

Monitoring & Evaluation (M&E) Assessment Report for Inle Lake Post-Disaster Environmental Assessment and Rehabilitation Plan

# Monitoring & Evaluation (M&E) Assessment Report

## Inle Lake Post-Disaster Environmental Assessment and Rehabilitation Plan



# Monitoring & Evaluation (M&E) Assessment Report

(December 2025)

## Inle Lake Post-Disaster Environmental Assessment and Rehabilitation Plan



## Myanmar Environmental and Sustainable Development Initiative (MESDI)



E Guard Environmental Services



Myanwei Environmental Solutions

## **DISCLAIMER**

This report represents the independent contributions of impact assessment consultants and subject matter experts organized by the Myanmar Environmental and Sustainable Development Initiative (MESDI). It has been prepared to support the people and communities of the Inle Lake region. The findings, interpretations, analyses, and recommendations contained within this report reflect the views of the contributing authors and do not necessarily represent the official views, positions, or endorsements of MESDI.

While every effort has been made to ensure the accuracy, completeness, and relevance of the information provided, MESDI makes no warranties or guarantees, express or implied, regarding the content of this report. MESDI accepts no liability for any errors, omissions, or inaccuracies, nor for any consequences arising from the use or non-use of the information, methodologies, or conclusions described in this document.

This publication is protected by copyright. MESDI encourages the dissemination of knowledge and supports the use of this material for non-commercial purposes, provided that appropriate credit is given. Reproduction or distribution of this work, in whole or in part, is permitted with full and proper attribution.

## ACKNOWLEDGEMENTS

This Monitoring and Evaluation (M&E) report follows the release of the "Inle Lake Post-Disaster Environmental Assessment and Rehabilitation Plan" published in June, 2025. The completion of this report would not have been possible without the invaluable time and resources provided by the consultants and staff from E Guard Environmental Services Co., Ltd. and Myanwei Environmental Solutions Co., Ltd. during the site visit.

MESDI extend its sincere appreciation to U Aye Thiha, Managing Director of E Guard Environmental Services, and U Lin Htet Sein, Managing Director of Myanwei Environmental Solutions for their financial support and facilitation of the site visit.

We would also like to acknowledge the dedication of our MESDI team members, including:

- U Soe Min (Team Leader)
- Dr. Kyaw Swar Myint Thein (Geoscientist)
- Dr. Khine Yi Mya (Principal Consultant)
- Daw Ei Ei Chaw Su (Environmental Consultant)
- Daw Su Myat Hlaing (Civil Engineer)
- Daw Aye Yu Naing (Water Resources Engineer)
- Daw Nilar Moe (Ecologist)

Their time, participation, and commitment during the M&E site visit were instrumental.

We are deeply grateful to the Inle Literature and Cultural Development Association (ILCDA) and the Inle Youth Volunteer Network for their generous support, which included sharing valuable information, engaging in discussions, and providing insights for the future development of the Inle region.

We would like to acknowledge the individuals and village representatives from *Pauk Pa, Kyar Taw, Kone Ket, Heya Ywa Ma, Kyay Sar Kone, Kalar* and the all Inthar communities as well as various Civil Society Organizations (CSOs), Community-Based Organizations (CBOs), and NGOs. Your logistical support, technical advice, and sharing of real-time information about the post-disaster situation were essential to our study.

Last but not least, we wish to thank Daw Yadana Khin and the E Guard office for their diligent work in reviewing, editing, translating, and producing this report.

Thank you all for your invaluable contributions.

## TABLE OF CONTENTS

1	Introduction .....	7
1.1	Background .....	7
1.2	Purpose of the Report.....	7
1.3	Monitoring and Evaluation Methodology .....	8
1.3.1	Field Visit and On-Site Assessment .....	9
1.3.2	Onsite Water Quality Measurement and Sampling .....	9
1.3.3	Social Surveys.....	9
1.3.4	Key Informant Interviews (KII).....	9
1.3.5	Meetings with Local Communities and Stakeholders .....	10
1.3.6	Public Meeting and Stakeholder Consultation Workshop.....	10
1.3.7	Photo and Visual Documentation .....	10
1.3.8	Review of Secondary Data and Social Media Reports .....	11
1.3.9	Review of previous reports and historical interventions.....	11
1.3.10	Limitations .....	11
1.3.11	Scope of the Report.....	11
2	Post-Disaster Rehabilitation M&E Assessment Findings of Restoration and Interventions	13
2.1	Assessment Approach .....	13
2.1.1	Focused Affected Villages .....	13
2.1.2	Heritage Sites at High Risk.....	13
2.1.3	Impacted Infrastructures Essential for Lake wide Recovery .....	14
2.1.4	Water Quality.....	14
2.1.5	Onsite Visit and Water Quality Assessment.....	15

2.2	M&E Findings.....	15
2.2.1	Governance, Planning, and Coordination .....	15
2.2.2	Disaster Recovery and Resilience.....	16
2.2.3	Disaster Risk Reduction and Community Engagement.....	17
2.2.4	Environmental Rehabilitation and Monitoring .....	19
2.3	Review & Finding from the Questionnaire .....	21
2.3.1	Building Survey .....	21
2.3.2	Social Survey .....	23
2.3.3	Organization Survey .....	25
2.4	Water Quality Assessment .....	25
2.4.1	Primary Causes of Water Pollution in Inle Lake .....	25
2.4.2	The Importance of a Continuous Monitoring System.....	26
2.4.3	Water quality monitoring system:.....	28
2.5	Operations of Relief and Rehabilitation by Organizations in the Inle Lake (Following the September 2024 Floods and Earthquakes) .....	29
2.6	Coordination Gaps and M&E Lessons Learned.....	30
2.7	Conclusion.....	31
	APPENDIX .....	33

## LIST OF FIGURES

Figure 2-1 Disaster Risk Reduction and Community Engagement .....	18
Figure 2-2 Hyacinth clearing and Dredging work in Nga Phal Chaung, Inle 16 November 2025 .....	21
Figure 2-3 Foundation conditions around Inle Lake.....	22
Figure 2-4 Social Survey .....	24
Figure 2-5 Organization Survey.....	25
Figure 2-6 On-site Water Quality Measurement and Sampling .....	27
Figure 2-7 Proposed sampling locations for water quality monitoring .....	28

**LIST OF TABLES & FORMS IN THE APPENDIX**

Table 2-1 List of visited villages and number of persons interviewed by the study team.....34

Table 2-2 List of Organizations met by the study team.....36

Table 2-3 On-Site Physical Water Quality Measurement.....38

Table 2-4 Water quality test results representing the locations of open surface area (SW), agricultural area (AG) and residential area (RS) .....40

Form (1), Monitoring and Evaluation for Implementation of Inle Lake Post-disaster Rehabilitation.....42  
(သဘာဝဘေးအန္တရာယ် အလွန်ကာလ ပြန်လည်ထူထောင်ရေး လုပ်ငန်း ၊ အခြေအနေများ မေးမြန်းခြင်း)

Form (2), အင်းလေးကန်ပြုပြင်ထိန်းသိမ်းမှုနှင့် ကာကွယ်ရေးလုပ်ငန်းစီမံချက်အတွက် ဒေသခံ အဖွဲ့အစည်းများနှင့် လှုပ်ရှားမှုများအား စစ်တမ်းကောက်ယူခြင်း.....48

Form (3), အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းမှုနှင့် ကာကွယ်ရေးလုပ်ငန်းစီမံချက်အတွက် လူမှုစစ်တမ်း.....51

# **1 Introduction**

## **1.1 Background**

Inle Lake is one of Myanmar’s most ecologically, culturally, and economically significant inland water bodies. The lake supports a unique socio-ecological system that includes floating agriculture, traditional fishing communities, cultural heritage sites, and a tourism industry that sustains thousands of households. For decades, the lake has been central to national and regional development strategies, and numerous institutions and partners have committed substantial resources to protect and conserve this vital ecosystem.

Over the past few decades, a wide range of stakeholders including government ministries, local authorities, civil society organizations, academic institutions, corporate social responsibility (CSR) programs, development partners, UNDP, INGOs, and bilateral donors have initiated multiple interventions to address the lake’s environmental degradation and livelihood challenges. These efforts have spanned watershed management, water quality monitoring, community-based conservation, sustainable tourism, climate resilience, sediment control, and the restoration of cultural and natural heritage. Collectively, these initiatives reflect a long-standing international and national commitment to safeguard the ecological integrity of Inle Lake for future generations.

However, the twin disasters of 2024-2025 created unprecedented damage that has set back many of these gains. Extensive flooding, sedimentation, destruction of floating gardens, displacement of communities, and damage to critical infrastructure have exposed deep vulnerabilities in both the ecosystem and local livelihoods. As a result, the need for a coordinated and long-term post-disaster rehabilitation strategy has become urgent.

In response, E Guard Environmental Services developed a comprehensive report titled “Inle Lake Post-Disaster Environmental Assessment and Rehabilitation Plan” in June 2025, providing a strategic framework for restoring the ecological and socio-economic integrity of Inle Lake following the severe disasters of 2024-2025. The report was distributed to Shan State administrative office, related government’s departments, corporates, doner agencies, philanthropic organizations, activists, CSOs, CBOs, NGOs and individuals.

The current Monitoring and Evaluation (M&E) assessment was conducted with the support and guidance of the Myanmar Environmental and Sustainable Development Initiative (MESDI), in alignment with the referenced document. The assessment team utilized this document as a primary reference to review, verify, and evaluate both past and ongoing interventions implemented for the conservation and rehabilitation of Inle Lake. Building upon the findings and recommendations of the earlier study, the M&E exercise aimed to ensure continuity, assess progress, identify gaps, and enhance the overall effectiveness of long-term conservation efforts.

## **1.2 Purpose of the Report**

This report presents the results of the environmental Monitoring and Evaluation (M&E) activities conducted as part of the post-disaster rehabilitation of Inle Lake. It serves as a follow-

up to the comprehensive study titled “Inle Lake Post-Disaster Environmental Assessment and Rehabilitation Plan” (hereinafter referred to as the “Main Report”), prepared by E Guard Environmental Services in May 2025.

This report aims to -

- assess the progress, effectiveness, and ongoing performance of the rehabilitation measures recommended in that plan
- evaluate the current environmental condition of Inle Lake in relation to the recovery objectives
- provide a diagnostic assessment of the Inle Lake ecosystem and present a comprehensive M&E framework to support evidence-based decision-making, sustainable lake management, and long-term conservation outcomes.

The preparation and dissemination of this Monitoring and Evaluation (M&E) report serve not only to document progress in the post-disaster rehabilitation of Inle Lake, but also to deliver a clear message to development partners, corporate contributors, and international organizations regarding the urgent need for continued and coordinated support.

This report is intended to encourage and mobilize:

- Local Administrators and Government Agencies to strengthen governance, coordination, and policy action for lake conservation.
- CSOs, CBOs, and NGOs to expand community engagement, environmental stewardship, and collaborative conservation initiatives.
- The Communities of Inle Lake to deepen participation, adopt more sustainable practices, and take active ownership in safeguarding their environment.
- Corporate Donors and International Development Partners to recognize the strategic importance of Inle Lake’s recovery and to support impactful, evidence-based rehabilitation measures through financial assistance, technical expertise, capacity building, and long-term partnerships.

Ultimately, this report serves as an invitation to donors to join in protecting one of Myanmar’s most iconic and vulnerable natural ecosystems. Strengthening partnerships today will help ensure that Inle Lake remains a living, thriving landscape for future generations.

### **1.3 Monitoring and Evaluation Methodology**

The monitoring and Evaluation (M&E) of the post-disaster rehabilitation of Inle Lake was conducted using a mixed-methods approach combining field-based biophysical assessments, social surveys, consultations, and secondary data review. The assessment focused on the effectiveness, relevance, and progress of the rehabilitation interventions in alignment with the main report.

### **1.3.1 Field Visit and On-Site Assessment**

A four-day site visit was carried out across key areas of Inle Lake and its surrounding communities. The purpose of the site visit was to directly observe rehabilitation activities, assess environmental conditions, and collect verifiable data. Activities included:

- Visual inspection of rehabilitation sites (housing and infrastructures, shoreline stabilization, waste management points, water channels, floating farms, etc.)
- Observation of hydrological conditions, sedimentation patterns, and ecosystem recovery
- Identification of areas still affected by disaster impacts
- Recognition of condition of newly developed and renovated houses and buildings.

All observations were documented with geo-referenced photographs, field notes, and GPS coordinates to support data reliability.

### **1.3.2 Onsite Water Quality Measurement and Sampling**

Physical water quality parameters were measured following standard field sampling protocols. Measurements included Temperature, pH, Electrical Conductivity (EC) and Secchi disk depth/transparency. Three water quality samples were collected from representative locations around the lake, including open water areas, areas closed to floating farm zones and residential settlements. Field measurements were recorded using calibrated portable meters. Field results were compared with national water quality standards and pre-disaster baseline records to assess recovery trends.

### **1.3.3 Social Surveys**

Structured and semi-structured social surveys were conducted with local households and stakeholders directly affected by the disaster and subsequent rehabilitation efforts. The survey topics included:

- Livelihood conditions after disasters in the past 6 months
- Access to electricity, safe water and sanitation
- Livelihood impacts (cottage industry, fishing, tourism, floating agriculture)
- Satisfaction with rehabilitation interventions: reconstruction, livelihood supports
- Community-identified environmental concerns
- Condition of degree of resilient in buildings and structures
- Disaster prevention, early warning, emergency shelters
- Public participation

A combination of face-to-face interviews and small-group discussions ensured diverse representation.

### **1.3.4 Key Informant Interviews (KII)**

Key informant interviews (KIIs) were conducted with individuals possessing specialized knowledge of the environmental, social, and economic dynamics of Inle Lake. These

informants included village administrators, leaders of community-based organizations, local volunteer groups, environmental activists, and tourism business operators.

The KIIs generated valuable insights into a range of critical issues, including the establishment of an Inle Lake Development and Rehabilitation Authority, the enforcement of the Inle Lake Pollution Control Law, and the formation of a dedicated Pollution Monitoring Task Force.

In addition, respondents provided perspectives on disaster prevention measures, including the availability and adequacy of emergency shelters, as well as the overall effectiveness of ongoing rehabilitation interventions. The interviews also highlighted key challenges faced by local communities during recovery, identified emerging environmental and socio-economic risks, and offered practical recommendations to support sustainable, long-term management of the lake.

### **1.3.5 Meetings with Local Communities and Stakeholders**

Community meetings and informal group discussions were held in lakeside villages to gather collective feedback. These meetings helped identify:

- Community priorities
- Persistent post-disaster issues
- Local perspectives on environmental rehabilitation
- Opportunities for community participation in lake management

Feedback from these sessions was triangulated with survey and KII data to ensure accuracy.

### **1.3.6 Public Meeting and Stakeholder Consultation Workshop**

A public meeting was organized with broad participation from civil society, women's groups, business representatives, and youth groups. The consultation:

- Presented preliminary findings
- Gathered open feedback and public concerns
- Identified community-driven solutions
- Validated the M&E findings through group consensus

Notes from the workshop were systematically analyzed to identify recurring themes and emerging issues.

### **1.3.7 Photo and Visual Documentation**

Photographs and videos were used to document:

- Environmental conditions
- Flood water level mark and existing water level
- Visible recovery or degradation
- Status of infrastructure improvements
- Waste management practices
- Floating *kyun myaw*

- Aquatic vegetation conditions
- Water quality on-site measurement and sampling

Photo records provide qualitative evidence to support conclusions and allow comparison with previous assessments.

### **1.3.8 Review of Secondary Data and Social Media Reports**

Recent updates from social media platforms, local news pages, and community information channels were reviewed to:

- Track real-time public concerns about water quality, pollution, or disasters
- Verify reports of environmental incidents (e.g., algal blooms, fish kills, floods)
- Identify trends in community perceptions
- Supplement information from formal field data

Only credible and cross-checked information was included.

### **1.3.9 Review of previous reports and historical interventions**

Diagnostic assessment of the current environmental status of Inle Lake, evaluating the performance of past interventions, and identifies the underlying causes of ecological degradation.

### **1.3.10 Limitations**

The Monitoring and Evaluation (M&E) assessment was conducted under several practical constraints that are important to acknowledge when interpreting the findings. The field investigation was limited to a relatively short site visit of four days, which restricted the extent of in-depth observations and longitudinal verification. In addition, access to certain remote and less-connected areas of the Inle Lake region was constrained by logistical challenges, potentially limiting the spatial coverage of the assessment. The study also incorporated information sourced from social media and other secondary platforms; while such sources provided useful real-time insights, they required careful cross-verification to ensure accuracy and reliability.

Furthermore, seasonal variations at the time of assessment may have influenced environmental parameters, particularly water quality conditions, which can fluctuate significantly throughout the year. Despite these limitations, the assessment applied a combination of field observations, stakeholder consultations, and data triangulation approaches, thereby ensuring that the overall M&E findings remain robust, credible, and suitable for informing post-disaster environmental management and rehabilitation planning.

### **1.3.11 Scope of the Report**

The scope of the Monitoring and Evaluation (M&E) Assessment Report, developed in line with the Main Report, encompasses a comprehensive review of both past and ongoing interventions to support sustainable lake restoration.

The assessment includes an evaluation of post-disaster restoration measures to determine their effectiveness and alignment with recovery objectives, as well as a critical review of previous conservation initiatives to identify lessons learned and gaps in implementation. It further examines key ecological and socio-economic challenges, with particular emphasis on understanding the underlying causes of system degradation and intervention shortcomings. Based on these analyses, the report prioritizes strategic needs for targeted and adaptive management. In addition, it establishes a structured framework of indicators and monitoring mechanisms designed to track progress and guide long-term rehabilitation efforts, ensuring that environmental recovery and community resilience are effectively sustained.

## 2 Post-Disaster Rehabilitation M&E Assessment Findings of Restoration and Interventions

### 2.1 Assessment Approach

The M&E assessment reveal the recovery from disaster and implementation of damage households, heritage sites, and essential infrastructure. The scale of damage was not only environmentally devastating but also threatens the cultural identity and economic stability of the entire region.

#### 2.1.1 Focused Affected Villages

Based on severity, exposure, and risks to both human and ecological systems, affected villages were categorized into three priority tiers for the assessment.

High-Risk Geopositioned Villages (Critical Outflow Bottleneck Zone): The villages of *Pauk Pa*, *Kyar Taw*, *Nampan (Ye Ale)*, and *Kone Ket* experienced the most severe damage due to their location at the narrow outflow section of Inle Lake. These villages are not only transit points for visitors to Inle Lake but also sites where traditional house-living can be observed. Therefore, it is crucial to take measures that promote and enhance the socio-economic conditions of these villages.

Floating Farm/Agriculture Villages: The villages *Kyasar Kone*, *Kay Lar*, and *The Leu*, which depend almost entirely on floating farm agriculture, suffered large-scale destruction of the lake's iconic floating tomato farms. These villages experienced severe erosion of floating beds, nutrient washout, and contamination from sediment and debris. The disaster has left households without productive assets, jeopardizing their only source of income and threatening food security within the region.

Commercial and Tourism-Driven Villages: The commercial and weaving-center villages of *Heya Ywar Ma*, *Sel Khaung*, and *Inpawkhone* experienced substantial economic losses in the aftermath of the disaster events. These villages are highly dependent on tourism and cottage industries, particularly traditional weaving and blacksmithing, as their primary sources of livelihood. However, the sharp decline in tourist arrivals, coupled with disruptions to transportation routes, has significantly reduced market access and demand for local products. As a result, household incomes have declined markedly, leading to increased financial instability and constraining the pace of community recovery and livelihood restoration efforts.

#### 2.1.2 Heritage Sites at High Risk

Inle Lake's cultural heritage renowned globally for its historical, spiritual, and architectural significance has been placed in jeopardy. Several key sites suffered structural damage, erosion impacts, and accessibility challenges:

- *Phaung Daw Oo Pagoda*, one of the most sacred site in the Shan State, experienced flooding and draught impacts and earthquake caused damages to connecting structures to main buildings and pavements of the compound.

- *Alodaw Pauk Pagoda*, a centuries-old lakeside shrine, damage to the walls of the structures around the pagoda need repair. A tilted monastery near the pagoda has yet to be erected.
- *Indein Pagoda Complex*, home to hundreds of ancient stupas, suffered significant sediment deposition and destabilization of aging structures. It is now difficult to reach there via waterway due to the high sediment deposition.
- *Nga Phe Chaung Monastery*, famed for its heritage architecture and cultural exhibits, faced water intrusion and damage to wooden components.

Beyond physical damage, the disasters have also had profound implications for intangible cultural heritage, which is closely intertwined with the physical environment. Monasteries, community halls, and traditional homes serve as centers for cultural transmission, religious practices, and social cohesion.

As heritage sites become increasingly vulnerable or are replaced with modern, non-traditional structures during reconstruction, there is a risk of gradual cultural erosion. Without swift support, these irreplaceable cultural treasures risk long-term degradation or permanent loss.

### **2.1.3 Impacted Infrastructures Essential for Lake wide Recovery**

The disaster severely disrupted the infrastructure that sustains mobility, trade, energy access, and environmental functioning around Inle Lake.

Water Transportation Network: Critical waterways including Nyaung Shwe Canal, Nga Phe Chaung, and the Belu Chaung also known as Indein Chaung were heavily silted, obstructed by debris, and in some cases partially collapsed. These routes are the lifeline for community mobility, trade, tourism, cultural events, and emergency access.

Ports and Landing Points: Landing ports at Nampan, Phaung Daw Oo, Alodaw Pauk and Indein suffered reduced docking capacity during the draught season, and sediment blockages. This has significantly slowed the movement of goods, humanitarian assistance, and tourism activities.

Electricity and Power Supply: Localized electrical networks across multiple villages were disrupted by the earthquake. It happened to some communities the power needed for basic services and economic activities. Restoring those fallen post was done at the time of M&E visit.

### **2.1.4 Water Quality**

The water quality of Inle Lake is critically important for both the communities residing on and around the lake and the downstream riparian populations along the Belu Chaung extending to Samka Inn. Given this significance, it is essential to establish a comprehensive Inle Lake Water Quality Monitoring Master Plan. Under this plan, sampling points should be strategically distributed across the lake to enable systematic assessment of key parameters, including surface water conditions for domestic use and livelihood activities, the environmental impacts arising from floating agriculture and surrounding farming practices, and potential public health risks affecting the Intha community. Furthermore, to ensure a holistic understanding of water quality

dynamics, monitoring stations should also be installed along all major inflowing rivers and chaungs, as well as along the outflowing Belu Chaung. This integrated approach will provide comprehensive spatial coverage, allowing for effective tracking of water quality variations and supporting informed decision-making for both lake ecosystem management and downstream water resource protection.

### **2.1.5 Onsite Visit and Water Quality Assessment**

Below is assessment team activities in Inle Lake from 13th to 16th November.

Day 1 (13/11/2025) – Visited *Pauk Pa* and *Nampan* (Ye Ale) Village, *Alodaw Pauk Gawpaka*. Visited *Sal Khaung* village. Meeting with ILCD chairman and members in Nyaung Shwe.

*WQ measurement – Point no. 12, 14, 16, 13, 09 and 07.*

Day 2 (14/11/2025) – Meeting with IUVN vice chairman and members at Floating Community Shelter. Meeting with villagers, CSOs, CBOs and NGOs at Golden Moon Restaurant in Heya Ywar Ma.

*WQ measurement – Point no. 08, 11, 17, 18 and 20.*

Day 3 (15/11/2025) – visited *Kyay Sar Kone*, *Nga Phal Chaung*, *Kaylar*

*WQ measurement – Point no. 01, 02, 03, 04, 05, 06, 10, 22 and 24*

Day 4 (16/11/2025) – Meeting with villagers from *Kyar Taw* and *Kone Ket* Village at *Alodaw Pauk* North Monastery,

*WQ measurement and sampling – Point no. 19, 21, 23*

## **2.2 M&E Findings**

The M&E findings presented in this report are derived from a field assessment conducted in November 2025 and are guided by the Specific Action Plan outlined in Chapter 5 of the Main Report. The Action Plans was developed by the assessment team based on findings from the post-disaster impact assessment, a review of relevant previous reports, and local knowledge obtained through community engagement. The field assessment was carried out in accordance with the methodology and approach described in the previous section. However, the assessment did not incorporate information or inputs from the responsible government agencies identified in the Action Plan, particularly administrative and line departments, since the study team did not have the formal mandate or institutional authority to engage these agencies or to execute the tasks assigned to them.

### **2.2.1 Governance, Planning, and Coordination**

Over the past six months, the planned task to establish a lead organization, provisionally named the Inle Lake Rehabilitation Authority (ILRA), has not yet been implemented, despite the Main Report has been delivered to representatives from local communities, CSOs, CBOs, administrated departments, Shan State Government Office, relevant line departments, and the Myanmar Engineering Society. Field findings indicate that the initiative stalled at the conceptual stage, with no formal legal registration, governance structure, or officially endorsed

mandate established. Key contributing factors included the absence of a clear institutional lead, overlapping roles and interests among participating stakeholders, insufficient decision-making authority at the township level, and a lack of formal approval or coordination mechanisms from the State and Union administrative systems. As a result, the proposed ILRA was unable to function as an operational body to coordinate stakeholders or to implement the Specific Action Plan, representing a critical institutional gap that has constrained coherent rehabilitation and recovery efforts in the Inle Lake area.

A significant impediment to improving Inle Lake's water quality is the systemic failure to introduce and enforce a dedicated Inle Lake Pollution Protection Law, specifically targeting the direct discharge of untreated latrine waste. The absence of the legally mandated overarching authority, the Inle Lake Region Authority (ILRA), as envisioned in conservation frameworks, has created a critical governance vacuum. No single entity currently holds the clear mandate, jurisdictional power, or dedicated resources to enact, monitor, and enforce such a regulation. This gap results in the continued, unregulated contamination of the lake, undermining all other water quality initiatives.

Effective action requires a coordinated, multi-stakeholder response in lieu of a singular authority. Enforcement is not merely a technical or punitive exercise but a collaborative governance challenge requiring the active participation of the Local Community for compliance and reporting, CSOs/CBOs for awareness and localized monitoring, Township/Village GAD for administrative enforcement at the grassroots level, the Environmental Conservation Department (ECD) for technical standards and oversight, and the Nyaung Shwe Town Development Committee (NSTDC) for integrating regulations into local planning and infrastructure. Until a formal cross-sectoral mechanism is established to unite these actors under a common legal and operational framework, the prohibition of direct waste discharge and the mandated construction of proper sewage containment systems will remain unenforceable aspirations, perpetuating a primary source of lake pollution.

During the reporting period critical institutional tasks of establishment of infrastructure resilience consultancy services, and the formation of an Inle Area Disaster Risk Reduction and Early Warning System Committee were not implemented. M&E findings indicate that these failures are directly attributable to the absence of an operational lead institution, following the unsuccessful establishment of the proposed Inle Lake Rehabilitation Authority (ILRA). Without ILRA, no entity possessed the formal mandate, convening authority, or institutional legitimacy to coordinate multi-sector stakeholders, harmonize departmental roles, or translate technical recommendations into enforceable planning and regulatory instruments. Consequently, technical advisory services for resilient infrastructure were not institutionalized, and early warning and preparedness mechanisms continued to operate in isolation. This institutional vacuum significantly undermined the coherence, sustainability, and effectiveness of post-disaster recovery and long-term risk reduction efforts in the Inle Lake region.

### **2.2.2 Disaster Recovery and Resilience**

Post-disaster activities related to the structural assessment and retrofitting of buildings and critical infrastructure were partially undertaken but remained inadequate in scope and

effectiveness. M&E findings indicate that while some rapid visual assessments and isolated retrofitting efforts were conducted, these actions were not systematic, standardized, or scaled to meet the actual level of structural risk identified during the post-disaster assessment. The primary constraint was the absence of robust institutional arrangements and a clearly mandated, technically qualified administrative authority to lead, regulate, and coordinate these interventions. As a result, assessments were implemented inconsistently across locations, technical standards were unevenly applied, and follow-up actions such as prioritization, quality assurance, and enforcement were limited. This has left significant gaps in structural safety and resilience, particularly for vulnerable public buildings, monasteries and community infrastructure, thereby posing ongoing risks to affected communities.

Introduction of disaster-resilient building designs, water supply systems, and sanitation solutions was not achieved, primarily due to critical gaps in information, technical resources, and institutional support. The assessment identified a lack of access to qualified consultants and civil engineers, the absence of locally appropriate technical manuals and design standards, limited availability of suitable construction materials and product suppliers, and insufficient trainers and community outreach mechanisms. These constraints significantly limited the capacity to transfer knowledge, demonstrate resilient technologies, or support informed decision-making at the community level. In addition, the voluntary adoption of sealed septic tanks and safe effluent disposal systems remained unsuccessful, particularly during the late monsoon period when high water levels prevail. Many recipient households lacked the financial capacity to construct stabilizing substructures or elevated platforms required to secure septic tanks above flood levels, resulting in continued risks of system failure, effluent leakage, and secondary water pollution. Collectively, these factors constrained effective resilience building and undermined the sustainability of post-disaster recovery interventions.

Implementation of several priority environmental management tasks, namely the construction of secondary treatment facilities for septic tank effluents at the lake banks, the enforced adoption of septic tanks and effluent treatment systems, the training of local residents to participate in waste management services, and the establishment of a community-based solid waste management system, did not progress as planned. These failures were attributable not only to limited commitment and follow-through by responsible agencies, but also to insufficient interest and ownership at the community level. The absence of clear enforcement mechanisms, weak institutional leadership, and unclear accountability reduced incentives for agencies to act decisively. Simultaneously, socioeconomic constraints, low awareness of long-term environmental impacts, and competing livelihood priorities among local residents constrained voluntary participation and acceptance of new waste management practices. As a result, planned interventions remained largely at the proposal stage, and opportunities to reduce pollution loads and improve environmental health in the Inle Lake area were missed.

### **2.2.3 Disaster Risk Reduction and Community Engagement**

As part of community-led disaster preparedness initiatives, two Floating Disaster-Resilient Shelters with integrated sanitation facilities have been established and are currently under operation by the Inle Youth Volunteer Network (IYVN). These floating shelters were financed

through contributions from local donors and constructed by a local contractor, reflecting strong community participation and local ownership. The facilities are strategically located at Nampan (Ye Ale) Village and are designed to serve multiple functions, including emergency shelter during disaster events as well as a meeting venue and community center during normal periods. Currently, the shelters are actively utilized by IYVN for community meetings, mobile clinic during the festive days, women and youth-led initiatives, demonstrating a practical and context-appropriate model for multipurpose, disaster-resilient infrastructure in the Inle Lake.



Two Floating shelters stationed at Nampan (Ye Ale) Village



Floating shelter on the move



Floating shelter used as a mobile clinic



Inside a floating shelter used as a mobile clinic

**Figure 2-1 Disaster Risk Reduction and Community Engagement**

If Inle Lake Rehabilitation Authority (ILRA) had been established and operational, it could have played a pivotal role in scaling up and institutionalizing large, multipurpose floating disaster-resilient shelters in the Inle Lake area. With a clear legal mandate, technical authority, and coordinated financing mechanisms, it could have supported to develop larger floating facilities equipped with adequate water supply and sanitation systems, capable of supporting evacuation, temporary accommodation, and emergency response during disaster periods. Under normal conditions, these facilities could have been systematically managed and commercially operated as tourist resting and sightseeing platforms, venues for wedding ceremonies, conference and training halls, and spaces for cultural exhibitions and traditional dance performances. Importantly, such diversified use would enable ILRA to generate sustainable revenue streams, which could be transparently reinvested into lake conservation,

infrastructure maintenance, disaster risk reduction, and long-term development initiatives. The absence of an operational ILRA has therefore constrained opportunities to integrate disaster resilience with financial sustainability and environmental stewardship, limiting the long-term impact of recovery and conservation efforts in Inle Lake.

Implementation has not yet reached the initial development stage for establishing community-based early flood warning systems, including the mobilization of funding from development partners, the identification and acquisition of suitable locations for equipment installation, the design of communication and alert dissemination systems, the establishment of a data management center, engagement with equipment suppliers, or the organization of technical training sessions. The primary factors contributing to this stagnation include limited interest and prioritization by administrative authorities, combined with insufficient technical knowledge and capacity within the responsible agencies to conceptualize, plan, and operationalize such systems. As a result, no concrete preparatory actions or institutional arrangements have been initiated, leaving communities in the Inle Lake area without functional early warning mechanisms and increasing their continued exposure to flood-related risks.

There were constraints within the current administrative system to have dedicated expert resources needed for comprehensive village disaster response team training particularly in evacuation planning, first aid, and search and rescue during the reporting period. But, local civil society organizations (CSOs) and non-governmental organizations (NGOs) have managed to achieve meaningful impact at a smaller scale. These efforts, though not yet meeting the full scope of need, have demonstrably enhanced local preparedness and initial response capabilities, underscoring the critical role of these organizations in bridging resource gaps and building community resilience where broader systemic support remains difficult to mobilize.

#### **2.2.4 Environmental Rehabilitation and Monitoring**

Several initiatives were implemented for watershed restoration and reforestation in Inle Lake. However, these efforts have not achieved their ecological objectives due to governance weaknesses. Responsibilities were unclear among government departments. This led to conflicting policies and inconsistent enforcement. Consequently, long-term planning became difficult to implement. This was compounded by chronic weak governance, where inadequate monitoring, widespread corruption in land-use permitting, and political short-termism allowed illegal logging, unsustainable agriculture, and encroachment to continue unabated. Crucially, these top-down programs suffered from limited involvement of local communities. Local communities, whose livelihoods are directly tied to the land, were often treated as passive beneficiaries rather than essential partners. Without secure land tenure, meaningful participation in decision-making, or a clear stake in the long-term benefits of restoration, local cooperation was minimal. Consequently, newly planted saplings were neglected, buffer zones were re-cleared for farming, and watershed degradation continued, rendering the restoration programs ineffective and highlighting that technical solutions are futile without addressing the underlying failures of governance and community inclusion.

Proposed scientific interventions such as the installation of a lake-wide ozonation and aeration system to directly improve dissolved oxygen levels and break down pollutants, alongside the establishment of a network of real-time water quality monitoring stations at strategic locations, remain conspicuously absent from formal planning discussions. These stations, essential for continuously tracking key parameters, including specific indicators of dissolved peat deposits and the effects of geothermal alterations in addition to standard environmental metrics, represent a necessary shift from reactive to predictive management. The persistent exclusion of these measures from consideration is compounded by a fundamental lack of the requisite specialized resources. Implementing such a program requires dedicated expertise. A water quality expert is needed to design and oversee the system. In addition, specialized testing kits, laboratory capacity, and floating monitoring stations are required. Partnerships with reliable equipment suppliers are also necessary. The continued oversight of these actionable, technology-driven solutions highlights a lack of progress in planning that prioritizes conventional, often ineffective, approaches over the innovative and data-based management approaches needed to secure the lake's ecological future.

Conducting a comprehensive geological investigation of the Inle Lake lakebed to assess the critical impact of geothermal alterations and organic peat deposits on long-term lake stability and water quality remains a distant and unrealized objective. This task is essential to understand subsurface conditions and future ecological changes. However, it is limited by a lack of specialized experts and institutional capacity. The initiative demands the concerted efforts of Competent Engineering Geologists to interpret complex subterranean data, dedicated Research Scholars for sustained fieldwork and analysis, and partnerships with advanced Research Institutes to provide the necessary academic rigor and technical validation.

The M&E assessment noted that "MOECAAF Long-Term Restoration and Conservation, 2014" plan has not been fully operationalized. Current efforts lack the formalized, multi-stakeholder coordination mechanism essential for systemic impact. To address this, it is recommended that the Environmental Conservation Department, as the mandated lead agency, urgently establish and chair a permanent Technical Working Group. This body must include representation from all concerned line departments, key Civil Society Organizations (CSOs), Community-Based Organizations (CBOs), and relevant NGOs/INGOs. The primary deliverable of this group should be a costed, time-bound Joint Work Plan explicitly aligned with the 2014 framework, with clear indicators for watershed rehabilitation, biodiversity preservation, and sustainable livelihood support. This structured collaboration is not merely advisory but is a critical prerequisite to move from fragmented projects to a coherent program capable of achieving measurable, long-term ecological and socio-economic outcomes for Inle Lake.

Current approach to sediment dredging and water hyacinth clearing in Inle Lake remains mainly reactive, leading to inefficient resource use and compromised waterway functionality. Maintenance is often delayed until navigational channels are critically obstructed or scheduled only in anticipation of high-profile events such as the Inle's Phaung Daw Oo festival. This practice results in emergency-style operations, higher long-term costs, and fails to address the continuous ecological stress caused by siltation and invasive species proliferation. To maintain

lake health and accessibility, a year-round maintenance approach is necessary. This requires the dedicated procurement and deployment of appropriate Dredging Equipment and Water Hyacinth Clearing Equipment, supported by a planned maintenance schedule and dedicated operational budget. Implementing a program of Regular Dredging and Regular Maintenance Clearing throughout the year will prevent acute blockages, improve water flow and quality consistently, and is a more cost-effective and ecologically sound strategy than repeated crisis intervention.



Hyacinth clearing in Nga Phal Chaung, Inle  
16 November 2025



Dredging work in Nga Phal Chaung, Inle  
16 November 2025

**Figure 2-2 Hyacinth clearing and Dredging work in Nga Phal Chaung, Inle 16 November 2025**

## 2.3 Review & Finding from the Questionnaire

### 2.3.1 Building Survey

Initially, a building damage survey (survey form is annexed in the appendix) was conducted during the first assessment in April 2025. This survey also documented local building styles, construction methods, and foundation systems. According to the survey results, building foundations in the area can be broadly classified into three common types:

1. **Timber pile foundation:** This is the traditional foundation type used for buildings constructed over lake areas, where the ground consists of lacustrine and alluvial deposits.
2. **Shallow footing with retaining wall:** In this method, a retaining wall is constructed around the building perimeter, the enclosed area is backfilled with suitable soil, and shallow footings are then built on the filled material.
3. **Normal shallow footing:** These footings are constructed directly on alluvial deposits, predominantly alluvial fan deposits. This type is commonly found along the banks of Inle Lake, where the ground is either seasonally inundated or dry land.

According to field observations, timber piles are typically installed manually to depths ranging from approximately 2 m (6 ft) to 8 m (25 ft). The installation depth varies depending on soil strength, with piling terminated when penetration becomes difficult or refusal is reached. A key weakness identified is that pile installation is usually completed within a single day; any interruption may prevent achieving the required depth. For longer piles, multiple timber

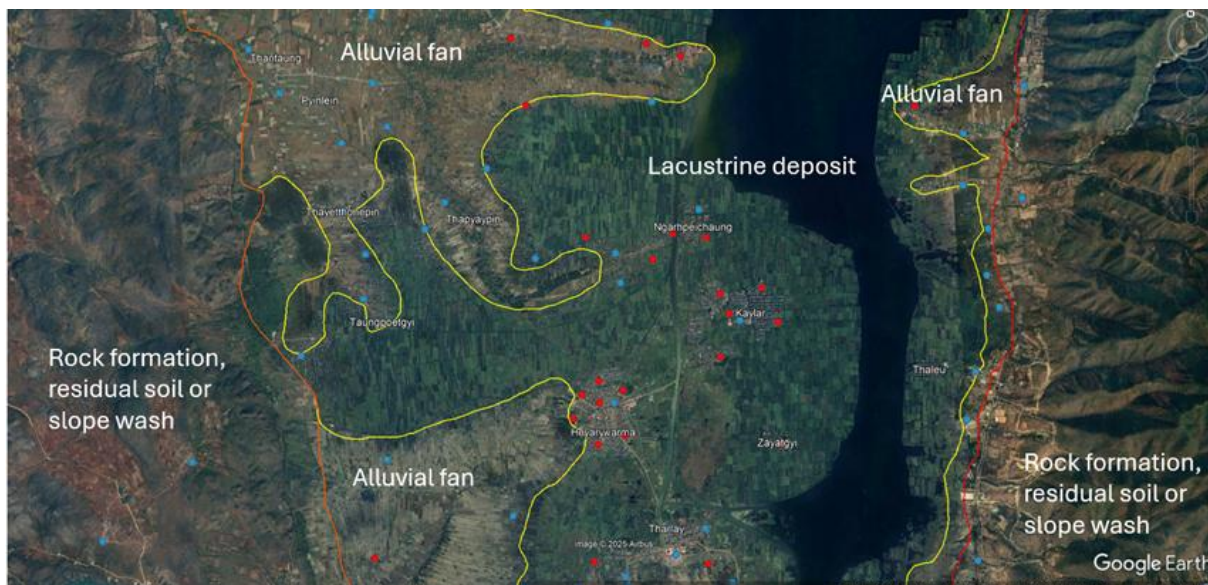
sections are joined together, and these joints are likely to act as weak points under structural and dynamic loading.

For shallow footings with retaining walls, many retaining walls are inadequately constructed. As a result, they are vulnerable to failure during earthquakes, high-velocity water flow, and seasonal water level fluctuations. In addition, these retaining walls are often founded on weak alluvial soils, which are subject to continuous change due to river processes. Furthermore, shallow footings built on uncompacted or untreated fill are highly susceptible to failure under seismic loading, erosion, and seasonal deposition.

Along the banks of Inle Lake, most buildings are supported by shallow footings, either isolated or strip types. These structures generally appear stable due to relatively firm ground conditions and light structural loads. However, prolonged flooding during the 2024 Typhoon Yagi event likely reduced soil bearing capacity through erosion and deposition, thereby decreasing overall foundation stability.

The referenced figure illustrates the foundation conditions around Inle Lake. Timber pile foundations are primarily used in lacustrine deposits, while shallow footings with retaining walls are typically constructed on alluvial fan deposits. Normal shallow footings are found on residual soils and rock along the lake banks. In the figure, red points indicate villages where building damage was observed during the 2025 earthquake, while blue points represent villages with no recorded damage.

Based on the damage survey results, most of the affected buildings were constructed over water and supported by timber pile foundations, followed by those with shallow footings and retaining walls. No damage was recorded in buildings located along the lake banks that use conventional shallow footing systems.



**Figure 2-3 Foundation conditions around Inle Lake**

Although the data from the building assessment for disaster rehabilitation has not yet been received, some buildings have already been repaired through reconstruction, renovation, or

newly developed construction. However, a number of buildings remain incomplete due to various constraints and requirements.

The United Nations Sustainable Development Goals (SDGs), particularly Goal 11, state: “Make cities and human settlements inclusive, safe, resilient and sustainable.” This implies that buildings should be sufficiently safe to withstand climate change impacts and natural disasters, minimizing loss of life and property. According to the disaster risk reduction survey, earthquakes pose the greatest hazard to the Inle Lake area, followed by floods and landslides (mass movements). To align with SDG targets, buildings and infrastructure in Inle Lake and its surrounding areas must be designed to be resilient against these hazards.

Designing resilient buildings requires several key steps. A detailed topographic and geological survey is the essential first stage. Adequate time must then be allocated to develop appropriate building codes for the Inle Lake region, incorporating both sustainability and resilience. At present, many reconstruction and rehabilitation efforts are still being carried out using traditional construction methods that are over a century old. While these methods may provide temporary solutions, comprehensive and long-term strategies must be developed and implemented as soon as possible.

For example, some damaged or distorted buildings are being manually realigned, temporarily supported, and reused. This approach is not appropriate. Most structural damage observed during the earthquake was caused by failures in bearing capacity or by liquefaction. In such cases, the foundation has already lost its strength. Reusing these structures is equivalent to constructing a building on weak soil that cannot support its load; even minor internal or external forces may lead to total failure. This means that additional loads such as crowd loads during festivals, seismic forces, or flood-induced inundation could easily cause collapse.

It is strongly recommended that all renovation, reconstruction, and new housing developments be carried out with proper consultation from qualified experts.

### **2.3.2 Social Survey**

Findings from the social interview survey indicate that lake water continues to be widely used for domestic purposes, including dishwashing, laundry, bathing, and personal hygiene across lakeside villages. In some locations, households rely on spring water conveyed through long PVC pipelines to communal storage tanks; however, access to spring water and groundwater remains limited for most lake dwellers. Consequently, nearly all villages depend on purchased bottled water for drinking purposes. Water scarcity during the dry season was consistently identified as a major concern by respondents. Survey forms 1-3 and the list of villages visited, list of CBOs, CSOs and NGOs, and numbers of persons interviewed by the study team in table form are annexed in the appendix.



Meeting at Pauk Pa Village



Meeting at Kyay Sar Kone

**Figure 2-4 Social Survey**

Implementation of donated bio-septic tanks remains incomplete, with approximately 70 percent still under installation, primarily due to elevated water levels during the rainy season and the additional cost of timber posts required to stabilize tanks above flood levels. Health impacts were also reported, with respondents noting that approximately 20 individuals experienced diarrhea illness following the earthquake in Kalar Village.

The survey further revealed a lack of formal disaster early warning systems across surveyed communities. Most respondents expressed a strong preference for receiving disaster alerts via SMS, while preparedness measures remain largely limited to individual or household-level actions. Although respondents believed that emergency shelters exist in nearby areas, there was considerable uncertainty regarding their adequacy and safety, particularly for family members. A majority of respondents indicated that floating shelters would be an appropriate and effective form of emergency shelter in the lake environment.

Respondents engaged in floating agriculture reported awareness of lake water pollution linked to the use of chemical fertilizers and pesticides. Despite this awareness, they reported limited capacity or willingness to shift to alternative farming techniques, primarily due to concerns over reduced productivity. Encouragingly, most respondents recognized the importance of resilient housing structures and improved sanitation systems for the long-term well-being of the Intha communities. However, they emphasized the need for financial assistance to support the construction of disaster-resilient housing, rehabilitation of sewage disposal systems, and access to safe domestic water supplies.

### 2.3.3 Organization Survey



Meeting with IYVN on the floating shelter.



Meeting with local CSOs, CBOs and NGOs at Heya Ywar Ma

**Figure 2-5 Organization Survey**

Survey (the form is annexed appendix) findings indicate limited awareness of the Inle Lake Conservation Law enacted on 19 December 2019, with 90 percent of responding representatives reporting that they were not familiar with the law. In contrast, nearly all local organizations, including CSOs, CBOs, and NGOs, expressed strong agreement that the Inle Lake Pollution Protection Law is a necessary regulatory instrument and indicated their willingness to participate in its implementation. Many of these organizations have already been engaged in solid waste collection campaigns and in community awareness activities highlighting the environmental and health impacts of direct sewage-discharge latrines.

In relation to disaster risk reduction and preparedness, 60 percent of respondents reported participation in related activities, but a few of them indicated given formal disaster risk reduction training to the locals. Notably, one CSO demonstrated a higher level of technical engagement by actively promoting resilient building design concepts, developing village-level base maps, and facilitating the identification of local needs and priority interventions.

## 2.4 Water Quality Assessment

Due to population growth, excessive use of agrochemicals in farming, industrial wastewater, pollution from tourism, and environmental changes, the water quality of Inle Lake is deteriorating severely. Therefore, it is urgently necessary to establish a continuous monitoring system to conserve the lake's ecosystem and prevent water pollution.

### 2.4.1 Primary Causes of Water Pollution in Inle Lake

Pollution from Agricultural Activities (Agricultural Pollution): Excessive use of chemical fertilizers and pesticides in floating gardens within the lake and surrounding farmlands is prevalent. These chemicals flow into the lake, causing nutrient over-enrichment (Eutrophication). This situation leads to excessive algae blooms, depletion of underwater oxygen, death of aquatic life, and severe degradation of water quality.

Pollution from Commercial Fish Farms: The increasing number of open/closed system fish farming cages within the lake is a major source of pollution. Waste from these farms (fish

excrement, uneaten feed) is directly released into the lake water. This waste significantly increases nutrient levels (Nitrogen, Phosphorous), promoting algae growth and severely degrading water quality.

#### Pollution from Daily Activities of Local Communities (Domestic Pollution):

**Wastewater:** Discharging insufficiently treated greywater from villages, hotels, and restaurants, as well as blackwater (sewage), directly or indirectly into the lake, along with open defecation into the lake, causes severe contamination. This wastewater contains harmful bacteria and nutrients.

**Solid Waste:** Improper disposal of waste, including food scraps (wet waste), plastic bags, bottles, and other refuse, leads to water pollution, death of aquatic life, and degradation of the natural water surface scenery.

Soil Erosion and Sediment Inflow (Sedimentation): Deforestation around the lake and unsustainable farming practices have increased soil erosion. Mud and silt wash into the lake with rainwater, reducing water clarity, hindering the growth of submerged plants, decreasing the lake's depth and water-holding capacity, and damaging the ecosystem.

Impact of Climate Change: Climate change-induced effects like rising temperatures, erratic rainfall, and longer dry seasons indirectly affect the lake's water quality. Higher water temperatures accelerate algae growth and reduce dissolved oxygen levels in the water.

### **2.4.2 The Importance of a Continuous Monitoring System**

To effectively address the above problems and restore Inle Lake's water quality, developing a continuous Water Quality Monitoring System is crucial.



On-site Water Quality Measurement near Phaung Daw Oo Pagoda



On-site Water Quality Measurement in the mid location of the lake



On-site water sampling using Niskin Sampler



On-site water sampling near the out let of Inle Lake, downstream of NamPan Ye Ale Village

### **Figure 2-6 On-site Water Quality Measurement and Sampling**

**Identifying Pollution Sources:** A monitoring plan helps precisely pinpoint where pollution is entering (agricultural, domestic, etc.) and identify its type (e.g., Nitrogen, Phosphorous, heavy metals), enabling effective prevention and treatment measures.

**Informed Decision-Making:** Systematically collected water quality data is essential for evidence-based, sustainable management decisions, allowing for early detection of issues like oxygen depletion (Eutrophication) and control of algae blooms.

**Mitigating Ecosystem Damage:** Inle Lake hosts a biodiverse ecosystem. Declining water quality can lead to loss of aquatic life and fish species. A monitoring system enables timely identification and prevention of threats to the ecosystem.

**Protecting Public Health and Livelihoods:** Lake water is vital for drinking, irrigation, fishing, and daily life. Polluted water causes health problems and damages local livelihoods.

**Sustainable Tourism Development:** The lake's natural beauty and clean environment are the foundation of its tourism industry. Poor water quality reduces tourist attraction and harms the local economy.

**Enabling Rapid Emergency Response:** Real-time monitoring systems allow for immediate detection of sudden water quality drops (e.g., from a pollution spill), facilitating prompt emergency actions.

**Facilitating International Cooperation and Funding:** Having a Master Plan for a Water Quality Monitoring System greatly assists in securing support and funding from international organizations like UNDP, WHO, EU, JICA, USAID, NADC etc.,

**Foundation for Research and Education:** Long-term water quality data provides a basis for scientific research and for educating locals about water conservation, fostering awareness and community involvement.

**Key Monitoring Indicators:** Water temperature, pH level, Dissolved Oxygen (DO), Conductivity/TDS, Chlorophyll-a (indicator of algae growth), levels of Nitrogen and Phosphorous.

**Monitoring Methodology:** The most modern and effective method involves installing automatic monitoring buoys/stations at various points across the lake, transmitting data in real-time via radio or mobile networks to a central office. However, methods suitable for Myanmar's current context must be employed. Therefore, it is first necessary to strategically define traditional water sampling points and parameters. A monitoring plan must be developed based on available funding and human resources. Below is the proposed sampling locations of monitoring points selected for long term water quality monitoring of Inle Lake.



**Figure 2-7 Proposed sampling locations for water quality monitoring**

Establishment of continuous water quality monitoring is essential for the effective management and long-term sustainability of Inle Lake, as it enables the accurate identification of pollution sources and types, thereby supporting targeted prevention and control measures.

### **2.4.3 Water quality monitoring system:**

Inle Lake is a site where immense ecological, cultural, and economic values converge. It is an irreplaceable gift of nature whose health is intrinsically linked to the lives of locals, the ecosystem, the economy, and cultural heritage. The current severe pollution threatens this priceless legacy.

Establishing a continuous water quality monitoring system is an essential first step to urgently and effectively tackle the pollution sources mentioned and prevent further deterioration in the future. The accurate and reliable data obtained from this system will undoubtedly form the foundational cornerstone for developing comprehensive and effective conservation strategies for the long-term sustainability of Inle Lake.

Therefore, a Water Quality Monitoring System Master Plan is an invaluable investment for preserving Inle Lake for future generations. It is a crucial foundational pillar not just for the present, but for sustainable development in the future.

## **2.5 Operations of Relief and Rehabilitation by Organizations in the Inle Lake (Following the September 2024 Floods and Earthquakes)**

Following the dual disasters of floods and earthquakes, a diverse organization has mobilized to provide relief and rehabilitation in Inle Lake. These groups vary significantly in their structure, funding, and operations, reflecting a multi-layered response to the crisis.

At the most grassroots level, Community-Based Organizations (CBOs) form the immediate frontline of response. These are typically volunteer-driven groups, organized around existing village structures such as youth or women's associations, and often led by local community leaders or monastic institutions. In the immediate aftermath of the disasters, they played an indispensable role in the urgent physical reconstruction of collapsed homes and community structures. Mobilizing swiftly with local knowledge and volunteer labor, these grassroots groups provided essential hands-on assistance for clearing debris and initiating repairs during the critical post-disaster period. Their capacity to undertake this vital work was significantly bolstered by a wave of solidarity from across the nation, as they received and managed donation receipts from thousands of compassionate individuals and influential public figures. Those supports enabled CBOs to work on-the-ground recovery for affected families.

Local Religious Organizations constitute another vital pillar of support, leveraging their deep community trust and physical infrastructure. They transform monasteries into shelters, distribute food and water, offer psychosocial and spiritual support, and provide basic medical care.

Beyond the community and religious groups, local Civil Society Organizations (CSOs) operate with a slightly broader, often thematic focus. These include groups dedicated to Inle Lake's conservation, development, and specialized areas like education and health. They transport relief supplies, support reconstruction of housings, deliver healthcare services, provide capacity building trainings and are instrumental in drafting plans for sustainable rehabilitation. They navigate complex linkages, working directly with international donors, partnering with other domestic CSOs, and, as necessary, coordinating with local authorities.

The response also involves the Local Partners of International Non-Governmental Organizations (INGOs), which represent the on-ground presence of larger, global humanitarian actors. These partners operate under the structures and protocols of their parent organizations, with funding flowing from international donors, governments, and humanitarian pooled funds. Their work is characterized by systematic, program-based approaches to relief and rehabilitation, including setting up formal health clinics and implementing long-term disaster risk reduction and development programs. They serve as a crucial link, connecting international resources and technical expertise with local realities through partnerships with CBOs and CSOs, while reporting back to their global headquarters.

In parallel, individual donors, private citizens, and public figures contributed through less formal but highly flexible mechanisms. They mobilized independently or through ad hoc volunteer networks, using personal resources or funds raised via social media platforms. Their comparative advantage lay in their ability to respond quickly to clearly identified, localized

needs, such as the provision of bio-septic tanks to replace collapsed direct-discharge sanitation facilities, an approach initially promoted by CSOs. Many drinking water treatment plants were installed via their donation in cash and kinds. Their contributions were particularly notable in reaching remote or underserved locations and delivering direct household-level support through informal coordination and local networks.

The disaster response in the Inle Lake region extended beyond community-based interventions to include substantial contributions from the private sector through Corporate Social Responsibility (CSR) initiatives. Private-sector actors supported the provision of emergency food and non-food items, the rehabilitation of critical public infrastructure such as schools, health clinics, monasteries and the delivery of logistical assistance utilizing their established operational capacities and local networks.

The response led by the Shan State Government through the General Administration Department (GAD) constituted the official, state-coordinated component of the disaster management effort. The Nyaung Shwe Township GAD provided cash assistance and construction materials permits to affected households for the reconstruction of houses damaged or destroyed during the earthquake in the Inle Lake area, contributing to early recovery and stabilization of impacted communities.

## **2.6 Coordination Gaps and M&E Lessons Learned**

The M&E review identified several coordination and implementation challenges that affected the efficiency and equity of the disaster response in the Inle Lake region as follows.

1. Limited coordination among Community-Based Organizations (CBOs), Civil Society Organizations (CSOs), government departments, and state administration structures resulted in overlaps in assistance in some locations and gaps in others, particularly during the early recovery phase.
2. Organizational conflicts of interest and differing institutional priorities including competition for visibility, resources, and donor attention occasionally constrained information sharing and joint planning.
3. Constrained socioeconomic conditions among affected communities contributed to misinformed, unrealistic, or unprioritized requests and demands, complicating needs assessment and resource allocation processes.
4. The geographic dispersion and physical isolation of villages within the lake combined with limited transport access reduced monitoring coverage.
5. Intergenerational gaps between youth and older community members influenced participation and decision-making processes, with differences in awareness, communication styles, and acceptance of new approaches occasionally hindering consensus-building at the community level.
6. The verification process for post-earthquake recovery assistance in affected villages has been significantly hampered by the absence of a comprehensive, accurate, and transparent registration system detailing household building numbers, building types, ownership and precise locations. This critical data gap created ambiguity in beneficiary

targeting and the allocation of resources, such as the construction material permits and cash assistance contributed by the Shan State Minister. When assistance was to be distributed based on building type categorization (e.g., two story timber house, one story timber house, bamboo house, etc), the lack of a verified, publicly accessible registry led to disputes among affected communities regarding eligibility and fairness. These disputes were exacerbated and rapidly amplified by social media, where widespread allegations emerged of a conflict of interest involving the local township administrator in the beneficiary selection process. This situation underscores that without a credible, participatory, and transparent registration mechanism established at the onset of a response, even well-intentioned contributions can fuel community discord, erode trust in local authorities, and compromise the perceived integrity and equity of the entire recovery program.

Key M&E lessons learnt include the need for a strengthened coordination mechanism with clear leadership, harmonized assessment tools, transparent beneficiary targeting criteria, and inclusive community engagement strategies that account for socioeconomic vulnerabilities, geographic constraints, and generational dynamics.

## **2.7 Conclusion**

This report, developed in accordance with the strategic conservation and rehabilitation plan, has been prepared by the members of the Myanmar Environmental and Sustainable Development Initiative (MESDI). The study team recognizes the need for ongoing updates to this document alongside the main report, which will encompass enhanced strategies, technological insights, and improved coordination with local communities, government departments, and administrative bodies in the Inle region.

The implementation of the Inle Lake rehabilitation plan presents a strategic opportunity to align environmental restoration with the Sustainable Development Goals (SDGs 1,3,6,8,11,12,14 and 16) through integrated and targeted interventions. Key measures, including improved water quality management, ecosystem restoration, climate resilience, and pollution control, directly support environmental sustainability, while initiatives promoting sustainable livelihoods, eco-tourism, and responsible agriculture contribute to economic recovery and community well-being. Strengthening institutional frameworks, enhancing community participation, and ensuring effective enforcement of environmental regulations further reinforce long-term governance and resilience. Collectively, these efforts provide a holistic pathway to restore the ecological integrity of Inle Lake, safeguard public health, and promote inclusive, sustainable development for both lake-dependent and downstream communities.

Moving forward, MESDI will identify suitable Inthar Community-Based Organizations (CBOs) interested in participating in Inle Lake conservation efforts to facilitate the implementation of the Inle Lake Long-Term Conservation Plan. While MESDI will provide training and guided consultation to these organizations, it will be essential for Inthar CBOs to pursue funding from local donors, corporate sponsors, international fundings, and international development partners.

As part of our commitment to supporting Inle Lake conservation work, MESDI members are preparing the following two additional reports:

- Diagnostic Assessment of Inle Lake Rehabilitation and Conservation
- Strategic Water Quality Monitoring Plan

Continued support in terms of professional expertise for the sustainable development of the Inle region will be made possible through the collaboration of individual and corporate members of MESDI.

## APPENDIX

Table 2-1 List of visited villages and number of persons interviewed by the study team

Table 2-2 List of Organizations met by the study team

Table 2-3 On-Site Physical Water Quality Measurement

Table 2-4 Water quality test results representing the locations of open surface area (SW), agricultural area (AG) and residential area (RS)

Form (1), Monitoring and Evaluation for Implementation of Inle Lake Post-disaster Rehabilitation

(သဘာဝဘေးအန္တရာယ် အလွန်ကာလ ပြန်လည်ထူထောင်ရေး လုပ်ငန်း ၊ အခြေအနေများ မေးမြန်းခြင်း)

Form (2), အင်းလေးကန်ပြုပြင်ထိန်းသိမ်းမှုနှင့် ကာကွယ်ရေးလုပ်ငန်းစီမံချက်အတွက် ဒေသခံ အဖွဲ့အစည်းများနှင့် လှုပ်ရှားမှုများအား စစ်တမ်းကောက်ယူခြင်း

Form (3), အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းမှုနှင့် ကာကွယ်ရေးလုပ်ငန်းစီမံချက်အတွက် လူမှုစစ်တမ်း

**Table 2-1 List of visited villages and number of persons interviewed by the study team**

စဉ်	ရက်စွဲ	တွေ့ဆုံသည့်နေရာ	စစ်တမ်း ကောက်ခံသည့်ရွာ/ အဖွဲ့အစည်း	အရေအတွက်
၁။	၁၃.၁၁.၂၀၂၅	အမှတ် (၂) ရပ်ကွက်၊ ပေါက်ပါး	ပေါက်ပါးရွာ၊ (၁) အဖြူရောင်လူငယ် ပရဟိတ အဖွဲ့ ၊ ပေါက်ပါးရွာ (၂) ရွှေရောင်အနာဂတ်ပရဟိတ အဖွဲ့ ၊ ရေလည်ရွာ	၁၂
၂။	၁၃.၁၁.၂၀၂၅	အမှတ် (၂) ရပ်ကွက်၊ ပေါက်ပါး	ရေလည်ရွာ ၊ နမ့်ပန်မြို့	၁
	၁၃.၁၁.၂၀၂၅	အလိုတော်ပေါက်ကျောင်း	အလိုတော်ပေါက်ကျောင်း ဆရာတော် ၊ ဂေါပက	၂
၃။	၁၃.၁၁.၂၀၂၅	Goldern Kite Restaurant ၊ ညောင်ရွှေ	အင်းစာပေ ယဉ်ကျေးမှုနှင့် ဒေသဖွံ့ဖြိုးရေးအသင်း (ILCD)	၂
၄။	၁၄.၁၁.၂၀၂၅	Floating Community Center ၊ အင်းပေါ်ခုံရွာ	Inle Youth Volunteer Network	၃

စဉ်	ရက်စွဲ	တွေ့ဆုံသည့်နေရာ	စစ်တမ်း ကောက်ခံသည့်ရွာ/ အဖွဲ့အစည်း	အရေအတွက်
၅။	၁၄.၁၁.၂၀၂၅	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	(၁) အင်းလေးလူငယ် ပရဟိတအဖွဲ့၊ ကလေးငယ်ရပ် (၂) တောင်ချောင်းလူငယ် ပရဟိတအဖွဲ့ (၃) Star Do Shine Education (၄) Huminity Inclusion of Myanmar (၅) International Rescuce Committee (၆) Together in Shae Yat Gyi	၁၇
၆။	၁၅.၁၁.၂၀၂၅	ကြေးစားကုန်းမြောက်ရွာ	ကြေးစားကုန်းရွာ	၁၂
၇။	၁၅.၁၁.၂၀၂၅	ကြောင်ခုန်ကျောင်း ၊ ငါးဖယ်ချောင်းရွာ	ကြောင်ခုန်ကျောင်းဆရာတော်	၁
၈။	၁၅.၁၁.၂၀၂၅	Community Hall ၊ ကေလာရွာ	ကေလာရွာ	၇
၉။	၁၆.၁၁.၂၀၂၅	အလိုတော်ပေါက်မြောက်ကျောင်း	ကြာတောရွာ	၁၀
၁၀။	၁၆.၁၁.၂၀၂၅	အလိုတော်ပေါက်မြောက်ကျောင်း	ကုန်းကယ်ရွာ	၃

Table 2-2 List of Organizations met by the study team

စဉ်	အသင်းအဖွဲ့အမည်/ရွာ	တွေ့ဆုံသည့်နေရာ	ရက်စွဲ	ဆက်သွယ်ရန်ဖုန်းနံပါတ်
၁။	အဖြူရောင်လူငယ်ပရဟိတအဖွဲ့ ၊ ပေါက်ပါးရွာ	ပေါက်ပါးရွာ	၁၃.၁၁.၂၀၂၅	
၂။	ရွှေရောင်အနာဂတ်ပရဟိတအဖွဲ့ ၊ ရေလည်ရွာ	ပေါက်ပါးရွာ	၁၃.၁၁.၂၀၂၅	
၃။	အင်းစာပေ ယဉ်ကျေးမှုနှင့် ဒေသဖွံ့ဖြိုးရေးအသင်း (ILCD)	Goldern Moon Restaurant ၊ ညောင်ရွှေမြို့	၁၃.၁၁.၂၀၂၅	
၄။	Inle Youth Volunteer Network ၊ အင်းလေး	Floating Community Center ၊ အင်းပေါ်ခုံရွာ	၁၄.၁၁.၂၀၂၅	
၅။	Star Do Shine Education Center ၊ တောင်ကြီး Nway Htwe Eain Learning Center ၊ ဟဲယာရွာမ	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	
၆။	Together in Shae Yat Gyi ၊ ရှေ့ရပ်ကြီးရပ်	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	
၇။	Huminity Inclusion of Myanmar ၊ အင်းလေး	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	
၈။	အားလုံး Ok ၊ ဟဲယာရွာမ	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	
၉။	အင်းလေးလူငယ်ပရဟိတအဖွဲ့ ၊ ကလေးငယ်ရပ်	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	
၁၀။	International Rescue Committee (IRC)	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	

စဉ်	အသင်းအဖွဲ့အမည်/ရွာ	တွေ့ဆုံသည့်နေရာ	ရက်စွဲ	ဆက်သွယ်ရန်ဖုန်းနံပါတ်
၁၁။	တောင်ချောင်းလူငယ်ပရဟိတအဖွဲ့ ၊ တောင်ချောင်းရပ်	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	
၁၂။	ဂရုဏာကျေးလက်ဖွံ့ဖြိုးရေးအသင်း (KMSS)	Goldern Moon Restaurant ၊ ဟဲယာရွာမ	၁၄.၁၁.၂၀၂၅	

*Note: Contact names and phone numbers are not printed for privacy*

Table 2-3 On-Site Physical Water Quality Measurement

Station Name, ID	Location (Lat, Long)	Date/ Time	Temp °C	pH	EC µS/cm	Remark
Nyaung Shwe INL-UP-01	20° 39' 11" N 96° 55' 25" E	15/11/2025 8:06 AM	22.8	8.30	453	
Gauging Station INL-UP-02	20° 38' 19" N 96° 55' 17" E	15/11/2025 8:11 AM	22.9	8.00	437	
East InnOo INL-UP-03	20° 36' 42" N 96° 55' 11" E	15/11/2025 8:22 AM	23.5	7.90	432	
InnOo INL-AG-04	20° 36' 45" N 96° 54' 11" E	15/11/2025 8:30 AM	24.4	7.70	354	
Inlet Mixing Zone INL-SW-05	20° 35' 57" N 96° 54' 58" E	15/11/2025 4:30 PM	26.2	7.90	350	
KhaungTaing INL-AG-06	20° 35' 47" N 96° 53' 38" E	15/11/2025 8:40 AM	24,9	7.80	338	
Mongthauk INL-AG-07	20° 35' 29" N 96° 55' 29" E	13/11/2025 4:04 PM	27.1	8.25	340	
Guest House INL-SW-08	20° 34' 38" N 96° 55' 03" E	14/11/2025 9:05 AM	24.8	8.45	322	
Paypininn INL-AG-09	20° 33' 56" N 96° 55' 52" E	13/11/2025 3:53 PM	27.1	8.40	322	
LinKin INL-AG-10	20° 34' 38" N 96° 53' 41" E	15/11/2025 10:24 AM	25,4	8.00	353	
Inn Alae INL-SW-11	20° 33' 35" N 96° 55' 03" E	14/11/2025 9:14 AM	25.0	8.30	321	
MyaNi Gone INL-AG-12	20° 32' 55" N 96° 54' 15" E	13/11/2025 9:17 AM	25.6	8.07	338	

Station Name, ID	Location (Lat, Long)	Date/ Time	Temp °C	pH	EC µS/cm	Remark
Inn Kyaung INL-AG-13	20° 32' 10" N 96° 55' 14" E	13/11/2025 3:39 PM	27.6	8.40	325	
ThanTaung INL-AG-14	20° 31' 35" N 96° 54' 07" E	13/11/2025 9:27 AM	25.6	7.91	343	
Paradise INL-SW-15	20° 37' 07" N 96° 55' 01" E	15/11/2025 3:45 PM	27.2	8.08	331	
Nga Phe Chaung INL-AG-16	20° 30' 39" N 96° 53' 35" E	13/11/2025 9:42 AM	25.0	7.40	394	
HeYaYwarMa INL-SW-17	20° 29' 30" N 96° 52' 38" E	14/11/2025 3:46 PM	24.7	8.30	360	
HeYaYwarMa INL-SW-18	20° 29' 19" N 96° 53' 07" E	14/11/2025 1:22 PM	23.1	8.30	362	
ZaYatGyi INL-AG-19	20° 28' 57" N 96° 54' 49" E	16/11/2025 8:00 AM	25.2	7.80	347	
Phaung Daw Oo INL-RS-20	20° 28' 31" N 96° 53' 24" E	14/11/2025 1:15 PM	26.0	8.50	330	
GIC 1 INL-SW-21	20° 28' 02" N 96° 54' 37" E	16/11/2025 8:23 AM	25.2	7.70	344	
AloDaw Pauk INL-RS-22	20° 27' 40" N 96° 54' 18" E	15/11/2025 3:09 PM	26.0	7.70	343	
KyarTaw INL-RS-23	20° 27' 27" N 96° 54' 28" E	16/11/2025 8:46 AM	25.4	7.60	344	
InnPaw Kone INL-RS-24	20° 26' 47" N 96° 54' 17" E	15/11/2025 3:18 PM	26.1	7.60	343	

**Table 2-4 Water quality test results representing the locations of open surface area (SW), agricultural area (AG) and residential area (RS)**

Item	Unit	INL-SW (20° 28' 02" N 96° 54' 37" E)	INL-AG (20° 28' 57" N 96° 54' 49" E)	INL-RS (20° 27' 27" N 96° 54' 28" E)	National Surface Water Quality Standard III
Temperature	°C	24.97	24.95	24.94	-
Dissolved oxygen (DO)	mg/L	3.98	3.99	4.01	>4
pH	-	6.99	7.14	7.17	6.0-9.0
Electrical Conductivity	uS/cm	36.97	35.57	35.08	-
Turbidity	NTU	1.62	1.34	1.05	
Secchi depth (transparency)	m	2	1.9	2.1	
Total suspended solids (TSS)	mg/L	1.2	5	3	75
Chemical Oxygen Demand (COD) (Mn/Cr)	mg/L	5.2	3.6	6.4	13.0
Biological Oxygen Demand (BOD)	mg/L	0.87	1.1	0.88	8.0
Ammonium (NH <sub>4</sub> -N)	mg/L	0.4	0.4	Nil	0.5
Nitrate (NO <sub>3</sub> -N)	mg/L	-	1.5	-	-
Nitrite (NO <sub>2</sub> N)	mg/L	-	1.0	-	-

<b>Item</b>	<b>Unit</b>	<b>INL-SW (20° 28' 02'' N 96° 54' 37'' E)</b>	<b>INL-AG (20° 28' 57'' N 96° 54' 49'' E)</b>	<b>INL-RS (20° 27' 27'' N 96° 54' 28'' E)</b>	<b>National Surface Water Quality Standard III</b>
Total Kjeldahl (TP)	-	-	-	-	-
E.coli (MF)	-	-	-	-	-
Oil & Grease	mg/L	10	-	-	NA

Appendix 5

Monitoring and Evaluation for Implementation of Inle Lake Post-disaster Rehabilitation

(သဘာဝဘေးအန္တရာယ် အလွန်ကာလ ပြန်လည်ထူထောင်ရေး လုပ်ငန်း ၊ အခြေအနေများ မေးမြန်းခြင်း)

နေရာ၊ .....

ရက်စွဲ၊ .....

(ဤကိုယ်ရေး အချက်အလက်များ ကိုအများပြည်သူသို့ ဖြန့်ဝေခြင်း မပြုပါ)

(၁) ကိုယ်ရေးအချက်အလက်

- အမည် .....
- အလုပ်အကိုင် .....
- အသက် ..... နှစ်                      လိင်     ကျား  မ
- နေရပ် (ရွာအမည်) .....

ဆက်သွယ်ရန် ဖုန်းနံပါတ် .....

(၂) နေအိမ်/လုပ်ငန်း/ဈေးဆိုင် အခြေအနေ

၁။ သဘာဝဘေးအန္တရာယ်အပြီး မိမိ အိမ်/လုပ်ငန်း/ဈေးဆိုင်ကို ပြန်လည်တည်ဆောက်ပြီးပါသလား။

- ပြန်တည်ဆောက်ပြီးပြီ     တစ်စိတ်တစ်ပိုင်းသာ     ပြန်မဆောက်ရသေးပါ

၂။ အိမ်/လုပ်ငန်း/ဈေးဆိုင်ကို ကိုယ်တိုင်တည်ဆောက်ပါသလား၊ ဒါမှမဟုတ် အဖွဲ့အစည်းက ကူညီပေးပါသလား။

- ကိုယ်တိုင်     အဖွဲ့အစည်းက     အခြား (ဖော်ပြပါ.....)

၃။ အိမ်/လုပ်ငန်း/ဈေးဆိုင် အသစ်အခြေအနေက အရင် အိမ်/လုပ်ငန်း/ဈေးဆိုင် နှင့် နှိုင်းယှဉ်ရင်

- ပိုကောင်းလာတယ်     အတူတူပဲ     ပိုနိမ့်ကျသွားတယ်

၄။ အိမ်/လုပ်ငန်း/ဈေးဆိုင်အကျယ်အဝန်းက

- အရင်ထက်ကျယ်လာတယ်     အတူတူပဲ     ပိုကျဉ်းသွားတယ်

၅။ နေအိမ်/လုပ်ငန်း/ဈေးဆိုင်အတွက် ပြန်လည်လည်တည်ဆောက်စရိတ်က

- ကိုယ်တိုင်     အဖွဲ့အစည်းက ကူညီပေးတယ်     အခြား (ဖော်ပြပါ.....)

၆။ အိမ်/လုပ်ငန်း/ဈေးဆိုင် အတွင်း မီး၊ ရေ၊ အိမ်သာ အပြည့်အစုံ ရရှိပါသလား။

- ရေ             ရရှိပါသည်     မရရှိပါ     အချို့သာ ရရှိပါသည်
- မီး             ရရှိပါသည်     မရရှိပါ     အချို့သာ ရရှိပါသည်
- အိမ်သာ     ရရှိပါသည်     မရရှိပါ     အချို့သာ ရရှိပါသည်

၇။ ရေသန့်ရရှိမှု

- ရှိတယ်     အနည်းငယ်သာ     မရှိပါ

၈။ မည်သို့ မည်ပုံ သောက်ရေ ကိုရရှိသည်  
မည်သည့် ရေအရင်းအမြစ်

.....

မည်သို့ ရယူ

.....

မည်သို့ စုဆောင်းသိုလှောင်

.....

၉။ မည်သို့ မည်ပုံ သုံးရေ (ပန်းကန်ဆေး ရေချိုး အဝတ်ရှော် မျက်နှာသစ် ရန်ရေ) ကိုရရှိသည်  
မည်သည့် ရေအရင်းအမြစ်

.....

မည်သို့ ရယူ

.....

မည်သို့ စုဆောင်းသိုလှောင်

.....

၁၀။ သုံးရေ ပန်းကန်ဆေး ရေချိုး အဝတ်ရှော် မျက်နှာသစ်ရေ စွန့်ပစ်ရေကို ဘယ်လိုစွန့်ပစ်ပါသလဲ။

မြေထဲသို့ စီးဆင်းသွားသည်  ကန်ရေထဲသို့ စီးဆင်းသွားသည်

**(၃) အိမ်သာနှင့် သန့်ရှင်းရေးအခြေအနေ**

၁။ လက်ရှိ အိမ်/လုပ်ငန်း/ဈေးဆိုင် အတွင်း (သို့မဟုတ် အနီးအနား) တွင် အိမ်သာရှိပါသလား။

ရှိပါတယ်  မရှိပါ  မသုံးနိုင်ပါ (ပျက်စီးနေတယ်)

၂။ ငလျင်ကြောင့် အိမ်သာ ပျက်ဆီးမှု ရှိခဲ့ ပါသလား။

ရှိပါတယ်  မရှိပါ  အခြား (ဖော်ပြပါ...)

၃။ အိမ်သာအမျိုးအစားက ဘယ်လိုလဲ။

ယင်လုံအိမ်သာ  ရေပေါ်အိမ်သာ  အခြား (ဖော်ပြပါ...)

၄။ အိမ်သာပြန်တည်ဆောက်ရန် လိုအပ်ပါသလား။

လိုအပ်ပါသည်  မလိုအပ်ပါ

၅။ ငလျင်ကြောင့် ပျက်ဆီးခဲ့တဲ့ အိမ်သာကို မည်သူက ဆောက်ပေးခဲ့ပါသလဲ။

ကိုယ်တိုင်  အဖွဲ့အစည်း/အစိုးရ  အခြား (ဖော်ပြပါ...)

၆။ အိမ်သာအသုံးပြုရာမှာ အနီးအနားတွင် ညစ်ညမ်းမှုရှိပါသလား။

ရှိတယ်  မရှိပါ

၇။ အိမ်သာရဲ့ မစင်တွင်းကို မည်သို့ စီမံထားပါ သလဲ

အင်းလေးကန်ရေထဲ တိုက်ရိုက်ချတယ်  အုတ်ကန်ထဲရောက် သွားတယ်  Bio-septic tank ကိုသုံး ထားတယ်

**(၄) သန့်ရှင်းရေးနှင့် အမှိုက်စီမံခန့်ခွဲမှု**

၁။ မိမိပတ်ဝန်းကျင်တွင် အမှိုက်သိမ်းစနစ် ရှိပါသလား။

ရှိသည်  မရှိပါ  မသိပါ

၂။ အမှိုက်များကို ဘယ်လိုဖြေရှင်းပါသလဲ။

မီးရှို့သည်  စုဆောင်း၍ ပစ်သည်  အခြား (ဖော်ပြပါ.....)

၃။ မိသားစုအနေနဲ့ အင်းလေးကန် အတွင်း စုပေါင်းအမှိုက် ဆယ်/ကောက်/သိမ်း လုပ်အားပေးရန် လိုအပ်ပါက ပါဝင်နိုင် ပါသလား။

တက်ကြွစွာပါဝင်ပါမည်  အနည်းငယ်ပါဝင်မည်  မပါဝင်နိုင်ပါ

**(၅) နေထိုင်မှုနှင့် အသက်မွေးမှုအခြေအနေ**

၁။ မိသားစုဝင်အားလုံး ပြန်လာနေထိုင်နေပါသလား။

အားလုံးပြန်လာပြီး  အချို့သာ  မပြန်လာနိုင်သေး

၂။ လက်ရှိနေရာမှာ အဆင်ပြေပါသလား။

အဆင်ပြေတယ်  အနည်းငယ်အဆင်မပြေ  အဆင်မပြေပါ

၃။ လမ်း၊ ကျောင်း၊ ဆေးခန်း စသည့်အခြေခံအဆောက်အအုံများက

အရင်ထက်ကောင်းတယ်  အတူတူပဲ  ပိုဆိုးလာတယ်

၄။ အသက်မွေးမှုအခြေအနေ (လယ်ယာလုပ်ခြင်း၊ ငါးဖမ်းခြင်း၊ ကိုယ်ပိုင်အလုပ်လုပ်ခြင်း၊ လခစား အလုပ်လုပ်ခြင်း)

ပြန်လည်ကောင်းလာနေတယ်  မူလအတိုင်းမသွားသေးပါ  အခြား (ဖော်ပြပါ.....)

**(၆) သဘာဝဘေးအန္တရာယ်နှင့် ကာကွယ်ရေးအခြေအနေ**

၁။ ၂၀၂၄ ရေဘေးနှင့် ၂၀၂၅ ငလျင်ဘေးများကို ကြုံတွေ့ပြီးနောက် သဘာဝဘေးအန္တရာယ်

(ရေလွှမ်းခြင်း၊ ငလျင်လှုပ်ခြင်း၊ လေပြင်းမုန်တိုင်းတိုက်ခြင်း စသည်) အတွက်

ကြိုတင်ပြင်ဆင်မှုရှိပါသလား။

ရှိတယ်  မရှိပါ  မသိပါ

၂။ ရှိပါက မည်ကဲ့သို့သောအစီအစဉ်များ ဆောင်ရွက်ရန် ရှိပါသလဲ။

(ဥပမာ - အရေးပေါ်ထွက်ပြေးရာနေရာသတ်မှတ်ထားခြင်း၊ ရွာကာကွယ်ရေးအဖွဲ့ တည်ဆောက်ခြင်း စသည်)

.....

၃။ မရှိပါက ဘယ်အရာများ အရေးကြီး လိုအပ်တယ်လို့ သင်ထင်ပါသလဲ။

.....

၄။ အရေးပေါ်အခြေအနေဖြစ်လာရင် မိမိအိမ်နဲ့ မိသားစုကို ဘယ်လိုကာကွယ်ပေးဖို့ အစီအစဉ်ရှိပါသလဲ။

.....

၅။ အင်းလေးကန် အတွင်း ရေကြီးစဉ်က အမြင့်ဆုံး ရေလယ်ဗယ်၊ ရေခမ်းခြောက်တဲ့ အချိန်က အနိမ့်ဆုံး ရေလယ်ဗယ် ရွာထဲမှာ သိသာထင်ရှားတဲ့ အမှတ် အသား တွေမှတ် ထားတာရှိပါသလား

- ရှိတယ်  မရှိပါ  မသိပါ
- အမြင့်ဆုံး ရေလယ်ဗယ် .....
- အချိန်က အနိမ့်ဆုံး ရေလယ်ဗယ် .....

**(၇) စိုက်ပျိုးရေးနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းမှု**

၁။ စီးပွားဖြစ်ရေပေါ်ခြံ စိုက်ပျိုးရေး လုပ်ငန်းများတွင် ပါဝင်ပတ်သက်မှု ရှိပါသလား။

- ပါဝင်သည်  မပါဝင်ပါ  မသိပါ

၂။ စီးပွားဖြစ်ရေပေါ်ခြံ စိုက်ပျိုးရေး လုပ်ငန်းသည် အင်းလေးကန်၏ ရေထုညစ်ညမ်းမှု ဖြစ်စေခြင်းအပေါ် မိမိအနေဖြင့်

- သတိပြုမိသည်  မသိရှိပါ  ဂရုမပြုပါ

၃။ 2025 သဘာဝဘေးအပြီး စိုက်ပျိုးရေးနည်းလမ်း (သီးနှံမျိုးစိတ်၊ နည်းပညာအသုံးပြုမှု) ပြောင်းလဲသွားပါ သလား။

- ပြောင်းလဲသွားပါသည်  မပြောင်းပါ  မသေချာပါ

၄။ ဓာတုပစ္စည်း (မြေဩဇာ၊ ပိုးသတ်ဆေး) ကို အသုံးပြုရာတွင်

- လိုအပ်သလောက်သာ သုံးတယ်  လိုအပ်သည်ထက် ပိုသုံးတယ်  လျော့သုံးတယ်

၅။ ဓာတုပစ္စည်းများ (မြေဩဇာ၊ ပိုးသတ်ဆေး) အလွန်အကျွံသုံးခြင်းကြောင့် အင်လေးကန်ရေ ညစ်လာတာ သတိပြုမိပါသလား။

- သတိပြုမိတယ်  မသိပါ  သတိမပြုမိပါ

၆။ ဓာတုပစ္စည်းမသုံးဘဲ စိုက်ပျိုးမှုအတွက် တခြားနည်းလမ်းရှိပါသလား။

- ရှိတယ် (ဖော်ပြပါ.....)  မရှိပါ  မသိပါ

**(၈) ရပ်ရွာအဖွဲ့အစည်းပါဝင်မှုနှင့် စီမံခန့်ခွဲမှု**

၁။ သဘာဝဘေးအပြီး ပြန်လည်ထူထောင်ရေးလုပ်ငန်းများတွင် ရပ်ရွာအဖွဲ့အစည်းက ပါဝင်ခဲ့ပါသလား။

- ပါဝင်ခဲ့သည်  မပါဝင်ပါ  မသိပါ

၂။ ပါဝင်ခဲ့ပါက ဘယ်လိုအနေနဲ့ပါဝင်ခဲ့ပါသလဲ။

- အလုပ်အဖွဲ့အနေနဲ့  အကြံပေးအနေနဲ့  အခြား (ဖော်ပြပါ.....)

၃။ ရပ်ရွာအတွင်း ပြန်လည်ထူထောင်ရေးဆိုင်ရာ အဖွဲ့အစည်းများရှိပါသလား။

ရှိသည်  မရှိပါ  မသိပါ

၄။ ရှိပါက အဖွဲ့အမည်နှင့် လုပ်ဆောင်ရာဝတ္တရားကို ဖော်ပြပါ။

.....

**(၁၀) သတိပေးစနစ်နှင့် အရေးပေါ်ပြင်ဆင်မှု**

၁။ သဘာဝဘေးအန္တရာယ်အတွက် သတိပေးစနစ် ရှိပါသလား။

ရှိသည်  မရှိပါ

၂။ သတိပေးချက်များကို ဘယ်လိုသိရပါသလဲ။

ဖုန်း SMS  ရွာထဲက သတိပေးလူ  အခြား (ဖော်ပြပါ.....)

၃။ အရေးပေါ်ဖြစ်စဉ်အတွက် ပြင်ဆင်မှုရှိပါသလား။

ရှိသည်  မရှိပါ

**(၁၁) အရေးပေါ်ခိုလှုံ့ရာနှင့် အခြေခံအဆောက်အအုံ**

၁။ အရေးပေါ်အခြေအနေဖြစ်လျှင် သက်တောင့်သက်သာခိုလှုံ့နိုင်ရာနေရာ ရှိပါသလား။

ရှိသည်  မရှိပါ

၂။ အဲဒီနေရာသည် မိသားစုအတွက် လုံခြုံမှုရှိတယ်လို့ ယုံကြည်ပါသလား။

ယုံကြည်သည်  မသေချာပါ  မယုံကြည်ပါ

၃။ လမ်း၊ မီး၊ ဆေးခန်း၊ ကျောင်း စသည့် အခြေခံအဆောက်အအုံများ ပြန်လည် ကောင်းမွန်လာပါသလား။

ပိုကောင်းလာတယ်  အတူတူပဲ  ပိုဆိုးသွားတယ်

**(၁၂) လိုအပ်ချက်နှင့် အကြံပြုချက်**

၁။ မိမိ အိမ်/လုပ်ငန်း/ဈေးဆိုင် ပြန်တည်ဆောက်မှုအတွက် ဘာအခက်အခဲရှိခဲ့ပါသလဲ။

.....

၂။ လက်ရှိအချိန်မှာ လိုအပ်နေသေးတဲ့အရာများ (ရွေးချယ်နိုင်သည်)

ဆောက်လုပ်မှုအတွက် ငွေ  ပစ္စည်း  ရေသန့်/သန့်ရှင်းရေး  အိမ်သာပြုပြင်ဖို့

မီးစနစ်  အခြား .....

၃။ မိမိအိမ်ပြန်တည်ဆောက်ပြီး နေထိုင်နေရတာအပေါ် စိတ်ခံစားချက်

မျှော်လင့်ချက်ရှိတယ်  စိုးရိမ်နေတယ်  မသေချာပါ

**(၁၃) ရှေ့လျှောက်အတွက် အကြံပြုချက်များ**

၁။ အင်းလေးကန်ဒေသ ပြန်လည်ထူထောင်ရေးအတွက် မိမိထင်မြင်ချက်

.....

(၁၃) ရှေ့လျှောက်အတွက် အကြံပြုချက်များ

၁။ အင်းလေးကန်ဒေသ ပြန်လည်ထူထောင်ရေးအတွက် မိမိထင်မြင်ချက်

.....

၂။ အနာဂတ်မှာ သဘာဝဘေးအန္တရာယ်အတွက် ရပ်ရွာအနေနဲ့ ဘာတွေပြင်ဆင်သင့်တယ်လို့ ထင်ပါသလဲ။

.....

Appendix 6

အင်းလေးကန်ပြုပြင်ထိန်းသိမ်းမှုနှင့် ကာကွယ်ရေးလုပ်ငန်းစီမံချက်အတွက် ဒေသခံအဖွဲ့အစည်းများနှင့် လှုပ်ရှားမှုများအား စစ်တမ်းကောက်ယူခြင်း

ရက်စွဲ၊ November, 2025

(၁) ဒေသခံအဖွဲ့အစည်းများနှင့် လှုပ်ရှားမှုများ

၁.၁။ အဖွဲ့အစည်းအမည် -

.....

၁.၂။ မိမိတို့အဖွဲ့အစည်းက အင်းလေးကန်ထိန်းသိမ်းရေး/သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး လှုပ်ရှားမှုများ လုပ်ဆောင်နေပါလား။ သိရှိသော အခြားအဖွဲ့အစည်းများကို ဖော်ပြပါ။

လုပ်ဆောင်နေပါသည်  မလုပ်ပါ

မိမိ သိရှိသော အင်းလေးကန်ထိန်းသိမ်းရေး လုပ်ဆောင်နေသော အခြား အဖွဲ့အစည်းများ -

.....

မိမိ သိရှိသော အင်းလေးကန်ထိန်းသိမ်းရေး လုပ်ဆောင်နေသော မိတ်ဖက် အဖွဲ့အစည်းများ

.....

၁.၃။ ပြီးခဲ့သည့် ၃ နှစ်အတွင်း အင်းလေးကန်နှင့် ပတ်သက်သော လှုပ်ရှားမှု/ စီမံကိန်းဘယ်နှစ်ခု လုပ်ဆောင်ထား ပါသနည်း။

မရှိပါ  ၁-၂ ခု  ၃-၅ ခု  ၆-၁၀ ခု  ၁၀ ခု နှင့်အထက်

၁.၄။ မိမိတို့အဖွဲ့အစည်းတွင် အမြဲတမ်းဝန်ထမ်း ရှိပါသလား။

ရှိသည် (.....)  မရှိပါ

၁.၅။ မိမိတို့အဖွဲ့အစည်းသည် အင်းလေးဒေသတွင် အမြဲတမ်းရုံးခန်း ရှိပါသလား။

ရှိပါသည်  မရှိပါ

၁.၆။ လူထုဆွေးနွေးပွဲများအတွက် ခန်းမရှိပါသလား (သို့) စီစဉ်နိုင်ပါသလား။မည်သည့်နေရာတွင် ကျင်းပပါသနည်း။

မရှိပါ  ရှိပါသည်

(တည်နေရာ.....)

၁.၇။ မိမိတို့အဖွဲ့အစည်းသည် အင်းလေးဒေသတွင် မည်သည့်ဆောင်ရွက်မှုများ လုပ်ဆောင်ထားပါသနည်း။

အမှိုက်သန့်ရှင်းရေး/သန့်ရှင်းရေးလုပ်ငန်း

- ဘေးအန္တရာယ်ကာကွယ်ရေးသင်တန်း (ရေးဘေး၊ ငလျှင်၊ လေဘေး)
- အဆောက်အအုံခိုင်မာရေးဆိုင်ရာ စီမံကိန်း
- ရေဆိုး/မိလ္လာစနစ်ဖြင့် တိုက်ရိုက်စွန့်ပစ်မှု မရှိစေရန် ပညာပေးခြင်း
- အခြား

.....

**(၂) စွမ်းဆောင်ရည်နှင့်အရင်းအမြစ်များ**

၂.၁။ မိမိတို့အဖွဲ့အစည်းတွင် မည်သည့်နယ်ပယ်ကျွမ်းကျင်သူများ ရှိသနည်း။

- ညစ်ညမ်းမှုထိန်းချုပ်ရေးအကြံပေး
- အဆောက်အအုံ/မြေထိခိုက်မှု အင်ဂျင်နီယာ
- ဘေးအန္တရာယ်လျှော့ချခြင်း ကျွမ်းကျင်သူ
- သဘာဝပတ်ဝန်းကျင်ပညာပေးသူ
- အခြား (database management, economist, community expert, GIS, etc.,)

.....

၂.၂။ အစိုးရဌာနများ၊ အခြားအဖွဲ့အစည်းများနှင့် ပူးပေါင်းဆောင်ရွက်မှု ရှိပါသလား။

- မကြာခဏ       တစ်ခါတစ်လေ       သိပ်မရှိပါ       လုံးဝမရှိပါ

**(၃) ဥပဒေများနှင့် အကောင်အထည်ဖော်မှု**

၃.၁။ ရှမ်းပြည်နယ်လွှတ်တော်က ၂၀၁၉ ခုနှစ်၊ ဒီဇင်ဘာလ ၁၉ ရက် တွင် ပြဋ္ဌာန်းခဲ့သော အင်းလေးကန်ဒေသ ထိန်းသိမ်းကာကွယ်ရေးဥပဒေ ကိုသိရှိပါသလား။

- သိရှိသည်       မသိရှိပါ       မသိပါ

၃.၂။ အင်းလေးကန်ဒေသ ထိန်းသိမ်းကာကွယ်ရေးဥပဒေ အရ အင်းလေးကန်ဒေသအုပ်ချုပ်ရေးအဖွဲ့ ဖွဲ့စည်းခြင်းနှင့် လုပ်ငန်းတာဝန်များ ကိုသိရှိပါသလား။

- သိရှိသည်       မသိရှိပါ       မသိပါ

၃.၃။ အင်းလေးကန်ညစ်ညမ်းမှုကာကွယ်ရေးအတွက် ဥပဒေပြဋ္ဌာန်းရန် လိုအပ်ပါသလား။

- လိုအပ်ပါသည်       မလိုအပ်ပါ       မသိပါ

၃.၄ ။ အင်းလေးကန်ညစ်ညမ်းမှုကာကွယ်ရေးဥပဒေရှိပါက သေချာအကောင်အထည်ဖော်ရေးတွင် မိမိတို့ အဖွဲ့အစည်းအနေဖြင့် ပါဝင်နိုင်ပါသလား။

- ပါဝင်နိုင်ပါသည်       မပါဝင်ပါ

၃.၅ ။ အင်းလေးကန်ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင်အဖွဲ့ (Inle Lake Rehabilitation Authority - ILRA) တွင် ပါဝင်ရန် စိတ်ဝင်စားပါသလား။

- စိတ်ဝင်စားပါသည်
- စိတ်မဝင်စားပါ

**(၄) ဘေးအန္တရာယ်ကာကွယ်ရေးနှင့် သတိပေးစနစ်**

၄.၁။ မိမိတို့အဖွဲ့အစည်းအနေဖြင့် ဘေးအန္တရာယ်လျှော့ချခြင်း/ သတိပေးစနစ်လှုပ်ရှားမှုတွင် ပါဝင်ပါသလား။

- ပါဝင်သည်
- မပါဝင်ပါ

ပါဝင်ပါဖူးက မည်သည့် လှုပ်ရှားမှုများတွင် -

.....

၄.၂။ ဒေသခံလူထုအတွက် ဘေးအန္တရာယ်လျှော့ချရေးသင်တန်းများ ပို့ချဖူးပါသလား။

- ပို့ချဖူးပါသည်
- မပို့ချထားပါ

ပို့ချဖူးပါက မည်သည့် သင်တန်းများ -

.....

အမည် .....

ဆက်သွယ်ရန်ဖုန်းနံပါတ် .....

Appendix 7

**အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းမှုနှင့် ကာကွယ်ရေးလုပ်ငန်းစီမံချက်အတွက် လူမှုစစ်တမ်း**

**ရည်ရွယ်ချက်:** အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင် (ILRA) နှင့်ပတ်သက်သည့် လုပ်ငန်းစီမံချက်များအတွက် သင့်အမြင်နှင့် အကြံပြုချက်များကို စုဆောင်းရန်။

**(၁) ကိုယ်ရေးအချက်အလက်** (ဤကိုယ်ရေး အချက်အလက်များ ကိုအများပြည်သူသို့ ဖြန့်ဝေခြင်း မပြုပါ)

၁.၁။	အမည်	
၁.၂။	အသက်	
၁.၃။	လိင်အမျိုးအစား (ကျား/မ/ အခြား)	
၁.၄။	မြို့နယ်/ ကျေးရွာ	
၁.၅။	အလုပ်အကိုင်	<input type="checkbox"/> စိုက်ပျိုးရေး (စိုက်ပျိုးသီးနှံ.....) <input type="checkbox"/> ငါးဖမ်းလုပ်ငန်း <input type="checkbox"/> အရောင်းအဝယ် (ဈေးဆိုင်၊ ကုန်စုံဆိုင်၊ စိုက်ပျိုးသီးနှံ၊ လှေနဲ့ဈေးရောင်း) <input type="checkbox"/> ဟိုတယ်/ ခရီးသွားလုပ်ငန်း <input type="checkbox"/> ကျောင်းသား/ သူ <input type="checkbox"/> အစိုးရဝန်ထမ်း <input type="checkbox"/> အခြား (.....)

**(၂) အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင်အဖွဲ့တည်ထောင်ခြင်း (ILRA)**

Qualitative	
၂.၁။	အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင် (ILRA) အဖွဲ့တည်ထောင်မှုအကြောင်း သိပါသလား။
၂.၂။	အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင် (ILRA) အဖွဲ့တည်ထောင်ရန် ဘာကြောင့် လိုအပ်တယ်လို့ထင်ပါသနည်း။
၂.၃။	အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင် (ILRA) တည်ရှိခြင်းဟာ မိမိတို့ ဒေသအတွက် အရေးကြီးတယ်လို့ထင်ပါသလား။ ထင်ပါက ဘာကြောင့် အရေးကြီးတယ်လို့ ထင်ပါသနည်း။

Qualitative	
၂.၄။	အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင် (ILRA) အဖွဲ့က ပထမဆုံးလုပ်သင့်တဲ့ အရေးကြီးဆုံး အဆင့်/လှုပ်ရှားမှုက ဘာဖြစ်သင့်တယ်လို့ထင်ပါသနည်း။
၂.၅။	မိမိကျေးရွာ/လူထုကို ILRA မှာ ကိုယ်စားပြုစေချင်တဲ့သူ ရွေးချယ်တဲ့အခါ ဘာတွေကို အခြေခံရွေးချယ်ချင်ပါသနည်း။
၂.၆။	ILRA အဖွဲ့ထိရောက်စွာ လုပ်ဆောင်နိုင်ဖို့ မိမိထင်မြင်ချက်အရ အဓိက အထောက်အပံ့/ အရင်းအမြစ် ဘာတွေလိုအပ်သနည်း။ ဘာကြောင့်လိုအပ်တယ်လို့ ထင်ပါသနည်း။
၂.၇။	ILRA အဖွဲ့တည်ထောင်ပြီးပါက မိမိအနေဖြင့် မည်သို့ပါဝင်ဆောင်ရွက်ပါမည်နည်း။

**Quantitative**

၂.၈။ ILRA အကြောင်း မည်သည့်အရင်းအမြစ်မှ သိခဲ့ပါသနည်း။ (အမှန်ခြစ်ရန်)

- ရုပ်သံ / ရေဒီယို/လူမှုကွန်ရက်စာမျက်နှာ
- ကျေးရွာခေါင်းဆောင်
- NGO/CSO
- သူငယ်ချင်း / မိသားစု
- လူထုတွေ့ဆုံပွဲ
- မသိသေးပါ

၂.၉။ ILRA အဖွဲ့ရှိခြင်းသည် မိမိတို့အင်းလေးဒေသခံများအတွက် မည်မျှအရေးကြီးသည်ဟု ထင်ပါသနည်း။

(အမှန်ခြစ်ရန်)

- အလွန်အရေးကြီးသည်
- အရေးကြီးပါသည်
- အလယ်အလတ်
- အရေးမကြီးပါ

၂.၁၀။ အင်းလေးကန် ပြုပြင်ထိန်းသိမ်းရေးအာဏာပိုင် ILRA က ပထမဆုံး မည်သည့်အရာကို လုပ်သင့်ပါသနည်း။ (အမှန်ခြစ်ရန်)

- သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးစီမံကိန်းရေးဆွဲခြင်း
- ပညာပေး လှုပ်ရှားမှုများပြုလုပ်ခြင်း
- စည်းကမ်းဥပဒေများပြင်ဆင်ခြင်း
- ကျေးရွာမှ ကိုယ်စားလှယ် ရွေးချယ်ခြင်း
- အခြားအကြံပြုချက်

၂.၁၁။ ILRA တွင် မိမိကျေးရွာကိုယ်စားပြုသူအတွက် မည်သူကပိုသင့်လျော်ပါသနည်း။ (အမှန်ဖြစ်ရန်)

- ကျေးရွာအကြီးတန်းခေါင်းဆောင်
- လူငယ်အဖွဲ့
- အမျိုးသမီးကိုယ်စားလှယ်
- ကျောင်းဆရာ/ ပညာရေးဝန်ထမ်း
- အခြား

၂.၁၂။ ILRA အတွက် မည်သည့်အထောက်အပံ့များ လိုအပ်သည်ဟု ထင်ပါသနည်း။ (အမှန်ဖြစ်ရန်)

- ရုံးခန်း
- အမြဲတမ်းဝန်ထမ်း
- ဘဏ္ဍာပိုင်းအထောက်အကူ
- နည်းပညာကျွမ်းကျင်သူများ
- ဝန်ထမ်းလေ့ကျင့်သင်တန်း
- အခြား

**အပိုင်း (၃): အင်းလေးကန်ညစ်ညမ်းမှုကာကွယ်ရေးဥပဒေ**

Qualitative	
၃.၁။	အင်းလေးကန်ညစ်ညမ်းမှုကာကွယ်ရေးဥပဒေ ပြဋ္ဌာန်းရန် အစီအစဉ်အကြောင်း သိပါလား။
၃.၂။	အင်းလေးကန်ညစ်ညမ်းမှုကာကွယ်ရေးဥပဒေပြဋ္ဌာန်းရန် လိုအပ်တယ်လို့ ထင်ပါသလား? မိမိအမြင်ကို ဖော်ပြပါ။
၃.၃။	မိမိကျေးရွာတွင် ဤဥပဒေကို အကောင်အထည်ဖော်တဲ့အခါ မဖြစ်မနေ ရင်ဆိုင်ရမယ်ထင်တဲ့ အခက်အခဲတွေက ဘာတွေလဲ။

Qualitative	
၃.၄။	ဒီဥပဒေကို အောင်မြင်စွာ အကောင်အထည်ဖော်ဖို့ မည်သို့အကူအညီများ လိုတယ်လို့ထင်ပါသနည်း။ ဘာကြောင့်လဲ။

**Quantitative**

၃.၄။ အင်းလေးကန်ညစ်ညမ်းမှုကာကွယ်ရေးဥပဒေ ထုတ်ဖို့ လိုအပ်တယ်လို့ထင်ပါသလား။

- လိုအပ်ပါသည်။
- မလိုပါ။

၃.၅။ ဥပဒေအား မဖြစ်မနေပြဋ္ဌာန်းရန် သဘောတူပါသလား။

- သဘောတူပါသည်
- သဘောမတူပါ

၃.၆။ မိမိကျေးရွာတွင် ဥပဒေအကောင်အထည်ဖော်ရာ၌ မည်သည့်အခက်အခဲများကြုံတွေ့နိုင်သနည်း။

(တစ်ခုထက်ပိုရွေးနိုင်သည်)

- ဥပဒေအားနားမလည်ခြင်း
- စည်းကမ်းမလိုက်နာခြင်း
- ငွေကြေး အခက်အခဲ
- အခြား (.....)

၃.၇။ ဥပဒေအကောင်အထည်ဖော်ရာ၌ လိုအပ်မည့် အထောက်အကူများကို ဖော်ပြပါ။

- စည်းရုံးထောက်ခံပေးခြင်း
- ငွေကြေးအထောက်အကူ
- အသိပညာပေးအစီအစဉ်
- အခြား (.....)

**(၄) ကန်ညစ်ညမ်းမှုစောင့်ကြည့်ရေးကော်မတီ (ILPMTF)**

Qualitative	
၄.၁။	အင်းလေးကန်ညစ်ညမ်းမှု စောင့်ကြည့်ရေးကော်မတီ တည်ထောင်ရန်အတွက် လိုအပ်သော အကြောင်းအရင်းများကို ဖော်ပြပါ။

Qualitative	
၄.၂။	မိမိကိုယ်တိုင် ပါဝင်ထောက်ခံ/ပါဝင်ချင်ပါသလား။  ပါဝင်ချင်ပါက -----  မပါဝင်ချင်ပါက -----
၄.၃။	လူထုအခြေပြု၊ အစိုးရအဖွဲ့အစည်း၊ တတိယအဖွဲ့အစည်း စောင့်ကြည့်မှုတွေထဲမှာ မည်သည့်စောင့်ကြည့်မှုကို ပိုလိုအပ်ပါသလဲ။ အကြောင်းအရင်းကို ဖော်ပြပါ။

**Quantitative**

၄.၄။ ကန်ညစ်ညမ်းမှုစောင့်ကြည့်ရေးကော်မတီတစ်ခု လိုအပ်သည်ဟုထင်ပါသလား။

- လိုပါသည်
- မလိုပါ

၄.၅။ ကန်ညစ်ညမ်းမှုစောင့်ကြည့်ရန် မည်သည်က အကောင်းဆုံးစောင့်ကြည့်မှုနည်းလမ်းဖြစ်ပါသနည်း။

- လူထုအခြေပြုစောင့်ကြည့်ခြင်း
- အစိုးရအခြေပြုစောင့်ကြည့်ခြင်း
- တတိယပါတီ(သို့)ကျွမ်းကျင်ပညာရှင်များ
- အထက်ပါအားလုံး
- အခြား

၄.၆။ ၎င်းကော်မတီတွင် ပါဝင်ထောက်ခံပါမည်လား။

- ပါဝင်ပါမည်
- မပါဝင်ပါ

**(၅) ကာကွယ်ရေးနှင့် အကြိုတင်သတိပေးစနစ်**

Qualitative	
၅.၁။	မိမိနေရာမှာဖြစ်ဖူးတဲ့ သဘာဝဘေးအန္တရာယ်တွေ ပတ်သက်ပြီး မိမိအတွေ့အကြုံကို ပြောပြပေးပါ။

Qualitative	
၅.၂။	မိမိကျေးရွာတွင် ဘေးအန္တရာယ်တွေကာကွယ်ဖို့ ဘယ်လိုပြင်ဆင်မှုတွေ လိုတယ်လို့ထင်ပါသလဲ။
၅.၃။	အရေးပေါ်သတိပေးရာမှာ လူထုအတွက် အကျိုးရှိဆုံး နည်းလမ်းက ဘာလို့ထင်လဲ။

**Quantitative**

၅.၄။ မိမိကျေးရွာ၌ ရေကြီး၊ မြေပြို စသည့် ကြုံဖူးပါသလား? (အမှန်ခြစ်ရန်)

- ကြုံဖူးသည်
- မကြုံဖူးပါ

၅.၅။ ကြုံဖူးပါက ဘယ်နှစ်ကြိမ် ကြုံဖူးပါလဲ။

၅.၆။ မိမိကျေးရွာတွင် ဘေးအန္တရာယ်ကာကွယ်ရေးနှင့် အကြိုသတိပေးစနစ် ရှိပါသလား။

- ရှိပါသည်
- မရှိသေးပါ

၅.၇။ မိမိကျေးရွာတွင် ဘေးအန္တရာယ် ကာကွယ်ရေးနှင့် အကြိုသတိပေးစနစ် ရှိသင့်သည်ဟု ထင်ပါသလား။

- ရှိသင့်သည်
- မလိုအပ်ပါ

၅.၈။ ဘေးအန္တရာယ်ကာကွယ်ရေးနှင့် အကြိုသတိပေးစနစ်သင်တန်း ဖွင့်လှစ်မည်ဆိုပါက တက်ရောက်ပါမည်လား။

- တက်ပါမည်
- မတက်ပါ
- မသေချာသေးပါ

၅.၉။ အရေးပေါ်ကိစ္စများကြုံတွေ့ပါက လူထုသို့ အသိပေးရာတွင် မည်သည့်နည်းလမ်းက သင့်တော်ပါသနည်း။

- ဖုန်း/ စာတို
- ကျေးရွာအတွင်းလိုက်လံသတိပေးခြင်း
- ရေဒီယို

- လူထုအစည်းအဝေး
- အခြား

**(၆) အဆောက်အအုံကြံ့ခိုင်ရေးနှင့် အကြံပေးဝန်ဆောင်မှု**

Qualitative	
၆.၁။	လက်ရှိအင်းလေးကန်အတွင်းရှိ အဆောက်အအုံများသည် သဘာဝဘေးဒဏ်ခံနိုင်ရည်ရှိသည်ဟု ထင်ပါသလား။အဘယ်ကြောင့်ထင်ပါသနည်း။
၆.၂။	မိမိကျေးရွာ၌ မည်သည့် အဆောက်အအုံများ အရေးကြီးဆုံး လိုအပ်နေပါသလဲ။ အကြောင်းအရင်းကို ဖော်ပြပါ။
၆.၃။	အဆောက်အအုံ တည်ဆောက်ရာတွင် ကြုံတွေ့ရသောအခက်အခဲများကိုဖော်ပြပါ။
၆.၄။	သဘာဝဘေးဒဏ်ကြံ့ခံ ခိုင်မာသောအဆောက်အအုံများ တည်ဆောက်နိုင်ရန်ကျွမ်းကျင်ပညာရှင်များနှင့် ပူးပေါင်းကူညီချင်ပါသလား? မိမိအမြင်ကိုဆွေးနွေးပါ။

၆.၅။ အင်းလေးကန်အတွင်း သဘာဝဘေးဒဏ်ခံနိုင်ရည်ရှိသော အဆောက်အအုံများ ဆောက်လုပ်ရန် လိုအပ်ချက်များ ရှိပါသလား။

- ရှိပါသည်
- မရှိပါ

၆.၆။ လိုအပ်ပါက မည်သည့်အရေးပေါ်အဆောက်အအုံမျိုး လိုအပ်ပါသနည်း။

- လူနေအိမ်
- ကျောင်း
- ဆေးပေးခန်း
- ဘုန်းတော်ကြီးကျောင်း

အခြား (ရေပေါ်အဆောက်အအုံ)

၆.၇။ အင်းလေးကန်အတွင်း အဆောက်အအုံ တည်ဆောက်ရာတွင် ကြုံတွေ့ရသောအခက်အခဲများကိုဖော်ပြပါ။

- ငွေကြေးအခက်အခဲ
- လမ်းပမ်းဆက်သွယ်ရေး
- နည်းပညာအခက်အခဲ
- အခြား

၆.၈။ ကျွမ်းကျင်ပညာရှင်များနှင့် ပူးပေါင်းပါမည်လား။

- ပူးပေါင်းပါမည်
- မပူးပေါင်းပါ
- မသေချာသေးပါ

**(၇) အကြံပြုချက်**

၇.၁။ အင်းလေးကန်ကာကွယ်ထိန်းသိမ်းမှုအတွက် အခြားအကြံပြုချက်များ

-----

-----

**The report is available via this QR code.**



Please download the report from any one of the following links.

<https://tinyurl.com/inlepostdisaster>

<https://tinyurl.com/inlepostdisaster1>