- Clear, unimpeded escape routes
- Accessibility to the impaired/handicapped
- Marking and signing
- Emergency lighting

Detection and Alarm Systems

These systems encompass all measures, including communication and public address systems needed to detect a fire and alert:

- Building staff
- Emergency response teams
- Occupants
- Civil defense

Compartmentation

Compartmentation involves all measures to prevent or slow the spread of fire and smoke, including:

- Separations
- Fire walls
- Floors
- Doors
- Dampers
- Smoke control systems

Fire Suppression and Control

Fire suppression and control includes all automatic and manual fire protection installations, such as:

- Automatic sprinkler systems
- Manual portable extinguishers
- Fire hose reels

Emergency Response Plan

An Emergency Response Plan is a set of scenario–based procedures to assist staff and emergency response teams during real life emergency and training exercises. The Fire and Life Safety Master Plan should include an assessment of local fire prevention and suppression capabilities.

Operation and Maintenance

Operation and Maintenance involves preparing schedules for mandatory regular maintenance and testing of life and fire safety features to ensure that mechanical, electrical, and civil structures and systems are at all times in conformance with life and fire safety design criteria and required operational readiness.

6.12. Cultural Heritage Impact Assessment

There are no historical or archeological monuments of significance within 10 kilometers radius of the project and hence no negative impact in this regard is anticipated.

7. CUMMULATIVE IMPACTS ASSESSMENT AND MITIGATION MEASURES

7.1. Methodology and Approach

Cumulative Impact Assessment is the process of assessing potential effects on receptors from environmental and social impacts caused by the combined influence of more than one project. Impacts directly associated with the Project are discussed in the preceding sections. In this section the impacts associated with cumulative effects of the Project and other development are described. Evaluation of potential cumulative impacts is an integral element of an impact assessment. In reference to the scope for an impact assessment, IFC's Performance Standards specify that:

*"Risks and impacts will be analyzed in the context of the project's area of influence. This area of influence encompasses…**areas potentially impacted by cumulative impacts** from further planned development of the project, any existing project or condition, and other project-related developments that are realistically defined at the time the Social and Environmental Assessment is undertaken; and (iv) areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.* "(IFC 2006).

Cumulative impacts in relation to an activity are defined in the EIA Regulations (Government Notice R543) as meaning "*the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area*"

7.2. Anticipated Cumulative Impacts

So, cumulative impacts will considered as follow:

Increase water consumption, water contamination and waste generation may cumulate from the construction of other similar projects will stand as cumulative impacts. Traffic congestion will also be considered as cumulative impacts.

Compound Cumulative Impacts

Air emission, water and energy conservation, noise and waste generation from tourist facilities include products of combustion, domestic grey water and black water from bathing and toilet flushing, consuming large amounts of energy in the form of heat energy may cumulative due to the 240 guest rooms for 480 guests and those nearby.

Mitigation Measures

One suggestion is to develop Saytan island resort management and Development Committee (under Tanintharyi Region Tourism Management Organization) for a focal point of Hotels and Tourism services at the Kawthoung Area. This committee will take responsible for the inspection of hotels in conformity with the Myanmar Hotels and Tourisms Law, to reduce the cumulative impacts on physical resources such as water and energy consumption, air pollution, noise pollution and waste generation. Otherwise, Kawthoung Hotel Business Association should take care of this case. Often, public talks and meetings should be arranged in order to accrue knowledge for people regarding environmental friendly best practices.

8. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

In order to manage the physical, biological and sociological impacts identified in the impact assessment, Good Shan Brother International Co., Ltd. (GSB) has committed to implement an environmental management plan of the project (EMP). This management plan will form the basis for the development of an integrated management system for environmental and community issues. EMP is a site specific plan developed to ensure that the project is implemented in an environmental sustainable manner where all contractors and subcontractors, including consultants, understand the potential environmental impacts arising from the proposed project and take appropriate actions to properly manage that risk. EMP also ensures the project implementation is carried out in accordance with the design by taking appropriate mitigation actions to reduce adverse environmental impacts during its life cycle. EMP for proposed project will include the following essential parts.

(a) Environmental Management and Monitoring Plan,
(b) Natural Disaster Response Plan, and
(c) Corporate Social Responsibility (CSR) Program.

8.1. Environmental Management and Monitoring Team

The purpose of environmental monitoring is to evaluate the effectiveness of implementation of Environmental Management Plan (EMP) by periodically monitoring the important environmental parameters within the impact area, so that any adverse effects are detected and timely action can be taken. Main objectives of environment monitoring plan include:

(a) Identify all environment changes which may cause adverse effects on environment by the project implementation;
(b) Monitor discharge sources (gas emission, waste water and solid waste) and operation of environmental protection equipment in order to ensure that these activities will comply with legislative requirements;
(c) Check monitoring process and inspect installation system and equipment in respect of pollution prevention and control;
(d) Prevent potential incidents;
(e) Propose appropriate environment protection measures based on results of environmental monitoring;

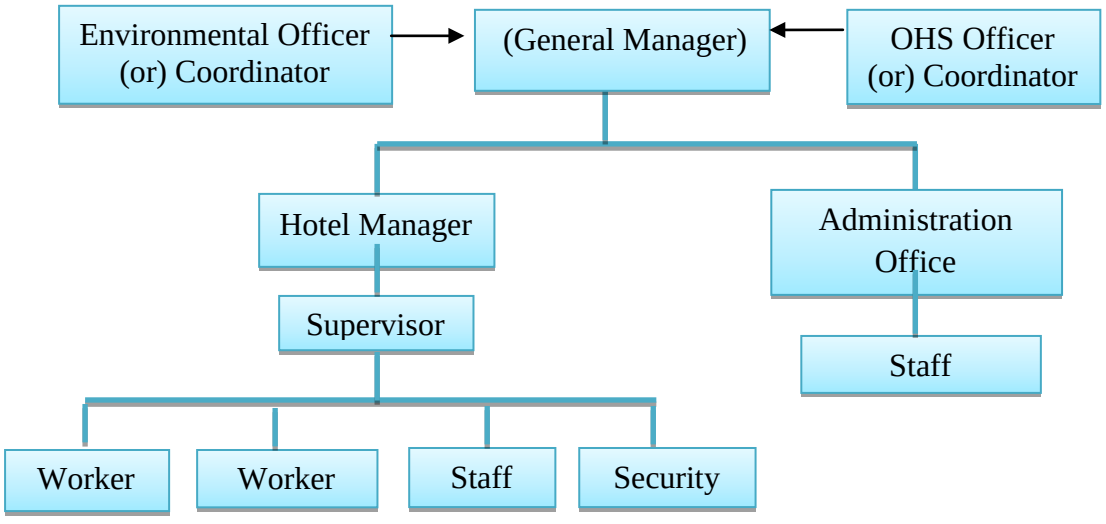
(f) Overcome and repair all weak-points based on results of environment monitoring program.

8.1.1. Environmental Monitoring Team for Regular Monitoring

The environmental monitoring team should accomplish regular environmental monitoring. The environmental officer or environmental coordinator should have to be fully responsibility for environmental affair and environmental monitoring. The following table shows proposed organization plan for the environmental monitoring group of the proposed project.

No.	Group Member	Quantity	Remark
1.	Environmental Officer (or) Coordinator	1	To be appointed
2.	Occupational Health and Safety Officer (or) Coordinator	1	To be appointed
3.	Hotel Manager	1	Appointed
4.	Supervisor	1	Appointed
5.	Helpers	1	Appointed

According to the above proposed table, it is necessary to reorganized the proposed organization structure of Good Shan Brother International Co., Ltd. (GSB) as follow:



Proposed Organization Structure

Apart from having an Environmental Management Plan, it is necessary to have a permanent staff charged with the task of ensuring its effective implementation of mitigation measures and to conduct environmental monitoring. So, it is necessary to assign environmental officer with necessary monitoring equipment. According to the above table, it is necessary to appoint environmental officer (or) coordinator and occupational health and safety officer (or) coordinator. It can be signed as dual duty if site manager is able to do workers' safety and health matters. Training program for safety issues should be completed if necessary. Environmental monitoring can also be done by registered third party monitoring agency. Detailed function of the environmental officer but not limited are as follow:

Environmental Officer

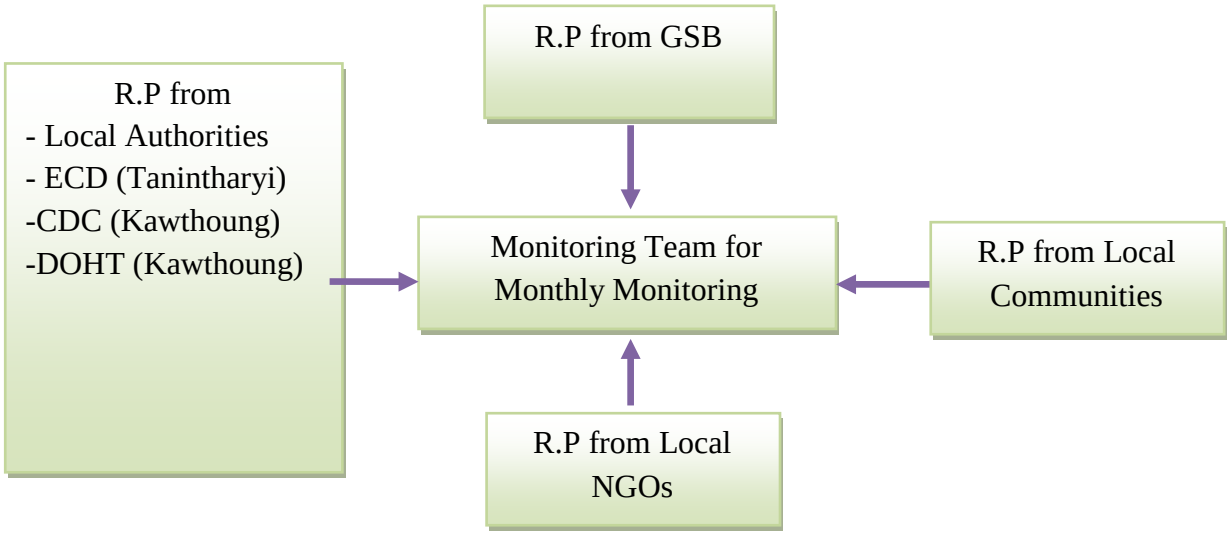
The major duties and responsibilities of the environmental officer or person-in-charge for environmental monitoring of proposed resort should be as given below:

(a) To implement the environmental management plan,
(b) To assure regulatory compliance with all relevant rules and regulations,
(c) To ensure regular operation and maintenance of pollution control devices,
(d) To minimize environmental impacts of operations by strict adherence to the EMP.
(e) To initiate environmental monitoring as per approved schedule.
(f) Review and interpretation of monitored results and corrective measures in case monitored results are above the specified limit,
(g) Maintain documentation of good environmental practices and applicable environmental laws as ready reference,
(h) Maintain environmental related records,
(i) Coordination with regulatory agencies, external consultants, monitoring laboratories,
(j) Maintain of log of public inconvenience and the action taken,
(k) Ready to solve any complaints from local people about environmental and social issues especially in waste water and traffic.

8.1.2. Environmental Monitoring Team for Monthly Monitoring

Environmental monitoring team for monthly monitoring has to organize representatives from environmental monitoring team for regular monitoring, representative persons from

Environmental Conservation Department (ECD, Tanintharyi), City Development Committee (CDC, Kawthoung), Department of Hotels and Tourism (DOHT, Kawthoung), local communities and local NGOs as proposed as follow:



Note: should participate , R.P = Representative Persons

Proposed Environmental Monitoring Team for Monthly Monitoring

8.1.3. Parameters, Responsibilities, and Estimated Cost for Mitigation and Monitoring

Monitoring should be conducted daily by the environmental monitoring group of proposed hotel resort and monthly by proposed monitoring team or by the registered monitoring agency. Monitoring frequency should be sufficient to provide representative data for the parameter being monitored. Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken. Monitoring should be carried out throughout all project implementation phases and the responsibilities for monitoring for construction and operation phases. The parameters base on EMP to be monitored; location of the monitoring sites; frequency and duration of monitoring, responsibilities and estimated cost for each of the monitoring parameters are presented in the following Tables.

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Summary of Impacts and Environmental Management Plan

Item	Project Activities	Potential Environmental Impact	Mitigation Measures	Estimated Cost (USD)	Implementation Frequency	Responsible Party
A. Pre-construction & Construction Phase						
1.	Soil excavation	Soil quality degradation, top soil losses	- Soil waste should be disposed of properly or cut and fill should be adopted - Landscaping should be done after construction with indigenous tree species if possible	1000	One time after construction	Contractor and GSB and EMM team
2.	Earth moving activities for operation of heavy machineries and site cleaning (transportation boats/ vehicles)	Air pollution, noise pollution, nuisance, injury	- Spraying the working ground with water - Control speed of vehicles and operation machineries - Ensure sound condition of construction machinery and equipment - Use of modernized equipment - Workers must be provided with proper PPEs such as dust masks during dry and windy conditions and ear plugs during working in noisy area. - Local residents should be given notice of intended noisy activities so as to calm down from getting upset	1,500	Throughout construction	Contractor and GSB and EMM team

3.	Storage of construction materials	Air pollution, soil contamination, fire hazard	- Fine grained materials (sand, marl, etc.) should be stockpiled away from surface drainage channels and features. - Flammable materials (e.g. fuels) should be properly stored in appropriate containers and kept separately. Conspicuous warning signs (e.g. 'No Smoking') should also be posted. Firefighting equipment should be placed. - Paved the ground of the storage area or leak proof epoxy flooring should be applied	800	Throughout construction	Contractor and GSB and also EMM Team
4.	Labor on project site	Soil pollution, water pollution, injury, water consumption	- Provide PPEs - Provision of temporary toilets - Separate septic tanks - Applied best construction practices such as using safety harness and life line while working at heights - Provide adequate first aid facilities - Site fencing and safety signboard	900	Throughout construction	Contractor and GSB and also EMM Team

5.	Constriction waste disposal	Nuisance, Accident,	- Waste collection, segregation and disposal should be properly managed and contact to Township Municipality for final disposal. - Reusable inorganic waste (e.g. excavated soil) should be stockpiled away from drainage features and used for in filling where necessary. - Reusable or recyclable materials should be recycled and reapplied in order to reduce waste generation - Cleaning should be done daily	800	Throughout construction	Contractor and also EMM Team
6.	Temporary Employment	Positive	Nil	Nil	Nil	Contractor
B. Operation Phase						
1.	Operation of power generator, refrigerators and air conditioning systems	Air Pollution, Soil Contamination, noise, nuisance, accident, fire hazard	- Regular maintenance should be done - Silent type should be used - Secondary Containments should be used - Kept separately with fuel storage area - Fire extinguishers should be kept	1,000	Throughout Operation	GSB and also EMM Team
2.	Water consumption in hotel facilities such as swimming pool, toilet,	Water resources depletion	- Water-saving devices should be installed including ultra-low-flush toilet, spray nozzles, urinals, and low- flow showerheads - Install water meter.	1,000	Throughout Operation	GSB and also EMM Team

3.	Electricity and fuel used in hotel services	Increased energy and fuel consumption	- Energy saving devices such as energy saving bulbs, intelligent door lock and energy saving switch card will be used to reduce energy consumption. - Auto switching off electrical equipment will be installed to control energy conservation.	600	Throughout Operation	GSB and also EMM Team
4.	Storage and Handling of materials used for Kitchen	Odor, Health hazard,	- Store in separate freezer cabinets for meals, vegetable and other foods - Everyday check all foods for its expiry date and their validity - Provide adequate such as gloves, masks, hats, etc., - Used qualified chefs - Train the followers to understand food hygiene - Take care the chefs and followers' personal hygiene - Intensive housekeeping should be done at working and storage areas	1,500	Throughout Operation	GSB and also EMM Team

5.	Solid waste from hotel rooms and general waste	Nuisance, Soil contamination, injury	- Waste segregation system should be adopted - Provide a numbers of bins with labels - Pave the floor of temporary waste storage area in order to save leaking - Recyclable waste should be sent to recycler and reusable waste should be reused - Final disposal should be follow the guidelines of Township Municipality	600	Throughout Operation	Project Proponent and also EMM Team
6.	Solid waste from kitchen and restaurants	Odor, nuisance, Soil pollution, health hazard	- Food wastes should be collected in enclosed bins - Regular disposal on daily basis - Install incinerator if possible or otherwise dispose by composting - Record waste transfer by notes	1,000	Throughout Operation	GSB and also EMM Team
7.	Liquid waste from hotel rooms, spa, kitchen and restaurants	Soil pollution, water pollution,	- Install oil and grease separator method should be used - Arrange drains to be well-drained and ensure wastewater not to go outside of the project area before treated - Install wastewater treatment plants - Frequently check the septic tank not to overload sludge and pump out - Record waste transfer by notes	1,500	Throughout Operation	GSB and also EMM Team

8.	Hazardous waste	Environmental quality degradation	- Use environmental friendly refrigerants for air-conditioners such as R401A, instead of R22. - Used bottles used in cleaning, washing and spa should be collected in separate bins and disposed properly - Record waste transfer by notes	800	Throughout Operation	GSB and also EMM Team
9.	Foreigners show lack of respect to cultural and local people while touring	Archaeological resources, social and cultural impact and may conflict with local people	- Hotel should provide awareness program with the assistance of Ministry of Hotels and Tourism. - To avoid traditional, social and cultural impacts, the proponent should adopt the Myanmar Hotel and Tourism Law - Do's and Don'ts labeling in the vicinity area of the hotel - Sharing of leaflets to foreigners for Do's and Don'ts while visiting in Myanmar	800	Annually	GSB
10.	Emergency Fire	Fire hazard, Fatal case	- Provide adequate fire extinguishers and firefighting equipment - Sprinklers should be installed especially in kitchens - Develop firefighting plan and evacuation plan - Organize firefighting, evacuation and first aid trainings. Organize a volunteer firefighting team with hotel employees	800	Throughout Operation	GSB and EMM Team

11.	Employee and Staff	Occupational health and safety problem, damage mentality, air pollution, soil contamination, pollution and infectious diseases	- Equip anti slip stair tape treads. - Do not allow workers to enter kitchen without kitchen wear. - Provide proper PPEs and qualified first-aider at all times. - Arrange welfare plan and Create good working conditions - Food-handling, preparation and storage areas must well-managed for workers and guests, especially for food hygiene. - Arrange 24 hours standby Speed Boat for emergency health case - Give knowledge and awareness training to the workers about the transmitted diseases (including sexual)	2,000	Throughout Operation	GSB and EMM Team
12.	Project Implementation and employment	Positive				GSB and EMM Team

Note: Construction service provider (contractor) will have the responsibility for monitoring during construction phase. GSB should ensure that the construction company has the responsibility of monitoring during construction periods and this monitoring responsibility should be included in the agreements of the construction contract. GSB is the most responsible agency for environmental monitoring during operation phase.

Environmental Monitoring Plan

Item	Environmental Concerns	Parameters	Frequency	Locations	Responsible Party
A	**Pre-Construction & Construction Phase**				
1	Ambient air quality	PM 10, PM2.5, CO, CO2, NO2, SO2	Twice a Year	One point on construction site	GSB Monitoring Team
2	Noise level	Integrating Noise Level Meter dB(A)	Twice a Year	At major construction area	GSB Monitoring Team
3	Water Quality	Colour, Turbidity, Total Hardness, Biological Oxygen Demand (BOD), Suspended Solid, Oil and Grease	Twice a year	2 points, sea water &Tube wells of the project	GSB Monitoring Team
B	**Operation Phase**				
1	Ambient air quality	PM 10, PM2.5, CO, CO2, NO2, SO2, O3	Once a Year	One point in project area	GSB Monitoring Team
2	Noise level	Equivalent noise level dB(A)	Once a Year	One point at the entrance of the project (as receptor)	GSB Monitoring Team
3	Water Quality	pH, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids, Total Coliform Bacteria, and Total Nitrogen, Total phosphorus	Twice a Year	Treated water output from waste water treatment plant	GSB Monitoring Team

8.1.4. Important Factors for Environmental Monitoring

The following factors should be considered during the environmental monitoring.

(a) Monitoring have to done by registered third party monitoring agency or proposed environmental monitoring team of the proposed team. and at least three representatives from proposed monitoring team have to be participated in every monitoring process.
(b) If monitoring results show constantly (3 consecutive years) and significantly (e.g. less than 75 percent) better than the required levels, frequency of monitoring can be reduced (IFC, World Bank, 2007).
(c) By studying the wind rose, the most dominant wind direction and wind speed for every season can be predicted and monitoring station for dust, noise and gas emissions should be carried out at that wind direction.

8.1.5. Environmental Management Training Program

Environmental management training program is an important part in EMP. Training and human resource development is an important link to achieve sustainable operation of the facility and environmental management.

Training Program for Construction Phase

During construction phase, construction contractor must ensure that project staffs are trained on labor safety and environment protection during construction phase.

Training Program for Operation Phase

In operation phase, all staff of proposed project must be trained on environment safety throughout training courses to be familiar with operation processes and guidelines, fire fighting exercises and practices, etc. Project Management Board should be established and maintain training programs that are regularly updated to help staff at all levels and related functional departments are aware of their responsibility on environment protection. For successful functioning of the project, relevant EMP's should be communicated to the following groups of people:

Employees

Employees must be made aware of the importance of safety, waste segregation and storage, and energy conservation. This awareness can be provided through leaflets and periodic in house meetings. They should be informed about their responsibilities for successful operation of various environmental management schemes inside the premises.

Site Staff

Relevant personnel at site must be trained for:

(a) Collection, segregation and storage of the solid and waste generated during operation,
(b) Operation and maintenance of sewage treatment plant and reclamation system,
(c) Requirements of the emergency response plan in case of an emergency,
(d) Techniques for waste minimization, water conservation and energy conservation,
(e) Applicable environmental, health and safety regulations and compliance requirements,
(f) Functioning of the environmental management system including environmental monitoring, reporting and documentation needs.

8.1.6. Record Keeping

Record keeping and reporting of performance is an important management tool for ensuring sustainable operation. Records should be maintained for regulatory, monitoring and operational issues. Typical record keeping requirements for the site is summarized in following table.

Record Keeping Requirements

Parameter	Particulars
Resources Use	- Daily quantity of electrical power consumption through power meter - Daily quantity of water use for domestic through water meter
Solid Waste Handling and Disposal	- Weekly quantity and management of residue from water treatment system - Daily quantity and management of domestic solid waste from the proposed resort
Monitoring and Survey	-Records of all monitoring carried out as per the finalized monitoring protocol.
Complaints from Nearest Residents	- Records of all complainants from the nearest villages
Employee Health and Safety	- Daily record for accidents at the resort

Record	
Others	- Equipment inspection and calibration records, where applicable - Vehicle maintenance and inspection records

8.1.7. Environmental Audits and Corrective Action Plans

To assess whether the implemented EMP is adequate, GSB will conduct periodic environmental audits. Environmental audit is an independent and objective oriented examination of whether the practice complies with expected standards. Broadly, environmental audit means a check on some aspects of environmental management, and implies some kind of testing and verification.

There are two levels of Environmental Audits, i.e. Environmental Impact Audit and Environmental Management Audit. Environmental Impact Audit involves comparing the impacts predicted in an IEE with those that actually occur after implementation of the project while Environmental Management Audit involves checks against adherence to plans, mitigation measures and general compliance of terms and conditions. These audits will be followed by Corrective Action Plans (CAP) to correct various issues identified during the audits.

8.1.8. Reporting Monitoring Results

Results of recorded in files to monitor and audit monitoring will be carried out strictly as required by the related national regulations and the monitoring results of required parameters should be reported to local authorities monthly and copies to MOI (Kawthoung), ECD (Kawthoung), and CDC (Kawthoung).

8.2. Disaster Management Plan

The overall objective of a disaster management plan is to make use of the combined resources created or available at the site and/or off-site services to achieve the following:

- To minimize the effects the accident on people and property;
- Effect the rescue and medical treatment of casualties;
- Safeguard other people, outside the project boundary
- Evacuate people to safe areas with utmost care and with minimum casualties;
- Inform and collaborate with statutory local and state authorities;
- Initially contain and ultimately bring the incident under control;

- Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of the emergency;
- Investigate and take steps to prevent recurrence of similar incidents

8.2.1. Risk Assessment Likely Hazards and Possible Disasters

Dangerous conditions or events that threaten or have the potential for causing injury to life or damage to property or the environment is called hazard. Hazards can be categorized in various ways, but based on the origin, they worldwide are basically grouped in two broad headings:-

1. Natural Hazards (hazards with meteorological, geological or even biological origin)
   e.g. Earthquake, Tsunamis, Storms, Lightning strikes etc.
2. Manmade Hazards (hazards with human-caused or technological origin)
   e.g. Fire & Explosions, Drowning, Sabotage etc.

Vulnerability

Vulnerability may be defined as the probability of exposure of a village, city or a community to a hazard. A society or project may be vulnerable to various hazards to different extents depending upon various reasons including environmental, geographical, social, economic etc.

Disaster

A disaster occurs when a hazard such as earthquake, flood or windstorm coincides with a vulnerable situation. It is hence the product of are two main components: Hazard and Vulnerability. A disaster seriously disrupts the normal functioning of a society, causing widespread human, material, economic or environmental losses that exceed the society's capability to cope without external relief.

8.2.2. Standard Operating Procedures

Standard Operating Procedures have been laid down to guide project authorities and staff to be prepared for disasters and act positively in times of disasters. As disasters can be of various types, separate standard operating procedures have been developed for each kind. These procedures have been prepared with the aim to guide the authorities and staff through the following stages with regards to disaster:

1) Precautionary measures
2) Disaster Preparedness Onsite

3) Disaster Preparedness Offsite

4) Emergency response in the event of disaster

5) Relief and Rehabilitation

6) Evacuation

(1) Precautionary Measures

Precautionary measures for any disaster are to be taken by all the users/visitors of the proposed resort. Hence the measures mentioned below are to be meticulously followed by occupants of the Resort. To be well informed about such precautions a printed booklet will be kept in each resort villa/room.

Earthquake

- BIS codes relevant to the project site shall be adopted for building standards
- Fasten shelves securely to walls.
- All the occupiers should be made aware to place large or heavy objects on lower shelves.
- Information would be provided to store breakable items such as bottled foods, glass, and china in low, closed cabinets with latches.
- Hang heavy items such as pictures and mirrors away from beds, settees, and anywhere people sit.
- Brace overhead light and fan fixtures.
- Repair defective electrical wiring and leaky gas connections. These are potential fire risks.
- Secure a water heater, LPG cylinder etc., by strapping it to the wall studs and bolting it to the floor.
- Store weed killers, pesticides, and flammable products securely in closed cabinets with latches and on bottom shaves.
- Identify safe places indoors and outdoors for occupiers:

  a) Under strong dining table or bed

  b) Against an inside wall.

  c) Away from where glass could shatter around windows, mirrors, pictures, or where heavy bookcase or other heavy furniture could fall over.

d) In the open, away from building, trees, telephone and electrical lines, flyovers, bridges.

• Emergency telephone number (doctor, hospital, police, etc.) would be displayed on both floors and booklet of the same should be available/ displayed prominently in all rooms.

Floods

- Sewerage and storm water systems to be checked at regular intervals for their proper functioning.
- Provision will be made to harvest most of the rain water from the proposed site. This will reduce the water shortage as well as runoff water on the site.

Cyclones

- Periodical checking of all resort buildings for structural faults, to secure loose tiles, and to carry out timely repairs, will be resorted to.
- Keep some wooden boards ready so that glass windows can be boarded if needed.
- Periodical removal of dead wood or dying trees close to the villas to be undertaken.
- Hurricane lanterns filled with kerosene, battery operated torches and enough dry cells will always be made available during emergencies.
- Keep some extra batteries for transistors.
- Keep some dry non-perishable food always ready for emergency use.

Tsunamis

- An earthquake that lasts 20 seconds or longer in a coastal area may cause tsunamis.
- When the shaking stops, people will be moved quickly to higher ground away from the coast. A tsunami may be coming within minutes.

Lightning Strikes

If Outdoors

- Seek shelter in a hardtop (metal-bodied) vehicle or solid building but not open structures or tents
- Do not take shelter under trees
- Fishing rods, Umbrellas and other metal rods to be avoided
- Distance should be maintained from fences, metal poles, clotheslines etc.
- If on boat or swimming, one should aim to reach the shore as soon as possible

If Indoors

- Disconnect external aerial and power leads to radios and television sets. Disconnect computer s and power leads.
- Draw all curtains and keep clear of windows, electrical appliances, pipes and fixtures (e.g. avoid using bath, shower and electrical equipment's)
- Avoid using telephones, in case of emergency, calls should be brief.
- Avoid touching metal, brick or concrete or tiled floors.

Fire

- Good house-keeping.
- Compulsory use of ashtrays while smoking.
- Welding /Cutting jobs to be carried out under strict supervision.
- Fire Rescue drills to be carried out at regular intervals.

Since fires of different classes require specific precautionary measures to be taken in each case, precautionary measures to be taken for different classes of fires are listed below.

a) Electrical Fires

The following basic precautions are recommended:

- Install only appliances that have the label of a recognized testing laboratory.
- Switches and fuses to conform to correct rating of circuit.
- Use only surge protectors or power strips that have internal overload protection and have ISI or BEE label
- Use light bulbs that match the recommended wattage on the lamp or fixture.
- High voltage points and instruments to be secured and labeled prominently.
- Avoid putting cords where they can be damaged or pinched by furniture, under rugs and carpets, or across doorways.
- Replace any electrical tool if it causes even small electrical shocks, over heats, shorts out or gives off smoke or sparks.
- Routinely check your electrical appliances and wiring. Replace all worn, old or damaged appliance cords immediately. Do not try to repair them.
- Electrical work should be done only by a qualified electrician. Call an electrician if you have any of the following:
    - Recurring problems with blowing fuses or tripping circuit breakers

- A tingling feeling when you touch an electrical appliance
- Discolored or warm wall outlets or switches
- A burning smell or rubbery odor coming from an appliance
- Flickering lights
- Sparks from a wall outlet
- Cracked or broken wall outlets

- Keep clothes, curtains, and other items that can catch fire at least three feet from all portable electric space heaters.

b) Earthquake Fires

- Never place a container with water such as a flower vase or water tank near an electrical appliance. Spilt water on a plug in a socket is likely to cause fire.
- Avoid keeping anything easily inflammable from falling from shelves around a gas cookers in the kitchens and villas, wherever LPG cylinder is used for cooking

Sabotage

- The resort will be fully secured all around the periphery and there will be only one entry and one exit to the entire facility.
- The entry and exit points will be manned for 24 hours with specially trained security staff fully equipped with latest security gadgets including closed circuit electronic surveillance cameras/CCTVs monitoring all sensitive areas within the Resort Complex. A log book will be maintained to record the identities of all "vehicles/staff/guests/visitors" entering and leaving the Resort.
- All "persons/vehicles" entering the resort will be fully checked for explosives and weapons.

Drowning

- Sign ages should be placed on the beach indicating depth at every 0.5 meter till 2.5 meter depth from low tide line, up to a distance of 100 m from low-tide line.

Daily tide timings should be prominently displayed near the beachfront and should be proactively updated daily.

- Lifeguards should be employed to keep a watch on visitors swimming in the beach.

8.3. Disaster Preparedness Onsite

The plan will include alarm equipment's and other measures and the budget for capital and running cost of the plan.

Fire Alarms/Other Measures

Given the location of the resort, it is important to have a proper fire management system. Fire could take place from various accidents; one of them being faulty electrical materials.

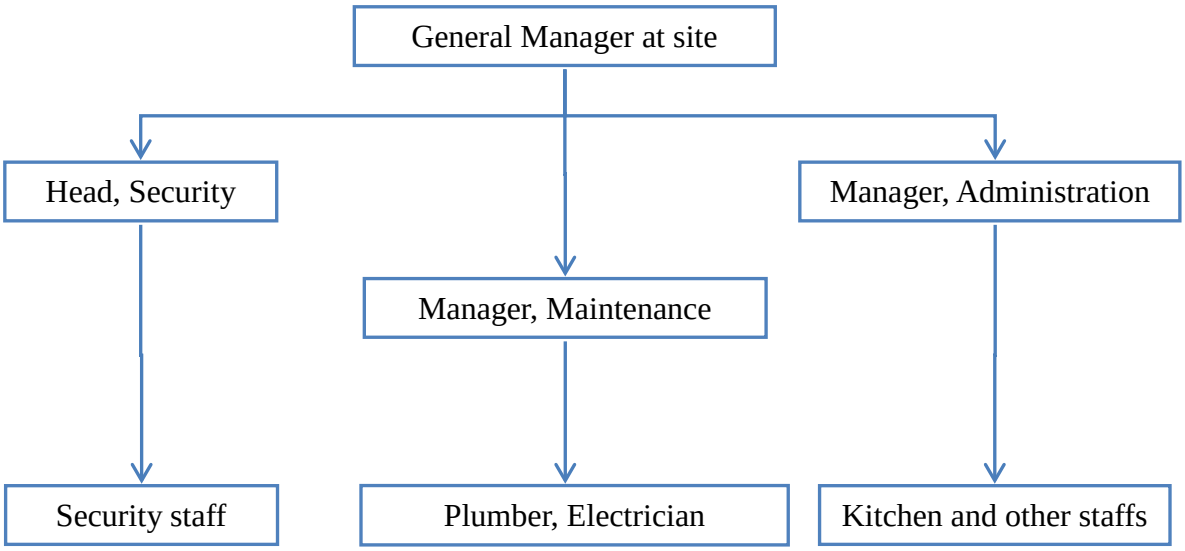
Hence all electrical wiring of the proposed building would be made as per Government standards. Also maintenance of the wiring should be carried out at regular intervals through a professional electrician. Fire and smoke alarm must be installed in every room. An alarm system will be developed so that visitors are informed and all the staff will be informed and trained with regard to the actions taken and operations necessary to efficiently use the system.

To meet the requirements, the following measures will be taken:

- Posters indicating evacuation routes will be displayed in all rooms/villas/kitchens etc. of the resort clearly indicating the position of the poster with 'You are here' mark. Route of evacuation should be indicated by way of arrows, leading to the assembly point.
- Fire and smoke alarms will be installed in all covered places such as rooms, lobbies, halls, kitchens, offices, etc. The functioning of these fire alarms will be checked every week by the resort security staff.
- Courtyard will be paved suitably to bear the load of fire engines.
- Electrical meter room will be sealed with non-combustible materials.
- The lighting in all fire escape routes will be based on independent circuits backed by DG sets.
- Underground and overhead water storage tanks having appropriate capacity will be provided for fire fighting.
- Automatic water sprinklers will be installed in all internal covered spaces.
- Fire Hydrants, Fire Hoses and Fire Extinguishers will be installed throughout the resort as mandated by the Fire Fighting Department (Lounglon).
- Portable fire extinguishers of dry chemical powder will be provided in the electric meter rooms and basements.
- Lightning conductors and other equipment's mandatory as per existing Government Rules will be installed.

Onsite DMP Team

The structure of the team is given below. During the operational phase of the resort, name of the authority and their contact details will be included in the following chart. This will be part of DMP kit which should prominently placed and accessible to all.



Onsite DMP Team

Emergency Equipment's

The site security officer will maintain a list of emergency handling equipment including details of fire extinguishers their validity and potency, protective clothing, and personal protective equipment for emergency handlers etc. The major hospitals, clinics, emergency services shall be kept in the knowledge of all concerned. Fire fighting related water tank with adequate water quantity and system with fire hoses will be kept readily available. All the location of fire extinguisher will be displayed by a notice board.

Disaster Emergency Kit

An emergency kit will be prepared which will have following items:

Table - Emergency Kit and Items and Numbers

Sr. No.	Emergency Kit Item	Numbers
1.	First aid kit and Whistle	1 for each room/villa/kitchen/restauarent/spa
2.	Portable fire extinguisher	4 on each floor of each building
3.	Safety ropes	5

The emergency kit will be augmented frequently after its check regularly. The project proponent will provide a disaster emergency kit which would consist of:

1. Battery operated torch
2. Extra batteries
3. Battery operated radio
4. First aid kit and manual
5. Candles and matches in a waterproof container
6. Knife
7. Chlorine tablets or powdered water purifiers.
8. Can opener
9. Essential medicines
10. Thick ropes and cords
11. Sturdy shoes

Medical and Related Resources

The medical managements for the possible emergency situation essentially consist of First Aid facility. The Security manager must maintain the staff including sweepers, security persons, etc. so that during medico emergency equal weight age would be given to all the members of the society.

Also Security manager should keep the numbers of emergency. Hospitals, so that doctors could be connected at the earliest at the time of medical emergency. These numbers must be prominently displayed on the notice board and can be accessed by the members in absence of Security manager.

Drills

Mock drills activating the Disaster Preparedness Plan will be conducted periodically for ensuring its efficiency during emergency as well as refinement and updation. These drills based on the plan will help achieve its objectives. Head, Security shall be the main coordinator for making people aware of the situation and emergency condition response.

Fire extinguishers would be placed in all floors of all villas and hotel rooms. Every member of staff would be given training on how to use these fire extinguishers. Working of these fire extinguishers would be evaluated every year by a qualified and trained person. If any faulty equipment is observed or any further improvement is needed then it would be repaired.

Proper evacuation plan would be chalked for the resort. The map for the evacuation plan for each hotel/ villa/ restaurant/ kitchen/ spa would be displayed in the respective places. A mock demonstration for evacuation of guests/visitors would be carried out at interval of every six months. These mock drills would be performed in presence of qualified professional. Information would be given to all the members of staff on how react in case of disaster.

Emergency Response in the Event of Disaster

In case of emergency due to any type of disaster a quick and immediate response is essential. This response depends on the actions taken by individuals to avoid or mitigate the adverse effects of a disaster and to undertake search and rescue operations. Following are the actions which will be taken in various emergent situations.

(1) Action in the event of Fire

Extinguishing fires: A small fire at the point of leakage will be extinguished by enveloping it with a water spray or a suitable smothering agent such as CO_2 or DCP (Dry Chemical Power). Trained staff will be engaged in combating fire. Fire fighting personnel working close to un-ignited vapour clouds or close to fire, will be protected continuously by water sprays.

(2) Actions in case of Flood/Tsunami

The resort management shall take all necessary precautions in consultation with the State weather and disaster management authorities.

(3) Lightning strike

Apply immediate heart massage and mouth-to-mouth resuscitation to lightening victims until medical help arrives.

Relief and Rehabilitation

Relief authorities at the site will:

- Encourage self-help in every activity of their day-to-day living.
- Provide assistance for identification/assessment of human and material loss.
- Provide assistance in maintenance of law and order.
- Provide assistance in maintaining sanitation standards and in disposal of waste.
- Promote cultural and recreational activities for mental health.

Measures during Earthquake

- Relief authorities will: Conduct a week-long survey to locate quake related hazards/damages in the resort.
- Work with local emergency services and officials to help affected people and those likely to be affected.
- Provide tips for conducting earthquake drills.

Actions to be taken to prevent impact of Cyclone

- Residents/visitors will be advised to stay tuned to weather advisories broadcast on radio or TV. Radios and TVs in Resort lobbies/restaurants etc. will also be activated for the benefit of residents/guests.
- All windows and external doors of the resort complex will be shut and appropriately secured to withstand high wind speeds.
- Extra food, which can be eaten without cooking, and surplus drinking water will be stocked for the benefit of residents/guests to tide over long power failures and damage to F&B infrastructure.
- Hurricane lanterns, torches and other emergency lights will be made available.
- All loose and unsecured materials which can fly and cause damage due to strong winds, will be removed to safe locations and/or securely fastened.
- Electrical mains will be switched off except for emergency utilities.
- The management will be continuously in touch with the State Disaster Management Authority and scrupulously follow its instructions with respect to the need for evacuation of the resort or any other eventuality.

Evacuation Plan for the Beach Resort

A standard response plan that is to be following by any personal that comes across an emergency situation such as fire needs to follow RACE.

RACE method of Evacuation Plan:

R -*Remove All Persons In Danger!*

A -*Always Pull The Alarm and Call the Emergency Services.*

C -*Contain The Fire By Closing the Windows and Doors.*

E -*Extinguish the Fire Only if You Are Trained and Confident.*

Followed by this primary response, the evacuation of public vulnerable to fire hazard is the most important step during any emergency fire. Proper co-ordination, prior basic knowledge on how to act is a situation is also essential. The guidelines given below are for the local evacuators and evacuees as well as planners and designers of the emergency response.

- Guidelines for Evacuation In-charge
- Evacuation and Exit Routes for each villa, Hotel room, Kitchen, Restaurant & spa

An assigned on-duty employee will be evacuation in-charge who will command and coordinate the situation.

- The number of exit routes will be adequate, normally two or more depending on: Exit discharge will lead directly outside or to a street, walkway, refuge area, public way, oropen space with access to the outside and the area will be large enough.
- Exit stairs that continue beyond the level on which the exit discharge is located will be interrupted at that level by doors, partitions, or other effective means that clearly indicate the direction of travel leading to the exit discharge.
- Exit doors will be able to open from the inside at all times without keys, tools, or special knowledge.
- Exit route will support the maximum permitted occupant load for each floor served.
- Capacity must not decrease in the direction of exit route travel to the exit discharge.
- Ceiling will be at least 7-1/2 ft. high with no projection reaching a point less than 6 ft. - 8 in. from floor.
- An exit access will be at least 28 in. wide at all points.
- Objects that project into the exit route will not reduce the width of the exit route to less than the minimum width requirements for exit routes.
- The assembly point has sufficient area to accommodate persons (0.3 m^3/person)
- The plans given below shows the refuge area that can be preferred and the service area that can be useful as a junction for escape route.
- The terrace area shown in the plan is open to sky that can accommodate sizable people in case of disaster, also the fire escape passage is provided as an exit route.

8.4. Corporate Social Responsibility (CSR) Program

Contribution at random places with no records will have some social problem due to the lack of transparency. So, GSB should have CSR program to contribute and manage CSR fund effectively.

8.4.1. CSR Fund

GSB should set up fixed CSR fund for local community development. It is important that CSR activities should be accomplished not only by financial assistance but also by technical assistance and manpower in some donations to retain good relation with local communities. Allocated percent of CSR fund is based on local community needs according to the public survey. Proposed allocated percent of CSR budget are as follow:

No.	Activities	Proposed allocated per cent of CSR budget	Public Needs according to Public Consultation Processes
1.	Donation to NGOs and CBOs	10%	Yes
2.	Construction of roads	30%	Yes
3.	Donation to schools	20%	Yes
4.	Donation to health care facilities	20%	Yes
5.	Provide upgrading of local products to value added products	20%	Yes
Total		100%	

8.4.2. CSR Officer (or) Coordinator

GSB should assign CSR officer (or) CSR coordinator to closely relate with local people in order to manage the contributions of CSR fund effectively. HR manager can also be assigned as CSR officer. CSR officer should donate CSR fund after the discussion with representative people from nearest villages.

8.4.3. Proposed CSR Activities

The following are the proposed CSR activities and most of the CSR activities are according to the public needs during social survey and determination of SIA Team for local community development. All of the proposed activities will improve the socio-economic conditions of nearest villages significantly.

(a) Health Care Facilities;
(b) Education;
(c) Village Roads
(d) Upgrading of local products to valuable products development;

(e) Participating in Government Schemes; and
(f) Funds for NGOs and INGOs.

Health Care Facilities

According to social survey, there is no public health care facility for nearest residents. So, health care facilities of proposed project should be assessed to nearest local people with lowest or no charge as part of CSR program. Ambulance for emergency case should be provided for local people in nearest villages.

Education

Distribution of education materials and financial aid or scholar grants to the students who are economically deprived in the nearest villages of the proposed resort will have a great benefit for students. Most of the schools in nearest villages are furnished inadequately and upgrade and fulfillment of educational requirements and facilities are recommended to be included in SR program.

8.4.4. Participating Government Schemes for Social Welfare

GSB should actively participate in implementation of government schemes for welfare of the society of the Kawthoung region.

8.4.5. Cooperation with Local NGOs

GSB should cooperate with local NGOs and CBOs in nearest villages in the activities to improve regional, religious, and all round developments in Kawthoung Region. Some percentage of CSR fund should provide regularly to NGOs and CBOs in nearest villages.

8.4.6. Upgrading of Local Product to Value Added Product

GSB will use 20% of CSR fund in research and development of upgrading of local products (sea food, decorative materials from mollusks and crustaceans, beautiful products from coconut etc.)

8.4. 7. Declare the Contribution of CSR Fund

All of the CSR activities and contribution programs should be declared to public by means of local media, company annual report or company’s website on a regular basis. Audit on contribution of CSR fund should be carried out together with environmental and social audits through independent external audit team for transparency.

9. PUBLIC CONSULTATION AND DISCLOSURE

9.1 Importance of Public Consultation and Information Disclosure

The opinions of the local people, social organizations and stakeholders with the development of the proposed project have been taken into account in the IEE. The public consultation indicated the transparency of IEE's proponents to the local people. Consultation meetings were held with various stakeholders including communities near project area, administrative, community based and social organizations. The results getting from the consultations meeting and negotiations with environmentally and socially of the affected people were taken into consideration in evaluation of impacts, design of mitigation measures and monitoring plans. Negotiation with related governmental organizations was also done. All feedbacks from public consultation meetings were well addressed and considered in the formulation of EMP, environmental monitoring plan and CSR plan.

9.2. Data Collection

The primary data for environmental, social and health profiles were collected by household survey during study period. The project data, site layout plans and design parameter are provided by Good Shan Brother International Co., Ltd. Some secondary data on demographic distribution in the area are sourced from local government offices of Kawthoung.

9.3. Public Consultation and Participation Process

Integral to the impact assessment is the process of stakeholder engagement which has been ongoing. The public participation process included:

(i) Identifying interested and affected parties (stakeholders);
(ii) Informing and providing the stakeholders with sufficient background and technical information regarding the proposed development;
(iii) Creating opportunities and mechanisms whereby they can participate and raise their viewpoints (issues, comments, and concerns) with regard to the proposed development;
(iv) giving the stakeholders feedback on process findings and recommendations; and
(v) Ensuring compliance to process requirements with regards to the environmental and related legislation.

9.4. Public Meetings

Public meeting was held in (13.5.2019) Kawthoung. There were about 150 people from local communities who are directly or indirectly affected by the proposed project are attended in this meeting. The aims of the first public meeting are:

(i) To aware the process and procedure of IEE;
(ii) To say publicly about the potential environmental and social impacts;
(iii) To discuss about the alternative ways and possible mitigation measures to avoid the possible impacts.
(iv) To clarify about the public needs and concerns.

Attendance list, suggestion letters of public meeting and key discussions during the meeting are shown in Appendix I.


9.5. Public Disclosure Process

Softcopies for meeting minutes (See in Appendix II) was distributed to all participants during second public meeting. Summary of IEE report in Myanmar Language was also distributed to all key stakeholders as public disclosure process

Draft IEE report was distributed to all key stakeholders and will be made available for public comment for a period of 30 days in the following ways:

- By raising comments during a series of public meetings where the content of the draft IEE Report will be presented;
- By completing a comment sheet made available together with the report at the public places, and by submitting additional written comments, by email or fax, or by telephone, to the HRD Environmental Training and Services Office.

All comments and issues raised during the comment period on the draft IEE report will be added to the comment and response report that will accompany the Final Report.

10. CONCLUSION

This IEE report reviews the key anticipated environmental and social impacts of proposed project. Moreover, proper mitigation measures for these anticipated impacts and good environmental management practices, which do not reduce hotel process were described in this report. According to the IEE study, all of the major and minor environmental and social impacts can be reduced by proper mitigation measures described in this report. To summarize, it can be concluded that all of the anticipated adverse impacts of the project can be minimized by the proper mitigation measures described in this report and the proposed hotel zone project can be allowed to operate if the project proponent (GSB) will do all of the mitigation and enhancement measures described in this report.

APPENDICES

APPENDIX 1

Attendance List, Suggestion Letters of Public Meeting and Key Discussions

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ဆွေးနွေးပွဲတက်ရောက်လာသူများ

ရက်စွဲ 13-5-2019
နေရာ Garden Hotel

စဉ်	အမည်	ဌာန၊ ကျေးရွာ၊ မြို့နယ်၊	လက်မှတ်
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၃	ဦး[illegible]	[illegible]	[signature]
၄	ဦး[illegible]	[illegible]	[signature]
၅	ဦး[illegible]	[illegible]	[signature]
၆။	[illegible]	HRD.	[signature]
၇.	[illegible]	KTGA	[signature]
၈	ဦး[illegible]	[illegible]	[signature]
၉	ဦး[illegible]	11	[signature]
၁၀	ဦး[illegible]	11	[signature]
၁၁.	ဦး[illegible]	[illegible]	[signature]
၁၂	ဦး[illegible]	"	[signature]
၁၃.	ဦး[illegible]	DVB	[signature]

HRD Environmental Training and Services Co.,ltd Page 2

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ဆွေးနွေးပွဲတက်ရောက်လာသူများ

ရက်စွဲ 13. 5. 19
နေရာ Grander Hotel

စဉ်	အမည်	ဌာန၊ ကျေးရွာ၊ မြို့နယ်	လက်မှတ်
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Stakeholders Consultation Questionnire

အမည်... ဦးဇော်ဆက် ... စီမံကိန်းအမည်... [illegible] ...
နေ့စွဲ... 12.5.19 ...
မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မဖြစ်နိုင်	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
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၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	မထိခိုက်နိုင်	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	မထိခိုက်နိုင်	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	မဖြစ်နိုင်	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	ကောင်းမွန်လာမည်	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို ပြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	မကြပ်သွားနိုင်ပါ	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မပေးနိုင်ပါ	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	မဖြစ်စေနိုင်ပါ	

Signature (လက်မှတ်)... [illegible] ...
Name (အမည်)... ဦးဇော်ဆက် ...
Address (နေရပ်လိပ်စာ)... [illegible] ...

HRD Environmental Training and Services Co.,ltd Page 4

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စီမံကိန်းအမည်-------ကမ်းနီး အသင်းဝင်-------
မြို့နယ်-------ကော့သောင်းမြို့-------

အကြံပြုချက်များ ရှိပါက ရင်းနီးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ 12-5-2019

စဉ်	အကြံပြုလွှာ
	တနိုင်တနိုင် မှီသားတရ ကမ်းနီး လှေငယ်များသည် အချိန်မရွေး ရာသီဥတု ဖောက်ပြန်လာလျှင် ကမ်းနီး လှေငယ်များ အား အချိန်မရွေး ဝင်/ထွက် သွားလာမှုများ ခွင့်ပြုပေးဖို့ တာဝန်ရှိသည့် ဌာနကြီး များအား အသိပေး အကြံပြုအပ်ပါသည်။

လက်မှတ်........(signature)........
အမည်........ဦး ဇော်လတ်........
ဆက်သွယ်ရန်လိပ်စာ..၁၆-ပင်းလျား..
........[illegible]........
ဖုန်းနံပါတ်..၀၉-၂၀၈၈၃၇၇၇၆..

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Stakeholders Consultation Questionnire

အမည်.....[illegible]..... စီမံကိန်းအမည်.....Hotel Resort.....

နေ့စွဲ.....[illegible].....

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ.....

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက် ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	No	
၃	ယခုစီမံကိန်းကြောင့် ကျွန်းဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	No	
၄	ယခုစီမံကိန်းကြောင့် ကျွန်းဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	No	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	No	[illegible]
၆	ယခုစီမံကိန်းကြောင့် ကျွန်းဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	Yes	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမိုပြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	No	-
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	No	[illegible]

Signature (လက်မှတ်).....[signature].....

Name (အမည်).....[illegible].....

Address (နေရပ်လိပ်စာ).....[illegible].....

HRD Environmental Training and Services Co.,ltd Page 4

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စီမံကိန်းအမည်-- Hotel Resort Project
မြို့နယ်-- [illegible]

အကြံပြုချက်များ ရှိပါက ရှင်းနိုးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ [illegible]

စဉ်	အကြံပြုလွှာ
၁။	Hotel resort project [illegible]
၂။	[illegible]
၃။	[illegible]
၄။	[illegible]

လက်မှတ်..........
အမည်.......... [illegible]
ဆက်သွယ်ရန်လိပ်စာ.......... [illegible]
ဖုန်းနံပါတ်.......... [illegible]

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Stakeholders Consultation Questionnire

အမည်...ဦးလှမောင်...... စီမံကိန်းအမည်...စေတန်ကျွန်းနှင့်ဘိတ်ကျွန်းပေါ်ရှိ Hotel Resort...

နေ့စွဲ...13.5.19...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ......

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	No	
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	No	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	No	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	No	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	No	-
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို ပြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	No	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	No	

Signature (လက်မှတ်)......

Name (အမည်)...ဦးလှမောင်...

Address (နေရပ်လိပ်စာ)...[illegible]...

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Stakeholders Consultation Questionnire

အမည်..... စီမံကိန်းအမည်.....

နေ့စွဲ..13. MAY. 2019.

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ GARDEN HOTEL. KAEOTHAUNG

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား		
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား		
၃	ယခုစီမံကိန်းကြောင့် ကျွန်ုပ်တို့၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား		
၄	ယခုစီမံကိန်းကြောင့် ကျွန်ုပ်တို့၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား		
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။		
၆	ယခုစီမံကိန်းကြောင့် ကျွန်ုပ်တို့၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား		
၇	ယခုစီမံကိန်းကြောင့် သယံဇာတို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို မြှင့်တင် ကြပ်သွားနိုင်ပါသလား		
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား		
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား		

Signature (လက်မှတ်).....

Name (အမည်).....

Address (နေရပ်လိပ်စာ).....

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စီမံကိန်းအမည်-[illegible] Hotel Resort [illegible]
မြို့နယ်-ကော့သောင်း

အကြံပြုချက်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ 13.5.19

စဉ်	အကြံပြုလွှာ
	[illegible]

လက်မှတ်...[signature]
အမည်...[illegible]
ဆက်သွယ်ရန်လိပ်စာ...[illegible]
ဖုန်းနံပါတ်...09421084636

HRD Environmental Training and Services Co.,ltd Page 10

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Stakeholders Consultation Questionnire

အမည်... [illegible] ... စီမံကိန်းအမည် ... [illegible] Hotel Resort

နေ့စွဲ... 13.5.19 ...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ်ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက် ပြင်ဆင်ရန်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No.	-
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	No.	
၃	ယခုစီမံကိန်းကြောင့် ကျေးရွာ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	-	
၄	ယခုစီမံကိန်းကြောင့် ကျေးရွာ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	-	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု များ ဖြစ်နိုင်ပါသလား။	Yes.	
၆	ယခုစီမံကိန်းကြောင့် ကျေးရွာ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	Yes.	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမိုပြတ်သိမ်ကြပ်သွားနိုင်ပါသလား	No	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	No	

Signature (လက်မှတ်)... [signature]

Name (အမည်)... [illegible]

Address (နေရပ်လိပ်စာ)... Today [illegible] 408-A [illegible]

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စီမံကိန်းအမည် စေတန်ကျွန်းနှင့်ဘိုဘိုကျွန်းပေါ်ရှိ Hotel Resort စီမံကိန်း
မြို့နယ် ကော့သောင်း

အကြံပြုချက်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ 13.5.19

စဉ်	အကြံပြုလွှာ
	လုပ်ငန်းဆောင်ရွက်မှု ကနဦး ခရီးစဉ်တွင် ကျွန်းပေါ်သို့ အတူ လိုက်ပါလေ့လာခွင့် ရရှိခဲ့ပါသည်။ စနစ်တကျ ပြင်ဆင်မှုများ၊ တိုင်းတာမှုများ ဖြင့် လုပ်ကိုင် ဆောင်ရွက်နေကြသဖြင့် ကျေနပ်အားရမိပါသည်။ Company ၏ လုပ်ငန်းဆောင်တာများ အောင်မြင်ချောမွေ့သလို ကော့သောင်းမြို့နေ လူထု၏ ဘဝတိုးတက်မှု၊ မြို့သာယာလှပမှု များရှိပြီး ကောင်းသော အပြောင်းအလဲ ဖြစ်ပေါ်စေချင်ပါကြောင်း အကြံပြုအပ်ပါသည်။

လက်မှတ် (signed)
အမည် ဒေါ်ခိုင်မမဝေ
ဆက်သွယ်ရန်လိပ်စာ Today ဆာရေ့ပ်ဆိုင် 408-A၊ ပြိုင်လမ်း၊ ဘုရင့်နောင်
ဖုန်းနံပါတ် 09250902769

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Stakeholders Consultation Questionnire

အမည်...ဦးဝင်းနိုင်... စီမံကိန်းအမည်...[illegible] Hotel

နေ့စွဲ...၂၂. ၇. ၂၀၁၉...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...Garden Hotel Kawthaung...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ်ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မဖြစ်နိုင်	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	မထိခိုက်နိုင်	
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	မထိခိုက်နိုင်.	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	မထိခိုက်နိုင်	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	မဖြစ်နိုင်.	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	ကောင်းလာမည်	-
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို မြှတ်သိပ် ကြပ်သွားနိုင်ပါသလား	မကြပ်သွားနိုင်	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မပေးနိုင်ပါ	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	မဖြစ်စေပါ။ ပိုမိုကောင်းမွန်လာစေပါမည်။	

Signature (လက်မှတ်)...[signature]...

Name (အမည်)...ဦးဝင်းနိုင် B.E.(Mech.) '84

Address (နေရပ်လိပ်စာ)...[illegible] ကော့သောင်းမြို့.

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Stakeholders Consultation Questionnire

အမည်..... [illegible] ..... စီမံကိန်းအမည်..... [illegible] Hotel Resort .....

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ..... Garden Hotel ..... နေ့စွဲ..... 13.5.19 .....

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	[illegible] ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	No	
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	Yes.	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	Yes	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	No	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	Yes	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို ပြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	No	—
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	Yes	

Signature (လက်မှတ်)..... [signature] .....
Name (အမည်)..... [illegible] .....
Address (နေရပ်လိပ်စာ)..... 09 251147744 .....

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Stakeholders Consultation Questionnire

အမည်...ဦး[illegible]...... စီမံကိန်းအမည်.ဆေတန်ကျွန်းနှင့်ဘိုဝိကျွန်းပေါ်ရှိဟိုတယ် စီမံကိန်း

နေ့စွဲ...၁၃-၅-၂၀၁၉...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ........................

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မထင်ပါ	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	မထိခိုက်နိုင်ပါ	
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား		
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား		
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	မဖြစ်နိုင်ပါ	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	ကောင်းမွန်နိုင်ပါသည်	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို မြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	မကြပ်နိုင်ပါ	-
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား		
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	မဖြစ်နိုင်	

Signature (လက်မှတ်)..........[signature]..........

Name (အမည်)..........ဦး[illegible]..........

Address (နေရပ်လိပ်စာ)..........[illegible]..........

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Stakeholders Consultation Questionnire

အမည် ဦးကျော်သက်ထွန်း .... စီမံကိန်းအမည် HOTEL RESORT ....

နေ့စွဲ ၂၃.၅.၂၀၁၉ ....

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ............

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက် ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မဖြစ်နိုင်	
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	မဖြစ်နိုင်	ခရီးသွားလုပ်ငန်းများ [illegible]
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	မဖြစ်နိုင်	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	မဖြစ်နိုင်	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား၊	မဖြစ်နိုင်	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	ဖြစ်နိုင်	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမိုပြတ်သိပ် ကြပ်သွားနိုင်ပါသလား	မဖြစ်နိုင်	-
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မဖြစ်နိုင်	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	မဖြစ်နိုင်	

Signature (လက်မှတ်)........ [illegible] ....
Name (အမည်)........ ဦးကျော်သက်ထွန်း ....
Address (နေရပ်လိပ်စာ)........ [illegible] ....
....

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Stakeholders Consultation Questionnire

အမည်...ကိုသန်းဇင်...   စီမံကိန်းအမည်...ဇေတန်ကျွန်း နှင့် ဘိုကျွန်း ပေါ်ရှိ Hotel & Resort စီမံကိန်း

နေ့စွဲ...13.5.2019...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...ဂါးနင်းဘိုကလေး...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက် ပြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	–	
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	ထိခိုက်နိုင်	ကော့သောင်းမြို့ ပေါ်ခရီးသွား လုပ်ငန်းအကျိုး ဖြစ်နိုင်ပါသလား၊ မြို့တွင်း ခရီးသည် များ သွားလာမှု ရှိပါသလား၊ သိချင်ပါသည်
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	ထိခိုက်နိုင်	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	–	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား၊	ဖြစ်နိုင်	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	မဖြစ်နိုင်	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမိုမြှတ်သိပ် ကြပ်သွားနိုင်ပါသလား	–	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	–	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	ဖြစ်နိုင်	

Signature (လက်မှတ်)...[signature]...
Name (အမည်)...ကိုသန်းဇင်...
Address (နေရပ်လိပ်စာ)...[illegible] No.(17)...
...[illegible] ကော့သောင်းမြို့...

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Stakeholders Consultation Questionnire

အမည်...[illegible]... စီမံကိန်းအမည်...Hotel Resort Project...

နေ့စွဲ...22.၅.၁၉...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No.	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	No.	ပြည်သူများ အလုပ်အကိုင် အခွင့်လမ်းများ ရှိလာခြင်း၊ မြို့ရဲ့ ဂုဏ်ကို လည်း တိုးတက်စေပြီး၊ ခရီးသွားလုပ်ငန်းများ လည်း ပိုမိုတွင်ကျယ် လာစေနိုင်မည်ဖြစ်ကြောင်း အကြံပြုအပ်ပါသည်။
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	No.	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	No.	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	No.	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	Yes.	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမိုပြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	No.	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No.	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	No.	

Signature (လက်မှတ်)...Haing...

Name (အမည်)...[illegible]...

Address (နေရပ်လိပ်စာ)...[illegible]...

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စီမံကိန်းအမည်------ Hotel Resort Project
မြို့နယ်------ ကော့သောင်း

အကြံပြုချက်များ ရှိပါက ရင်းနီးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ ၁၃. ၅. ၁၉

စဉ်	အကြံပြုလွှာ
	မြို့နေပြည်သူများ အလုပ်ကိုင်အခွင့်အလမ်းများ တိုးများလာပြီး၊ ဟိုတယ်နှင့် ခရီးသွားလုပ်ငန်းများလည်း ပိုမိုကျယ်ပြန့်လာမည်ဟု အကြံပြုပါသည်။

လက်မှတ်...... Maing
အမည်...... မိုးနိုင်ကျော်
ဆက်သွယ်ရန်လိပ်စာ...... ပါလောကာရွာဝါးချိုင်း၊ ၆
...... ကော့သောင်းမြို့
ဖုန်းနံပါတ်......

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Stakeholders Consultation Questionnire

အမည်...ဦးအောင်မိုး............ စီမံကိန်းအမည်...Hotel Resort [illegible]...

နေ့စွဲ...13.5.2019...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...............

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	NO	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	NO	–
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	NO	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	NO	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	NO	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	Yes	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို ပြွတ်သိပ် ကြပ်သွားနိုင်ပါသလား	NO	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	NO	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား		

Signature (လက်မှတ်)...[illegible]...

Name (အမည်)...ဦးအောင်မိုး...

Address (နေရပ်လိပ်စာ)...[illegible]...

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Stakeholders Consultation Questionnire

အမည်..... စီမံကိန်းအမည်.....

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ..... နေ့စွဲ.....13-5-2019.....

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	ဖြေဆိုသူအကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	No	
၃	ယခုစီမံကိန်းကြောင့် ဌာနဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	No	
၄	ယခုစီမံကိန်းကြောင့် ဌာနဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	No	
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	No	
၆	ယခုစီမံကိန်းကြောင့် ဌာနဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	Yes	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သိမဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို မြှင့်သိပ် ကြပ်သွားနိုင်ပါသလား	No	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	No	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား		

Signature (လက်မှတ်).....

Name (အမည်).....

Address (နေရပ်လိပ်စာ).....

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Stakeholders Consultation Questionnire

အမည်...ဦး[illegible]...

စီမံကိန်းအမည်...[illegible] Hotel Resort

နေ့စွဲ...13.5.2019...

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ်ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက် ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မဖြစ်နိုင်	
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	မဖြစ်နိုင်	
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	မဖြစ်နိုင်	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား	→	[illegible handwritten comment]
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။	မဖြစ်နိုင်	
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	ဖြစ်နိုင်	
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမို မြတ်သိပ် ကြပ်သွားနိုင်ပါသလား	မဖြစ်နိုင်	
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	မဖြစ်နိုင်	
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	မဖြစ်နိုင်	

Signature (လက်မှတ်)...[signature]...

Name (အမည်)...[illegible]...

Address (နေရပ်လိပ်စာ)...[illegible handwritten address]...

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စီမံကိန်းအမည်- ဆေးတန်ကျွန်းနှင့် သိပ်ကျွန်းပေါ်ရှိ Hotel Resort စီမံကိန်း

မြို့နယ်- ကော့သောင်း

အကြံပြုချက်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ 13.5.2019

စဉ်	အကြံပြုလွှာ
	[illegible]

လက်မှတ်။ [illegible]

အမည်။ [illegible]

ဆက်သွယ်ရန်လိပ်စာ။ [illegible]

ဖုန်းနံပါတ်။ [illegible]

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Stakeholders Consultation Questionnire

အမည်.....[illegible]..................... စီမံကိန်းအမည်.[illegible]..Hotel Resort

နေ့စွဲ...[illegible].......

မေးမြန်းသည့်နေရာ (သို့) ဖြေဆိုသည့်နေရာ......Garden Hotel...

စဉ်	Environmental and Social Impacts ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားရေးအပေါ် ထိခိုက်မှုများ	(Yes/ NO) ဖြစ်နိုင်/ မဖြစ်နိုင်	Comments on Project ထင်မြင်ချက်
၁	ယခုစီမံကိန်းသည် ပတ်ဝန်းကျင်နေထိုင်သူများအတွက် ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား	—	ဖြည့်စွက်အကြံပြုချက်များ ရေးသားနိုင်ပါသည်
၂	ယခုစီမံကိန်းကြောင့် အနီးအနားပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်များကို ထိခိုက်နိုင်ပါသလား	သိရှိလာနိုင်	[illegible]
၃	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝအရင်းအမြစ်များကို ထိခိုက်နိုင်ပါသလား	သိရှိလာနိုင်သည်	
၄	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ သဘာဝ ပါတ်ဝန်းကျင်ကို ထိခိုက်နိုင်ပါသလား		
၅	ယခုစီမံကိန်းကြောင့် အသံဆူညံမှု၊ တုန်ခါမှု၊ များ ဖြစ်နိုင်ပါသလား။		
၆	ယခုစီမံကိန်းကြောင့် ဤဒေသ၏ လူမှုစီးပွားရေး ပိုမိုကောင်းမွန်လာနိုင်ပါသလား	ဖြစ်နိုင်	[illegible]
၇	ယခုစီမံကိန်းကြောင့် သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်း သို့မဟုတ် အထောက်အကူပြုလုပ်ငန်းအဆောက်အအုံများကို ပိုမိုမြှတ်သိပ် ကြပ်သွားနိုင်ပါသလား	မဖြစ်နိုင်	-
၈	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများကို ကျန်းမာရေးဆိုင်ရာ ဆိုးကျိုးများပေးနိုင်သည်ဟု ထင်ပါသလား		
၉	ယခုစီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နေထိုင်သူများ၏ အလုပ်အကိုင်အခွင့်အလမ်းများကို အနှောက်အယှက်ဖြစ်စေပါသလား	ဖြစ်နိုင်	[illegible]

Signature (လက်မှတ်)....[signature]................................

Name (အမည်)......[illegible]..........................

Address (နေရပ်လိပ်စာ)...[illegible]...

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စီမံကိန်းအမည်-- ဆေးတန်ကျွန်းနှင့်ဘိုဒီကျွန်းပေါ်ရှိ Hotel Resort စီမံကိန်း
မြို့နယ်-- ကော့သောင်း

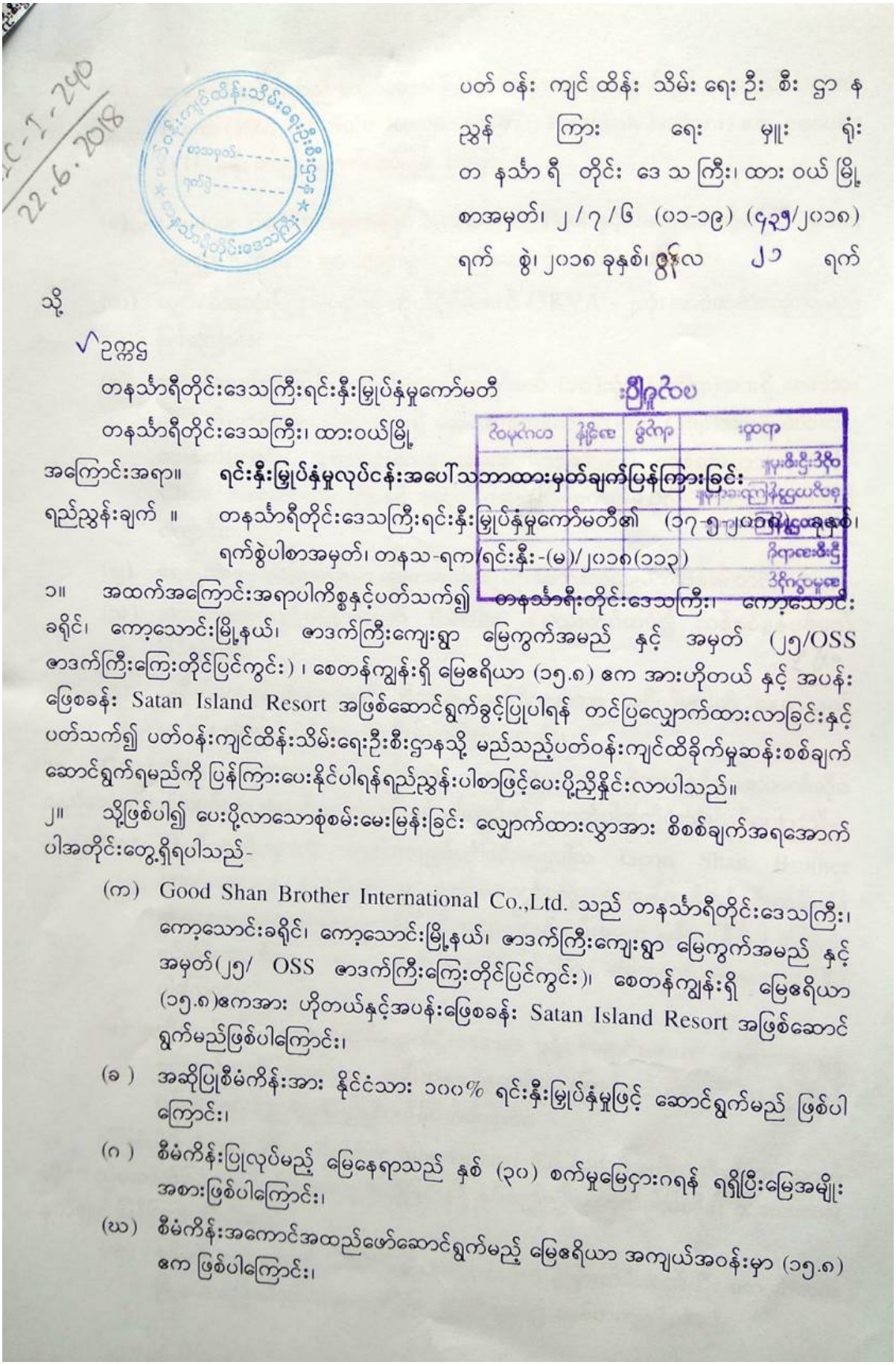
အကြံပြုချက်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ ရေးသားအကြံပေးစေလိုပါသည်။

ရက်စွဲ။ [illegible] ၂၀၁၉

စဉ်	အကြံပြုလွှာ
၁။	[illegible]
၂။	[illegible]
၃။	[illegible]

လက်မှတ်.......
အမည်....... [illegible]
ဆက်သွယ်ရန်လိပ်စာ....... [illegible]
ဖုန်းနံပါတ်....... ၀၉၂၅၀ ၈၃၈၁၁၂

APPENDIX II



ပတ် ဝန်း ကျင် ထိန်း သိမ်း ရေး ဦး စီး ဌာ န
ညွှန် ကြား ရေး မှူး ရုံး
တ နသ်ာ ရီ တိုင် း ဒေ သ ကြီး၊ ထား ဝယ် မြို့
စာအမှတ်၊ ၂ / ဂ / ဖ (ဝ၁-၁၉) (၄၃၅/၂၀၁၈)
ရက် စွဲ၊ ၂၀၁၈ ခုနှစ်၊ ဇွန်လ ၂၁ ရက်

သို့

ဦးကွင်း

တနသ်ာရီတိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ

တနသ်ာရီတိုင်းဒေသကြီး၊ ထားဝယ်မြို့

အကြောင်းအရာ။ **ရင်းနှီးမြှုပ်နှံမှုလုပ်ငန်းအပေါ်သဘောထားမှတ်ချက်ပြန်ကြားခြင်း**

ရည်ညွှန်းချက် ။ တနသ်ာရီတိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ၏ (၁၇-၅-၂၀၁၈ ရက်နေ့စွဲပါ)
ရက်စွဲပါစာအမှတ်၊ တနသ-ရက(ရင်းနှီး-(မ)/၂၀၁၈(၁၁၃)

၁။ အထက်အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ တနသ်ာရီးတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့နယ်၊ ဓာဒက်ကြီးကျေးရွာ မြေကွက်အမည် နှင့် အမှတ် (၂၅/OSS ဓာဒက်ကြီးကြေးတိုင်ပြင်ကွင်း) ၊ စေတန်ကျွန်းရှိ မြေဧရိယာ (၁၅.၈) ဧက အား ဟိုတယ် နှင့် အပန်းဖြေစခန်း Satan Island Resort အဖြစ်ဆောင်ရွက်ခွင့်ပြုပါရန် တင်ပြလျှောက်ထားလာခြင်းနှင့် ပတ်သက်၍ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ မည်သည့်ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ချက် ဆောင်ရွက်ရမည်ကို ပြန်ကြားပေးနိုင်ပါရန်ရည်ညွှန်းပါစာဖြင့်ပေးပို့ညှိနှိုင်းလာပါသည်။

၂။ သို့ဖြစ်ပါ၍ ပေးပို့လာသောစုံစမ်းမေးမြန်းခြင်း လျှောက်ထားလွှာအား စိစစ်ချက်အရအောက်ပါအတိုင်းတွေ့ရှိရပါသည်-

(က) Good Shan Brother International Co.,Ltd. သည် တနသ်ာရီတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့နယ်၊ ဓာဒက်ကြီးကျေးရွာ မြေကွက်အမည် နှင့် အမှတ်(၂၅/ OSS ဓာဒက်ကြီးကြေးတိုင်ပြင်ကွင်း)၊ စေတန်ကျွန်းရှိ မြေဧရိယာ (၁၅.၈)ဧကအား ဟိုတယ်နှင့်အပန်းဖြေစခန်း Satan Island Resort အဖြစ်ဆောင်ရွက်မည်ဖြစ်ပါကြောင်း၊

(ခ) အဆိုပြုစီမံကိန်းအား နိုင်ငံသား ၁၀၀% ရင်းနှီးမြှုပ်နှံမှုဖြင့် ဆောင်ရွက်မည် ဖြစ်ပါကြောင်း၊

(ဂ) စီမံကိန်းပြုလုပ်မည့် မြေနေရာသည် နှစ် (၃၀) စက်မှုမြေဌားဂရန် ရရှိပြီးမြေအမျိုးအစားဖြစ်ပါကြောင်း၊

(ဃ) စီမံကိန်းအကောင်အထည်ဖော်ဆောင်ရွက်မည့် မြေဧရိယာ အကျယ်အဝန်းမှာ (၁၅.၈) ဧက ဖြစ်ပါကြောင်း၊

(c) အဆိုပါစီမံကိန်းသည် တည်ဆောက်မည့် အခန်းအရေအတွက်များ အနေဖြင့် Deluex Room (100) ခန်း၊ Suite Room (30) ခန်း၊ President Suite (1) ခန်း စုစုပေါင်း (131) ခန်း တည်ဆောက်မည်ဖြစ်ပါကြောင်း၊

(စ) Outdoor Facility များအဖြစ် Restaurant၊ Pool နှင့် Jacuzzi တို့အပြင် Water Sports Acivities များထည့်သွင်း တည်ဆောက်မည်ဖြစ်ပါကြောင်း၊

(ဆ) လျှပ်စစ်အသုံးပြုမှုအနေဖြင့် ကိုယ်ပိုင်မီးစက် (3KVA - ၂လုံး)တပ်ဆင်အသုံးပြုမည် ဖြစ်ကြောင်း၊

(ဇ) အဝတ်လျှော်ဖွတ်ခြင်းအတွက် အဝတ်လျှော်စက် (၁၀)လုံး၊ (1.5hp)အား‌ရှိ လေအေး ပေးစက်(၁၁၅)လုံး၊ (2hp)အား‌ရှိ လေအေးပေးစက်(၂၀)လုံး၊ (5hp)အား‌ရှိ လေအေး ပေးစက်(၄)လုံး၊ စုစုပေါင်းလေအေးပေးစက်(၁၃၉)လုံး၊ ရေခဲသေတ္တာ(၁၃၅)လုံး၊ Chest Freezer (၁၀)လုံးနှင့် အဝတ်အခြောက်ခံစက်(၆)လုံး အသုံးပြုမည်ဖြစ် ကြောင်း၊

(ဈ) ရေချိုသုံးစွဲမှုအခြေအနေမှာ မြေအောက်ရေ တူးဖော်အသုံးပြုမည်ဖြစ်ကြောင်း၊

(ည) အညစ်အကြေးစွန့်ပစ်မှုအတွက် Biofilter (၂)လုံးတပ်ဆင်၍ သန့်စင်စွန့်ပစ်မည် ဖြစ်ကြောင်း၊

(ဋ) အမှိုက်များစွန့်ပစ်မှုအတွက် ဟိုတယ်မှထွက်ရှိလာသော အမှိုက်များကို နေရာသတ် မှတ်ပြီး မြေမြှုပ် (သို့မဟုတ်) မီးရှို့မည်ဖြစ်ကြောင်း၊

၃။ Good Shan Brother International Co.,Ltd. မှ ဟိုတယ်နှင့်စားသောက်ဆိုင် တည်ဆောက်ခြင်းလုပ်ငန်း ဆောင်ရွက်လိုခြင်းနှင့် စပ်လျဉ်း၍ အောက်ပါအတိုင်းသုံးသပ်ရပါသည်-

(က) စွန့်ပစ်ပစ္စည်းများကို စနစ်တကျစွန့်ပစ်ခြင်းမပြုပါက Good Shan Brother International Co.,Ltd. မှ တည်ဆောက်မည့် စေတန်ကျွန်းနှင့်ငင်းကမ်းခြေ၏သဘာဝအလှအပများပျက်စီးနိုင်ပီးအဏ္ဏဝါဥည်မ်းမှုများ ဖြစ်ပေါ်နိုင်ပါ ကြောင်း နှင့်မြေအောက်ရေ အရည်အသွေးအား‌ထိခိုက်နိုင်ပြီး မြေထုညစ်ညမ်းမှုဖြစ်ပေါ်နိုင် ပါကြောင်း၊

(ခ) ဟိုတယ်နှင်စားသောက်ဆိုင်မှထွက်ရှိလာသော စွန့်ပစ်ရေဆိုးများကို စနစ်တကျသန့် စင်ထုတ်လွှတ်ခြင်းမပြုဘဲ အနီးအနား‌ရှိချောင်း၊ မြောင်းနှင့်ပင်လယ်အတွင်းသို့စွန့် ပစ်ပါကရေထုညစ်ညမ်းမှုဖြစ်ပေါ်နိုင်ပါကြောင်း၊

၄။ သို့ဖြစ်ပါ၍ Good Shan Brother International Co.,Ltd. မှဟိုတယ်နှင့်စားသောက် ဆိုင်တည်ဆောက်ခြင်း လုပ်ငန်းဆောင်ရွက်လိုခြင်းနှင့် စပ်လျဉ်း၍ အောက်ပါအတိုင်း သဘောထား မှတ်ချက် ပြန်ကြားအပ်ပါသည်-

(က) စွန့်ပစ်ပစ္စည်းများကို အမှိုက်အမျိုးအစားအလိုက် ခွဲခြားသိမ်းဆည်းပြီး ကောင်းသောင်း မြို့နယ် စည်ပင်သာယာရေးအဖွဲ့ဖြင့် ဆက်သွယ်၍ စနစ်တကျစွန့်ပစ်ရန်၊

(ခ) ဟိုတယ်၊ စားဖိုဆောင်နှင့်မိလ္လာမှထွက်ရှိလာမည့် စွန့်ပစ်ရေဆိုးများကို ပတ်ဝန်းကျင်ရှိရောင်း၊ မြောင်းနှင့်ပင်လယ်အတွင်းသို့ စွန့်ပစ်ခြင်းမပြုလုပ်ရန်၊

(ဂ) တည်ဆောက်ရေးလုပ်ငန်းများအတွက် မြေနေရာရှင်းလင်းရာတွင် သဘာဝအတိုင်း ပေါက်ရောက်လျှက်ရှိသော သစ်တောသစ်ပင် ခုတ်ထွင်ရှင်းလင်းခြင်းများအား တတ်နိုင်သမျှရှောင်ရှားဆောင်ရွက်ရန်၊

(ဃ) ဟိုတယ်နှင့်အပန်းဖြေစခန်းလုပ်ငန်း တိုးချဲ့လုပ်ကိုင်မည်ဆိုပါက ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ သဘောထားမှတ်ချက်ရယူရန်၊

(င) ဟိုတယ်နှင့်စားသောက်ဆိုင်လုပ်ငန်းများမှ ထွက်ရှိလာမည့် ရေဆိုးများအတွက် Biofilter နည်းစနစ်တပ်ဆင်အသုံးပြုရန်၊

(စ) အဆိုပြုလာသည့် Good Shan Brother International Co.,Ltd. မှ ဟိုတယ်နှင့်စားသောက်ဆိုင်လုပ်ငန်းသည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ဆိုင်ရာလုပ်ထုံးလုပ်နည်း၊ နောက်ဆက်တွဲ (က)၊ အမှတ်စဉ် (၁၂၁) အရ ဟိုတယ် နှင့် ခရီးသွားဖွဲ့ဖြိုးရေးလုပ်ငန်းတွင် " အခန်း (၈၀)နှင့်အထက်၊ အခန်း (၂၀၀) အောက် (သို့မဟုတ်) အသုံးပြု ဧရိယာ စတုရန်းမီတာ (၂၀၀၀၀၀) နှင့် အထက်၊ စတုရန်းမီတာ (၅၀၀၀၀၀) အောက် " ဖြစ်ပါက ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (Initial Environmental Examination-IEE) ဆောင်ရွက်ရန်၊

(ဆ) အဆိုပြုလုပ်ငန်းများကြောင့် ဖြစ်ပေါ်လာနိုင်သည့် ပတ်ဝန်းကျင်၊ လူမှုရေးနှင့် ကျန်းမာရေးထိခိုက်ပျက်စီးမှုများကို လျော့နည်းစေရန်အတွက် လုပ်ငန်းဆိုင်ရာအချက်အလက်များကို ပြည့်စုံစွာဖော်ပြပြီး လုပ်ငန်းဆောင်ရွက်ရာတွင် ပတ်ဝန်းကျင်ထိခိုက်မှုအနည်းဆုံးဖြစ်စေမည့် နည်းစနစ်များအား အသုံးပြုရန်နှင့် လူမှုရေးဆိုင်ရာအကျိုးပြုလုပ်ငန်းများ တာဝန်ခံဆောင်ရွက်မှု (Corporate Social Responsibility-CSR) အတွက် အသားတင်အမြတ်ငွေ၏ (၂ %) အား အသုံးပြုခြင်းအား လိုက်နာအကောင် အထည်ဖော်ဆောင်ရွက်ရန်၊

(ဇ) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ ပုဒ်မ ၁၄ အရ ညစ်ညမ်းမှုကိုစတင်ဖြစ်ပေါ်စေသူသည် ပတ်ဝန်းကျင်တွင်ညစ်ညမ်းမှုကိုဖြစ်စေသည့် ပစ္စည်းများကိုသတ်မှတ်ထားသည့် ပတ်ဝန်းကျင်အရည်အသွေး စံချိန်စံညွှန်းများနှင့်အညီ သတ်မှတ်ချက်များအတိုင်း သန့်စင်ခြင်း၊ ထုတ်လွှတ်ခြင်း၊ စွန့်ပစ်ခြင်းနှင့်စုပုံခြင်းများ ပြုလုပ်ရန်၊

(ဈ) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ ပုဒ်မ ၁၅ အရ ညစ်ညမ်းမှုကိုစတင်ဖြစ်ပေါ်စေသည့်လုပ်ငန်း၊ ပစ္စည်း သို့မဟုတ် နေရာတစ်ခုခု၏ပိုင်ရှင် သို့မဟုတ် လက်ရှိဖြစ်သူသည် ပတ်ဝန်းကျင်ညစ်ညမ်းမှု များကို စောင့်ကြပ်ကြည့်ရှုရန်၊ ထိန်းချုပ်ရန်၊ စီမံခန့်ခွဲရန်၊ လျှော့ချရန် သို့မဟုတ် ပပျောက်စေရန် လုပ်ငန်းခွင်အထောက်အကူပြုပစ္စည်း သို့မဟုတ် ထိန်းချုပ်ရေးပစ္စည်းကိရိယာကို တပ်ဆင်ခြင်း သို့မဟုတ် သုံးစွဲခြင်းပြုရမည်။ ယင်းသို့ ဆောင်ရွက်ခြင်းမပြုနိုင်ပါက စွန့်ပစ်ပစ္စည်းများအား

၄

ပတ်ဝန်းကျင်ကို မထိခိုက်စေသောနည်း လမ်းများနှင့်အညီစွန့်ပစ်နိုင်ရန် စီစဉ်ဆောင်ရွက်ရန်၊

(ည) ပြဌာန်းထားသည့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဥပဒေ၊ နည်းဥပဒေများ၊ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေး(ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ၊ စည်းမျဉ်းစည်းကမ်းများနှင့်အညီ လိုက်နာဆောင်ရွက်ရန်၊

(ဋ္ဌ) သက်ဆိုင်ရာ တိုင်းဒေသကြီးအစိုးရအဖွဲ့၏ ကြီးကြပ်ကွပ်ကဲမှုဖြင့် ဒေသခံပြည်သူများ၏ ဆန္ဒနှင့်သဘောထားများ ရယူဆောင်ရွက်ရန်၊

တာဝန်ခံအရာရှိ

(ထွန်းထွန်းဦး-၁၊လက်ထောက်ညွှန်ကြားရေးမှူး)

မိတ္တူကို

ဝန်ကြီး(သယံဇာတနှင့်ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး)၊ တနင်္သာရီတိုင်းဒေသကြီးအစိုးရအဖွဲ့ ညွှန်ကြားရေးမှူးချုပ်၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ နေပြည်တော် ညွှန်ကြားရေးမှူး၊ ဟိုတယ်နှင့်ခရီးသွားညွှန်ကြားမှုဦးစီးဌာန၊ တနင်္သာရီတိုင်းဒေသကြီး Good Shan Brother International Co.,Ltd.၊ ဧဒက်ကြီးကျေးရွာ၊ ကော့သောင်းမြို့နယ်

ရုံးလက်ခံ

မျှောစာတွဲ

ခ ရိုင် အုပ် ချုပ် ရေး မှူး ရုံး
(အ ထွေ ထွေ အုပ် ချုပ် ရေး ဦး စီး ဌာ န)
ကော့သောင်းခရိုင် - ကော့သောင်းမြို့
စာအမှတ်၊၅၇၅၂ / ၈၀၀(၁) / ၆ - ၂/ ခရအ
ရက်စွဲ ၊၂၀၁၈ခုနှစ်၊ ဩဂုတ်လ ၂၄ ရက်

သို့

တိုင်းဒေသကြီးအစိုးရအဖွဲ့
တနင်္သာရီတိုင်းဒေသကြီး၊ ထားဝယ်မြို့

အကြောင်းအရာ။ **သဘောထားမှတ်ချက်ပေးပို့အစီရင်ခံတင်ပြခြင်း**

ရည် ညွှန်း ချက်။ တနင်္သာရီတိုင်းဒေသကြီးအစိုးရအဖွဲ့၊ ထားဝယ်မြို့၏ ၂၉-၅-၂၀၁၈ ရက်စွဲပါ စာအမှတ်၊ ၄၀၃၃ / ၅၀၀(၃) / ၄ - ၁/ အဖရ(တနင်္သာရီ)

၁။ တနင်္သာရီတိုင်းဒေသကြီး၊ ကော့သောင်းခရိုင်၊ ကော့သောင်းမြို့နယ်၊ ဇာဒက်ကြီးကျေးရွာအုပ်စု၊ ကွင်းအမှတ်(၂၅/ OSS)၊ (ဇာဒက်ကြီးကြေးတိုင်ပြင်)ရှိ မြေပုံ ညွှန်းအမှတ်၊ A-MM-029825, B – MM-023829,C-MM-023830,D-MM- 030825, E-MM-024832, F-MM-024835, G-MM-025835, H-MM-025832 ရှိ မြေဧရိယာ(၁၅.၈)ဧကခန့်တွင် ဟိုတယ်နှင့်အပန်းဖြေ Satan Island Resort လုပ်ငန်းဆောင်ရွက်ခွင့်ပြုပါရန် ဂွတ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ တင်ပြလာမှုအပေါ် မြေရာဇဝင်၊ မြေပုံများ၊ ပတ်ဝန်းကျင်ပြည်သူများ၏ သဘောထားများ၊ ကော်မတီ၏ သုံးသပ်တင်ပြချက်၊ ကော်မတီတွင် ပါဝင်သော သက်ဆိုင်ရာဌာနများ၏ သုံးသပ်တင်ပြချက်နှင့် လိုအပ်သောအထောက်အထားများအား ပြည့်စုံစွာစိစစ်၍ ပြန်လည်တင်ပြရန် ရည်ညွှန်းပါစာဖြင့် အကြောင်းကြားလာပါသည်။

၂။ ဂွတ်ရှမ်းဘရားသားကုမ္ပဏီလီမိတက်မှ ဟိုတယ်နှင့်အပန်းဖြေSatan Island Resort လုပ်ငန်းဆောင်ရွက်ခွင့်ပြုပါရန် အဆိုပြုလာသောမြေနေရာနှင့်စပ်လျဉ်း၍ ခရိုင်အုပ်ချုပ်ရေးမှူး ဦးဆောင်မှုဖြင့် ခရိုင်လယ်ယာမြေစီမံခန့်ခွဲရေးနှင့်စာရင်းအင်းဦးစီးဌာန၊ ဟိုတယ်နှင့်ခရီးသွား ညွှန်ကြားမှုဦးစီးဌာန၊ ခရိုင်စိုက်ပျိုးရေးဦးစီးဌာန၊ ခရိုင်သစ်တောဦးစီးဌာန၊ ဒုတိယမြို့နယ်အုပ်ချုပ်ရေးမှူးနှင့် ဂွတ်ရှမ်းဘရားသား အမျိုးသားကုမ္ပဏီလီမိတက်မှ မန်နေဂျာ ဦးဆန်းထွန်းဦး တို့နှင့်အတူ(၂၁.၇.၂၀၁၈) ရက်နေ့တွင် ကွင်းဆင်းစစ်ဆေးခဲ့ရာ စစ်ဆေးတွေ့ရှိချက်များမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်-

(က) ဂွတ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ စေတန်ကျွန်းပေါ်တွင် ဟိုတယ်နှင့် အပန်းဖြေစခန်းတည်ဆောက်ရန် လျှောက်ထားသော မြေဧရိယာ(၁၅.၈)ဧကသည် မြေပုံ ညွှန်းအမှတ်၊ A-MM-029825, B – MM-023829,C-MM-023830,D-MM-030825, E-MM-024832, F-MM-024835, G-MM-025835, H-MM-025832 တို့ဖြစ်ပြီး မြေဧရိယာ(၁၅.၈)ဧကမှာ တစ်ဆက်စပ်တည်းမဟုတ်ဘဲကျွန်း၏ တောင်ဘက်အောံနှင့် အနောက်ဘက်အော်၊ နေရာ(၂)နေရာဖြစ်ကြောင်း၊

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(ခ) ကော့သောင်းမြို့နယ်၊ဈေးကြီးကျေးရွာအုပ်စု၊ကွင်းအမှတ်(၂၅/OSS)၊ (ဈေးကြီးကြေးတိုင်ပြင်)ရှိမြေဧရိယာ(၂၅၀.၀၀)ဧကသည် ပြည်ထဲရေးဝန်ကြီးဌာန၏ (၂၄.၃.၂၀၁၆) ရက်စွဲပါ အမိန့်ကြော်ငြာစာအမှတ် ပထရ/၂ - ၃ (၉၅၇)/ ထောက် ၂ ဖြင့် ဟိုတယ်နှင့် အပန်းဖြေစခန်းမြေနေရာအဖြစ် အသုံးပြုရန် ဒေါ်ခင်အေးနွယ်(ဂ/တငန(နိုင်)၀၆၆၄၀၆) ၎တ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်အမည်ဖြင့် အောက်မြန်မာနိုင်ငံမြို့နှင့်ကျေးရွာမြေများ နည်းဥပဒေ ၉/(ဂ)အရ နှစ်(၃၀)စက်မှု/စီးပွား မြေငှားဂရန် ခွင့်ပြုမိန့်ထုတ်ပေးပြီးမြေဖြစ်ကြောင်း၊

(ဂ) ၎တ်ရှမ်းဘရားသား အမျိုးသားကုမ္ပဏီလီမိတက်မှ စေတန်ကျွန်းပေါ်တွင် ဟိုတယ်နှင့် အပန်းဖြေ Satan Island Resort လုပ်ငန်းဆောင်ရွက်ခွင့်ပြုရန်အတွက် လျှောက်ထားသည့် မြေဧရိယာ(၁၅.၈၀)ဧကမှာ နှစ်(၃၀)စက်မှု/စီးပွား မြေငှားဂရန်ခွင့်ပြုမိန့်ကျပြီးဖြစ်သည့် ဧရိယာ(၂၅၀.၀၀)ဧကအတွင်း ပါဝင်လျက်ရှိကြောင်း၊

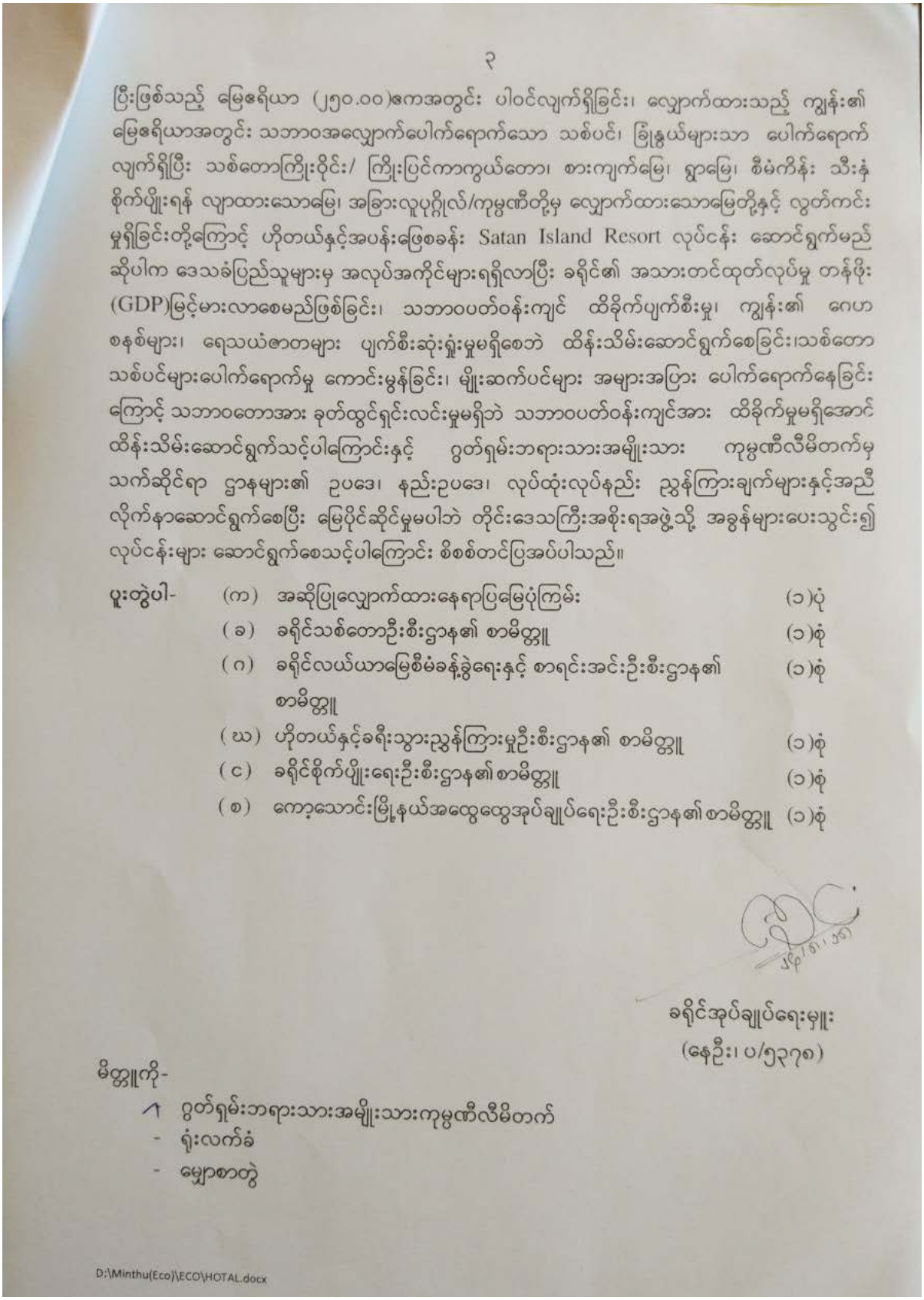
(ဃ) ၎တ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ လျှောက်ထားသည့် မြေနေရာသည် တပ်မြေ၊ သစ်တောဦးစီးဌာနမှ တည်ထောင်ထားသော စိုက်ခင်းများ၊ လန်ပိအဏ္ဏဝါအမျိုးသားဥယျာဉ် ဧရိယာများနှင့် လွတ်ကင်းမှုရှိကြောင်း၊

(င) ၎တ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ လျှောက်ထားသည့် မြေနေရာ၏ တောအမျိုးအစားမှာ ကမ်းခြေနှင့်ဆက်စပ်သည့် နေရာများတွင် သစ်ပင်ပေါက်ရောက်မှု ကျဲပါးပြီး ကျွန်း၏အတွင်းဖက်တွင် သစ်ပင်ပေါက်ရောက်မှု အသင့်အတင့်ထူထပ်နေကြောင်း၊

(စ) ၎တ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ လျှောက်ထားသည့် မြေဧရိယာ(၁၅.၈၀)ဧကအတွင်း သဘာဝပေါက်ပင်များအား စံနမူနာကွက် (ကောင့်၊ သင့်၊ ညှဉ့်) စာရင်းကောက်ယူမှုအရ (၀.၂၅)ဧကလျှင်လုံးပတ်(၁)ပေနှင့် အထက်(၃၈)ပင်ရှိကြောင်း၊

(ဆ) ၎တ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ လျှောက်ထားသည့် မြေဧရိယာ(၁၅.၈၀)ဧကသည် ကျွန်းအနီးရှေပြင်တစ်ဝိုက်၌ ရေကူးခြင်း၊ Snorkeling(ရေတိမ်ပိုင်းရေအောက်ကြည့်ရှုခြင်း)များ ပြုလုပ်နိုင်ခြင်း၊ လှပပြီးညီညာပြန့်ပြူးသော သဲသောင်ပြင်ရှိခြင်း၊ လှိုင်းဒဏ်လေဒဏ်ခိုလှုံနိုင်သောနေရာရှိခြင်း၊ ရေချိုရရှိနိုင်သော အရင်းအမြစ်ရှိခြင်းတို့ကြောင့် ကမ္ဘာလှည့်ခရီးသွားနိုင်ငံခြားသားများကို ဆွဲဆောင်နိုင်မှုရှိသည့် နေရာကောင်းတစ်ခုဖြစ်နိုင်ကြောင်း၊

၃။ အထက်ပါ စိစစ်တွေ့ရှိချက်များအရ ၎တ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်မှ စေတန်ကျွန်းပေါ်တွင် ဟိုတယ်နှင့်အပန်းဖြေစခန်း Satan Island Resort အဖြစ် ဆောင်ရွက်ရန် လျှောက်ထားသည့် မြေဧရိယာ (၁၅.၈၀)ဧကသည် နှစ်(၃၀)စက်မှု/စီးပွား မြေငှားဂရန် ခွင့်ပြုမိန့်ကျ



၃

ပြီးဖြစ်သည့် မြေဧရိယာ (၂၅၀.၀၀)ဧကအတွင်း ပါဝင်လျက်ရှိခြင်း၊ လျှောက်ထားသည့် ကျွန်း၏ မြေဧရိယာအတွင်း သဘာဝအလျှောက်ပေါက်ရောက်သော သစ်ပင်၊ ခြုံနွယ်များသာ ပေါက်ရောက် လျက်ရှိပြီး သစ်တောကြိုးဝိုင်း/ ကြိုးပြင်ကာကွယ်တော၊ စားကျက်မြေ၊ ရွာမြေ၊ စီမံကိန်း သီးနှံ စိုက်ပျိုးရန် လျာထားသောမြေ၊ အခြားလူပုဂ္ဂိုလ်/ကုမ္ပဏီတို့မှ လျှောက်ထားသောမြေတို့နှင့် လွတ်ကင်း မှုရှိခြင်းတို့ကြောင့် ဟိုတယ်နှင့်အပန်းဖြေစခန်း Satan Island Resort လုပ်ငန်း ဆောင်ရွက်မည် ဆိုပါက ဒေသခံပြည်သူများမှ အလုပ်အကိုင်များရရှိလာပြီး ခရိုင်၏ အသားတင်ထုတ်လုပ်မှု တန်ဖိုး (GDP)မြင့်မားလာစေမည်ဖြစ်ခြင်း၊ သဘာဝပတ်ဝန်းကျင် ထိခိုက်ပျက်စီးမှု၊ ကျွန်း၏ ဂေဟ စနစ်များ၊ ရေသယံဇာတများ ပျက်စီးဆုံးရှုံးမှုမရှိစေဘဲ ထိန်းသိမ်းဆောင်ရွက်စေခြင်း၊သစ်တော သစ်ပင်များပေါက်ရောက်မှု ကောင်းမွန်ခြင်း၊ မျိုးဆက်ပင်များ အများအပြား ပေါက်ရောက်နေခြင်း ကြောင့် သဘာဝတောအား ခုတ်ထွင်ရှင်းလင်းမှုမရှိဘဲ သဘာဝပတ်ဝန်းကျင်အား ထိခိုက်မှုမရှိအောင် ထိန်းသိမ်းဆောင်ရွက်သင့်ပါကြောင်းနှင့် ဂွတ်ရှမ်းဘရားသားအမျိုးသား ကုမ္ပဏီလီမိတက်မှ သက်ဆိုင်ရာ ဌာနများ၏ ဥပဒေ၊ နည်းဥပဒေ၊ လုပ်ထုံးလုပ်နည်း ညွှန်ကြားချက်များနှင့်အညီ လိုက်နာဆောင်ရွက်စေပြီး မြေပိုင်ဆိုင်မှုမပါဘဲ တိုင်းဒေသကြီးအစိုးရအဖွဲ့သို့ အခွန်များပေးသွင်း၍ လုပ်ငန်းများ ဆောင်ရွက်စေသင့်ပါကြောင်း စိစစ်တင်ပြအပ်ပါသည်။

ပူးတွဲပါ-

(က) အဆိုပြုလျှောက်ထားနေရာပြမြေပုံကြမ်း (၁)ပုံ
(ခ) ခရိုင်သစ်တောဦးစီးဌာန၏ စာမိတ္တူ (၁)စုံ
(ဂ) ခရိုင်လယ်ယာမြေစီမံခန့်ခွဲရေးနှင့် စာရင်းအင်းဦးစီးဌာန၏ စာမိတ္တူ (၁)စုံ
(ဃ) ဟိုတယ်နှင့်ခရီးသွားညွှန်ကြားမှုဦးစီးဌာန၏ စာမိတ္တူ (၁)စုံ
(င) ခရိုင်စိုက်ပျိုးရေးဦးစီးဌာန၏စာမိတ္တူ (၁)စုံ
(စ) ကော့သောင်းမြို့နယ်အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာန၏စာမိတ္တူ (၁)စုံ

ခရိုင်အုပ်ချုပ်ရေးမှူး
(နေဦး၊ ပ/၅၃၇၈)

မိတ္တူကို-

1. ဂွတ်ရှမ်းဘရားသားအမျိုးသားကုမ္ပဏီလီမိတက်
- ရုံးလက်ခံ
- မျှောစာတွဲ

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