

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT FOR



TAUNG THAMAN RESORT PROJECT
(BOOK No. 2)



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5 IMPACT ASSESSMENT AND MITIGATION MEASURES

To identify the potential environmental and social impacts of the project, project activities were correlated with environmental and social receptors and their interactions were identified for potential environmental and social impacts. ESIA team finds out thirteen key environmental and social impacts of the project on its environment. These impacts are described in this section of the report.

5.1 Impact Assessment Methodology

A conventional rating matrix method is used to assess the significance level of the identified environmental and social impacts of the TTMTS project on its environment. There are five parameters considered for the activities of the projects and the consequences resulted from the said activities. System of rating is described in detailed as follows.

5.1.1 Frequency of Activity

The frequency of activity refers to how often a particular event, action, or occurrence takes place within a given time frame. It measures the rate or repetition of that activity. The frequency of activity is important for making informed decisions and evaluating the likelihood or occurrence of specific events. It can help in identifying patterns, trends, and risks associated with the frequency of certain actions or incidents.

Frequency of Activity	Rating
Annual or less	1
Bi-annual	2
Monthly	3
Weekly	4
Daily	5

5.1.2 Probability of Activity

The probability of activity refers to the likelihood or chance that a specific activity or event will occur and potentially have environmental consequences. It is a measure of the probability or frequency with which a particular action or occurrence is expected to take place during the course of a project, operation, or development.

This probability assessment is a crucial component of impact assessment as it helps in evaluating and quantifying the potential risks and impacts associated with the proposed activity. This could make informed decisions about environmental mitigation measures, risk management, and overall project planning to minimize negative environmental effects.

Probability of Activity	Rating
Almost impossible	1
Highly unlikely	2
Unlikely	3
Possible	4
Definitely	5

5.1.3 Severity of Consequence

Severity of Consequence	Rating
Insignificant/non-harmful	1
Small/potentially harmful	2
Significant/slightly harmful	3
Great/ harmful	4
Disastrous/ deadly harmful	5

5.1.4 Spatial Scope of the Consequence

The spatial scope of the consequences refers to the geographic extent or area over which the effects or outcomes of a particular event, action, or situation are likely to be distributed or experienced. It assesses how far-reaching the impact will be in terms of its geographical coverage. The spatial scope of the consequences helps in determining the geographic areas that may be affected and planning for appropriate responses or mitigation measures.

Spatial Scope of Impact	Rating
Activity specific	1
Within right of way	2
Local area	3
Regional	4
National	5




5.1.5 Duration of the Consequence

The duration of consequences refers to the length of time over which the effects or outcomes of a particular event, action, or situation are expected to last or persist. It assesses how long the impact will continue to influence a system, environment, or individuals. The duration of consequences helps in evaluating the long-term effects and planning for mitigation or recovery measures accordingly.

Duration of Impact	Rating
One day to one month	1
One month to one year	2
One year to ten year	3
Life of operation	4
Permanent	5

5.1.6 Significance Rating Matrix

		Consequence (Severity + Spatial Scope + Duration)														
Activity (Frequency + Probability)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

Sr.	Color Code	Value	Rating
1		1-25	Very Low
2		26-50	Low
3		51-75	Low-Medium

4		76-100	Medium-High
5		101-125	High
6		126-150	Very High

5.2 Impacts on Ambient Air Quality

Emissions of air pollutants can occur from a wide variety of activities during the construction and operation. So, the project will avoid, minimize, and control adverse impacts to human health, safety, and the environment from emissions of air pollutants.

Dust will be generated from earth work such as leveling, digging, filling at the project site and transportation of soil resulted from the earth work. Trucks transporting the waste soil generated from earth work will spray particulate of soil along its route if they are not covered appropriately. Dust emission would be eminent if the construction period falls in hot season and windy weather. Significant sources of odor emission from project construction phase will be operation of machinery, road asphaltting and painting works.

Table 5. 1 Significant of Potential Impacts on Ambient Air Quality both construction and Operation

Potential Impact' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (Without Mitigation)	Period
			Severity of Impact	Scope	Duration	Frequency of Activity	Probability of Activity		
<ul style="list-style-type: none"> • Various of construction activities. • Emergency use of diesel generators • Greenhouse generation 	<ul style="list-style-type: none"> • Nearby communities • Construction workers • Tourists/ Visitor/ Employees 	<ul style="list-style-type: none"> • Especially dust could harm workers and nearby communities during construction activities. • Deterioration of Air Quality • Dust inhalation and health effects to humans. (Including nearby community) • Dust and carbon dioxide emissions due to increased traffic. 	4	3	3	4	4	80 Medium-High	Construction
			3	3	4	3	3	60 Low-Medium	Operation

5.2.1 Mitigation Measures for Impact on Ambient Air Quality

To mitigate the potential impact on ambient air quality during the construction and operation phases of the project, the following measures are proposed:

Dust Suppression During Construction	Ensure that areas of dust emission during the construction period are sprayed with water at least two times a day to minimize airborne dust particles and improve air quality.
Covering Dump Trucks During Loading and Hauling	Provide covering for dump trucks as necessary during loading and hauling operations to prevent the release of dust and particulate matter into the air.
Spraying Unpaved Roads and Tracks	Spray unpaved roads and tracks within the project area with water at least two times a day, especially during dry conditions, to suppress dust emissions and reduce air pollution.
Regular Inspection and Maintenance Equipment	All mobile and fixed equipment, including generators, will undergo regular checks and maintenance to ensure optimal performance and minimize smoke emissions. In cases of significant smoke emission from generators, high chimneys will be utilized, and technicians will be promptly called to address any issues.
Tree Planting and Landscaping	Planting trees and maintaining landscaping within the project area will help absorb pollutants and improve air quality. This green infrastructure will also enhance the aesthetic appeal of the surroundings.
Washing Dump Truck Wheels	The wheels of dump trucks will be washed with a water jet before every outbound travel from the project site to prevent the transport of dust and debris onto public roads and surrounding areas.
Implementing of Speed Limits	A speed limit of 15 mph will be enforced for vehicles traveling within the project site to minimize dust generation and ensure safe operations.

By implementing these mitigation measures, the project aims to mitigate its impact on ambient air quality, protect public health, and promote environmental sustainability throughout the construction and operation phases.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	3	3	3
Rating Value with Mitigation		42		
Significance Level with Mitigation		Low		
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	4	3	2
Rating Value with Mitigation		40		
Significance Level with Mitigation		Low		

5.3 Impact on Noise and Vibration

Potential noise and vibration impacts will be occurred mostly in the project's construction phase. During construction and decommissioning activities, noise and vibration could occur by the operations of earth moving and excavation equipment, concrete mixers, cranes and the transportation of equipment, materials and people.

For the operation period, there will be some noises during the power shut down since the operation services will resume with diesel generators. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 2 Significant of Potential Impacts on Noise and Vibration both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Period
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> • Various construction activities (e.g. Piling) • Operations of heavy machineries • Increased vehicular traffic • Emergency use of diesel generators • Use of on-site tools 	<ul style="list-style-type: none"> • Nearby communities • Nearby Built Heritage Sites • Construction workers • Aquatic and terrestrial fauna 	<ul style="list-style-type: none"> • Excessive noise which could harm to the health of children and elderly people in local communities. • Vibration effects, from construction activities such as piling, which could damage the structure of nearest built heritage. • Potential impacts on the health of construction workers. • Potential impacts on the alteration of habitats for aquatic and terrestrial fauna. • Potential impacts on the lives of aquatic and terrestrial fauna 	4	3	3	4	4	80 Medium-High	Construction
			2	3	4	4	4	72	Operation

5.3.1 Mitigation Measures for Impacts on Noise and Vibration

Regular Maintenance to Prevent Mechanical Noise	Regular maintenance work will be conducted to prevent unnecessary mechanical noise. This proactive approach will help ensure that equipment and machinery operate efficiently and quietly.
Avoidance of High Noise Construction Work at Night	High noise construction activities will be avoided during nighttime hours to minimize disturbance to nearby residents and communities.
Incorporation of Silencers/ Mufflers	Engines and generator sets will be equipped with silencers or mufflers to reduce noise emissions during operation. This measure aims to attenuate noise levels and mitigate its impact on the surrounding environment.
Communication Channels for Noise Disturbance Issues	Information regarding a designated contact person and their contact number will be provided on-site and within the local community. This allows residents to communicate any issues related to noise disturbance with the project team for timely resolution.
Preservation of Vegetation as Natural Buffer Zone	Vegetation serving as a natural buffer zone between the project and nearby villages will be preserved to mitigate noise propagation. This green barrier helps absorb and dampen noise levels, reducing its impact on surrounding areas.
Implementation of Appropriate Vehicular Traffic Speed	A suitable speed limit for vehicular traffic within and around the project site will be established to minimize noise generation from vehicle movements. This measure promotes safety while mitigating noise disturbances.
Avoidance of Heavy Machinery Movements at Night	Movement of heavy machinery to and from the site will be avoided during nighttime hours to prevent noise disturbances to nearby residents. This measure respects the local community's need for quiet during resting hours.
Provision of Hearing Protection Equipment	Workers exposed to high noise levels will be provided with appropriate hearing protection equipment to safeguard their hearing health. This measure ensures that workers can perform their tasks safely in noisy environments.

4. By implementing these mitigation measures, the project aims to minimize its impact on noise and vibration, protect the well-being of nearby residents, and maintain harmonious relations with the local community throughout its duration.
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Impact Ratings with Mitigation during Construction					
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity	
3	2	3	3	3	
Rating Value with Mitigation			48		
Significance Level with Mitigation			Low		
Impact Ratings with Mitigation during Operation					
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity	
2	2	4	3	2	
Rating Value with Mitigation			40		
Significance Level with Mitigation			Low		

5.4 Impacts on Water Body

The project may have significant amount of impacts on the nearby water body, which includes both surface and groundwater, unless proper mitigation measures and management are implemented. Taung Thaman Lake which is the nearest surface water in the proximity of this project undoubtedly plays vital role in terms of local ecosystem and cultural values. Since this project is a resort type and there will be no industrial wastewater effluent especially during

operation stage. The domestic wastewater, however, will be discharged into the lake after being treated within the NEQEG guidelines acceptable threshold. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 3 Significant of Potential Impacts on Water Body both construction and Operation

Potential Impact' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (Without Mitigation)	Period
			Severity of Impact	Scope	Duration	Frequency of Activity	Probability of Activity		
<ul style="list-style-type: none"> Waste generation from various construction activities. Domestic waste water from project components and activities in operation period. 	<ul style="list-style-type: none"> Thaung Tha Man Lake Groundwater Drainage system of nearby community. 	<ul style="list-style-type: none"> Contaminated runoff and oil spilled can affect aquatic life and water pollution in Taung Thaman Lake. Depletion of groundwater due to increased water consumption. 	4	3	3	4	4	80	Construction
<ul style="list-style-type: none"> Contaminated runoff. Ground water consumption Sanitary Sewage. 		<ul style="list-style-type: none"> Degrading the quality of Taung Than Man Lake due to poor treatment. 	4	3	4	5	5	110	Operation

5.4.1 Mitigation Measures for Impact on Water Bodies

To mitigate the potential impacts on water bodies resulting from the project activities, the following measures are proposed:

Settling of Construction Wastewater	Construct settling ponds to allow construction wastewater to settle, ensuring only clear water is disposed of into roadside drains or nearby water bodies, thus minimizing pollution.
Prevention of Mud Water runoff	Prevent mud water from construction activities from directly running off or discharging into roadside drainage or nearby water bodies to avoid sedimentation and contamination.
Adoption of Water Reduction Processes	Adopt processes to reduce water usage for domestic purposes within the project to minimize the strain on local water resources.
Utilization of Water-Efficient Fixtures	Install fixtures that minimize water consumption, such as low-flow faucets and toilets, to conserve water resources and reduce the generation of wastewater.
Awareness Programs for Water Utilization	Conduct awareness programs to educate workers and community members on effective water utilization practices to promote water conservation and reduce wastage.
Exploration of Alternative Water Sources	Consider alternative sources of water apart from groundwater for future expansion of the project, reducing reliance on finite water resources.
Provision of Covering for Drainages	Provide necessary covering for drainages around the project to prevent contamination and pollution of water bodies from surface runoff and debris.
Construction of Adequate Drainages	Construct adequate drainage systems in the project area following guidance from relevant authorities to effectively manage stormwater and prevent runoff into water bodies.
Installation of Wastewater Treatment Units	Associate wastewater treatment units to treat effluent water before disposal, ensuring compliance with environmental regulations and minimizing water pollution.

Safe Handling of Oil and Fuel	Exercise caution when filling or handling oil and fuel for machinery to prevent accidental spills and contamination of water bodies.
Treatment of Wastewater Before Disposal	Treat all wastewater or effluent water before disposal into Taung Thaman Lake or final disposal following guideline, the National Environmental Quality (Emission) Guidelines (NEQEG), from regulatory bodies to mitigate adverse impacts on water quality
Cooperation with MCDC for Sanitary Sewage Disposal	Carry out septic tank or sanitary sewage disposal in cooperation with relevant authorities such as the Mandalay City Development Committee to ensure proper treatment and disposal practices.
Ensuring Quality of Water for Dust Suppression	Ensure that water used for dust suppression is of adequate quality and free from contamination to prevent pollution of water bodies.
Discharge of Wastewater with Minimal Impact	Discharge wastewater in a manner that avoids or minimizes the impact on Taung Thaman Lake and local users, safeguarding water quality and ecosystem health.
Adoption of Groundwater recharge practices	Adopt good practices for groundwater recharge to replenish aquifers and maintain the ecological balance of local water resources.

By implementing these mitigation measures, the project can effectively minimize its impact on water bodies, protect aquatic ecosystems, and ensure the sustainable use of water resources.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	3	3	3
Rating Value with Mitigation			42	

Significance Level with Mitigation		Impact Ratings with Mitigation Operation			Low
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity	
2	3	4	3	2	
Rating Value with Mitigation		45			
Significance Level with Mitigation					Low

5.5 Impacts on Soil Quality

The study area is currently occupied by villages, uncultivated lands, fish ponds. Therefore, the topography is quite flat, with no major differences in altitude. The study area is located within the Mandalay City area, is demarcated by Ayeyarwady River in the west and Mandalay hills in the north. The regional geology consists of Oligocene-Miocene igneous rock, Lower Paleozoic Metamorphic rock at Mandalay Hill in the north and the built-up area, Mandalay City, is mainly composed of recent Alluvium. In addition, the proposed area is located in recent alluvium unit.

Potential negative impacts relating to soil degradation are anticipated for the proposed activity. Such impacts include excavation, displacement or importation of soil, stockpiling, mixing, wetting, compaction and pollution of soil, soil erosion and sedimentation. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 4 Significant of Potential Impacts on Soil Quality both construction and Operation

Potential Impact' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (With Mitigation)	Periods
			Severity of Impact	Scope	Duration	Frequency of Activity	Probability of Activity		
<ul style="list-style-type: none"> • Various construction activities. • Soil Alteration • Soil Pollution • Soil Erosion 	<ul style="list-style-type: none"> • Thaug Tha Man Lake • Project area 	<ul style="list-style-type: none"> • Removal of topsoil due to excavations for foundations and other earth work. • Alteration of soil texture, density, structure and chemistry due to soil mixing, wetting, stockpiling and compaction. • Localized soil contamination from accidental spills and leaks of fuels and chemicals. • Erosion, Slope alteration, vegetation removal and drainage patterns. • Use of pesticides and chemical fertilizers for Landscaping. 	4	2	2	4	4	56	Construction
			3	1	4	2	4	48	Operation

5.5.1 Mitigation Measures for Impacts on Soil Quality

To mitigate the potential impacts on soil quality resulting from construction activities, the following measures are proposed:

Restriction of Construction Activities to Designated Areas	Construction activities will be confined to restricted areas, and efforts will be made to minimize the extent of disturbance to surrounding soil and terrain.
Monitoring of Excavation and Land filling Processes	Excavation and land filling processes will be closely monitored to prevent over-excavation and to adjust terrains as necessary to divert water from disturbed areas, reducing soil erosion risks.
Implementation of Construction Erosion Control Measures	Construction erosion control measures will be implemented where necessary to mitigate soil erosion, preserving soil integrity and preventing sediment runoff.
Timely Excavation Before Construction	Excavation activities will be conducted immediately before construction, minimizing the duration of soil exposure to prevent erosion and degradation over prolonged periods.
Installation of Windbreaks in Wind Erosion Prone Areas	Windbreaks will be planned and installed in areas where wind erosion poses a concern, reducing the risk of soil loss and maintaining soil stability.
Limiting Soil Compaction	Soil compaction will be minimized by restricting the use of trucks and heavy equipment to limited areas, preventing excessive compression of soil layers.
Control of Runoff to Reduce Water Volume and Velocity	Concentrated flow and runoff will be controlled to reduce the volume and velocity of water from work sites, mitigating the formation of rills and gullies and preventing soil erosion.
Proper Use and Control of Hazardous substance	The correct use of hazardous substances such as pesticides and chemical fertilizers will be strictly controlled to prevent soil pollution and minimize adverse impacts on soil quality.
Rehabilitation and Restoration of Soil	Rehabilitation efforts will involve the replacement of suitable topsoil and the promotion of indigenous local vegetation, restoring soil health and ecosystem functionality post-construction.
Site Inspection for Soil Contamination	Regular site inspections will be conducted to identify possible areas of soil contamination, including fuel spillage, and appropriate remedial actions will be taken to remediate any identified issues, safeguarding soil quality and environmental health.

By implementing these mitigation measures, the project aims to minimize its impact on soil quality, preserve soil fertility, and promote sustainable land management practices throughout the construction and operation phases.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
3	3	2	3	3
Rating Value with Mitigation		48		
Significance Level with Mitigation		Low		
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
1	1	4	1	1
Rating Value with Mitigation		12		
Significance Level with Mitigation		Very Low		

5.6 Impacts on Biodiversity

The proposed project located at the eastern site of Taung Thaman Lake and near U Pain Bridge, in Amarapura Township, Mandalay Region. It is also near Yangon-Mandalay Expressway. Biodiversity surveying period was from May, 2015 to August, 2015. For the base line study of biological impact assessment, the 5 Km area around project site is divided into 10 points for surveying. There were a total of 34 species of birds, a total of 7 species of rodents and reptiles, 12 species of butterfly, 9 species of insect, and 15 species of fish recorded. In case of flora survey, totally 35 species of trees in the direct and indirect area were observed and also 5 species of aquatics plants, and 7 species of vegetation and gardening.

It was recorded that little egret (*Egretta garzetta*) are very populated in the Taung Thaman Lake and the number is about 3000. Another populated bird in this place is Common snipe (*Gallinago gallinago*). The number of about 2500 of Common snipe habit in this area. In case of flora, meze (*Madhu calongifolia*) are very populated around the project site. It is also recorded that Taung Thaman Lake is used as fishery for Nga-Wat-Ma (*Tilapia nilotica*). The fauna species were checked with the IUCN Red List (2012). All bird species are least concerned in List.

Factors contributing to the decline of biodiversity include physical alterations to the geography due to resource exploitation and changing land usages; pollution; overharvesting; introduction of exotic (non-native) species and elimination of native species through predation, competition, genetic modification, and disease transmission; disruption of natural process; and global climate change. Under these considerations, no major impacts are expected on the terrestrial, fauna, and aquatic ecology. Air and water quality will be decreased with the urban development.

It does not observe the causative effects on ecological values, ecosystem structure, and ecosystem function. There is a little impact on flora species due to the land use change from agricultural use to urban development by land filling design during project construction but habitat fragmentation does not occur. Solid waste materials and waste water can cause air, lake water and land pollution. Taung Thaman Thitsar should support for sustainable development activities of Taung Thaman lake ecosystem services from CSR program.

Landscaping and planting of trees will be carried out to enhance the ecology and appearance of the site. No details of landscaping plans or planting material are available at this stage but the plant species selected for replanting will in large part determine which types of birds, butterflies, and other fauna, if any, inhabit the site (gardens) after construction. In addition to enhancing the aesthetic appeal of the project site, landscaping provides the means for partially restoring the site's natural elements and ecological habitats. It is therefore a significant mitigation activity with a positive. The landscaping plan should seek to avoid the use of non-native and potentially invasive species. It should include low-maintenance local species and the types of trees and shrubs used for feeding by local bird species. The landscape design should seek to encourage bird life, especially for the endemics, maximize shade and windbreak effect, as well as to hide the roofline of the buildings.

Mitigation strategies for biological impacts can be divided into four categories; avoidance or minimization, restoration, enhancement, and creation. The natural beauty of Taung Thaman Lake shall be improved with Taung Thaman Thitsar project. But waste water and municipal waste must be managed not

to pollute the water body of Taung Thaman Lake. Taung Thaman Thisar Company should also participate actively in the activities of other organizations for Taung Thaman Lake conservation.

Table 5. 5 Significant of Potential Impacts on Biodiversity both construction and Operation

Potential Impact' Source	Receptors	Potential Impacts	Significant of Potential Impacts				Rating Value (Without Mitigation)	Periods	
			Severity of Impact	Scope	Duration	Frequency of Activity			Probability of Activity
<ul style="list-style-type: none"> Land use change. Various construction activities. Solid waste materials. Waste water. 	<ul style="list-style-type: none"> Aquatics plants. Flora and Fauna Birds Aquatic animals 	<ul style="list-style-type: none"> Habitat fragmentation. Introduction of exotic (non-native) species vermin and fly infestation and odorous as well as unsightly conditions. 	3	3	4	4	4	80	Construction
			2	3	4	1	3	36	Operation

5.6.1 Mitigation Measures for Impact on Biodiversity

To mitigate potential impacts on biodiversity resulting from the project, the following measures are proposed:

Implementation of Environmental Management Programs (EMP)	Implement comprehensive air pollution, water pollution, soil pollution, solid waste, and wastewater management programs outlined in the Environmental Management Plan (EMP). These programs should aim to minimize pollution and its adverse effects on biodiversity.
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Development of Plantation and Landscaping	Develop plantation and landscaping initiatives in alignment with the Mandalay green city plan. This includes planting native vegetation, creating green spaces, and restoring natural habitats to enhance biodiversity and ecosystem resilience.
Adherence to Environmental Laws and Regulation	Ensure that project implementation strictly adheres to existing environmental laws and regulations governing biodiversity conservation. Compliance with legal requirements helps prevent habitat destruction, species displacement, and ecosystem degradation.

By integrating these proposed mitigation measures into project planning and execution, the project aims to uphold biodiversity conservation principles, mitigate potential negative effects on ecosystems, and foster sustainable development practices for the benefit of present and future generations.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	3	4	2	3
Rating Value with Mitigation		45		
Significance Level with Mitigation		Low		
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	4	1	2
Rating Value with Mitigation		24		
Significance Level with Mitigation		Very Low		

5.7 Impacts from Solid Waste Generation

Obviously, this project will generate huge amount of solid waste, especially during operation phase. But it can be handled with the proper solid waste management system since they are mainly domestic waste. The most important thing to watch out is the solid waste entering into the Taung Thaman Lake. This need prevent by taking serious precautionous measures. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 6 Significant of Potential Impacts due to Solid waste generation both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Period
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> •Construction wastes •Domestic wastes from construction workers •Domestic wastes from resort operation •Organic wastes or food residues from bars, kitchens and restaurant 	<ul style="list-style-type: none"> •Nearby communities •Soil Quality •Water quality of Taung Thaman Lake 	<ul style="list-style-type: none"> •Pests and vectors attracted to garage and food waste. •Contaminated runoff and plastic wastes can affect aquatic life in Taung Thaman Lake. •Foul smell and serious health issues to the nearby communities •Wastes from construction activities such as removal soil, leftover concrete enter to the lake which could lead to the depletion of Taung Thaman Lake water quality. 	4	2	3	5	4	81	Construction
			4	3	4	5	4	99	Operation

5.7.1 Mitigation Measures for Impact from Solid Waste Generation

To address the potential impacts of solid waste management in the Taung Thaman Resort project, the following mitigation measures are proposed:

<p>Encouraging Staff Adoption of Recycling and Reuse Practices</p>	<p>Staff members will be encouraged and educated on the importance of recycling and reusing materials within the hotel premises. Training programs will be conducted to raise awareness and promote sustainable practices among the staff.</p>
<p>Providing Adequate Bins and Skips</p>	<p>Sufficient bins and skips will be strategically placed throughout the hotel premises to facilitate proper waste disposal. This will help ensure that waste is segregated and disposed of appropriately, reducing the risk of environmental contamination.</p>
<p>Developing Waste Segregation Practices</p>	<p>A comprehensive waste segregation system will be implemented, with designated areas for different types of waste before final disposal. Clear signage and instructions will be provided to guide staff and guests on proper waste segregation practices.</p>
<p>Ensuring Distance from Nearby Communities</p>	<p>On-site waste disposal areas will be located at a safe distance from nearby communities to minimize potential health and environmental impacts. Careful consideration will be given to site selection to mitigate any adverse effects on surrounding areas.</p>
<p>Managing Solid Waste Disposal According to Guideline</p>	<p>Solid waste disposal will be managed in accordance with the guidelines provided by the Mandalay City Development Committee (MCDC) to ensure compliance with local regulations and standards.</p>
<p>Prohibiting Waste Disposal into Taung Thaman Lake</p>	<p>It will be strictly prohibited to dispose of any waste materials into the Taung Thaman Lake to preserve its ecological integrity and prevent pollution. Monitoring mechanisms will be put in place to enforce this prohibition effectively.</p>
<p>Implementing Structurally Sound Retaining Wall Fences</p>	<p>During construction activities, structurally well-designed fences will be erected to serve as retaining walls, preventing soil erosion and sediment runoff into the Taung Thaman Lake. These measures will help maintain water quality and protect the surrounding ecosystem.</p>

6.

Impact Ratings with Mitigation during Construction					
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity	
2	2	3	4		2
Rating Value with Mitigation				42	
Significance Level with Mitigation		Low			
Impact Ratings with Mitigation during Operation					
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity	
2	2	4	4		2
Rating Value with Mitigation				48	
Significance Level with Mitigation		Low			

5.8 Impacts from Hazardous Waste

The project will generate less hazardous waste but there could be some waste from chemical use in construction and operation activities. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 7 Significant of Potential Impacts due to Hazardous waste generation both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Periods
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> Chemical use in construction process Construction wastes Generation of hazardous waste such as bulbs (CFLs), batteries and diesel Hazardous wastes from pesticides, bleaches, stain removers and chemicals use for the swimming pools. 	<ul style="list-style-type: none"> Project's employees Soil Quality Water quality of Taung Thaman Lake 	<ul style="list-style-type: none"> Degradation of soil quality Potential impacts on Taung Thaman Lake's water quality Skin health issues when project's employees are exposed to the hazardous wastes 	4	2	3	3	4	63	Construction
			3	2	4	3	4	63	Operation

5.8.1 Mitigation Measures for Impacts from Hazardous Waste

Placement of On-Sit Waste Disposal Areas

On-site waste disposal areas will be strategically located at a safe distance from nearby communities. This measure aims to minimize the potential risks associated with hazardous waste disposal and reduce the exposure of nearby residents to harmful substances.

Adherence to MCDC Guidance for Solid Waste Management	Solid waste disposal will be managed in accordance with the guidelines provided by the Municipal Corporation of the District Council (MCDC). Compliance with these guidelines ensures proper handling, storage, and disposal of hazardous waste, reducing the risk of environmental contamination and adverse health effects.
Prohibition of Waste Disposal into Taung Thaman Lake	It will be strictly forbidden to dispose of any hazardous waste into the Taung Thaman Lake. This important water body serves as a vital ecosystem and a source of water for local communities. By prohibiting waste disposal into the lake, the project aims to protect water quality, aquatic life, and public health.
Implementation of Hazardous Waste Management Plan	Develop and implement a comprehensive Hazardous Waste Management Plan outlining procedure for the identification, handling, storage, transportation, and disposal of hazardous materials. This plan should include protocols for spill response, emergency preparedness, and worker safety training.
Employee Training and Awareness Programs	Provide specialized training programs and awareness campaigns for employees involved in the handling, transport, and disposal of hazardous waste. Training should cover proper waste handling techniques, safety precautions, emergency response procedures, and the importance of environmental protection.

By implementing these mitigation measures, the project seeks to minimize the potential impacts of hazardous waste on the environment, human health, and local communities, while promoting responsible waste management practices in line with regulatory requirements and environmental conservation principles.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	3	3	3
Rating Value with Mitigation		42		
Significance Level with Mitigation				
Low				
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	1	4	3	3
Rating Value with Mitigation		42		
Significance Level with Mitigation				
Low				

5.9 Impacts on Energy Consumption

As a resort project, the energy consumption will be relatively high for this project. And the project will rely on the public electricity during construction and operation phase except for some emergency situations. In case of public power supply shut down, the project will use diesel generators to resume its operation services. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 8 Significant of Potential Impacts due to energy consumption both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Periods
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
Electricity for project's various facilities	Nearby communities	<ul style="list-style-type: none"> Increased energy demand and causing impacts on power distribution to the surrounding communities. Alternations to distribution system and reach Unstable power system. 	4	3	4	5	4	99	Operation

5.9.1 Mitigation Measures for Impact on Energy Consumption

Appropriate Designs for Energy Supply	Propose and implement appropriate designs for energy supply that minimize strain on the current power distribution system while ensuring reliable and efficient energy delivery to the project facility.
Installation of Energy Meters	Install energy meters throughout the project facility to accurately measure and monitor energy consumption, enabling effective control and optimization of energy usage.
Implementation of Good Housekeeping Measures	Implement good housekeeping practices to optimize energy efficiency, including regular maintenance of equipment, insulation improvements, and optimization of heating, ventilation, and air conditioning (HVAC) systems.

Use of LED and Energy-Efficient Lighting	Utilize LED lights and other energy-efficient lighting solutions to reduce electricity consumption and minimize the environmental impact of lighting systems.
Preventive Maintenance Procedures	Establish and follow procedures for preventive maintenance of operational processes and equipment to ensure optimal performance and energy efficiency over time.
Minimization of Needless Daytime Lighting	Check and eliminate unnecessary lighting during daytime hours to reduce energy waste and optimize natural lighting whenever possible.
Consideration of Renewable Energy Sources	Explore the feasibility of integrating renewable energy sources, such as solar energy, to power certain operations of the project in the long run. This helps reduce reliance on conventional energy sources and lowers the project's carbon footprint.

By implementing these mitigation measures, the project can effectively reduce energy consumption, improve energy efficiency, and contribute to environmental sustainability while minimizing operational costs.

Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
3	3	4	4	2
Rating Value with Mitigation		60		
Significance Level with Mitigation		Low-Medium		

5.10 Impacts on Traffic

This project will have some impacts on the local vehicular traffic since it's an infrastructure development project. During the construction phase, there will be transportation of raw materials and heavy machineries to the project by using inland transportation. When the project starts its own operation shortly

after the construction period, a lot of people are expected to come and visit by the various vehicles for recreational purposes. With the increased in traffic volumes, traffic related accidents, noise and air pollutions could be occur. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 9 Significant of Potential Impacts on Traffic both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Periods
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> Increased traffic during project's construction and operation period. 	<ul style="list-style-type: none"> Nearby communities Existing Roads - traffic patterns, densities and traffic safety 	<ul style="list-style-type: none"> Potential traffic related hazards during peak hours. Small traffic congestions if the visitors decided to use village streets. Dust and carbon dioxide emissions due to increased traffic. Road Damage Increase in traffic related noise. 	4	3	3	5	4	90	Construction
			4	3	4	5	4	99	Operation

5.10.1 Mitigation Measures for Impact on Traffic

Project Access Routes	Design project access ways to avoid utilizing village streets, minimizing disruption to local traffic patterns and ensuring safety for residents.
Transportation Planning for Raw Material	Schedule transportation of raw materials during off-peak hours and avoid crowded periods to minimize traffic-related risks, particularly during the construction phase.
Provision of Adequate Parking Spaces	Provide sufficient parking spaces for project vehicles and staff to minimize on-street parking congestion and ensure smooth traffic flow in the vicinity of the project site.
Notification to Local Administration Office	Inform the local administration office of the date, time, and route for moving heavy machinery to and from the site during both construction and operation phases, ensuring coordination with local authorities and minimizing disruptions to traffic flow.
Traffic Awareness Programs	Conduct traffic awareness programs for the local community, project staff, and drivers to promote safe driving practices, increase awareness of traffic regulations, and minimize the risk of accidents and congestion.
Setting Appropriate Traffic Speeds	Set appropriate vehicular traffic speeds within and around the project area to ensure safety for all road users and minimize the likelihood of accidents or traffic congestion.

By implementing these mitigation measures, the project can effectively manage traffic impacts, enhance road safety, and minimize disruptions to local communities and transportation networks.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	3	4	2

Rating Value with Mitigation		42		
Significance Level with Mitigation		Low		
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	2	4	4	2
Rating Value with Mitigation		48		
Significance Level with Mitigation		Low		

5.11 Impacts on Fire Hazards

In a typical resort project, potential fire hazards include faulty electrical systems, commercial kitchens with open flames, smoking areas, HVAC system malfunctions, outdoor landscaping, improper use of candles and lighting, poorly maintained fireplaces, inadequate emergency systems and exits, and human factors such as negligence. Mitigation measures involve regular inspections and maintenance, adherence to safety codes, proper staff training, installation of fire suppression systems, landscaping management, and ensuring clear evacuation routes. Additionally, employing fire-resistant materials in construction, conducting risk assessments, and collaborating with fire safety experts are essential for minimizing fire risks in a resort setting. The followings are the potential impacts and mitigation measures for operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 10 Significant of Potential Impacts of Fire Hazard especially during Operation

Potential Impact' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (Without Mitigation)	Periods
			Severity of Impact	Scope	Duration	Frequency of Activity	Probability of Activity		
<ul style="list-style-type: none"> ● Kitchen and Cooking Equipment ● Electrical Equipment ● Smoking ● Intentional fires ● Storage (including fuel) 	<ul style="list-style-type: none"> ● Employee, the people who live residences and nearby local community. ● Building and property 	<ul style="list-style-type: none"> ● Death and Huge damage on Human health. ● Damage to Property ● Mental damage 	5	3	1	5	4	81	Operation

5.11.1 Preventive Measures for Fire Hazards

Staff Training and Awareness	Ensure that all staff members receive comprehensive training on fire hazards specific to the kitchen environment. Staff should be aware of potential fire risks and the appropriate actions to take in the event of a fire emergency.
Availability and Training on Fire Extinguishers	Provide accessible fire extinguishers and train staff in their safe operation to combat small fires effectively.
Storage and Organization of Flammable Materials	Store flammable materials like oils, towels, and paper products away from open flames to minimize fire risks.
Electrical Safety Checks	Conduct regular Electrical Installation Condition Reports (EICRs) by qualified electricians every 5 years to ensure electrical safety.

Designated Smoking Area	Designate clear and spacious smoking areas outside the premises and provide nearby cigarette bins for safe disposal of cigarette butts.
Clear Exit Routes	Ensure that exit routes are kept clear at all times to facilitate safe evacuation in the event of a fire emergency.
Safe Storage Practices	Designate safe storage areas for waste and materials, ensuring compliance with safety standards.
Legal Requirements and Additional Measures	Adhere to legal requirements for fire safety equipment and consider additional measures such as sprinkler systems for enhanced fire preparedness.

By implementing these preventive measures, the establishment can significantly reduce the risk of fire hazards, prioritize the safety of guests and staff, and maintain compliance with regulatory standards for fire safety in commercial properties.

Impact Ratings with Mitigation during Operation			
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Probability of Activity
2	2	1	5
Rating Value with Mitigation			35
Significance Level with Mitigation			Low

5.12 Impacts on Occupational Safety and Health

As the project is fairly large, there are a number of workers for the project construction works. Variety of workers for land clearing, earth work, steel work, brick work, general work, material storage and even managing body stay together during the construction phase which might have social conflicts among the involved people as well as with local community. Poor temporary camp conditions could deteriorate workers' health. Occupational hazard such as falling from height, hit by fallen objects, injure by sharp objects, electric shock, and slipping etc., will be associated with the project construction works.

Table 5. 11 Significant of Potential Impacts on Occupational Health and Safety both construction and Operation

Potential Impact Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (Without Mitigation)	Periods
			Severity of Impact	Scope	Duration	Frequency of Activity	Probability of Activity		
<ul style="list-style-type: none"> Accident in Working Area Infectious of disease 	<ul style="list-style-type: none"> Employee/Workers 	<ul style="list-style-type: none"> Accident with project heavy vehicles resulting in injury or death. Poor temporary camp conditions could deteriorate workers' health. Occupational hazard such as falling from height, hit by fallen objects, injure by sharp objects, electric shock, and slipping etc. 	5	2	3	4	4	80	Construction
			3	1	4	4	4	64	Operation

5.12.1 Mitigation Measures for impact on Occupational Health and Safety.

Safe and Healthy Camps	Ensure that workers are provided with safe, secure, and healthy living accommodations in camps. These facilities should meet appropriate standards for sanitation, ventilation, and safety.
Provision of Personal Protective Equipment (PPE)	Provide necessary PPE to workers and ensure its proper use in the workplace. Supervise the correct usage of PPE to minimize risks of occupational hazards.

Training on Occupational Safety and Health	Offer comprehensive training on OSH practices to all workers and ensure they understand and implement safety protocols at the workplace. Regular supervision and reinforcement of training are essential.
Provision of Health Care Facilities	Provide adequate health care facilities such as first aid kits and clinics within the workplace premises. Prompt access to medical care and emergency assistance helps mitigate the impact of workplace injuries and illnesses.

By implementing these mitigation measures, employers can create a safer and healthier work environment, reduce the risk of occupational accidents and illnesses, and promote the well-being of workers.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
3	1	3	3	3
Rating Value with Mitigation		42		
Significance Level with Mitigation		Low		
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	1	4	3	2
Rating Value with Mitigation		35		
Significance Level with Mitigation		Low		

5.13 Impacts on Cultural Heritage

Since the project is located at the east bank of the Taung Thaman Lake and south east of the U Bein Bridge which are quite famous for their heritage values among local and foreign visitors. Potential impacts on cultural heritage of this project have to be well considered. With the objectives of the project, it is clear that this project has no intention do any kinds of activities that will damage the values and structural integrity of nearby heritage sites. Although the project will operate in a responsible manner, specific cultural heritage assessment was made to avoid undesirable impacts on those heritage sites. The specific cultural heritage assessment is attached in Appendix V for your references. The followings are the potential impacts and mitigation measures for

the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 12 Significant of Potential Impacts on Cultural Heritage both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Periods
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> Project's construction activities Project components with contemporary designs 	<ul style="list-style-type: none"> Local Cultural Heritage Buildings Local Cultural Heritage Values in statement of significance Cultural Heritage based tourism. 	<ul style="list-style-type: none"> Damaging the nearby built heritage due to vibrations from construction process. Introduction of project visual components that could diminish the integrity of Taung Thaman Lake and U Bein Bridge. Potential impacts on views identified in statements of significance for Taung Thaman Lake's environments. Potential impacts on Landmark setting of Taung Thaman Lake. Potential impacts on views from the vicinity of Taung Thaman Lake to U Bein Bridge. 	4	3	3	4	4	80	Construction
			3	3	4	4	4	80	Operation

5.13.1 Mitigation Measures for Impact on Cultural Heritage

Use of Systematic Construction Methods	Employ systematic construction methods to minimize vibration impacts on cultural heritage sites. This includes employing technologies and techniques that reduce ground vibrations and disturbances during construction activities.
Landscaping and Replantation	Implement landscaping and replantation initiatives to mitigate visual impacts on cultural heritage sites. This involves restoring natural vegetation and incorporating greenery to soften the visual impact of new construction.
Inclusion of View Corridors	Incorporate view corridors as per the precinct plan and Myanmar National Building Code to preserve sightlines and vistas that are integral to the cultural heritage landscape.
Designs Based on Traditional Culture	Propose project component designs that draw inspiration from Myanmar's traditional culture. Incorporate architectural elements, motifs, and materials that reflect and respect the local cultural heritage, enhancing the aesthetic and cultural significance of the project.
Compliance with Height Regulation	Adhere to height regulations set forth by the Mandalay City Development Committee (MCDC) regarding buildings in cultural heritage environments. Avoid designs that exceed the maximum height limit of 40 meters, ensuring that new developments maintain the visual integrity and scale of the surrounding heritage context.

. By implementing these mitigation measures, the project can minimize its impact on cultural heritage sites, preserve the visual and architectural character of the environment, and contribute to the sustainable development and promotion of cultural heritage values.

Impact Ratings with Mitigation during Construction				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	3	3	3	3
Rating Value with Mitigation		48		
Significance Level with Mitigation		Low		
Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	3	4	3	2
Rating Value with Mitigation		45		
Significance Level with Mitigation		Low		

5.14 Impacts on Landscape

With the development of the new project, the landscape view of the surrounding environment will be completely changed. But on the other hand, this project is the tourism-based project and it is aiming to attract the local and foreign visitors. So it is no doubt that the project will focus to develop beautiful landscapes in consideration with the nearby heritage values. The followings are the potential impacts and mitigation measures for the construction and operation phase of the project. And then assessments with and without mitigation measures are made to determine the significance level of this particular impact.

Table 5. 13 Significant of Potential Impacts on Landscape both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Impacts					Rating Value (without mitigation)	Periods
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> Project's various facilities Night lights from project 	<ul style="list-style-type: none"> Nearby communities Tourist attractions 	<ul style="list-style-type: none"> Permanent visual changes to local environment Potential views blocking impact for the sightseeing Erosion Increased runoff entering the Taung Thaman Lake Light pollution 	3	3	4	4	4	80	Operation

5.14.1 Mitigation Measures for Impact on Landscape

Integration of Green Spaces and Landscaping Facilities	Incorporate green spaces and landscaping features into the project's design to enhance the aesthetic appeal and ecological value of the landscape. This includes the strategic placement of trees, shrubs, and greenery to promote biodiversity and mitigate visual impacts.
Reduction of Decorative Lighting	Minimize the use of decorative lighting during nighttime to reduce light pollution and preserve the natural ambiance of the landscape. Opt for subdued lighting options that minimize disturbance to nocturnal wildlife and maintain the integrity of the nighttime environment.

Use of Covered Bulbs with Downward Light Emission	Utilize covered bulbs that emit light downwards in corridors and outdoor areas. This helps minimize light spillage and glare while ensuring adequate illumination for safety and visibility, thereby reducing the visual impact on the landscape.
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By implementing these mitigation measures, the project can mitigate adverse impacts on the landscape, protect natural resources, and promote sustainable development practices that enhance the overall environmental quality of the area.

Impact Ratings with Mitigation during Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
2	3	4	3	2
Rating Value with Mitigation		45		
Significance Level with Mitigation		Low		

5.15 Impacts on Local Economy

TTMS resort project is clearly a tourism-based resort project and it intends to attract lots of visitors with its unique location, Myanmar's traditional culture and natural beauty of surrounding environment. Since many visitors are expected to come to this project, there will be some opportunities for the local people to improve their economies. The followings are the potential impacts and enhancement for the development of project. And then assessments with and without impact enhancements are made to determine the significance level of this particular impact.

Table 5. 14 Significant of Potential Enhancement for Local Economy both construction and Operation

Potential Impacts' Source	Receptors	Potential Impacts	Significant of Potential Enhancement					Rating Value (without enhancement)	Periods
			Severity of impact	Scope	Duration	Frequency of activity	Probability of activity		
<ul style="list-style-type: none"> •Development of the project •Visitors to the project 	<ul style="list-style-type: none"> •Local communities •Local Economy 	<ul style="list-style-type: none"> •Job opportunities for the local communities •Values of lands around the project will be raised. •Retail trades of local communities near the project area will be developed with the development of other small business relating to new settlement. •Local community around the project will be developed by the direct and indirect business opportunities relating to tourism development by the project. •Flow of goods and trades will be improved by the development of new roads by the project. •General economic conditions of the local communities will be improved by the regular income generated by the employment in the project. 	4	3	4	5	4	99	Construction + Operation

5.15.1 Enhancements Measures for Local Economy

Priority Job Opportunities for Local People	Prioritize job opportunities for local residents within the project, ensuring that employment benefits the immediate community and strengthens local livelihoods.
Corporate Social Responsibility (CSR) Programs for Economic Development	Implement CSR programs aimed at supporting the general economic development of the local community. These initiatives could include vocational training, entrepreneurship programs, and support for small businesses to stimulate economic growth.
Support for Tourism-Related Business	Provide assistance and support to local communities in developing income-generating activities related to tourism. This could involve training programs, marketing assistance, and infrastructure development to capitalize on the region's tourism potential and create sustainable economic opportunities.

By implementing these enhancements, the project can contribute to the long-term economic prosperity and well-being of the local community, fostering inclusive growth and equitable development.

Impact Ratings with Enhancements during Construction + Operation				
Severity of Impact	Spatial Scope of Impact	Duration of Impact	Frequency of Activity	Probability of Activity
4	3	4	5	5
Rating Value with Enhancements		110		
Significance Level with Enhancements		High		

6 Cumulative Impact Assessment

A cumulative impact assessment (CIA) serves as a comprehensive tool for evaluating the cumulative effects of multiple actions, projects, or stressors on a particular ecosystem, region, or community. Unlike traditional impact assessments that focus on individual projects or activities, a CIA considers the synergistic effects, interactions, and compounding consequences that result from the simultaneous or sequential occurrence of various human interventions or stressors.

6.1 Purpose of the Cumulative Impact Assessment

The purpose of this cumulative impact assessment is to analyze and understand the cumulative effects of past, present, and proposed activities within a defined geographic area or ecosystem. By examining the interplay of diverse factors such as land use changes, industrial development, infrastructure projects, climate change, and socio-economic dynamics, this assessment seeks to identify potential synergies, conflicts, trade-offs, and cumulative impacts that may arise.

Through a holistic and interdisciplinary approach, this assessment aims to inform decision-makers, stakeholders, and the public about the long-term implications of cumulative impacts, thereby facilitating more informed and sustainable decision-making processes. By identifying potential risks, opportunities, and mitigation measures, this assessment can help guide policy formulation, land-use planning, project design, and resource management strategies to minimize adverse effects and promote the conservation and enhancement of environmental, social, and economic values.

6.2 Assessment of Cumulative Environmental Impacts

The potential cumulative impacts primarily stem from the operational phase of the project. As the project is currently not operational, it necessitates the conduction of an Environmental Impact Assessment (EIA) study. Moreover, the implementation of an environmental management plan is imperative at this stage of the project. Consequently, it is reasonable to expect that emissions and discharge of pollutants from the project will adhere to the stipulated guideline values outlined by the National Environmental Quality Guidelines (NEQG).

In the context of the Taung Thaman Resort Project, the following assessment has been conducted to evaluate project-related impacts with regard to cumulative effects.

6.2.1 Socio-Economic Cumulative Impact

The operation of the Taung Thaman resort project holds significant socio-economic implications for the surrounding communities, extending beyond environmental considerations. The influx of tourists and the development of resort infrastructure have the potential to reshape the socio-economic fabric of the area in several ways:

6.2.1.1 Employment Opportunities

The expansion of the Taung Thaman resort project is likely to create new job opportunities within the local community, ranging from hospitality and tourism-related positions to construction and maintenance roles. However, the distribution of employment benefits and the quality of jobs created may vary, potentially leading to socio-economic disparities among community members.

6.2.1.2 Cultural and Social Dynamics

The presence of the Taung Thaman resort project can influence local cultural practices, social interactions, and community identity. The influx of tourists may introduce new cultural influences and preferences, potentially altering traditional livelihoods and social norms within the community. Preservation of cultural heritage and community identity becomes crucial amidst these changes.

6.2.1.3 Infrastructure and Service Provision

The growth of tourism and Taung Thaman resort activities may strain existing infrastructure and public services, including transportation, utilities, healthcare, and waste management. Adequate investment in infrastructure development and service provision is essential to accommodate the needs of both residents and tourists while maintaining the quality of life within the community.

6.2.2 Cumulative Impact on Air and Noise

The construction process can significantly affect air quality through dust emissions and noise. Dust emissions primarily result from construction activities and can lead to the deposition of dust particles in nearby areas. However, since dust suppression measures are planned for implementation during the construction phase, the environmental impact is expected to be limited and non-cumulative. Additional mitigation measures beyond those outlined in the Environmental Management Plan (EMP) are not anticipated.

Similarly, noise generated during construction may adversely affect nearby areas if left uncontrolled. Nonetheless, the EMP includes mitigation measures and a mechanism for

addressing noise-related concerns. As a result, any potential accumulation of noise impacts is unlikely.

6.2.3 Cumulative Impact on Water Body

The Taung Thaman resort project's reliance on underground water sources for various purposes, including hotel amenities, restaurants, residential needs, and other operations, underscores its potential cumulative impact on water quality. As the resort utilizes underground water reservoirs, it may influence local hydrological patterns, groundwater recharge rates, and the availability of water resources for surrounding ecosystems and communities.

Moreover, the discharge of treated wastewater from the Taung Thaman resort into the Taung Thaman lake, coupled with the inflow of Payan Taw creek and Lat Khope Pin Stream water from nearby wards and industrial areas, poses challenges to water quality management. The treated effluent introduced into the lake ecosystem requires careful monitoring to prevent nutrient loading, chemical contamination, and ecological disruption. Additionally, the interaction of creek water, potentially carrying pollutants from residential and industrial sources, further compounds water quality concerns. EMP and mitigation measures will be systematically followed and implemented to reduce these impacts as appropriate.

To address these cumulative impacts, comprehensive wastewater treatment protocols, groundwater monitoring programs, and watershed management strategies must be implemented. Collaboration with stakeholders, regulatory bodies, and local communities is essential to ensure the sustainable management and preservation of water resources in the vicinity of the resort project.

7 Environmental Management Plan

In the preceding chapter, the potential positive and negative impacts of the Taung Thaman Resort on its surrounding environment were identified. Using the Rating Matrix method, the significance levels of these potential impacts were determined, and recommended mitigation measures were described. Based on the results, it was found that essentially all potential impacts remain within controlled range limits, whether through technological, socio-economic, or institutional approaches.

7.1 Objectives of EMP

Implementing an Environmental Management Plan (EMP) based on the objectives outlined in the Environmental Impact Assessment (EIA) is critical for ensuring the sustainability and success of Taung Thaman resort project. By systematically identifying potential environmental risks and implementing targeted mitigation measures, the EMP helps minimize adverse impacts on air quality, water resources, biodiversity, and community well-being. Through compliance with environmental regulations and adherence to best practices, the EMP also mitigates legal liabilities and fosters a positive relationship with regulatory agencies, local communities, and other stakeholders.

Furthermore, the EMP serves as a strategic framework for promoting sustainable practices and responsible resource management throughout the project lifecycle. By optimizing resource efficiency, conserving biodiversity, preventing pollution, and engaging with local communities, Taung Thaman resort project demonstrates its commitment to environmental stewardship and corporate social responsibility. By integrating climate change resilience measures and embracing a culture of continuous improvement, the EMP enhances the project's resilience to climate-related risks, ensures stakeholder satisfaction, and contributes to long-term environmental sustainability.

7.2 Environmental Management Team

The Environmental Management Plan (EMP) implementing team is a dedicated group of professionals responsible for integrating environmental and social considerations, sustainability practices, and regulatory compliance throughout the project lifecycle. Comprised of experts in environmental science, engineering, health and safety, and project management, the team collaborates closely to develop, implement, and monitor strategies outlined in this EMP.

In the following sections, we will explore the roles, responsibilities, and organizational structure of the EMP implementing team, highlighting their collective efforts to mitigate environmental impacts and promote responsible resource management.



Table 7. 1 Organization of Environmental Management Team

Name	Roles	Responsibilities	Function
Project Director	<ul style="list-style-type: none"> • Oversees the overall planning, execution, and monitoring of the project, including environmental management activities. • Ensures that environmental considerations are integrated into project planning and decision-making processes. 	<ul style="list-style-type: none"> • Coordinates with the General Secretary and team members to integrate environmental requirements into project plans and schedules. • Monitors progress against environmental objectives and targets and takes corrective action as necessary. • Communicates with stakeholders and project teams to ensure alignment with project goals and environmental objectives. 	Head of Team (Managing Director)
Project Manager	<ul style="list-style-type: none"> • Supports the Head of team in implementing the EMP and managing environmental initiatives. • Assists in data collection, analysis, and reporting related to environmental performance indicators. 	<ul style="list-style-type: none"> • Assists in the development and implementation of environmental policies, procedures, and training programs. • Conducts site inspections and audits to ensure compliance with environmental standards and regulations. • Communicates with project teams and stakeholders to promote awareness of environmental issues and best practices. 	Member (Project Coordinator)
Project Engineer	<ul style="list-style-type: none"> • Provides technical expertise and guidance on environmental management and sustainability practices. • Assists in the design and implementation of environmental controls 	<ul style="list-style-type: none"> • Designs and implements pollution prevention measures, waste management systems, and resource conservation initiatives. • Evaluates new technologies and practices to enhance 	Member (Project Engineer)

	and mitigation measures.	environmental performance and reduce environmental risks.	
Health and Safety Officer	<ul style="list-style-type: none"> • Ensures the health and safety of personnel and the public during project activities. • Identifies and addresses potential health and safety hazards associated with environmental factors. 	<ul style="list-style-type: none"> • Develops and implements health and safety policies and procedures in accordance with regulatory requirements. • Conducts health and safety training for project teams and ensures compliance with health and safety protocols. • Investigates accidents, incidents, and near misses related to environmental hazards and implements corrective actions to prevent recurrence. 	Member (Health and Safety Officer)
Administrative Assistant	<ul style="list-style-type: none"> • Assists in monitoring and tracking compliance with environmental regulations, permit conditions, and project requirements. • Alerts the team to upcoming deadlines, regulatory changes, and compliance issues that require attention or action. • Facilitates communication within the team and coordinates meetings, conference calls, and other communication activities. 	<ul style="list-style-type: none"> • Stay informed about environmental management practices and regulatory updates. • Prepare and format documents, reports, and correspondence related to environmental management activities. • Maintain an organized system for document storage, retrieval, and version control. • Serve as a point of contact for inquiries related to environmental management activities. 	Member (Administrative Assistant)

U Kyaw Swar Win	<ul style="list-style-type: none"> • Oversees the implementation of the Environmental Management Plan (EMP) and ensures compliance with environmental regulations and policies. • Acts as the primary point of contact for environmental matters and liaises with regulatory agencies, stakeholders, and project teams. 	<ul style="list-style-type: none"> • Develops and maintains the EMP, including policies, procedures, and action plans. • Conducts environmental assessments and audits to identify risks and opportunities for improvement. • Coordinates environmental monitoring, reporting, and data analysis to track progress and performance. 	General Secretary
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The Environmental Management Plan implementing team operates within the broader project management structure, reporting to the Head of Environmental Management Team. The General Secretary leads the team and collaborates closely with the Project Coordinator, Project Engineer, Health and Safety Officer, and other project stakeholders. Clear lines of communication and accountability are established to ensure effective coordination, implementation, and monitoring of environmental management activities throughout the project lifecycle. Furthermore, these responsibilities will extend throughout both the construction and operational phases of the project.

By leveraging the expertise and collaboration of the EMP implementing team, the Taung Thaman Resort project can effectively address environmental challenges, mitigate risks, and promote sustainability in alignment with project goals and regulatory requirements.

Furthermore, this Environmental Management team is accountable for environmental management and monitoring, as well as ensuring occupational and community health and safety throughout the project. It actively leads initiatives to expand the organizational structure, including the recruitment of experts for the requirement team and allocation of essential resources, in response to the evolving implementation of Environmental Management Plans (EMP) and Environmental Monitoring Plans (EMoP) requirements

7.2.1 Environmental Management Plan for Construction Phase

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts from Noise and Vibration			
<ul style="list-style-type: none"> Excessive noise Vibration effects, from construction activities such as piling, which could damage the structure of nearest built heritage. Disturbing noise 	<ul style="list-style-type: none"> Various construction activities Operations of heavy machineries Emergency use of diesel generators Use of on-site tools Increased vehicular traffic 	<p>Regular Maintenance to Prevent Mechanical Noise.</p> <p>Avoidance of High Noise Construction Work at Night</p> <p>Communication Channels for Noise Disturbance Issues.</p> <p>Avoidance of Heavy Machinery Movements at Night.</p>	<ul style="list-style-type: none"> Implement a comprehensive maintenance schedule for machinery and equipment to ensure optimal performance and reduce mechanical noise. Conduct regular inspections and repairs to address any potential sources of noise pollution promptly. Establish clear guidelines and policies that restrict high noise construction activities during nighttime hours to minimize disturbances to nearby residents Coordinate construction schedules to prioritize quieter tasks during nighttime operations. Establish effective communication channels, such as a hotline or online reporting system, for residents to report noise disturbances promptly. Designate responsible personnel to address noise complaints and take appropriate action to mitigate issues. Establish guidelines that prohibit the movement of heavy machinery during nighttime hours unless absolutely necessary. Plan construction activities to minimize the need for heavy machinery operations during late hours.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Implementation of Appropriate Vehicular Traffic Speed	<ul style="list-style-type: none"> Enforce speed limits and traffic regulations to control vehicular noise in and around the project site. Educate drivers and construction personnel on the importance of adhering to speed limits to minimize noise pollution.
		Provision of Hearing Protection Equipment	<ul style="list-style-type: none"> Provide hearing protection gear, such as earplugs or earmuffs, to workers exposed to high noise levels during construction activities. Conduct training sessions to educate workers on the proper use and maintenance of hearing protection equipment.
Impacts on Traffic			
<ul style="list-style-type: none"> Traffic related hazards Dust and carbon dioxide emissions Road damage 	<ul style="list-style-type: none"> Increased traffic from transportation of raw materials, machinery for construction and 	<p>Project Access Routes</p> <p>Transportation Planning for Raw Material</p>	<ul style="list-style-type: none"> Designate specific access routes for construction vehicles to minimize disruption to local traffic. Implement traffic control measures to direct construction traffic away from residential areas. Develop a transportation plan for raw materials to minimize traffic congestion. Coordinate with suppliers to optimize delivery times and reduce trips

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
	construction workers.	Notification to Administration Office	<ul style="list-style-type: none"> Notify local authorities about the construction project and planned activities. Establish channels for ongoing communication with local officials.
		Setting Appropriate Traffic Speeds	<ul style="list-style-type: none"> Enforce appropriate speed limits for construction vehicles within the project site and along access routes. Provide training for construction personnel on speed limit compliance.
Impacts on Cultural Heritage			
<ul style="list-style-type: none"> Damaging the nearby built heritage due to vibrations from construction process. 	<ul style="list-style-type: none"> Project's various construction activities 	<p>Designs Based on Traditional Culture</p> <p>Compliance with Height Regulation</p>	<ul style="list-style-type: none"> Collaborate with local cultural experts and heritage preservation organizations to incorporate traditional architectural elements and design motifs into the resort's buildings and structures. Engage local artisans and craftsmen to contribute to the construction process and preserve traditional craftsmanship techniques. Avoiding buildings' designs which are above 40 m in line with the MCDC regulations for cultural heritage environment. Regularly monitor construction progress to ensure compliance with height restrictions and promptly address any deviations or concerns.
Impacts from Solid Waste Generations & Hazardous Waste			

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
<ul style="list-style-type: none"> • Depletion of Taung Thaman Lake water quality. • Soil quality degradation. • Contaminated runoff and plastic wastes. • Pests and vectors attracted to garage and food waste. • Foul smell and serious health issues to the nearby communities. 	<ul style="list-style-type: none"> • Construction wastes • Chemical use in construction process • Domestic wastes and sewage from construction workers 	<p>Ensuring Distance from Nearby Communities</p> <p>Prohibiting Waste Disposal into Taung Thaman Lake</p> <p>Implementing Structurally Sound Retaining Wall Fences</p>	<ul style="list-style-type: none"> • Establish waste disposal areas at a safe distance from nearby communities to minimize health and environmental risks. • Clearly demarcate and secure the waste disposal sites to prevent unauthorized access and potential hazards. • Strictly enforce policies and regulations prohibiting the disposal of solid and hazardous waste into Taung Thaman Lake. • Implement monitoring measures to detect and deter any illegal dumping activities near the lake area. • Construct structurally sound retaining wall fences around waste disposal areas to prevent runoff and contamination of surrounding soil and water bodies. • Regularly inspect and maintain the integrity of the retaining walls to ensure effective containment of waste materials.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Placement of On-Sit Waste Disposal Areas	<ul style="list-style-type: none"> • Designate specific on-site waste disposal areas equipped with appropriate containment measures and waste segregation facilities. • Implement proper waste management practices, including sorting, recycling, and disposal, to minimize environmental impact and maximize resource recovery.
		Implementation of Hazardous Waste Management Plan	<ul style="list-style-type: none"> • Develop and implement a comprehensive hazardous waste management plan that outlines procedures for the safe handling, storage, transportation, and disposal of hazardous materials. • Provide training and resources to personnel involved in hazardous waste management to ensure compliance with regulatory requirements and industry best practices.
Impacts on Local Economy			
<ul style="list-style-type: none"> • Job opportunities for the local communities • Values of lands around the project will be raised. • General economic conditions of the local communities will be improved. 	Development of the project	Priority Job Opportunities for Local People	<ul style="list-style-type: none"> • Prioritize hiring local residents for various positions, including construction labor, administrative roles, and service staff. • Provide training and skills development programs to enhance the employability of local residents and promote long-term economic empowerment.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts on Ambient Air Quality			
<ul style="list-style-type: none"> Excessive dust emission Generation of greenhouse gases Deterioration of Air Quality 	<ul style="list-style-type: none"> Various construction activities. Emergency use of diesel generators 	<p>Dust Suppression During Construction</p> <p>Covering Dump Trucks During Loading and Hauling</p>	<ul style="list-style-type: none"> Implement dust suppression measures, such as water spraying and dust control agents, at construction sites to minimize airborne dust particles. Conduct regular watering of construction areas and exposed soil surfaces to prevent dust generation and dispersion. Require all dump trucks involved in loading and hauling operations to be covered to prevent the escape of dust and particulate matter. Enforce strict adherence to covering procedures and provide training to truck operators on proper covering techniques.
		<p>Spraying Unpaved Roads and Tracks</p>	<ul style="list-style-type: none"> Apply dust suppressants or water regularly to unpaved roads and tracks used for construction traffic to minimize dust emissions. Monitor road conditions and reapply suppressants as needed to maintain effective dust control.
		<p>Regular Inspection and Maintenance Equipment</p>	<ul style="list-style-type: none"> Establish a comprehensive inspection and maintenance program for construction equipment and vehicles to ensure optimal performance and minimize emissions. Conduct routine checks for leaks, malfunctions, and emissions compliance, and address any issues promptly.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Regular Inspection and Maintenance Equipment	<ul style="list-style-type: none"> • Install wheel wash systems or provide designated washing areas to clean dump truck wheels before leaving construction sites. • Enforce strict adherence to wheel washing procedures to prevent the spread of dust and contaminants onto public roads.
		Implementing of Speed Limits	<ul style="list-style-type: none"> • Establish and enforce speed limits for construction vehicles and equipment within project areas to minimize dust generation and improve safety. • Communicate speed limit regulations to all construction personnel and contractors, and monitor compliance through regular enforcement measures.
Impacts on Water Body			
<ul style="list-style-type: none"> • Contaminated runoff and oil spilled. • Degrading the quality of Taung Than Man Lake • Degradation 	<ul style="list-style-type: none"> • Waste generation from various construction activities. 	Settling of Construction Wastewater	<ul style="list-style-type: none"> • Implement settling ponds or sediment traps to capture and treat construction wastewater before it is discharged into water bodies. • Regularly inspect and maintain settling facilities to ensure proper functionality and effectiveness in removing sediment and contaminants.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
<ul style="list-style-type: none"> of aquatic life quality in Taung Thaman Lake. Depletion of groundwater. 	<ul style="list-style-type: none"> Chemical substances used for certain construction activities Groundwater use for construction activities 	<p>Prevention of Mud Water runoff</p> <p>Exploration of Alternative Water Sources</p> <p>Discharge of Wastewater with Minimal Impact</p>	<ul style="list-style-type: none"> Implement erosion control measures, such as silt fences, straw bales, and mulching, to prevent mud water runoff from construction sites into nearby water bodies. Monitor erosion control measures regularly and adjust as needed to maintain their effectiveness. Investigate and explore alternative water sources, such as rainwater harvesting or recycled water, for construction activities to reduce reliance on freshwater sources. Implement systems for collecting and treating alternative water sources for use in construction activities wherever feasible. Implement best management practices (BMPs) to minimize the environmental impact of wastewater discharge, including controlling flow rates and monitoring water quality parameters. Conduct regular monitoring of discharged wastewater to ensure compliance with regulatory standards and minimize ecological harm.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Construction of Adequate Drainages	<ul style="list-style-type: none"> • Construct adequate drainage systems to manage stormwater runoff and prevent flooding or erosion that could impact nearby water bodies. • Design drainage infrastructure to effectively channel runoff away from construction sites and minimize sediment and pollutant transport into water bodies.
		Treatment of Wastewater Before Disposal	<ul style="list-style-type: none"> • Install and operate wastewater treatment systems to treat construction wastewater before disposal, ensuring compliance with water quality standards and regulations. • Implement appropriate treatment processes, such as sedimentation, filtration, and biological treatment, based on the characteristics of the wastewater and local regulatory requirements.
		Safe Handling of Oil and Fuel	<ul style="list-style-type: none"> • Develop and implement protocols for the safe handling, storage, and disposal of oil and fuel to prevent spills and contamination of water bodies. • Provide training for construction personnel on proper handling procedures and emergency response protocols in the event of a spill or leak.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts on Soil			
<ul style="list-style-type: none"> Removal of topsoil due to excavations for foundations and other earth work. Alteration of soil texture, density, structure and chemistry due to soil mixing, wetting, stockpiling and compaction. Localized soil contamination from accidental spills and leaks of fuels and chemicals. Erosion, Slope alteration, vegetation removal and drainage patterns. 	<ul style="list-style-type: none"> Various construction activities. Soil Alteration Soil Contamination Soil Erosion 	<p>Restriction of Construction Activities to Designated Areas</p> <p>Limiting Soil Compaction</p> <p>Proper Use and Control of Hazardous substance</p>	<ul style="list-style-type: none"> Establish clearly defined construction zones and boundaries to limit construction activities to designated areas. Implement barriers or fencing to prevent encroachment into protected or sensitive soil areas. Monitor construction activities to ensure compliance with designated areas and minimize soil disturbance outside of approved zones. Implement soil protection measures, such as the use of temporary coverings or mulch, to minimize soil compaction during construction activities. Utilize specialized equipment and construction techniques that reduce soil compaction and minimize disturbance to the natural soil structure. Develop and enforce strict protocols for the use, storage, and disposal of hazardous substances during construction activities. Provide training to construction personnel on proper handling procedures and safety precautions when working with hazardous materials. Implement spill prevention and response measures to minimize the risk of soil contamination from hazardous substance leaks or spills.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Rehabilitation and Restoration of Soil	<ul style="list-style-type: none"> • Develop a soil rehabilitation and restoration plan to mitigate any adverse impacts on soil quality resulting from construction activities. • Implement soil conservation practices, such as erosion control measures and revegetation efforts, to stabilize soil and restore natural habitat.
Impacts on Occupational Safety and Health			
<ul style="list-style-type: none"> • Accident with project heavy vehicles resulting in injury or death. • Occupational hazard such as falling from height, hit by fallen objects, injure by sharp objects, electric shock, and slipping etc. 	<ul style="list-style-type: none"> • Accidents and Incidents in Working Area 	<p>Safe and Healthy Camps</p> <p>Provision of Personal Protective Equipment (PPE)</p> <p>Training on Occupational Safety and Health</p>	<ul style="list-style-type: none"> • Establish safe and healthy living conditions within construction camps, including adequate sanitation facilities, clean water supply, and proper waste management systems. • Provide access to medical services and emergency response capabilities within construction camps to address health-related issues promptly. • Provide appropriate personal protective equipment (PPE), such as helmets, gloves, safety glasses, and respiratory protection, to all construction workers. • Conduct regular training sessions to educate workers on the importance of using PPE and proper safety practices. • Conduct comprehensive training programs on occupational safety and health (OSH) for all construction workers and supervisory staff. • Provide specialized training for workers involved in high-risk tasks or working in hazardous environments.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Provision of Health Care Facilities	<ul style="list-style-type: none"> Establish on-site health care facilities or provide access to nearby medical facilities to address injuries, illnesses, and medical emergencies. Ensure that health care facilities are equipped with essential medical supplies, trained personnel, and communication systems for emergency response.
Impacts on Biodiversity			
<ul style="list-style-type: none"> Noise and Disturbance Chemical Contamination Altered Hydrology 	<ul style="list-style-type: none"> Various construction activities 	<p>Implementation of Environmental Management Programs (EMP)</p> <p>Development of Plantation and Landscaping</p> <p>Adherence to Environmental Laws and Regulation</p>	<ul style="list-style-type: none"> Implementation of Environmental Management Programs (EMP) Development of Plantation and Landscaping Adherence to Environmental Laws and Regulation. Integrate measures to minimize habitat disturbance, prevent soil erosion, and mitigate the impact of construction activities on biodiversity into the EMP. Incorporate green spaces, vegetative buffers, and wildlife corridors into the construction site design to facilitate movement and connectivity for fauna and flora. Monitor construction activities closely to ensure compliance with environmental standards and promptly address any violations or environmental incidents that may arise.

7.2.2 Environmental Management Plan for Operational Phase

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts from Noise and Vibration			
<ul style="list-style-type: none"> Excessive noise Disturbing noise 	<ul style="list-style-type: none"> Noise from Air Conditioners and other fixed equipment. Noise from entertainment venues. Emergency use of diesel generators. Increased vehicular traffic 	Incorporation of Silencers/Mufflers	<ul style="list-style-type: none"> Install silencers or mufflers on air conditioners, generators, and other fixed equipment to reduce noise emissions during operation. Ensure that all equipment meets noise reduction standards and regulations to minimize disturbance to nearby areas.
		Preservation of Vegetation as Natural Buffer Zone	<ul style="list-style-type: none"> Preserve existing vegetation or plant new trees and shrubs as a natural buffer zone to absorb and mitigate noise from vehicular traffic and operational equipment. Implement landscaping strategies that enhance the effectiveness of vegetation as a noise barrier.
		Implementation of Appropriate Vehicular Traffic Speed	<ul style="list-style-type: none"> Enforce appropriate speed limits for vehicular traffic within the resort premises to reduce noise from vehicle movements. Educate drivers and resort staff on the importance of adhering to speed limits to minimize noise pollution and ensure safety.
Impacts on Energy Consumption			
Increased energy demand and causing	Electricity use for resort's various facilities	Appropriate Designs for Energy Supply	<ul style="list-style-type: none"> Implement energy-efficient designs for energy supply systems, such as HVAC systems and electrical distribution, to optimize energy usage during operation.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
<ul style="list-style-type: none"> • impacts on power distribution. • Alternations to distribution system and reach. • Unstable power system. 		<p>Installation of Energy Meters</p> <p>Implementation of Good Housekeeping Measures</p> <p>Use of LED and Energy-efficient Lighting</p> <p>Preventive Maintenance Procedures</p> <p>Minimization of Needless Daytime Lighting</p>	<ul style="list-style-type: none"> • Regularly track and analyze energy consumption data to identify trends and implement targeted energy-saving measures • Implement good housekeeping practices to promote energy efficiency and reduce waste throughout the resort. • Encourage staff and guests to turn off lights, appliances, and electronics when not in use to conserve energy. • Replace traditional lighting fixtures with LED lights and other energy-efficient lighting technologies to reduce energy consumption and operating costs. • Establish a preventive maintenance program for all energy-consuming equipment and systems to ensure optimal performance and efficiency. • Conduct regular inspections, cleaning, and servicing of HVAC systems, refrigeration units, and other energy-intensive equipment • Implement daylight harvesting techniques and utilize natural lighting wherever possible to minimize the need for artificial lighting during daytime hours. • Install light sensors and timers to automatically adjust lighting levels based on natural light conditions and occupancy.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Consideration of Renewable Energy Sources	<ul style="list-style-type: none"> • Explore the feasibility of integrating renewable energy sources, such as solar panels or wind turbines, to supplement the resort's energy supply. • Conduct a comprehensive assessment of renewable energy options and evaluate the economic and environmental benefits of implementation.
Impacts on Traffic			
<ul style="list-style-type: none"> • Traffic related hazards • Small traffic congestions if the visitors decided to use village streets. • Dust and carbon dioxide emissions • Road Damage 	Increased traffic from resort operations	Provision of Adequate Parking Spaces	<ul style="list-style-type: none"> • Ensure the provision of sufficient parking spaces within the resort premises to accommodate guests, employees, and visitors. • Designate parking areas strategically to optimize traffic flow and minimize congestion.
		Traffic Awareness Programs	<ul style="list-style-type: none"> • Implement traffic awareness programs to educate guests, employees, and visitors about traffic rules, parking regulations, and safe driving practices. • Distribute informational materials and signage throughout the resort to promote awareness and encourage responsible behavior.
		Setting Appropriate Traffic Speeds	<ul style="list-style-type: none"> • Establish and enforce appropriate speed limits within the resort premises to ensure the safety of pedestrians, cyclists, and motorists. • Install speed limit signs and traffic calming measures, such as speed bumps or rumble strips, to encourage compliance with speed regulations.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts on Cultural Heritage			
<ul style="list-style-type: none"> • Introduction of project visual components that could diminish the integrity of Taung Thaman Lake and U Bein Bridge. • Impacts on views identified in statements of significance for Taung Thaman Lake’s environments. • Impacts on Landmark setting of Taung Thaman Lake. • Impacts on views from the vicinity of Taung Thaman Lake to U Bein Bridge. 	Project components with contemporary designs.	Landscaping and Replantation	<ul style="list-style-type: none"> • Preserve and maintain existing cultural features, such as historical structures, indigenous plants, and traditional landscapes. • Incorporate indigenous plant species and traditional landscaping techniques to reflect and honor the cultural heritage of the area.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts on Landscaping			
<ul style="list-style-type: none"> • Permanent visual changes to local environment. • Potential views blocking impact for the sightseeing. • Erosion • Increased runoff entering the Taung Thaman Lake. • Light Pollution 	<ul style="list-style-type: none"> • Development of project's various facilities • Night-time lighting from TTMS Resort 	<p>Integration of Green Spaces and Landscaping Facilities</p> <p>Reduction of Decorative Lighting</p> <p>Use of Covered Bulbs with Downward Light Emission</p>	<ul style="list-style-type: none"> • Integrate green spaces and landscaping facilities throughout the resort to enhance aesthetics, provide recreational areas, and promote environmental sustainability. • Incorporate native plants and trees into landscaping designs to preserve biodiversity and support local ecosystems. • Evaluate existing lighting fixtures and reduce decorative lighting where possible to minimize light pollution and energy consumption. • Implement lighting control systems and timers to regulate lighting levels and reduce unnecessary illumination during off-peak hours • Install covered bulbs with downward light emission to minimize light spillage and glare, thereby reducing light pollution and preserving nighttime visibility. • Select lighting fixtures with shielded designs that direct light downward and prevent upward light dispersion.
Impacts from Solid Waste Generations			
<ul style="list-style-type: none"> • Contaminated runoff and plastic wastes 	<ul style="list-style-type: none"> • Domestic wastes from resort operation. 	<p>Encouraging Staff Adoption of Recycling and Reuse Practices</p>	<ul style="list-style-type: none"> • Conduct training sessions and awareness programs to educate staff about the importance of recycling and reuse practices.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
<ul style="list-style-type: none"> • Pests and vectors attracted to garage and food waste • Foul smell and serious health issues to the nearby communities. • Skin health issues when project's employees are exposed to the hazardous wastes • Degradation of soil quality. • Degradation of Taung Thaman Lake's water quality 	<ul style="list-style-type: none"> • Organic wastes or food residues from bars, kitchens and restaurant. • Hazardous wastes from pesticides, bleaches, stain removers and chemicals use for the swimming pools. <p>Generation of hazardous waste such as bulbs (CFLs), batteries and diesel</p>	<p>Providing Adequate Bins and Skips and Developing Waste Segregation Practices</p> <p>Prohibiting Waste Disposal into Taung Thaman Lake</p>	<ul style="list-style-type: none"> • Establish incentives and recognition programs to reward staff members who actively participate in recycling and waste reduction efforts • Install adequate bins and skips in convenient locations throughout the resort premises for proper waste disposal. • Implement waste segregation practices by providing separate bins for different types of waste, such as recyclables, organic waste, and hazardous materials. • Clearly label bins and provide guidance on proper waste segregation to encourage compliance among staff and guests • Enforce strict policies and regulations prohibiting the disposal of solid and hazardous waste into Taung Thaman Lake. • Educate staff and guests about the importance of preserving water bodies and the adverse effects of waste disposal on the environment
Impacts on Local Economy			
<ul style="list-style-type: none"> • Job opportunities for the local communities 	<ul style="list-style-type: none"> • Development of the resort. 	<p>Priority Job Opportunities for Local People</p>	<ul style="list-style-type: none"> • Prioritize hiring local residents for job vacancies within the resort, including positions in administration, hospitality, maintenance, and management.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
<ul style="list-style-type: none"> General economic conditions of the local communities will be improved. Retail trades of local communities near the resort area will be developed with the development of other small business relating to new settlement. Local community around the resort will be developed by the direct and indirect business opportunities relating to tourism development by the resort. 	<ul style="list-style-type: none"> Visitors to the project. 	<p>Corporate Social Responsibility (CSR) Programs for Economic Development</p> <p>Support for Tourism-Related Business</p>	<ul style="list-style-type: none"> Provide training and skill development programs to enhance the employability of local workforce and promote career advancement opportunities. Implement CSR programs focused on economic development initiatives that benefit the local community, such as vocational training, entrepreneurship support, and microfinance programs. Foster partnerships with local stakeholders, government agencies, and non-profit organizations to maximize the impact of CSR initiatives on economic empowerment and sustainable development. Provide opportunities for local businesses to showcase their products and services within the resort premises, such as souvenir shops, cultural performances, and culinary experiences. Facilitate networking events, trade fairs, and promotional activities that connect tourists with local businesses and artisans, enhancing the overall visitor experience and supporting the local economy.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
<ul style="list-style-type: none"> Flow of goods and trades will be improved by the development of new roads by the resort. 			
Impacts on Ambient Air Quality			
<ul style="list-style-type: none"> Generation of greenhouse gases. Deterioration of Air Quality 	<ul style="list-style-type: none"> Emergency use of diesel generators. Smoke from restaurant and kitchen. Increased vehicular traffic 	<p>Tree Planting and Landscaping</p> <p>Minimizing Ground-Level Pollution</p> <p>Implementing Speed Limits</p>	<ul style="list-style-type: none"> Implement extensive tree planting and landscaping initiatives throughout the resort premises to enhance air quality and provide natural filtration of pollutants. Establish green spaces and vegetated buffers to absorb pollutants, mitigate dust, and improve overall air quality within the resort environment. Install high chimneys for the resort's combustion-based facilities, such as generators, to facilitate the dispersion of emissions and minimize ground-level air pollution. Ensure that chimney height and design comply with regulatory standards and best practices for minimizing air pollutant concentrations Establish and enforce speed limits for vehicles within the resort premises to reduce emissions of air pollutants from vehicular traffic.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
Impacts on Water Body			
<ul style="list-style-type: none"> Contaminated runoff Degrading the quality of Taung Than Man Lake Degradation of aquatic life quality in Taung Thaman Lake. Depletion of groundwater 	<ul style="list-style-type: none"> Domestic waste water from resort components and activities in operation period. Sanitary Sewage. Groundwater use for resort operation activities 	Adoption of Water Reduction Processes	<ul style="list-style-type: none"> Implement water reduction processes and technologies to minimize water usage within the resort premises, including efficient irrigation systems, leak detection, and water recycling initiatives.
		Utilization of Water-Efficient Fixtures	<ul style="list-style-type: none"> Install water-efficient fixtures and appliances, such as low-flow toilets, faucets, and showerheads, to reduce water consumption and minimize strain on local water resources
		Awareness Programs for Water Utilization	<ul style="list-style-type: none"> Conduct awareness programs and educational campaigns to promote responsible water utilization practices among resort guests, employees, and stakeholders
		Provision of Covering for Drainages	<ul style="list-style-type: none"> Install covers or protective barriers for drainages and stormwater outlets to prevent the entry of debris, pollutants, and sediment into nearby water bodies.
		Installation of Wastewater Treatment Units	<ul style="list-style-type: none"> Install wastewater treatment units or systems to treat wastewater generated within the resort premises before disposal. Ensure that wastewater treatment facilities comply with regulatory standards and are designed to effectively remove contaminants and pollutants.

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
		Treatment of Wastewater Before Disposal	<ul style="list-style-type: none"> • Treat wastewater using appropriate treatment methods, such as filtration, sedimentation, and biological treatment, to remove impurities and ensure that discharged water meets quality standards.
		Cooperation with MCDC for Sanitary Sewage Disposal	<ul style="list-style-type: none"> • Collaborate with local authorities, such as the Mandalay City Development Committee, to ensure proper management and disposal of sanitary sewage in compliance with municipal regulations and guidelines.
		Ensuring Quality of Water for Dust Suppression	<ul style="list-style-type: none"> • Use clean and treated water for dust suppression activities to minimize the introduction of contaminants and pollutants into the environment.
		Adoption of Groundwater recharge practices	<ul style="list-style-type: none"> • Implement groundwater recharge practices, such as rainwater harvesting, permeable pavement, and green infrastructure, to replenish groundwater resources and sustain local hydrological systems.
Impacts from Fire Hazards			
<ul style="list-style-type: none"> • Serious injuries and fatalities. • Damage to Property. • Mental damage. 	<ul style="list-style-type: none"> • Kitchen and Cooking Equipment • Electrical Equipment • Smoking • Intentional fires 	Staff Training and Awareness	<ul style="list-style-type: none"> • Conduct regular fire safety training sessions for all resort staff members to educate them about fire hazards, prevention measures, and emergency procedures. • Ensure that staff are familiar with the location and operation of fire alarm systems, firefighting equipment, and emergency exits. • Install fire extinguishers at strategic locations throughout the resort and ensure that they are easily accessible and properly maintained.
		Availability and Training on Fire Extinguishers	

Managed environmental impact	Source of impact	Mitigation Measures	Management Action
	<ul style="list-style-type: none"> Storage (including fuel) 	<p>Electrical Safety Checks</p> <p>Designated Smoking Area</p> <p>Clear Exit Routes</p> <p>Safe Storage Practices</p> <p>Legal Requirements and Additional Measures</p>	<ul style="list-style-type: none"> Provide training to staff on the proper use of fire extinguishers and when to initiate firefighting measures in case of a fire emergency. Conduct regular inspections and maintenance of electrical systems, wiring, and equipment to identify and address potential fire hazards. Ensure that electrical installations comply with safety standards and regulations to prevent electrical fires. Designate specific smoking areas with proper receptacles and ashtrays to contain and minimize the risk of accidental fires caused by discarded cigarette butts or smoking materials Maintain clear and unobstructed exit routes and emergency exits throughout the resort premises to facilitate safe evacuation in the event of a fire. Display illuminated exit signs and directional arrows to guide guests and staff to the nearest exits during emergencies. Store hazardous materials in designated storage areas equipped with proper ventilation, fire-resistant containers, and spill containment measures. Ensure compliance with Myanmar fire Brigade regulations, building codes, and legal requirements applicable to fire prevention and emergency preparedness.

7.3 Environmental and Social Monitoring Plan

Integration of environmental monitoring processes with comprehensive environmental management and mitigation measures is imperative. Environmental monitoring plan, spearheaded by the Environmental Management Team (EMT), play a pivotal role in this endeavor. Their dedicated efforts aim to uphold environmental standards and minimize adverse effects resulting from project activities.

The Environmental Management Team (EMT) members are entrusted with a range of responsibilities, as outlined in table 7.1 . These tasks encompass a diverse array of activities, from conducting field assessments to analyzing data and recommending mitigation strategies. While many of these tasks may be executed by third-party entities or through the formation of specialized monitoring groups, the core oversight and coordination lie with the EMT.

Furthermore, the costs and logistical management associated with environmental monitoring initiatives are the responsibility of the project proponent. This financial commitment underscores the project's dedication to environmental stewardship and underscores its commitment to adhering to regulatory requirements and industry best practices. The proposed monitoring plan is shown as following tables.

Table 7. 2 Monitoring Plan for Construction Phase

Category	Item	Location	Frequency	Responsible Organization
Air Quality (the results will compare with NEQEG)	NO ₂ , SO ₂ , PM ₁₀ , PM _{2.5} , O ₃ , CO	Adjacent to the construction site within the project confines. (21° 53' 5.83" N, 96° 03' 50.36" E)	Bi-annually	Project Proponent
Ground Water Quality (the results will compare with NDWQS and baseline results)	Total Coliforms, Fecal Coliforms, Color, Turbidity, Arsenic, Lead, Nitrate, Manganese, Chloride,	Groundwater Origins within the Project Area 21° 53' 16.98" N 96° 03' 46.4" E	Once per year	Project Proponent

	Hardness, Iron, pH, Sulphate, Total Dissolved Solids			
Wastewater (the results will compare with NEQEG and baseline results)	BOD, COD, Oil and Grease, pH, Total Coliform Bacteria, Total Nitrogen, Total Phosphorus, Total Suspended Solids	Treated wastewater discharge outlet (21° 53' 7.12" N , 96° 03' 44.08" E)	Quarterly per year	Project Proponent
Waste	Amount and kind of construction waste	Every disposal Area within project.	Monthly	Project Proponent
Noise and Vibration	dba and Vibration meter	Adjacent to the construction site within the project confines. (21° 53' 5.83" N, 96° 03' 50.36" E)	Once per year	Project Proponent
Occupational Health and Safety	Record of accidents and infectious diseases	Work site and office	Monthly	Project Proponent
Community Health and Safety	Record of accidents and infectious diseases related to the community.	Around the project area	Monthly	Project Proponent

Table 7. 3 Environmental Management Plan for Operation Phase

Category	Item	Location	Frequency	Responsible Organization
Air Quality (the results will compare with NEQEG)	NO ₂ , SO ₂ , PM ₁₀ , PM _{2.5} , O ₃ , CO	Core Location within the Project Premises. (21° 53' 15.93" N 96° 03' 45.08" E)	Once per year	Project Proponent
Ground Water Quality (the results will compare with NDWQS and baseline results)	Total Coliforms, Fecal Coliforms, Color, Turbidity, Arsenic, Lead, Nitrate, Manganese, Chloride, Hardness, Iron, pH, Sulphate, Total Dissolved Solids	Groundwater Origins within the Project Area. 21° 53' 16.98" N 96° 03' 46.4" E	Bi-annually	Project Proponent
Final Discharge Wastewater (the results will compare with NEQEG)	BOD, COD, Oil and Grease, pH, Total Coliform Bacteria, Total Nitrogen, Total Phosphorus, Total Suspended Solids	Wastewater intake point prior to discharge into Taung Thaman Lake (21° 53' 7.12" N , 96° 03' 44.08" E)	Quarterly per year	Project Proponent
Surface Water Quality (this result will be compared with the baseline data when EIA study)	BOD, COD, Oil and Grease, pH, Total Coliform Bacteria, Total Nitrogen, Total Phosphorus, Total Suspended Solids	Water body near the discharge outlet of the project. (21° 53' 7.12" N , 96° 03' 44.08" E)	Bi-annually	Project Proponent
Waste	Volume of non-hazardous and	Each waste disposal site within the project.	Monthly	Project Proponent

Category	Item	Location	Frequency	Responsible Organization
	hazardous waste handled.			
Noise and Vibration	dba and Vibration meter	Core Location within the Project Premises (21° 53' 15.93" N 96° 03' 45.08" E)	Once a year	Project Proponent
Occupational Health and Safety	Record of accidents and infectious diseases.	Perimeter of the project site.	Monthly	Project Proponent
Training and skills development	The implementation status for CSR activities such as community support program.	Perimeter of the project site.	Once a year	Project Proponent
Fire Safety and Emergency	Fire Extinguishers and their accessibility, Emergency Lighting, Emergency exit routes and signage, Maintenance and inspection records for fire safety equipment.	Every element in the project domain.	Monthly	Project Proponent
Grievance Mechanism	Responsiveness and timeliness of	Feedback collection point	Monthly	Project Proponent

Category	Item	Location	Frequency	Responsible Organization
	grievance handling, Confidentiality and privacy protections for those submitting grievances, Transparency in the grievance process and outcomes.			

7.4 Preparation of the Environmental Monitoring Report

As the description of the paragraph 108 of the Environmental Impact Assessment procedure (2015), Taung Thaman Thitsar Co., Ltd. will submit monitoring reports to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMoP, or periodically as prescribed by the Ministry.

The contents of monitoring reports should incorporate the latest analytical findings and encompassing monitoring conditions, as outlined below:

1. Introduction to the documentation and background of environmental studies.
2. Objective of the Monitoring.
3. Summary of Monitoring Activities.
4. Project activities (including a synopsis of construction or operational work).
5. Challenges encountered in implementing the Environmental Management Plan (EMP), along with recommendations for rectifying these issues and proposed steps to prevent or mitigate similar future challenges.
6. Accidents or incidents related to occupational, community health and safety, and environmental concerns.
7. Environmental parameter monitoring data, detailing sampling dates, methodologies employed for sampling and analysis, sampling points, and laboratory results.
8. Photographic documentation.

7.5 Allocation for Environmental Management and Monitoring Plan

The Allocation for Environmental Management and Monitoring is pivotal for resort projects. It ensures responsible stewardship and sustainability amidst development. By allocating resources, we mitigate impacts on fragile ecosystems and uphold environmental integrity.

7.5.1 Environmental Management Budget Proposal

The project encompasses several essential mitigation measures, notably the construction of a centralized wastewater treatment plant, implementation of fire safety protocols, and integration of energy-efficient infrastructure. These measures are incorporated within the overall project cost, as outlined in the accompanying table. Detailed costing for each mitigation measure will be meticulously calculated during the advanced design phase to ensure accuracy and thorough financial planning.

Table 7. 4 Environmental Management Budget

No.	Item	Budget (USD)	
		During Construction	During Operation
1.	Designs Stage Costs	10,000/	2,500/ year
2.	Wastewater Treatment Plant	15,000/	2,500/ year
3.	Fire Safety Protocols	15,000/	2,500/ year
4.	Environmental features (including landscaping, control pollution, noise and vibration, waste disposal, training and education)	10,000	2,500/ year

These expenditures are aligned with environmental management frameworks and could involve:

- **Design Stage Costs:** This expenditure may cover the construction of buildings and structures that adhere to the historical, cultural, and architectural context, with a specific focus on preserving cultural heritage. Additionally, it includes the installation of energy-efficient materials within the project. Operational costs encompass maintenance expenses throughout the operational phase, ensuring sustained efficiency and functionality.
- **Wastewater Treatment Plant:** This expense accounts for the construction of a wastewater treatment plant designed to manage all effluent produced by the project, alongside operational maintenance costs. Proper implementation of this system can

effectively prevent direct discharge of wastewater into the lake, thereby mitigating the project's environmental impact.

- **Fire Safety Protocols** : Costs include the installation of fire detection and suppression systems, procurement of firefighting equipment, and training programs for staff. Proper execution of these protocols enhances overall safety, reduces the risk of fire-related incidents, and ensures compliance with regulatory standards.
- **Environmental Features**: Costs include landscaping for biodiversity preservation and water conservation, implementation of measures to control air quality, noise, and vibration levels, establishment of waste disposal systems, and development of training and education initiatives for stakeholders.

If this management expenses surpass the allocated budget during both the construction and operation phases, the project proponent will assume responsibility for covering the excess costs.

7.5.2 Environmental Monitoring Budget Proposal

In addressing the budgetary considerations for environmental monitoring prior to and during the construction and operational phases, the primary monitoring expenses pertain to field measurements, encompassing assessments of air quality, water quality, and noise levels. These expenses will be entirely allocated for the items delineated in Tables 7.4 and 7.5, with any shortfall in funds from this allocation and the project proponent will be responsible for covering the additional expenses.

Table 7. 5 Environmental Monitoring Budget

No.	Item	Budget (USD) per year	
		During Construction	During Operation
1.	Air Quality	1,200/	700/
2.	Water Body (Including Ground water, wastewater and surface water)	600/	1,000/
3.	Waste	500/	1,500/
4.	Noise and Vibration	300	300/
5.	Occupational Health and Safety	3,000/	1,000/
6.	Community Health and Safety	1,500/	1,000/
7.	Fire Safety and Emergency	1,000/	600/
8.	Training and Skills development	2,000/	2,000/

7.6 Emergency Response Plan

The primary purpose of this Emergency Response Plan is to establish a structured framework for identifying, assessing, and mitigating potential risks and emergencies that may occur within our resort environment. The objectives include:

- Prioritizing the safety and security of guests, staff, and property during emergency situations.
- Minimizing the impact of emergencies on resort operations and guest experience through prompt and effective response measures.
- Establishing clear communication channels and protocols for disseminating information to all stakeholders during emergencies.
- Ensuring compliance with relevant regulations and standards governing emergency preparedness and response in the hospitality industry.
- Fostering a culture of preparedness, vigilance, and continuous improvement through regular training, drills, and plan updates.

7.6.1 Scope and Applicability

This Emergency Response Plan applies to all areas and facilities within the Taung Thaman Resort premises, including guest accommodations, recreational areas, dining facilities, administrative offices, and service areas. It encompasses a wide range of potential emergencies, including but not limited to fire emergencies, earthquake, cyclone, power outages and security threats (e.g. terrorism, active shooter incidents).

7.6.2 Emergency Management Team

This Emergency Management Team (EMT) is responsible for overseeing and coordinating all aspects of emergency preparedness, response, and recovery efforts within Taung Thaman Resort. Their roles and responsibilities are as follow:

Emergency Coordinate (EC)

- The EC serves as the overall leader of the Emergency Management Team and is responsible for coordinating all emergency response activities.
- Key responsibilities include activating the Emergency Response Plan, overseeing the response efforts, and liaising with external agencies and authorities.
- The EC possesses the authority to make critical decisions regarding emergency response and resource allocation.

Safety Officer



- The Safety Officer is responsible for monitoring and assessing safety hazards and risks within the resort environment.
- Duties include conducting regular safety inspections, implementing preventive measures, and ensuring compliance with safety regulations.
- During emergencies, the Safety Officer assists the EC in implementing safety protocols and coordinating evacuation procedures.

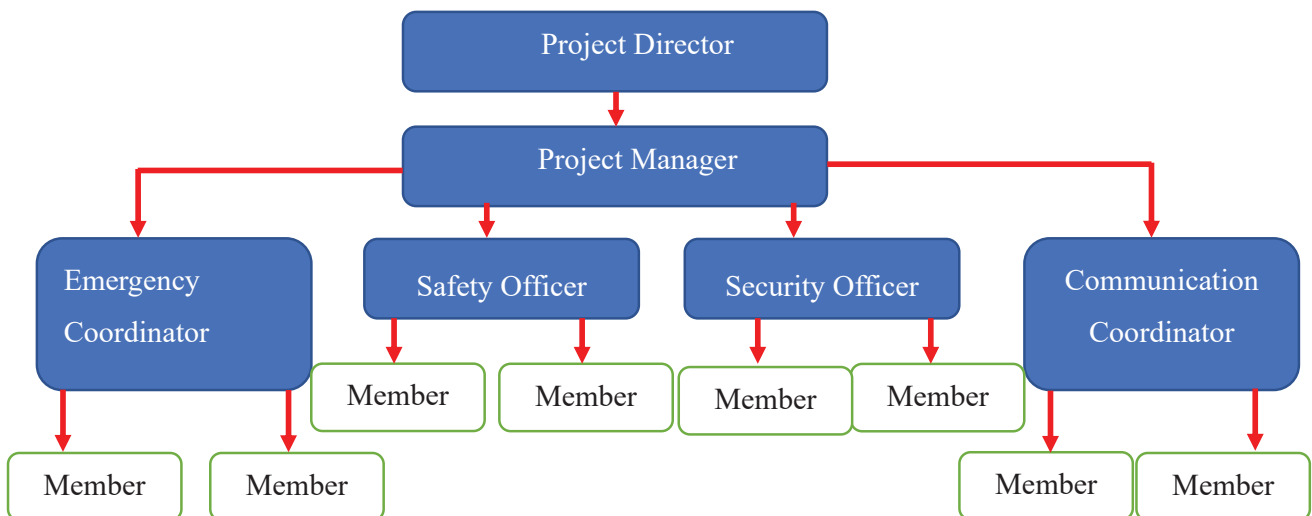
Security Officer

- The Security Manager is responsible for maintaining a secure and safe environment within the resort premises.
- Duties include implementing security protocols, monitoring access control systems, and coordinating security personnel.
- During security-related emergencies, the Security Manager collaborates with law enforcement agencies and implements crisis management procedures.

Communication Coordinator

- The Communications Coordinator is responsible for managing internal and external communications during emergencies.
- Responsibilities include maintaining communication channels, disseminating critical information, and coordinating messaging with stakeholders.
- The Communications Coordinator ensures that staff members and guests receive timely updates and instructions throughout the emergency response process.

When the project is executed, designated experts for the Emergency Management Team (EMT) will be appointed and structured according to the outlined framework.



7.6.3 Communication Protocols

- The Emergency Management Team will maintain regular communication channels using designated methods (e.g., two-way radios, mobile phones, intercom systems).
- All team members are responsible for promptly reporting emergency situations to the Emergency Coordinator and following established communication protocols.
- During emergencies, the Communications Coordinator will disseminate information and instructions to staff members and guests using multiple communication channels.

7.6.4 Training and Preparedness

- The Emergency Management Team will undergo regular training sessions and drills to enhance preparedness and response capabilities.
- Training topics may include emergency procedures, incident command system, communication protocols, and resource management.
- Drills will be conducted periodically to test the effectiveness of the Emergency Response Plan and identify areas for improvement.

7.6.5 Emergency Procedures

At Taung Thanman Resort, we recognize the paramount importance of proactive emergency preparedness to safeguard the well-being of guests, staff, and property. As part of our commitment to ensuring a safe and secure environment, we prepare comprehensive emergency procedures designed to address various potential hazards and emergencies that may arise within our premises.

7.6.5.1 Fire Emergency Procedures

The project prepare meticulous planning of evacuation procedures, considering the property layout and the diverse needs of occupants. Clear evacuation routes will be marked throughout the hotel and resort, guiding guests and staff to designated assembly points outside the premises. Strategic placement of fire suppression equipment, including fire extinguishers and sprinkler systems, will be implemented for immediate use in containing and extinguishing fires. Our staff members will undergo comprehensive training to prioritize guest safety while efficiently addressing fire-related incidents. Additionally, we prepare the implementation of robust communication protocols to ensure the prompt activation of fire alarms and notification to emergency services, facilitating swift response and coordinated efforts to mitigate potential risks.

7.6.5.2 Medical Emergency Procedures

At Taung Thaman resort, prioritize the urgent and compassionate response to medical emergencies. First aid stations, strategically located across the property, will be equipped with essential supplies and staffed by trained personnel capable of administering immediate assistance to those in need. Emergency contact information for local medical facilities and emergency services will be readily accessible to facilitate swift response and transportation of individuals requiring advanced medical care. Our staff members will undergo regular training in CPR, first aid, and emergency response protocols, ensuring their readiness to assess and address medical incidents effectively. We will prepare establishing clear communication channels to enable prompt notification of management and relevant authorities, facilitating coordinated response efforts and the provision of necessary support to individuals affected by medical emergencies.

7.6.5.3 Natural Disasters

At Taung Thaman resort, proactive preparedness and swift response measures are essential to address natural disasters such as earthquakes, floods and cyclone. Proposed earthquake response procedures will include "Drop, Cover, and Hold On" protocols followed by orderly evacuation to designated safe areas. In the event of cyclones, evacuation routes will guide guests and staff to higher ground or predetermined safe zones, adhering to established warning systems. Similarly, preparations for hurricanes and tropical storms will involve shelter-in-place protocols and proactive measures to mitigate potential wind and flood damage. We will prepare timely dissemination of alerts to enable guests and staff to stay informed and take appropriate actions to safeguard themselves and the property.

7.6.5.4 Evacuation Procedures

Integral to our emergency response plan are clear and well-defined evacuation procedures. We propose assigning specific roles and responsibilities to staff members to assist with evacuation efforts, crowd control, and post-emergency accounting. Special considerations will be made for guests with disabilities or special needs, ensuring that they receive the necessary assistance and accommodations during evacuations. Regular drills and training sessions will familiarize staff with evacuation procedures and reinforce their roles in emergency response scenarios.

7.6.6 Training and Drills

7.6.6.1 Staff Training

The project will prepare comprehensive training sessions for staff members to acquire CPR and first aid certification, ensuring readiness to address medical emergencies effectively. Staff



will undergo training on emergency response procedures, including evacuation protocols and communication strategies, to ensure swift and coordinated responses during emergencies. Tailored training sessions will be conducted for staff members based on their roles and responsibilities during emergencies, ensuring clarity and efficiency in their actions.

7.6.6.2 Guest Awareness Programs

Regular briefings and presentations will be organized for guests on emergency procedures and evacuation routes, enhancing guest preparedness and cooperation during emergencies. Informational materials will be provided in guest rooms and common areas regarding emergency protocols and contact information, empowering guests to take appropriate actions in emergency situations.

7.6.6.3 Emergency Drills

The project will implement a schedule for conducting emergency drills at varying times and scenarios to ensure staff readiness and procedural familiarity. Drills will be evaluated, and feedback sessions will be conducted to identify areas for improvement, fostering a culture of continuous improvement and preparedness. Mandatory participation of all staff members in emergency drills will be enforced to ensure familiarity with procedures and roles, enhancing overall emergency response effectiveness.

7.6.6.4 Incident Simulation

Realistic emergency scenarios will be created to simulate various disaster situations, enabling staff to practice response protocols in a controlled environment. Mock evacuations will be conducted to assess response times and the efficiency of evacuation procedures, allowing for refinement and optimization of evacuation routes and protocols. Emphasis will be placed on coordination and communication among different departments during simulated incidents, ensuring seamless collaboration and response during real emergencies.

7.6.7 Resources and Equipment

7.6.7.1 Fire Safety Equipment

The project will prepare the comprehensive installation of fire safety equipment including fire extinguishers, smoke detectors, and sprinkler systems throughout the premises. Regular inspections and maintenance schedules will be implemented to ensure the functionality and reliability of these systems, adhering to regulatory standards and industry best practices.

7.6.7.2 Medical Supplies

In preparation for medical emergencies, the project will prepare the strategic placement of first aid kits stocked with essential medical supplies in guest rooms, common areas, and staff quarters. Additionally, defibrillators and other life-saving equipment will be readily accessible, with staff trained in their proper use and maintenance to ensure swift and effective response to medical incidents.

7.6.7.3 Communication Systems

Effective communication is vital during emergencies. Therefore, the project plan to invest in reliable communication systems such as two-way radios, emergency phones, and public address systems. Backup power sources and redundant communication channels will be established to ensure operational continuity, facilitating swift and efficient communication among staff members and with emergency services.

7.6.7.4 Evacuation Aids

Clear signage indicating evacuation routes, assembly points, and emergency exits will be prominently displayed throughout the premises, aiding occupants during evacuations. Moreover, we will provide evacuation chairs and other mobility aids to assist guests with disabilities or mobility limitations, ensuring their safety and swift evacuation during emergencies.

7.6.8 Review and Evaluation

we will prioritize periodic review and evaluation of the Emergency Response Plan to ensure its effectiveness in addressing potential emergencies. We propose a structured approach to this review process, which will involve assessing the effectiveness of existing procedures and protocols in real-world scenarios. By analyzing past emergency events and response efforts, we aim to identify areas for improvement and refinement within our Emergency Response Plan.

Moving forward, we will establish mechanisms for gathering feedback from staff members, guests, and external stakeholders regarding their experiences and observations during emergency situations. This feedback will be instrumental in identifying strengths and weaknesses in our response protocols and informing necessary adjustments to enhance overall effectiveness.

Furthermore, we propose the implementation of regular tabletop exercises and simulation drills to test the responsiveness of our Emergency Response Plan under various scenarios. These exercises will provide valuable insights into potential gaps or deficiencies in our procedures, allowing us to address them proactively and improve our readiness for emergencies.

As part of our commitment to continuous improvement, we will update the Emergency Response Plan based on lessons learned from past incidents and changing circumstances. This iterative process will ensure that our protocols remain adaptive and responsive to evolving threats and challenges.

7.6.9 Conclusion

In conclusion, the Emergency Response Plan at Taung Thaman Resort, underscores our unwavering commitment to guest and staff safety. Through proactive planning, clear communication, and continuous improvement, we ensure a swift and effective response to emergencies. Our dedication to safety remains steadfast as we uphold the highest standards of preparedness and hospitality. Together, we strive to provide a secure and reassuring environment for all who visit Taung Thaman Resort.

7.7 OCCUPATIONAL SAFETY AND HEALTH

7.7.1 Introduction

Occupational health and safety issues are associated with the construction of the project. Proponent and its construction contractor are obliged to implement all reasonable precautions to protect the health and safety of workers. This section provides guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. The focus is placed on the construction and decommissioning activities of the project.

Proponent should hire contractors that have the technical capability to manage the occupational health and safety issues of employees, extending the application of the hazard management activities through formal procurement agreements. Preventive and protective measures should be introduced according to the following order of priority:

1. Eliminating the hazard by removing the activity from the work process.
2. Controlling the hazard at its source through use of engineering controls.
3. Minimizing the hazard through design of safe work systems and administrative or institutional control measures.
4. Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

7.7.2 Over-Exertion

Over-exertion, and ergonomic injuries and illnesses, such as repetitive motion, over-exertion, and manual handling, are among the most common causes of injuries in construction and decommissioning sites. Recommendations for their prevention and control include:

1. Training of workers in lifting and materials handling techniques in construction and decommissioning projects, including the placement of weight limits above which mechanical assists or two-person lifts are necessary
2. Planning work site layout to minimize the need for manual transfer of heavy loads
3. Selecting tools and designing work stations that reduce force requirements and holding times, and which promote improved postures, including, where applicable, user adjustable work stations
4. Implementing administrative controls into work processes, such as job rotations and rest or stretch breaks

7.7.3 Slips and Falls

Slips and falls on the same elevation associated with poor housekeeping, such as excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground, are also among the most frequent cause of lost time accidents at construction and decommissioning sites. Recommended methods for the prevention of slips and falls from, or on, the same elevation include:

1. Implementing good house-keeping practices, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths
2. Cleaning up excessive waste debris and liquid spills regularly
3. Locating electrical cords and ropes in common areas and marked corridors
4. Use of slip retardant footwear.

7.7.4 Work in Heights

Falls from elevation associated with working with ladders, scaffolding, and partially built or demolished structures are among the most common cause of fatal or permanent disabling injury at construction or decommissioning sites. If fall hazards exist, a fall protection plan should be in place which includes one or more of the following aspects, depending on the nature of the fall hazard:

1. Training and use of temporary fall prevention devices, such as rails or other barriers able to support a weight of 200 pounds, when working at heights equal or greater

than two meters or at any height if the risk includes falling into operating machinery, into water or other liquid, into hazardous substances, or through an opening in a work surface.

2. Training and use of personal fall arrest systems, such as full body harnesses and energy absorbing lanyards able to support 5000 pounds (also described in this section in Working at Heights above), as well as fall rescue procedures to deal with workers whose fall has been successfully arrested. The tie in point of the fall arresting system should also be able to support 5000 pounds
3. Use of control zones and safety monitoring systems to warn workers of their proximity to fall hazard zones, as well as securing, marking, and labeling covers for openings in floors, roofs, or walking surfaces.

7.7.5 Struck by objects

Construction and demolition activities may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.

Techniques for the prevention and control of these hazards include:

1. Using a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels
2. Conducting sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable
3. Maintaining clear traffic ways to avoid driving of heavy equipment over loose scrap
4. Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as hand rails and toe boards to prevent materials from being dislodged
5. Evacuating work areas during blasting operations, and using blast mats or other means of deflection to minimize fly rock or ejection of demolition debris if work is conducted in proximity to people or structures
6. Wearing appropriate PPE, such as safety glasses with side shields, face shields, hard hats, and safety shoes.

7.7.6 Moving Machinery

Vehicle traffic and use of lifting equipment in the movement of machinery and materials on a construction site may pose temporary hazards, such as physical contact, spills, dust, emissions, and noise. Heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. Center-articulated vehicles create a significant

impact or crush hazard zone on the outboard side of a turn while moving. Techniques for the prevention and control of these impacts include:

1. Planning and segregating the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic through the use of one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic
2. Ensuring the visibility of personnel through their use of high visibility vests when working in or walking through heavy equipment operating areas, and training of workers to verify eye contact with equipment operators before approaching the operating vehicle
3. Ensuring moving equipment is outfitted with audible back-up alarms
4. Using inspected and well-maintained lifting devices that are appropriate for the load, such as cranes, and securing loads when lifting them to higher job-site elevations.

7.7.7 Dust

1. Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements
2. PPE, such as dust masks, should be used where dust levels are excessive

7.7.8 Confined Spaces and Excavations

Utility vaults, tanks, sewers, pipes, access shafts, ditches and trenches are considered a confined space when access or egress is limited. The occupational hazards associated with confined spaces and excavations in construction and decommissioning sites should be prevented according to the following recommendations:

1. Controlling site-specific factors which may contribute to excavation slope instability including, for example, the use of excavation dewatering, side-walls support, and slope gradient adjustments that eliminate or minimize the risk of collapse, entrapment, or drowning
2. Providing safe means of access and egress from excavations, such as graded slopes, graded access route, or stairs and ladders
3. Avoiding the operation of combustion equipment for prolonged periods inside excavations areas where other workers are required to enter unless the area is actively ventilated

7.7.9 Other Site Hazards

Construction and decommissioning sites may pose a risk of exposure to dust, chemicals, hazardous or flammable materials, and wastes in a combination of liquid, solid, or gaseous forms, which should be prevented through the implementation of project specific plans and other applicable management practices, including:

1. Use of specially trained personnel to identify and remove waste materials from tanks, vessels, processing equipment or contaminated land as a first step in decommissioning activities to allow for safe excavation, construction, dismantling or demolition
2. Use of specially trained personnel to identify and selectively remove potentially hazardous materials in building elements prior to dismantling or demolition
3. Use of waste-specific PPE based on the results of an occupational health and safety assessment, including clothing/protective suits, gloves and eye protection

7.7.10 Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems.

PPE is considered to be a last resort that is above and beyond the other facility controls and provides the worker with an extra level of personal protection. Following table presents general examples of occupational hazards and types of PPE available for different purposes.

Recommended measures for use of PPE in the workplace include:

1. Active use of PPE if alternative technologies, work plans or procedures cannot eliminate, or sufficiently reduce, a hazard or exposure
1. Identification and provision of appropriate PPE that offers adequate protection to the worker, co-workers, and occasional visitors, without incurring unnecessary inconvenience to the individual
2. Proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out.
3. Proper use of PPE should be part of the recurrent training programs for employees.

7.8 Grievance and Redress Mechanism

As Taung Thaman Resort considers avenues for enhancing guest satisfaction and employee engagement, it is suggested that the project explores the implementation of a Grievance Mechanism. Such a mechanism can serve as a proactive measure to address concerns and

feedback from guests, employees, and stakeholders alike. By establishing accessible channels for expressing grievances, the project can foster an environment of transparency, accountability, and continuous improvement within the resort community. Suggestions include offering dedicated email addresses, hotline numbers, suggestion boxes, and in-person meetings to ensure grievances are heard and addressed promptly and with empathy. Embracing these suggestions can contribute to fostering trust, open communication, and mutual respect among all individuals interacting with the resort project.

7.9 Establishment of Grievance Channels

1. QR Code Grievance Systems :

- Taung Thaman Resort will implement a QR code system for guests, employees, and stakeholders to submit grievances conveniently, with options available in both Burmese and English languages.
- QR codes will be prominently displayed throughout the resort, including in guest rooms and common areas, allowing individuals to scan and access the grievance submission platform
- A designated grievance officer or team will be responsible for monitoring and responding to grievances submitted through the QR code system promptly.



2. Hotline Numbers:

- Taung Thaman Resort will establish hotline numbers that individuals can call to report grievances or seek assistance. These hotline numbers will be staffed by trained personnel who will be available to receive grievances and provide necessary support or guidance.
- Hotline numbers will be operational 24/7 to ensure accessibility and immediate response to urgent grievances or concerns.



3. Suggestion Boxes:

- Suggestion boxes will be placed strategically in various locations throughout the resort, such as the lobby, restaurants, and recreational areas. Guests, employees, and stakeholders can submit written grievances or suggestions anonymously through these suggestion boxes.
- Designated staff members will regularly check and collect submissions from the suggestion boxes and forward them to the grievance officer or team for review and resolution.

4. In-Person Meetings:

- Taung Thaman Resort will designate specific times and locations for in-person meetings with grievance officers or representatives. Guests, employees, and stakeholders who prefer face-to-face interaction or wish to discuss their grievances in person can schedule appointments or visit designated grievance offices.
- Trained staff members will be available to facilitate these meetings, ensuring confidentiality and providing necessary support to individuals expressing grievances.

7.9.1 Timely Response and Acknowledgment

1. Acknowledgement of Grievances

- Upon receipt of a grievance, Taung Thaman Resort will ensure prompt acknowledgment to the individual who submitted the grievance. This acknowledgment will express gratitude for the feedback or concern raised.
- Acknowledgment will be communicated through the same channels through which the grievance was submitted, whether it's email, hotline, suggestion box, or in-person meeting.

2. Provision of Estimated Timeline

- Following acknowledgment, Taung Thaman Resort will provide the individual with an estimated timeline for the resolution of their grievance. This timeline will reflect the complexity and urgency of the issue raised.
- Clear communication of the estimated timeline will manage expectations and reassure the individual that their grievance is being addressed promptly and seriously.

3. Regular Updates on Grievance Status

- Throughout the resolution process, Taung Thaman Resort will provide regular updates to the individual on the status of their grievance. Updates will include progress made, challenges encountered, and any additional information required for resolution.
- Communication channels such as email, phone calls, or in-person meetings will be utilized to provide updates, ensuring transparency and keeping the individual engaged in the resolution process.

4. Sensitivity and Confidentiality

- Taung Thaman Resort will handle grievances with sensitivity and confidentiality to protect the privacy and dignity of the individuals involved. All communication regarding the grievance will be conducted discreetly and with utmost respect for the individual's confidentiality.
- Designated grievance officers will be trained to handle grievances with empathy and discretion, ensuring that sensitive information is handled appropriately and confidentially.

7.9.2 Investigation and Resolution Process

1. Thorough Investigation of Grievances

- Upon receipt of a grievance, Taung Thaman Resort will initiate a thorough investigation process to gather relevant information and evidence regarding the nature and scope of the grievance.
- Designated grievance officers or teams will be responsible for conducting the investigation, utilizing appropriate resources and protocols to ensure comprehensive understanding of the grievance

7.

2. Engagement of Relevant Parties

- During the investigation process, Taung Thaman Resort will engage all relevant parties involved in the grievance, including the individual who submitted the grievance, witnesses, and any other stakeholders with pertinent information.

- Open communication and collaboration will be encouraged to facilitate a holistic understanding of the grievance and identify potential solutions.

3. Fair and Impartial Resolution

- Taung Thaman Resort is committed to achieving a fair and impartial resolution of grievances. The investigation process will be conducted with objectivity and integrity, ensuring that all perspectives are considered and evaluated.
- Solutions will be explored collaboratively with the involved parties, aiming to reach mutually agreeable resolutions whenever possible.

4. Communication of Finding and Recommendations

- Following the investigation, Taung Thaman Resort will communicate the findings and recommendations to the individuals involved in the grievance. Clear and transparent communication will be provided regarding the outcomes of the investigation and any proposed actions or resolutions.
- Individuals will be given the opportunity to provide feedback and input on the proposed resolutions, ensuring that their concerns are addressed comprehensively.

7.9.3 Communication and Feedback

1. Open and Transparent Communication Channels

- Taung Thaman Resort will establish open and transparent communication channels to facilitate ongoing dialogue with individuals involved in the grievance process. These channels may include email, phone calls, in-person meetings, and online portals.
- Individuals will be encouraged to communicate their concerns, provide feedback, and seek clarification throughout the grievance resolution process.

2. Regular Updates on Grievance Progress

- Throughout the resolution process, Taung Thaman Resort will provide regular updates to individuals involved in the grievance, informing them of progress made, challenges encountered, and any changes to the resolution plan.
- Updates will be provided in a timely manner and through the preferred communication channels of the individuals involved, ensuring transparency and accountability.

3. Opportunities for Feedback and Input

- Taung Thaman Resort will actively solicit feedback and input from individuals involved in the grievance process, seeking their perspectives on the effectiveness of the resolution efforts and any areas for improvement.

- Feedback mechanisms may include surveys, feedback forms, or structured interviews, allowing individuals to express their opinions and contribute to the enhancement of the Grievance Mechanism.

4. Responsive and Supportive Communication

- Designated grievance officers and staff members will maintain responsive and supportive communication with individuals involved in the grievance process, addressing their concerns and inquiries with empathy and professionalism.
- Timely responses to inquiries and requests for clarification will be prioritized to ensure individuals feel heard and valued throughout the resolution process.

7.9.4 Accountability and Follow-up

1. Documentation of Grievances and Actions Taken

- Taung Thaman Resort will maintain comprehensive documentation of all grievances received and the actions taken to address them. This documentation will include details of the grievance, investigation findings, resolutions proposed, and any follow-up actions required.
- Documentation will be stored securely and accessible to authorized personnel involved in the grievance resolution process.

2. Regular Review and Evaluation of Grievance Process

- Taung Thaman Resort will conduct regular reviews and evaluations of the Grievance Mechanism to assess its effectiveness and identify areas for improvement. These reviews will include analysis of trends, feedback from stakeholders, and outcomes of grievance resolutions.
- Findings from the reviews will be used to inform updates and enhancements to the Grievance Mechanism, ensuring its continued alignment with the needs and expectations of the resort community.

3. Implementation of Corrective Actions and Preventive Measures

- Based on the findings of the review process, Taung Thaman Resort will implement corrective actions and preventive measures to address any identified deficiencies or areas for improvement within the Grievance Mechanism.
- Corrective actions may include updates to policies and procedures, additional training for staff members, or improvements to communication channels and feedback mechanisms.

4. Ongoing Monitoring and Follow-up

- Taung Thaman Resort will establish mechanisms for ongoing monitoring and follow-up to ensure that resolutions to grievances are implemented effectively and outcomes are monitored over time.
- Designated grievance officers will be responsible for tracking the progress of resolutions and conducting follow-up with individuals involved to ensure their satisfaction with the outcome.

7.9.5 Conclusion

In conclusion, the Grievance Mechanism at Taung Thaman Resort stands as a testament to our commitment to transparent communication and accountability. By providing accessible channels for expressing grievances, implementing timely responses, and fostering open dialogue, we empower individuals to voice concerns and contribute to our continuous improvement.

Through regular review and accountability measures, we ensure the effectiveness and responsiveness of our Grievance Mechanism. The Taung Thaman Thitsar Co., Ltd. recognize grievances as opportunities for learning and growth, reaffirming our dedication to creating a resort environment where every voice is valued and respected.

8 PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

8.1 Objectives

In order to acquire public opinion on the implementation of TTMTS project, public consultation works were done firstly disclosing related project information in local community. Public consultation and information disclosure works for TTMTS project were carried out with the following objectives:

- (a) To disseminate the project information, benefits and disadvantages of the project to general public so that they could understand the trade-offs;
- (b) To be able to gain meaningful contribution of informed public; and
- (c) To achieve greater trust of general public with the project proponent by disseminating relevant information.

8.2 Methodology and Approach

8.2.1 Public Consultation

(a) Personal Interview

Personal interviews with local authorities from the four villages within 5 km of project area were exercised to collect their opinion and suggestions. Then, interested persons from local community were consulted firstly disseminating project information to them and then acquiring their comments and suggestions.

(b) Open Discussion

An agenda was provided for open discussion with local people and representatives from ESIA team and project proponent in both public meetings which were collectively held for TTMTS project at basic education primary school on Ywar Thit. Results from the open discussion sessions of the two public meetings are shown in later section.

8.2.2 Information Disclosure

(a) Presentation

Representatives from project proponent and ESIA teams gave presentations about their respective scope of works before general public in both public meetings.

(b) Translated Executive Summary

After the draft ESIA report was compiled, executive summary of the report was translated into Myanmar and the translated documents were delivered to local people and local authorities for their review and comments.

8.3 Public Consultation

First public meeting for releasing project information to general public requesting their comments and suggestions on the project was carried out on May 23th, 2015 at Ywar Thit, Amarapura Township. There were about 88 people from local community, employees from the project, representatives from the project and representative from OSHE Services attended the public meeting and participated in open discussion.

Table 8.1 Photos record of First Public Meeting



Second public meeting for releasing ESIA study results to general public requesting their comments and suggestions was carried out on September 20th, 2015 at the same venue. There were about 173 people from local community employees from the project, representatives from the project and representative from OSHE Services attended the public meeting and participated in open discussion.

Table 8.2 Photos record of Second Public Meeting



The third public meeting, convened at Taung Thanman Boe Boe Gyi Nat Naa on June 26, 2018, commenced at 13:00 with a primary focus on unveiling environmental findings and addressing public concerns pertaining to the project. Approximately 120 attendees, predominantly comprising residents from the vicinity of the project area, notably from Taung Thaman Village, Ywar Thit Village, Nwar Not Taw Su Village, and Tae Nan Thar Village, actively participated in the discussions. This gathering exemplified a concerted effort to foster transparency and community engagement, enabling stakeholders to gain insights into the environmental aspects of the project and voice their concerns constructively.

Table 8. 3 Photos record of third Public Meeting



8.4 Results from Public Consultation

In the meeting, the local community expressed concerns about the project's impact on village roads and requested maintenance and safety measures. They also highlighted the need for systematic garbage management and community development initiatives.

Project representatives assured the community of their commitment to addressing these concerns, including upgrading village roads, coordinating with local authorities for waste management, and implementing measures for road safety and dust control. Additionally, the project pledged to actively participate in local community development programs, demonstrating a collaborative approach to addressing environmental and social challenges. The detailed discussions of the local people and representative from the project in the meeting could be summarized as follows.

1. Asked how the company will take the responsibility for the destruction of village road by the heavy machinery from the project
2. Requested to carry out maintenance work for the village road between Nwar-noe Taw Su and Taung Thaman villages
3. Requested to help the local community for a systematic garbage management system

4. Requested to practice road safety works
5. Requested to prevent dust and particulate emission from vehicles
6. Suggested to consider not to degrade the local village roads
7. Asked how the project will provide aid for the development of the local community

Representative from the project discussed as follows;

1. Destruction of village roads could occur by the over loaded vehicles
2. The company will upgrade the village roads
3. Local communities will be consulted for every such upgrade work
4. Proponent will coordinate with MCDC for the systematic solid waste management of local community
5. The project will also carry out a systematic solid waste management program
6. Supervision of road safety such as speed limitation will be practice
7. The project will participate in the works for the development of local community such as electricity and road infrastructure
8. Measure for the control of dust and particulate emission will be studied and implemented
9. A special team will be organized to carry out the local community development programs.

8.5 Information Disclosure

After receiving approval from MONREC, the environmental report will be made publicly accessible. Those who wish to voice concerns or offer suggestions regarding the project, as well as individuals seeking to review and analyze the report, can utilize the provided QR system. Additionally, the project office will retain a copy of the EIA report for those interested in reading and studying it, and copies will also be available at the ward administration office. Furthermore, any data resulting from the monitoring process will be organized and presented in a similarly accessible format. Utilize this QR Code to access the report at anyone convenience.



9 CORPORATE SOCIAL RESPONSIBILITY PROGRAMME

The project is committed to establishing responsible business practices and initiating social benefit activities from its outset. It is driven by the objective of advancing local development endeavors. To this end, we have implemented measures aimed at enhancing local infrastructure, including providing educational courses designed to improve the skills and knowledge of project personnel and local young people.

Moreover, the project recognizes the significance of preserving the rich traditional culture of the region. In order to uphold these cherished customs, seasonal festivals are meticulously organized, serving as vibrant celebrations of local heritage and customs. The following outlines the CSR processes and records implemented by the company.

Table 9. 1 List of CSR Activities

No.	Social Responsibility Activities	Cost (Kyats)
1.	Yadanarbon University Road and the road to Taung Thaman Village New Village: 2700' x 18' asphalt road.	83,275,308/
2.	The road linking U Bein Bridge's peak to Taung Thaman's new village: 1120' x 18' asphalt road.	37,323,327/
3.	The road linking Taung Thaman Lake Ring Road and Yadanarbon University Road (East of Kyauk Taw Gyi Pagoda): 1300' x 18' asphalt road.	37,328,685/
4.	The road between the east of Shwe Mok thao Pagoda and Taung Thaman's new village: 1895' x 18' asphalt.	65,608,342/
5.	Paving the road from Yadanarbon University to the eastern tip of U Pein Bridge: 3656' x 20' asphalt road.	80,416,000/
6.	Renovation and construction of the Ta Nang Tha village football stadium including goal posts.: Area: 223' × 220' Iron filter fence, Soil grass planting, 2" dug well.	15,000,000
7.	Repair and construction of Taung Thaman Boe Boe Gyi Nat Nang aligned with Myanmar culture, wooden and brick one-story building.: 22' x 36'	3,400,000/
8.	English Speaking Course No. (1) for 24 trainees: Training Period: August 14, 2017, to November 14, 2017 (3 months). Training Venue: Taung Thaman Thitsar Company Limited office training hall.	

9.	Computer Basic Course No. (1) for 16 trainees: Training Period: August 14, 2017, to November 30, 2017 (3 and a half months). Training Venue: Taung Thaman Thitsar Company Limited office training hall.	-
10.	English Speaking Course No. (2) for 81 trainees: Training Period: December 19, 2017, to March 19, 2018 (3 months). Training Venue: Taung Thaman Thitsar Company Limited office training hall.	-
11.	Computer Basic Course No. (2) for 24 trainees: Training Period: August 14, 2017, to November 30, 2017 (3 and a half months). Taung Thaman Thitsar Company Limited office training hall.	-



စတင်ဆန်းသစ်ရေးရာများဖြင့်အရည်အသွေးမြှင့်တင်ရန် ရင်းနှီးမြှုပ်နှံမှုများ ပြုလုပ်ထားသော
မောင်လှိုင်ပေးထားသည့်အမည် (၂၆၂)ပေရီ ကျွဲများလုပ်ငန်းအစရှိသည်





Figure 9. 1 CSR Work Highlights in Photographs

As part of ongoing commitment, Taung Thaman Thitsar Co., Ltd. pledges to uphold and expand upon our existing social benefit initiatives. Furthermore, upon the project reaching full operational capacity, an annual allocation equivalent to 2 percent of the project's profits will be dedicated to Corporate Social Responsibility (CSR) endeavors. This allocation will be distributed proportionately across regional infrastructure development, education, healthcare, and the preservation and promotion of traditional culture. Priority will be given to areas deemed most critical, considering both location and temporal relevance.

Moreover, we are committed to fostering local talent and empowering youth within the communities we operate in. Employment opportunities will be primarily extended to local youth, supplemented by comprehensive professional training programs to enhance their skills and prospects.

10 Conclusion

The proposed project, envisioned as a hotel and resort establishment, holds promising potential to emerge as a recreational hub for the local community while simultaneously showcasing the region's rich cultural heritage, including attractions such as the renowned U Pein Bridge and the vibrant history of Mandalay. By fostering the development of local businesses and creating employment opportunities, particularly for the younger demographic, the project stands to invigorate both the local economy and transportation infrastructure.

Throughout the construction phase, various environmental factors such as air pollution, noise, vibration, water quality, and biodiversity preservation demand careful consideration, with medium to high levels of impact anticipated. However, diligent implementation of mitigation measures outlined in the report can effectively manage these challenges. Similarly, during the operational phase, factors such as noise, solid waste generation, energy consumption, and traffic present notable considerations, which can be mitigated through comprehensive environmental management strategies.

Recognizing the inherent balance between positive and negative impacts, the report underscores the importance of proactive mitigation measures to address potential adverse effects while maximizing the project's long-term benefits. By integrating robust environmental management and monitoring protocols, the project can sustainably coexist with the region's cultural heritage, ensuring harmonious development for years to come.

In essence, through diligent adherence to mitigation measures and a steadfast commitment to environmental stewardship, the proposed project has the potential to seamlessly integrate with the traditional culture of the region, fostering sustainable development and preserving the natural beauty of Mandalay for future generations.

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APPENDIX List

- APPENDIX I : Relevant Governmental Permissions
- APPENDIX II : Project Design, Specification and Layout
- APPENDIX III : List of the species and quantity of trees
- APPENDIX IV : Certificate and Records of Environmental Quality
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- APPENDIX IX : Cultural Heritage Assessment Report
- APPENDIX X : First Public Meeting Report
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APPENDIX – I
Relevant Governmental Permissions





ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
 မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်
 ခွင့်ပြုမိန့်

ခွင့်ပြုမိန့်အမှတ် ၀၇၂ /၂၀၁၈ ၂၀၁၈ ခုနှစ်၊ မတ် လ ၂၇ ရက်
 မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်သည် မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုဥပဒေပုဒ်မ ၂၅၊ ပုဒ်မခွဲ (ဂ)
 အရ ဤခွင့်ပြုမိန့် ကို ထုတ်ပေးလိုက်သည် -

- (၁) ရင်းနှီးမြှုပ်နှံသူအမည် ဦးဝမ်ဖာမြင့် (ခ) ဦးကျော်မြင့်
- (၂) နိုင်ငံသား: မြန်မာနိုင်ငံသား
- (၃) နေရပ်လိပ်စာ အမှတ် (၁၆)၊ အကွက်(အက်ဖ်)၊ မြို့သစ်(၁)ရပ်ကွက်၊
 ချမ်းမြသာစည်မြို့နယ်၊ မန္တလေးမြို့
- (၄) ပင်မအဖွဲ့အစည်းအမည်နှင့်လိပ်စာ တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်၊
 အမှတ်- အက်ဖ်(၄)၊ သရဖီလမ်း၊ ၆၅ လမ်းနှင့် ၆၆ လမ်းကြား၊ မြို့သစ်-၁ ရပ်ကွက်၊
 ချမ်းမြသာစည်မြို့နယ်၊ မန္တလေးမြို့
- (၅) ဖွဲ့စည်းရာအရပ် မြန်မာနိုင်ငံ
- (၆) ရင်းနှီးမြှုပ်နှံသည့်လုပ်ငန်းအမျိုးအစား: မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့်
 တောင်သမန်ကျေးလက် ခရီးသွားအပန်းဖြေစခန်း(Resort) ဝန်ဆောင်မှုလုပ်ငန်း
- (၇) ရင်းနှီးမြှုပ်နှံသည့်အရပ်ဒေသ(များ) ဦးပိုင်အမှတ်- ၉၉၊ ၁၀၀၊ ၁၀၃/၁၊ ၁၀၃/၂၊ ၁၀၄၊
 ၁၀၅၊ ၁၃၄/၁၊ ၁၃၅၊ ၁၃၈/၁၊ ၁၃၈/၂၊ ၁၃၉၊ ၁၅၀/၂၊ ၁၅၂/၁၊ ၁၅၂/၂၊ ၁၅၃/၁၊
 အကွက်အမှတ်-၅၉၂ (တောင်သမန်)၊ တောင်သမန်ကျေးရွာအုပ်စု၊ အမရပူရမြို့နယ်၊
 မန္တလေးတိုင်းဒေသကြီးရှိ မြေ (၄၀.၂၇)ဧက
- (၈) နိုင်ငံခြားမတည်ငွေရင်းပမာဏ -
- (၉) နိုင်ငံခြားမတည်ငွေရင်းယူဆောင်လာရမည့်ကာလ -
- (၁၀) စုစုပေါင်းမတည်ငွေရင်းပမာဏ(ကျပ်) ကျပ် ၃၂,၃၈၈.၉၅ သန်း (ကျပ်သုံးသောင်း
 နှစ်ထောင် သုံးရာ ရှစ်ဆယ့်ရှစ်သန်းနှင့် ကိုးသိန်းငါးသောင်းခန့်)
- (၁၁) တည်ဆောက်မှု/ပြင်ဆင်မှုကာလ ၄ နှစ်
- (၁၂) ရင်းနှီးမြှုပ်နှံမှုခွင့်ပြုသည့်သက်တမ်း: -
- (၁၃) ရင်းနှီးမြှုပ်နှံမှုပုံစံ မြန်မာနိုင်ငံသားရင်းနှီးမြှုပ်နှံမှု
- (၁၄) မြန်မာနိုင်ငံတွင်ဖွဲ့စည်းမည့်ကုမ္ပဏီအမည် TAUNG THA MAN THIT SAR
 COMPANY LIMITED (တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်)

(Signature)
 ၂၇.၃.၁၈
 ၂၀၁၈
 မြန်မာနိုင်ငံရင်းနှီးမြှုပ်နှံမှုကော်မရှင်



ညွှန်ကြားရေးမှူးရုံး
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
မန္တလေးတိုင်းဒေသကြီး၊ မန္တလေးမြို့
စာအမှတ်၊/ ၆ /၇ အီးအိုင်အေ (၂၇၄ /၂၀၂၂)
ရက်စွဲ၊ ၂၀၂၂ ခုနှစ်၊ မေလ ၂ ရက်

သို့

ဦးကျော်စွာဝင်း (ရုံးအဖွဲ့မှူး)
တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်
၀၉-၇၉၂၇၄၃၂၁၈

အကြောင်းအရာ။ တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်မှ ပြန်လည်တင်ပြလာသော နယ်ပယ်
တိုင်းတာသတ်မှတ်ခြင်း အစီရင်ခံစာ (Revised Scoping Report) အပေါ်
အတည်ပြုကြောင်းအကြောင်းပြန်ကြားခြင်း

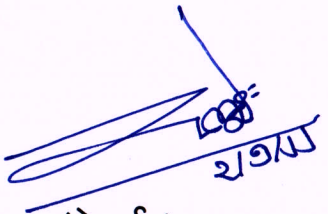
ရည်ညွှန်းချက်။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်ရုံး၏(၇.၄.၂၀၂၂)
ရက်စွဲပါ စာအမှတ်-အီးအိုင်အေ-၁/၃/အတည်ပြု(SR)(၆၀၃/၂၀၂၂)

၁။ အထက်အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ မန္တလေးတိုင်းဒေသကြီး၊ အမရပူရမြို့နယ်၊
တောင်သမန်အင်း၏ အရှေ့တောင်ဘက်တွင် အကောင်အထည်ဖော်ဆောင်ရွက်မည့် တောင်သမန်
သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့်တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်းဝန်ဆောင်မှု
(Resort)လုပ်ငန်းအတွက် နယ်ပယ်တိုင်းတာသတ်မှတ်ခြင်းအစီရင်ခံစာ (Revised Scoping Report)
သည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်းနှင့်ကိုက်ညီမှုရှိပါသဖြင့် အတည်ပြု
ပါကြောင်းနှင့် တင်ပြပါနယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာအရ ပတ်ဝန်းကျင်ထိခိုက်မှု
ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းအပိုဒ်(၆၃)ပါ သတ်မှတ်ချက်များနှင့်အညီ ပတ်ဝန်းကျင်ထိခိုက်မှု
ဆန်းစစ်ခြင်း(EIA)အစီရင်ခံစာ ရေးသားပြုစုရာတွင် တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်မှအလေးထား
လိုက်နာဆောင်ရွက်ရန်အချက်များကို သိရှိနိုင်ပါရန် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်
မှ မန္တလေးတိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနသို့ ရည်ညွှန်းပါစာဖြင့် အကြောင်းကြား
လာခဲ့ပါသည်။

၂။ သို့ဖြစ်ပါ၍ တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်အနေဖြင့် နယ်ပယ်တိုင်းတာသတ်မှတ်ခြင်း
အစီရင်ခံစာနှင့် ဆောင်ရွက်မည့်လုပ်ငန်းတာဝန်များ (Terms Of Reference - TOR)ကို အခြေခံ၍
ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း(EIA)အစီရင်ခံစာရေးကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ

လုပ်ထုံးလုပ်နည်းအပိုဒ်(၆၀)၊ (၆၂)၊ (၆၃)၊ (၆၄)၊ (၆၅)ပါ ဖော်ပြချက်များနှင့်အညီ ပြုစုရေးဆွဲတင်ပြ ရန်နှင့် အဆိုပါသတ်မှတ်ချက်များနှင့်အညီ ရေးဆွဲပြုစုထားသည့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာကို သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသို့တင်ပြအတည်ပြုချက် ရယူရန် လိုအပ်ကြောင်း ဦးစီးရုံးချုပ်၏ရည်ညွှန်းပါစာအား ပူးတွဲ၍ ပေးပို့အကြောင်းကြားပါသည်။

ပူးတွဲပါ - ရည်ညွှန်းစာ (၁)စောင်


(ရဲထွန်း)
ညွှန်ကြားရေးမှူး
၆

မိတ္တူကို

- ညွှန်ကြားရေးမှူး(သယံဇာတ)၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ နေပြည်တော်
- လက်ထောက်ညွှန်ကြားရေးမှူးရုံး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မန္တလေးခရိုင်
- ရုံးလက်ခံ
- မျှောစာတွဲ



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
 သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
 ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
 ညွှန်ကြားရေးမှူးချုပ်ရုံး

စာအမှတ်၊ အီးအိုင်အေ - ၁/ ၃/အတည်ပြု(SR)(၆၈၇/၂၀၂၂)
 ရက်စွဲ ၂၀၂၂ ခုနှစ် ဧပြီလ ၇ ရက်

သို့

ညွှန်ကြားရေးမှူး

မန္တလေးတိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန

အကြောင်းအရာ။ တောင်သမန်သစ္စာကုမ္ပဏီက အကောင်အထည်ဖော်ဆောင်ရွက်မည့် မြန်မာ့
 ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်း
 ဝန်ဆောင်မှု (Resort) စီမံကိန်းအတွက် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း
 အစီရင်ခံစာအပေါ် အတည်ပြုကြောင်းစာကို ထပ်ဆင့်ပေးပို့ရန် အကြောင်း
 ကြားခြင်း

ရည်ညွှန်းချက်။

- (၁) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၇-၁၀-၂၀၁၆
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၈၂၇ (ဃ)/ ၂၀၁၆)
- (၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၂၁-၁၂-၂၀၁၆
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၁၀၃၆/ ၂၀၁၆)
- (၃) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၂၂-၈-၂၀၁၇
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၁၃၀၁/ ၂၀၁၇)
- (၄) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၉-၁၁-၂၀၁၈
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၁၆၆၇/ ၂၀၁၈)
- (၅) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၃၀-၁-၂၀၂၀
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၂၅၅/ ၂၀၂၀)
- (၆) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မန္တလေးတိုင်းဒေသကြီး၏
 ၁၂-၁၁-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ ၂/၆/၇ အီးအိုင်အေ(၀၄၄/၂၀၂၁)

(၇) သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန၊
ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၁၆-၂-၂၀၂၂ ရက်စွဲပါ စာအမှတ်၊
(သစ်တော)၃(၂)/၁၆(ဃ)(၅၈၅/၂၀၂၂)

အကြောင်းအရာပါကိစ္စနှင့် ပတ်သက်၍ တောင်သမန်သစ္စာကုမ္ပဏီက မန္တလေးတိုင်း
ဒေသကြီး၊ အမရပူရမြို့နယ်၊ တောင်သမန်အင်း၏ အရှေ့တောင်ဘက်တွင် အကောင်အထည်ဖော်
ဆောင်ရွက်မည့် တောင်သမန်သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား
အပန်းဖြေစခန်းဝန်ဆောင်မှု (Resort) လုပ်ငန်း၏ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း
အစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မန္တလေးတိုင်းဒေသကြီးမှတစ်ဆင့် တင်ပြ
လာခြင်းအပေါ် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်မှ စိစစ်၍ ရည်ညွှန်း (၁) မှ
(၅)ပါစာများဖြင့် လိုအပ်ချက်များ ပြန်လည်ဖြည့်ဆည်း၍ ပြင်ဆင်တင်ပြရန် သဘောထား
မှတ်ချက်များ ပေးပို့ခဲ့မှုအပေါ် တောင်သမန်သစ္စာကုမ္ပဏီက လိုအပ်ချက်များ ထပ်မံဖြည့်သွင်း၍
မန္တလေးတိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှတစ်ဆင့် ရည်ညွှန်း(၆)ပါစာဖြင့် ထပ်မံ
တင်ပြလာပါသည်။

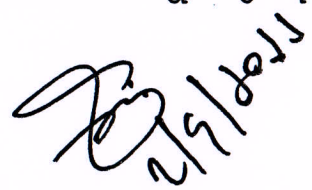
၂။ တောင်သမန်သစ္စာကုမ္ပဏီက မန္တလေးတိုင်းဒေသကြီး၊ မန္တလေးမြို့၊ အမရပူရမြို့နယ်တွင်
အကောင်အထည်ဖော် ဆောင်ရွက်မည့် တောင်သမန်သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့်
တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်းဝန်ဆောင်မှု (Resort) လုပ်ငန်း၏ နယ်ပယ်
အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာသည် ပတ်ဝန်းကျင်ထိန်းသိမ်းမှု ဆန်းစစ်ခြင်းဆိုင်ရာ
လုပ်ထုံးလုပ်နည်း အပိုဒ် ၄၉၊ ၅၀ ၊ ၅၁ ၊ ၅၂ နှင့် ၅၄ တို့တွင် ဖော်ပြထားသော နယ်ပယ်
အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာတွင် ပါဝင်ရမည့် အချက်များနှင့်အညီ ပြုစုထားကြောင်း
စိစစ်တွေ့ရှိရပါသဖြင့် ဌာနတွင်း EMP၊ IEE အစီရင်ခံစာ စိစစ်သုံးသပ်ရေးအဖွဲ့၏ (၁/၂၀၂၂)
ကြိမ်မြောက် အစည်းအဝေးသို့ တင်ပြဆွေးနွေးခဲ့ရာ အတည်ပြုနိုင်ရေး ဆက်လက်တင်ပြရန်
ဆွေးနွေးဆုံးဖြတ်ခဲ့သဖြင့် အတည်ပြုနိုင်ပါကြောင်း ပြည်ထောင်စုဝန်ကြီးရုံးသို့ တင်ပြခဲ့ရာ ရည်ညွှန်း
(၇)ပါစာဖြင့် ပြန်ကြားခွင့်ပြုခဲ့ပါသည်။

၃။ သို့ဖြစ်ပါ၍ ညွှန်ကြားရေးမှူး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မန္တလေးတိုင်းဒေသကြီး
အနေဖြင့် အောက်ပါတို့ကို ဆက်လက်ဆောင်ရွက်သွားရန် အကြောင်းကြားပါသည်-

(က) တောင်သမန်သစ္စာကုမ္ပဏီက မန္တလေးတိုင်းဒေသကြီး၊ မန္တလေးမြို့၊ အမရပူရ
မြို့နယ်တွင် အကောင်အထည်ဖော် ဆောင်ရွက်မည့် တောင်သမန်သစ္စာ
မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်း
ဝန်ဆောင်မှု (Resort) လုပ်ငန်းအတွက် တင်ပြလာသော နယ်ပယ်အတိုင်းအတာ

သတ်မှတ်ခြင်းအစီရင်ခံစာ (Scoping Report) ကို အတည်ပြုကြောင်း “ပူးတွဲပါစာ” အား သက်ဆိုင်ရာကုမ္ပဏီလီမိတက်သို့ ဆက်လက်ပေးပို့ရန်၊

- (ခ) အဆိုပြုတင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာနှင့် ဆောင်ရွက်မည့် လုပ်ငန်းတာဝန်များ (Terms of Reference-TOR) ကို အခြေခံ၍ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ်(၆၀)၊ (၆၁)၊ (၆၂)၊ (၆၃)၊ (၆၄)၊ (၆၅) ပါ ဖော်ပြချက်များနှင့်အညီ ပြုစုရေးဆွဲတင်ပြစေရေး ကြပ်မတ်ဆောင်ရွက်သွားရန်၊
- (ဂ) အဆိုပါ သတ်မှတ်ချက်များနှင့်အညီ ရေးဆွဲပြုစုထားသည့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာကို သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာနသို့ တင်ပြအတည်ပြုချက် ရယူစေရေး ကြပ်မတ်ဆောင်ရွက်သွားရန်



ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား) ။
(ဧည့်သည်ဆန်းစစ်ရေးဌာနမှူးချုပ်)

မိတ္တူကို

ပြည်ထောင်စုဝန်ကြီးရုံး၊ သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန၊
ရုံးအမှတ်(၂၈)
ရုံးလက်ခံ၊ မျှောစာတွဲ



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
 သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
 ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
 ညွှန်ကြားရေးမှူးချုပ်ရုံး

စာအမှတ်၊ အီးအိုင်အေ - ၁/ ၃/အတည်ပြု(SR)(၆၀၄/၂၀၂၂)
 ရက်စွဲ ၂၀၂၂ ခုနှစ် ဧပြီလ ၇ ရက်

သို့

ဦးကျော်စွာဝင်း

ရုံးအဖွဲ့မှူး

တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်

အမှတ်(F4)၊ သရဖီလမ်း၊ ၆၅လမ်းနှင့် ၆၆လမ်းကြား၊ မြို့သစ်(၁)ရပ်ကွက်၊

ချမ်းမြသာစည်မြို့နယ်၊ မန္တလေးတိုင်းဒေသကြီး

၀၉-၇၉၂၇၄၃၂၁၈

အကြောင်းအရာ။ တောင်သမန်သစ္စာကုမ္ပဏီက အကောင်အထည်ဖော်ဆောင်ရွက်မည့် မြန်မာ့
 ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်း
 ဝန်ဆောင်မှု (Resort) စီမံကိန်းအတွက် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း
 အစီရင်ခံစာအား အတည်ပြုနိုင်ပါကြောင်း ပြန်ကြားခြင်း

ရည်ညွှန်းချက်။

- (၁) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၇-၁၀-၂၀၁၆
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၈၂၇ (ဃ)/ ၂၀၁၆)
- (၂) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၂၁-၁၂-၂၀၁၆
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၁၀၃၆/ ၂၀၁၆)
- (၃) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၂၂-၈-၂၀၁၇
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၁၃၀၁/ ၂၀၁၇)
- (၄) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၉-၁၁-၂၀၁၈
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၁၆၆၇/ ၂၀၁၈)
- (၅) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်၏ ၃၀-၁-၂၀၂၀
 ရက်စွဲပါစာအမှတ်၊ အီးအိုင်အေ - ၁/ ၇ (၂၅၅/ ၂၀၂၀)

(၆) ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မန္တလေးတိုင်းဒေသကြီး၏
၁၂-၁၁-၂၀၂၁ ရက်စွဲပါစာအမှတ်၊ ၂/၆/၇ အီးအိုင်အေ(၀၄၄/၂၀၂၁)

(၇) သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန၊
ပြည်ထောင်စုဝန်ကြီးရုံး၏ ၁၆-၂-၂၀၂၂ ရက်စွဲပါ စာအမှတ်၊
(သစ်တော)၃(၂)/၁၆(ဃ)(၅၈၅/၂၀၂၂)

၁။ အကြောင်းအရာပါကိစ္စနှင့် ပတ်သက်၍ တောင်သမန်သစ္စာကုမ္ပဏီက မန္တလေးတိုင်း
ဒေသကြီး၊ အမရပူရမြို့နယ်၊ တောင်သမန်အင်း၏ အရှေ့တောင်ဘက်တွင် အကောင်အထည်ဖော်
ဆောင်ရွက်မည့် တောင်သမန်သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား
အပန်းဖြေစခန်းဝန်ဆောင်မှု (Resort) လှုပ်ငန်း၏ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း
အစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မန္တလေးတိုင်းဒေသကြီးမှတစ်ဆင့် တင်ပြ
လာခြင်းအပေါ် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ဦးစီးရုံးချုပ်မှ စိစစ်၍ ရည်ညွှန်း (၁) မှ
(၅)ပါစာများဖြင့် လိုအပ်ချက်များ ပြန်လည်ဖြည့်ဆည်း၍ ပြင်ဆင်တင်ပြရန် သဘောထား
မှတ်ချက်များ ပေးပို့ခဲ့မှုအပေါ် တောင်သမန်သစ္စာကုမ္ပဏီက လိုအပ်ချက်များ ထပ်မံဖြည့်သွင်း၍
မန္တလေးတိုင်းဒေသကြီး၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှတစ်ဆင့် ရည်ညွှန်း(၆)ပါစာဖြင့် ထပ်မံ
တင်ပြလာပါသည်။

၂။ အဆိုပြုစီမံကိန်းသည် မန္တလေးတိုင်းဒေသကြီး၊ အမရပူရမြို့နယ်၊ တောင်သမန်အင်း၏
အရှေ့တောင်ဘက်ကမ်းစပ်၊ ဦးပိန်တံတားနှင့် ကပ်လျက်တွင် တည်ရှိပါသည်။ အဆိုပါ
စီမံကိန်းကိုအပိုင်းများခွဲ၍ အကောင်အထည်ဖော်သွားမည်ဖြစ်ပြီး စီမံကိန်းပထမအဆင့်တွင်
မြေဧရိယာ ၄၀.၂၇ ဧက ပေါ်တွင် လူနေအရောင်းဆိုင်ခန်းများ၊ အဆင့်မြင့်လုံးချင်းအိမ်ရာများ၊
ဟိုတယ်၊ စားသောက်ခန်းမကြီးများနှင့် စုဝေးခန်းမကြီးများ ပါဝင်မည်ဖြစ်ပါသည်။

၃။ မန္တလေးတိုင်းဒေသကြီး၊ မန္တလေးမြို့၊ အမရပူရမြို့နယ်တွင် အကောင်အထည်ဖော်
ဆောင်ရွက်မည့် တောင်သမန်သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား
အပန်းဖြေစခန်းဝန်ဆောင်မှု (Resort) လှုပ်ငန်း၏ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း
အစီရင်ခံစာကို စိစစ်ရာတွင် အောက်ပါအချက်များကို လိုက်နာဆောင်ရွက်မည်ဖြစ်ကြောင်း
စီမံကိန်းအဆိုပြုသူမှ ကတိကဝတ်ပြု ဖော်ပြထားသည်ကို စိစစ်တွေ့ရှိရပါသည်-

- (က) နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာအတွက် စီမံကိန်းဆောင်ရွက်
ခြင်းကြောင့် သက်ရောက်မှုရှိနိုင်သည့် နယ်မြေဧရိယာကို အဆိုပြုစီမံကိန်းမှ (၁)
ကီလိုမီတာ Radius အတွင်း သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ ဆန်းစစ်လေ့လာမှုများ
ပြုလုပ်ရန် သတ်မှတ်ထားရှိကြောင်း၊

(ခ) စီမံကိန်းအဆိုပြုသူမှ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းအစီရင်ခံစာ ပြုစုသော အခါတွင် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာ၏ အခန်း (၂) မူဝါဒ၊ ဥပဒေနှင့် အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်ဖော်ပြချက်များနှင့် စီမံကိန်းမှ လိုက်နာရမည့် ဥပဒေဆိုင်ရာ ကတိကဝတ်များစာရင်းတွင် ဖော်ပြထားသော ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် လူမှုရေးဆိုင်ရာ မူဝါဒနှင့်စံချိန်စံညွှန်းများ၊ တည်ဆဲပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဥပဒေနှင့်နည်းဥပဒေများ၊ မြန်မာနိုင်ငံ၏ တည်ဆဲဥပဒေများနှင့် နည်းဥပဒေများ၊ အပြည်ပြည်ဆိုင်ရာကွန်ဗင်းရှင်းများ၊ စာချုပ်များနှင့် သဘောတူညီချက်များ၊ အမျိုးသားနှင့် အပြည်ပြည်ဆိုင်ရာ စံချိန်စံညွှန်းများနှင့် လမ်းညွှန်ချက်များ အပါအဝင် မူဝါဒနှင့်ဥပဒေရေးရာ မူဘောင်များအား ပတ်ဝန်းကျင်နှင့် လူမှုရေးထိခိုက်မှု ဆန်းစစ်လေ့လာခြင်းတွင် လိုက်နာဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း၊

(ဂ) လေအရည်အသွေးအပေါ် သက်ရောက်မှုများကြောင့် ထိခိုက်မှုလျော့ပါးစေရေး ဆောင်ရွက်မည့် အစီအစဉ်နှင့်စပ်လျဉ်း၍ အောက်ပါအတိုင်း လိုက်နာဆောင်ရွက်မည်ဖြစ်ကြောင်း ဖော်ပြထားပါသည် -

(၁) တည်ဆောက်ရေးကာလ၏ မြေတူးခြင်းလုပ်ငန်းများ ဆောင်ရွက်ရာတွင် စီမံကိန်းအတွင်း တစ်နေ့လျှင်(၂)ကြိမ်အနည်းဆုံး ရေဖြန်းခြင်းအား ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း၊

(၂) စီမံကိန်းဧရိယာအတွင်း ယာဉ်သွားလာမှုအရှိန်အား 15 mph ထက် မကျော်လွန်စေရန် ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း၊

(၃) ဆောက်လုပ်ရေးလုပ်ငန်းသုံးပစ္စည်းများအား သယ်ယူရာတွင် လိုအပ်သော အဖုံးအကာများဖြင့် ဖုံးအုပ်သွားမည်ဖြစ်ကြောင်း။

(ဃ) ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများကြောင့် ထိခိုက်မှုလျော့ပါးစေရေး ဆောင်ရွက်မည့်အစီအစဉ်နှင့် စပ်လျဉ်း၍ အောက်ပါအတိုင်း လိုက်နာဆောင်ရွက်မည် ဖြစ်ကြောင်း ဖော်ပြထားပါသည် -

(၁) ရေအသုံးချမှုလျော့နည်းစေရန် သင့်တော်သည့် ရေလျှော့ချသုံးစွဲရေးနည်းလမ်းများကို အသုံးပြုသွားမည် ဖြစ်ကြောင်း၊

(၂) ရေအသုံးချမှုနှင့် ပတ်သက်၍ ပညာပေးအစီအစဉ်များအား ဆောင်ရွက်သွားမည်ဖြစ်ကြောင်း၊

- (၃) မန္တလေးမြို့တော် စည်ပင်သာယာရေးကော်မတီ၏ လမ်းညွှန်ချက်နှင့်အညီ သင့်တော်သည့် ရေနုတ်မြောင်းစနစ်များအား ထည့်သွင်းတည်ဆောက်သွား မည်ဖြစ်ကြောင်း၊
- (၄) စီမံကိန်းနှင့် သင့်တော်မည့် စွန့်ပစ်ရေသန့်စင်ရေးစနစ်အား တပ်ဆင်အသုံးပြု သွားမည်ဖြစ်ပြီး အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ (National Environmental Quality (Emission) Guidelines -NEQEG) စံနှုန်းများအတိုင်းရရှိအောင် ဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း၊
- (၅) နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာအတွက် ရေအရည် အသွေး တိုင်းတာစစ်ဆေးခြင်းကို တောင်သမန်အင်းအတွင်း (၄) နေရာ၊ စီမံကိန်းအနီးရှိရွာများမှ မြေအောက်ရေ(၃) နေရာတို့အား တိုင်းတာ စစ်ဆေးပြီး ရရှိချက်များကို ISO TECH laboratory သို့ ပေးပို့တိုင်းတာ ထားကြောင်း။

(c) မြေအရည်အသွေးအပေါ်သက်ရောက်မှုများကြောင့် ထိခိုက်မှုလျော့ပါးစေရေး ဆောင်ရွက်မည့်အစီအစဉ်နှင့် စပ်လျဉ်း၍ အောက်ပါအတိုင်း ဖော်ပြထားပါသည်-

- (၁) မြေတူးခြင်းလုပ်ငန်းများ ဆောင်ရွက်ရာတွင် အလွန်အကျွံမဖြစ်အောင် စောင့်ကြပ်ဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း၊
- (၂) မြေပြိုခြင်းများ မဖြစ်ပွားစေရန် ဆောက်လုပ်ရေးလုပ်ငန်းခွင်တွင် လိုက်နာ ရမည့် စည်းမျဉ်းစည်းကမ်းများကို တိကျစွာ လိုက်နာဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း၊
- (၃) မြေတူးခြင်းလုပ်ငန်းများဆောင်ရွက်ရာတွင် တတ်နိုင်သမျှ မိုးနည်းသည့် ကာလတွင်သာ ဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း၊
- (၄) ကန့်သတ်ထားသည့် ဧရိယာများတွင် မြေသိပ်သည်းအောင် လေးလံသော စက်ယန္တရားများအသုံးပြုခြင်းမှ ရှောင်ကြဉ်သွားမည် ဖြစ်ကြောင်း၊
- (၅) မြေအရည်အသွေးညစ်ညမ်းစေနိုင်သည့် အန္တရာယ်ရှိပစ္စည်းများအား ကန့်သတ် ထိန်းချုပ်၍ မှန်ကန်စွာ အသုံးပြုသွားမည် ဖြစ်ကြောင်း၊
- (၆) ဆောက်လုပ်ရေးလုပ်ငန်းသုံးပစ္စည်းများဖြစ်သည့် သဲနှင့်ကျောက်တို့အား စနစ် တကျ စီမံခန့်ခွဲ၍ အသုံးပြုသွားမည်ဖြစ်ကြောင်း။

- (စ) ဇီဝမျိုးစုံမျိုးကွဲများအပေါ် သက်ရောက်မှုများ ထိခိုက်မှုလျော့ပါးစေရေးဆောင်ရွက်မည့်အစီအစဉ်နှင့် စပ်လျဉ်း၍ အောက်ပါအတိုင်း ဖော်ပြထားပါသည်-
 - (၁) ဇီဝမျိုးစုံမျိုးကွဲများနှင့် ပတ်သက်၍ စီမံကိန်းဧရိယာအနီး (၅) ကီလိုမီတာအတွင်းတွင် အမှတ်(၁၀)နေရာသတ်မှတ် တိုင်းတာသွားမည် ဖြစ်ကြောင်း၊
 - (၂) စီမံကိန်းပတ်ဝန်းကျင်တွင် ဇီဝမျိုးစုံမျိုးကွဲများ ထိခိုက်မှုလျော့ပါးစေရန်အတွက် မြေယာရှုခင်းများ၊ အပင်များအား စိုက်ပျိုးသွားမည် ဖြစ်ကြောင်း။
- (ဆ) ယဉ်ကျေးမှုအမွေအနှစ်အပေါ် သက်ရောက်မှုများ ထိခိုက်မှုလျော့ပါးစေရေးဆောင်ရွက်မည့်အစီအစဉ်နှင့် စပ်လျဉ်း၍ အောက်ပါအတိုင်း ဖော်ပြထားပါသည်-
 - (၁) ယဉ်ကျေးမှုအမွေအနှစ်များအပေါ်တွင် တိုက်ရိုက်သက်ရောက်မှုများ ဖြစ်ပေါ်နိုင်ခြင်းမရှိကြောင်း၊
 - (၂) စီမံကိန်းတွင် တည်ဆောက်သွားမည့် အဆောက်အဦများကို Myanmar National Building Code Architecture and Urban Design Regulation for Historical Buildings တို့နှင့်အညီ တည်ဆောက်သွားမည် ဖြစ်ကြောင်း။
- (ဇ) စွန့်ပစ်ပစ္စည်းများနှင့်စပ်လျဉ်း၍ အောက်ပါအတိုင်း ဆောင်ရွက်သွားမည်ဖြစ် ကြောင်း ဖော်ပြထားပါသည်-
 - (၁) တည်ဆောက်ရေးလုပ်ငန်းမှ ထွက်ရှိလာမည့် စွန့်ပစ်ရေများအား သန့်စင်ပြီးမှသာ ရေနုတ်မြောင်းများသို့ စွန့်ထုတ်စေမည်ဖြစ်ကြောင်း၊
 - (၂) Domestic Waste Water များအား စွန့်ပစ်ရေအရည်အသွေးနှင့် ကိုက်ညီမှုရှိမှသာ စွန့်ထုတ်သွားမည်ဖြစ်ကြောင်း၊
 - (၃) Bore Pile ရိုက်ခြင်းမှ ထွက်ရှိလာမည့် စွန့်ပစ်ရေများအား ရေနုတ်မြောင်းများအတွင်း တိုက်ရိုက်စွန့်ထုတ်ခြင်းမှ ရှောင်ကြဉ်သွားမည် ဖြစ်ကြောင်း၊
 - (၄) စီမံကိန်းမှ ထွက်ရှိလာမည့် စွန့်ပစ်ပစ္စည်းများအား တိကျသော Solid Waste Management System ထားရှိဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း။
- (ဈ) ဆက်စပ်သက်ရောက်မှုများနှင့် ကြွင်းကျန်သက်ရောက်မှုများအနေဖြင့် လက်ရှိ စီမံကိန်းဆောင်ရွက်ခြင်းနှင့် စီမံကိန်းပတ်ဝန်းကျင်အတွင်း ဆောင်ရွက်မည့် လုပ်ငန်းများကြောင့် ဖြစ်ပေါ်နိုင်သည့် သက်ရောက်မှုများအား ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ဆန်းစစ်ဖော်ပြသွားမည်ဖြစ်ကြောင်း။

(ည) ဒေသခံပြည်သူများနှင့် တိုင်ပင်ဆွေးနွေးခြင်းနှင့်စပ်လျဉ်း၍ အောက်ပါအတိုင်း လိုက်နာ ဆောင်ရွက်မည်ဖြစ်ကြောင်း ဖော်ပြထားပါသည်-

(၁) စီမံကိန်းဧရိယာအနီး (၁) ကီလိုမီတာ Radius အတွင်းရှိ ကျေးရွာ(၄)ရွာ မှ ဒေသခံများ၊ ဌာနဆိုင်ရာမှ ပုဂ္ဂိုလ်များနှင့် အခြားစိတ်ပါဝင်စားသူများပါဝင် သည့် လူထုတွေ့ဆုံပွဲကို ၂၃-၅-၂၀၁၅ ခုနှစ်တွင် ဆောင်ရွက်ခဲ့ပါကြောင်း၊

(၂) အဆိုပါတွေ့ဆုံပွဲသို့ စီမံကိန်းအကြောင်းအရာ အကျဉ်းချုပ်အား ရှင်းလင်း ပြောကြားပြီး တက်ရောက်လာသူများ၏ ထင်မြင်ယူဆချက်များနှင့် အကြံပြု ချက်များ ရယူခြင်းကို ဆောင်ရွက်ခဲ့ပါကြောင်း။

* ၄။ တောင်သမန်သစ္စာကုမ္ပဏီက မန္တလေးတိုင်းဒေသကြီး၊ မန္တလေးမြို့၊ အမရပူရမြို့နယ်တွင် အကောင်အထည်ဖော် ဆောင်ရွက်မည့် တောင်သမန်သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်းဝန်ဆောင်မှု (Resort) လုပ်ငန်း၏ နယ်ပယ် အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာသည် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ် ၄၉၊ ၅၀ ၊ ၅၁ ၊ ၅၂ နှင့် ၅၄ တို့တွင် ဖော်ပြထားသော နယ်ပယ် အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာတွင် ပါဝင်ရမည့် အချက်များနှင့်အညီ ပြုစုထားကြောင်း စိစစ်တွေ့ရှိရပါသဖြင့် အတည်ပြုပြန်ကြားနိုင်ရေးအပေါ် ပြည်ထောင်စုဝန်ကြီးရုံး သို့တင်ပြခဲ့ရာ ရည်ညွှန်း(၇)ပါ စာဖြင့် ပြန်ကြားခွင့်ပြုကြောင်း အကြောင်းကြားလာပါသည်။

၅။ သို့ဖြစ်ပါ၍ တောင်သမန်သစ္စာကုမ္ပဏီက တောင်သမန်သစ္စာ မြန်မာ့ရိုးရာယဉ်ကျေးမှုနှင့် တောင်သမန်ကျေးလက်ခရီးသွား အပန်းဖြေစခန်းဝန်ဆောင်မှု (Resort) လုပ်ငန်း၏ နယ်ပယ် အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာ (Scoping Report) သည် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများနှင့် ကိုက်ညီမှုရှိပါသဖြင့် အတည်ပြုပါကြောင်း၊ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းကို ဆောင်ရွက်ရာတွင် အောက်ပါအချက်များကို အလေးထား လိုက်နာဆောင်ရွက်ရန် လိုအပ်ပါကြောင်း သဘောထားပြန်ကြားအပ်ပါသည်-

(က) အဆိုပြုတင်ပြလာသည့် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာနှင့် ဆောင်ရွက်မည့် လုပ်ငန်းတာဝန်များ (Terms of Reference-TOR) ကို အခြေခံ၍ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ် ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း အပိုဒ်(၆၀)၊ (၆၁)၊ (၆၂)၊ (၆၃)၊ (၆၄)၊ (၆၅) ပါ ဖော်ပြချက်များနှင့်အညီ ပြုစုရေးဆွဲတင်ပြရန်၊

- (ခ) အဆိုပါ သတ်မှတ်ချက်များနှင့်အညီ ရေးဆွဲပြုစုထားသည့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာကို သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာနသို့ တင်ပြအတည်ပြုချက် ရယူရန်၊
- (ဂ) ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းအပိုဒ် (၆၂) ပါ ဖော်ပြချက်များအတိုင်း စီမံကိန်းအဆိုပြုသူမှ လိုက်နာရမည့်အချက်များကို လက်မှတ် ရေးထိုးထားသည့် အတည်ပြုဝန်ခံချက်ကို အစီရင်ခံစာတွင် ထည့်သွင်းဖော်ပြရန်၊
- (ဃ) ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာအား တင်ပြရာတွင် စီမံကိန်း၏ Project Location၊ Layout Plan၊ Engineering Drawing၊ Study Area တို့အား High Resolution ရှိသော မြေပုံများဖြင့် တင်ပြရန်၊
- (င) ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ဆောင်ရွက်၍ အစီရင်ခံစာပြုစုသည့် တတိယ အဖွဲ့အစည်းများအနေဖြင့် အစီရင်ခံစာပါ မည့်သည့်အပိုင်းအတွက် မည်သူက တာဝန်ယူ ဆောင်ရွက်ကြောင်းကို ဆက်သွယ်ရန်လိပ်စာအပြည့်အစုံဖြင့် ထည့်သွင်းဖော်ပြရန်၊
- (စ) စီမံကိန်း၏ Alternatives ကိုရွေးချယ်ရာတွင် Technical and Safety Point of View မှ ရွေးချယ်ရန်နှင့် Public Consultation မှ ရရှိလာသည့် အကြံပြုချက်များအပေါ် ထည့်သွင်းစဉ်းစားရွေးချယ်ရန်၊
- (ဆ) စီမံကိန်းမှ အဆောက်အဦဒီဇိုင်းနှင့် အသုံးပြုမည့်ပစ္စည်းများအား ရွေးချယ်ရာတွင် ပတ်ဝန်းကျင်နှင့်လိုက်လျောညီထွေဖြစ်စေမည့် ဒီဇိုင်းနှင့် ပစ္စည်းများအား ရွေးချယ်ရန်၊
- (ဇ) လေ၊ ရေ၊ မြေအရည်အသွေး၊ ဆူညံသံ၊ တုန်ခါမှုတို့ကို တိုင်းတာရာတွင် စီမံကိန်း ဧရိယာအား လွှမ်းခြုံနိုင်သည့် နေရာများတွင် နမူနာကောက်ယူဖော်ပြရန်၊
- (ဈ) ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ဆောင်ရွက်သည့်အခါ လေ့လာမည့်ဧရိယာ အတွင်း ပတ်ဝန်းကျင်ဆိုင်ရာအရည်အသွေးများ၊ လူမှုစီးပွားဆိုင်ရာအခြေအနေများ၊ ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားအပေါ် ထိခိုက်မှုများနှင့် ၎င်းတို့ကိုလျှော့ချမည့် နည်းလမ်း များ၊ ပတ်ဝန်းကျင်နှင့်လုပ်ငန်းခွင် ဘေးအန္တရာယ်ကင်းရှင်းရေး နည်းလမ်းများ၊ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာတွင် ဖော်ပြထားသည့် အထူးပြု ဆက်လက်လေ့လာမည့် နယ်ပယ်ဧရိယာများ၊ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်နှင့် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးမည့် အစီအစဉ်များကို ပြည့်စုံစွာ ထည့်သွင်းဖော်ပြရန်၊
- (ည) စီမံကိန်းမှ Ecosystem Management Plan အား ထည့်သွင်းရေးဆွဲ ဖော်ပြရန်၊

- (င) စီမံကိန်းဧရိယာမှ ထွက်ရှိလာမည့် စွန့်ပစ်အမှိုက်နှင့် စွန့်ပစ်ရေဆိုးတို့ကြောင့် တောင်သမန်အင်းပေါ်တွင် ဆိုးကျိုးသက်ရောက်မှုများမဖြစ်ပေါ်စေရေး အစီအမံများအား ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ရေးဆွဲဆောင်ရွက်ရန်၊
- (င) ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း ဆောင်ရွက်ရာတွင် ရာသီဥတုပြောင်းလဲမှု (Climate Change) ကို ထည့်သွင်းစဉ်းစားဆောင်ရွက်၍ အစီရင်ခံစာတွင် ထည့်သွင်း ဖော်ပြရန်၊
- (ခ) စီမံကိန်းကြောင့် ထိခိုက်ခံစားရနိုင်သည့် ပြည်သူများနှင့် အကျိုးဆက်စပ်သူများအား တိကျစွာ သတ်မှတ်ဖော်ထုတ်ပေးရန်၊
- (ဃ) စီမံကိန်းနှင့်ပတ်သက်၍ အများပြည်သူသိရှိစေရန် သတင်းအချက်အလက် ထုတ်ပြန် ခြင်းများကို ထိထိရောက်ရောက် ဆောင်ရွက်ရန်နှင့် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ထည့်သွင်းဖော်ပြရန်၊
- (ဏ) နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း (Scoping Report) နှင့် Terms of Reference (TOR) တွင် ထည့်သွင်းဖော်ပြထားသည့် အချက်များအပြင် ဖြည့်စွက်ပြင်ဆင်ဆန်းစစ်ရန် လိုအပ်သောအချက်များရှိပါက ထပ်မံ၍ လေ့လာဆန်းစစ်ခြင်း ဆောင်ရွက်ရန်။



ညွှန်ကြားရေးမှူးချုပ်(ကိုယ်စား)
 (ဒေါက်တာဆန်းဦးဒုတိယညွှန်ကြားရေးမှူးချုပ်)
 ၃၀

မိတ္ထူကို
 ရုံးလက်ခံ၊ မျှောစာတွဲ



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ဟိုတယ်နှင့် ခရီးသွားလာရေးလုပ်ငန်းဝန်ကြီးဌာန

ဝန်ကြီးရုံး ၁၈-၈(အုပ်ချုပ်မှု) /နပတ / ၂၅၅၁

စာအမှတ်၊

ရက်စွဲ၊ ၂၀၁၅ ခုနှစ်၊ ဩဂုတ် လ ၇ ရက်။

သို့

✓ ဝန်ကြီးချုပ်

မန္တလေးတိုင်းဒေသကြီးအစိုးရအဖွဲ့

အကြောင်းအရာ။ ဟိုတယ်ဆောက်လုပ်ခွင့်ပြုပါရန်တင်ပြလာခြင်းကိစ္စ

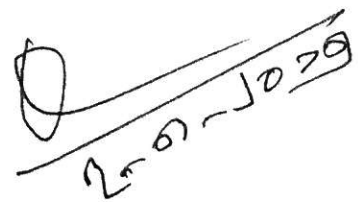
၁။ မန္တလေးတိုင်းဒေသကြီး၊မန္တလေးခရိုင် အမရပူရမြို့နယ်၊ တောင်သမန်ကျေးရွာအုပ်စု၊ ကွင်းအမှတ်(၅၉၂/တောင်သမန်)၊ဦးပိုင်အမှတ်(၁၅၂/၁)ရှိ(၉.၉၄)ဧကရှိမြေပေါ်တွင် RC (၂)ထပ်၊ အိပ်ခန်း(၁၃)ခန်းစီပါသော အဆောက်အဦ(၆)လုံးအား “ Taung Ta Man Resort ” အမည်ဖြင့် ဟိုတယ်ဆောက်လုပ်ခွင့်ပြုပါရန် တောင်သမန်သစ္စာကုမ္ပဏီလီမိတက်မှ မန်နေဂျင်း ဒါရိုက်တာ ၊ ဦးကျော်မြင့်(၁၃/ကခန(နိုင်)၀၃၇၂၇၆)မှတင်ပြလာပါသည်။

၂။ အဆိုပါတင်ပြချက်အပေါ် (၃၀-၇-၂၀၁၅)ရက်နေ့တွင် ကျင်းပပြုလုပ်သော ဝန်ကြီးဌာန၏ စီမံခန့်ခွဲမှုကော်မတီ အစည်းအဝေးမှ အောက်ပါအတိုင်း ဆုံးဖြတ်ခဲ့ပါသည်-

- (က) လုပ်ငန်းရှင်၏ ဟိုတယ်ဆောက်လုပ်ခွင့်တင်ပြလာမှုသည် မန္တလေးတိုင်းဒေသကြီး၏ဟိုတယ်လုပ်ငန်းကဏ္ဍလိုအပ်ချက်ကို အထောက်အကူပြုသည့်အတွက်အားပေးပါကြောင်း၊သို့ရာတွင် မြို့ရွာနယ်နိမိတ်ဆိုင်ရာနှင့်သက်ဆိုင်ရာနယ်မြေဒေသဆိုင်ရာ သတ်မှတ်စည်းမျဉ်း စည်းကမ်းများနှင့်အညီ ဆောင်ရွက်ရမည်ဖြစ်ပါကြောင်း။
- (ခ) ဟိုတယ်လုပ်ငန်းနှင့်ပတ်သက်၍ စစ်ဆေးရေးအဖွဲ့၏ တင်ပြချက်အရ မြို့ပြဧရိယာအတွင်း တည်ရှိပြီး အနီးဝန်းကျင်တွင် စာသင်ကျောင်း၊ ဆေးရုံနှင့် သာသနိကအဆောက်အဦများမရှိကြောင်းကို စိစစ်တွေ့ရှိရပြီး မန္တလေးတိုင်းဒေသကြီးအစိုးရအဖွဲ့၏အနာဂတ်စီမံကိန်းများနှင့်လွတ်ကင်းရန်လိုအပ်ပါသည်။ ၎င်းအပြင် ဟိုတယ်ကိုတောင်သမန်အင်းဧရိယာအစပ်တွင် တည်ဆောက်မည်ဖြစ်၍ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးအတွက် လိုအပ်သည်များကို ကြိုတင်စီစဉ် ဆောင်ရွက်ရန် လိုအပ်ပါကြောင်း။

- (ဂ) ဟိုတယ်ဆောက်လုပ်ပြီးစီးပါက ဟိုတယ်ဖွင့်လှစ်ခွင့် လုပ်ငန်းလိုင်စင်ရရှိရေးတင်ပြရာတွင် ဝန်ထမ်းခန့်ထားမှု၌ ဟိုတယ်ဝန်ဆောင်မှုဆိုင်ရာ သင်တန်းများ တက်ရောက် ပြီးသင်တန်းဆင်းလက်မှတ် ရရှိသူဝန်ထမ်း အနည်းဆုံး(၅၀%)ပါရှိရန် လိုအပ်ပါကြောင်း။
- (ဃ) ဟိုတယ်တည်ဆောက်ရေးအတွက် လုပ်ငန်းရှင်အနေဖြင့် ဒေသအာဏာပိုင် အဖွဲ့အစည်းများ၊ စည်ပင်သာယာရေးအဖွဲ့များမှ ချမှတ်ထားသော စည်းမျဉ်း စည်းကမ်းများအပြင် လက်ရှိပြဋ္ဌာန်းထားသော မြန်မာနိုင်ငံ ခရီးသွားလုပ်ငန်းဥပဒေဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများ၊ ဟိုတယ်နှင့် တည်းခိုရိပ်သာ လုပ်ငန်းလိုင်စင်ဆိုင်ရာ အမိန့်ပါ သတ်မှတ်ချက်များကို လည်းလေ့လာလိုက်နာ ဆောင်ရွက် သွားရန်လိုအပ်ပါကြောင်း။

၃။ သို့ဖြစ်ပါ၍ မန္တလေးတိုင်းဒေသကြီးအစိုးရအဖွဲ့မှ ဤဝန်ကြီးဌာန၏ဖော်ပြပါ အစည်းအဝေးဆုံးဖြတ်ချက်များကို သိရှိနိုင်ပါရန်နှင့် စနစ်တကျဖြစ်စေရေးအတွက် လိုအပ်သည်များကို ဆက်လက် စီစဉ်ဆောင်ရွက်ပေးနိုင်ပါရန် မေတ္တာရပ်ခံအပ်ပါသည်။



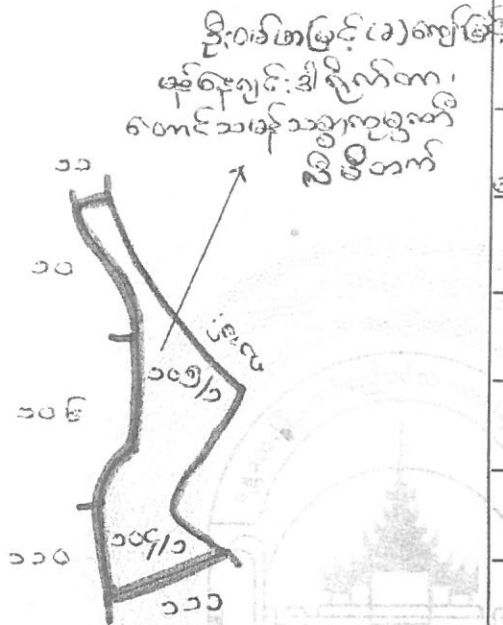
ပြည်ထောင်စုဝန်ကြီး(ကိုယ်စား)
 (ဒေါက်တာတင်ရွှေ၊ ဒုတိယဝန်ကြီး)
 ✓

မိတ္တူကို

ညွှန်ကြားရေးမှူးချုပ်၊ ဟိုတယ်နှင့်ခရီးသွားညွှန်ကြားမှုဦးစီးဌာန
 ညွှန်ကြားရေးမှူး၊ ဟိုတယ်နှင့်ခရီးသွားညွှန်ကြားမှုဦးစီးဌာန (မန္တလေးရုံးခွဲ)
 ဦးကျော်မြင့်၊ (၁၃/ကခန(နိုင်)၀၃၇၂၇၆)
 (ဟိုတယ်ဆောက်လုပ်ခွင့်ကို သက်ဆိုင်ရာတိုင်းဒေသကြီးအစိုးရအဖွဲ့သို့ သတ်မှတ်စည်းမျဉ်း စည်းကမ်းများနှင့်အညီ ဆက်လက်တင်ပြ ဆောင်ရွက်သွားပြီး ဟိုတယ်ဆောက်လုပ်ပြီးစီးခဲ့ပါက လုပ်ငန်းလိုင်စင်ရရှိရေးအတွက် လုပ်ထုံးလုပ်နည်းနှင့်အညီ ဟိုတယ်နှင့်ခရီးသွားညွှန်ကြားမှုဦးစီးဌာနသို့ တင်ပြလျှောက်ထားရန်ဖြစ်ပါသည်။)
 ရုံးလက်ခံ/မျှော



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



ဂရုစိုက်ရေး: _____
ဦးပိုင်ခြားရေး: _____

၁၅/၁၅ (၆/၆)

မြေတိုင်း (၂)
၁၅/၁၅

မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
မြို့ပြ/မြေစီမံဌာန



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဂရန်မြေပုံ
အမည်ပေါက် မြေပုံစာဖြင့် (၁) ရွာမြို့၊ ဗိုလ်ချုပ်: ဒါရိုက်တာ၊ ဝေဟင်သမန် သတ္တကုဗွတ် လိမ္မိတက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် ဝေဟင်သမန်
မြေကွက်အမှတ် (၁၀၄/၁ + ၁၀၅/၁)
မြေအမျိုးအစား L
အလျား: x အနံ့: ဧရိယာ (၁.၉၈) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁ မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၂၅၄၈ / ၂၀၁၅ - ၂၀၁၆

၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျ မှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ် ဧရာဝတီ
 မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
 မြေကွက်အမှတ် ၁၀၄/၁ + ၁၀၅/၁
 ဧရိယာ ၁ ၀၀၀ ၉၈ ၀၈
 မြေအမျိုးအစား L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၂၅၄၈/၂၀၁၅ ၂၀၁၆</p>	<p>ဇာစိုးဂျ</p>	<p>မန္တလေး-ဝဦးစောကြီး ဇာစိုးဂျအဖွဲ့၏အခြားနည်း ဇာသုံးပြုရန်နှင့်ဖြန့်ဖြူး ရက်စွဲ၊ ၅-၃-၂၀၁၅ စာအမှတ် ၂/၃-၃/၇ ဦးမြ (ဝဌ)</p>	<p>ဦးဝင်းထာမြင့်မာကျော်ဖြင့် မန်နေဂျင်းဖိုလိုက်တာ တောင်ဝမ်ဝမ်သတ္တ ကုမ္ပဏီလီမိတက် ၁၃/ကဆန(နိုင်)ဝဌဂျဂျ ၂-၁၂-၂၀၁၅</p> <div style="border: 1px solid black; padding: 5px;"> <p>Computer Scan Complete Land Department Computer MCDE</p> </div>

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

စာမရယူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၉၂

မြေကွက်အမှတ်

၉၉/၁ + ၁၇၀ + ၁၀၃/၂ + ၁၀၃/၃ + ၁၀၅/၂

ဧရိယာ

၄ ဗီယမ ၈၈ ဧက

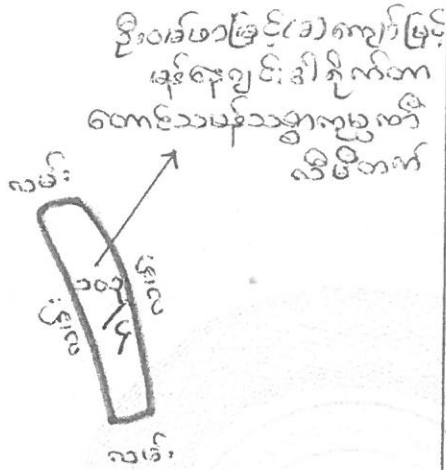
မြေအမျိုးအစား

၂

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၂၅၄၉/၂၀၁၅ ၂၀၁၆</p>	<p>ဇာခိုးရ</p>	<p>မန္တလေးတိုင်းဒေသကြီး ဇာခိုးရစာဖွဲ့အစာအေးနည်း စာသုံးဖြုတ်ခွင့်ဖြုတ်ခိန် ရက်စွဲ ၊ ၅.၃.၂၀၁၅ စာအာဇာတ် ၂/၃-၃/၇ ဦးဖြ (သုဖြ)</p>	<p>ဦးဝင်းယာဖြဖြ (ခ) ကျော်ဖြဖြ မန်နေးဂျင်း ဒါရိုက်တာ တောင်သာမန်သတ္တ ကုမ္ပဏီ လီမိတက် ၁၃/ကခန(ဒိုင်) ၀၃၇၂၇၆ ၂.၅၂.၂၀၁၅</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p>Computer Scan Complete Land Department Computer MCDC</p> </div>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဝရန်မြေပုံ
အမည်ပေါက် ဦးဝမ်မာ(မြင့်)ရွာ(၁)ကျွန်းမြင့် ဖန်တီးခြင်း ဒါနိုက်တာ၊ ကောင်သမန်သတ္တကမ္ဘာဗွဲ့၏ လိမ္မော်တက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် ကောင်သမန်
မြေကွက်အမှတ် (၁၀၃/၄)
မြေအမျိုးအစား L
အလျား x အနံ ဧရိယာ (၀.၉၉) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁ မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၂၅၅၀ / ၂၀၁၅ - ၂၀၁၆

ရရှိခြင်းအား

၂၀၁၅/၁၆ (၆/၆)

မြေတိုင်းရပ်ကွက်အမှတ်
၅၉၂

မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

ဧရာဝတီ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၉၂

မြေကွက်အမှတ်

၁၀၃/၄

ဧရိယာ

၀ ဧက ၀၉ ဧက

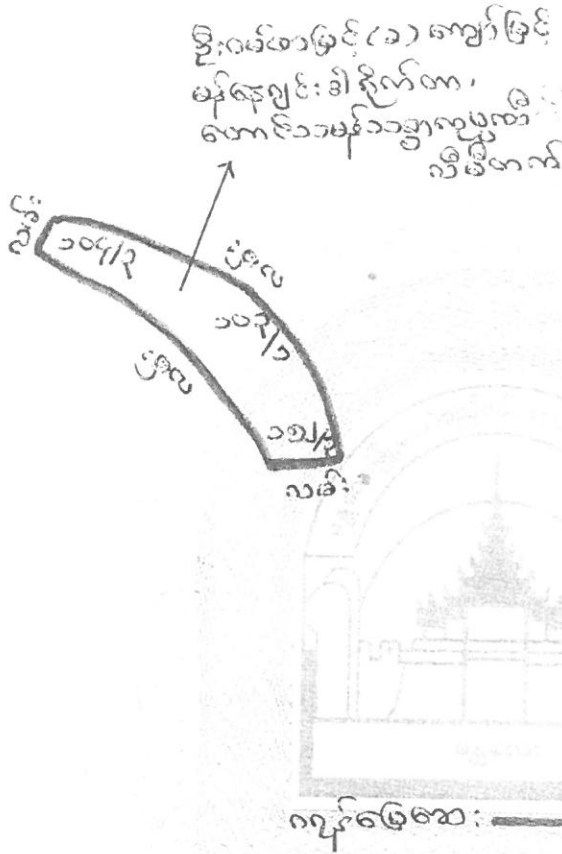
မြေအမျိုးအစား

L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
၂၅၅၀/၂၀၁၅- ၂၀၁၆	ဇာခိုးဂု	မန္တလေးတိုင်းဒေသကြီး ဇာခိုးဂုစာပွဲအစားအစာအား အသုံးပြုရန် ခွင့်ပြု ဖိန့် ရက်စွဲ ၂၀၁၅.၅.၃၀ စာစာမှတ် ၂/၃-၃/၇ ဦးဖြ (၀၃၆)	ဦးဝမ်ဖာဖြင့် (သို့) ကျော်ဖြင့် မန်နေးဂျင်း ဒါရိုက်တာ တောင်ငူမန်သရွာ ကုမ္ပဏီလီမိတက် ၁၃/ကနဒနီ(၁)၀၃၇၂၇၆ ၂-၁၂-၂၀၁၅ Computer Scan Complete Land Department Computer MCS



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
 မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဝရန်မြေပုံ
အမည်ပေါက် ဦးဝမ်မာမြင့် (၁) ကျော်မြင့် မျက်နှာချင်း ဒါ နိုင်ငံက၊ တောင်သမုန်သတ္တကုမ္ပဏီ လီမိတက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် တောင်သမုန်
မြေကွက်အမှတ် (၁၀၄/၃ + ၁၀၃/၁ + ၁၅၂/၃)
မြေအမျိုးအစား L
အလျား x အနံ့ ဧရိယာ (၂.၃၂) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁ မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၂၅၅၅/၂၀၁၅ - ၂၀၁၆

၅၃၇၅၅: (၆/၆)

မြေတိုင်း (၂)
 အမရပူရမြို့နယ်

မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
 မြို့ပြ/မြေစီမံဌာန



၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူ/မြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျ မှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

- စာမရပူရ

ပြေတိုင်းရပ်ကွက်အမှတ်

- ၅၉၂

ပြေကွက်အမှတ်

- ၁၀၃/၁ + ၁၀၄/၃ + ၁၅၂/၃

ဧရိယာ

၂ ဧဝဝမ ၃၂ ဧက

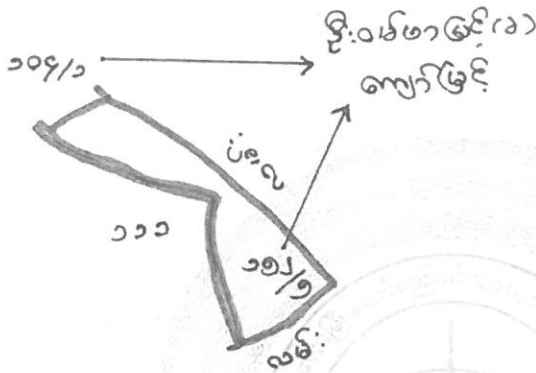
မြေအမျိုးအစား

- L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၂၅၅၁/၂၀၁၅ ၂၀၁၆</p>	<p>စာစိုးရ</p>	<p>မန္တလေးတိုင်းဒေသကြီး စာစိုးရအဖွဲ့၏အခြားနည်း စာသုံးပြုရန်ခွင့်ပြုခြင်း ရက်စွဲ ၂၅.၇.၂၀၁၅ စာစာမှတ် ၂/၃-၃/၇ ဦးမြ (၀၃၆)</p>	<p>ဦးဝမ် ဟာဖြေ(မ)ကျော် မြေ မန်နေဂျင်းဒါရိုက်တာ တောင်ငူမန်သစ္စာ လှမြတ် လီမိတက် ၁၃/ကန(နိုင်)ထုဂျပရ ၂-၁၂-၂၀၁၅ Computer Scan Complete Land Department Computer MCDC</p>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



ဂရုန်ဖေဆေး: _____

ဦးပိုင်ဖြားဆေး: _____

(Signature)
၅၃၄၅၈ (၆၆/၆)

(Signature)
မြေတိုင်း (၂)
အမရပူရမြို့နယ်

(Signature)
၂၄.၂.၀၆
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဝရန်မြေပုံ
အမည်ပေါက် ဦးဝါဒါဖာမြင့် (၁)ကျော် မြင့် မြေပုံပိုင်ဆိုင်မှု၊ ဆောင်ရွက်မှုအတွက် မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် ဆောင်ရွက်မှု
မြေကွက်အမှတ် ၁၅၂/၅
မြေအမျိုးအစား L
အလျား: x အနံ့: ဧရိယာ (၀.၉၅) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၃၆၄၉/၂၀၁၅ - ၂၀၁၆

၂၀၁၅ /၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

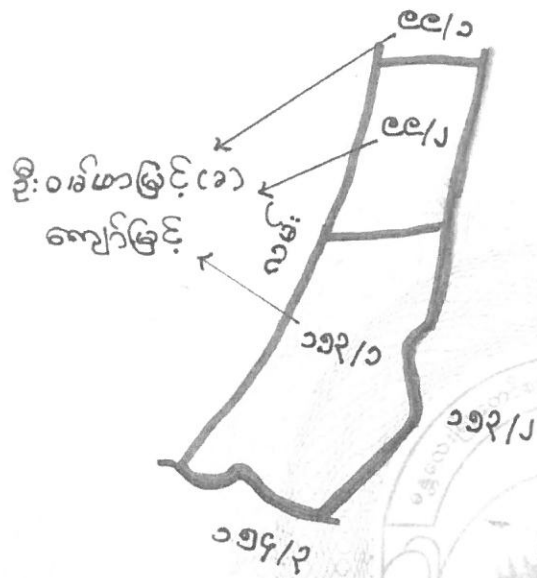
မြို့နယ် စာရဂူရ
 မြေတိုင်းရပ်ကွက်အမှတ် ၁၉၂
 မြေကွက်အမှတ် ၁၅၂ / ၅
 ဧရိယာ ၀ စတမ် ၉၅ ဧက
 မြေအမျိုးအစား L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
၃၆၄၉/၂၀၁၅ ၂၀၁၆	ဇာစိုးဂ	ဖွဲ့စည်းတိုင်းထောင်ကြီး ဇာစိုးဂအဖွဲ့ လယ်မြေတစ်ပါးလယ်ထား မြေစားစားစားနည်း စာသုံးဖြုတ်ခွင့်ဖြုတ်ခံနဲ့ စာအုပ်အမှတ် ၂/၃-၃/၇ ဦး (၀၃၆) (၅.၃.၂၀၁၅) လယ်ထာမြေပုံစံပုံစံ ၂၉ နှင့် ၃၀ ဝဋ်အရ မြေအရိုးရာပိုင်ဆိုင်မှု နှင့်တောင်းပန်ကြေးလက် Report မြေရာစာ စာသုံးဖြုတ်	ဦးဝန် မာမိမာ ကျော် (မိ) ၁၃/ကနနီ(၀၃၇၂၇၆ မန်နေးကျင်း ဒါဂိုက်တာ တောင်းပန်သောလူမှုလုပ် လိုမိတာ

၁. ၃. ၂၀၁၆
 Computer Scan Complete
 Head Department Computer
 ၂၀၁၆



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



ဂရုန်မြေဆေး: ———

ဦးပိုင်ဖြာ: ဆေး: ———

(Signature)
ဌာနမှူး (မြို့/မြ)

(Signature)
မြေတိုင်း (၂)
အမရပူရမြို့နယ်

(Signature)
2016
မြို့ပြ/မြေပိမ့်ဌာန

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေဌာား ဂရုန်မြေပုံ
အမည်ပေါက် ဦးဝမ်ဖာမြင့် (၁) ကျော်မြင့် မြေပုံပိုင်ဆိုင်သူ၊ တောင်သမားသမားကွဲစွဲစီမံအဖွဲ့ဝင်၊ လီမိတက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် တောင်သမား
မြေကွက်အမှတ် (၉၉/၂ + ၁၅၃/၁)
မြေအမျိုးအစား L
အလျား: x အနံ့: ဧရိယာ (၁.၉၉) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၃၆၅၃/၂၀၁၅-၂၀၁၆

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နှုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

စာမရပူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၉၂

မြေကွက်အမှတ်

၉၉/၂ + ၁၅၃/၁

ဧရိယာ

၁ ဧယမ ၆၉၉ ဧက

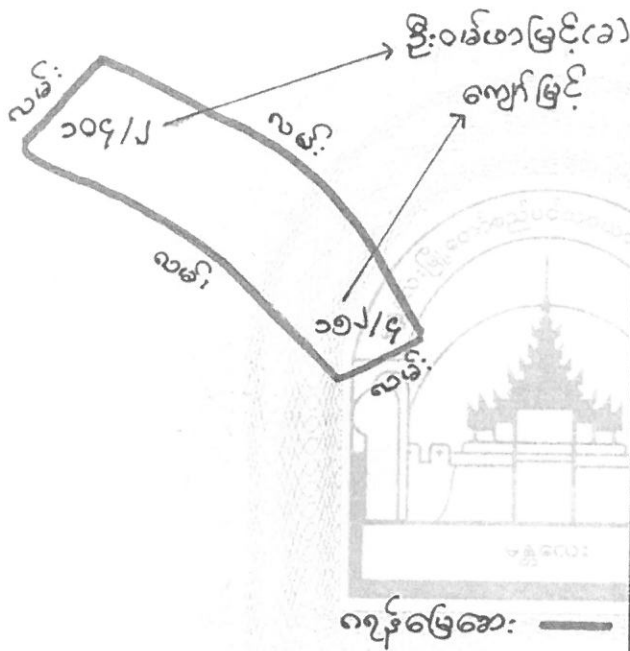
မြေအမျိုးအစား

၂

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၃၆၅၃/၂၀၁၅ ၂၀၁၆</p>	<p>စာစိုးရ</p>	<p>မန္တလေးတိုင်းဒေသကြီး စာစိုးရဇာဖွဲ့ လက်ထပ်ကြေညာပါးလက်ထပ် စစ်စစ်အား စာစားနည်း စာသုံးဖြုတ်ခွင့်ဖြုတ်ခွင့် စာစာရွက် ၂/၃-၃/၇ ဦး (၀၃၆) (၅-၃-၂၀၁၅) လက်ထပ်ကြေညာပေးပေး ၂၉၅၆ ၃၀ ဝန်စာရ ဖြုတ်ခွင့်ရုံးလက်ထပ်ကြေးဖြုတ် ၅၆၆၆၆၆၆၆၆၆၆၆၆၆ လက်ထပ်ကြေးလက် ကြေးလက်ထပ်ကြေးလက် စာသုံးဖြုတ်</p>	<p>ဦးဝင်းမာ(မိုးမာ)ကျော်ဖြေ ၁၃/ကခန(ဒီ)၀၃၇၂၇၆ စန်နေးကျင်းဒါရိုက်တာ တောင်သန်သွားကုမ္ပဏီ လီမိတက် ၁.၃.၂၀၁၆ Computer Scan Operation Head Department Computer MCSB</p>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဝရန်မြေပုံ
အမည်ပေါက် ဦးဝမ်ဖာမြင့်(၁)ကျော်မြင့် မှန်ကန်ကြောင်း ဒါဂျက်ဂျာ၊ ဘောင်သန်သွားကျွန်း၊ နှစ်တက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် တောင်သမန်
မြေကွက်အမှတ် (၁၀၄/၂ + ၁၅၂/၄)
မြေအမျိုးအစား L
အလျား x အနံ ဧရိယာ (၂.၀၆) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁ မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၃၆၅၄/၂၀၁၅ - ၂၀၁၆

(Signature)
အမှတ်စဉ်: (၆၆/၆)

(Signature)
မြေတိုင်း (၂)
အမရပူရမြို့နယ်

(Signature)
24. 2. 16
မြို့ပြ/မြေစီမံခန့်ခွဲမှုဌာန

၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



ဂရုန်မြေခေ: —
ဦးပိုင်ခြားခေ: —

~~၂၀၁၅/၁၆~~
၅၃၃၅၅: (မြို့/မြ)

မြေတိုင်း (၂)
အမရပူရမြို့နယ်

မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅/၂၀၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဂရုန်မြေပုံ
အမည်ပေါက် ဦးဝမ်မာမြင့် (၁)ကျော်မြင့် မြေငှားအကျိုးဒါရိုက်တာ၊ စောင်ဘုန်းသရွာ လူမှုကွန်ပွနီလီမိတက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် တောင် ၁၁မန်
မြေကွက်အမှတ် ၁၃၉
မြေအမျိုးအစား L
အလျား: x အနံ့: ဧရိယာ (၁: ၃၀) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆ လက်မ = ၁ မိုင်
ထုတ်ပေးသည့်အမှုတွဲအမှတ် (၃၆၅၅/၂၀၁၅-၂၀၁၆)

၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နှုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ ထိုကျ မှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

စာမဂပူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၂

မြေကွက်အမှတ်

၁၃၉

ဧရိယာ

၁ ဒဿမ ၃၀ ဧက

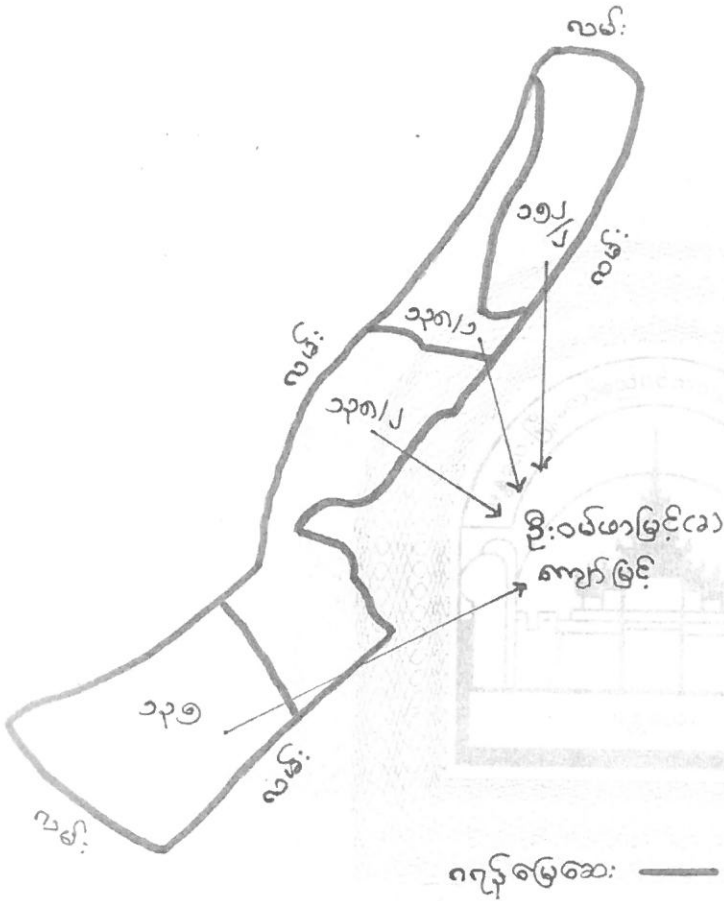
မြေအမျိုးအစား

၆

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၃၆၅၅/၂၀၁၅ ၂၀၁၆</p>	<p>စာချိုးရ</p>	<p>မန္တလေးတိုင်းဒေသကြီး စာချိုးရစာဖွဲ့ လယ်မြေတစ်ပါးလယ်စာ မြေစားစားခြားနား စာသုံးပျက်ခွင့်ပျက်ခွင့် စာစာဇာတ် ၂/ ၃-၃/၇ ဦး (၀၃၆) (၅.၃.၂၀၁၅) လယ်ယာမြေပေးပို့ခြင်း ၂၉၅၉ ၃၀ ဝိုဏ်း မြန်မာ့လုံခြုံရေးနှင့် တောင်သူများကျေးလက် အဖွဲ့အစည်း စာသုံးပျက်</p>	<p>ဦးဝင်းမာ(ခေါ်မာ)ကျော်မြင့် ၁၃/ကခန(ခိုင်)ဝန်ရ ၂၇၆ မန်နေဂျာ ဧါရီကံတာ တောင်သူများသမ္မတမြန်မာနိုင်ငံတော် လိမ္မော် ၀. ၃. ၂၀၁၆ Computer Scan Generated Head Department Computer MGAC</p>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဂရန်မြေပုံ
အမည်ပေါက် ဒွီးဝမ်ဟာမြင့်(ခ)ကျော်မြင့် မြေပုံကျင်းဒါရိုက်တာ၊ တောင်သမန်သမ္မတမြေပုံ နှစ်ကျင်း
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် တောင်သမန်
မြေကွက်အမှတ် (၁၅၅ + ၁၅၈/၁ + ၁၅၈/၂ + ၁၅၂/၂)
မြေအမျိုးအစား L
အလျား x အနံ ဧရိယာ (၄.၂၂) ဧဇာ
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁မိုင်
ထုတ်ပေးသည့်အမှုတွဲအမှတ် ၃၆၅၇ / ၂၀၁၅ - ၂၀၁၆

ဒွီးဝမ်ဟာမြင့်
မှန်ကန်မှု (မြို့/မြ)

မြေတိုင်း (၂)
အမရပူရမြို့နယ်

မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

စာမရယူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၉၂

မြေကွက်အမှတ်

၁၃၅+၁၃၈/၁ + ၁၃၈/၂ + ၁၅၂/၂

ဧရိယာ

၄ ဧက ၂၂ ဧက

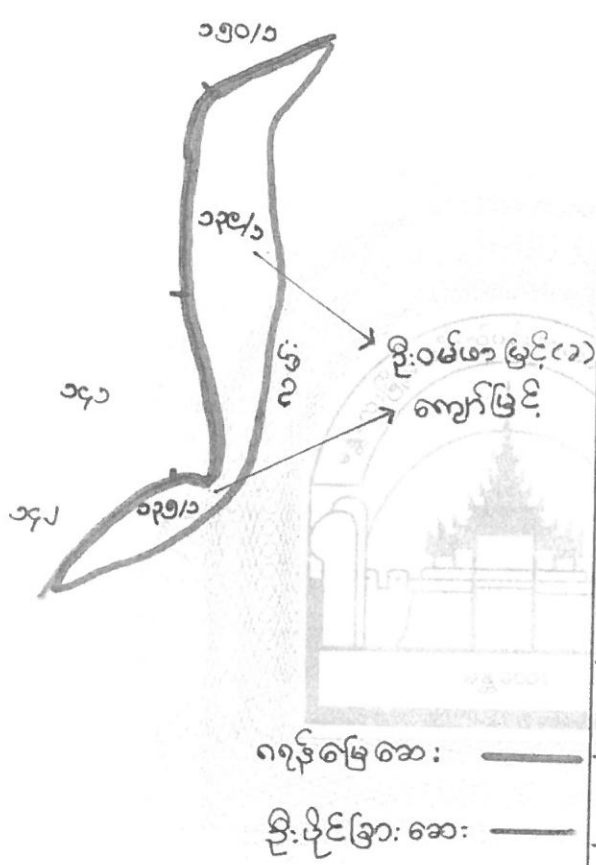
မြေအမျိုးအစား

L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၃၆၅၇/၂၀၁၅ ၂၀၁၆</p>	<p>ဇာစိုးရ</p>	<p>မန္တလေးသို့ဧကဒေသကြီး ဇာစိုးရဇာဖွဲ့ လယ်မြေပြန်ပေးလယ်စာ ဖွဲ့စား စာကြော်နည်း စာသုံးဖြူရန်နှင့်ဖြူဖိန့် စာအမှတ် ၂/၃ - ၃ / ၇ ဦး (၀၃၆) (၅ - ၃ - ၂၀၁၅) လယ်ယာမြေပေးပို့ပေး ၂၉ နှင့် ၃၀ ဝို့ဇာရ မြေအစိုးရာယူကျေးဇူး နှင့် တောင်းခံချက်ကျေးဇူး Resort မြေနေရာအဖြစ် စာသုံးဖြူရန်</p>	<p>ဦးဝမ်ဖာ (မိခင်) ကျော်ဖြေ ၁၃/ကခန(နိုင်) ၀၃၇၂ ၇၆ မန်နေဂျင်း ဒါရိုက်တာ တောင်ငူမန်ယူစွာကုမ္ပဏီ လီမိတက် ၁. ၃. ၂၀၁၆ Registrar & Land Officer Land Department Computer REGD</p>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



(Signature)
၄၇ နှစ် (၆၆/၆)

(Signature)
မြေတိုင်း (✓)
အမရပူရမြို့နယ်

(Signature)
မြို့နယ်တာဝန်ခံ (အမရပူရ)
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဂရန်မြေပုံ
အမည်ပေါက် ဦးဝမ်မာမြင့် (၁) ကျော်မြင့် မြေပုံအရ ဦးဝမ်မာ၊ ဆောင်သမား သဒ္ဓါကုမ္ပဏီ လီမိတက်
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် တောင်သမား
မြေကွက်အမှတ် (၁၃၅/၁ + ၁၃၉/၁)
မြေအမျိုးအစား L
အလျား x အနံ ဧရိယာ (၁ . ၅၅) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁ မိုင်
ထုတ်ပေးသည့်အမှတ်အမှတ် ၃၆၅၈/၂၀၁၅ - ၂၀၁၆

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံ/မြေစာရင်းမှ ရေးကူးသော ကောက်နှုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

ဇောမရယူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၉၂

မြေကွက်အမှတ်

၁၃၅/၁ + ၁၃၉/၁

ဧရိယာ

၁ ဇယမ ၅၅ ဧက

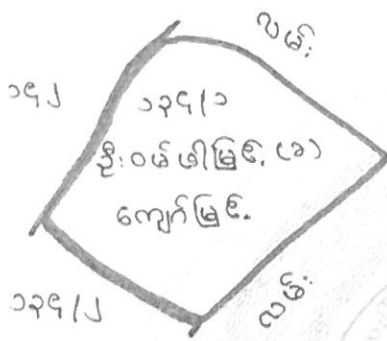
မြေအမျိုးအစား

L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၃၆၅၈/၂၀၁၅ ၂၀၁၆</p>	<p>ဇာခိုးရ</p>	<p>မန္တလေးတိုင်းဒေသကြီး ဇာခိုးရအဖွဲ့ လက်ထောက်ဥက္ကဋ္ဌ ဦးဝင်းမောင် ဧကဒေသနယ်၊ လယ်ယာ ဝေဒေသနယ်၊ ဇာခိုးရ အဖွဲ့ စာချုပ်အမှတ် ၂/၃-၃/၇ ဦး ၆ (၀၃၆) (၅.၃.၂၀၁၅) လယ်ယာဝေဒေသနယ် ၂၉၇၆ ၃၀ ဝိုဏ်း မြန်မာ့ဦးရာယာဉ်ကျေးဇာ နှင့်တောင်ယာချောင်းလက် Resort ဇောမရယူရ အသုံးပြုရန်</p>	<p>ဦးဝင်းမောင် (သို့) ကျော်မောင် ၁၃/ကခန(ဒိုင်)၀၃၇၂၇၆ မန်နေဂျာ ဦးကျော်တာ တောင်ယာချောင်းလက် လီဒါတက် ၀.၃.၂၀၁၆</p>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



ဂရုန်မြေဆေး: _____
ဦးယိုင်ခြားဆေး: _____

၅၇၃ ဧက (၈၅/၆)

မြေတိုင်း (၂)
မေဂရပူရမြို့နယ်

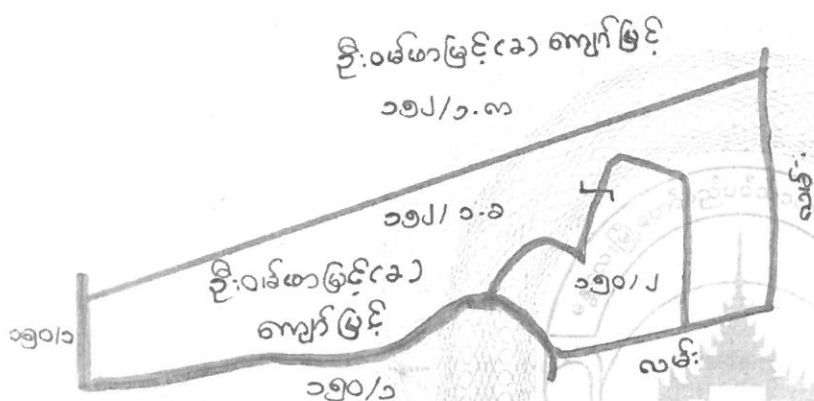
၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံ/မြေစာရင်းမှ ရေးကူးသော
ကောက်နှုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျ
မှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေဌာ: ဂရုန်မြေပုံ
အမည်ပေါက် ဦးဝမ် ဖါဖြူ (၁) ကျော်ဖြူ မြေရာဇဝင်၊ လောင်းသမ္မတမြန်မာနိုင်ငံတော် မြေပုံရေးဆွဲရေးဌာန
မြေတိုင်းရပ်ကွက်အမှတ် ၅၉
လူနေရပ်ကွက်အမှတ် ဂေါင်သာမန်
မြေကွက်အမှတ် ၁၃၄၂
မြေအမျိုးအစား L
အလျား: x အနံ့: ဧရိယာ (၂-၃၉) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆ လက်မ = ၁ မိုင်
ထုတ်ပေးသည့်အမှုတွဲအမှတ် (၃၆၅၉/၂၀၁၅-၂၀၁၆)

၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြေစာရင်းမှ ရေးကူးသော ကောက်နှုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျ မှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



ရရှိနေကြောင်း: _____
ဦးပိုင်ခြားဆေး: _____

၄၁၃၄၅ (၆/၆)

မြေတိုင်း(၂၂)
အမရပူရမြို့နယ်

မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
မြို့ပြ/မြေစီမံဌာန

၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဝရန်မြေပုံ
အမည်ပေါက် ဦးဝမ်ဖာမြင့်(ခ)ကျော်မြင့် မှန်ကန်ကြောင်းအတည်ပြုပေးရန်အတွက် မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် ကောင်သမန်
မြေကွက်အမှတ် (၁၅၀/၂ + ၁၅၂/၁ - ခ)
မြေအမျိုးအစား L
အလျား: x အနံ: ဧရိယာ (၄.၄၂) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁ မိုင်
ထုတ်ပေးသည့်အမှုတွဲအမှတ်

၂၀၁၅ / ၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နှုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

ခမရပူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၅၉၂

မြေကွက်အမှတ်

၁၅၀/၂ + ၁၅၂ / ၁.၁

ဧရိယာ

၄ ဧက ၄၂ ဧက

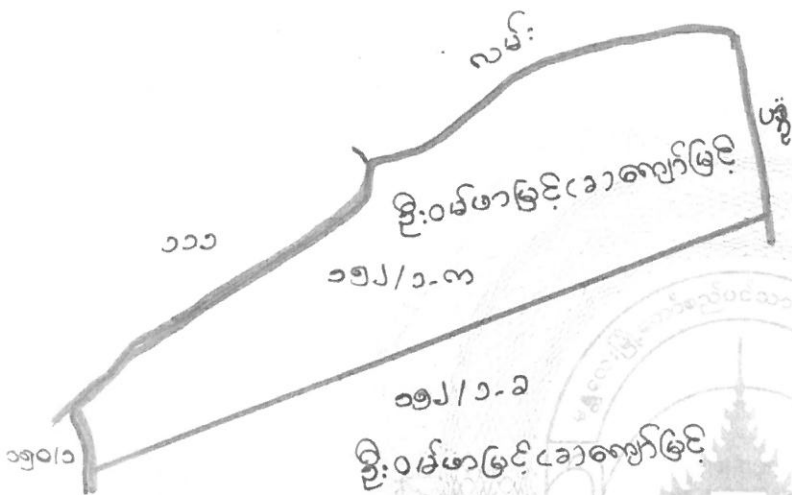
မြေအမျိုးအစား

L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
၃၆၅၆/၂၀၁၅ ၂၀၁၆	ဇာဆိုးရ	<p>မန္တလေးတိုင်းဒေသကြီး ဇာဆိုးရအဖွဲ့ လယ်မြေတစ်ပါးလယ်ထာ မြေစား စာစားနည်း စာသုံးဖြုတ်ခွင့်ဖြုတ်ခွင့် စာစာရွက် ၂/၃-၃/၇ ဦး (၀၃၆) (၅.၃.၂၀၁၅) လယ်ထာမြေပစ္စည်း ၂၉ နှင့် ၃၀ တို့စာရ အစီအစဉ် ရာယည်ကျေးဇူး နှင့် တောင်းသမန်ကျေးလက် Development မြေနေရာအဖြစ် စာသုံးဖြုတ် လက်လီထွက် စာရရှိအ ၂၃.၂. ၂၀၁၆ ရက်စွဲပါ စာစာရွက် ၁၀၁၇/မြေပထမ ၁၂/၂၀၀၆ (၀၃၇၃) စာရ ဦး ဖိုင်ခွဲသည်။</p>	<p>ဦးဝန်ဖာ (မြေ) ကျော်မြေ ၁၃/ကခန(နီ) ၀၃၇၂၇၆ မန်ဆေးဂျင်ဒါရိုက်တာ တောင်းသမန်သစ္စာလူမှုကိ လီဒီတာ ၁-၃-၂၀၁၆ Computer Scan Completed Land Department Computer MSDE</p>



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
မန္တလေးမြို့တော်စည်ပင်သာယာရေးကော်မတီ



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံမှ ရေးကူးပေးသည့် မှန်ကန်ကြောင်း သက်သေခံသည့် မြေငှား ဂရန်မြေပုံ
အမည်ပေါက် ဦးဝမ်မာမြင့် (ခ)ကျော်မြင့် မြေငှားအမျိုးအစား၊ လောင်းသမား၊ သားကုမ္ပဏီ၊ မြေတိုင်းရပ်ကွက်အမှတ် ၅၉၂
လူနေရပ်ကွက်အမှတ် ကောင်သမန်
မြေကွက်အမှတ် ၁၅၂/၁-၈
မြေအမျိုးအစား L
အလျား x အနံ ဧရိယာ (၄,၄၂) ဧက
မြို့နယ် အမရပူရမြို့နယ်
စကေး ၁၆" = ၁မိုင်
ထုတ်ပေးသည့်အမှုတွဲအမှတ်

ဂရန်ဖြေအေး: _____

ဦးပိုင်ခြားအေး: _____

၅၁၃၈
ဦးဝမ်မာ
ဦးဝမ်မာ (၆/၆)

မြေတိုင်း (၂)
အမရပူရမြို့နယ်

၇၆.၇.၁၆
မြို့နယ်တာဝန်ခံ (အမရပူရမြို့နယ်)
မြို့ပြ/မြေစီမံဌာန



၂၀၁၅/၁၆ ခုနှစ်သုံး မြေပုံ/မြို့မြေစာရင်းမှ ရေးကူးသော ကောက်နုတ်ချက်မိတ္တူမြေပုံ/မြေရာဇဝင်ဖြစ်၍ တိကျမှန်ကန်ကြောင်း ထောက်ခံပါသည်။ (မြို့ပြမြေယာစီမံခန့်ခွဲမှုဌာန)

အမည်ပေါက်လွှဲပြောင်းခြင်းမှတ်တမ်း

မြို့နယ်

စာရမူရ

မြေတိုင်းရပ်ကွက်အမှတ်

၁၉၂

မြေကွက်အမှတ်

၁၅၂ / ၁.၈

ဧရိယာ

၄ စတုရန်း ငှက် ဇက

မြေအမျိုးအစား

L

အမှုတွဲအမှတ် နေ့စွဲနှင့် ခွင့်ပြုရက်စွဲ	ဂရန်အမည်ပေါက် နှင့် နိုင်ငံသားအမှတ်	လွှဲပြောင်းသည့် စာချုပ်အမှတ်နှင့်ရက်စွဲ (သို့) တရားရုံးဒီဂရီနှင့်ရက်စွဲ	လွှဲပြောင်းခံရသူ (သို့) တရားရုံးဒီဂရီရရှိသူ၏ အမည်နှင့် နိုင်ငံသားအမှတ်
၁	၂	၃	၄
<p>၃၆၅၂ / ၂၀၁၅ ၂၀၁၆</p>	<p>ဇာခိုးရ</p>	<p>မန္တလေးတိုင်းဒေသကြီး ဇာခိုးရစာဖွဲ့ လယ်မြေတစ်ပါးလယ်ထာ မြေစား ဇာခိုးနည်း စာသုံးပြုရန်ခွင့်ပြုခြင်း စာစာမှတ် ၂ / ၃ - ၃ / ၇ ဦး (၀၃၆) ၅.၃.၂၀၁၅ လယ်တစ်ခုပေးပို့ပေး ၂၉ နှင့် ၃၀ တို့အရ မြန်မာ့စီးပွားရေးဗဟို ဌာနတော်သမန်ကျေးလက် ရေးရာဝန်ကြီးဌာန စာသုံးပြုရန် လက်လိလှော်စာချုပ်အ ရက်စွဲ ၂၃.၂.၂၀၁၆ ရက်စွဲပါ စာစာမှတ်သား/မြေယာခွဲ ၁၂ / ၂၀၁၆ (၀၃၇၃) အရ ဦး ပိုင်စွဲသည်။</p>	<p>ဦးဝန်မာ (မြေမာ) ကျော် မြေ ၁၃ / (ကဆန.နိုင်) ၀၃၇၂၇၆ မန်ဂျေးဂျေး ဒါရိုက်တာ တောင်သမန်သတ္တကုမ္ပဏီ လီမိတက် ၁ - ၃ - ၂၀၁၆ Computer Exam Computer Exam Department Computer MCSG</p>

APPENDIX – II
Project Design, Specification and Layout





စီမံကိန်းပြီးစီးပါက ဖြစ်ပေါ်လာမည့် ပုံစံများ



စီမံကိန်းပြီးစီးပါက ဖြစ်ပေါ်လာမည့် ပုံစံများ



စီမံကိန်းပြီးစီးပါက ဖြစ်ပေါ်လာမည့် ပုံစံများ



စီမံကိန်းပြီးစီးပါက ဖြစ်ပေါ်လာမည့် ပုံစံများ



စီမံကိန်းပြီးစီးပါက ဖြစ်ပေါ်လာမည့် ပုံစံများ



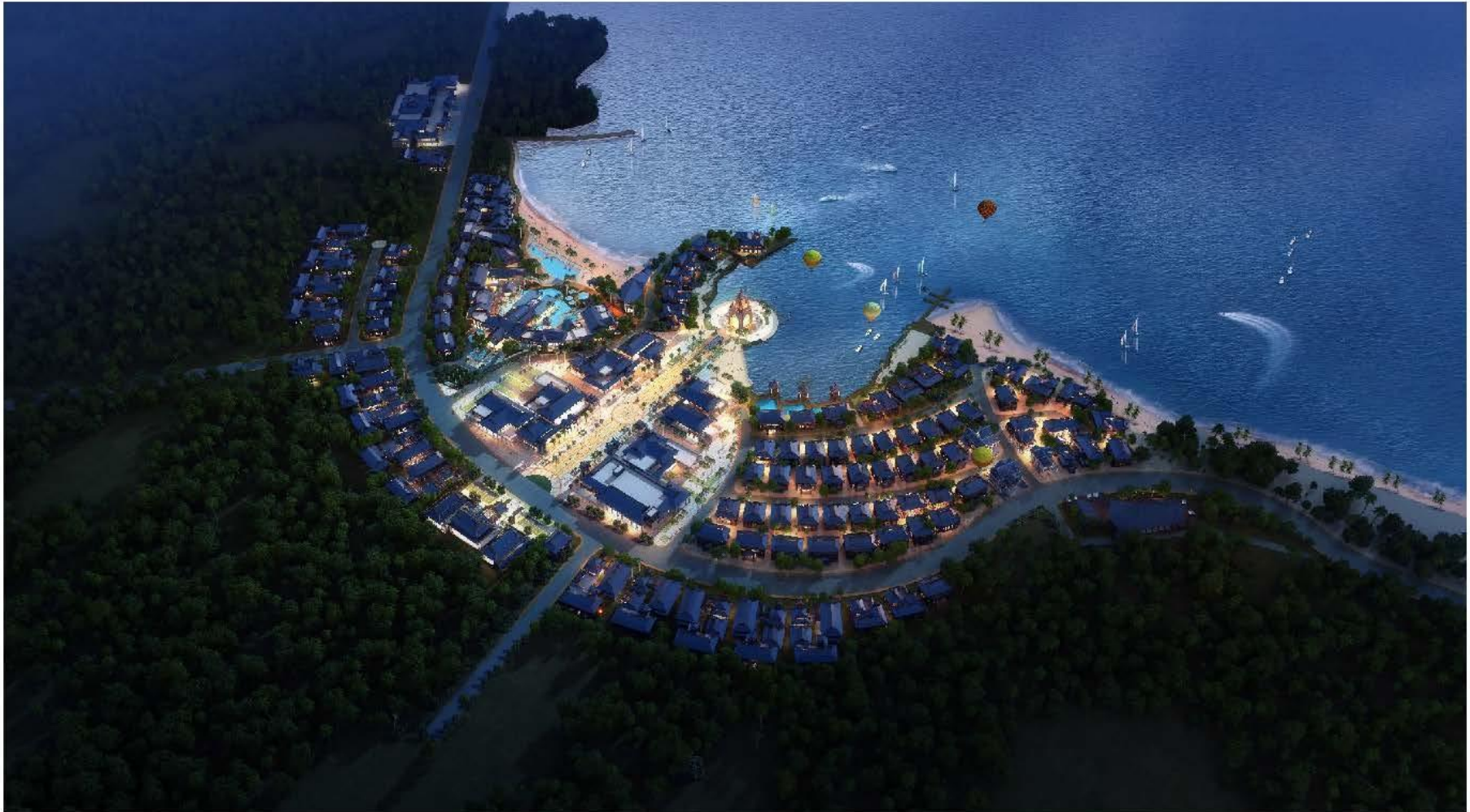
စီမံကိန်းပြီးစီးပါက ဖြစ်ပေါ်လာမည့် ပုံစံများ



Bird's-Eye View (Day)

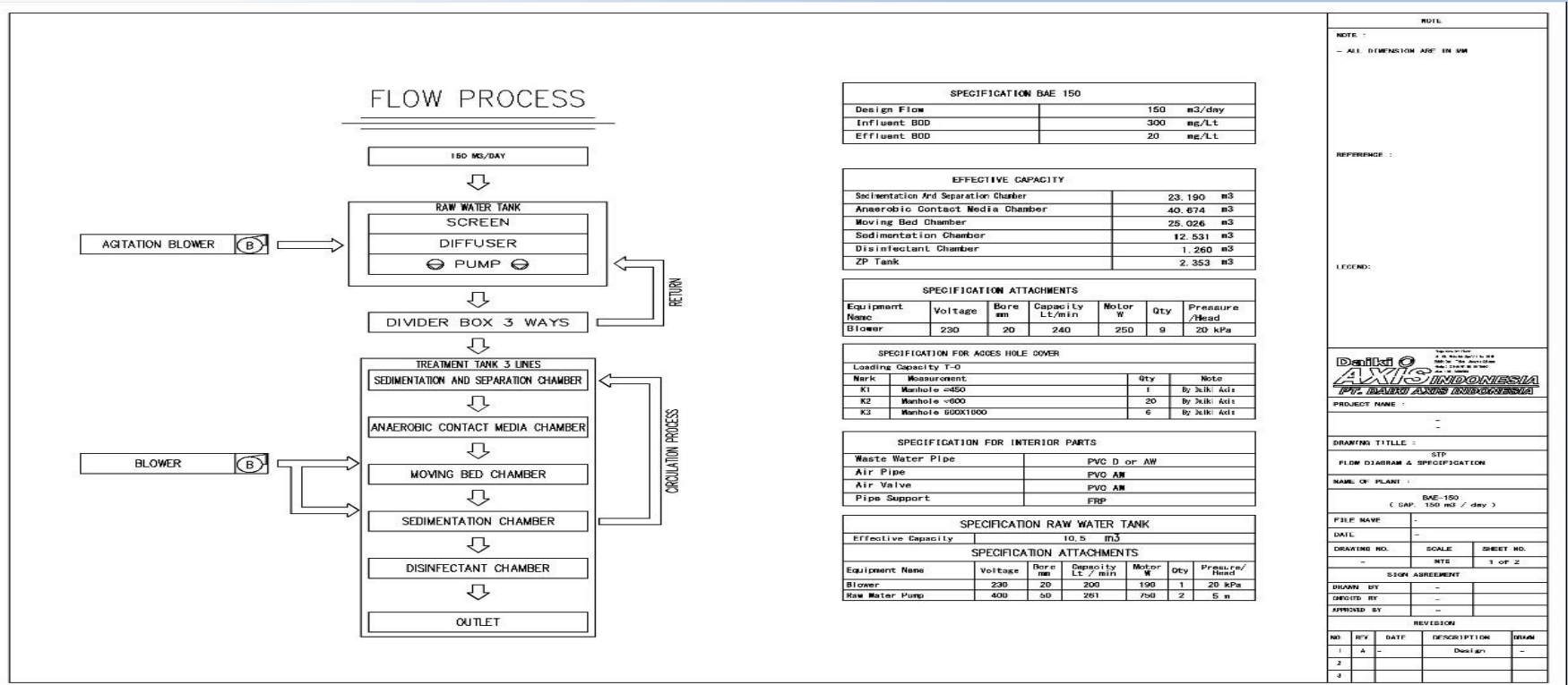


Bird's-Eye View (Night)



မိလ္လာနှင့် ရေဆိုးစွန့်ထုတ်မှု

အဆောက်အဦ အသီးသီးမှစွန့်ထုတ်သော ရေချိုးခန်းမှရေနှင့် မိလ္လာများကို ရေဆိုးပြန်များဖြင့် သွယ်ယူ၍ ဂျပန်နည်းပညာ Johkasou Treatment Plant ၌ BOD 20 mg/L နှင့် COD 50 mg/L အထိ သန့်စင်သွားမည် ဖြစ်ပြီး သန့်စင်ပြီးရေကြည်များကို စွန့်ထုတ်စုဆောင်း၍ သစ်ပင်ပန်းပင်များ ရေလောင်းခြင်းလုပ်ငန်းများနှင့် မီးသတ်လုပ်ငန်းများ၌ ပြန်လည်အသုံးပြုသွားမည် ဖြစ်ပါသည်။



APPENDIX – III

List of the species and quantity of trees



**တောင်သမန်သစ္စာကုမ္ပဏီတွင် ရှိသော သစ်ပင်/ပန်းပင်
အမျိုးအစားများ**

စဉ်	အမျိုးအမည်	အရေအတွက်	ရေတွက်ပုံ
၁	စက္ကူပန်း	226,700	ပင်
၂	ရွက်လှ	610	ပင်
၃	ကြံ့စာ	123,000	ပင်
၄	ဇလပ်ဖြူ	200	ပင်
၅	မက်ဆီကို	100	ပင်
၆	ထိုင်ဝမ် ဗန်ဒါ	10,000	ပင်
၇	ယိုးဒယား လက်ပံ	50	ပင်
၈	ဘုံဆိုင်းပင်	15	ပင်
၉	ကျူဘာပင်	20	ပင်
၁၀	ဂမုန်း ပန်းအိုး	40	အိုး
၁၁	ကြက်တူ ရွေးငှက်ပျော	8	ပင်
၁၂	ငွေရောင် မင်းပန်း	10	ပင်
၁၃	ဝါး ပင်	9	ပင်
၁၄	စွန်ပလွန်	14	ပင်
၁၅	ပွန်းညှပ် ပင်	800	ပင်
၁၆	စိန်ပန်းပင်	7,000	ပင်
၁၇	အုန်းပင်	5	ပင်
၁၈	တောထန်းပင်	500	ပင်
၁၉	ရိုးရိုးထန်းပင်	74	ပင်
၂၀	မယ်ဇယ်ပင်	300	ပင်
၂၁	ညောင်ဝိုင်းပင်	4,000	ပင်

APPENDIX – IV

Certificate and Records of Environmental Quality Measurement





Environmental Report

Locations

920256	Taung Than Man Thitsar	EPAS	▲
			▼

Record Count: 1445 Report Average: 1 Hour

Start Date: 9/19/2022 at 18:16:01 End Date: 9/20/2022 at 18:20:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V		Comments
Ave	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0	
Max	.22	11	12	79	43	72	66	32	348	9.2	13.3	0	
Min	0	2	1	2	1	53	0	25	57	0	12.8	0	
EPAS 920256	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0	
	.22	11	12	79	43	72	66	32	348	9.2	13.3	0	
	0	2	1	2	1	53	0	25	57	0	12.8	0	
Daily Mon, Sep 19, 2022	.003284	2	1	19.0116	9.06104	63.4186	19.7383	28.375	124.941	3.31860	13.2691	0	
	.22	2	1	79	43	68	59	32	348	7.9	13.3	0	
	0	2	1	2	1	53	0	27	57	0	12.8	0	
Ave Period 1 18:16:01 9/19/22	.008333	2	1	22.7166	8.45	58.0333	25.6666	30.0333	70.8333	.058333	13.26	0	
	.21	2	1	69	39	62	58	32	348	.5	13.3	0	
	0	2	1	2	1	53	0	29	57	0	12.8	0	
Ave Period 1 19:16:01 9/19/22	.005166	2	1	36.5166	18.9	63.7666	27.5333	28.75	107.016	3.12	13.265	0	
	.22	2	1	79	43	66	59	29	162	7.1	13.3	0	
	0	2	1	14	5	62	11	28	62	0	12.8	0	
Ave Period 1 20:16:01 9/19/22	0	2	1	22.0333	11.0666	63.2666	16.15	28.3833	136.333	3.59666	13.2683	0	
	0	2	1	46	22	64	22	29	171	6.4	13.3	0	
	0	2	1	5	1	62	11	28	110	1.3	12.8	0	
Ave Period 1 21:16:01 9/19/22	0	2	1	9.48333	5.06666	63	16.4833	28	143.85	3.44333	13.2683	0	
	0	2	1	14	9	65	20	28	176	5.3	13.3	0	
	0	2	1	6	1	62	13	28	111	1.4	13	0	
Ave Period 1 22:16:01 9/19/22	.0005	2	1	10.7833	3.48333	66.4833	16.1333	27.7166	149.883	4.71666	13.265	0	
	.01	2	1	17	7	68	20	28	184	6.3	13.3	0	
	0	2	1	5	1	65	14	27	123	3	12.8	0	
Ave Period 1 23:16:01 9/19/22	.006590	2	1	10.1818	6.79545	66.8863	15.2727	27	147.840	5.57954	13.2954	0	
	.02	2	1	14	11	67	19	27	180	7.9	13.3	0	
	0	2	1	6	2	66	13	27	103	3.5	13.1	0	



Environmental Report

Locations

920256	Taung Than Man Thitsar	EPAS	▲
			▼

Record Count: 1445 Report Average: 1 Hour

Start Date: 9/19/2022 at 18:16:01 End Date: 9/20/2022 at 18:20:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0
Max	.22	11	12	79	43	72	66	32	348	9.2	13.3	0
Min	0	2	1	2	1	53	0	25	57	0	12.8	0
Daily	.055831	5.81017	4.99182	10.3206	6.08356	69.8419	26.7120	26.1462	130.956	2.77166	13.2769	0
Tue, Sep 20, 2022	.22	11	12	37	36	72	66	31	190	9.2	13.3	0
	0	2	1	2	1	57	0	25	78	0	12.8	0
Ave Period 1	.00625	2	1	8	5.125	67	13.5625	27	146.687	6.35	13.2062	0
0:00:01 9/20/22	.01	2	1	13	8	67	17	27	170	7.4	13.3	0
	0	2	1	2	1	67	12	27	88	5.5	13	0
Ave Period 1	.023333	2	1	3.13333	1.63333	67.4666	12.3	27	149.25	6.56833	13.2716	0
0:16:01 9/20/22	.04	2	1	6	6	68	16	27	180	9.2	13.3	0
	.01	2	1	2	1	67	0	27	118	4.5	13	0
Ave Period 1	.0335	2.06666	1	5.71666	3.28333	69.75	12.0666	26.4	143.95	6.10833	13.2966	0
1:16:01 9/20/22	.05	3	1	13	9	71	15	27	181	8.6	13.3	0
	.01	2	1	2	1	68	0	26	122	3.8	13.1	0
Ave Period 1	.043	4.03333	2.25	6.05	2.85	70.6166	14.8	26	135.95	5.10833	13.275	0
2:16:01 9/20/22	.06	6	4	9	7	71	48	26	166	6.8	13.3	0
	.01	2	1	2	1	70	2	26	95	2.9	13	0
Ave Period 1	.052166	5.83333	4.7	9.7	4.46666	71.5666	24.7166	26	124.266	4.75666	13.2716	0
3:16:01 9/20/22	.07	8	7	16	9	72	43	26	156	6.9	13.3	0
	.01	4	2	3	1	71	0	26	90	3	12.8	0
Ave Period 1	.0425	6.95	5.56666	10	4.4	71.9833	31.9833	26	135.283	3.99166	13.2716	0
4:16:01 9/20/22	.07	9	8	15	10	72	45	26	165	6.2	13.3	0
	.01	5	4	5	1	71	0	26	104	1.6	12.8	0
Ave Period 1	.046333	7.18333	5.8	20.9666	15.55	71.15	27.1333	25.9833	138.266	3.00666	13.275	0
5:16:01 9/20/22	.07	8	9	37	36	72	40	26	172	4.4	13.3	0
	.01	6	4	8	3	71	0	25	102	1.1	13	0



Environmental Report

Locations

920256	Taung Than Man Thitsar	EPAS	▲
			▼

Record Count: 1445 Report Average: 1 Hour

Start Date: 9/19/2022 at 18:16:01 End Date: 9/20/2022 at 18:20:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0
Max	.22	11	12	79	43	72	66	32	348	9.2	13.3	0
Min	0	2	1	2	1	53	0	25	57	0	12.8	0
Ave Period 1	.0995	8.8	8.81666	14.3333	8.26666	71.7333	39.2	25.3166	120.166	1.80333	13.275	0
6:16:01 9/20/22	.16	11	12	27	17	72	49	26	190	3.2	13.3	0
	.02	7	5	10	1	71	21	25	81	.6	13	0
Ave Period 1	.0675	7.03333	5.56666	8.25	2.88333	71.4833	40.3166	26	123.15	2.27166	13.275	0
7:16:01 9/20/22	.22	10	10	19	14	72	66	26	171	4.5	13.3	0
	0	4	1	2	1	70	14	26	78	.2	13	0
Ave Period 1	.0295	4.13333	2.43333	7.96666	5.65	68.2666	13.2833	26.5833	119.783	2.50666	13.2683	0
8:16:01 9/20/22	.11	7	6	28	18	70	17	28	147	6.4	13.3	0
	0	2	1	2	1	65	10	26	91	0	12.8	0
Ave Period 1	0	2	1	2.56666	1.18333	65.6666	14.2333	27.2	141.033	.88	13.2716	0
9:16:01 9/20/22	0	2	1	7	3	67	18	28	172	6.8	13.3	0
	0	2	1	2	1	64	11	27	109	0	12.8	0
Ave Period 1	.0005	2	1	6.81666	1.9	64.2	16.1166	28.1833	140.466	0	13.3	0
10:16:01 9/20/22	.01	2	1	16	8	66	21	29	176	0	13.3	0
	0	2	1	2	1	62	11	27	102	0	13.3	0
Ave Period 1	.022833	4.01666	3.13333	6.15	4.01666	64.6	22.5	27.7333	137.166	.873333	13.275	0
11:16:01 9/20/22	.08	8	7	16	14	71	38	31	167	3.3	13.3	0
	0	2	1	2	1	57	0	25	103	0	13	0
Ave Period 1	.0945	8.48333	8.38333	13.8333	8.33333	71.6333	36.8	25.3833	123.033	1.82166	13.275	0
12:16:01 9/20/22	.16	11	11	27	17	72	49	26	190	3.3	13.3	0
	.02	6	5	9	4	71	0	25	81	.6	13	0
Ave Period 1	.092166	7.73333	7.4	15.3166	10.9833	71.4166	33.95	25.25	123.8	1.81833	13.3	0
13:16:01 9/20/22	.16	10	11	27	17	72	45	26	163	3.3	13.3	0
	.03	6	5	9	5	71	0	25	81	.6	13.3	0



Environmental Report

Locations

920256	Taung Than Man Thitsar	EPAS	▲
			▼

Record Count: 1445 Report Average: 1 Hour

Start Date: 9/19/2022 at 18:16:01 End Date: 9/20/2022 at 18:20:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0
Max	.22	11	12	79	43	72	66	32	348	9.2	13.3	0
Min	0	2	1	2	1	53	0	25	57	0	12.8	0
Ave Period 1	.080333	7.61666	7.33333	13.0833	8.51666	71.3333	32.35	25.4666	131.483	2.04333	13.275	0
14:16:01 9/20/22	.14	11	10	27	17	72	45	26	190	3.3	13.3	0
	.02	6	5	9	4	71	0	25	91	1.1	13	0
Ave Period 1	.096333	8.58333	8.5	14.15	8.53333	71.65	37.8333	25.3166	121.683	1.82166	13.275	0
15:16:01 9/20/22	.16	11	12	27	17	72	49	26	190	3.3	13.3	0
	.02	7	5	9	3	71	2	25	81	.6	13	0
Ave Period 1	.095833	8.3	8.18333	14.05	8.86666	71.5833	36.1666	25.3	123.783	1.83333	13.275	0
16:16:01 9/20/22	.16	11	11	27	17	72	45	26	190	3.3	13.3	0
	.02	6	5	9	4	71	0	25	81	.6	13	0
Ave Period 1	.0975	8.48333	8.43333	14.1833	8.75	71.6333	37.2	25.3	122.266	1.76333	13.275	0
17:16:01 9/20/22	.16	11	11	27	17	72	49	26	190	3.2	13.3	0
	.02	6	5	9	4	71	0	25	81	.6	13	0
Ave Period 1	.066	10	10	11.8	2.4	72	43.2	26	109.8	2.28	13.3	0
18:16:01 9/20/22	.08	10	12	13	3	72	47	26	127	2.6	13.3	0
	.06	10	9	10	1	72	40	26	89	2.1	13.3	0



Environmental Report

Locations

920256	Taung Than Man Thitsar	EPAS	▲
			▼

Record Count: 1445 Report Average: 24 Hour

Start Date: 9/19/2022 at 18:16:01 End Date: 9/20/2022 at 18:20:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V		Comments
Ave	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0	
Max	.22	11	12	79	43	72	66	32	348	9.2	13.3	0	
Min	0	2	1	2	1	53	0	25	57	0	12.8	0	
EPAS 920256	.043321	4.90311	4.04152	12.3896	6.79238	68.3128	25.0519	26.6768	129.524	2.90186	13.2750	0	
	.22	11	12	79	43	72	66	32	348	9.2	13.3	0	
	0	2	1	2	1	53	0	25	57	0	12.8	0	
Daily Mon, Sep 19, 2022	.003284	2	1	19.0116	9.06104	63.4186	19.7383	28.375	124.941	3.31860	13.2691	0	
	.22	2	1	79	43	68	59	32	348	7.9	13.3	0	
	0	2	1	2	1	53	0	27	57	0	12.8	0	
Ave Period 24 18:16:01 9/19/22	.003284	2	1	19.0116	9.06104	63.4186	19.7383	28.375	124.941	3.31860	13.2691	0	
	.22	2	1	79	43	68	59	32	348	7.9	13.3	0	
	0	2	1	2	1	53	0	27	57	0	12.8	0	
Daily Tue, Sep 20, 2022	.055831	5.81017	4.99182	10.3206	6.08356	69.8419	26.7120	26.1462	130.956	2.77166	13.2769	0	
	.22	11	12	37	36	72	66	31	190	9.2	13.3	0	
	0	2	1	2	1	57	0	25	78	0	12.8	0	
Ave Period 24 0:00:01 9/20/22	.055784	5.79105	4.96897	10.3138	6.10036	69.8321	26.6368	26.1468	131.052	2.77390	13.2768	0	
	.22	11	12	37	36	72	66	31	190	9.2	13.3	0	
	0	2	1	2	1	57	0	25	78	0	12.8	0	
Ave Period 24 18:16:01 9/20/22	.066	10	10	11.8	2.4	72	43.2	26	109.8	2.28	13.3	0	
	.08	10	12	13	3	72	47	26	127	2.6	13.3	0	
	.06	10	9	10	1	72	40	26	89	2.1	13.3	0	

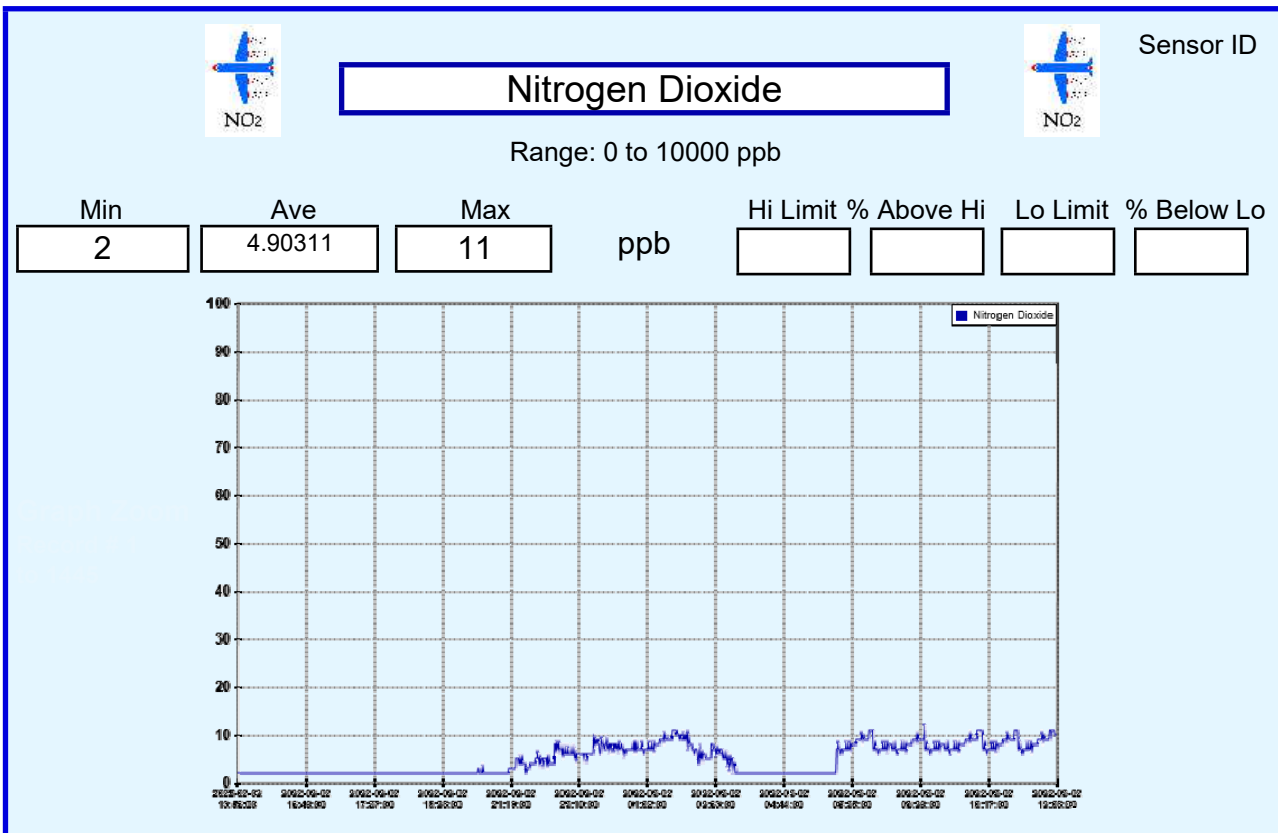
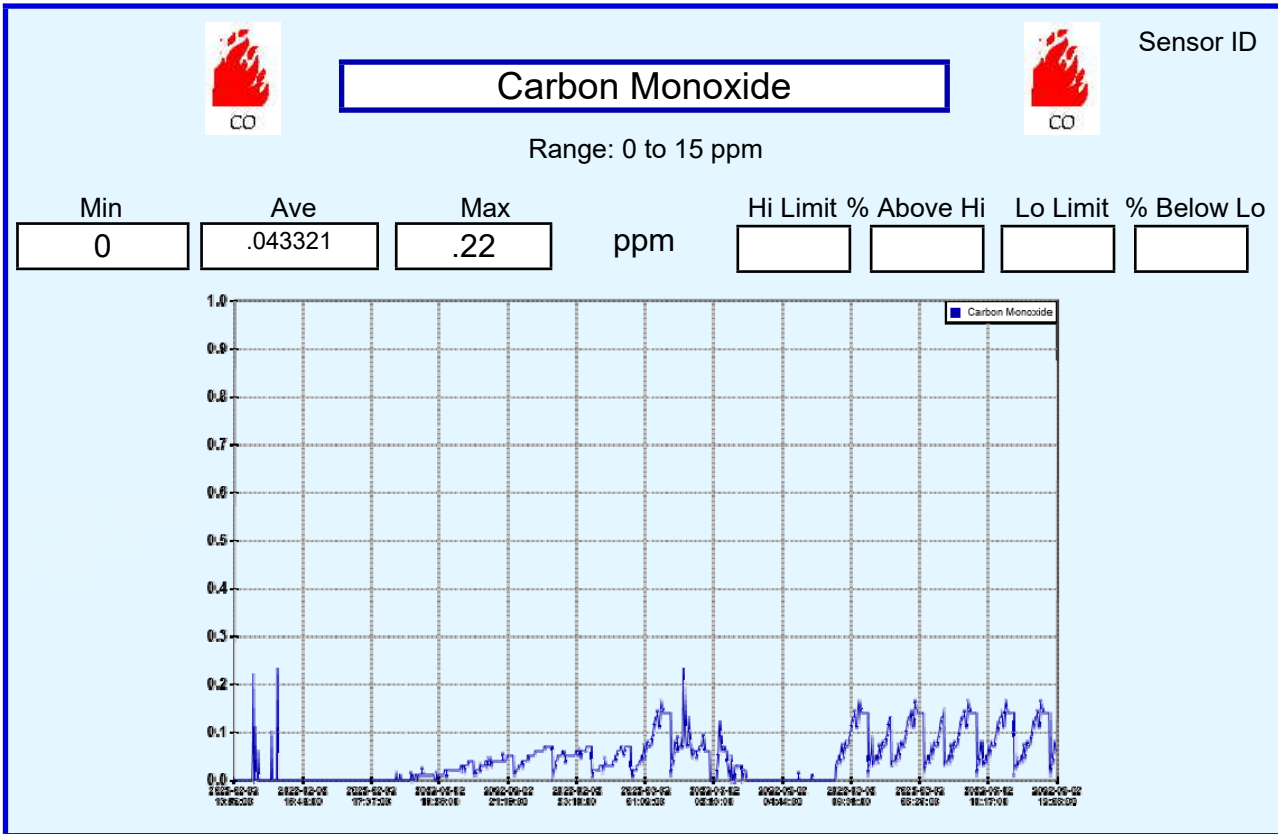
Environmental Report

Start: 9/19/2022 6:16:01 PM End: 9/20/2022 6:20:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1445**



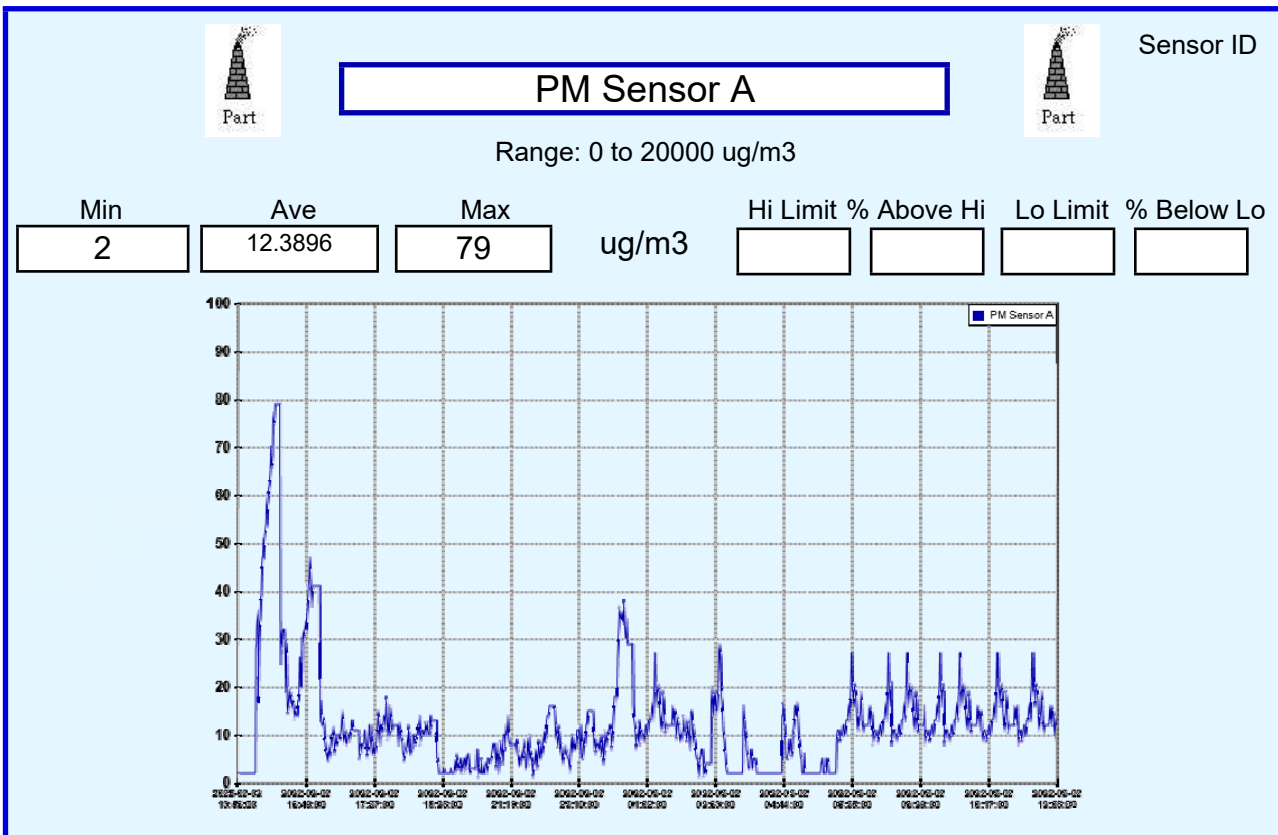
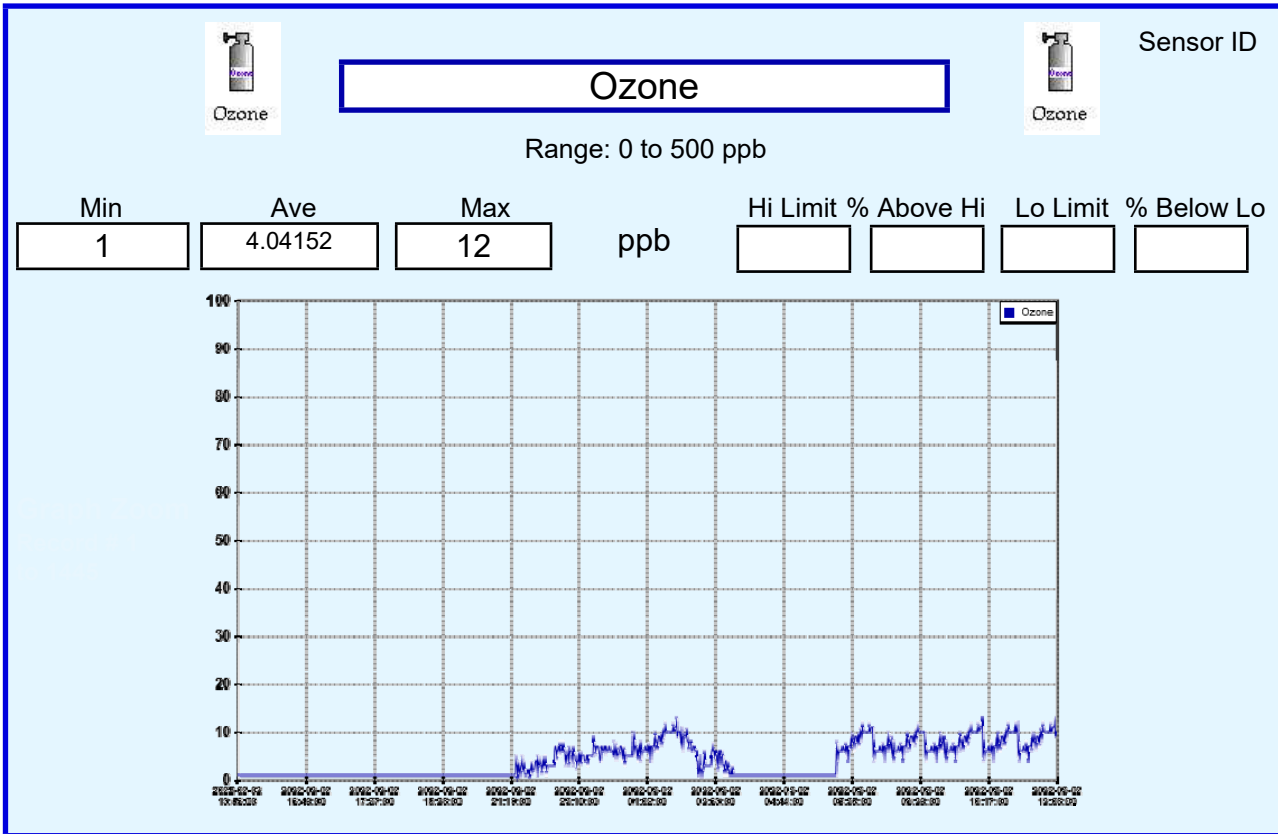
Environmental Report

Start: 9/19/2022 6:16:01 PM End: 9/20/2022 6:20:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1445**



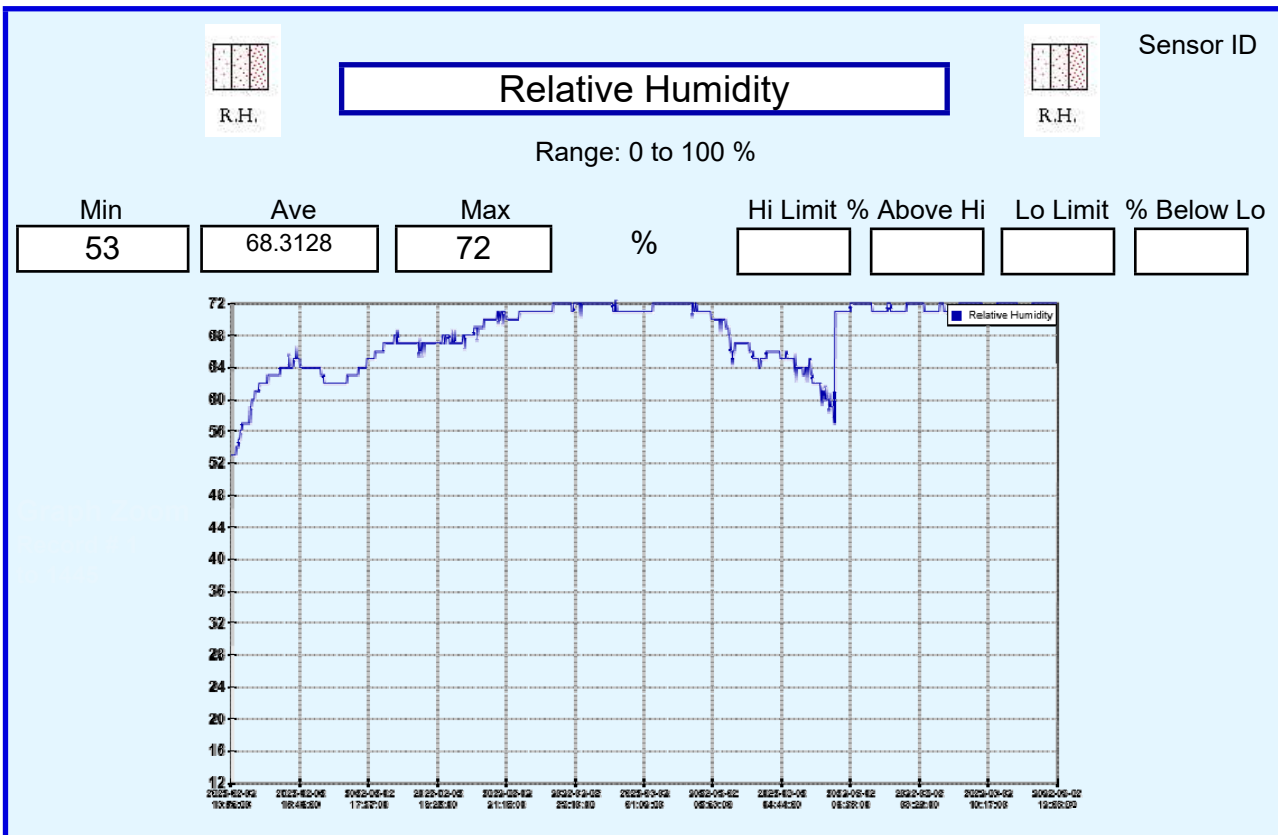
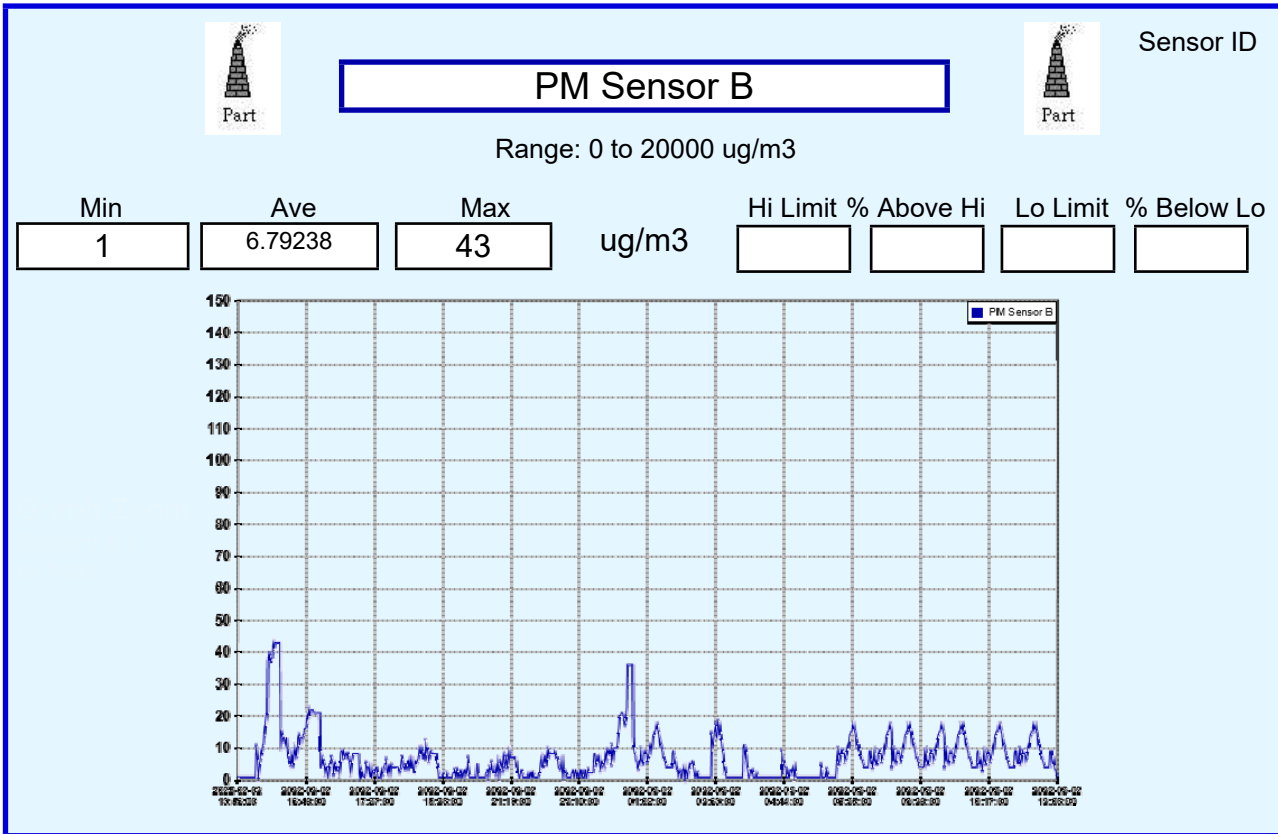
Environmental Report

Start: 9/19/2022 6:16:01 PM End: 9/20/2022 6:20:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1445**



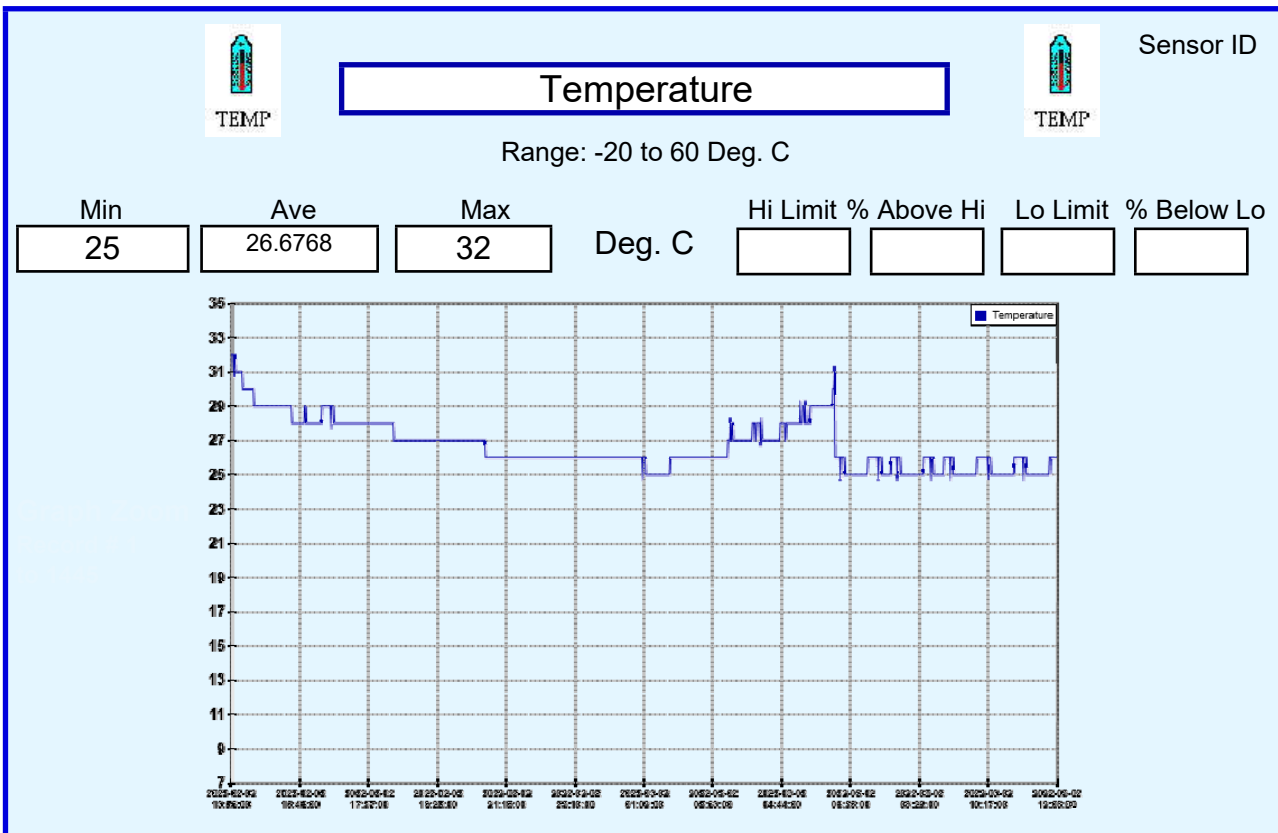
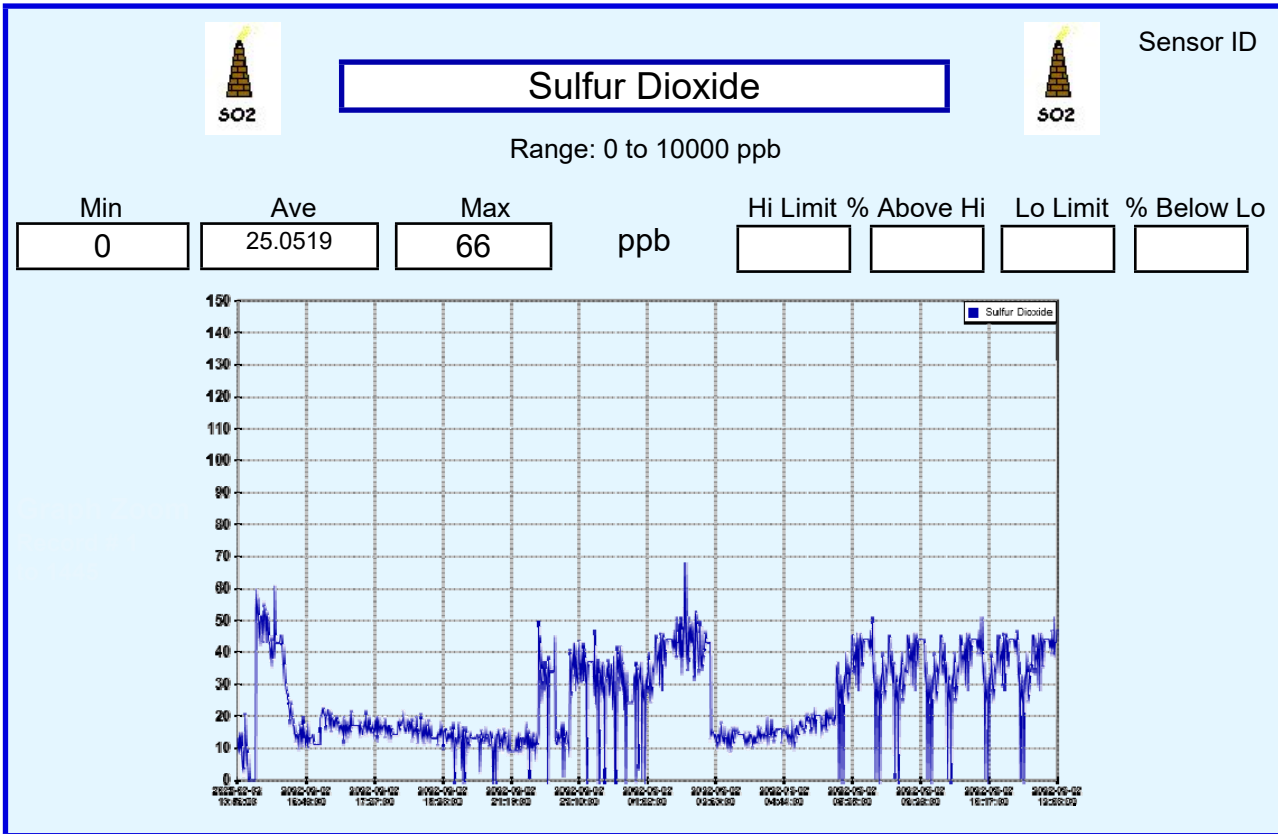
Environmental Report

Start: 9/19/2022 6:16:01 PM End: 9/20/2022 6:20:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1445**



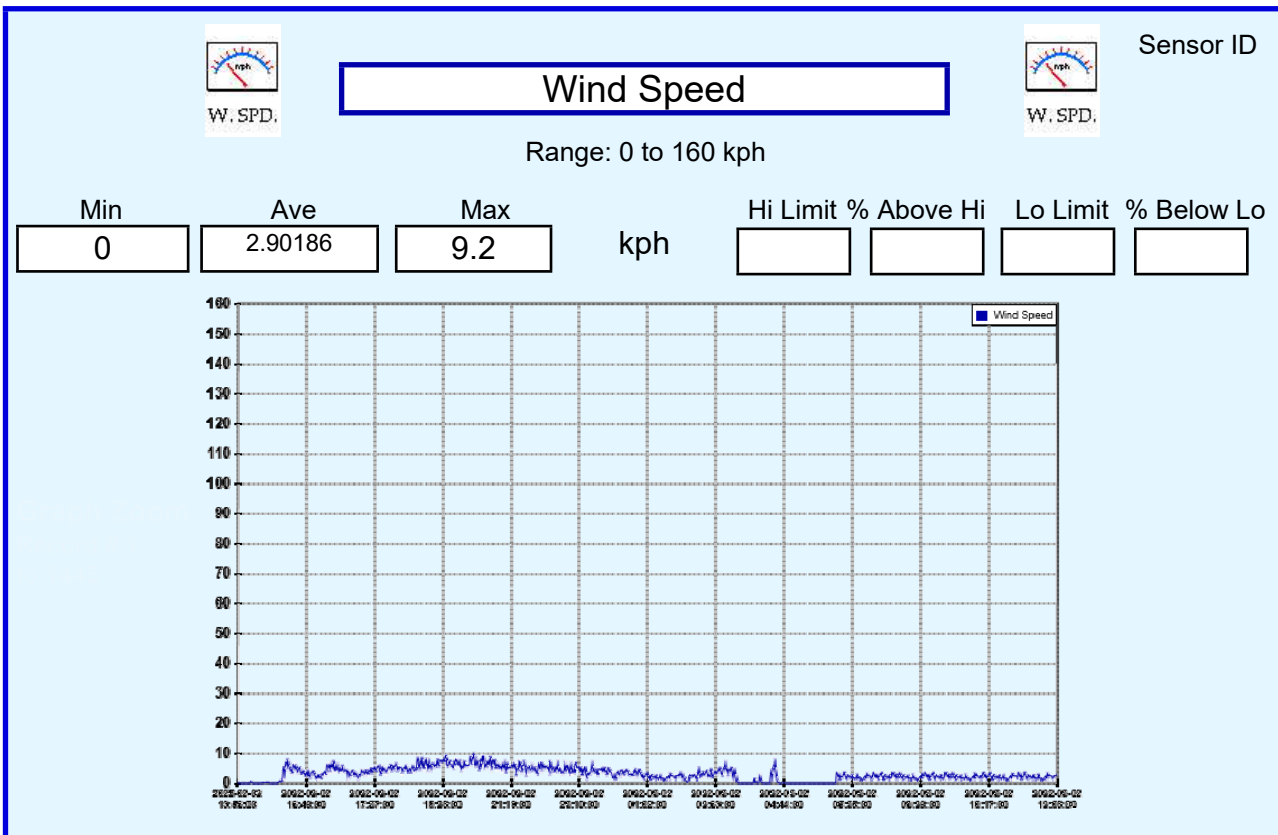
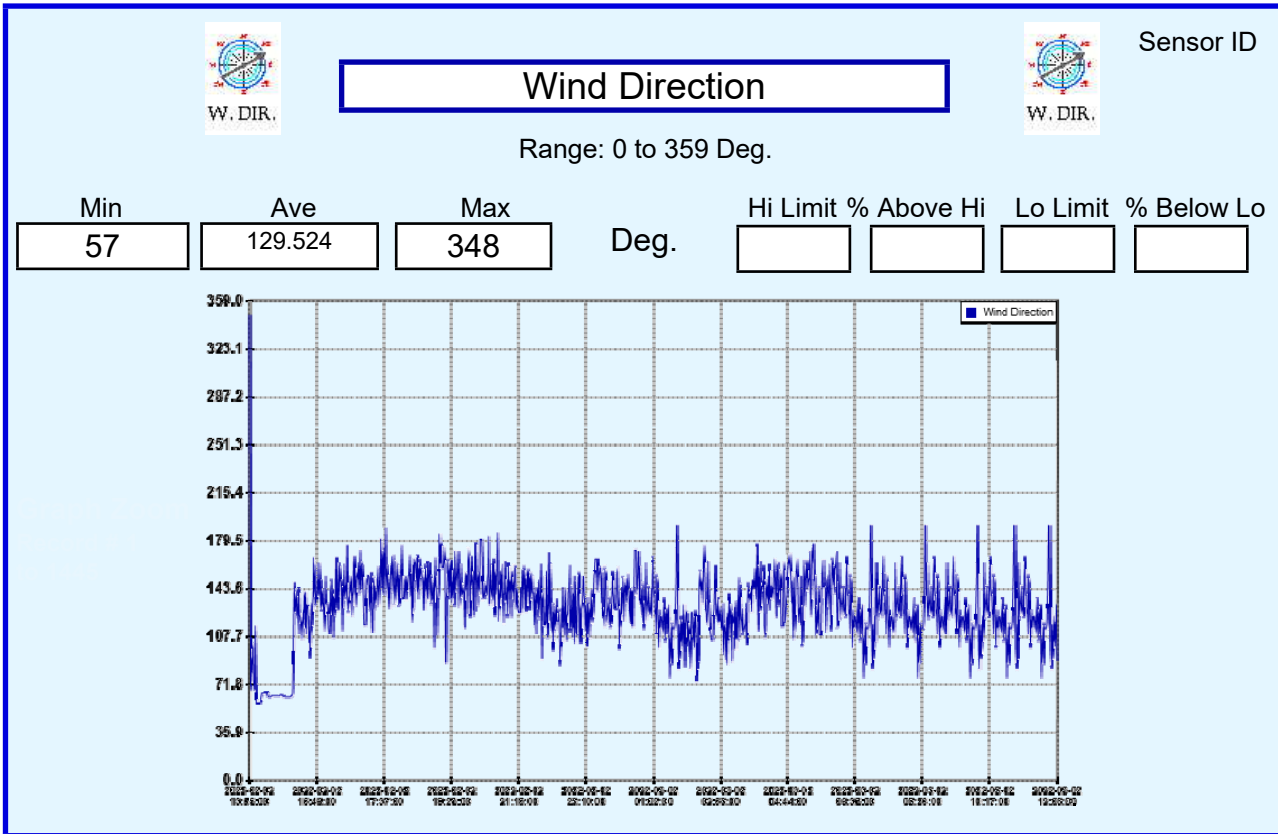
Environmental Report

Start: 9/19/2022 6:16:01 PM End: 9/20/2022 6:20:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1445**



Environmental Report

Start: 9/19/2022 6:16:01 PM End: 9/20/2022 6:20:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1445**



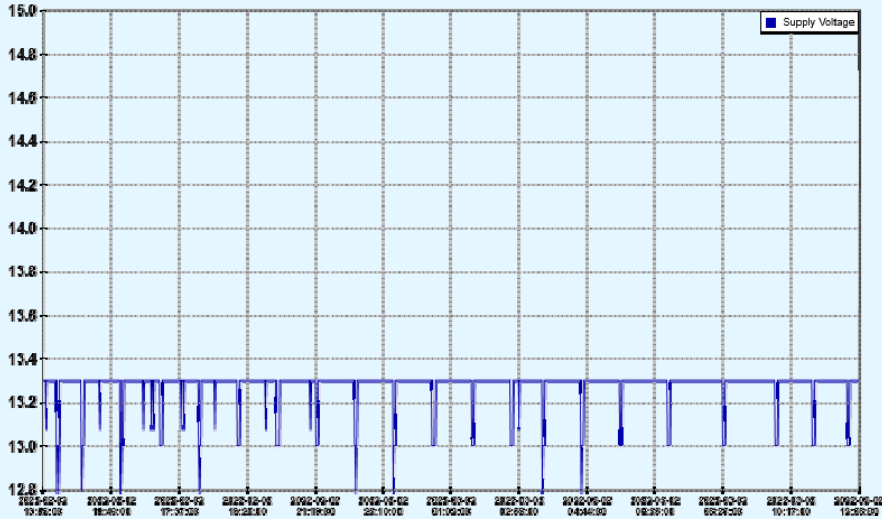
Supply Voltage



Sensor ID

Range: 10 to 16 V

Min	Ave	Max	V	Hi Limit % Above Hi	Lo Limit % Below Lo
12.8	13.2750	13.3			





Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1455 Report Average: 1 Hour

Start Date: 9/20/2022 at 19:01:01 End Date: 9/21/2022 at 19:15:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V		Comments
Ave	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0	
Max	.09	22	27	34	44	79	42	34	319	13.8	13.3	0	
Min	0	2	1	2	1	46	0	25	86	0	9.3	0	
EPAS 920256	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0	
	.09	22	27	34	44	79	42	34	319	13.8	13.3	0	
	0	2	1	2	1	46	0	25	86	0	9.3	0	
Daily Tue, Sep 20, 2022	.000401	2	1	4.29431	2.12374	53.6488	29.7357	31.2341	169.344	7.91571	11.3973	0	
	.01	2	1	15	11	68	42	34	238	13.8	13.3	0	
	0	2	1	2	1	46	13	27	109	3.5	9.3	0	
Ave Period 1 19:01:01 9/20/22	0	2	1	2.1	1.11666	51.1166	26.6166	31.95	182.55	9.89	11.6916	0	
	0	2	1	4	3	55	30	33	224	13.8	11.8	0	
	0	2	1	2	1	49	20	30	135	5.9	11.5	0	
Ave Period 1 20:01:01 9/20/22	0	2	1	2.36666	1.01666	50.2666	31.7166	32.2333	190.716	8.725	11.5816	0	
	0	2	1	7	2	53	36	33	238	12.1	11.8	0	
	0	2	1	2	1	48	28	31	150	4.1	11.3	0	
Ave Period 1 21:01:01 9/20/22	0	2	1	5.28333	2.73333	50.5166	36.8	32.0666	161.2	7.64833	11.2283	0	
	0	2	1	13	11	52	42	33	199	10.9	11.6	0	
	0	2	1	2	1	49	27	31	113	4.6	9.3	0	
Ave Period 1 22:01:01 9/20/22	0	2	1	2.1	1.11666	49.7666	36.9333	32.5	162.983	8.14166	9.315	0	
	0	2	1	6	2	52	42	34	212	11.4	9.6	0	
	0	2	1	2	1	46	32	32	109	4.6	9.3	0	
Ave Period 1 23:01:01 9/20/22	.002033	2	1	9.71186	4.67796	66.7966	16.3898	27.3559	148.932	5.12711	13.2	0	
	.01	2	1	15	10	68	42	32	171	9.3	13.3	0	
	0	2	1	2	1	50	13	27	123	3.5	9.3	0	
Daily Wed, Sep 21,	.010242	4.46193	4.16435	13.3416	10.7058	69.1946	22.9714	27.9074	211.386	2.61816	13.2698	0	
	.09	22	27	34	44	79	42	29	319	10.2	13.3	0	
	0	2	1	2	1	65	0	25	86	0	12.8	0	



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1455 Report Average: 1 Hour

Start Date: 9/20/2022 at 19:01:01 End Date: 9/21/2022 at 19:15:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0
Max	.09	22	27	34	44	79	42	34	319	13.8	13.3	0
Min	0	2	1	2	1	46	0	25	86	0	9.3	0
Ave Period 1	.01	2	1	11	10	67	15	27	149	6.3	13.3	0
0:00:01 9/21/22	.01	2	1	11	10	67	15	27	149	6.3	13.3	0
	.01	2	1	11	10	67	15	27	149	6.3	13.3	0
Ave Period 1	.002333	2	1	9.88333	4.9	67.0833	15.8833	27.2666	148.733	5.11666	13.2683	0
0:01:01 9/21/22	.01	2	1	15	10	68	20	28	171	7.9	13.3	0
	0	2	1	5	2	67	13	27	123	3.5	12.8	0
Ave Period 1	.000166	2	1	18.2333	6.21666	68.6833	20.8833	28.3333	289.183	.125	13.2683	0
1:01:01 9/21/22	.01	2	1	34	18	70	26	29	319	7.5	13.3	0
	0	2	1	6	1	67	13	27	145	0	13	0
Ave Period 1	0	2	1	17.8666	6.13333	68.7333	20.9833	28.35	291.616	0	13.2683	0
2:01:01 9/21/22	0	2	1	34	18	70	26	29	315	0	13.3	0
	0	2	1	6	1	67	16	28	265	0	13	0
Ave Period 1	0	2	1	17.7833	6.46666	68.7166	20.9833	28.35	291.183	0	13.2683	0
3:01:01 9/21/22	0	2	1	34	18	70	26	29	319	0	13.3	0
	0	2	1	6	1	67	16	28	265	0	13	0
Ave Period 1	0	2	1	17.7833	6.66666	68.6833	20.7333	28.35	292.233	0	13.2683	0
4:01:01 9/21/22	0	2	1	34	18	70	26	29	319	0	13.3	0
	0	2	1	6	1	67	16	28	265	0	13	0
Ave Period 1	0	2.23333	1	9.96666	17.4833	67.1833	23.9833	28.65	235.633	1.34166	13.275	0
5:01:01 9/21/22	0	4	1	18	44	70	42	29	319	3	13.3	0
	0	2	1	2	1	66	16	28	194	0	13	0
Ave Period 1	0	2	1	14.7833	10.1333	65.7166	27.6	29	198.416	3.47666	13.2683	0
6:01:01 9/21/22	0	2	1	25	15	68	38	29	222	6.7	13.3	0
	0	2	1	7	1	65	22	29	184	1.6	13	0



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1455 Report Average: 1 Hour

Start Date: 9/20/2022 at 19:01:01 End Date: 9/21/2022 at 19:15:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0
Max	.09	22	27	34	44	79	42	34	319	13.8	13.3	0
Min	0	2	1	2	1	46	0	25	86	0	9.3	0
Ave Period 1	0	2.23333	1	8.2	17.0333	66.0833	28.25	28.9833	202.183	2.50833	13.275	0
7:01:01 9/21/22	0	4	1	15	44	67	42	29	211	6.2	13.3	0
	0	2	1	2	1	65	16	28	189	1	13	0
Ave Period 1	0	2	1	13.7666	9.58333	65.7833	26.5666	28.9833	198.483	3.74	13.2683	0
8:01:01 9/21/22	0	2	1	25	15	68	35	29	222	6.7	13.3	0
	0	2	1	2	1	65	22	28	184	1	13	0
Ave Period 1	0	2.23333	1	9.43333	18.4833	66.1666	28.0666	29	200.666	2.22	13.275	0
9:01:01 9/21/22	0	4	1	15	44	68	42	29	211	3	13.3	0
	0	2	1	4	1	66	16	29	185	1.2	13	0
Ave Period 1	0	2.08333	1	12.4666	16.8166	65.65	24.9833	28.9833	200.483	3.755	13.2683	0
10:01:01 9/21/22	0	4	1	25	44	67	35	29	222	6.7	13.3	0
	0	2	1	2	1	65	16	28	184	1	13	0
Ave Period 1	0	2.15	1	11.45	12.0333	66.0166	28.8333	29	197.916	2.48333	13.275	0
11:01:01 9/21/22	0	3	1	18	40	68	42	29	211	4.8	13.3	0
	0	2	1	4	1	65	16	29	185	1.2	13	0
Ave Period 1	0	2.23333	1	10.65	20.1833	65.7833	24.7166	28.9833	202.633	3.43833	13.2433	0
12:01:01 9/21/22	0	4	1	25	44	67	42	29	222	6.7	13.3	0
	0	2	1	2	1	65	16	28	184	1	13	0
Ave Period 1	0	2	1	14.0333	9.2	65.7833	28.5166	29	198.016	3.34333	13.2733	0
13:01:01 9/21/22	0	2	1	25	15	68	38	29	222	6.7	13.3	0
	0	2	1	7	1	65	22	29	184	1.6	13	0
Ave Period 1	.0065	5	4.2	15.55	10.05	71.4166	13.7	27.1166	195.516	6.78166	13.2566	0
14:01:01 9/21/22	.03	11	13	32	21	75	28	29	218	10.2	13.3	0
	0	2	1	4	1	65	0	26	167	3.4	13	0



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1455 Report Average: 1 Hour

Start Date: 9/20/2022 at 19:01:01 End Date: 9/21/2022 at 19:15:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0
Max	.09	22	27	34	44	79	42	34	319	13.8	13.3	0
Min	0	2	1	2	1	46	0	25	86	0	9.3	0
Ave Period 1	.04	11.1833	12.95	16.6833	12.2833	76.55	21.1333	25.6166	200.65	3.05	13.2683	0
15:01:01 9/21/22	.08	22	27	28	18	78	41	26	240	10	13.3	0
	.03	8	8	5	1	74	0	25	160	.1	13	0
Ave Period 1	.051	13.35	16.4666	10.6666	5.38333	76.4666	21.4333	25.5666	136.85	1.34833	13.2966	0
16:01:01 9/21/22	.09	21	27	32	21	79	33	27	212	5.5	13.3	0
	0	2	1	2	1	72	9	25	86	0	13.1	0
Ave Period 1	.021	8	8.3	13.1833	9.75	74.1166	11.7833	26.3	192.85	6.98166	13.2616	0
17:01:01 9/21/22	.04	12	13	29	17	77	35	27	217	10.2	13.3	0
	0	4	1	4	2	72	0	26	160	.6	13	0
Ave Period 1	.0565	14.9166	18.7166	12.7166	7.05	77.8333	27.3333	25.15	175.483	.628333	13.2716	0
18:01:01 9/21/22	.08	22	27	28	18	79	41	26	240	2.9	13.3	0
	.03	9	10	2	1	77	2	25	86	0	13	0
Ave Period 1	.078666	17.2666	22.3333	7.06666	1	78.3333	23.8666	25	86	0	13.3	0
19:01:01 9/21/22	.09	18	24	8	1	79	30	25	86	0	13.3	0
	.07	15	19	6	1	78	19	25	86	0	13.3	0



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1455 Report Average: 24 Hour

Start Date: 9/20/2022 at 19:01:01 End Date: 9/21/2022 at 19:15:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V		Comments
Ave	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0	
Max	.09	22	27	34	44	79	42	34	319	13.8	13.3	0	
Min	0	2	1	2	1	46	0	25	86	0	9.3	0	
EPAS 920256	.008219	3.95601	3.51408	11.4824	8.94226	66	24.3615	28.5910	202.747	3.70680	12.8850	0	
	.09	22	27	34	44	79	42	34	319	13.8	13.3	0	
	0	2	1	2	1	46	0	25	86	0	9.3	0	
Daily Tue, Sep 20, 2022	.000401	2	1	4.29431	2.12374	53.6488	29.7357	31.2341	169.344	7.91571	11.3973	0	
	.01	2	1	15	11	68	42	34	238	13.8	13.3	0	
	0	2	1	2	1	46	13	27	109	3.5	9.3	0	
Ave Period 24 19:01:01 9/20/22	.000401	2	1	4.29431	2.12374	53.6488	29.7357	31.2341	169.344	7.91571	11.3973	0	
	.01	2	1	15	11	68	42	34	238	13.8	13.3	0	
	0	2	1	2	1	46	13	27	109	3.5	9.3	0	
Daily Wed, Sep 21,	.010242	4.46193	4.16435	13.3416	10.7058	69.1946	22.9714	27.9074	211.386	2.61816	13.2698	0	
	.09	22	27	34	44	79	42	29	319	10.2	13.3	0	
	0	2	1	2	1	65	0	25	86	0	12.8	0	
Ave Period 24 0:00:01 9/21/22	.009342	4.29360	3.92550	13.4241	10.8334	69.0744	22.9596	27.9456	213.035	2.65258	13.2694	0	
	.09	22	27	34	44	79	42	29	319	10.2	13.3	0	
	0	2	1	2	1	65	0	25	86	0	12.8	0	
Ave Period 24 19:01:01 9/21/22	.078666	17.2666	22.3333	7.06666	1	78.3333	23.8666	25	86	0	13.3	0	
	.09	18	24	8	1	79	30	25	86	0	13.3	0	
	.07	15	19	6	1	78	19	25	86	0	13.3	0	

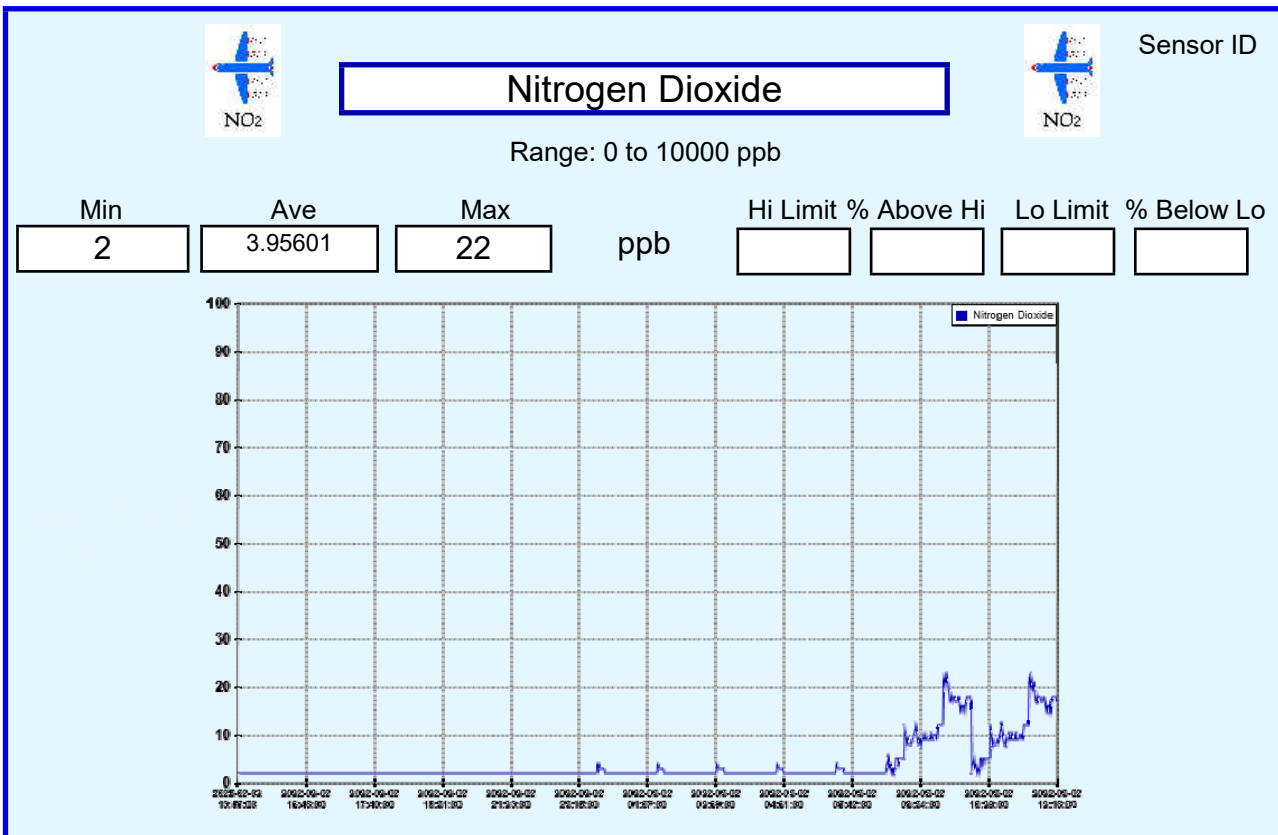
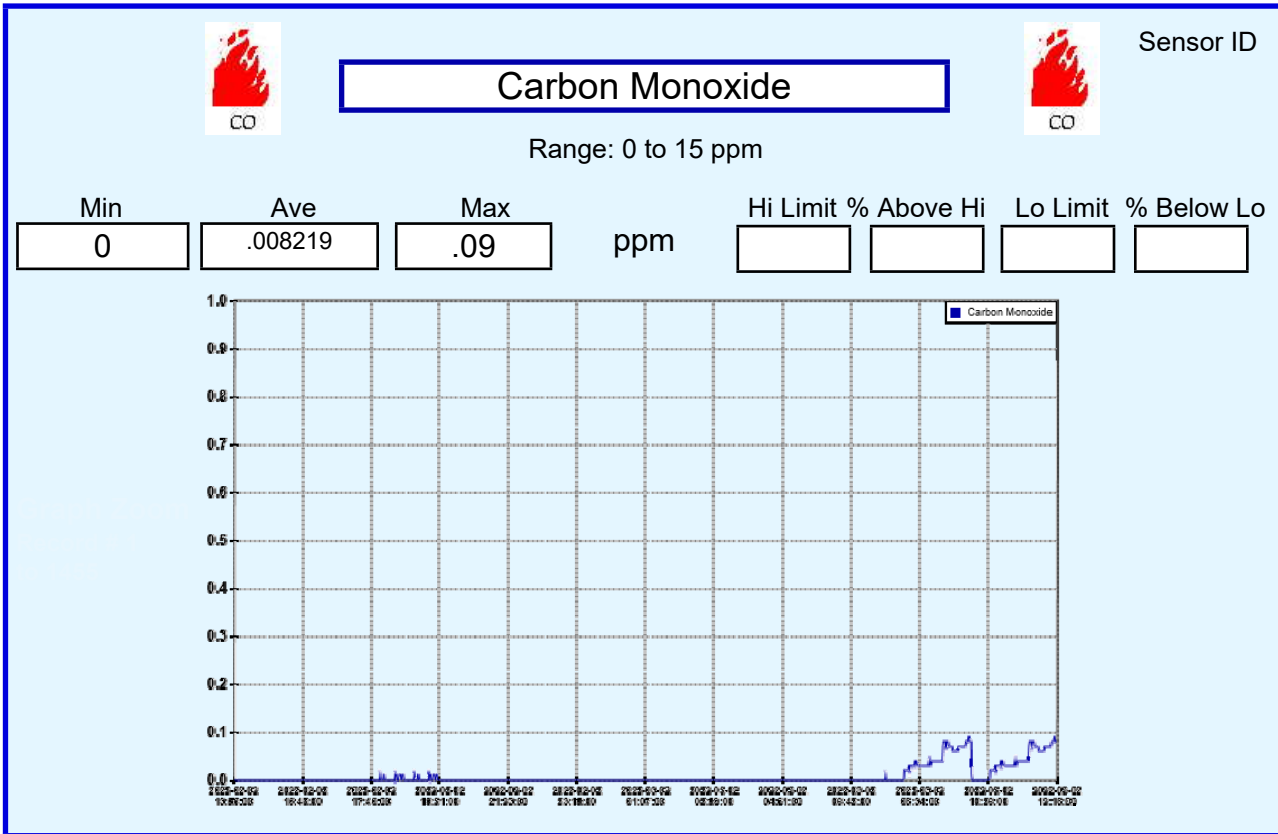
Environmental Report

Start: 9/20/2022 7:01:01 PM End: 9/21/2022 7:15:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1455**



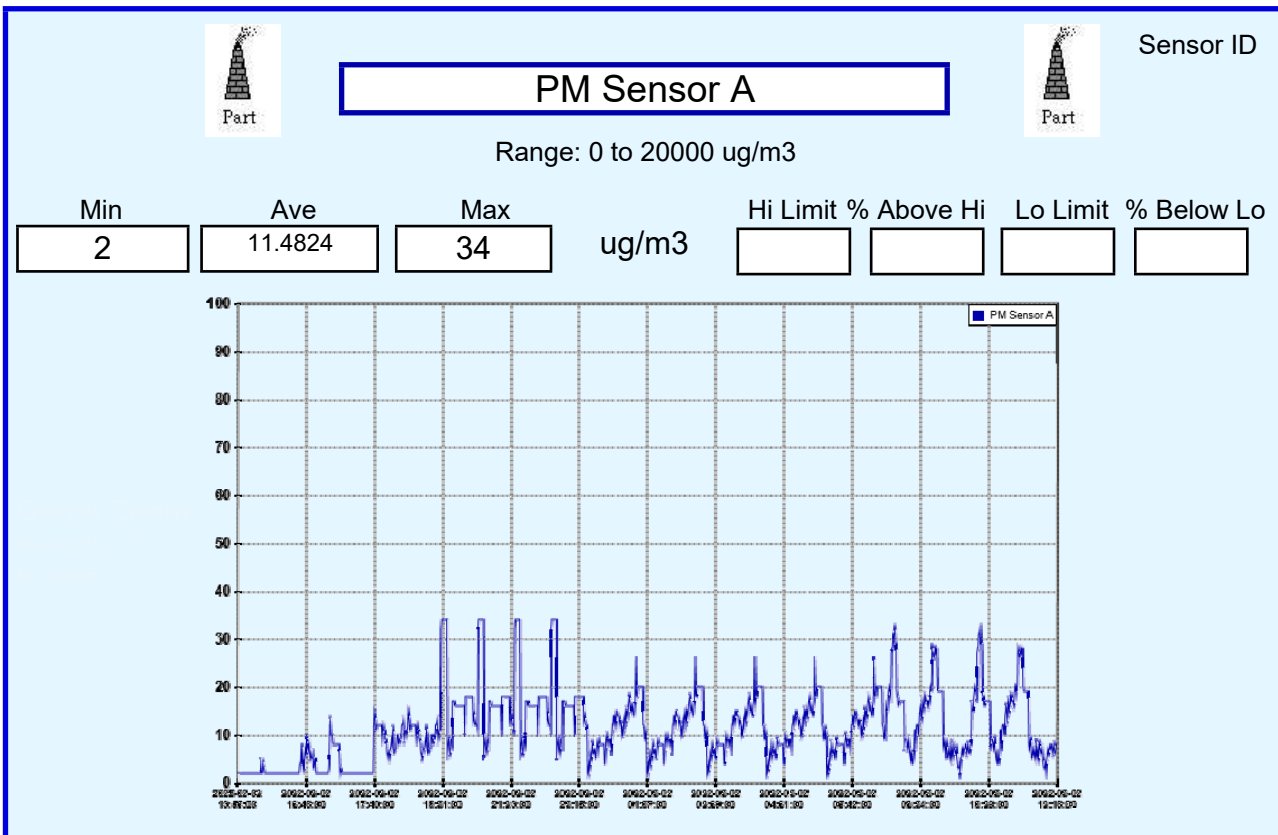
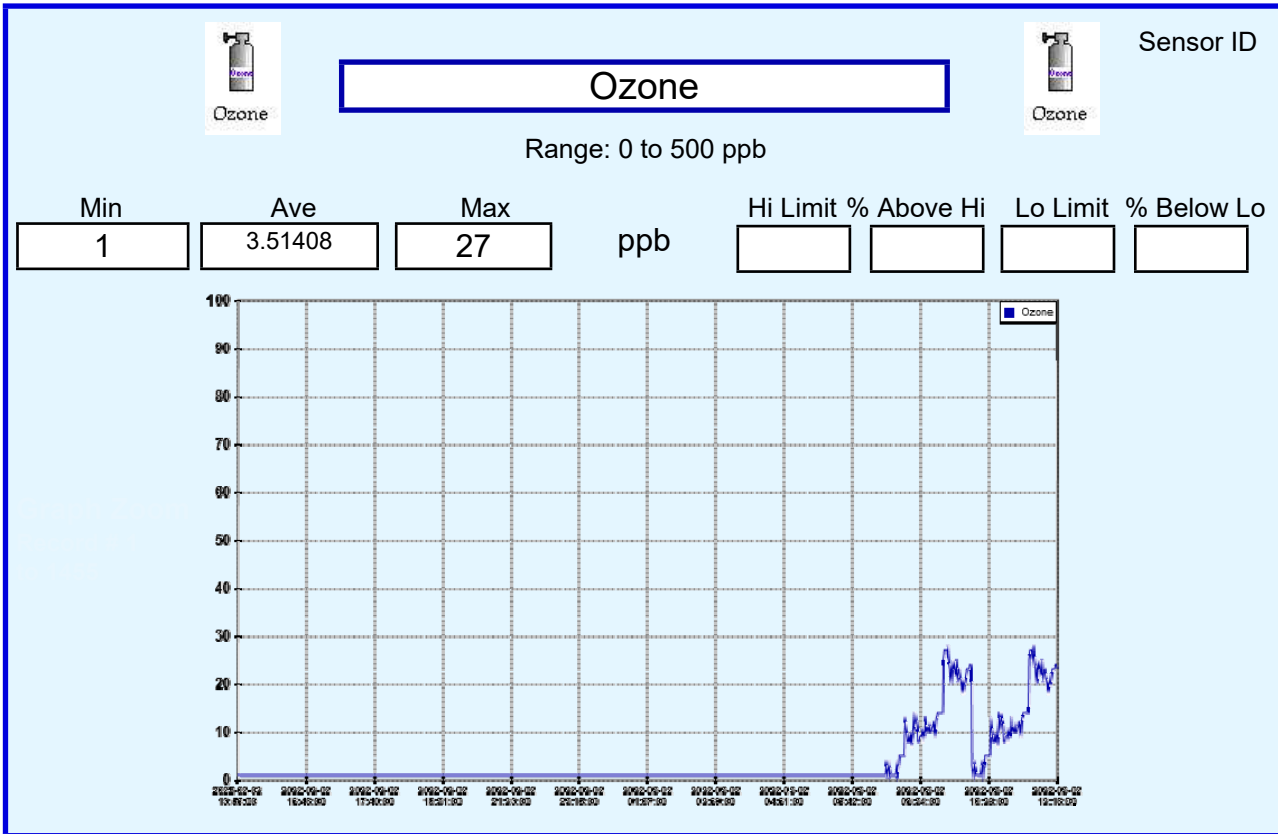
Environmental Report

Start: 9/20/2022 7:01:01 PM End: 9/21/2022 7:15:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1455**



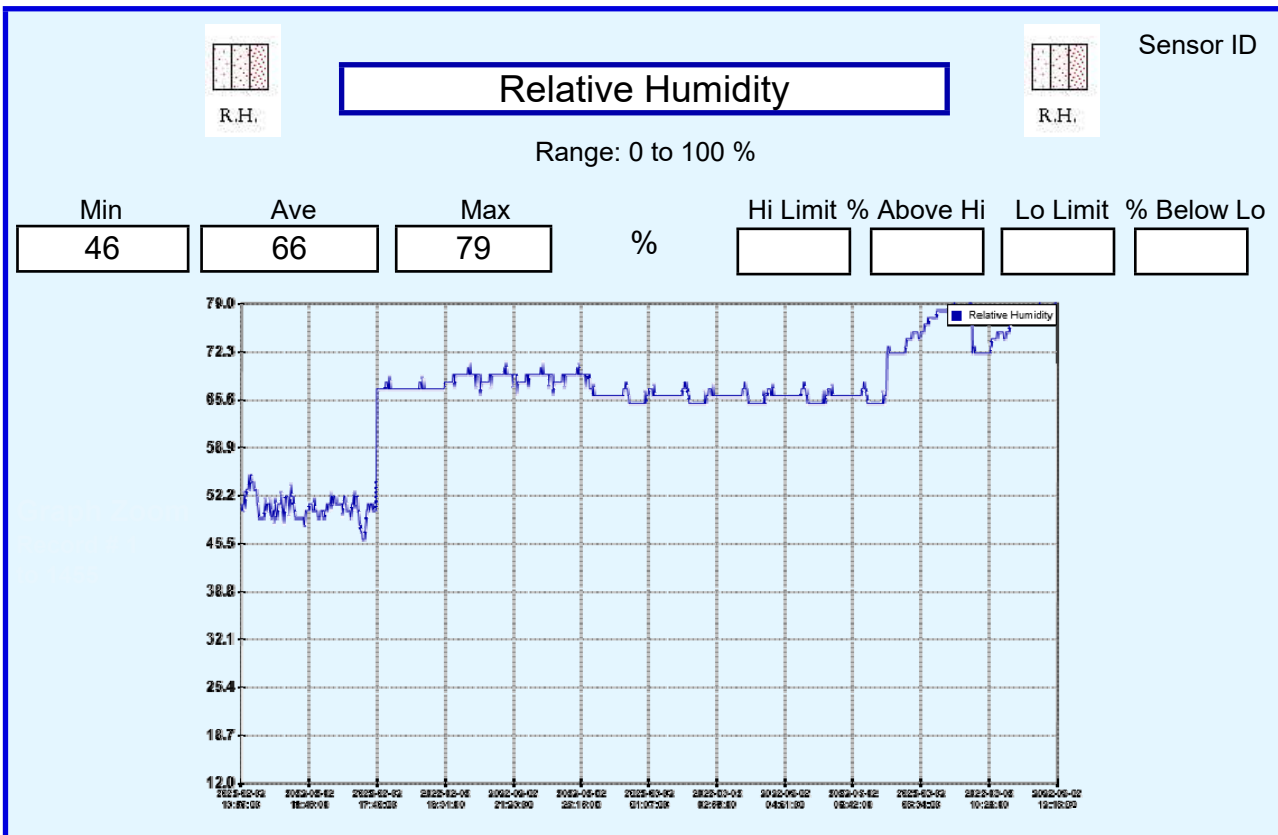
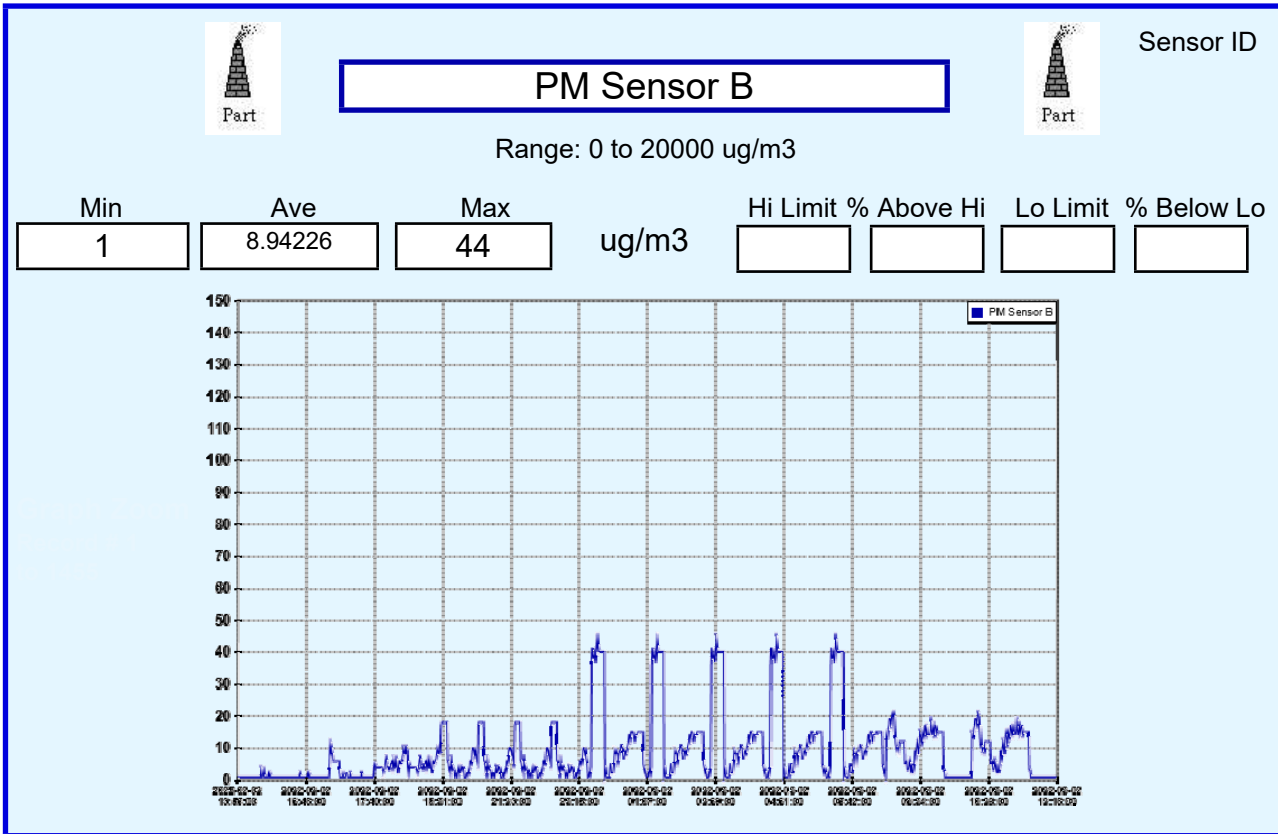
Environmental Report

Start: 9/20/2022 7:01:01 PM End: 9/21/2022 7:15:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1455**



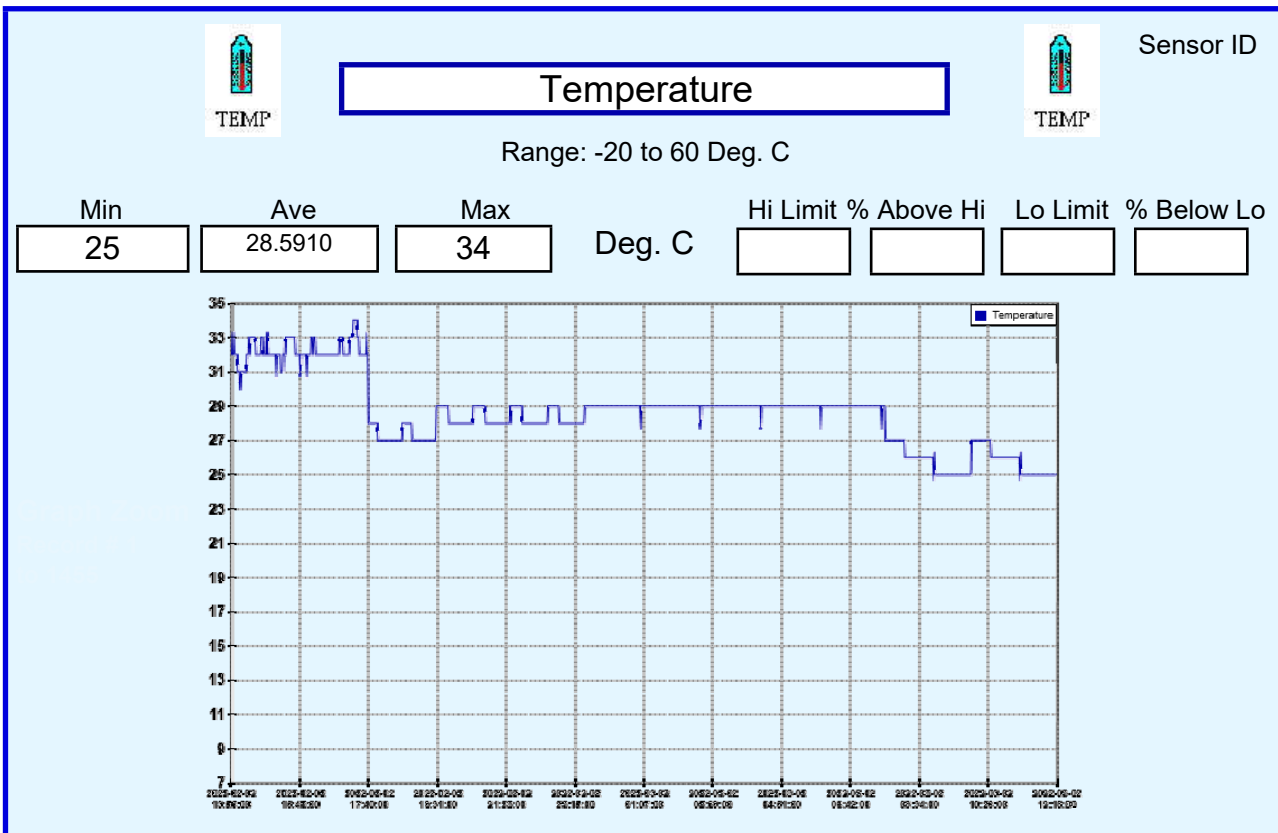
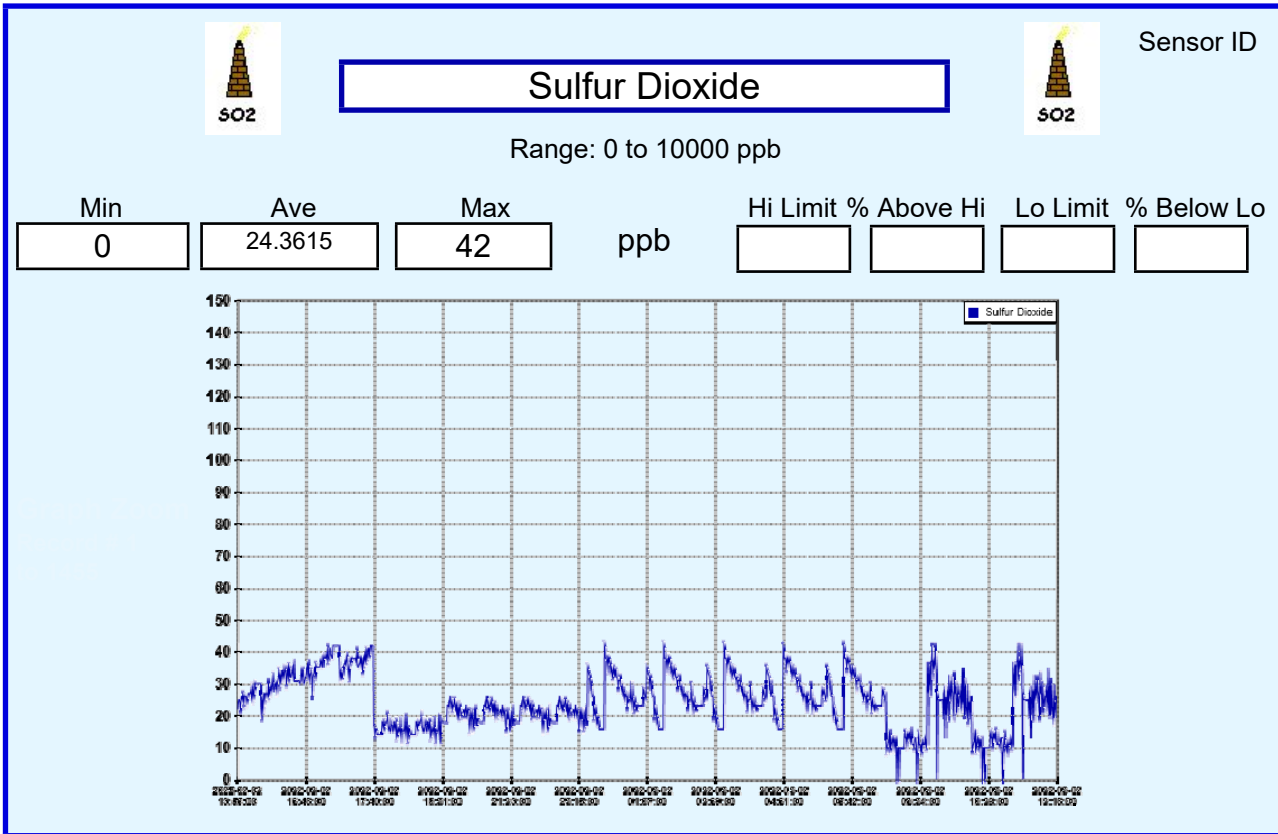
Environmental Report

Start: 9/20/2022 7:01:01 PM End: 9/21/2022 7:15:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1455**



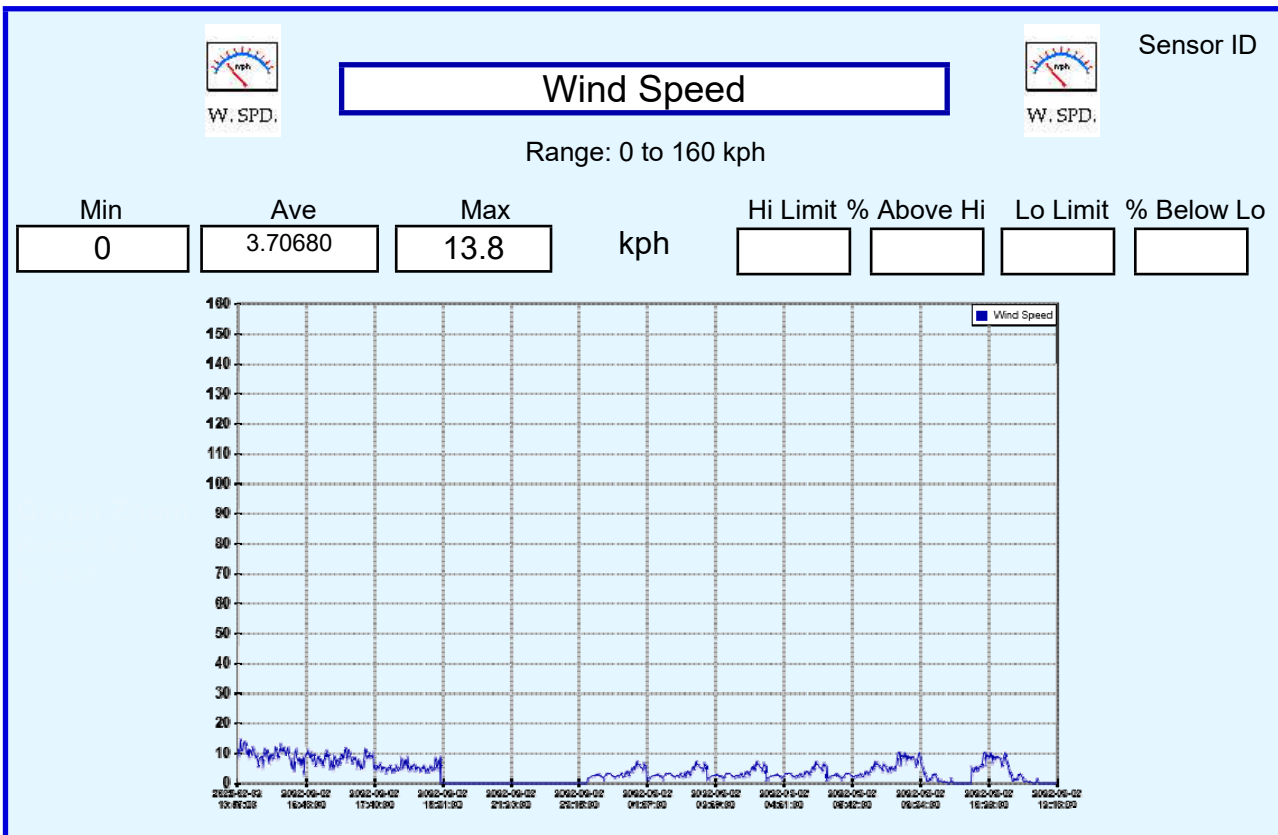
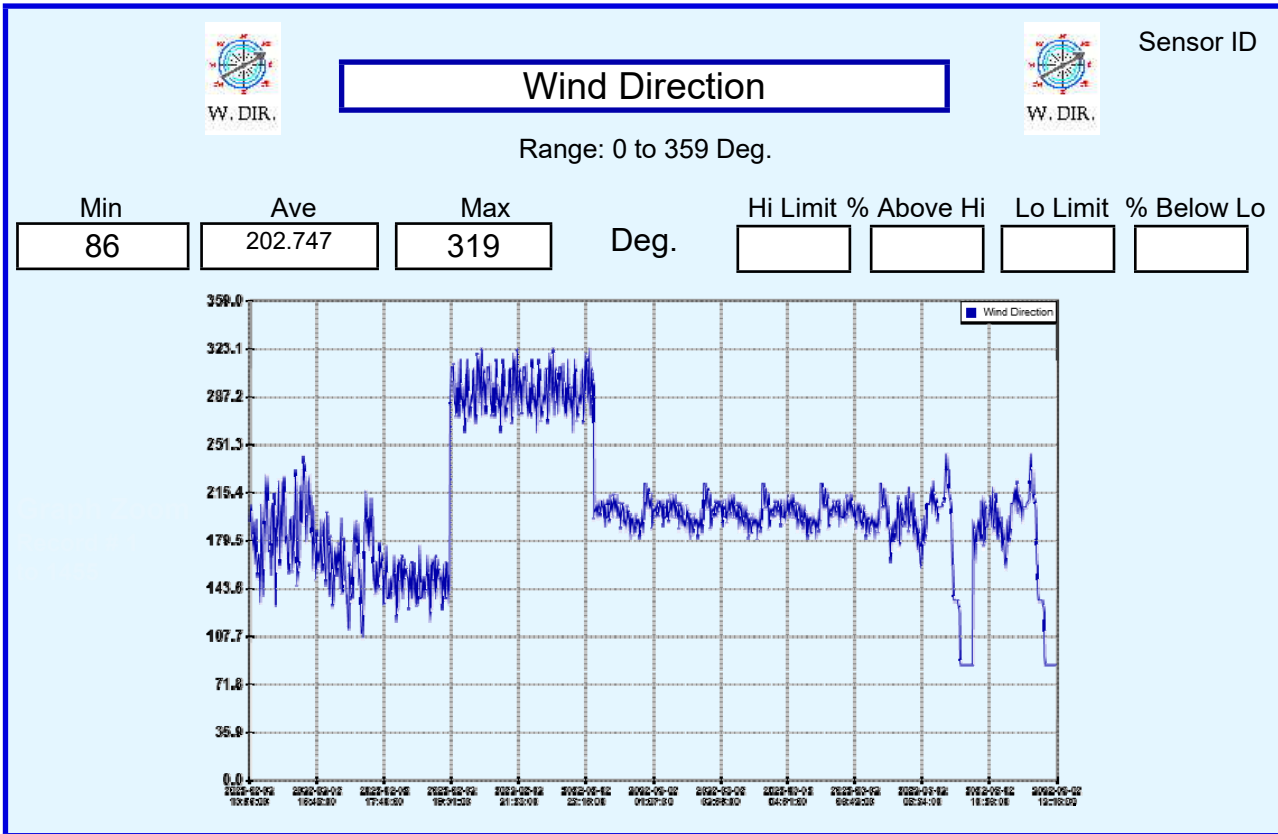
Environmental Report

Start: 9/20/2022 7:01:01 PM End: 9/21/2022 7:15:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1455**



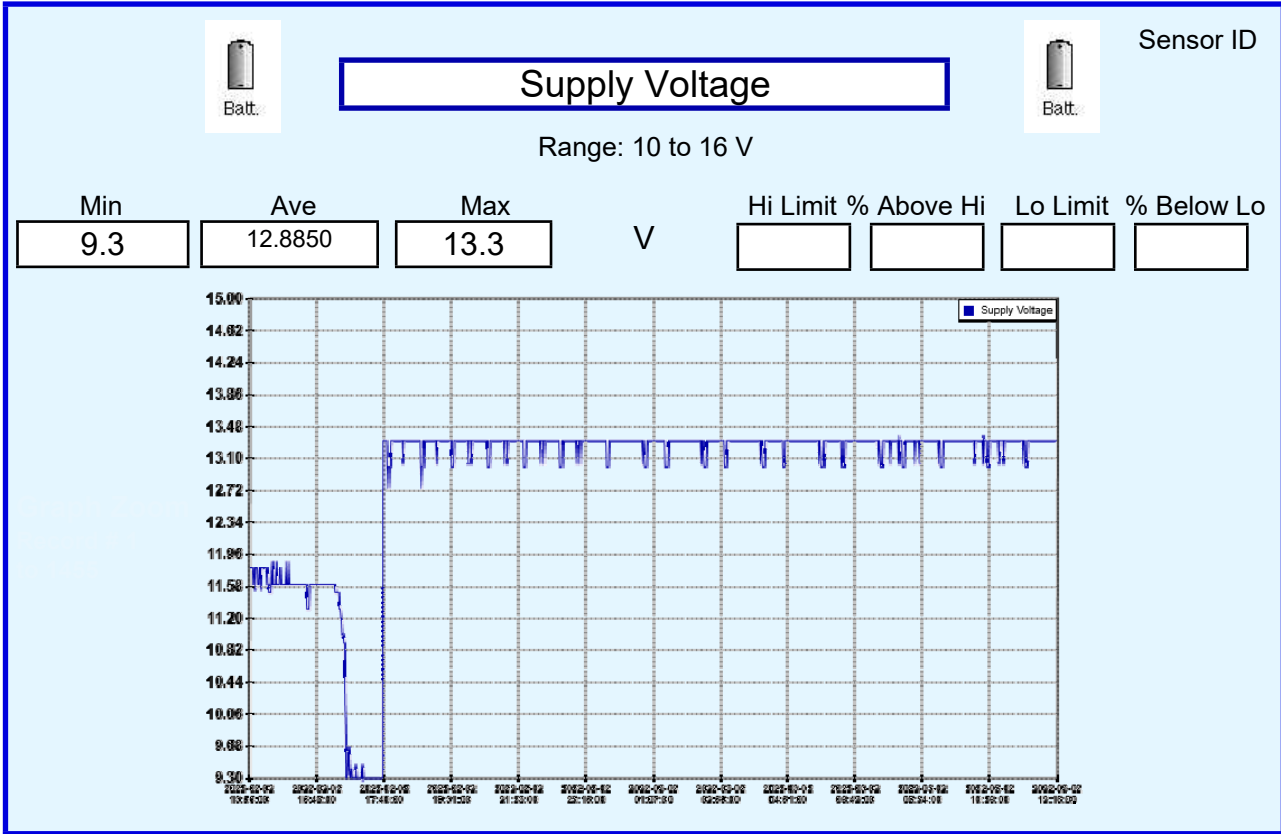
Environmental Report

Start: 9/20/2022 7:01:01 PM End: 9/21/2022 7:15:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1455**





Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1450 Report Average: 1 Hour

Start Date: 9/21/2022 at 19:31:01 End Date: 9/22/2022 at 19:40:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V		Comments
Ave	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0	
Max	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
Min	0	2	1	2	1	49	0	25	81	0	12.8	0	
EPAS 920256	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0	
	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
	0	2	1	2	1	49	0	25	81	0	12.8	0	
Daily Wed, Sep 21,	.001895	3.05947	3.24907	11.6319	7.75092	65.5055	28.9739	28.8252	206.825	3.85278	13.2754	0	
	.51	23	48	25	44	68	124	31	239	8.2	13.3	0	
	0	2	1	2	1	59	0	28	184	0	13	0	
Ave Period 1 19:31:01 9/21/22	.0085	6.51666	11.0833	12.2833	1.88333	63.2333	48.35	29.9	217.633	.566666	13.275	0	
	.51	23	48	17	36	67	124	31	239	1.8	13.3	0	
	0	2	1	12	1	59	0	29	199	0	13	0	
Ave Period 1 20:31:01 9/21/22	0	2.23333	1	12.2	18.0333	66.1833	28.0166	29	200.366	2.23333	13.275	0	
	0	4	1	19	44	68	42	29	211	3	13.3	0	
	0	2	1	7	1	66	16	29	185	1.2	13	0	
Ave Period 1 21:31:01 9/21/22	0	2	1	13.5	8.56666	65.3333	24.6	28.8	201.616	5.37	13.2683	0	
	0	2	1	25	15	67	29	29	222	7.5	13.3	0	
	0	2	1	6	1	65	20	28	184	2.4	13	0	
Ave Period 1 22:31:01 9/21/22	0	2	1	10.7666	4.66666	66.2	20.3	28	206.416	6.3	13.2716	0	
	0	2	1	17	10	67	23	28	225	8.2	13.3	0	
	0	2	1	3	1	65	16	28	194	5.1	13	0	
Ave Period 1 23:31:01 9/21/22	0	2	1	7.03448	3.31034	67.7241	17.8620	28	209.448	5.8	13.3	0	
	0	2	1	12	6	68	21	28	218	7.6	13.3	0	
	0	2	1	2	1	67	14	28	190	4.7	13.3	0	
Daily Thu, Sep 22, 2022	.027629	5.67908	5.39288	11.8391	5.01608	67.5393	27.4758	27.9102	202.174	4.32650	13.2704	0	
	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
	0	2	1	2	1	49	0	25	81	0	12.8	0	



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1450 Report Average: 1 Hour

Start Date: 9/21/2022 at 19:31:01 End Date: 9/22/2022 at 19:40:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0
Max	.51	24	48	38	74	79	124	34	313	9.2	13.3	0
Min	0	2	1	2	1	49	0	25	81	0	12.8	0
Ave Period 1	.011612	2.87096	1.90322	9.35483	4.93548	68.7096	18.1612	27.5161	203.129	5.72903	13.2451	0
0:00:01 9/22/22	.08	8	7	16	14	71	35	28	241	8	13.3	0
	0	2	1	5	1	68	14	25	103	1.6	13	0
Ave Period 1	.088833	7.91666	7.68333	13.65	8.28333	71.5833	34.8666	25.5	131.85	2.14333	13.275	0
0:31:01 9/22/22	.16	11	11	27	17	72	45	27	226	5.9	13.3	0
	0	2	1	9	1	71	0	25	81	.6	13	0
Ave Period 1	.082166	7.43333	6.93333	13.6333	7.36666	71.8166	34.1	25.6	141.45	2.445	13.2683	0
1:31:01 9/22/22	.16	11	11	27	17	72	45	27	219	5.5	13.3	0
	0	2	1	6	1	71	13	25	81	.6	13	0
Ave Period 1	.024166	5.35	3.33333	7.26666	2.91666	72.7333	17.3833	26.0666	193.3	4.9	13.3	0
2:31:01 9/22/22	.08	8	7	13	9	74	38	27	221	7.3	13.3	0
	0	4	1	2	1	71	0	25	125	1.3	13.3	0
Ave Period 1	.030333	6.6	4.73333	6.21666	2.83333	74.1666	26.2833	26	211.583	6.30166	13.2683	0
3:31:01 9/22/22	.05	9	8	12	7	75	45	26	226	7.8	13.3	0
	.01	5	2	2	1	74	2	26	193	4.8	13	0
Ave Period 1	.051166	8.85	7.98333	8.78333	3.03333	75.8666	32.4666	26	204.266	6.25166	13.2683	0
4:31:01 9/22/22	.08	12	11	13	6	77	43	26	222	7.8	13.3	0
	.02	6	5	5	1	75	0	26	177	4.4	13	0
Ave Period 1	.036	10.1666	10.35	8.98333	2.81666	77.0666	30.3	25.15	204.8	5.57166	13.2683	0
5:31:01 9/22/22	.05	14	14	15	5	78	44	26	218	6.7	13.3	0
	.02	8	7	2	1	77	2	25	192	3.1	12.8	0
Ave Period 1	.045666	11.8333	13.4166	7.15	2.75	78	27.7166	25	193.583	4.15833	13.2716	0
6:31:01 9/22/22	.07	15	17	11	7	78	36	25	208	4.8	13.3	0
	.01	11	12	3	1	78	0	25	173	3.2	13	0



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1450 Report Average: 1 Hour

Start Date: 9/21/2022 at 19:31:01 End Date: 9/22/2022 at 19:40:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0
Max	.51	24	48	38	74	79	124	34	313	9.2	13.3	0
Min	0	2	1	2	1	49	0	25	81	0	12.8	0
Ave Period 1	.033	12.4666	14.3833	7.66666	5.3	78.2	23.6333	25	205.583	3.60166	13.275	0
7:31:01 9/22/22	.06	15	18	11	9	79	32	25	219	4.8	13.3	0
	.01	12	13	4	2	77	0	25	191	1.8	13	0
Ave Period 1	.0385	10.3833	12.2333	16.6333	1.63333	76.45	23.35	25.4333	195.266	3.33166	13.2716	0
8:31:01 9/22/22	.05	13	16	23	5	78	32	26	214	4.6	13.3	0
	.02	8	9	3	1	75	0	25	162	2.2	13	0
Ave Period 1	.017666	5.48333	4.11666	15.9833	1.95	73.4833	11.0333	26.1666	213.05	6.52666	13.3	0
9:31:01 9/22/22	.04	11	12	23	8	75	36	27	247	9.2	13.3	0
	.01	2	1	12	1	70	0	26	174	4.1	13.3	0
Ave Period 1	.037	2.36666	1	22.8333	1.01666	67.0833	14.8666	28.2166	210.35	7.01	13.2383	0
10:31:01 9/22/22	.07	4	1	25	2	70	19	29	236	8.6	13.3	0
	0	2	1	12	1	64	11	27	182	4.8	13	0
Ave Period 1	.031	2	1	13.0833	1	62.2166	21.2833	29.6	218.55	6.405	13.2683	0
11:31:01 9/22/22	.05	2	1	25	1	65	25	30	260	7.8	13.3	0
	0	2	1	12	1	60	16	29	188	4.1	12.8	0
Ave Period 1	.013833	2	1	12	1	58.5166	26.1833	30.9333	234.466	4.93833	13.2683	0
12:31:01 9/22/22	.03	2	1	12	1	60	31	32	280	6.6	13.3	0
	0	2	1	12	1	57	20	30	186	3.6	12.8	0
Ave Period 1	0	2	1	12	1.18333	55.0666	31.8333	31.2833	223.566	4.41666	13.2833	0
13:31:01 9/22/22	0	2	1	12	7	57	38	32	313	6.7	13.3	0
	0	2	1	12	1	53	23	31	185	1.3	13.1	0
Ave Period 1	0	2	1	12	1.75	52.5	30.6333	32.1333	221.3	3.605	13.2466	0
14:31:01 9/22/22	0	2	1	12	6	55	36	33	263	5.6	13.3	0
	0	2	1	12	1	50	26	31	186	1	13	0



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1450 Report Average: 1 Hour

Start Date: 9/21/2022 at 19:31:01 End Date: 9/22/2022 at 19:40:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V	Comments
Ave	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0
Max	.51	24	48	38	74	79	124	34	313	9.2	13.3	0
Min	0	2	1	2	1	49	0	25	81	0	12.8	0
Ave Period 1	0	2	1	13.8666	8.06666	50.9333	36.3166	32.5333	224.2	3.47666	13.2883	0
15:31:01 9/22/22	0	2	1	35	61	53	41	34	271	5.2	13.3	0
	0	2	1	10	1	49	27	32	170	1.1	13	0
Ave Period 1	.0085	6.88333	11.8333	15.3166	16.8	55.55	40.15	31.5166	208.316	1.44666	13.2433	0
16:31:01 9/22/22	.51	24	48	38	74	63	124	33	239	4	13.3	0
	0	2	1	2	1	50	0	30	151	0	12.8	0
Ave Period 1	0	2.23333	1	4.68333	15.9666	65.9833	36.4833	29.2	206.733	1.41333	13.275	0
17:31:01 9/22/22	0	4	1	10	44	67	72	30	236	3	13.3	0
	0	2	1	2	1	63	16	29	194	.2	13	0
Ave Period 1	0	2	1	14.2166	9.43333	65.7666	28.2833	29	197.966	3.38	13.2683	0
18:31:01 9/22/22	0	2	1	25	15	68	38	29	222	6.7	13.3	0
	0	2	1	7	1	65	22	29	184	1.6	13	0
Ave Period 1	0	2	1	13.4	6.5	65.5	25.6	28.9	206	5.26	13.3	0
19:31:01 9/22/22	0	2	1	20	15	66	28	29	218	6.2	13.3	0
	0	2	1	9	1	65	23	28	189	4	13.3	0



Environmental Report

Locations

920256	Taung Tha Man Thitsar	EPAS	▲
			▼

Record Count: 1450 Report Average: 24 Hour

Start Date: 9/21/2022 at 19:31:01 End Date: 9/22/2022 at 19:40:01

	CO ppm	NO2 ppb	O3 ppb	PMA ug/m3	PMB ug/m3	RH %	SO2 ppb	TmpC Deg. C	WDir Deg.	WSpM kph	Pwr V		Comments
Ave	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0	
Max	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
Min	0	2	1	2	1	49	0	25	81	0	12.8	0	
EPAS 920256	.022855	5.19310	4.99517	11.8006	5.52344	67.1620	27.7537	28.08	203.037	4.23862	13.2713	0	
	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
	0	2	1	2	1	49	0	25	81	0	12.8	0	
Daily Wed, Sep 21,	.001895	3.05947	3.24907	11.6319	7.75092	65.5055	28.9739	28.8252	206.825	3.85278	13.2754	0	
	.51	23	48	25	44	68	124	31	239	8.2	13.3	0	
	0	2	1	2	1	59	0	28	184	0	13	0	
Ave Period 24 19:31:01 9/21/22	.001895	3.05947	3.24907	11.6319	7.75092	65.5055	28.9739	28.8252	206.825	3.85278	13.2754	0	
	.51	23	48	25	44	68	124	31	239	8.2	13.3	0	
	0	2	1	2	1	59	0	28	184	0	13	0	
Daily Thu, Sep 22, 2022	.027629	5.67908	5.39288	11.8391	5.01608	67.5393	27.4758	27.9102	202.174	4.32650	13.2704	0	
	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
	0	2	1	2	1	49	0	25	81	0	12.8	0	
Ave Period 24 0:00:01 9/22/22	.027865	5.71050	5.43040	11.8257	5.00341	67.5567	27.4918	27.9017	202.141	4.31853	13.2701	0	
	.51	24	48	38	74	79	124	34	313	9.2	13.3	0	
	0	2	1	2	1	49	0	25	81	0	12.8	0	
Ave Period 24 19:31:01 9/22/22	0	2	1	13.4	6.5	65.5	25.6	28.9	206	5.26	13.3	0	
	0	2	1	20	15	66	28	29	218	6.2	13.3	0	
	0	2	1	9	1	65	23	28	189	4	13.3	0	

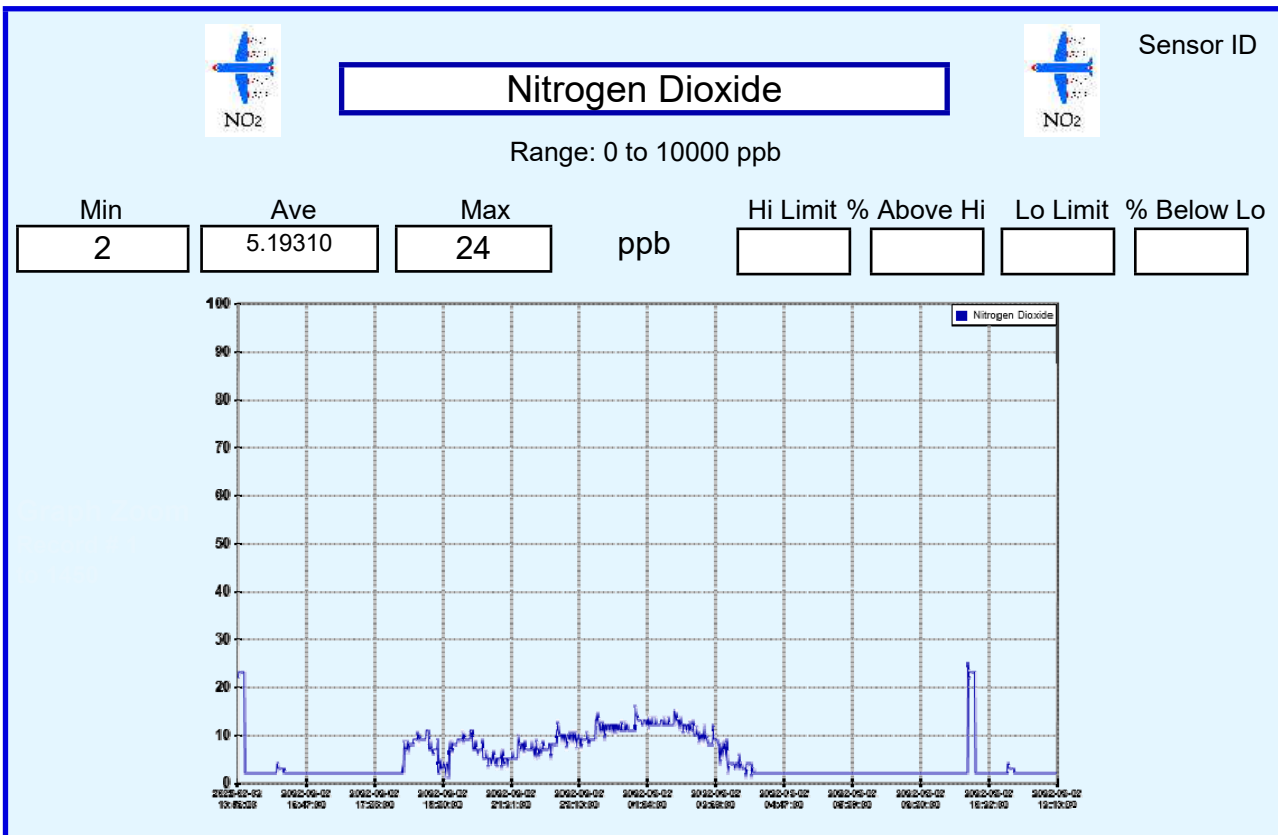
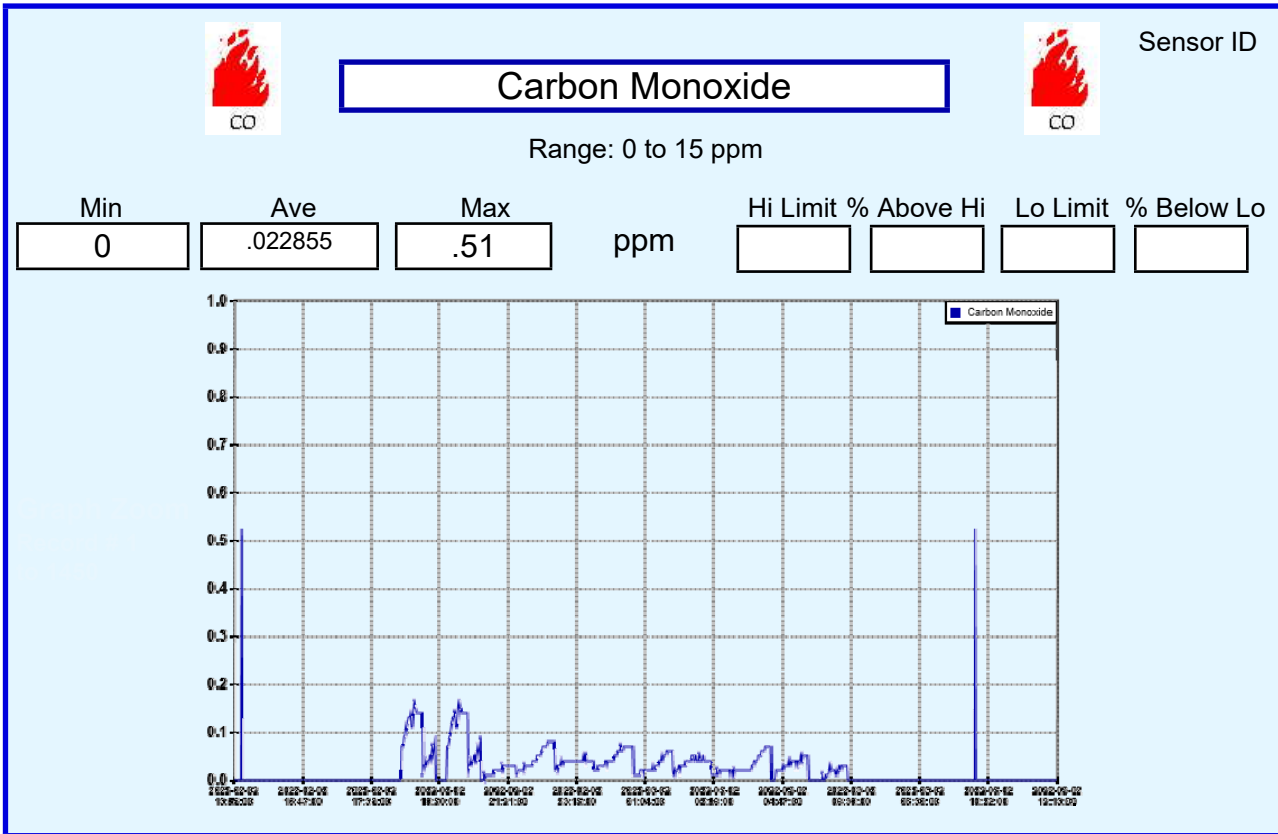
Environmental Report

Start: 9/21/2022 7:31:01 PM End: 9/22/2022 7:40:01 PM

Collected by:EPAS

Logger ID 920256

Record Count 1450



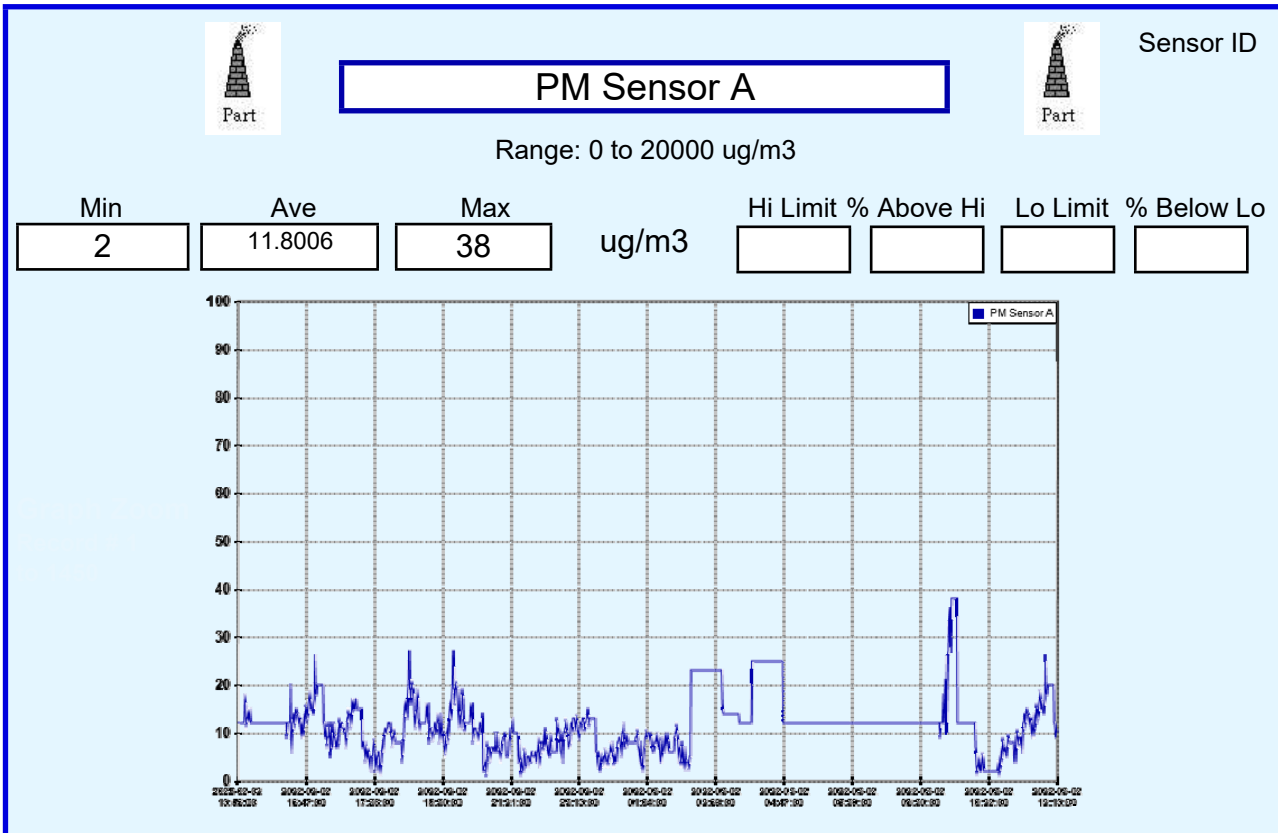
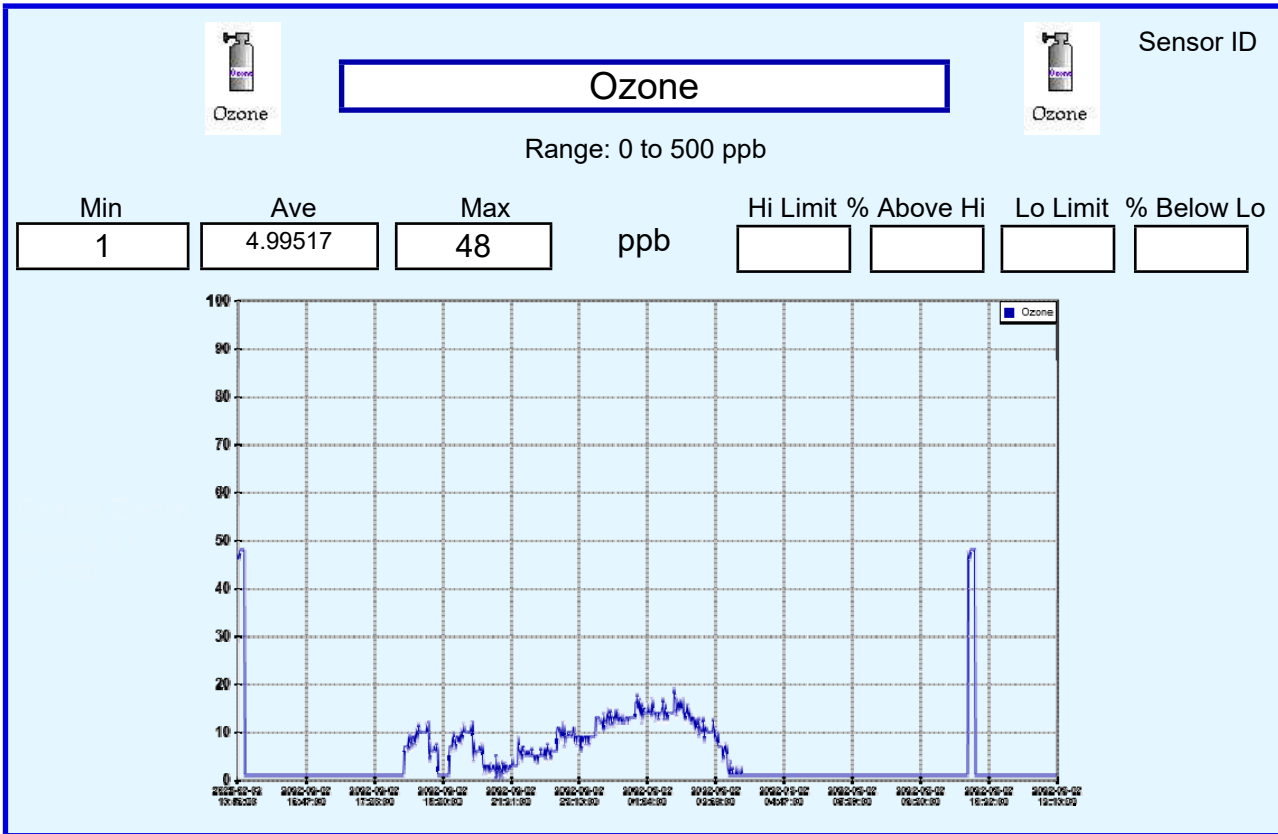
Environmental Report

Start: 9/21/2022 7:31:01 PM End: 9/22/2022 7:40:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1450**



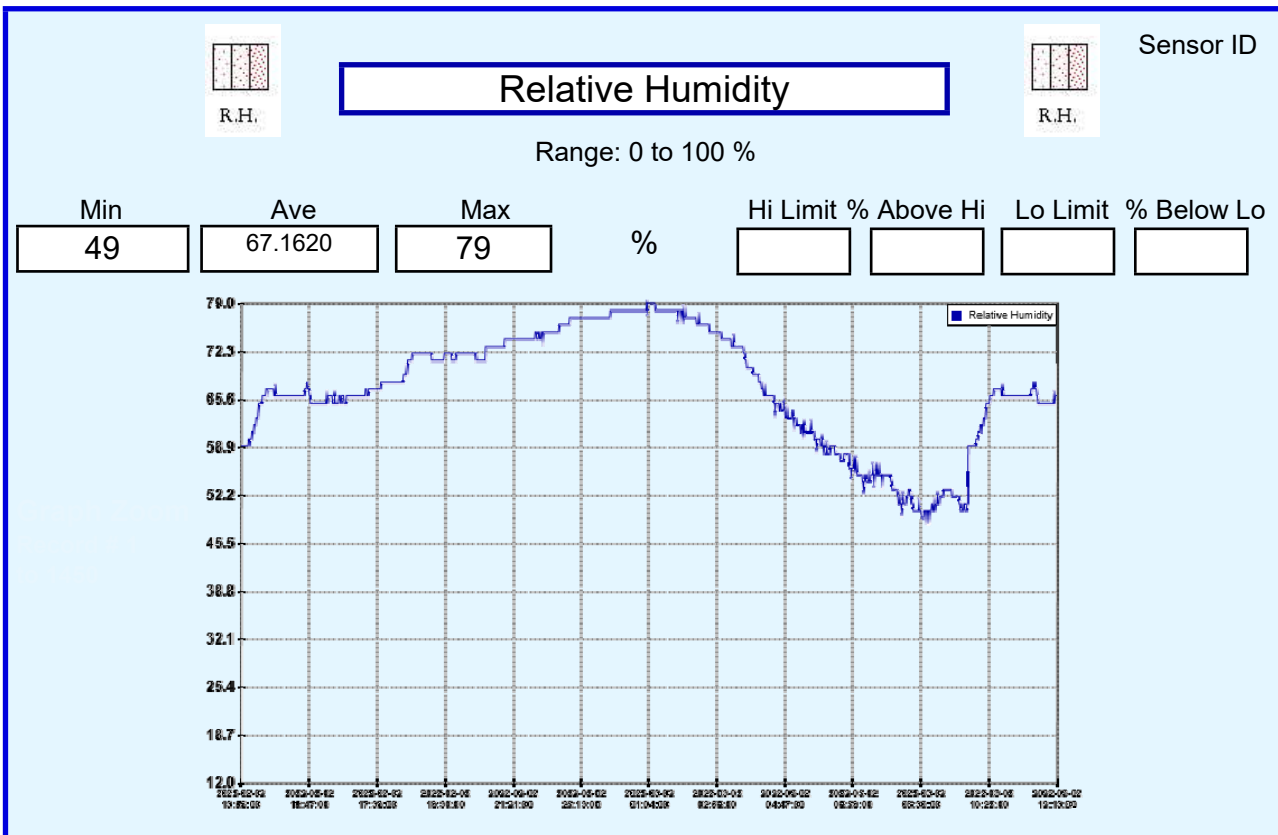
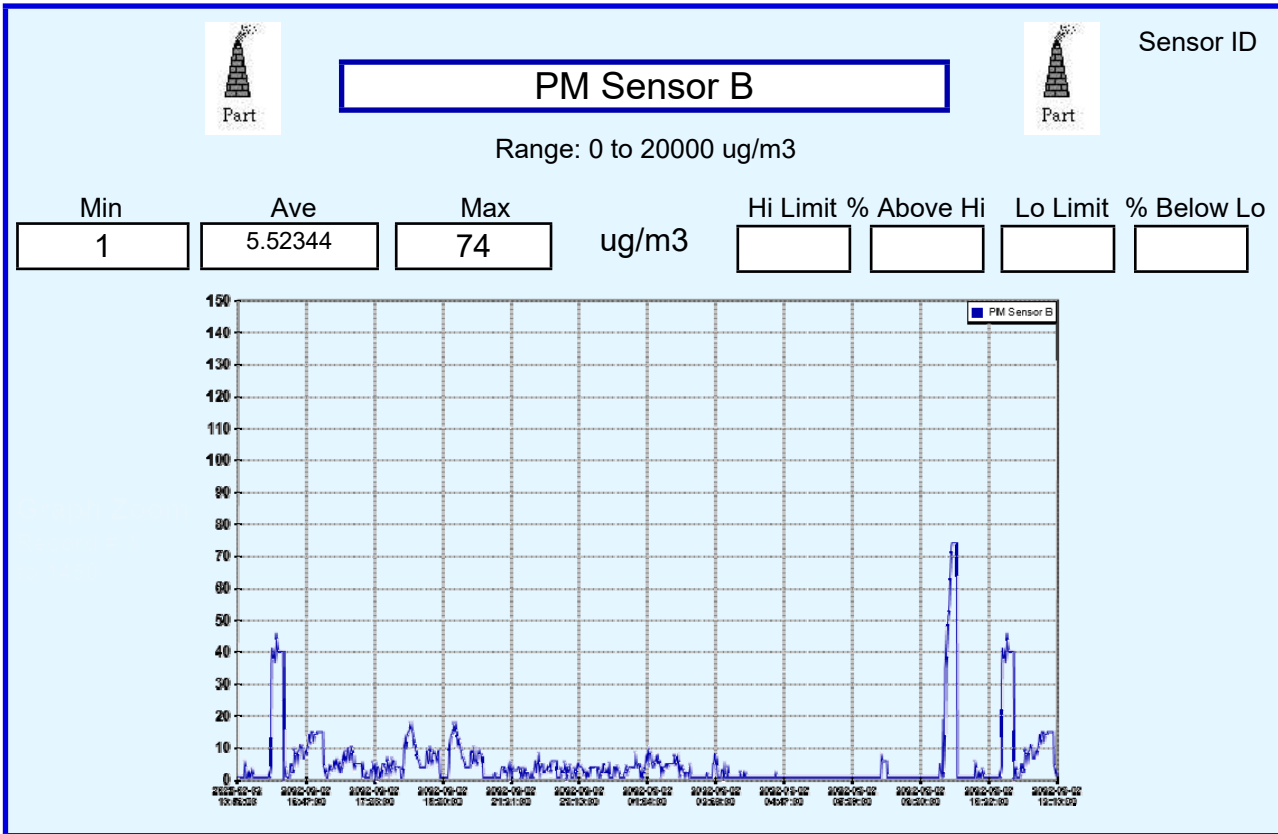
Environmental Report

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Collected by:EPAS

Logger ID **920256**

Record Count **1450**



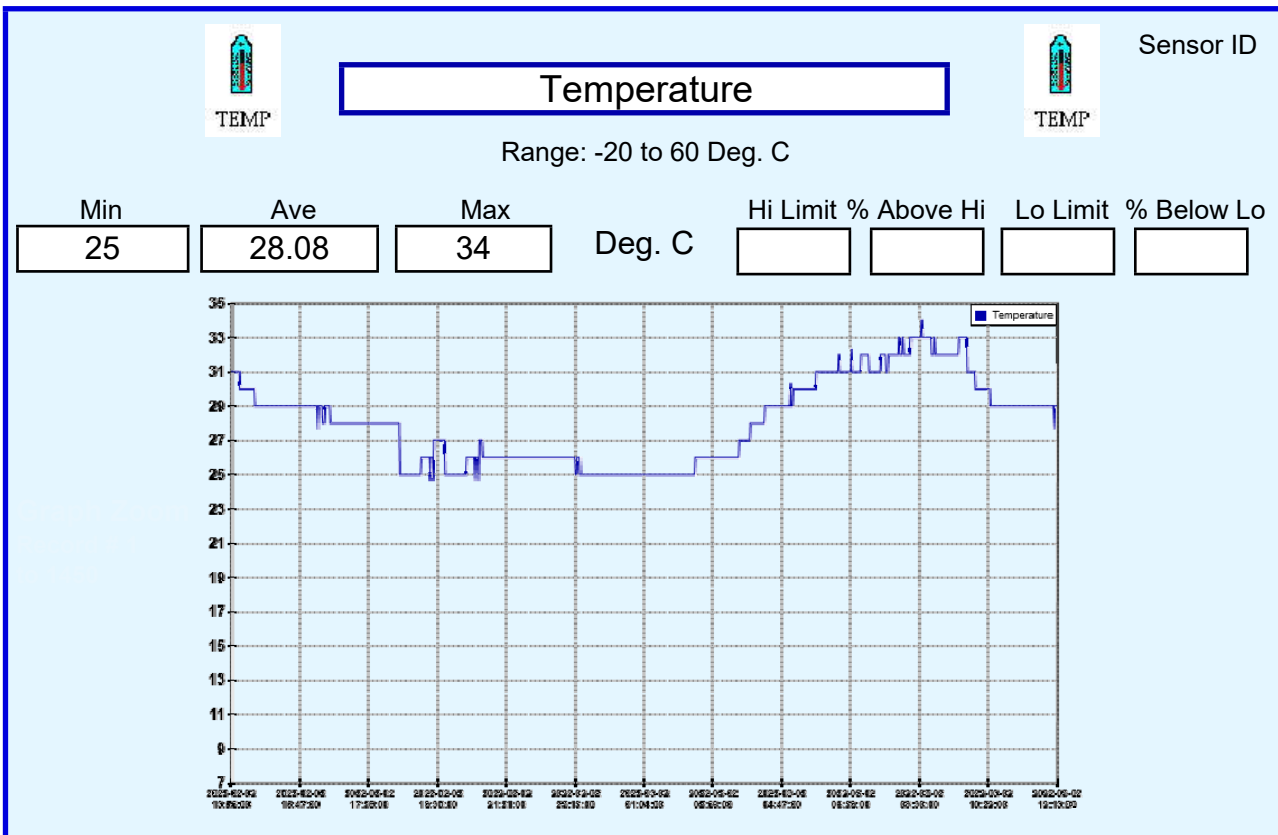
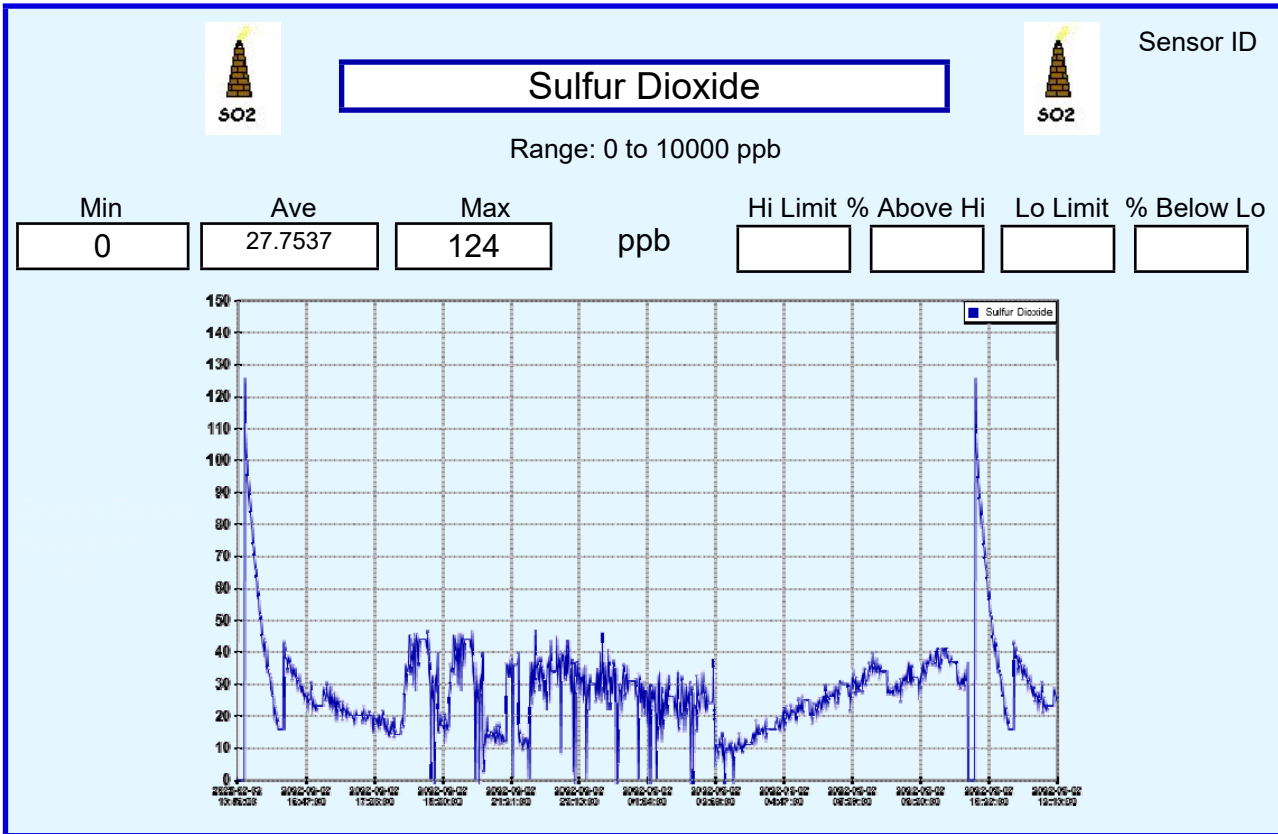
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Start: 9/21/2022 7:31:01 PM End: 9/22/2022 7:40:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1450**



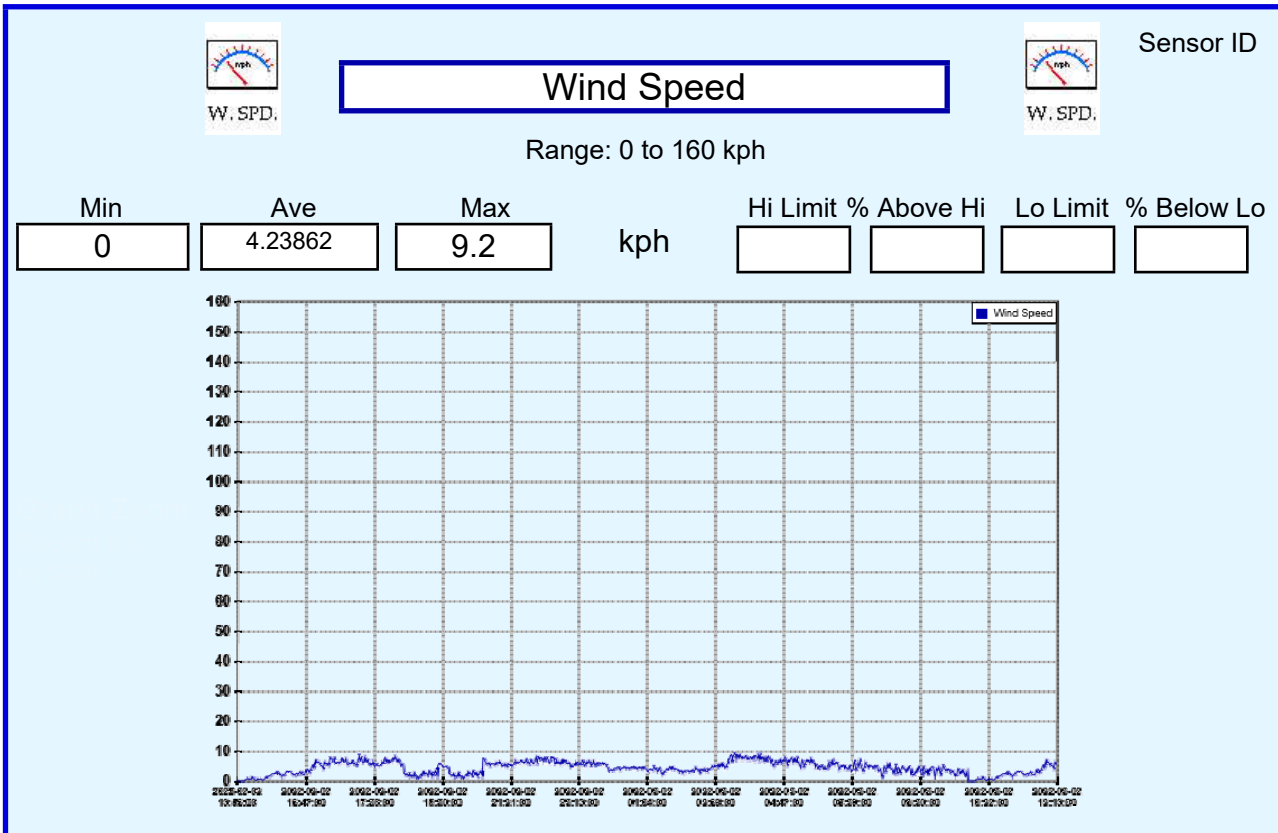
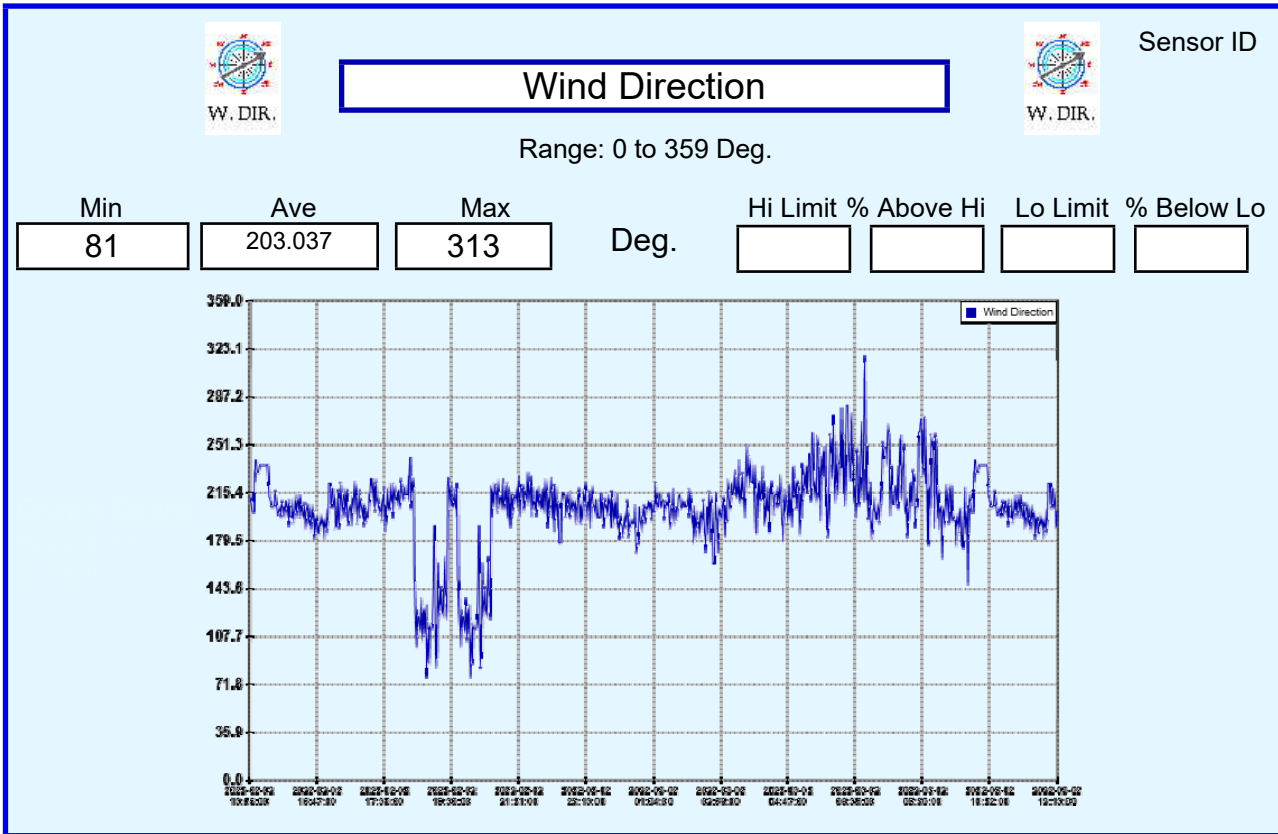
Environmental Report

Start: 9/21/2022 7:31:01 PM End: 9/22/2022 7:40:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1450**



Environmental Report

Start: 9/21/2022 7:31:01 PM End: 9/22/2022 7:40:01 PM

Collected by:EPAS

Logger ID **920256**

Record Count **1450**



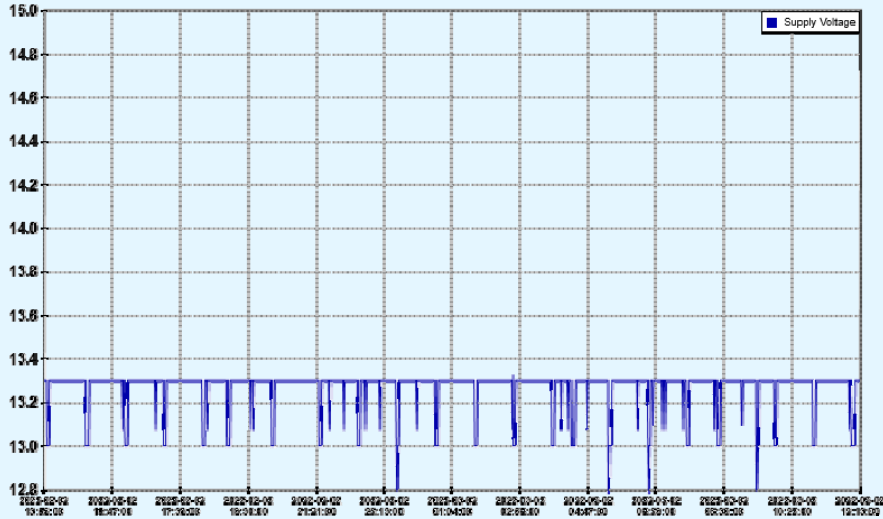
Supply Voltage



Sensor ID

Range: 10 to 16 V

Min	Ave	Max	V	Hi Limit % Above Hi	Lo Limit % Below Lo
12.8	13.2713	13.3			





ပတ်ဝန်းကျင်ရေးရာဓာတ်ခွဲခန်း Ecological Laboratory



စိမ်းလန်းအိမ်ပြေဖွံ့ဖြိုးတိုးတက်ရေးအသင်း (Advancing Life and Regenerating Motherland, ALARM)
531-D, Marlar Myaing Yeik Thar Street, 8 Ward, Kamayut Township, Yangon. Telephone: +95 1 503301

စာအမှတ်/Reference Number: EL (M)-R / 756

နေ့စွဲ/Date: 12th September, 2022

ဓာတ်ခွဲစစ်ဆေးမှုအစီအရင်ခံစာ/Laboratory Analysis Report

နမူနာအမည် / Sample Profile

နမူနာအမည် / Sample Name	Surface Water	နမူနာအမှတ် / Sample ID	756	
နေရာ (မြို့နယ်) Location (Township)	တောင်သမန်အင်းအနီး	လတ္တီတွဒ် Latitude		
နေရာ (တိုင်း/ပြည်နယ်) Location (Region/State)	Mandalay	လောင်ဂျီတွဒ် Longitude		
ပေးပို့သူအမည် / Sender Name	U Soe Myint	နမူနာကောက်ယူချိန် (နေ့၊ နာရီ) Sampling Time (Date, Time)	7.9.2022	11:00 AM
အဖွဲ့အစည်း / Organisation	-			
ဆက်သွယ်ရန် / Contact	09-401600255	နမူနာရောက်ရှိချိန် (နေ့၊ နာရီ) Arriving Time (Date, Time)	8.9.2022	11:30 AM

(This laboratory analysis report is based solely on the sample submitted by the customer)

(ဤဓာတ်ခွဲစစ်ဆေးမှုအစီအရင်ခံစာသည် ပေးပို့သူမှပို့ဆောင်ခဲ့သည့်နမူနာကိုသာအခြေခံထားပါသည်။)

Analysis Results/စမ်းသပ်ချက်အဖြေ

စဉ် Sr.	အရည်အသွေးညွှန်းကိန်း Quality Parameter	ရလဒ် အဖြေ Results	နည်းစဉ် Method	စံသတ်မှတ်ချက် Drinking Standard	မှတ်ချက် Remarks
1	Total plate count (CFU/ml)		Total plate count method	0	
2	Total coliform count (MPN/100 ml) (Presumption test)	210	Most Probable Number method	0	
3	Total faecal coliform count (MPN/100ml) (Presumption test)		Most Probable Number method	0	
4	Total coliform count (CFU/ml) (Confirm test)		Eosin Methyl blue agar plate test	0	
5	Complete test for coliform bacteria		Gram staining test	-	
6	Total coliform count (CFU/ml)		3M Pate count method	0	
7	Total <i>E.coli</i> count (CFU/ml)		3M Pate count method	0	

Note: The target sample needs to test some additional tests to confirm total coliform and total faecal coliform.

စမ်းသပ်ပြီး

Tested by

May Zaw

Research Assistant

ALARM

စစ်ဆေးပြီး

Checked by

May Myat Nyein

Research Assistant

ALARM

တာဝန်ခံ

Approved by

Ni Tar Nwe

Research Scientist

ALARM

ALARM Ecological Laboratory

Water Testing Result Report



Report Number : EL-WR-22-00658

Date : September 13, 2022

Client Information

Client Name : U Soe Myint
 Organization : -
 Client ID : -
 Registration Date & Time : 8.9.2022 ; 11:30 AM
 Contact : 09-401600255
 Testing Purpose : For Standard

Sample Information

Sample ID : 8478
 Sample Name : Ground Water
 Sample Type / Source : Raw
 Sampling Date & Time : 7.9.2022 ; 10:30 AM
 Sample Location : Taung Ta Mann Inn Near
 Latitude : -
 Longitude : -

Testing Results

This laboratory analysis report is based solely on the sample submitted by the client unless client took our sampling service.

This report shall not be reproduced except in full, without written approval of the laboratory

Sr.	Quality Parameters	Results	Units	Drinking Standards	Remarks
1	pH ¹	7.7	S.U	6.5 – 8.5 ^c	Normal
2	Temperature ²	21	°C	-	-
3	TDS ⁴	337	mg/L	≤1000 ^c	Normal
4	Conductivity ⁵	0.6	mS/cm	≤2.5 ^b	Normal
5	Hardness ³	112	mg/L	≤500 ^c	Normal
6	Chloride ³	640	mg/L	≤250 ^c	Above the limit
7	Nitrate ³	0.6	mg/L	≤10 ^b	Normal
8	Aluminium ³	< 0.01	mg/L	≤0.2 ^b	Normal
9	Cadmium ⁷	ND	mg/L	≤0.003 ^b	LOD = 0.01 mg/L
10	Copper ⁷	ND	mg/L	≤2 ^b	LOD = 0.02 mg/L
11	Iron ⁷	0.4	mg/L	≤1 ^c	Normal
12	Lead ⁷	ND	mg/L	≤0.01 ^c	LOD = 0.1 mg/L
13	Manganese ³	0.4	mg/L	≤0.4 ^c	Normal
14	Potassium ³	36	mg/L	-	-
15	Zinc ³	< 0.02	mg/L	≤3 ^c	Normal
16	Total Alkalinity ³	740	mg/L	-	-
17	Sulfate ³	383	mg/L	≤ 250 ^c	Above the limit
18	Calcium ³	36	mg/L	≤200 ^c	Normal
19	Magnesium ³	16	mg/L	≤150 ^c	Normal

“ND” = Not Detected

“LOD” = Lower limit of detection

“ - ” = No Reference Standard

Tested by

Checked by

Approved by

Daw May Myat Khine
 Lab. Technician II
 Ecological Laboratory
 ALARM

Daw Lin Myat Myat Aung
 Lab. Technician I
 Ecological Laboratory
 ALARM

Dr. Aye Aye Win
 Laboratory In-Charge
 Ecological Laboratory
 (ALARM)

ALARM Ecological Laboratory

Water Testing Result Report



Report Number : EL-WR-22-00657

Date : September 13, 2022

Client Information

Client Name : U Soe Myint
Organization : -
Client ID : -
Registration Date & Time : 8.9.2022 ; 11:30 AM
Contact : 09-401600255
Testing Purpose : For Standard

Sample Information

Sample ID : 8477
Sample Name : Surface Water
Sample Type / Source : Raw
Sampling Date & Time : 7.9.2022 ; 11:00 AM
Sample Location : Taung Ta Mann Inn Near
Latitude : -
Longitude : -

Testing Results

This laboratory analysis report is based solely on the sample submitted by the client unless client took our sampling service.

This report shall not be reproduced except in full, without written approval of the laboratory

Sr.	Quality Parameters	Results	Units	Emission Standards	Remarks
1	pH ¹	8.6	S.U	6.0 - 9.0 ^d	Normal
2	TSS ³	29	mg/L	≤50 ^d	Normal
3	BOD ₅ ⁶	25	mg/L	≤ 50 ^d	Normal
4	COD ³	38	mg/L	≤ 250 ^d	Normal
5	Total Phosphorous ³	0.27	mg/L	≤2 ^d	Normal
6	Total Nitrogen ³	< 0.5	mg/L	-	-
7	Oil & Grease ⁹	6	mg/L	≤ 10 ^d	Normal

"ND" = Not Detected

"LOD" = Lower limit of detection

" - " = No Reference Standard

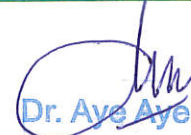
Tested by

Checked by

Approved by


Daw Myat Khine
Lab. Technician II
Ecological Laboratory
ALARM


Daw Lin Myat Myat Aung
Lab. Technician I
Ecological Laboratory
ALARM


Dr. Aye Aye Win
Laboratory In-Charge
Ecological Laboratory
(ALARM)

APPENDIX V

Water Quality Assessment Report Conducted in 2015

WATER QUALITY ASSESSMENT CONDUCTED IN 2015

The baseline water quality status in the region is established by analyzing samples at four locations consisting of Taung Thaman Inn water and three ground water samples from Taung Thaman, Ywar Thit and Tae Nan Thar villages near the project. The criteria for the selection of sites was determined on the project location, agricultural land, slope of the land surface, topographical land upstream and downstream of the project, channels adjacent to irrigated fields, potential areas of sewage and the location of the drainage and its discharge system. All water samples were analyzed for their physiochemical properties in ISO TECH laboratory and the result are as shown in Table. 3.

Table 1. Quality of Ground Water and Surface Water from Project Area

Test	Unit	WHO	Water Samples			
			Taung Thaman village	Taung Thaman lake	Ywar Thit village	Tae Nan Thar village
pH	pH	6.5-8.5	7.2	7.5	7.3	7.3
Turbidity	NTU	5	3	352	4	3
Total Hardness (as CaCO ₃)	mg/l	500	240	114	304	216
Total Alkalinity	mg/l	-	332	200	632	328
Bicarbonate (HCO ₃)	mg/l	-	332	200	632	328
Iron	mg/l	0.3	0.18	2.88	0.31	0.16
Chloride (as CL)	mg/l	250	4	36	80	10
Sulphate (as SO ₄)	mg/l	200	31	21	112	24
Total Solids	mg/l	1500	314	666	807	326
Salinity	ppt	-	0.3	0.3	0.8	0.3

By comparing the laboratory analysis results with WHO water quality guideline value, Taung Thaman Lake water has higher turbidity value than that of WHO guideline value. Iron content of the lake water (2.88) and Ywar Thit (0.31) also are higher than WHO value. Other

physiochemical properties of all samples are in accordance with IFC guideline values. The properties are baseline water quality of the existing environment before the implementation of the project. The project proponent is obliged to control the quality of sanitary water discharged from the project in accordance with WHO guideline value by applying necessary wastewater treatments.



Figure : Collecting Water Samples from Taung Thaman Lake

WATER QUALITY TEST RESULTS FORM

Client _____ OSHE Services
 Nature of Water _____ Tube Well Water (WS - 1)
 Location _____ တောင်သမန်ရွာ၊ အမရပူရမြို့နယ်။
 Date and Time of collection _____ 22.6.2015
 Date and Time of arrival at Laboratory _____ 23.6.2015
 Date and Time of commencing examination _____ 24.6.2015
 Date and Time of completing _____ 26.6.2015

Results of Water Analysis

**WHO Drinking Water Guideline
(Geneva - 1993)**

pH	7.2		6.5 - 8.5
Colour (True)		TCU	15 TCU
Turbidity	3	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	240	mg/l as CaCO ₃	500 mg/l as CaCO ₃
Calcium Hardness		mg/l as CaCO ₃	
Magnesium Hardness		mg/l as CaCO ₃	
Total Alkalinity	332	mg/l as CaCO ₃	
Phenolphthalein Alkalinity		mg/l as CaCO ₃	
Carbonate (CaCO ₃)	Nil	mg/l as CaCO ₃	
Bicarbonate (HCO ₃)	332	mg/l as CaCO ₃	
Iron	0.18	mg/l	0.3 mg/l
Chloride (as CL)	4	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO ₄)	31	mg/l	200 mg/l
Total Solids	314	mg/l	1500 mg/l
Suspended Solids		mg/l	
Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity	0.3	ppt	

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

Tested by

Signature: _____

Name: _____

Law Hein Oo
Law Hein Oo
B.Sc (Chemistry)
Chemist

Approved by

Signature: _____

Name: _____

Soe Thi
Soe Thi
B.E (Civil) 1980
Technical Officer,
ISO TECH Laboratory,

WATER QUALITY TEST RESULTS FORM

Client OSHE Services
 Nature of Water တောင်သမန်အင်းရေ (WS - 2)
 Location တောင်သမန်အင်း၊ အမရပူရမြို့နယ်။
 Date and Time of collection 22.6.2015
 Date and Time of arrival at Laboratory 23.6.2015
 Date and Time of commencing examination 24.6.2015
 Date and Time of completing 26.6.2015

Results of Water Analysis

**WHO Drinking Water Guideline
(Geneva - 1993)**

pH	7.5		6.5 - 8.5
Colour (True)		TCU	15 TCU
Turbidity	352	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	114	mg/l as CaCO ₃	500 mg/l as CaCO ₃
Calcium Hardness		mg/l as CaCO ₃	
Magnesium Hardness		mg/l as CaCO ₃	
Total Alkalinity	200	mg/l as CaCO ₃	
Phenolphthalein Alkalinity		mg/l as CaCO ₃	
Carbonate (CaCO ₃)	Nil	mg/l as CaCO ₃	
Bicarbonate (HCO ₃)	200	mg/l as CaCO ₃	
Iron	2.88	mg/l	0.3 mg/l
Chloride (as CL)	36	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO ₄)	21	mg/l	200 mg/l
Total Solids	666	mg/l	1500 mg/l
Suspended Solids		mg/l	
Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity	0.3	ppt	

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

Tested by
 Signature: Hein
 Name: Zaw Hein Oo
B.Sc (Chemistry)
 Chemist

Approved by
 Signature: See Thit
 Name: See Thit
B.E (Civil) 1980
 Technical Officer
 ISO TECH Laboratory

WATER QUALITY TEST RESULTS FORM

Client OSHE Services
 Nature of Water Tube Well Water (WS - 3)
 Location ရွာသစ်ရွာ၊ အမရပူရမြို့နယ်။
 Date and Time of collection 22.6.2015
 Date and Time of arrival at Laboratory 23.6.2015
 Date and Time of commencing examination 24.6.2015
 Date and Time of completing 26.6.2015

Results of Water Analysis

**WHO Drinking Water Guideline
(Geneva - 1993)**

pH	7.3		6.5 - 8.5
Colour (True)		TCU	15 TCU
Turbidity	4	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	304	mg/l as CaCO ₃	500 mg/l as CaCO ₃
Calcium Hardness		mg/l as CaCO ₃	
Magnesium Hardness		mg/l as CaCO ₃	
Total Alkalinity	632	mg/l as CaCO ₃	
Phenolphthalein Alkalinity		mg/l as CaCO ₃	
Carbonate (CaCO ₃)	Nil	mg/l as CaCO ₃	
Bicarbonate (HCO ₃)	632	mg/l as CaCO ₃	
Iron	0.31	mg/l	0.3 mg/l
Chloride (as CL)	80	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO ₄)	112	mg/l	200 mg/l
Total Solids	807	mg/l	1500 mg/l
Suspended Solids		mg/l	
Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity	0.8	ppt	

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

Tested by
 Signature: *Hein Oo*
 Name: Zaw Hein Oo
B.Sc (Chemistry)
 Chemist

Approved by
 Signature: *Soe Thi*
 Name: Soe Thi
B.Sc (Civil) 1980
 Technical Officer,
 ISO TECH Laboratory

WATER QUALITY TEST RESULTS FORM

Client OSHE Services
 Nature of Water Tube Well Water (WS - 4)
 Location တဲနန်းသာရွာ၊ အမရပူရမြို့နယ်။
 Date and Time of collection 22.6.2015
 Date and Time of arrival at Laboratory 23.6.2015
 Date and Time of commencing examination 24.6.2015
 Date and Time of completing 26.6.2015

Results of Water Analysis

**WHO Drinking Water Guideline
 (Geneva - 1993)**

pH	7.3		6.5 - 8.5
Colour (True)		TCU	15 TCU
Turbidity	3	NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness	216	mg/l as CaCO ₃	500 mg/l as CaCO ₃
Calcium Hardness		mg/l as CaCO ₃	
Magnesium Hardness		mg/l as CaCO ₃	
Total Alkalinity	328	mg/l as CaCO ₃	
Phenolphthalein Alkalinity		mg/l as CaCO ₃	
Carbonate (CaCO ₃)	Nil	mg/l as CaCO ₃	
Bicarbonate (HCO ₃)	328	mg/l as CaCO ₃	
Iron	0.16	mg/l	0.3 mg/l
Chloride (as CL)	10	mg/l	250 mg/l
Sodium chloride (as NaCL)		mg/l	
Sulphate (as SO ₄)	24	mg/l	200 mg/l
Total Solids	326	mg/l	1500 mg/l
Suspended Solids		mg/l	
Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity	0.3	ppt	

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

Tested by

Signature: *Zaw Hein Oo*

Name: Zaw Hein Oo

B.Sc (Chemistry)

Chemist

ISO TECH Laboratory

Approved by

Signature: *Soe Thin*

Name: Soe Thin

B.E (Civil) 1980

Technical Officer

ISO TECH Laboratory

(a division of WEG Co.,Ltd.)

APPENDIX VI:
NOISE STUDY REPORT CONDUCTED IN 2015

Noise Study Report
For
TAUNG THAMAN RESORT TOWN PROJECT

Prepared By
Dr.Aung Lay Tin
OSHE SERVICE ENV; Co.,ltd

Date : 16-5-2015

kHz	Kilohertz
L _{dn}	Day-Night Level
L _{Aeq}	Equivalent Sound Level
L _{eq(h)}	Equivalent Sound Level over one hour
L _{max}	Maximum Sound Level
L _{xx}	Percentile-Exceeded Sound Level
mPa	micro-Pascals
mph	miles per hour
NSRs	Noise sensitive receivers
NSR	noise study report
SPL	sound pressure level

1. Introduction

1.1. Purpose of the Noise Study Report (NCR)

The purpose of this NSR is to evaluate noise impacts and abatement under the requirements of Myanmar Environmental Conservation Law (2012) and Rules (2014). The Protocol outlines the requirements for preparing noise study reports (NSR). Noise impacts associated with this project are evaluated in the project's environmental document.

1.2. Objectives of the Project

The main objective of the distillery is to produce higher quality rectified spirit with specified standard under ISO and CGMP guidelines. ISO 9001-2008 certificate has been awarded to the project. The plant is trying to get CGMP certificate in 2013. It also has a plan to get ISO 14001 certificate and HACCP certificate in a near future. Specific objectives of the project could be pointed out as:

- (a) providing food safety for consumers by producing the best quality product
- (b) contributing the regional development by setting up a large scale industry
- (c) enhancing the job opportunities of people living in the surrounding area
- (d) increasing government's earning via tax

2. Fundamentals of Noise

2.1. Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

2.2. Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

2.3. Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascal (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure.

Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

2.4. Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

2.5. A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Table 2-1 describes typical A-weighted noise levels for various noise sources.

Table 2-1. Typical A-Weighted Noise Levels (Source: Caltrans, 1998)

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1000 feet	—110—	Rock band
Gas lawn mower at 3 feet	—100—	
Diesel truck at 50 feet at 50 mph	—90—	Food blender at 3 feet
Noisy urban area, daytime	—80—	Garbage disposal at 3 feet
Gas lawn mower, 100 feet	—70—	Vacuum cleaner at 10 feet

Commercial area Heavy traffic at 300 feet	—60 —	Normal speech at 3 feet
Quiet urban daytime	—50 —	Large business office Dishwasher next room
Quiet urban nighttime Quiet suburban nighttime	—40 —	Theater, large conference room (background)
Quiet rural nighttime	—30 —	Library
	—20 —	Bedroom at night, concert
	—10 —	Broadcast/recording studio
Lowest threshold of human hearing	—0 —	Lowest threshold of human hearing

2.6. Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

2.7. Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in noise analysis.

- **Equivalent Sound Level (L_{Aeq}):** L_{Aeq} represents an average of the sound energy occurring over a specified period. In effect, L_{Aeq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($L_{Aeq}[h]$) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for noise abatement criteria (NAC).
- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn} , CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

2.8. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

2.8.1. Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

2.8.2. Ground Absorption

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

2.8.3. Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels.

Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

2.8.4. Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receiver is rarely effective in reducing noise because it does not create a solid barrier.

3. Relevant Guidelines, Standards and Legislation

3.1. Noise Level Guidelines

As Myanmar is still attempting to regulate the noise level standards for different sectors, World Bank IFC General Environmental, Health and Safety Guidelines are used for reference. They can be used to address impacts of noise beyond property boundary of the facilities. The guidelines show the impacts should not exceed the levels presented in the following table, or result in a maximum increase in background level of 3 dB at the nearest receptor location off-site.

Table 5.2 . Some Acceptable Noise Level Standards

Noise Level Guidelines		
Receptor	One Hour L _{Aeq} (dBA)	
	Daytime 07:00 – 22:00	Nighttime 22:00 – 07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Source: (IFC, 2007)

The Noise Levels should be monitored in accordance with any one of the following noise level standards given in table below:

Table 5.3 . Some Acceptable Noise Level Standards

Country/Region	Acceptable Noise Level dB (A)		
	Industrial Areas Day/ Night	Commercial Areas Day/ Night	Residential Areas Day/ Night
EU(UN/WHO)	65	55	55/45
Australia	65/55	55/45	45/35
Japan	60/50	60/50	45/35
USA	70	60	45
Romania	65	65	50/40
India	No Data	65/55	55/45
Vietnam	75/50	70/50	60/45

Source: UNDP guidelines

4. Study Methods

4.1. Measurement time

The noise under investigation is measured for sufficient time to establish that the measured value adequately represents the subject source noise. The source noise is measured over a time interval of at least 15 minutes or, if the noise continues for less than 15 minutes, the duration of the source noise.

Typical monitoring periods should be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this time period, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and weekend workdays). The type of acoustic indices recorded depends on the type of noise being monitored, as established by a noise expert.

4.2. Measurement location

Normally, when undertaking a noise assessment, it is essential to make note of the following on a site map:

- location of noise source
- background noise measurement location
- source noise measurement location
- topography between noise source and sensitive receivers.

The location of noise measurements for the project is shown in Figure 4.1.



Figure 4.1. Location of Noise Sensitive Receivers (NSRs)

4.3. Measurement method

Handheld Quick Assessment

The handheld assessment method is used to get noise levels; a tripod is used for a compliance inspection or to take enforcement action. To obtain the most accurate data using this method, the SLM is held out at arm's length and held out to the side with the microphone pointed towards the source of the noise, to minimize sound reflecting off the body.

Affected height of the receptor

A noise reading should always be taken at the height of the receptor. If the receptor is at the ground level, measurement is taken at the ground level (1.2–1.5m off the ground) and no closer than 3 m to any reflecting surface (e.g., wall).

5. Existing Noise Environment

5.1. Existing Land Uses

As in Figure 1, the land uses in the vicinity of the project are found to be commercial, natural mountain slope and farmlands.

5.2. Noise Measurement Results

The project is located in an outlying mountainous area with limited road network, and has no major road traffic related noise sources. The noise environment at the project is dominated by human activities, with most activities during daytime hours.

The noise monitoring results are summarized in Table 5.1 to demonstrate baseline noise levels at the site. There has been no development in the area since this time that would have led to a change in the baseline noise environment.

Existing Noise Levels

Noise level survey at the vicinity of the project was done by the ESIA team. The noise stations, the noise levels and their coordinates are shown in the following table.

Table 5.1. Noise Measurement Results

No	Sample Name	Noise Level In (dB)(A)	Coordinates	
			Latitude(N)	Longitude(E)
1	NS-1	66	21°52'52.72"N	96° 3'59.27"E
2	NS-2	55	21°53'5.02"N	96° 4'1.68"E
3	NS-3	65	21°53'9.71"N	96° 3'52.74"E
4	NS-4	66	21°53'1.19"N	96° 3'56.94"E
5	NS-5	60	21°52'50.85"N	96° 3'51.37"E

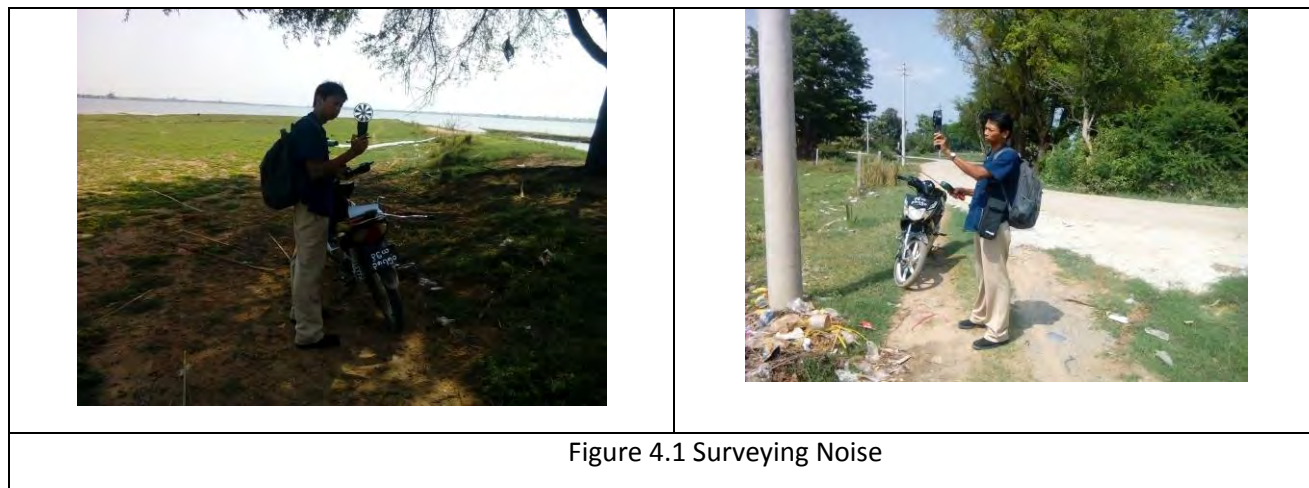


Figure 4.1 Surveying Noise

6. Future Trend

Based on the planning information, resident people activities, their vehicles, waste collection and treatment works are a potential noise source that may affect NSRs close to the work site during construction. Future increase in the population (upon occupancy of all planned developments) may result in more human activity and potentially a higher noise background.

7. Identification of Potential Construction Noise Impacts

It is anticipated that the use of Powered Mechanical Equipment (PME) during the construction phase will generate potential noise impact upon the existing NSRs in the vicinity of the project site. Based on a practicable equipment inventory provided by the Project Proponent, Table 7.1 presents the likely PME that shall be used to construct the Project according to schedule and the corresponding sound power levels.

Table 7.1. Powered Mechanical Equipment to be Used for Construction

Sr.	Description	Sound Power Level, dB (A)
1	Air compressor	104
2	Bar bender (electric)	90
3	Concrete mixer (electric)	96
4	Crane, mobile (diesel)	112
5	Derrick barge/ Split barge	104
6	Dredger, grab	112
7	Dump truck	117
8	Excavator/ Backhoe	117
9	Generator, Standard	112
10	Poker, vibratory, hand-held	113
11	Roller, vibratory	108

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APPENDIX VII

GEOLOGICAL ASSESSMENT REPORT

GEOLOGICAL ASSESSMENT CONDUCTED IN 2015

As part of the ESIA study, specialist geological input is required in order to identify potential environmental impacts on the geological environment within the study area. The following broad scope of work has been given:

- ❖ Carry out a desk study of available information pertaining to the geology and physical aspects of the study area;
- ❖ Prepare a brief report which describes the location, physical characteristics and geology of the study area and identifies potential environmental impacts on the geological environment that are likely to be associated with the proposed activity.

Limitations

Information provided in the specialist report has been based on information provided by the developer, published scientific literature and maps. The study area was visited to investigate geology, soil types and physical aspects of the study area. There is no detailed geotechnical investigation (trial pits, soil testing) or verification of the existing geological mapping was conducted. This report is generally discussed the potential environmental impacts on geological environment in study area. The information provided in this report is deemed adequate for the Geology Section of the EIA Report.

Topography and Climate

The study area is located on the Southeast Bank of Taung Thaman Lake, adjacent to the U Bein Bridge on the north. The study area is currently occupied by villages, uncultivated lands, fish ponds. Therefore, the topography is quite flat, with no major differences in altitude. The climate of project area is located in tropical wet and dry climate. Average temperature is 21°C and 31°C.

Geology and Soil Type

The study area is located in the Mandalay City area, is demarcated by Ayeyarwaddy River in the west and Mandalay hills in the north. The soil conditions in the city vary from alluvial soils to stiff soils. The regional geology consists of Oligocene-Miocene igneous rock, Lower Paleozoic

Metamorphic rock at Mandalay Hill in the north and the built-up area, Mandalay City, is mainly composed of recent Alluvium. In addition, the proposed area is located in recent alluvium.

Mandalay City (including project area) lies along the Saging fault which is dextral strike-slip fault of NS trending fault in Myanmar region. Besides, Mandalay City (including project area) is also located near Shan Scarp Fault which is rather linear, and dies out southward at the junction with the Three Pagoda fault. The anticipated seismic intensity of the Mandalay City (including study area) is located in destructive zone of Deterministic Seismic Hazard Map. The equivalent modified Mercalli Scale Classes are IX. The probable range of ground acceleration is 0.4 - 0.5 g values.

Geological Assessment

The proposed activity may have certain impacts on the geological environment, and this need to be assessed as an integral part of the broader EIA study. The geological environment includes the parent rock and the soil overburden. Important or prominent geological features (geosites) that contribute to the aesthetic scenery of geological interest in the area, such as fossil sites, prominent rock outcrops or features must also be considered in the impact study. Geological features, such as caves, addits, middens, worship rocks, etc. which are important from heritage standpoint are not covered in this report as they are covered in the Heritage Impact Assessment. Besides, geohydrological assessments also do not form part of this study.

(a) Geosites

There are no fossil assemblages according to the previous literatures and there are no other known geo-sites within the study area.

(b) Rock degradation

There would not be potential impact on rock degradation during construction activity because the study area lies alluvium unit and no outcrop are observed.

(c) Soil degradation

Soil degradation is the removal, alteration or damage to soil and soil-forming processes which can be due to natural processes, such as erosion, or human influence during construction activity. The preservation of the natural soil is important to maintain environmental status.

Potential negative impacts relating to soil degradation are anticipated for the proposed activity. Such impacts include excavation, displacement or importation of soil, stockpiling, mixing, wetting, compaction and pollution of soil, soil erosion and sedimentation.

Soil erosion is the process of the lowering of the natural ground level by wind or water and may occur as a result of, inter alia, chemical process and/or physical transport on the land surface. Erosion potential is determined by the erodibility of the soil (type and structure), vegetative cover, topography, climate (rainfall and wind), and the nature of land-clearing. Soil erodibility potential is the erosion when soils are exposed to water (and/or wind) during or as a result of land-disturbing activities. Generally, soils with faster infiltration rates, higher levels of organic matter and improved soil structure have a greater resistance to erosion. Sand, sandy loam and loam textured soils tend to be less erodible than silt, very fine sand, and certain clay textured soils. Besides, erodibility potential is generally increased where low-plasticity, fine-grained, unconsolidated soils occur, such as Quaternary and Recent sediments. The soil characteristics of study are Quaternary recent soil. Water erosion potential is generally higher in areas of high relief and at the base of steep slopes where hydraulic energy is higher. The study area is quite flat, with no major differences in altitude. The climate of the study area is wet and dry seasons of nearly equal length, with the wet season running from May through October and the dry season covering the remaining six months.

Conclusion

The geological scoping study has discussed geological features such as soil types, geologic structure and geosites. Besides, the potential environmental impacts on geologic environment of proposed area has identified that degradation of the natural soil is the main geological impact associated with the proposed activity. The possible mitigation of impacts has discussed for Environmental Management and Planning. According to an overview of the discussed geological characteristics of the site, the main potential impacts that have been identified are considered to be low impacts to geologic environments if the possible mitigation of impacts will be carried out successfully.

APPENDIX VIII
BIODIVERSITY REPORT

**BIOLOGICAL BASELINE STUDY AND IMPACT ASSESSMENT
ON “MYANMAR TRADITIONAL CULTURE AND TAUNG
THA MAN COUNTRY RESORT” PROJECT**



Submitted By

MBG

September 2015

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BIOLOGICAL BASELINE STUDY AND IMPACT ASSESSMENT ON “MYANMAR TRADITIONAL CULTURE AND TAUNG THA MAN COUNTRY RESORT” PROJECT

EXECUTIVE SUMMARY

The proposed project located at the southern- east site of Taung Tha Man Lake, near the East bank of Ayeyarwaddy River, in Amarapura Township, Mandalay Region. It is very famous in historical Bridge (U Pein Bridge), Mazae Tan, and Kyauk Taw Gyi temple. This wetland region is also a public recreation and tourism place, near Yangon-Mandalay Expressway. In Indo-Burma Hotspot, it is a key biodiversity area with coding site MMR113. Myanmar Biotechnology Group (MBG) has focused on baseline study of biological environment, ecosystem and impact assessment for both direct and indirect area. Surveying period was from May, 2015 to August, 2015. For the base line study of biological impact assessment, the 5 Km area around project site is divided into 10 points for surveying. According to the assessment of the EIA for the fauna survey, a total of 45 species of avifauna, a total of 8 species of rodents and reptiles, 14 species of butterfly, 10 species of odonate, and 14 species of fish were recorded. In case of flora survey, totally 36 species of trees in the direct and indirect area were observed and also 6 species of aquatics plants, and 10 species of vegetation and gardening. Due to the survey, it was recorded that little egret (*Egretta garzetta*) are very populated in the Taung Tha Man Lake and the number is about 3000. Another populated bird in this place is Common snipe (*Gallinago gallinago*). The number of about 2500 of Common snipe habit in this area. In case of flora, meze (*Madhu calongifolia*) are very populated around the project site. The flora and fauna species were checked with the IUCN Red List (2015). All bird species are least concerned in List. The natural beauty of Taung Tha Man Lake shall be improved with “Myanmar Traditional Culture and Taung Tha Man Country Resort” project. But waste water and municipal solid waste must be managed not to pollute the water body of Taung Tha Man Lake. Taung Tha Man Thitsar Company should also participate actively in the activities of other organizations for Taung Tha Man Lake conservation.

1. INTRODUCTION

Taung Than Mann Lake is situated in the Amarapura Township, positing at 21°54" N, 96° 03" E, and the water body of the Lake is approximately 600ha. The river water of Dokhtawady and Ayeyarwaddy flow into the lake from the south and west. Taung Tha Man Lake is a large floodplain transformed into a permanent Lake. In Indo-Burma Hotspot, it is a key biodiversity area with coding site MMR11. A Famous Spot nearby Taung Tha Man Lake U Pein Bridge near Mandalay City would be a Resort Hotel Project. "Myanmar Traditional Culture and Taung Tha Man Country Resort" entitled Project would be constructed in the East of U Pein Bridge and Taung Tha Man Lake adjacent over 40 acres by Private-owned Taung Tha Man Thitsar Company. There would be many Hotel rooms, Resort Park, Traditional Culture, Handicraft Malls included Myanmar Traditional Culture and Taung Tha Man Resort Project cost 300 billion Kyat round would be invested.

Biodiversity, or the variety of life and its process, is a basis property of nature that provides enormous ecological, economic, and aesthetic benefits. Its loss is recognized as a major national as well as global concern, with potentially profound ecological and economic consequences.

Factors contributing to the decline of biodiversity include physical alterations to the geography due to resource exploitation and changing land usages; pollution; overharvesting; introduction of exotic (non-native) species and elimination of native species through predation, competition, genetic modification, and disease transmission; disruption of natural process; and global climate change.

Impact identification methods such as interaction matrices, networks, or simple and descriptive checklists can provide a systematic basis for qualitatively delineating potential impacts of concerns. This description of existing Flora and Fauna primarily focuses on community types (habitat types) which include identifying certain selected species for each community types.

In this study, MBG has focused "Biological Baseline Study and Impact Assessment of "Myanmar Traditional Culture and Taung Tha Man Country Resort" Project. It will be considered to identify the biological impacts, existing biological condition, the biological impacts, and mitigation measure for environmental protection management.

2. OBJECTIVES OF STUDY

In Indo-Burma Hotspot, Taung Tha Man Lake is a key biodiversity area with coding site MMR113. It was established in Indo –Burma biodiversity Hotspot there were 172 species which are globally threatened in Myanmar. It can be expressed as taxonomic group in mammals 43, birds 41, reptiles 23, amphibians 0, fish 16, invertebrates 4 and plants 45.

The following facts are being studied by MBG.

1. To describe existing biological conditions and record endangered or threatened species and critical habitats
2. To identify the biological impacts of proposed project
3. To identify and incorporate the mitigation measures for the benefits of ecosystem service

3. METHODOLOGY ON BIODIVERSITY BASELINE STUDY

In biological environment, the status of the flora and fauna of the study area was determined by a review of literature relevant to the area and field investigations for both the terrestrial and wetland environments. The vegetative communities were identified and classified into community types. Identification was carried out of dominant tree species. The vegetation was identified and described for the property.

Information on fauna was gathered from existing literature on reported species as well as observations in the field. Observations were made particularly to assess the presence of birds in the terrestrial and wet land environments. Information was obtained from locals in the area about the presence of any significant species.

In the case of fishery, the permanent water body has 600ha. Apart from involving the local communities in the exploitation of the resource, the lessee has also introduced protected areas that have been identified as tilapia breeding grounds and also releases some other species. There is a certain amount of feeding at the time that the lease floods, allegedly to prevent fish from migrating from the lease. All species of fish are vulnerable to various parasitic infections depending on the species of fish and the type of stream inhabited. Some of the factors that enhance parasitic infection in fishes include reduced oxygen content of water, increase in organic matter, in the water, poor environmental conditions.

In order to obtain essential ecological data and representative checklists of the flora and fauna species, data collection was also carried out by random transect lines within the direct

impact zone and indirect impact zone of the project site. The families were identified by using key to families of flowering plants, issued by Department of Botany, Yangon University (1994), and Birds of Myanmar (2005).

After surveying in a specific site, the population of species in that area is very important to know the composition and the richness of various species and their survival. The density of a species is also needed to calculate the numbers of each species in the community.

4. IMPACT ASSESSMENT METHOD

To provide a basis for addressing biological environmental impacts, a six-step or six-activity model is used for the planning and conduction of impact studies. The six generic steps associated with biological environmental impacts are

- (1) Identification of the potential biological impacts of the construction and/ or operation of the proposed project or activity, including habitat changes or loss, chemical cycling and toxic events, and disruptions to ecological succession.
- (2) Description of the environmental setting in terms of habitat types, selected floral and faunal species, management practices, endangered or threatened species, and special features.
- (3) Procurement of relevant laws, regulations, or criteria related to biological resources and protection of habitat or species
- (4) Conduction of impact prediction activities, including the use of analogies (case studies), physical modeling, and/or mathematical modeling, based on judgment
- (5) Use of pertinent information, along with professional judgment and public input, in access the significant or anticipated beneficial and detrimental impacts
- (6) Identification, development, and incorporation of appropriate mitigation measures for the adverse impacts

5. DATA ASSESSMENT ON EXISTING BIOLOGICAL CONDITIONS

Floral components and faunal components are assessed in both direct and indirect sites of the proposed project. Table (1-8) and Figure (1-9) are assessment data for proposed project. There is no species which is endangered or threaten species and also endemic species checked in IUCN Red List Category.

5.1 Diversity of Birds

A field survey was conducted as part of the Strategic Environmental Assessment identifies existing avifauna on the site. Taung Tha Man Lake is not only wet land but also inland fishery area. Forty-five species of birds were recorded in the target area. Most of birds were wetland birds. There was no endangered or threaten species and also endemic species.

(Table-1) List of Avifauna in the Impact Zone

No.	Local Name	Common Name	Scientific Name	Family Name	IUCN Red List	
					Status	Population Trend
1.	Boat	Greater Coucal	<i>Centropus sinensis</i>	Cuculidae	Least Concern	Stable
2.	But	Black Bulbul	<i>Hypsipetes leucocephalus</i>	Pycnonotidae	Least Concern	Stable
3.	But-chwe	Streak-eared Bulbul	<i>Pycnonotus blanfordi</i>	Pycnonotidae	Least Concern	Stable
4.	But-ka-lon	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	Pycnonotidae	Least Concern	Decreasing
5.	But-phin-ni	Red-Vented Bulbul	<i>Pycnonotus cafer</i>	Pycnonotidae	Least Concern	Increasing
6.	Byine	Little egret	<i>Egretta garzetta</i>	Ardeidae	Least Concern	Increasing
7.	Byinengan	Great egret	<i>Casmerodius albus</i>	Ardeidae	Least Concern	Unknown
8.	Byine-ouk	Indian Pond hero	<i>Ardeola grayii</i>	Ardeidae	Least Concern	Unknown
9.	Din-gyi	Little Cormorant	<i>Phalacrocorax niger</i>	Phalacrocoracidae	Least Concern	Unknown
10.	Eain-sar	House Sparrow	<i>Passer domesticus</i>	Passeridae	Least Concern	Decreasing
11.	Hin-Thar	Ruddy Shelduck	<i>Tadorna ferruginea</i>	Anatidae	Least Concern	Unknown
12.	HngetHka	Indian Roller	<i>Coracias benghalensis</i>	Coraciidae	Least Concern	Increasing
13.	HngetKyar	Pied Bushchat	<i>Saxicola caprata</i>	Turdidae	Least	Stable

					Concern	
14.	Hnget-pasin-hto	Green bee-eater	<i>Merop sorientalis</i>	Meropidae	Least Concern	Increasing
15.	Joe-Le-Pyauk	Spotted Dove	<i>Streptopelia chinensis</i>	Columbidae	-	-
16.	Kha-Yu-Sote	Glossy Ibis	<i>Plegadis falcinellus</i>	Threskiornithidae	Least Concern	Decreasing
17.	Kho	Rock Dove	<i>Columba livia</i>	Columbidae	Least Concern	Decreasing
18.	KyayKyote	Parrot	<i>Psittacula krameri</i>	Psittaculidae	Least Concern	Increasing
19.	Kyi-kan	House Crow	<i>Corvus splendens</i>	Corvidae	-	Stable
20.	Kywe-gyaung-byaing	Cattle egret	<i>Ardeola ibis</i>	Ardeidae	Least Concern	Increasing
21.	Lin-mi-zwe	Black Drongo	<i>Dicrurus macrocercus</i>	Dicruridae	Least Concern	Unknown
22.	Lin-wet	Black-crowned Night Hero	<i>Nyctiorax nycticorax</i>	Ardeidae	-	-
23.	Nga Hit Mwe	Grey Heron	<i>Ardea cinerea</i>	Ardeidae	Least Concern	Unknown
24.	Ngone	Rain Quail	<i>Coturnix coromandelica</i>	Phasianidae	Least Concern	Stable
25.	Oat all	Asian Koel	<i>Eudynamys scolopacea</i>	Cuculidae	Least Concern	Stable
26.	Pain Nyin	White-throated kingfisher	<i>Halcyon smyrnensis</i>	Halcyonidae	Least Concern	Increasing
27.	PyanHlwar	Red-rumped	<i>Hirundo striolata</i>	Hirundinidae	-	-

		Swallow				
28.	SarWa Tee	Scaly-Breasted Munia	<i>Lonchura punctulata</i>	Estrildinae	Least Concern	Stable
29.	ShwePyiSoe	Common Iora	<i>Aegithina tiphia</i>	Aegithinidae	Least Concern	Unknown
30.	Sissali	Lesser Whistling Duck	<i>Dendrocygna javanica</i>	Dendrocygnidae	Least Concern	Decreasing
31.	Snipe	Common snipe	<i>Gallinago gallinago</i>	Scolopacidae	Least Concern	Decreasing
32.	Swin	Black Kite	<i>Milvus migrans</i>	Accipitridae	Least Concern	Unknown
33.	Taung Pee Sue	Common Hoopoe	<i>Upupa epops</i>	Upupidae	Least Concern	Decreasing
34.	Tha Bate Lwe	Oriental Magpie Robin	<i>Copsychus saularis</i>	Turdidae	Least Concern	Stable
35.	Titaetoo	Red-wattled Lapwing	<i>Vanellus indicus</i>	Charadriidae	Least Concern	Unknown
36.	WityiSoat	Olive-backed sunbird	<i>Nectarinai jugularis</i>	Nectariniidae	-	-
37.	Ye Kyat	Common Moorhen	<i>Gallinula chloropus</i>	Rallidae	Least Concern	Stable
38.	Ye Nyaunt	Green sandpiper	<i>Tringa ochropus</i>	Scolopacidae	Least Concern	Stable
39.	Za-yet	Common Myna	<i>Acridotheres tristis</i>	Sturnidae	Least Concern	Increasing
40.	Za-yet Taung-pan Phyu	Chestnut-tailed starling	<i>Sturnus malabaricus</i>	Sturnidae	Least Concern	Unknown

41.	Zee gwat	Spotted Owlet	<i>Athene brama</i>	Strigidae	Least Concern	Stable
42.	Zwe	White-throated Babbler	<i>Turdoides gularis</i>	Turdoidinae	Least Concern	Stable
43.	-	Little-pied Flycatcher	<i>Ficedula westermanni</i>	Muscicapidae	Least Concern	Decreasing
44.	-	Paddy field Pipit	<i>Anthus rufulus</i>	Motacillidae	Least Concern	Stable
45.	-	White-vented Myna	<i>Acridotheres grandis</i>	Sturnidae	Least Concern	Stable



Pycnonotus blanfordi



Psittacula krameri



Casmerodius albus



Ardeola grayii



Egretta garzetta



Phalacrocorax niger



Plegadis falcinellus



Ardea cinerea



Dicrurus macrocercus



Nectarinia jugularis



Anthus rufulus



Halcyon smyrnensis



Hirundo striolata



Lonchura punctulata



Gallinago gallinago



Sturnus malabaricus



Streptopelia chinensis



Acridotheres grandis



Aegithina tiphia



Acridotheres tristis



Saxicola caprata



Upupa epops



Merops orientalis



Turdoides gularis

Figure-1: Some of Avifauna Recorded from the Survey Area

5.2 Diversity of Terrestrial Flora

The flora diversity exists in wetland, on-land, and cultivated land. Six species of aquatic (kaing, baydar, kyu...etc.), thirty six species of on-land trees (meze, magyi, htan, htein are mostly abundant), and ten species of vegetation (paddy, groundnut, sunflower...). Many micro algae species exist but are not recorded. There was no endangered or threaten species and also endemic species.

(Table-2) List of Flora in the Impact Zone

No.	Common Name	Scientific Name	Family Name	Habit
1.	Anya-kokko	<i>Albizia lebbek</i>	Mimosaceae	Tree
2.	Thin Baw-kokko	<i>Albizia julibrissin</i>	Mimosaceae	Tree
3.	Banda	<i>Terminalia catappa L.</i>	Combretaceae	Tree
4.	Bawdi-nyaung	<i>Ficus religiosa L.</i>	Moraceae	Tree
5.	Bawzagaing	<i>Leucaena leucocephala</i>	Mimosaceae	Tree
6.	Dan-da-lun	<i>Moringa oleifera Lam</i>	Moringaceae	Tree
7.	Eu-ca-lit	<i>Eucalyptus ovata Labill.</i>	Myrtaceae	Tree
8.	Gwe	<i>Spondias mangifera</i>	Anacardiaceae	Tree
9.	Htan	<i>Borassus flabellifer</i>	Arecaceae	Tree
10.	Hta-Naung	<i>Acacia leucophloea</i>	Mimosaceae	Tree
11.	Htein	<i>Mitragyna parvifolia</i>	Rubiaceae	Tree
12.	Kathit	<i>Erythrina arborescens</i>	Fabaceae	Tree
13.	Kyi	<i>Barringtonia acutangula</i>	Lecythidaceae	Tree
14.	Lale	<i>Meliosma simplicifolia</i>	Meliosmaceae	Tree
15.	La-pan	<i>Beaumontia grandiflora</i>	Apocynaceae	Tree
16.	Magyi	<i>Tamarindus indica</i>	Fabaceae	Tree
17.	Mezali	<i>Sennas iamea</i>	Fabaceae	Tree
18.	Meze	<i>Madhu calongifolia</i>	Sapotaceae	Tree
19.	Ngu	<i>Cassia fistula</i>	Caesalpiniaceae	Tree
20.	NyaungPeinne	<i>Ficus altissima</i>	Moraceae	Tree

21.	Ohn	<i>Cocos nucifera</i>	Areaceae	Tree
22.	Okhne	<i>Streblus asper</i>	Moraceae	Tree
23.	Padauk	<i>Pterocarpus marsupium</i>	Fabaceae	Tree
24.	Pinle-kabwe	<i>Casuarina equisetifolia</i>	Casuarinaceae	Tree
25.	PyaukSeik	<i>Holoptelea integrifolia</i>	Ulmaceae	Tree
26.	Seinban(Ni)	<i>Delonix regia</i>	Caesalpiniaceae	Tree
27.	Sha	<i>Ancacia catechu</i>	Mimosaceae	Tree
28.	Subyu	<i>Ancacia nilotica</i>	Mimosaceae	Tree
29.	Tama	<i>Azadirachta indica</i>	Meliaceae	Tree
30.	Ta zaung	<i>Euphorbia nerifolia</i>	Euphorbiaceae	Small Tree
31.	Tayok-magyi	<i>Pithecellobium dulce</i>	Mimosaceae	Tree
32.	Thayet	<i>Mangifera indica L.</i>	Anacardiaceae	Tree
33.	Thabye	<i>Eugenia bracteolata</i>	Myrtaceae	Tree
34.	Thi	<i>Limonia acidissima</i>	Rutaceae	Tree
35.	Ye Thapan	<i>Ficus glomerata</i>	Moraceae	Tree
36.	Zi	<i>Ziziphus jujube Lam.</i>	Rhamnaceae	Tree



Madhu calongifolia



Tamarindus indica



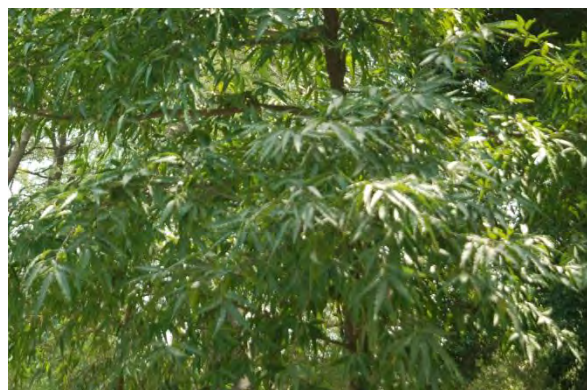
Holoptelea integrifolia



Meliosma simplicifolia



Azadirachta indica



Cedrela febreifuga



Terminalia catappa



Pithecellobium dulce



Albizia julibrissin



Beaumontia grandiflora



Barringtonia acutangula



Cassia fistula



Streblus asper

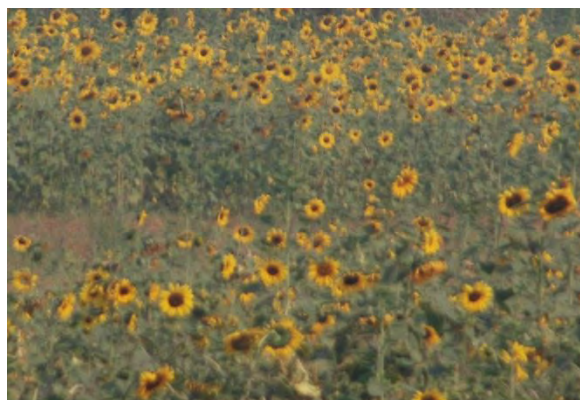


Limonia acidissima

Figure-2: Some of Flora Species Recorded from the Survey Area

(Table-3) List of Flora in the Impact Zone (Vegetation and Gardening)

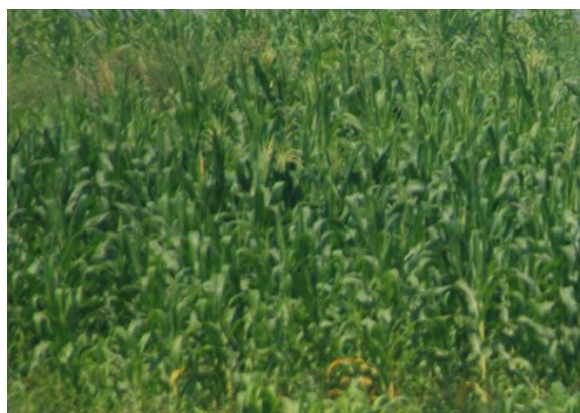
No.	Common Name	Scientific Name	Family Name
1.	Banana	<i>Musa ornata</i>	Musaceae
2.	Maize	<i>Zea mays</i>	Poaceae
3.	Green Gram	<i>Phaseolus aureus</i>	Fabaceae
4.	Groundnut	<i>Arachis hypogaea</i>	Fabaceae
5.	Rice	<i>Oryza sativa</i>	Gramineae
6.	Sesame	<i>Sesamum indicum</i>	Pedaliaceae
7.	Sorghum	<i>Sorghum bicolor</i>	Poaceae
8.	Sunflower	<i>Helianthus annuus</i>	Asteraceae
9.	Thayet	<i>Mangifera indica L.</i>	Anacardiaceae
10.	Kazun	<i>Ipomoea batatas</i>	Convolvulaceae



Helianthus annuus



Phaseolus aureus



Sorghum bicolor



Arachis hypogaea



Oryza sativa



Ipomoea batatas

Figure-3: Vegetation in the Survey Area

(Table-4) List of Aquatic Flora in the Impact Zone

No.	Local Name	Common Name	Scientific Name	Family Name
1.	Bay dar	Common water-hyacinth	<i>Eichhornia crassipes</i>	Pontederiaceae
2.	Kaing	-	<i>Mnesithea striata</i>	Poaceae
3.	Kana phaw	-	<i>Enhydra fluctuans</i>	Asteraceae
4.	Kyu	Reed	<i>Arundo donax</i>	Gramineae
5.	Pait-Swal	Narrow-leaved and hybrid cat-tail	<i>Typha angustifolia</i>	Typhaceae
6.	Ye Kazun	-	<i>Ipomaea aquatica</i>	Convolvulaceae



Eichhornia crassipes



Ipomoea aquatica



Typha angustifolia



Mnesithea striata



Arundo donax

Figure-4: Some Aquatic Plants in the Survey Area

5.3 Fish Diversity

Six fish species were purchased from commercial fisherman, namely *Wallago attu*, *Channa striatus*, *C. orientalis*, *C. puntatus*, *Mastacembelus armatus*, and *M. zebrinus* recorded by Khaing Thazin Win, Nwe Nwe San. “The Occurrence of Helminth Parasites in Some Bony Fishes from Taung Tha Man Lake, Amarapura Township” in MS Thesis (2011-2012). Of the 156 fishes examined, only 91 fishes were infected with any of the five species of *nematodes*, *Cucullanus sp.*, *Eustrongylides wenrichi*, *Camallanus ophicephali*, *Hetrotyphlum calcarifum*, and *Capillaria sp.*; two species of *acanthocephalans*, *Rhadinorhynchus celebesense*, and *Pallisentis nandai*; four species of *cestodes*, *Bovienia serialis*, *Ancistrocephalus polyptera*, *Lytocestus longicollis*, and *Khawia sinensis*; and three species of *trematodes*, *Dactylostostomum gracile*, *Poracanthium mastacembellum*, and *Hapladena sp.* A total of 263 parasites were recorded in the 91 infected fish. Moreover, fourteen species of fishes were recorded by MBG in 2015. There was no endangered or threaten species and also endemic species.

(Table-5) List of Fish Species in the Impact Zone (Ayeyarwaddy River and Taung Tha Man Lake)

No.	Common Name	Scientific Name	Family Name	IUCN Red List	
				Status	Population Trend
1.	Nga Bat	<i>Wallagonia attu</i>	Siluridae	-	-
2.	NgaChaung	<i>Mystus nemurus</i>	Bagridae	-	-
3.	NgaGyin	<i>Cyprinus carpio</i>	Cyprinidae	Vulnerable	Unknown
4.	NgaKhu	<i>Clarias batrachus</i>	Clariidae	Least Concern	Unknown
5.	NgaMyin	<i>Pangasianodon gigas</i>	Pangasiidae	Critically Endangered	Decreasing
6.	NgaMyit Chin	<i>Hampala macrolepidota</i>	Cyprinidae	Least Concern	Unknown
7.	NgaMwedoe	<i>Macrogathus siamensis</i>	Mastacembelidae	Least Concern	Unknown
8.	Nga Nat Pyar	<i>Morulus chrysophekadion</i>	Cyprinidae	-	-
9.	NgaPhal	<i>Notopterus notopterus</i>	Notopteridae	Least Concern	Unknown
10.	NgaPyin	<i>Helostoma temmincki</i>	Helostomatidae	Least Concern	Stable
11.	NgaWat Ma	<i>Tilapia nilotica</i>	Cichlidae	-	-
12.	NgaYant	<i>Channa striatus</i>	Channidae	-	-
13.	NgaZin Sat	<i>Chanda ranga</i>	Ambassidae	Least Concern	Stable
14.	NgaZinYine	<i>Arius truncates</i>	Ariidae	-	-



Figure-5: Common Fish Species, *Tilapia nilotica*, in the Survey Area

5.4 Diversity of Butterfly and Odonate Species

This area is a key biodiversity of Indo-Burma Hot Spot. There are many varieties existing in this ecological environment. Fourteen species of butterfly, ten species of odonate, and eight species of rodents and reptiles were recorded. There was no endangered or threaten species and also endemic species.

(Table-6) List of Butterfly species in the Impact Zone

No.	Scientific Name	Family Name	IUCN Red List	
			Status	Population Trend
1.	<i>Acraea terpsicore</i>	Nymphalidae	-	-
2.	<i>Appias libythea</i>	Pieridae	-	-
3.	<i>Catopsilia pomona</i>	Pieridae	-	-
4.	<i>Catopsilia pyranthepyranthe</i>	Pieridae	-	-
5.	<i>Danaus chrysippus</i>	Danaidae	-	-
6.	<i>Danaus limniace</i>	Danaidae	-	-
7.	<i>Eurema hecabe</i>	Pieridae	-	-
8.	<i>Hypolimnasmisippus linnaeus</i>	Nymphalidae	-	-
9.	<i>Ixias pyreneverna</i>	Pieridae	-	-
10.	<i>Junonia atlites</i>	Nymphalidae	-	-
11.	<i>Junonia hierta</i>	Nymphalidae	Least Concern	Unknown
12.	<i>Papilio demoleus</i>	Papilionidae	-	-
13.	<i>Papilio polytesromulus</i>	Papilionidae	-	-
14.	<i>Pieris rapae</i>	Pieridae	-	-



Acraea terpsicore



Pieris rapae



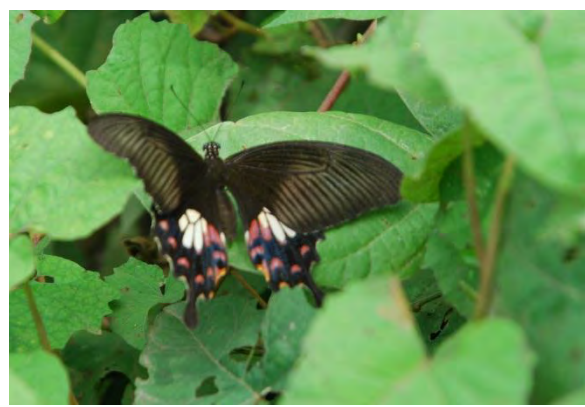
Junonia atlites



Hypolimnasmisippus linnaeus



Danaus chrysippus



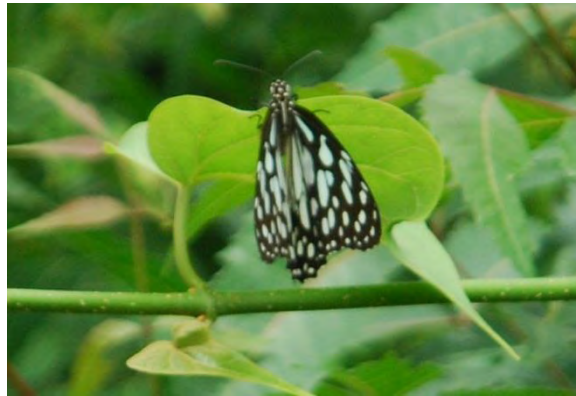
Papilio polytes romulus



Catopsilia pyranthe pyranthe



Papilio demoleus



Danaus limniace

Figure-6: Some of Butterfly Species Recorded from the Survey Area

(Table-7) List of Odonate in the Impact Zone

No.	Scientific Name	Family Name	IUCN Red List	
			Status	Population Trend
1.	<i>Brachythemis contaminata</i>	Libellulidae	-	-
2.	<i>Bradinopyga geminata</i>	Libellulidae	-	-
3.	<i>Diplacodes trivialis</i>	Libellulidae	Least Concern	Unknown
4.	<i>Neurothemis tullia</i>	Libellulidae	Least Concern	Unknown
5.	<i>Orthetrum sabina</i>	Libellulidae	Least Concern	Stable
6.	<i>Pantala flavescens</i>	Libellulidae	Least Concern	Stable
7.	<i>Rhodothemis rufa</i>	Libellulidae	Least Concern	Unknown
8.	<i>Rhyothemis phyllis</i>	Libellulidae	Least Concern	Unknown
9.	<i>Rhyothemis variegata</i>	Libellulidae	Least Concern	Unknown
10.	<i>Trithemis kirbyi</i>	Libellulidae	Least Concern	Increasing



Rhodothemis rufa



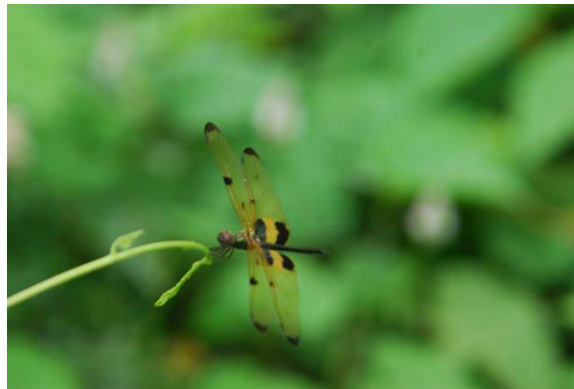
Pantala flavescens



Brachythemis contaminata



Diplacodes trivialis



Rhyothemis phyllis

Figure-7: Some of Odonate Recorded from the Survey Area

(Table-8) List of Rodents and Reptiles in the Impact Zone

No.	Local Name	Common Name	Scientific Name	Family Name	IUCN Red List	
					Status	Population Trend
1.	Kin-late-shaw	Common sun skink	Mabuya multifasciata	Scincidae	-	-
2.	Lin-mway	Banded rat snake	Ptyas mucosus	Colubridae	-	-
3.	Mwaypway	Viper	Daboia russelii	Viperidae	Least Concern	Decreasing
4.	MyawHout	Cobra	Ophiophagus hannah	<u>Elapidae</u>	Vulnerable	Decreasing
5.	Poat thin nyo	Blue crested lizard	Calotes mystaceus	Agamidae	-	-
6.	Tat-too	Garden fence lizard	Calotes versicolor	Agamidae	-	-
7.	Shint	Squirrel	Sundasciurus tenuis	Sciuridae	Least Concern	Decreasing
8.	Yal-myay	Chequered keel back	Xenochrophis piscator	Colubridae	-	-



Sundasciurus tenuis



Xenochrophis piscator

Figure-8: Some of Rodent and Reptile Species Recorded from the Survey Area

(Table-9) Number of Flora and Fauna Species, Genera and Families recorded in the Impact Zones

Flora/Fauna	Species	Genera	Families
Aquatic Flora	6	6	6
Avifauna	45	41	31
Butterfly	14	10	5
Fish Fauna	14	14	12
Flora	36	32	20
Odonate	10	9	1
Rodent and Reptile	8	7	5
Vegetation	10	10	8
Total	143	129	88

6. ADDRESSING BIOLOGICAL IMPACTS

Factors contributing to the decline of biodiversity include physical alterations to the geography due to resource exploitation and changing land usages; pollution; overharvesting; introduction of exotic (non-native) species and elimination of native species through predation, competition, genetic modification, and disease transmission; disruption of natural process; and global climate change. Under these considerations, no major impacts are expected on the terrestrial, fauna, and aquatic ecology. Air and water quality will be decreased with the urban development.

It does not observe the causative effects on ecological values, ecosystem structure, and ecosystem function. There is a little impact on flora species due to the land use change from agricultural use to urban development by land filling design during project construction but habitat fragmentation does not occur. Solid waste materials and waste water can cause air, lake water and land pollution. Taung Tha Man Thisar should support for sustainable development activities of Taung Tha Man lake ecosystem services from CSR program.

7. IDENTIFICATION OF MITIGATION MEASURES

Landscaping and planting of trees will be carried out to enhance the ecology and appearance of the site. No details of landscaping plans or planting material are available at this stage but the plant species selected for replanting will in large part determine which types of birds, butterflies, and other fauna, if any, inhabit the site (gardens) after construction. In addition to enhancing the aesthetic appeal of the project site, landscaping provides the means for partially restoring the site's natural elements and ecological habitats. It is therefore a significant mitigation activity with a positive. The landscaping plan should seek to avoid the use of non-native and potentially invasive species. It should include low-maintenance local species and the types of trees and shrubs used for feeding by local bird species. The landscape design should seek to encourage bird life, especially for the endemics, maximize shade and windbreak effect, as well as to hide the roofline of the buildings. In Solid waste disposal, Poor garbage management at the resort would lead to unsanitary conditions including vermin and fly infestation and odorous as well as unsightly conditions. Although the means of solid waste collection and disposal have not been determined, it is expected that garbage management and good housekeeping will be practiced on the resort and that problems arising from the improper storage of solid waste will

therefore be avoided. It is also anticipated that a private waste contractor will also be responsible for collection and disposal of waste from the site. The kitchen will employ a chiller for garbage storage. Mitigation strategies for biological impacts can be divided into four categories; avoidance or minimization, restoration, enhancement, and creation. For the proposed Taung Tha Man Thitsar Resort Project, the following mitigation measures must be practiced.

- (1) Solid waste management system
- (2) Waste water treatment system
- (3) For the Ecosystem services, plantation and landscaping must be practiced to develop the green city plan and mitigate the carbon dioxide emission for public awareness.
- (4) Apply or awareness on existing environmental conservation laws.



Figure-9: Direct Impact Zone of Project Site

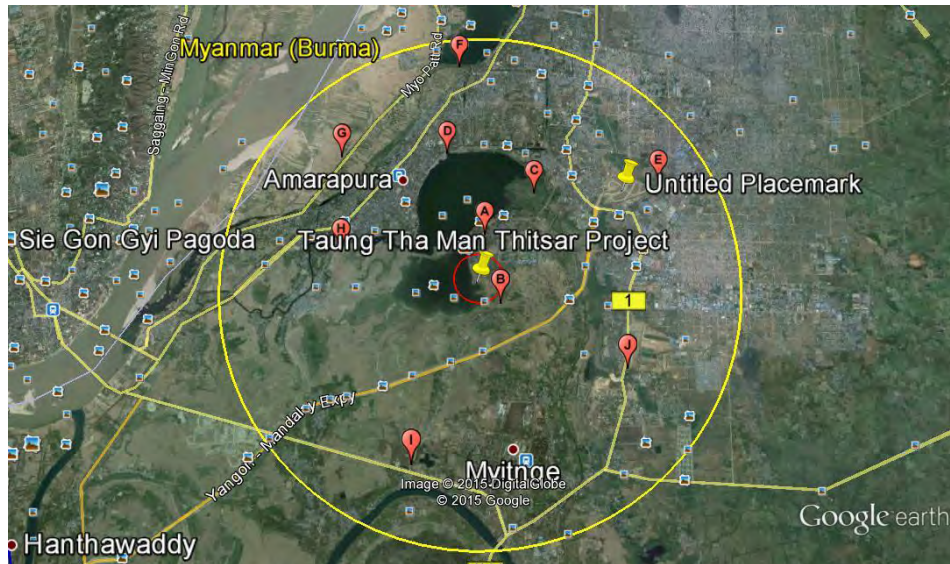


Figure-10: Indirect Impact Zone of Project Site

MBG Members List

1. Dr. Myo Myint (Director)
2. Dr. Zaw Khing Oo (Deputy Director)
3. Dr. Reemon Htun (Senior Scientist)

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APPENDIX IX
CULTURAL HERITAGE REPORT

CULTURAL HERITAGE IMPACT ASSESSMENT
FOR
TAUNG THA MAN LAKE RESORT TOWN PROJECT

A Report Prepared by Dr. Than Htay Oo & Associates,
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Certificate of Conservation of Built Heritage (CBH14) by ICCROM

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1. INTRODUCTION

1.0. Introduction

A Cultural Heritage Impact Assessment (CHIA) has been carried out for “Taung Tha Man Lake Resort Town Project” as part of the Environmental Impact Assessment (EIA) required by Asian Development Bank.

1.1. Project Background

Taung Tha Man Lake Resort Town project is situated on the southeast bank of Taungthaman Lake, adjacent to the U Bein Bridge on the north.

The project occupies a lot area of about 40.27 acres and the building types will include shop houses, low-rise commercial buildings, hotel, banquet halls and a conference center.

1.2. Aims and Objective of the CHIA

The purpose of CHIA is to identify possible archaeological, cultural and historical evidences within and near the Study Area, to evaluate the potential impacts of the proposed development area on archaeological, cultural and historical resources during construction and implementation phases. This includes negative and positive impacts and those that are direct, indirect, cumulative and residual after carrying out any proposed mitigation measures.

This CHIA’s objectives are

- to safeguard the integrity of heritage resources in the face of threats from development,
- to present the legal and regulatory framework for heritage conservation and for dealing with heritage in the CHIA context;
- To identify and record heritage resources within the development, highlighting heritage of critical significance and value;
- To recommend a range of possible mitigation measures to deal with unavoidable negative impacts on heritage resources.

1.3. Geographical Scope of the Study Area

The CHIA addresses potential impacts on cultural heritage on the following the proposed “Taung Tha Man Lake Resort Town Project project”:

- The construction shop houses, low-rise commercial buildings, hotel, banquet halls and a conference center (the whole project).



Figure 1.1. Map showing the location of “Taung Tha Man Lake Resort Town Project project” Site

Table 1.1. Assume Heritage by HIA Workshop in Bagan by UNESCO, Capacity Building for Safeguarding Cultural Heritage Workshop (2015)

Built Heritage	Archaeology
Temples	Burials
Pagodas	Palaces
Monasteries	Foundations
Shrines	Kilns
Colonial buildings	Manufacturing sites
Decorative elements/architectural styles	Agricultural evidence
Pathways Cultural landscapes	Daily life items
	Water management

1.4. Scope of Cultural Heritage Resources

The CHIA addresses potential impacts to the following heritage resources within the

geographical scope defined above;

- Standing and potential buried archaeological remains of settlements, cemetery, and other features
- Cultural resource including traditional terracing and agricultural patterns, paths and routes, tombs
- Historical buildings

1.5. The CHIA methodology comprised the following tasks:

Task 1. Baseline data collection

A baseline study shall be conducted:

To compile a comprehensive inventory of heritage sites within the proposed project area, which include:

- (i) all declared monuments;
- (ii) all proposed monuments;
- (iii) all buildings/ structures/ sites graded or proposed to be graded by Ministry of Culture (MOC)
- (iv) Government historic sites identified by MOC;

(a) Desk-based study

To determine physical and cultural baseline conditions and to assess the potential for cultural heritage resources to be present in the Study Area;

Desk-based study included information gathered from the following sources

- Research Report, Term, Books and articles on relevant historical, archaeological and other cultural studies;
- Historical maps, photographs and illustrations
- Cartographic sources including maps and satellite imagery

(b) Preliminary scoping exercise

An initial site reconnaissance visit to preview the nature of the Study Area and to evaluate the types and numbers of heritage resources present and assessment.

(c) Field surveys

Preliminary scoping indicated that the following on site field surveys were needed to supplement the information required to carry out the CHIA:

- Rapid Assessment Survey of the U Bein Bridge, Taungtheman Lake
- Preliminary Built Heritage Survey of religious structures that are situated in the surrounding of the proposed development site
- Traditional village setting
- Built Heritage
- Other heritage resources

Task 2. Identification of impacts on Cultural Heritage Resources

- (i) To identify the existing impacts in the project area to gauge the degree to which

resources are already compromised

Task 3. Assessment of Impacts on Cultural Heritage Resources

All identified heritage resources were assessed in relation to the proposed “Taung Tha Man Lake Resort Town Project” including engineering works and temporary work areas. Potential impacts on heritage resources from “Taung Tha Man Lake Resort Town Project” and from its operation were assessed.

Task 4. Recommendation of Mitigation Measures

The CHIA details the various options for actions or programs to mitigate unavoidable impacts that will result from “Taung Tha Man Lake Resort Town Project” and to maintain or improve the level of heritage resources.

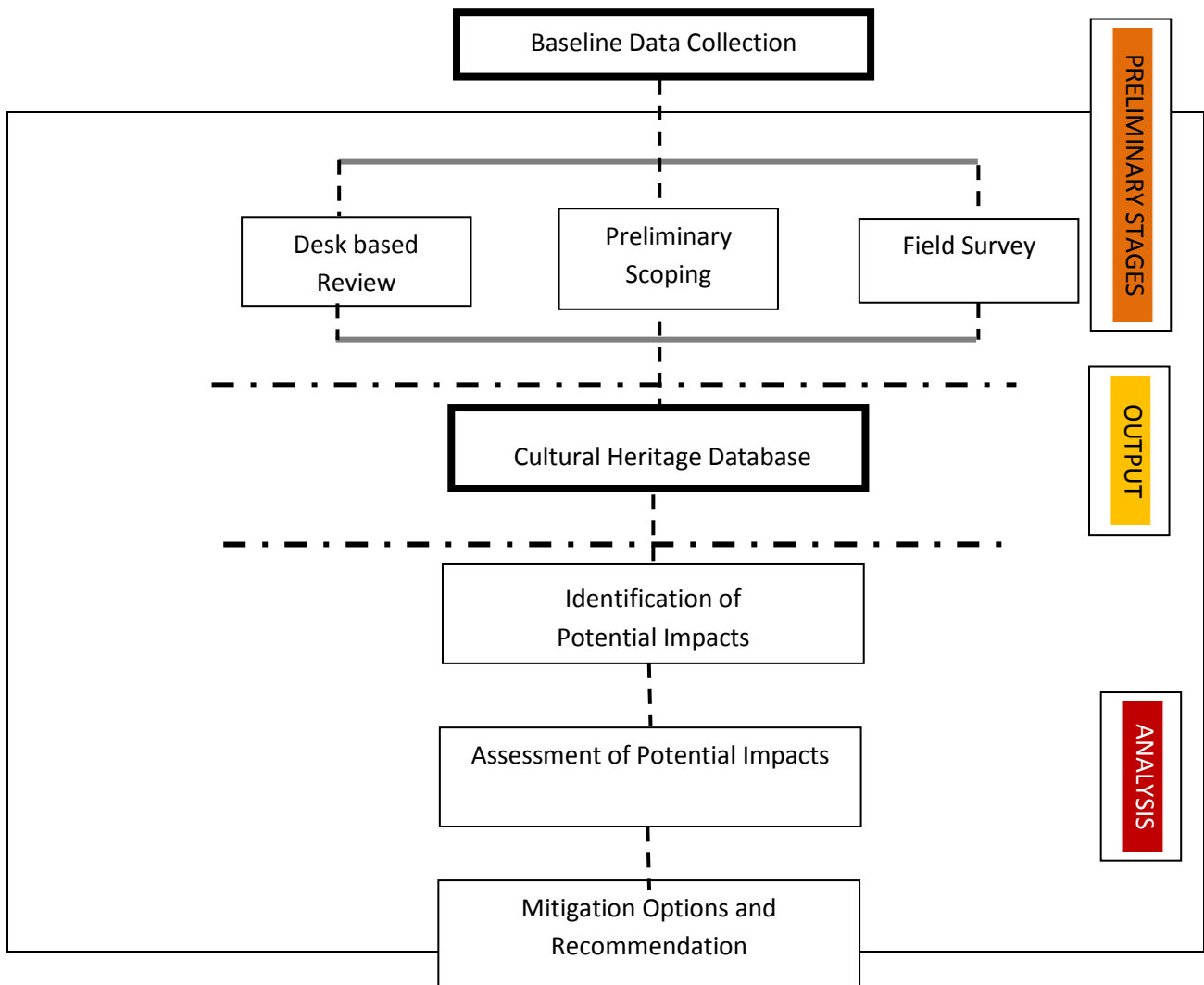


Figure 1.2. Methodology of CHIA

1.6. Legislation and Guidelines

The following documents supply the legal framework and guidelines for the implementation of the CHIA by Protection and Preservation of Cultural Heritage Region Law. (State Peace and Development Council, 1998)

1.6.1. Current National Heritage Legislation

The 1957 Antiquities Act of Myanmar acknowledges the protection of place of worship. "The Protection and Preservation of Cultural Heritage Regions Law of Myanmar (1998)", changes the term "antiquities" as in "Antiquities Act of Myanmar(1957)", which refers only to places and objects with archaeological interests, to "cultural heritage" which is "to be protected and preserved by reason of its historical, cultural, artistic or anthropological value" for places existed before 1886. "The Law Amending the Protection and Preservation of Cultural Heritage Regions Law (2009)" has changed the timeframe to 100 years old. "The Protection and Preservation of Cultural Heritage Regions Law of Myanmar (1998)", is limited to ancient monuments and sites, and absolutely not on intangible cultural heritage. For natural areas, only caves, pond and natural landscape surrounding ancient monuments are mentioned. According to this Law, as of 1999 all nationally-declared Cultural Heritage Regions are each to be registered and demarcated into three protection zones: Ancient Monumental Zone (MZ), Ancient Site Zone (AZ), and Protected and Preserved Zone (PZ).

1.6.2. National Heritage Resources Act

General provisions for the cultural heritage region and the ancient monumental zone

- The building existed before last 100 years.
- The building has existed together with the architectural structure & artistic works.
- Process of excavation is made as Ancient Site.
- Existing without disturb the surrounding and living hood precinct of 90 feet's from the building.
- The building can be carries out the works of renovation & maintenance for archaeology.
- The building which be essential for the reasons of its historical.

General provisions for Ancient Site Zone

- Existing one or more ancient monument.
- Site where the ancient things be founded from above and of the ground.
- Site where the process of excavation is made.
- Site where the supporting evidences of archaeology have been founded.
- Site where archaeological preservation and maintenance has been made.
- Existing without disturb the surrounding and living-hood extend till 90 feet's. (Example: farmland, paddy land, dwellings)

General Provisions for Protected and Preserved Zone

- Within such zone, where an ancient monumental zone or an ancient site zone is situated.
- Within such boundary, where supporting evidences of archaeology have been founded.
- Within such zone, the need to protect and preserve the ancient monument, ancient site and view of the cultural heritage in order that they may not be destroyed.

Criteria for Identifying Elements of Cultural Heritage and Heritage Conservation Areas

Cultural Heritage

- Ancient monument or ancient site which is required to be protected and preserved by reason of its historical, cultural, artistic or anthropological value.

Ancient Monument

- That have existed before last 100 years or that have been determined as cultural heritage
- Architectural structure, shrine, stupa, temple, monastery, palace residential building and carving, image and painting thereon
- Natural or manmade cave in which human beings had dwelt
- Stone inscription and record
- Road, bridge, sepulcher, sepulchral site and remains of excavated structure Pond, city-wall, gateway, moat, fort and any remains thereof;

Precinct of ancient monument

- The enclosure of an ancient monument

1.6.3. Myanmar National Building Code

Building codes which form part and parcel of Rangoon Municipal Act of 1922, which is still in force, required that a person must obtain a permit from the Engineering Department (Buildings) of city development committees to construct any kind of building in Yangon. If the building is completed, permission to occupy it must be obtained from the same department. Moreover, the 'Myanmar National Building Code Development Planning' Project was signed between UN-habitat and national professional body, Myanmar Engineering Society (MES) in 2011. This project is endorsed by the Ministry of Construction, Department of Human Settlements and Housing Development. There are altogether seven Technical Working Groups and in Technical Working Group II Architecture and Urban Design, there is a chapter "**Regulations for Historical buildings**" which is now using as a provisional one. (Myanmar National Building Code Chapter, 2013)

1.7. Definitions

Terms which are used frequently throughout this document are defined in order to ensure clarity; the definitions are taken from authoritative sources.

Cultural Heritage

In this CHIA cultural heritage is considered to be Physical Cultural Resources as defined below.

Physical Cultural Resources

“Movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground or under water. Their cultural interest may be at the local, provincial or national level or within the international community”. (*Asian Development Bank 2003, Environmental Assessment Guidelines*)

Baseline Data

“Data gathered during social and environmental assessment to describe the relevant existing conditions of the project, such as physical, biological and socio-economic conditions, including any changes before the project commences.” (*Asian Development Bank 2003, Environmental Assessment Guidelines*)

Impact Assessment

“Cultural Heritage Impact Assessment (CHIA) is defined as “a process of identifying, predicting, evaluating and communicating the probable effects of a current or proposed development policy or action on the cultural life, institutions and resources of communities, then integrating the findings and conclusions into the planning and decision making process, with a view to mitigating adverse impacts and enhancing positive outcomes.” (*International Network for Cultural Diversity – Cultural Impact Assessment Project*)

2. HISTORICAL SUMMERY

2.1. CONTEXTUAL OVERVIEW

The Taungthaman Water Front structure plan relates to an area of cultural land on the southeast bank of Taungthaman Lake. The site is immediately to the north of historic U Bein Bridge that is crossing in the Taungthaman Lake near Amarapura. To the northeast of the site is the Yadanapone Univeristy, one of the main Univeristy in Mandalay.

Amarapura is one of Myanmar's former capitals and now a township of Mandalay. It was built by King Bodawpaya in 1783 and served as the centre of power until 1857, when the capital moved to Mandalay.

Amarapura is bounded by the Irrawaddy River in the west, Chanmyathazi Township in the north, and the ancient capital site of Ava (Inwa) in the south. It was the capital of Myanmar twice during the Konbaung period (1783–1821 and 1842–1859) before finally being supplanted by Mandalay in 1859. It is historically referred to as **Taungmyo** (Southern City) in relation to Mandalay. The township is known today for its traditional silk and cotton weaving, and bronze casting. It is a popular tourist day-trip destination from Mandalay. There are also numerous stupas to be seen in this area, including the Kyauktawgyi Pagoda, as well as the Maha Gandhayon monastery.

The wholelength of U Bein Bridge is 3967 feet or three quarter of a mile and it was built around 1850. It is used as an important passageway for the local people and has also become a tourist attraction and therefore a significant source of income for souvenir sellers. It is particularly busy during July and August when the lake is at its highest. The Ministry of Culture's Department of Archaeology, National Museum and Library plans to carry out repairs when plans for the work are finalised.



Figure 2.1. Historic Photograph View with Taungthaman Water Front Development Site



Figure 2.2. Taungthaman Water Front Development Plan



Figure 2.3. Taungthaman Water Front Development Plan

2.2. HERITAGE LISTING

The development site identified in the Taungthaman Waterfront Development Structure Plan includes the U Bein Bridge, which is listed on the State Registered of Heritage places. In addition there are a number of heritage places and structures that are adjacent to the waterfront site that could potentially be impacted upon by the proposed development. These places and structures, listed below, will be considered by this report.

Places	Listed/ Unlisted	Landuse Type	Location	Remarks
Taung Tha Man Lake	Listed	Water Management	Amarapura Township	
U Bein Bridge	Listed	Pathways Cultural landscapes	Taung Tha Man Lake	
MAHASAKYA RAMSI Taung Tha Man Kyauk Taw Gyi	Listed	Cultural	Taung Tha Man Village	
Pahtoe Daw Gyi Phaya (MAHAVIJAYARAMSI)	Listed	Cultural	Northern Part of Taung Tha Man Lake	
Aung Myay Dataw Phaya	Unlisted	Cultural	Taung Tha Man Village	
Shwe Moat Htaw Phaya	Unlisted	Cultural	Taung Tha Man Village	
Kan U Kyaung Monastery Compound	Unlisted	Cultural	Ywa Thit Village	
Tae` Nan Thar Phaya	Unlisted	Cultural	Aye-Mya-Thar-Yar-Kyaung (Monastery Compound)	

3. SITE DESCRIPTION

The study area consists of Taungthaman Lake that on the southeast bank has been occupied by the development site. The northern part of the study area is the historic U Bein Bridge that is crossing in the Taungthaman Lake near Amarapura. To the northeast of the site is the Yadanapone Univeristy, one of the main Univeristy in Mandalay. The area consists of mostly of religious buildings, and includes cultural landscape, and public and private open spaces.

3.1. WATER BODIES, GREEN AND OPEN SPACE

Taung Tha Man Lake and Environs

It has cultural heritage significance for the following reasons:

Granddad was King Badon and he had chosen well the site of his capital namely as Amarapura (South Town). It was surrounded by lakes to lend a lush and green atmosphere in a dry hot land. The entire place presents a picture of green freshness and prosperity. The mass of water in the Lake Taungthaman keeps the atmosphere cool and pleasant. It is said that Buddha himself had prophesied that this place is going to be a prosperous city where Buddhism flourished. King Badon made the prophesy true.

Amarapura's another name Taung Myo (The South Town) had been in use even in the time of Myawadi Wungyi because it is situated on the south of Mt. Mandalay. The South Town and Taungthaman Lake are so well associated that one had not seen the town if he had not visited the lake. Its beauty is of world fame. Visitors who came there portrayed its grandeur in words and pictures. Michael Symes who was there on 18 July 1795 said that he had been lucky to know beautiful spots in both Europe and Aisa but unexpectedly Taungthaman's beauty almost took his breath away. It surpassed all others.

It is believed that the Buddha visited places where Buddhism would flourish later. In the course of these visits, the Buddha came to the Sagaing Hills. Ninety-nine ogres came to listen the sermon of the Lord. With their request the Lord also visited the place of four other ogres living on the east of the river. They were Nga Taungthaman, Nga Taung Myint, Nga Taung Kyinn and Nga Taung Pyone. After having received the food offered by them, the Lord prophesied that these four ogres would eventually become Kings in these localities where Buddhism flourished. These places will be named after them. Taungthaman was one of these and Amarapura of course is the new name of Taungthaman and its environ.

There are five places of some historical interest and they are;

1. The Mahagandharama Monastic Establishment,
2. The Taung Min Gyi Image,
3. An Avenue of Meze (*Madhuca longifolia*) Trees,

4. U Bein Bridge

5. The KyaukTaw Gyi Image with the Temple above it. (Pin Nyar, Ko; Amarapura)



Figure 3.1. Historic View from Taungthaman Water Front Development Site



Figure 3.2. Historic Photograph View with Taungthaman Water Front Development Site



Figure 3.3. Historic Photograph from Taungthaman Water Front Development Site

Taung Tha Man Lake and its environs have a close association with historic buildings that are highly valued by local people, and it is also a tourist attraction place.

3.2. CULTURAL LANDSCAPE

Several cultural landscape features were identified as part of the field assessment. The subdivision is a tightly-knitted network of narrow roads, lots, and public/private areas that collectively create a cultural landscape.

U Pain Bridge (U Bein Bridge)

It has cultural heritage significance for the following reasons:

It was in 1849 during the reign of King Bagan (the Nineth King of Kounng Baung Dynasty) that it was constructed. U Pain was clerking to Bai Sab the Myo Wun (Highest Officer in Charge of the City). During the raining season, the lake became full of water and except for boats the city was cut off from its hinterland that supplies the daily provisions. To save the situation a bridge was necessary to span it across from east to west.

Both Bai Sab and U Pain were of Islamic faith and they served King Bagan long before he became king. They found that it was best to serve their master by having this bridge constructed and they easily got the king's permission to do so. This permission involved the right to pull down used timber from residential quarters used by members of the Royal Family and officers of the king at times when Amarapura was not made the capital city. There was a suggestion that such timber should be more usefully employed in building monasteries. U Pain supervised the construction and it took two years to complete it.

The bridge is not straight. Coming out from east bank it goes somewhat in south west direction and when it comes to about the middle it turns northwest. It is believed that in this way it could stand well against the wind from the south in the season of rains. The posts were pointed at one end and driven seven feet into the lake-bed. Close to the ground two cross-beams were fixed to each post to prevent it from further sinking. Three layers of planks were laid on the floor and railings were fixed on each side of the floor all along the bridge. There were altogether 984 posts. At each end of the bridge there were brick platforms and steps. Later these brick works were replaced by wooden ones. Then four rest houses were built at some intervals along the bridge.

In this way more posts were used and the grand total of posts became 1086. At nine points a sort of draw-bridges were made in order to allow royal barges and war boats could get across the bridge. There are 482 spans and the whole length of the bridge is 3967 feet or three quarter of a mile.

A year after the Second World War there was a big flood that the whole bridge was submerged under water. That caused a few spans of the bridge destroyed. U Ba Si, a native of Taungthaman and a representative of the house of Deputies repaired it after the flood. Another big flood came again in 1973. This time the Presiding Monk of the Mahagandharama (U Zanakabiwuntha) and the Township people Council repaired it.

It is highly valued by the local community as an important passageway and it has also become a tourist attraction as a garden.



Figure 3.4. U Bein Bridge, Taung Tha Man Lake and Historic Building related view with Taung Tha Man Water Front Development Site



Figure 3.5. U Bein Bridge view from Taung Tha Man Village

3.3. BUILT HERITAGE

Built heritage is one of the most important cultural assets. It represents the historical layers of built environment in places made of brick, plaster, wood, metal and stone. Built heritage

includes monastery, factories, houses, hotels, museum, markets, fences and cemeteries, etc. It includes areas, precincts and streetscapes.

In the study area, religious buildings such as stupa, temple, and monastery are historic buildings and they all have cultural heritage significance by the historical, social, aesthetic, architectural and archaeological value.

MAHASAKYA RAMSI Taung Tha Man Kyauk Taw Gyi

It has cultural heritage significance for the following reasons:

It was King Sagaing (1819-37) popularly called Bagyidaw who ordered a great stone image sculptures. The King took great interest in art and he supervised the making of a great bronze image called Thetkya Thiha to AVA (Innwa). It is sixteen and a half feet high and finished in 1824.

On 2 November 1846, Bagan King decided to have a better building for the Mahathetkya Yanthi Image. A site on the west of the place where the British Envoy put up in 1795 was selected. For the new temple the Nanda (Called Anada) of Bagan was the model. The construction began on 26 April 1849. The temple is constructed on a square platform with each side measuring 133 feet 6 inches. It is 118 feet 6 inches tall. The construction took well over a year and the temple was finished early in October 1850. The finial (11 feet 9 inches high) was ceremonially raised and fixed on 29 October 1850. The Stone inscription of this record is still in existence.

Survey from Architectural Points of View

In this historic site, the whole complex is well planned with various effects. Viewed from surrounding of Taung Tha Man Lake and the vicinity of Amarapura Town, the whole is a landmark on the Taung Tha Man Lake and contributes to the community's sense as a place of recreation. And hence the supremacy of stupa can be seen from the visual accessibility axis. The whole complex is in harmony and unity with respect to the distance and height. And then, all structures within the whole complex are created by making good space utilization and form composition.



Figure 3.6. View of Taung Tha Man Kyauk Taw Gyi Temple



Figure 3.7. Taung Tha Man Kyauk Taw Gyi Temple (MAHASAKYA RAMSI)



Figure 3.8. View of Taung Tha Man Kyauk Taw Gyi Temple (MAHASAKYA RAMSI) and Taung Tha Man Lake

MAHAVIJAYARAMSI Pahto Taw Gyi Pagoda

It has cultural heritage significance for the following reasons:

It was built in 1819 by King Badon (Bodawpaya) when he was succeeded by his grandson King Sagaing on 7 June 1819. It is located to the north of Taungthaman Lake in Amarapura Town.

One night people reported that they saw at about 3000 yards from the palace on the south west a bright light shining on the horizon. The king investigated and found the light was hovering on the site of the monastery built by his father the Crown Prince Siri Mahadhannabhidaja Sihasura and his mother. The late king, Bodawpaya wanted to build a pagoda on this site. He decided to

carry out the wish of his grandfather and he said that he would prefer building one like the Mahaceti of Srilanka.

An order was passed on 5 January 1820 to prepare the site for the Zigon Daw Gyi Mahaceti. Silver weighing 185,200 viss was issued for all expenses of construction including wages. The king accompanied by the Chief Queen laid the foundation on 2 March 1820. On the night of the following day there was a lunar eclipse and the relic chamber was closed precisely at the time when the eclipse started. After that the king went daily to the site for supervision.

Survey from Architectural Points of View

In this historic site, the whole complex is well planned with various effects. It has a high aesthetic value and it is highly valued by the local community as a community space. Viewed from surrounding of Taung Tha Man Lake and the vicinity of Amarapura Town, the whole is a landmark and the supremacy of stupa can be seen from the visual accessibility axis. The whole complex is in harmony and unity with respect to the distance and height. And then the whole composition is dominant on the environment due to its massive form and height.



Figure 3.9. View of U Bein Bridge and Pahtotawgyi Phaya from Development Site



Figure 3.10. View of MAHAVIJAYARAMSI PAHTODAWGYI PHAYA



Figure 3.11. View of the Entrance Gate of MAHAVIJAYARAMSI Pahtodawgyi Pagoda

Other Places of Interest in Taung Tha Man Lake and its Environ

The following religious buildings in Nwa-Noet-Su Village, Ywathit Village and Taung Tha Man Village that are located within 1.5 kilometers of the proposed development are considered as cultural heritage and all are historic buildings according to the interview data by local people. But those recorded to date are in poor condition and at risk of loss. And also these are not nationally designated sites but they are highly valued by the local community as a cultural significant.



Figure 3.12. View of Historic Buildings in Nwa-Noet-Su and Ywathit Village form Proposed Development Site



Figure 2.13. View of Tae` Nan Thar Phaya very closed with Proposed Development Site



Figure 3.14. View of Ywa Thit Kan U Kyaung Phaya very closed with Proposed Development Site



Figure 3.15. Aung Myay Dattaw Phaya



Figure 3.16. ShweMoat Hta Phay

4. HERITAGE IMPACT ASSESSMENT

Proposed Work	Impact during Heiritage Fabric	Impacts on Values in Statement of Significance	In Accordance with Relevant Design Guidelines	In Accordance with Burra Charter Principles
Taung Tha Man Lake Resort Town	<p>Will not impact directly on any recognized heritage fabric.</p> <p>Will impact on natural landscaping on An Avenue of Meze (Madhuca longifolia) Trees.</p>	<p>Will impact on views identified in statement of significance for Taung Tha Man Lake's environs.</p> <p>Will impact on landmark setting of Taung Tha Man Lake.</p> <p>Will impact on views from the vicinity of Taung Tha Man Lake to U Bein Bridge.</p> <p>All sites; Change of setting and visual impacts due to Resort Town.</p> <p>Development will contribute to community's sense of place as a place of recreation.</p> <p>Will improve aesthetics appearences by upgrading.</p> <p>Will increase access risks or opportunities for tourism development and further research.</p> <p>Will increase ease of access to adjacent resources.</p> <p>Will increase the recreational and social facilities</p>	<p>Generally all new building should be designed and constructed in accordance with the Myanmar National Building Code; Part 2 Architecture and Urban Design, 2.10. Regulation for Historical Buildings;</p>	<p>The following Burra Charter Articles are relavent to the overall development proposal;</p> <p>Article 8 - Setting which requires the retention of an appropriate visual setting and that new construction, which would adversely affect the setting or relationship is not appropriate.</p> <p>Article 25 - Interpretation which states that the cultural significance of many places is not readily apparent, and should be explained by interpretation.</p>

5. RECOMMENDATION WITH MITIGATION OF IMPACTS ON CULTURAL HERITAGE

Avoidance of Built Heritage Resources/Cultural Landscapes

Taung Tha Man Lake and environs should develop as a recreational park by a preferred alternative and construction plan that will avoid significance demolition or extensive alternation to the Taung Tha Man Lake and its environs. And also avoiding destruction of these built heritage resources and cultural landscapes will mitigate any potential impact of the proposed development project.

Development Guidelines

If as a result of the completed project, the development freeze for the area is lifted, the MCDC should consider the implementation of design and development guidelines for the heritage significance area in order to conserve and enhance the character of the area.

View Corridors

View corridors from proposed resort town, especially in the vicinity of the Taung Tha Man Lake, to U Bein Bridge should be included in the detail design development for the site in accordance with precinct plan and Myanmar National Building Code chapter - Urban Design Guideline.

Archaeological Management Plan

An archaeological management plan should be prepared to guide the ground works on the site.

Interpretation Plan

An interpretation plan should be prepared to contribute to the visitors experience for the Water front development plan and to reflect the significance of the site.

6. CONCLUSION

In conclusion, by assessing potential impacts on cultural heritage resulting from construction of Taung Tha Man Lake Resort Town Project, the designated and the proposed heritage structure/ historic religious building in national level or local level would be directly impacted. However, it also reveals that the impacts are more complex than commonly presented, ranging from very indirect to fluctuating, direct and total. With the rigorous application of mitigation measures it should be possible to limit but not eliminate physical destruction from engineering works and cumulative. There will be some residual impacts which no amount of mitigation will eliminate and an inevitable loss of some heritage to development.

Planning of Taung Tha Man Lake Resort Town development project highlights an invaluable heritage resource. At the same time, it will bring radical economic change to local communities. Emphasis should be placed on developing a program to ensure ongoing protection of the heritage resources linked to bringing socio-economic benefits for the local communities.

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APPENDIX X

FIRST PUBLIC MEETING

ပထမအကြိမ် လူထုတွေ့ဆုံပွဲ

လုပ်ငန်း : Taung Thaman Thitsar Resort
 နေ့ရက် : ၂၃.၅.၂၀၁၅ (စနေနေ့)
 နေရာ : ရွာသစ်ကျေးရွာ အခြေခံပညာ မူလတန်းကျောင်း
 တွေ့ဆုံပွဲ စတင်ချိန် : မွန်းလွဲ ၁:၀၀ နာရီ

ပါဝင်ဆွေးနွေးသူများ

စဉ်	အမည်	အလုပ်အကိုင်	အဖွဲ့အစည်း
၁	ဦးစိုးမြတ်သူ	အကြံပေးတာဝန်ခံ	တောင်သမန်သစ္စာ ကုမ္ပဏီလီမိတက်
၂	ဦးစိုးမြင့်	ဒါရိုက်တာ	OSHE Co., Ltd
၃	ဦးသက်ပိုင်ဇော်	စီမံကိန်း အင်ဂျင်နီယာ	OSHE Co., Ltd
၄	ဒေါက်တာရည်မွန်ထွန်း	အကြံပေးပညာရှင်	OSHE Co., Ltd
၅	ဒေါက်တာသန်းဌေးဦး	အကြံပေးပညာရှင်	OSHE Co., Ltd

- လူထုတွေ့ဆုံပွဲသို့ တောင်သမန်၊ ရွာသစ်၊ နွားနို့တော်စုနှင့် တဲနန်းသာကျေးရွာများမှ ရပ်မိရပ်ဖများ၊ တာဝန်ရှိသူများ အပါအဝင် စုစုပေါင်း (၈၈) ဦးခန့် တက်ရောက်ခဲ့ပါသည်။

အစီအစဉ်

၁။ အခမ်းအနား ဖွင့်လှစ်ကြောင်းကြေငြာခြင်း

၂။ တောင်သမန်သစ္စာအိမ်ယာစီမံကိန်း မှ တာဝန်ခံ အကြံပေး ဦးစိုးမြတ်သူက အဖွင့်နှုတ်ခွန်းဆက်စကား ပြောကြားပြီး စီမံကိန်းလုပ်ငန်းစဉ်များကို ရှင်းလင်းတင်ပြခြင်း

၃။ OSHE Services မှ ဒါရိုက်တာ ဦးစိုးမြင့်က ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း လုပ်ငန်း ဆိုင်ရာများကို ရှင်းလင်းတင်ပြခြင်း

၄။ OSHE Services မှ စီမံကိန်း အင်ဂျင်နီယာ ဦးသက်ပိုင်ဇော်က ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်းစဉ်များကို ရှင်းလင်းတင်ပြခြင်း

၅။ OSHE Services မှ ဇီဝမျိုးစုံမျိုးကွဲဆိုင်ရာ အကြံပေးပညာရှင် ဒေါက်တာရည်မွန်ထွန်းက ဇီဝမျိုးစုံမျိုးကွဲဆိုင်ရာ လေ့လာမှု လုပ်ငန်းစဉ်များကို ရှင်းလင်းတင်ပြခြင်း

၆။ OSHE Services မှ ရှေးဟောင်းယဉ်ကျေးမှုအမွေအနှစ်ဆိုင်ရာ အကြံပေးပညာရှင် ဒေါက်တာသန်းဌေးဦးက ရှေးဟောင်းယဉ်ကျေးမှု အမွေအနှစ်ဆိုင်ရာ လေ့လာမှု လုပ်ငန်းစဉ်များကို ရှင်းလင်းတင်ပြခြင်း

၇။ ကြွရောက်လာသူများနှင့် သက်ဆိုင်ရာ တာဝန်ရှိသူများ အပြန်အလှန် မေးမြန်းဆွေးနွေးခြင်း

၈။ တောင်သမန်သစ္စာအိမ်ယာစီမံကိန်း မှ တာဝန်ခံ အကြံပေး ဦးစိုးမြတ်သူက နှုတ်ဆက်ကျေးဇူးတင်စကား ပြောကြားခြင်း

၉။ အခမ်းအနားပြီးမြောက်ကြောင်း ကြေငြာခြင်း

ဆွေးနွေးချက်များ

ဦးပညာဇောတ (ရွာသစ်ကန်ဦးကျောင်း)

(၁) ကျေးရွာကိုယ်ထူကိုယ်ထလမ်းပေါ်တွင် ကားကြီးများ ဖြတ်သန်းသွားလာနေသဖြင့် လမ်းများ ပျက်စီးမည်ဖြစ်သောကြောင့် ကုမ္ပဏီမှ မည်သို့ တာဝန်ယူမည်ကိုသိလိုပါကြောင်း။

ဦးစိုးမြတ်သူ (တောင်သမန်သစ္စာ ကုမ္ပဏီလီမိတက်)

(၁) ဝန်နှင့်အားမမျှသည့်အတွက် ရေရှည်တွင် လမ်းများပျက်စီးနိုင်ပါကြောင်း။

(၂) ကုမ္ပဏီအနေဖြင့် ရွာလမ်းများကို အဆင့်မြှင့်တင် ပြုပြင်ပေးသွားမည် ဖြစ်ပါကြောင်း။

(၃) ထိုသို့ပြုပြင်မှုများပြုလုပ်သည့်အခါတိုင်းတွင် ဒေသခံများနှင့် ဦးစွာတိုင်ပင်ညှိနှိုင်းသွားမည် ဖြစ်ပါကြောင်း။

ဦးအုန်းကျော် (ရွာသစ်)

- (၁) နွားနို့တော်စုနှင့် တောင်သမန်ကြားလမ်းကို ပြုပြင်ပေးစေလိုပါကြောင်း။
- (၂) ဒေသခံများ အမှိုက်စွန့်ပစ်မှုကို စနစ်တကျ ဖြစ်လာစေရေးအတွက် စီမံကိန်းမှ ကူညီပေးစေလိုပါကြောင်း။

ဦးစိုးမြတ်သူ (တောင်သမန်သစ္စာ ကုမ္ပဏီလီမိတက်)

- (၁) ကုမ္ပဏီအနေဖြင့် ရွာလမ်းများကို အဆင့်မြှင့်တင် ပြုပြင်ပေးသွားမည် ဖြစ်ပါကြောင်း။
- (၂) ပြုပြင်မှုများပြုလုပ်သည့်အခါတိုင်းတွင် ဒေသခံများနှင့် ဦးစွာတိုင်ပင်ညှိနှိုင်းသွားမည် ဖြစ်ပါကြောင်း။
- (၃) အမှိုက်စွန့်ပစ်မှုများ စနစ်ကျစေရေးအတွက် စီမံကိန်းမပြီးမီ စည်ပင်နှင့် တိုင်ပင်ညှိနှိုင်းပြီး လုပ်ဆောင်ပေးမည် ဖြစ်ပါကြောင်း။
- (၄) စီမံကိန်းအနေဖြင့်လည်းအမှိုက်စွန့်ပစ်စနစ်ကိုစနစ်တကျ ဆောင်ရွက်သွားမည် ဖြစ်ပါကြောင်း။

ဦးကျော်ဆွေ (တဲနန်းသာ)

- (၁) ယာဉ်အန္တရာယ် ကင်းရှင်းရေး လုပ်ငန်းများ ဆောင်ရွက်ပေးစေလိုပါကြောင်း။
- (၂) မော်တော်ယာဉ်ကြီးများကြောင့် ဖုန်နှင့် အမှုန်အမွှားလွင့်ပျံ့မှု နည်းပါးအောင် ဆောင်ရွက် ပေးစေလိုပါကြောင်း။
- (၃) စီမံကိန်းလုပ်ငန်းများ ဆောင်ရွက်ရာတွင် ရွာလမ်းများမပျက်စီးစေရေးထည့်သွင်းစဉ်းစားစေလိုပါကြောင်း။
- (၄) စီမံကိန်းက အနီးအပါးကျေးရွာများကို မည်သို့ ကူညီထောက်ပံ့ပေးမည်ကို သိရှိလိုပါကြောင်း။

ဦးစိုးမြတ်သူ (တောင်သမန်သစ္စာ ကုမ္ပဏီလီမိတက်)

- (၁) မော်တော်ယာဉ်များကို အရှိန်နှုန်းထိန်းသိမ်းရန် လုပ်ဆောင်ပေးမည် ဖြစ်ပါကြောင်း။
- (၂) မီးကိစ္စ၊ လမ်းပိုင်းဆိုင်ရာလိုအပ်ချက်များ အပါအဝင် အနီးအပါး ရွာအားလုံးအတွက် ပါဝင်ကူညီဆောင်ရွက် ပေးသွားမည် ဖြစ်ပါကြောင်း။
- (၃) ဖုန်နှင့် အမှုန်အမွှားလွင့်ပျံ့မှုကို လေ့လာပြီး စဉ်းစားဆောင်ရွက်သွားမည် ဖြစ်ပါကြောင်း။
- (၄) အဖွဲ့တစ်ဖွဲ့သီးသန့်ဖွဲ့စည်းပြီး ရပ်ရွာဖွံ့ဖြိုးတိုးတက်ရေး ဆောင်ရွက်မည် ဖြစ်ပါကြောင်း။

ဆွေးနွေးပွဲပြီးဆုံးချိန် : ညနေ ၄:၀၀ နာရီ

တောင်သမန်သတ္တ အိမ်ယာစီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်း၏ အစိတ်အပိုင်းတစ်ရပ်အဖြစ် ရွာသစ်ရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျင်းပပြုလုပ်သည့် ပထမအကြိမ် လူထုတွေ့ဆုံပွဲသို့ တက်ရောက်သည့် လက်မှတ်ထိုးစာရင်း

ရက်စွဲ။

။ ၂၃. ၅. ၂၀၁၅ (စနေနေ့)

စဉ်	အမည်	ကျေးရွာ အမည်	လက်မှတ်
၁	ဦးသာအုန်း	ရွာသစ်	
၂	ဒေါ်ညို	ရွာသစ်	
၃	ဒေါ်နှင်း	၂	
၄	ဓမ္မင်းနှင်းမိုး	၂	
၅	ဒေါ်ဝိငယ်	၂	
၆	ဒေါ်သန္တာအုန်း	၂	
၇	ဦးသာစုံအုန်း	ရွာသစ်	
၈	ဒေါ်အေးအေး	ရွာသစ်	
၉	ဒေါ်တင်စို	ရွာသစ်	
၁၀	မဖြတ်စို	ရွာသစ်	
၁၁	ဦးစင်စို	ရွာသစ်	
၁၂	ဦးစင်စို	ရွာသစ်	
၁၃	ဦးစိုစို	ရွာသစ်	
၁၄	ဦးစိုစို	ရွာသစ်	
၁၅	ဦးစိုစို	ရွာသစ်	
၁၆	ဦးကျော်စို	ရွာသစ်	
၁၇	ဦးစိုစို	ရွာသစ်	
၁၈	ဦးစိုစို	ရွာသစ်	
၁၉	ဒေါ်တင်စို	ရွာသစ်	
၂၀	မစိုစို	ရွာသစ်	

တောင်သမန်သစ္စာ အိမ်ယာစီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်း၏ အစိတ်အပိုင်းတစ်ရပ်အဖြစ် ရွာသစ်ရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျင်းပပြုလုပ်သည့် ပထမအကြိမ် လူထုတွေ့ဆုံပွဲသို့ တက်ရောက်သည့် လက်မှတ်ထိုးစာရင်း

ရက်စွဲ။ ။ ၂၃. ၅. ၂၀၁၅ (စနေနေ့)

စဉ်	အမည်	ကျေးရွာ အမည်	လက်မှတ်
၁	ဦး န် မြင့်	ရွာသစ်	န် မြင့်
၂	ဦး သွယ်စိန်	ကျောင်းသစ်	သွယ်စိန်
၃	ဦး စောစော	ကျောင်းသစ်	စောစော
၄	ဦး သွယ်စိန်	ကျောင်းသစ်	သွယ်စိန်
၅	ဦး ဒေါ်အေးသွယ်	ရွာသစ်	ဒေါ်အေးသွယ်
၆	ဦး စောကျော်	ကျောင်းသစ်	စောကျော်
၇	ဦး သွယ်စိန်	ရွာသစ်	သွယ်စိန်
၈	ဦး စိန်စိန်	ကျောင်းသစ်	စိန်စိန်
၉	ဦး အောင်တင်	ရွာသစ်	အောင်တင်
၁၀			
၁၁	ဦး မသုစာအောင်	ရွာသစ်	မသုစာအောင်
၁၂	ဦး ကျော်စွန်းအောင်	ရွာသစ်	ကျော်စွန်းအောင်
၁၃	ဦး သွယ်စိန်	ရွာသစ်	သွယ်စိန်
၁၄	ဒေါ်အေးသွယ်	ရွာသစ်	အေးသွယ်
၁၅	ဒေါ်အေးအေး	ရွာသစ်	အေးအေး
၁၆	ဦး မြင့်စွန်း	ကျောင်းသစ်	မြင့်စွန်း
၁၇	ဦး သွယ်စိန်အောင်	ရွာသစ်	သွယ်စိန်အောင်
၁၈	ဦး ကျော်စွန်း	ကျောင်းသစ်	ကျော်စွန်း
၁၉	ဦး သွယ်စိန်	ရွာသစ်	သွယ်စိန်
၂၀	ဦး မြင့်စွန်း	ကျောင်းသစ်	မြင့်စွန်း

တောင်သမန်သစ္စာ အိမ်ယာစီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်း၏ အစိတ်အပိုင်းတစ်ရပ်အဖြစ် ရွာသစ်ရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျင်းပပြုလုပ်သည့် ပထမအကြိမ် လူထုတွေ့ဆုံပွဲသို့ တက်ရောက်သည့် လက်မှတ်ထိုးစာရင်း

ရက်စွဲ။

။ ၂၃. ၅. ၂၀၁၅ (စနေနေ့)

စဉ်	အမည်	ကျေးရွာ အမည်	လက်မှတ်
၁	အောင်ကျော်စိန်	ရွာသစ်ရွာ	အောင်
၂	အောင်ကျော်စိန်	"	အောင်
၃	အောင်ကျော်စိန်	ရွာသစ်ရွာ	အောင်
၄	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၅	ဦးအောင်ကျော်	ရွာသစ်	အောင်
၆	ဦးအောင်ကျော်	ရွာသစ်	အောင်
၇	ဦးအောင်ကျော်	ရွာသစ်	အောင်
၈	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၉	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၀	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၁	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၂	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၃	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၄	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၅	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၆	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၇	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၈	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၁၉	အောင်ကျော်စိန်	ရွာသစ်	အောင်
၂၀	အောင်ကျော်စိန်	ရွာသစ်	အောင်

(Handwritten signature)

တောင်သမန်သတ္တ အိမ်ယာစီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်း၏ အစိတ်အပိုင်းတစ်ရပ်အဖြစ် ရွာသစ်ရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျင်းပပြုလုပ်သည့် ပထမအကြိမ် လူထုတွေ့ဆုံပွဲသို့ တက်ရောက်သည့် လက်မှတ်ထိုးစာရင်း

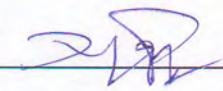
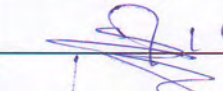
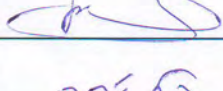
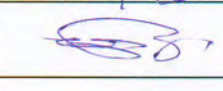
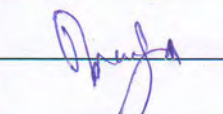
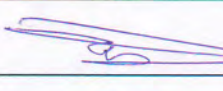
ရက်စွဲ။

။ ၂၃. ၅. ၂၀၁၅ (စနေနေ့)

စဉ်	အမည်	ကျေးရွာ အမည်	လက်မှတ်
၁	ဒေါ်ကြည်	ရွာသစ်	ဒေါ်
၂	ဒေါ်အောင်ကျော်စင်	ရွာသစ်	ဒေါ်
၃	ဒေါ်စောစော	ရွာသစ်	Cyi
၄	Dr-Thun Htay UO	MTU	UO
၅	Ma Mon Mon Kyaw	MTLI	MTLI
၆	Ma Myat Nae Khin	MTU	Ph: 6
၇	Ma Mary Oo	MTU	Ph: 6
၈	ဒေါ်ကြည်စင်	ရွာသစ်	
၉	ဒေါ်စာအောင်	ရွာသစ်	
၁၀	ဒေါ်စင်စင်	ရွာသစ်	
၁၁	ဒေါ်ဖြူစင်	ရွာသစ်	
၁၂	ဒေါ်အေးအေး	ရွာသစ်	ငါ
၁၃	ဒေါ်မာ	ရွာသစ်	
၁၄	ဒေါ်မာ	ရွာသစ်	ဒေါ်
၁၅	ဒေါ်မာ	ရွာသစ်	ဒေါ်
၁၆			
၁၇			
၁၈			
၁၉			
၂၀			

တောင်သမန်သစ္စာ အိမ်ယာစီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း လုပ်ငန်း၏ အစိတ်အပိုင်းတစ်ရပ်အဖြစ် ရွာသစ်ရွာ၊ အခြေခံပညာမူလတန်းကျောင်းတွင် ကျင်းပပြုလုပ်သည့် ပထမအကြိမ် လူထုတွေ့ဆုံပွဲသို့ တက်ရောက်သည့် လက်မှတ်ထိုးစာရင်း

ရက်စွဲ။ ။ ၂၃. ၅. ၂၀၁၅ (စနေနေ့)

စဉ်	အမည်	ကျေးရွာ အမည်	လက်မှတ်
၁	ဒေါ်အုန်းအေး	ရွာသစ်	
၂	ဒေါ်အိမ်စိန်	ရွာသစ်	
၃	ဒေါ်အိမ်စိန်	ရွာသစ်	
၄	ဒေါ်အိမ်စိန်	ရွာသစ်	အိမ်စိန်
၅	ဒေါ်အိမ်စိန်	ရွာသစ်	
၆	မအိမ်စိန်	ရွာသစ်	မ
၇	မအိမ်စိန်	ရွာသစ်	မ
၈	မအိမ်စိန်	ရွာသစ်	အိမ်စိန်
၉	မအိမ်စိန်	ရွာသစ်	မအိမ်စိန်
၁၀	မအိမ်စိန်	ရွာသစ်	မအိမ်စိန်
၁၁	ဒေါ်အိမ်စိန်	ရွာသစ်	
၁၂			
၁၃	ဒေါ်အိမ်စိန်	ရွာသစ်	
၁၄	ဒေါ်အိမ်စိန်	ရွာသစ်	ဒေါ်အိမ်စိန်
၁၅	ဒေါ်အိမ်စိန်	ရွာသစ်	
၁၆	ဒေါ်အိမ်စိန်	ရွာသစ်	ဒေါ်အိမ်စိန်
၁၇			
၁၈			
၁၉			
၂၀			



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ရက်စွဲ။ ။ ၂၃. ၅ .၂၀၁၅

တောင်သမန်သစ္စာ အိမ်ယာစီမံကိန်းလုပ်ငန်းနှင့် ပတ်သက်၍ အကြံပြုလိုသည်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ အကြံပြုရေးသားပေးပါရန် မေတ္တာရပ်ခံ အပ်ပါသည်။

စဉ်	အကြံပြုချက်
၁။	အိမ်ယာစီမံကိန်းနှင့်ဆက်သွယ်ပြီး စာရေးစီမံ Plan များ ပါဝင်မည့်အဆောက်အအုံများ၏ Function များ ဖော်ပြပေးရန်နှင့် အဆောက်အအုံများ၏ အခြေခံအုတ်မြစ်များကို စစ်ဆေးပေးရန်အတွက် အကြံပြုပေးပါသည်။

လက်မှတ် - 

အမည် - မြတ်နိုးစိန်

ဆက်သွယ်ရန်လိပ်စာ - MTU

ဖုန်း - ၀၉၇၉၇၈၀၄၀၇၀



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ရက်စွဲ။ ။ ၂၃. ၅ .၂၀၁၅

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စဉ်	အကြံပြုချက်
	<p>ဒီဇိုင်းဖြင့် အဆောက်အအုံများ ဆောက်လုပ်ပေးပေးပတ်ဝန်းကျင်ရှိ natural view များ ထိခိုက်စေရန် စဉ်းစား စေချင်ပါသည်။</p>

လက်မှတ် - 

အမည် - မွန်မွန်ကျော်

ဆက်သွယ်ရန်လိပ်စာ - M.T.H

ဖုန်း - 09-971422629



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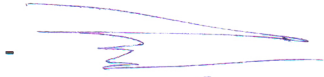
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ရက်စွဲ။ ။ ၂၃. ၅ .၂၀၁၅

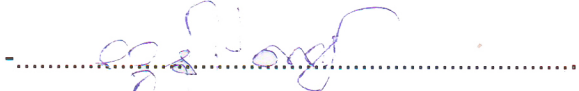
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စဉ်	အကြံပြုချက်
	<p>တောင်သမန်သစ္စာ အိမ်ယာစီမံကိန်းလုပ်ငန်းနှင့် ပတ်သက်၍ နောက်တွင်ပါရေးသား ရေးညွှန်းပါပြုစီမံရေး ခံရစီမံကျွမ်းကျင်သူများ၊ တောင်ရွက်စားပါရေး</p>

လက်မှတ်

- 

အမည်

- 

ဆက်သွယ်ရန်လိပ်စာ

- 

ဖုန်း

-



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တောင်သမန်သစ္စာ အိမ်ယာစီမံကိန်းလုပ်ငန်းနှင့် ပတ်သက်၍ အကြံပြုလိုသည်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ အကြံပြုရေးသားပေးပါရန် မေတ္တာရပ်ခံ အပ်ပါသည်။

စဉ်	အကြံပြုချက်
	<p>၁. တောင်သမန်သစ္စာ ကျွန်ုပ်တို့၏ လိုအပ်ချက်များနှင့် တောင်သမန်သစ္စာ အိမ်ယာ စီမံကိန်း လုပ်ငန်းများကို ပြုလုပ်ရာတွင် အန္တရာယ်ရှိသည့် ဖြစ်နိုင်ချေများကို အိမ်ယာ စီမံကိန်း လုပ်ငန်းများတွင် စွာစူးစူးရှရှာရှာ လေ့လာဆန်းစစ်ရန်နှင့် အန္တရာယ် စောင့်ရှောက်မှုများ လိုအပ်ပါသည်။ တောင်သမန်သစ္စာ ကျွန်ုပ်တို့၏ လိုအပ်ချက်များကို ကျေးဇူးပြု၍ ရေးသားပါရန်နှင့် အကြံပြုပေးပါရန် မေတ္တာရပ်ခံအပ်ပါသည်။</p> <p style="text-align: right;">အောင်သမန်သစ္စာ ရွာသစ်ရွာ</p>

လက်မှတ် - 

အမည် - အောင်သမန်သစ္စာ

ဆက်သွယ်ရန်လိပ်စာ - ၂၇ ပတ္တမြားတန်း၊ ရွာသစ်ရွာ

ဖုန်း - ၀၉ - ၂၅ ၇၀ ၅၂၂၈၃



OSHE Services Co., Ltd.

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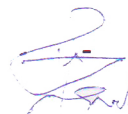
Email : sanniyunt@gmail.com, soemyint26@gmail.com

တောင်သမန်သတ္တ အိမ်ယာစီမံကိန်းလုပ်ငန်းနှင့် ပတ်သက်၍ အကြံပြုလွှာ

ရက်စွဲ။ ။ ၂၃. ၅ .၂၀၁၅

တောင်သမန်သတ္တ အိမ်ယာစီမံကိန်းလုပ်ငန်းနှင့် ပတ်သက်၍ အကြံပြုလိုသည်များ ရှိပါက ရင်းနှီးပွင့်လင်းစွာ အကြံပြုရေးသားပေးပါရန် မေတ္တာရပ်ခံ အပ်ပါသည်။

စဉ်	အကြံပြုချက်
①	<p>စီမံကိန်းလုပ်ငန်းများတွင် အသုံးပြုသော စက်ယာဉ်များ၊ ကျား-ကန်များ၊ အသုံးပြုသည့် ကျေးဇူးတင်စွာ စောင့်ရှောက်မှုများ၊ အန္တရာယ်များ၊ မေ့မိမိခြင်းတို့ကို တွေ့ရှိရပါက အန္တရာယ်များ စောင့်ရှောက်ပေးရပါမည်။</p>
②	<p>စောင့်ရှောက်မှုများ လုပ်ဆောင်ရာတွင် အန္တရာယ်များ သတိပြုစေရန် အကြံပြုပေးပါသည်။</p>

လက်မှတ် 

အမည် ဦးဇော်ဇော်

ဆက်သွယ်ရန်လိပ်စာ တောင်သမန်သတ္တ

.....

ဖုန်း:

APPENDIX XI
SECOND PUBLIC MEETING

ဒုတိယအကြိမ် လူထုတွေ့ဆုံပွဲ

လုပ်ငန်း : Taung Thaman Thitsar Resort

နေ့ရက် : ၂၀.၉.၂၀၁၅ (တနင်္ဂနွေနေ့)

နေရာ : ရွာသစ်ကျေးရွာ အခြေခံပညာ မူလတန်းကျောင်း

တွေ့ဆုံပွဲ စတင်ချိန် : မွန်းလွဲ ၁:၀၀ နာရီ

ပါဝင်ဆွေးနွေးသူများ

စဉ်	အမည်	အလုပ်အကိုင်	အဖွဲ့အစည်း
၁	ဦးခင်မောင်ထွန်း	ပြန်ကြားရေးတာဝန်ခံ	တောင်သမန်သစ္စာ ကုမ္ပဏီလီမိတက်
၂	ဦးစန်းညွန့်	အုပ်ချုပ်မှုဒါရိုက်တာ	OSHE Co., Ltd
၃	ဦးစိုးမြင့်	ဒါရိုက်တာ	OSHE Co., Ltd
၄	ဒေါက်တာသန်းဌေးဦး	အကြံပေးပညာရှင်	OSHE Co., Ltd
၅	ဒေါက်တာရည်မွန်ထွန်း	အကြံပေးပညာရှင်	OSHE Co., Ltd

- လူထုတွေ့ဆုံပွဲသို့ တောင်သမန်၊ ရွာသစ်၊ နွားနို့တော်စုနှင့် တဲနန်းသာကျေးရွာများမှ ရပ်မိရပ်ဖများ၊ တာဝန်ရှိသူများ အပါအဝင် စုစုပေါင်း (၁၇၃) ဦးခန့် တက်ရောက်ခဲ့ပါသည်။

အစီအစဉ်

၁။ အခမ်းအနား ဖွင့်လှစ်ကြောင်းကြေငြာခြင်း

၂။ တောင်သမန်သစ္စာအိမ်ယာစီမံကိန်း မှ ပြန်ကြားရေးတာဝန်ခံ ဦးခင်မောင်ထွန်းက အဖွင့်နှုတ်ခွန်းဆက်စကား ပြောကြားခြင်း

၃။ OSHE Services မှ ဦးစီးညွှန်ကြားမှု ဦးစီးဌာနနှင့် ဦးစီးမြှင့်တင်မှု ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း လုပ်ငန်း မှ တွေ့ရှိချက်များကို ရှင်းလင်းတင်ပြခြင်း

၄။ OSHE Services မှ ရှေးဟောင်းယဉ်ကျေးမှုအမွေအနှစ်ဆိုင်ရာ အကြံပေးပညာရှင် ဒေါက်တာသန်းဌေးဦးက ရှေးဟောင်းယဉ်ကျေးမှု အမွေအနှစ်ဆိုင်ရာ လေ့လာမှု လုပ်ငန်းမှတွေ့ရှိချက်များကို ရှင်းလင်းတင်ပြခြင်း

၅။ OSHE Services မှ ဇီဝမျိုးစုံမျိုးကွဲဆိုင်ရာ အကြံပေးပညာရှင် ဒေါက်တာရည်မွန်ထွန်းက ဇီဝမျိုးစုံမျိုးကွဲဆိုင်ရာ လေ့လာမှု လုပ်ငန်းမှ တွေ့ရှိချက်များကို ရှင်းလင်းတင်ပြခြင်း

၆။ ကြွရောက်လာသူများနှင့် သက်ဆိုင်ရာ တာဝန်ရှိသူများ အပြန်အလှန် မေးမြန်းဆွေးနွေးခြင်း

၇။ တောင်သမန်သစ္စာအိမ်ယာစီမံကိန်း မှ ပြန်ကြားရေးတာဝန်ခံ ဦးခင်မောင်ထွန်းက နှုတ်ဆက် ကျေးဇူးတင်စကား ပြောကြားခြင်း

၈။ အခမ်းအနားပြီးမြောက်ကြောင်း ကြေငြာခြင်း

ဆွေးနွေးချက်များ

ဦးတင်ဝင်း (တောင်သမန်)

(၁) တောင်သမန်ကျေးရွာသူ၊ ကျေးရွာသားများ အသုံးပြုသည့် ရေတွင်းနှစ်တွင်းသို့ ဝင်ထွက်သွားလာနိုင်ရန် လမ်းချန်ပေးစေလိုပါကြောင်း

(၂) စီမံကိန်းက မြေဖို့ထားသည့် တာဘောင်ကြောင့် လမ်းပိတ်နေပါသဖြင့် သွားလမ်းလာလမ်း စီစဉ်ပေးစေလိုပါကြောင်း

ဦးမောင်မောင် (တဲနန်းသာ)

(၁) လက်ရှိစီမံကိန်းက ခင်းထားသည့် ကျောက်ခင်းလမ်းမှာ ပါးလွှာနေသဖြင့် လမ်းကို ကျောက် ထပ်မံခင်းပေးစေလိုပါကြောင်း

(၂) အမြန်လမ်းမှ အတက်အဆင်းလမ်းနေရာကိုလည်း ကျောက်ခင်းပေးစေလိုပါကြောင်း

(၃) အန္တရာယ်မကင်းစွာ မောင်းနှင်နေသည့် ကားများကြောင့် ကလေးသူငယ်များကို မထိခိုက်အောင် ထိန်းသိမ်းဆောင်ရွက်ပေးစေလိုပါကြောင်း

(၄) ဖုန်နှင့် အမှုန်အမွှားများ လွင့်ပျံ့မှုရှိသဖြင့် ကားများကို ဖုံးအုပ်ပေးပြီး၊ လမ်းများကို ရေဖျန်းပေးစေ လိုပါကြောင်း

ဦးပိုးတာ (ရွာသစ်)

(၁) ဒေသခံများ ပြုပြင်ထားသော လမ်းများမှာ စီမံကိန်းကြောင့် ပျက်စီးနေပါကြောင်း၊ ပြန်လည် ပြုပြင်ပေးရန် ပြောကြားသော်လည်း ဂရုပြု ဆောင်ရွက်ပေးမှု မရှိပါကြောင်း၊ ထို့ကြောင့် ဒေသခံများ ခင်းကျင်းထားသည့် လမ်းပေါ်သို့ စီမံကိန်းမှ ကားများ မောင်းနှင်မှု မပြုစေလိုပါကြောင်း

ဦးခင်မောင်ထွန်း (ပြန်ကြားရေး တာဝန်ခံ)

(၁) ရေတွင်းသို့ သွားသည့် လမ်းကိစ္စကို အသေအချာ မသိရှိသေးသဖြင့် လေ့လာပြီး လိုအပ်သည်များ ဆောင်ရွက်ပေးမည် ဖြစ်ပါကြောင်း




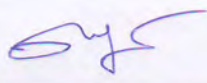
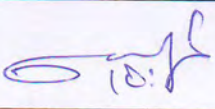
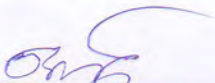
(၂) စီမံကိန်းက ပေ (၅၀) လမ်းများ ဖောက်လုပ်ခင်းကျင်းပေးမည် ဖြစ်သောကြောင့် နောင်တွင် သွားလမ်းလာလမ်းခက်ခဲမှုများ ဖြစ်ပေါ်တော့မည် မဟုတ်ဟု ယူဆပါကြောင်း

(၃) ကားများတွင် အမိုးအကာများ ဖုံးအုပ်ခြင်း၊ လမ်းများကို ရေဖြန်းခြင်း၊ အမြန်လမ်း အတက်အဆင်း နေရာကို ကျောက်ခင်းခြင်းများ ဆောင်ရွက်ပေးမည် ဖြစ်ပါကြောင်း။ ကျောက်သားပါးလွှာသည့်နေရာများကို ပြန်လည်စစ်ဆေးပြီး ပြုပြင်ပေးမည် ဖြစ်ပါကြောင်း၊ အချိန် ခေတ္တစောင့်ဆိုင်းပေးစေလိုပါကြောင်း

(၄) လမ်းများကို မုချပြုပြင်ပေးမည်ဖြစ်ပါကြောင်း၊ ပြောင်းလည်းအသုံးပြုရန် လမ်းရှိ၊ မရှိ အသိသေးပါကြောင်း၊ လေ့လာပြီး ပြောင်းလည်းအသုံးပြုနိုင်သည့် လမ်းရှိလျှင် ပြောင်းလည်း အသုံးပြုပေးမည် ဖြစ်ပါကြောင်း

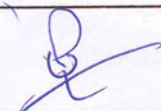
(၅) ယာဉ်အန္တရာယ် မကျရောက်အောင် အတတ်နိုင်ဆုံး ထိန်းသိမ်းပေးမည် ဖြစ်ပါကြောင်း၊ ထိန်းသိမ်းသည့်ကြားမှ ယာဉ်အန္တရာယ်ကျရောက်ပါက ထိရောက်စွာ အရေးယူ ဆောင်ရွက်ပေးမည် ဖြစ်ပါကြောင်း

ဆွေးနွေးပွဲပြီးဆုံးချိန် : ညနေ ၄:၀၀ နာရီ

စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
1	ဒေါ်ခင်အေး	ရွာသစ်	၆၃၁
2	ဒေါ်တင်စို	ရွာသစ်	မဏ္ဍိုင်
3	ဦးဂီ	ရွာသစ်	
4	ဒေါ်ကွမ်းပျံ	ရွာသစ်	မုန့်
5	မအေးဝင်း	ရွာသစ်	မအေးဝင်း
6	မအေးလေး	ရွာသစ်	မေ
7	ဒေါ်ခင်မေးမြင့်	ရွာသစ်	မြင့်
8	မအေးအေး	ရွာသစ်	အေး
9	ကိုကိုအေး	ရွာသစ်	
10	ဦးအေးလှိုင်	ရွာသစ်	
11	ဦးအေးစိုစို	"	စိုစို
12	ခင်လေးစွယ်		စွယ်
13	ခင်မအေး		မအေး
14	ခင်အေးအေး		အေး
15	ဦးအေးခင်	ရွာသစ်	အေး
16	ဦးအေးဝေ	ရွာသစ်	ဝေ
17	ကိုမောင်အေး	ရွာသစ်	အေး
18	ကိုမောင်အေး	"	
19	ကိုမောင်အေး	"	
20	ကိုမောင်အေး		


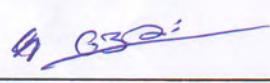
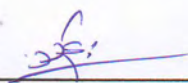
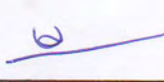
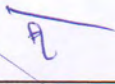
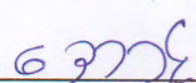
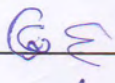


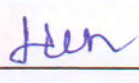
စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
21	ဦးသန်းကွင်	ခုယျာဉ်ထောက်	
22	ဦးလွေးကြည်	ခုယျာဉ်ထောက်	
23	ဒေါ်အေးသန်း	ရွာသစ်	ဒေါ်အေးသန်း
24	ကိုခင်မောင်စော်	အားနဲ့စု	
25	ဒေါ်ဦး	အားနဲ့စု	
26	ကိုသက်နောင်	အားနဲ့စု	
27	မမြမြ	ရွာသစ်	
28	ဦးမြဝင်း	လောက်သမုန်	
၃၀	ဦးစိုးစိန်	"	
30	ဦးအုန်းမောင်	ရွာသစ်	
31	ကိုနိုင်လင်းဆွေ	ရွာသစ်	
32	အောင်ကိုမင်းဆွေ	ရွာသစ်	
33	ကိုသူရိန်	ရွာသစ်	
34	ကိုစော်လင်း	အားနဲ့စု	
35	မိမိဦးစေမောင်	"	
36	ဘဝင်းသင်းဆွေ	အားနဲ့စု	
37	မာဒုဝါ	အားနဲ့စု	
38	မဇွေးဌေးနီ	အားနဲ့စု	
39	ဒေါ်ခင်လှိုင်	အားနဲ့စု	
40	ဒေါ်သန်းလှိုင်	ရွာသစ်	

စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
41	ဒိုးကျော်စိန်လတ်	ရွာသစ်	
42	ဇော်ဇော်ကင်း	ထောင်သမိုင်း	
43	ကိုအောင်နိုင်ဝင်း	ရွာသစ်	
44	ဒိုးဖိုးတာ	ရွာသစ်	
45	ဒိုးအင်းအောင်	ရွာသစ်	
46	ဒေါ်နှင်းရီ	ရွာသစ်	
47	ဒေါ်မြမြသင်း	ရွာသစ်	
48	ဒေါ်သင်းသင်းအောင်	ရွာသစ်	
49	ဒေါ်ခင်မျာ	ရွာသစ်	
50	ကိုသိန်းလွန်းဦး	ရွာသစ်	
51	ဒေါ်အမွှာတင်	ရွာသစ်	
52	ဒေါ်စန်းဝေ	ရွာသစ်	
53	ဒိုးကျော်စိုး	ထောင်သမိုင်း	
54	ဒိုးမြဝင်း	ထောင်သမိုင်း	
55	မာဝိတာ	ရွာသစ်	
56	အိန်းလွန်းဦး	ရွာသစ်	
57	အောင်မင်း	ရွာသစ်	
58	ရဲထက်ကျော်	ရွာသစ်	
59	ဒေါ်မြဝေ	ရွာသစ်	
60	ကိုစိုးသူ	ရွာသစ်	


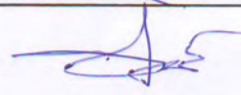
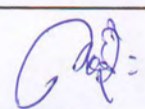
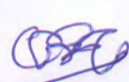

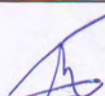
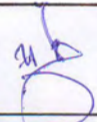

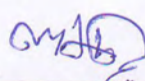
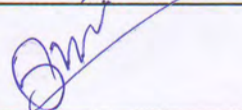
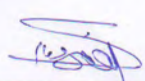
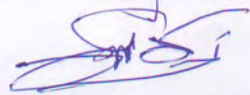
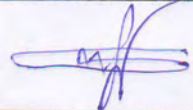
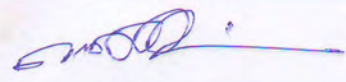
စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
61	ဒေါ်သို့	ဒွားခိုဇု	
62	ကိုမောင်မောင်	ရွာသစ်	မောင်မောင်
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စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
1	Dr-Thun Htay UU	M.T.U	
2	Mon Mon Kyaw	MTU	
3	ကိုညွန့်ဝင်း	ရွာသစ်	
4	ဦးသန်းဌေး	ရွာသစ်	
5	မ.မျိုးသန့်	ခုယျာနာရီလမ်း	
6	ဒီးညိုအိ:	ရွာသစ်	
7	ဒေါ်စည်	ရွာနဲ့စု	
8	ဒေါ်မိုးအေး	"	
9	မ.ဝင်း	"	
10	အောင်စန်း	၇-၁	
11	ဦးဘုတ်စု	"	
12	မ.အောင်	"	
13	အောင်စန်း	ရွာနဲ့စု	
14	ဒေါ်မိုးစု	ရွာသစ်	
15	ဒေါ်စည်စု	ရွာသစ်	
16	မ.အောင်	ရွာသစ်	
17	ကိုအောင်မျိုးမင်း	ဆီးမူမိတ္တင်း	
18	ဒေါ်မိုးမိုး	"	
19	မ.ဝင်း	ရွာသစ်	
20	မ.သန်းလွင်	ရွာနဲ့စု	

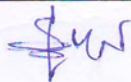
စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
21	မာညို	ရွာသစ်	မာညို
22	အိမ်ချောင်း	ရွာသစ်	အေး
23	သင်းသင်းစို	ရွာအနားနဲ့စု	စို
24	အောင်ကျော်မြတ်	စိန်သဲ	ကျော်
25	ခိုဟန်ဝင်းအောင်	ရွာသစ်	ဟန်
26	မခင်စန်းဝင်း	ရွာသစ်	မခင်စန်းဝင်း
27	ခိုကျော်မင်း	ရွာသစ်	ကျော်မင်း
28	မဝင်း	ရွာအနားနဲ့စု	မဝင်း
29	ကျော်အောင်မြတ်	ရွာသစ်	ကျော်
30	ကျော်အောင်	ရွာသစ်	ကျော်
31	ကျော်ဇော်မြင့်	ရွာသစ်	ကျော်
32	ကျော်စိန်	ရွာသစ်	စိန်
33	ခိုကျော်ဝင်း	စိန်သဲ	ကျော်
34	ကျော်စိန် မာညို	ရွာအနားနဲ့စု ရွာသစ်	မာညို
35	ခိုသိန်းလွင်	ပုသိမ်လမ်း(၃)	လွင်
36	ခိုလွင်မြတ်	" (၃)	လွင်
37	ကျော်စို	ရွာသစ်	စို
38	ဒေါ်နှင်း	ရွာသစ်	နှင်း
39	ဒေါ်ခင်အေးမာ	ရွာသစ်	အေး
40	ကျော်စို	ရွာသစ်	စို

စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
41	ဒေါ်ညို	ရွာသစ်	
42	ဒေါ်အေးဝင်း	ရွာသစ်	
43	ဒေါ်သန်းသန်းဆွေ	နားနီ.စု	
44	ဒေါ်မမလေး	နားနီ.စု	
45	ဒေါ်ခင်မြ	ဒုယျာဉ်တော်	
46	ဒေါ်ဝင်းအောင်	နားနီ.စု	
47	ဒေါ်မောင်မြဝင်း	နားနီ.စု	
48	ကိုဝင်းစိုးစိုး	နားနီ.စု	
49	ကိုတင်မျိုးဝင်း	ရွာသစ်	
50	ကိုမျိုးလွန်းကျော်	ရွာသစ်	
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စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
1	ဦးဇေယျာမာဏိ	ရွာသစ်	
2	ဦးမြတ်မောင်	ရွာသစ်	
3	အောင်အောင်	ရွာသစ်	
4	အောင်ကျော်မောင်	ရွာသစ်	
5	ဟံမြင့်	ရွာသစ်	
6	ခင်မိုး	တန့်သာ	
7	သီရိအောင်	တန့်သာ	
8	လေးနွယ်	တန့်သာ	
9	မီးယပ်	တန့်သာ	
10	တင်မာ	တန့်သာ	
11	ပိုပိုအေး	တန့်သာ	
12	ထက်ထက်	တန့်သာ	
13	ချစ်သူ	တန့်သာ	
14		ရွာသစ်	
15	ခင်မောင်အောင်	ရွာသစ်	
16	ဒေါ်တင်ဖြူ	ရွာသစ်	
17	ဒေါ်တင်အုန်း	ရွာသစ်	
18	ဒေါ်ဝင်းမော်	ရွာသစ်	
19	ဒေါ်မြတ်ဖြူ	ရွာသစ်	
20	ဒေါ်အေးမိုး	ရွာသစ်	

စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
21	ဒေါ်မာအေး	ရွာသစ်	မာ
22	မသင်းသင်း	ရွာသစ်	သင်း
23	ဦးအောင်ခင်	ရွာသစ်	အောင်
24	ဦးကျော်	ရွာသစ်	
25	ဦးခင်အောင်	ရွာသစ်	
26	ကိုစောလင်းဦး	ရွာသစ်	
27	ဦးမြတ်သူ	ရွာသစ်	
28	ဦးသာအေး	ရွာသစ်	
29	ဦး ကိုတန်းမင်းဦး	ရွာသစ်	မင်း
30	ဒေါ်တင်မာဝင်း	ရွာသစ်	
31	ဒေါ်မူမူ သက်ရွာသစ်ကျော် အုပ်ချုပ်ရေး	ရွာသစ်	
32	ဦးတင်ယုဆွေ	ရွာသစ်	တင်ယုဆွေ
33	ဒေါ်ဒေါ်ပုံ	ရွာသစ်	ဒေါ်
34	ဒေါ်ခင်ပန်းမာကော့	ရွာသစ်	
35	ဦးကျော်မြတ်	ရွာသစ်	
36	ဦးမောင်မောင်	တိန့်သာ	
37	ကိုလှစံမြတ်	တိ	
38	ဦးအောင်မင်း		
39	ကိုကျော်ရွှေ		
40	ဦးစောစော	ရွာသစ်	

စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
41	ဦးစောစောဝင်း(၂)	ရွာသစ်	စိန်စိန်
42	ကိုကျော်စိုး	ရွာသစ်	ကျော်စိုး
43	ကိုစောစောစော	ရွာသစ်	စောစော
44	ကိုဝင်းကို	ရွာသစ်	ဝင်းကို
45	မာမာမာ	ရွာသစ်	မာ
46	ကိုစို	ရွာသစ်	စို
47	ကိုကျော်စိုး	ရွာသစ်	ကျော်စိုး
48	ကျော်စောစော	ရွာသစ်	ကျော်
49	ကျော်စို	ရွာသစ်	ကျော်စို
50	ဦးစောစော(၂)	ရွာသစ်	စော
51	ကိုကျော်စိုး	ရွာသစ်	ကျော်စိုး
52	ကျော်စောစော	ရွာသစ်	ကျော်
53	ကိုကျော်စိုး	ရွာသစ်	ကျော်
54	ကျော်စိုး	ရွာသစ်	ကျော်စိုး
55	ဦးစိုး	ရွာသစ်	ဦးစိုး
56	ကျော်စိုး	ရွာသစ်	ကျော်စိုး
57	ဦးစောစော	ရွာသစ်	စော
58	ဦးစောစော	ရွာသစ်	စော
59	ကျော်စော	ရွာသစ်	ကျော်စော
60	ကျော်စော	ရွာသစ်	စော

စဉ်	အမည်	ကျေးရွာအမည်	လက်မှတ်
61	ဒေါ်စိန်မောင်	ရွာကန်	
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