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people and skills for disaster relief

Myanmar Earthquake Response

INITIAL LEARNING NEEDS ANALYSIS

Date: December 2025

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LIST OF ACRONYMS

Acronym	Meaning
ATC-20	Applied Technology Council guideline for post-earthquake building evaluation
CHS	Core Humanitarian Standard on Quality and Accountability
CCCM	Camp Coordination and Camp Management
GEER	Global Earthquake Engineering Reconnaissance
HBDA	Household and Building Damage Assessment
HLP	Housing, Land and Property (rights and tenure issues)
IFRC	International Federation of Red Cross and Red Crescent Societies
INGO	International Non-Governmental Organisation
JICA	Japan International Cooperation Agency
KII	Key Informant Interview
LNA	Learning Needs Assessment
Mw	Moment Magnitude (earthquake magnitude scale)
NFI	Non-Food Items
RC	Reinforced Concrete
UN	United Nations
UNDP	United Nations Development Programme
UN-Habitat	United Nations Human Settlements Programme
VPN	Virtual Private Network

EXECUTIVE SUMMARY

In March 2025, a major earthquake struck central Myanmar causing extensive damage to housing and community infrastructure. The impact of the earthquake compounded existing vulnerabilities and amongst many other impacts overwhelmed local technical capacity to undertake rapid damage assessment and repairs.

Against the above backdrop, RedR UK commissioned this Initial Learning Needs Assessment (LNA) to explore training needs for post-earthquake Damage Assessment and Repair in Myanmar. Given the complexity of the operating environment, limited funds, and the early stage of potential training development, this initial assessment is a qualitative, exploratory assessment, rather than the more detailed survey-based LNAs that RedR is well known for.

The assessment was based primarily on semi-structured key informant interviews conducted with more than twenty individuals directly involved in the Myanmar earthquake response. Interviewees included both national and international, technical and non-technical staff from a broad range of organisations and backgrounds. A limited desk-based review of tools and guidance as referenced by interviewees was undertaken in parallel. *This was followed by a **Co-Creation Workshop** as recommended in the initial draft version of this report, that still makes up the body of the LNA below.* Although not statistically representative, the LNA found a strong convergence on several key findings as outlined below.

An initial rapid damage assessment tool based on ATC-20, *has been translated into local language which is now* widely used and considered essential for rapid accessibility decisions, *a range of trainings have now been developed by individual agencies, though these are not yet well sycncronised nor based on common agreed messaging.* This *remains* particularly problematic given the diverse range of building typologies that exist across the affected area and the history of poor building code enforcement. As a result, *many* practitioners *still* lack confidence when advising households on whether buildings can be safely reoccupied and incrementally repaired or require more substantial intervention.

High demand has resulted in significant shortage in skilled technical personnel at all levels in the construction industry, from undertaking assessment, designing repair solutions and safely implementing, demolition, repairs and reconstruction. While a number of highly capable Myanmar engineers, architects and specialists are active in the response, their numbers are insufficient to meet demand, resulting in critical decisions being made by underqualified workers, leaving many rightly concerned about the quality and resilience of ongoing recovery efforts.

The feasibility of repair solutions is significantly constrained by degraded material supply chains, price inflation, variability of access to and quality of many building materials. These realities underscore the importance of training that is grounded in real-world constraints rather than idealised specifications. Interviewees also raised fears about the potential impact of uncoordinated and fragmented technical messaging which may undermine confidence and safety.

Taken together, these findings indicate a clear and shared need/demand for capacity strengthening on damage assessment and repair that is practical, contextually grounded, and accessible to a broad range of actors. As such the assessment concludes that **training initiatives** should:

- Be pragmatic and iterative, explicitly recognising the very real human resource scarcity and material constraints in Myanmar.
- Garner and share local best practice along with international experience and expertise.
- Be based on commonly agreed messaging
- *Include specific sessions on the 3-4 main* building typologies in Myanmar.
- *Prioritise* habitability and repairability,

- *Focus on* support to self-recovery and incremental risk reduction rather than introducing unaffordable external solutions.
- Support and promote *more consistent and coordinated common* technical decision-making,

Two specific training needs were identified:

- ***Enhanced Technical Training for Engineers;*** *specifically on incremental retrofit technology. This request noted that Myanmar's Engineering community has very limited experience of Earthquake related Repairs and Retrofits and have limited access to international expertise. A number of workshop participants noted that this was a very niche request and was unlikely to significantly address current needs but rather would provide valuable professional development opportunities to Myanmar's Disaster Engineering community.*
- ***Hands-On, Face-to-Face training on Repairs and Retrofits for carpenters, masons and households****;*
  This request recognizes the high levels of remaining outstanding self-recovery and training needs.

Participants of the Co-Creation Workshop also provided valuable feedback on the potential of a shared In addition, a ***Damage Assessment Methodology Document/Tool*** *in this context should:*

- ***Be as visual as possible;*** *including simple clear images that better clarify damage levels*
- *Include a* ***decision making flow chart,*** *that also addressed differing building typologies*
- ***Engage multiple actors in it's design,*** *(particular the cluster) to ensure ownership and relevance to all actors.*
- ***Address both the immediate contextual needs*** *of Myanmar and ideally have* ***global relevance***

1 INTRODUCTION

1.1 BACKGROUND

On the 28th of March 2025, a major earthquake of magnitude Mw 7.7–7.9 struck the Sagaing Region of central Myanmar. The epicentre was close to Mandalay, the country's second-largest city, resulting in extensive loss of life and widespread damage to housing and community infrastructure across both urban and rural areas. More than 5,000 fatalities were reported, with an estimated 150,000 buildings (ReleifWeb, 2025) damaged or destroyed across a geographically and typologically diverse impact zone. The affected area is historically prone to seismic activity, located at the junction of the Indian and Eurasian tectonic plates along the Sagaing Fault, a major right-lateral strike-slip fault that runs north-south through the central part of the country. The complex interaction of these plates has been responsible for several significant earthquakes in Myanmar's history, including notably the 1930 Bago earthquake (M 7.3) and the 2011 Tarlay earthquake (M 6.8), both of which also caused substantial damage and loss of life.

The impact of the 2025 earthquake was significant across a broad area along the faultline, affecting a number of dense urban centres as well as rural and peri-urban settlements. The impact of the earthquake built upon already heightened vulnerability due to protracted conflict, displacement, economic hardship, and limited access to formal services. Underlying challenges in supply and coordination of humanitarian assistance in Myanmar has meant that reliable data on exact levels of damage and common causes of building failure by typology remains limited and unreliable.

The building stock is known to vary greatly across the affected area including low mass timber and bamboo houses in more rural areas, remnant traditional colonial brick construction particularly the south and in heritage buildings, newer masonry infilled timber frame construction known as brick-nogging, through to confined masonry and multistory reinforced concrete buildings in denser urban areas. Construction quality was also known to vary greatly with poor enforcement of building codes endemic across the country, and both limited and variable quality of building materials due to trade embargos and other restrictions. Initial discussions with humanitarian and development actors mobilised in response to the earthquake highlighted that amongst many other challenges, demand for local technical expertise far exceeded available capacity, resulting in delays, inconsistent advice, and heavy reliance on a small number of overstretched specialists.

While initial discussions with donors highlighted some limited funds to support training, they also noted the hope that the Myanmar response could be used to identify and develop methodologies that could be used more globally. Such an approach would support the ongoing efforts of the Global Shelter Cluster and others to improve global standards and enhance rapidly deployable tools for Damage Assessment and Repairs. Ideally promoting more rapid return and self-recovery to reduce prolonged displacement and the need for expensive transitional shelter interventions.

It was against this backdrop that RedR UK initiated this consultancy to explore the feasibility and design of training related to Damage Assessment and Repairs for low-rise timber and masonry structures in Myanmar. Early scoping indicated that a conventional, survey-driven Learning Needs Assessment would not be appropriate as a first step, given access constraints, the evolving recovery context, and the need first to better establish shared priorities and needs.

This Initial Learning Needs Assessment is intended as a diagnostic and framing exercise. It seeks to identify areas of convergence, highlight key gaps, and provide a credible basis for structured stakeholder engagement. Its primary function is to inform a participatory next phase in which exact learning needs, target audiences, and training approaches can be further validated and refined, to better guide training development and deployment.

1.2 METHODOLOGY

The Initial Learning Needs Assessment was conducted as a qualitative, exploratory exercise, designed to establish whether a shared and credible need existed for training in Damage Assessment and repair, and to identify indicative learning priorities, audiences, and delivery considerations. Given the limited access and difficult operating environment in Myanmar, a conventional, survey-based Learning Needs Assessment was not considered appropriate. The methodology therefore prioritised qualitative rather than quantitative analysis.

1.2.1 Information collection approach

The assessment relied primarily on Semi-structured Key Informant Interviews and a Desk Review of documents as recommended by those interviewees.

1.2.2 Key Informant Interviews

Semi-structured Key Informant Interviews (KIIs) were conducted with 19 key individuals involved in the Myanmar earthquake response. Given the technical nature of the project this specifically included both individuals involved directly in the implementation and coordination of the response as well as those directly or indirectly providing technical and strategic support. Key informants were selected through purposive sampling, drawing on existing professional networks and iterative referrals from initial interviewees.

Selection criteria prioritised individuals who:

- were actively engaged in shelter, housing, early recovery, or Damage Assessment in Myanmar;
- held technical expertise in engineering, construction, or building performance; and/or
- occupied coordination, advisory, or training-related roles with influence over recovery practice.

Interviews were conducted remotely using a range of communication platforms, including Teams, Zoom, Google Meet, WhatsApp, and Viber. The use of multiple platforms reflected variable internet connectivity, access restrictions, and individual preferences. In several cases, interviews were supplemented by follow-up calls or extended message exchanges to clarify technical issues or contextual details. Interview questions were open-ended and focused on:

- respondents observations on damage patterns and common failure mechanisms;
- current assessment and repair practices, including limitations of existing tools;
- availability and capacity of technical human resources;
- perceived gaps in skills, guidance, and coordination;
- experience and knowledge of existing or planned training initiatives; and
- views on feasible and appropriate training approaches within current constraints.

1.2.3 Desk-based review

A limited desk-based review was undertaken in parallel with interviews. Given Myanmar's limited access, limited building code enforcement, diverse building typologies, this component focused on:

- tools and guidance currently in use or referenced by interviewees (including assessment frameworks and training materials);
- examples of post-disaster repair and risk-reduction approaches from comparable contexts; and
- documentation related to ongoing or planned initiatives identified during interviews.

A secondary reason for this approach was the fragmented availability of documentation in English combined with security, logistics and language barriers restricting access to local language materials.

1.2.4 Co-Creation Workshop

A co-creation workshop was held after the KIIs and Desk Review to present findings, and collect additional qualitative data. Participants included actors actively engaged in damage assessment

and in repairs and retrofit training within the ongoing response. The workshop brought together over 40 key stakeholders representing more than ten organisations. It was conducted remotely, using a range of digital facilitation tools including Zoom digital whiteboards and Mentimeter to maximise participant engagement, interaction, and opportunities for structured and open-ended feedback.

1.2.5 Analysis and synthesis

Interview notes and supporting materials were reviewed iteratively to identify recurring themes, areas of convergence, and points of divergence across respondents as well as to guide further inquiry. The analysis focused on identifying issues that were raised by multiple interviewees across different organisations and roles. Particular attention was given to:

- distinguishing immediate life-safety assessment needs from longer-term habitability and repair considerations;
- identifying systemic constraints, including human resource and material supply issues;
- understanding risks associated with uncoordinated or conflicting technical advice; and
- assessing how contextual factors may shape the feasibility, design and delivery of trainings.

Where interviewees referred to quantitative experience, such as; the proportions of repairable buildings, relative performance of building typologies, or material price increases in their project, these references were treated as supporting signals rather than as formal data points.

1.2.6 Scope and intentional exclusions

Interviews for this Initial LNA did not seek to collect detailed information on:

- individual learning availability or schedules;
- preferred times of day or week for training;
- years of professional experience or skill level of potential participants; or
- or any other statistical representation of learning preferences.

While these elements are commonly included in LNAs, they were intentionally deferred to be further addressed once the broader scope, audience, and purpose of trainings had been further clarified.

1.2.7 Intended use of findings and next methodological steps

The findings presented in this report are intended to:

- inform RedR UK's internal decision-making regarding the relevance and potential scope of proposed trainings;
- provide a transparent and credible basis for identifying and engaging key stakeholders both in current and future dialogue on training needs;
- build towards a standardised methodology for improved assessments and repairs in future responses.

1.3 KII PROFILES

The primary basis for this Initial Learning Needs Assessment was a series of **Key Informant Interviews,** conducted between Mid-September and Mid-December 2025. Key informants were selected for their direct involvement or supporting role in the ongoing Myanmar earthquake response, as well as for their technical expertise in post disaster Damage Assessment, Emergency and Transitional Shelter Response, and Repairs and Reconstruction. The objective was to capture informed perspectives across relevant roles and disciplines, regarding damage assessment, repairs, and related training needs to improve both for the current and future responses in Myanmar.

Key Informants included more than twenty individuals from a range of organisations including from:

- **United Nations** agencies, particularly those engaged in shelter coordination, early recovery, housing recovery, and policy advisory roles;
- **International non-governmental organisations**, particularly those implementing Damage Assessments, shelter repair, and recovery programmes,
- **National and International Private**

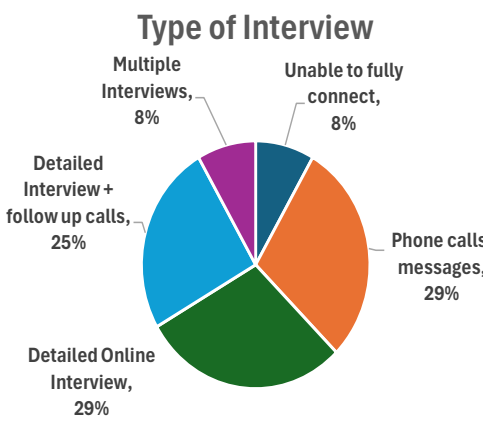

Figure 1: Respondent by Interview Method

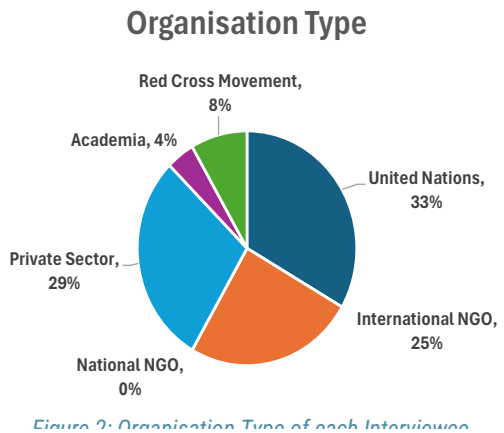

Figure 2: Organisation Type of each Interviewee

- **Sector actors,** including engineers, and architects, directly supporting the ongoing humanitarian response,
- **Private-sector and independent technical specialists**, particularly in timber, bamboo, masonry, and structural assessment; and
- **Academic and research institutions** with experience in post-disaster shelter, construction, and training.

Key informants were specifically selected to provide a fair representation of individuals both with technical and/or humanitarian backgrounds. Nearly 50% of those interviewed had extended experience/qualifications in both fields, often starting out as a technical specialist, engineer or architect, then later developing broader humanitarian skills and education, or vice versa. 30% were primarily from a technical background, with closer to 20% primarily from a humanitarian background, program managers, etc. A number has combined technical and training experience, including individuals involved in informal mentoring, "earthquake clinics", or agency-led capacity-building initiatives.

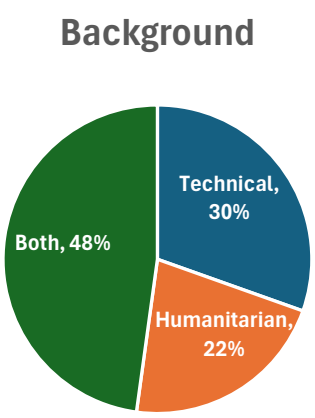

Figure 3: Primary Background

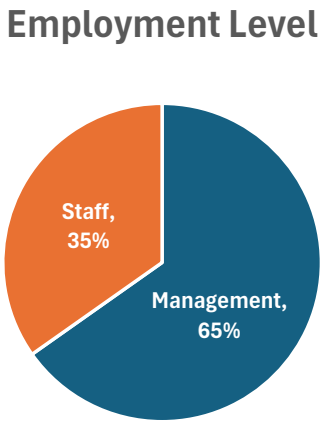

Figure 4: Level within Organisation

The high-level nature of this initial assessment, focusing on interviewing '*key informants*' meant that the majority of respondents (65%) held management positions within their respective organisations. Around 35% were mid-career practitioners commonly with current hands-on experience conducting assessments, supporting repairs, or supervising construction activities, in the ongoing response.

The majority of those interviewed, whether in management or as staff, were directly involved in the implementation of the current response (57%). While around one quarter held roles in coordination, either globally, nationally or locally, as these interviewees are tasked with representation of sectorial needs and member capacity. A further 30% were involved in technical advisory roles, either as part of local teams or as international technical advisors within their respective organisations.

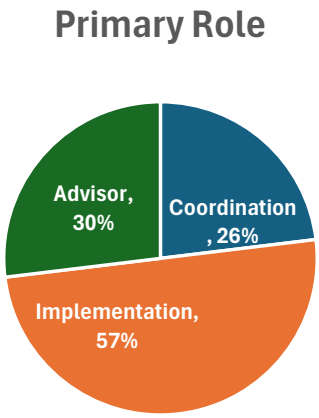

Figure 5: Primary role of those interviewed

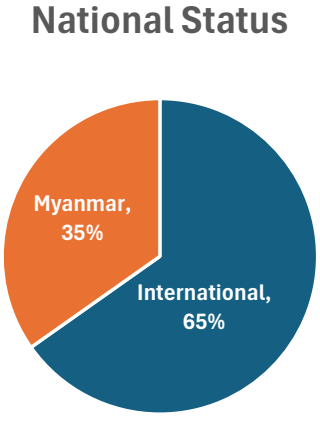

Figure 6: Percentage of National Vs International Interviews

Interviews deliberately included a mixture of both national and international actors. Language restrictions and the logistics constraints of undertaking online interviews with those responding in the field in Myanmar, limited the number of National staff interviewed. This was expected as it was one of the factors in the decision to conduct an Initial LNA based on Key Stakeholder Interviews rather than a the broader survey approach that RedR commonly uses.

The 35% of Myanmar Nationals who did respond, while at times guarded, did provide highly valuable input, in particular validating many of the very real limitations perceived by international working on the response (65%) in the response, both in terms of funding, logistic supply chains, and human resource capacity.

1.4 CO-CREATION WORKSHOP PROFILES

The majority of co-creation workshop participants came from technical backgrounds, including civil engineers, architects, and structural engineers, complemented by a smaller number of project management professionals. Inputs gathered through Mentimeter indicated a broad representation of organisations (listed below) and demonstrated strong interest in retrofitting techniques, repair decision-making, and the application of the "right tool" for Myanmar's specific context.

Participants' primary motivations for attending the workshop were to discuss appropriate retrofitting techniques, identify and apply suitable methodologies for Myanmar, and strengthen technical Damage Assessment (DA) practice. Several participants also highlighted their interest in learning from experiences in other contexts, including Nepal, the Philippines, Ukraine, and Gaza.

The co-creation workshop convened Myanmar-based responders from UN agencies NGOs with the aim of refining priority needs for a Damage Assessment (DA) and Repairs & Retrofitting (R&R) training package, as well as a practical DA methodology document or tool. Participants consistently identified two top priorities for capacity strengthening: (i) typology-based repair guidance, and (ii) a clear, context-grounded DA framework. Secondary priorities included the harmonisation of technical terminology and improved communication of technical advice for field application.

Participant Organisations:

UN Agencies

- UNHCR
- IOM / IOM–UN Migration
- UNOPS
- UNDP

NGOs

- Catholic Relief Services (CRS)
- International Committee of the Red Cross (ICRC)
- Norwegian Refugee Council (NRC)
- International Rescue Committee (IRC)
- CESVI
- Save the Children
- Relief International
- World Concern Myanmar
- 15 local NGO & private sector participants

1.5 LIMITATIONS

This Initial Learning Needs Assessment is subject to a number of limitations that should be taken into account when interpreting its findings. These limitations are not considered atypical for an early-stage humanitarian assessment and reflect both the operating environment in Myanmar and the intentionally scoped methodology adopted.

1) As planned, the assessment is primarily **qualitative in nature**, based on Key Informant Interviews rather than a structured, survey-based data collection process. As such, the findings are not statistically representative and should not be interpreted as capturing the full range of perspectives across all actors involved in shelter and housing recovery. Instead, they reflect areas of convergence identified across a group of experienced practitioners, technical specialists, and coordinators.
2) Conducting Key Informant Interviews is challenging during disaster responses as individuals key to the response are busy and therefore difficult to contact. This challenge was further exacerbated in the context of Myanmar, where physical access is both logistically, politically and financially restrictive. In addition to physical access, internet and phone access is also limited with many common communication platforms (such as Whatsapp), partially or fully restricted, with participants in many cases reliant on VPNs or dedicated office networks for reliable access to the outside world. As a result it was not always possible to fully connect with all the selected informants, with some interviews still partial or pending, and others broken into a number of smaller interviews, with ensuing calls and messages to clarify important points.
3) **Access, security, and connectivity constraints** influenced both respondent selection and interview format. Internet reliability, language barriers, visa restrictions, and political sensitivities limited opportunities for in-person engagement and may have constrained participation by some potentially relevant stakeholders, particularly those directly involved in repairs. Such as builders, tradespeople, affected households, and NGOs operating outside formal coordination structures.
4) The respondent group is weighted towards **professionalised humanitarian and technical actors**, including engineers, programme managers, and coordination staff. While these respondents frequently drew on extensive experience working with local field engineers, foremen, masons, carpenters, and affected households, it does mean the perspectives of these, the likely recipients of trainings, are to some extent mediated. This limitation is acknowledged explicitly and reinforces the importance of further engagement to broaden input and validate findings.
5) The assessment does not seek to address **structural socio-economic and legal constraints** that significantly shape recovery outcomes, as these sit largely outside the scope of training interventions. Interviewees repeatedly referenced issues related to housing, land, and property rights (HLP), household debt, income insecurity, and tenure uncertainty. While these factors strongly influence the feasibility and uptake of repair solutions, they cannot be resolved through technical training alone. The findings and recommendations of this report should therefore be understood within the limits of what capacity strengthening can realistically achieve.
6) This Initial LNA did not capture detailed information on **individual learning availability, schedules, or preferred delivery times**, nor did it quantify skill levels nor years of professional experience. These indicators are commonly included in more detailed Learning Needs Assessments but were intentionally deferred to be collected once the scope, target audiences, and objectives of any potential training programme have been better clarified.
7) Finally, the recovery context in Myanmar remains **dynamic and evolving**. Material availability, prices, access conditions, and institutional arrangements continue to change, and the findings presented here represent a snapshot based on information available during the assessment period. As such, the conclusions should be treated as time-bound and subject to review as the disaster response continues to unfold and larger recovery plans become clearer.

2 FINDINGS

These findings are drawn primarily from qualitative Key Informant Interviews, supported by limited desk-based review and a co-creation workshop. The **consistency and repetition of a number of themes across interviews** provides a strong basis for identifying existing areas of capacity strength, common capacity gaps, operational constraints, priority learning needs and indicative learning preferences and potential training design considerations

2.1 Capacity Strengths

Despite the scale of damage and the complexity and limitations of the recovery environment, interviewees identified several important strengths within the current response.

1) Interviewees highlighted a **high level of enthusiasm from local responders to learn and share experience**. Across interviews there was strong interest in practical training and peer learning, particularly where it builds on existing field experience rather than introducing rigid or externally imposed standards.

2) Another key strength lies in the **practical, experience-based knowledge** held by a number of local engineers, and architects, particularly in relation to Myanmar's vernacular construction techniques in timber, bamboo, and brick nogging. Many respondents described strong intuitive understanding of common failure mechanisms, even where this knowledge is not formally documented and verified, nor formally articulated through engineering analysis or written guidance. A number of these skilled actors indicated their enthusiasm to assist with any training development.

3) The presence of **existing coordination platforms and technical initiatives**, including shelter and early recovery coordination mechanisms, ongoing agency-led assessment and repair programmes, and "earthquake clinics" was seen by many as providing good foundations for ongoing recovery efforts. These initiatives provide valuable entry points for knowledge exchange and technical discussion, even as their reach and consistency vary. Participants in the Workshop also noted the existence of a range of ongoing trainings coordinated by the Cluster.

2.2 Capacity Gaps and Learning Needs in Damage Assessments and Repairs

1) The most consistent finding across interviews is the existence of **significant technical capacity gaps** to undertake post-earthquake damage assessment that can then define the best approach for repairs. Determining exact causes of damage and the best approach for repairs can be challenging in any disaster, but incrementally more difficult with such a diverse range of non-engineered and semi-engineered building typologies.

2) Many respondents reported that assessments had so far been primarily focused on **immediate life-safety decisions**, most commonly through a modified version of the ATC-20–based tagging systems that had been adapted by UN-Habitat prior to the earthquake. While these tools are recognised as essential for rapid access decisions, interviewees noted they provide **limited guidance on habitability, repairability, and prioritisation of ongoing repairs**. As a result, practitioners often struggle to provide advise to households beyond whether their home was currently safe to be occupied, as to what incrementally repairs were most appropriate or where more substantial interventions were needed.

3) A related and widely cited gap concerns understanding of **seismic behaviour in the range of non-engineered and hybrid structures**. Interviewees described uncertainty around load paths, failure mechanisms, and performance under earthquake loading, particularly where timber, masonry, and reinforced concrete elements are combined such as in brick nogging.

This uncertainty contributes to overly conservative or inconsistent decision-making and, in some cases, to conflicting technical advice.

4) It was also noted that while a range of international literature does exist, it was commonly seen as **impractical or inappropriate for the local context,** given the constraints of local budgets, human resources and quality of materials. Respondents emphasised that much of it is either overly technical, contextually inappropriate, or focused on full reconstruction rather than incremental and affordable repairs and risk reduction. This gap appears particularly acute for some of the more locally specific architectural forms such as brick nogging, which appears to constitute a significant (though undefined) proportion of the affected housing stock.

5) A number of those interviewed noted a **need for trainings to include some basic humanitarian concepts**, as many of these involved in the current response had little or no prior experience. This could include an introduction to the Core Humanitarian Standards CHS, Sphere Standards (particularly on Assessments and Shelter), Humanitarian Principles and the Red Cross Code of Conduct, and the need to support more incremental and diverse self-recovery efforts rather than focusing on pre-designed agency dictated solutions.

Importantly, these gaps were identified not only by engineers, but also by programme managers and coordinators, indicating that capacity constraints affect **both technical decision-making and programme design**.

2.3 Human Resource Constraints and Priority Learning Audiences

1) Beyond skills gaps, many interviewees emphasised the constraint to the response posed by **localised shortages of technical human resources**. It appears that in many areas, there are simply not enough engineers, assessors, trained supervisors or skilled construction workers to meet demand. This limits coverage, results in delays, and creates a heavy reliance on a small number of overstretched specialists. A number of interviewees noted that a lack of available technical human resource was the most significant factors delaying self-recovery.

2) As a consequence of the above technical human resource constraints, it appears many critical repair decisions are being made by **families themselves**, often without any real technical oversight. Interviewees repeatedly highlighted that execution quality, rather than design is the dominant factor influencing safety outcomes.

These observations suggest that if possible, trainings should extend beyond professional engineers to include **non-engineer practitioners who may also play a decisive role in implementation**. Based in the discussion with KII participants and desk research training skills should also include skills in communicating technical messaging to lay audiences, as if training is limited to a narrow technical audience while useful and a meaningful contribution, it is unlikely to address the practical bottlenecks that were identified for self-recovery.

2.4 Contextual Constraints Affecting Practice

Interviewees consistently stressed that technical capacity gaps must be understood within the broader recovery context.

- **Highly constrained national and international funding** wasmentioned in all interviews. While the disaster is of a significant scale and many households are in clear need of assistance due to underlying economic challenges, neither national nor international funds have been forthcoming at the scale needed. This increases the importance for trainings to be designed with simple transferable messages that are linked to the response of large actors, but designed also to support self-recovery efforts.

    1) **Unclear damage data**, was also sighted as a significant challenge by many of those interviewed. While individuals could speak on their personal experience in their particular

part of the response, none could provide a broader picture of damage level by construction typology or other indictors that would commonly be used to design trainings for repairs.

- **Unclear government and donor recovery funding and plans** were noted in both Key Informant Interviews and the Co-Creation Workshop. At the time of writing, larger scale recovery or reconstruction plans were still unclear.

2) A major constraint is the **diversity and mix of building typologies**. Incremental construction practices, informal modifications, and mixed-material systems complicate both assessment and repair, reducing the practicality of standardised or template-based solutions.

3) **Poor Material Supplies** and increasing supply chain degradation was seen by many as a significant constraint for affordable and feasible repairs. Respondents described sharp price inflation, limited availability of suitable timber, widespread use of untreated or unseasoned bamboo, low-quality imported steel, and poor concrete materials, sometimes compounded by saline water and inadequate aggregates. These realities significantly influence what repair solutions are achievable and highlight the need for training that assumes **suboptimal material conditions**.

4) Several interviewees also raised concerns about **potentially fragmented technical coordination**. In the absence of defined government led response, agreed shared frameworks or harmonised guidance, there is a very real risk that different actors will provide contradictory advice to households and communities. This makes harmonisation of any technical trainings and messaging critical.

2.5 Learning Preferences and Training Design Considerations (Indicative)

Although this Initial LNA did not collect formal quantitative data on learning preferences, interviews revealed several consistent qualitative patterns.

1) A number of respondents noted that **face-to-face learning** was seen as preferable, particularly for complex technical subjects such as damage assessment and repair. Workshop participants emphasised that hands-on trainings were particularly important for households, carpenters and masons. Where in-person training is not feasible, interviewees favoured **short, facilitated online sessions with small groups**, emphasising interaction and discussion rather than lecture-based delivery. Workshop participants noted that this format would work particularly for more advanced technical trainings engineers.

2) Course should be designed to develop alumni networks that can continue to support each other beyond the initial training.

3) **English was generally seen as acceptable** for most qualified engineers, architects, INGO and UN staff, though **technical translation** would still be needed for complex terminology, with several respondents noting that technical terminology often lacks direct equivalents and may require more careful explanation.

4) Trainings focusing on local NGO staff, masons and carpenters would need to be conducted in local language to be effective.

5) Interviewees supported the use of **participatory and practice-oriented learning approaches**, including case studies, rule-of-thumb guidance, visual tools, and co-created checklists that could be used directly in the field.

2.6 Improved Tools and Standardised Methodology

Workshop participants agreed that damage assessment needs are focused on improving tools from non-engineering backgrounds, including enumerators and assessors, to help them assess damage and determine BOQs for repairs and retrofits. Tools should address the immediate contextual needs of Myanmar, but ideally would also have global relevance.

1) Methodology tools should **be as visual as possible**, including simple clear images that better clarify damage levels.
2) A **decision-making flow chart** would be helpful to better guide how to address different building typologies.
3) The design of tools and methodologies should **engage multiple actors**, particularly the Clusters. Workshop participants emphasised that this approach will ensure ownership and relevance for all actors.

2.7 Implications of the Findings

Taken together, the findings indicate that there is a **clear and shared perception of the importance and clear need for technical training** that addresses damage assessment and repair. It was clear that this needs to be designed and delivered in a manner that is practical, contextually grounded, iterative and participatory, and accessible to a broader range of actors than engineers alone.

Trainings need to be focused on practical solutions that recognise material and human resource constraints, are well coordinated with the efforts of major responders, and prioritise pragmatic solutions for habitability, repairability, and incremental risk reduction in numerous building typologies, over any one prescriptive reconstruction model.

3 RECOMMENDATIONS

The recommendations below are derived directly from the findings of this Initial Learning Needs Assessment and are structured to support a **staged, evidence-informed approach** to future capacity strengthening. They recognise both the technical gaps identified and the broader contextual constraints shaping shelter and housing recovery in Myanmar.

3.1 Initial Training Session Design

Given the identified constraints, it is recommended that the training be piloted and iteratively refined, allowing the delivery model to be adapted based on emerging feedback and contextual realities.

Initial training design should be based on:

1) Online trainings, with simultaneous translation
2) Iterative shared learning workshops
3) Conducted in three to four Training sessions, 1-3 hour blocks, spread over a week
4) Potential sessions:
    a. Introduction; Humanitarian principles and framework for our work
    b. Introduction on how to conduct a Damage Assessment
    c. Sessions on best practice in Damage Assessment and Risk Resilient Repairs in most common construction typologies.
        i. Timber/Bamboo Construction
        ii. Timber Nogging Construction
        iii. Steel Reinforced Concrete
        iv. Other Typologies (unconfined masonry, steel frame)
    d. Best practice in communicating technical messaging onwards to communities
    e. Closing session; Maintaining a technical learning and support community

3.2 Grounding training concepts in real-world material and supply constraints

Trainings should explicitly assume **variable and often poor material quality** as a baseline condition, with particular focus on:

- Dealing with degraded timber, bamboo quality;
- Managing material procurement and quality control challenges,
- Understanding durability risks such as termites, moisture, and other potential building hazards,
- Compensatory detailing and workmanship practices to allow for potentially lower quality materials and craftsmanship.

3.3 Emphasis on coordination and consistency of shared technical messaging

In response to concerns about fragmented and sometimes conflicting technical advice, it is recommended that trainings explicitly aim to support **greater consistency and coherence in assessment and repair guidance** across actors. This includes sharing conceptual frameworks for habitability and repairability with other actors, agreeing on common terminology and decision thresholds; and as much as possible harmonising approaches to complement other initiatives. Such an emphasis positions the training not only as a skills-building exercise, but also as a part of a systems level **risk reduction approach**.

The diverse range of building and damage typologies that responders are dealing with and lack of existing contextually appropriate training materials, means that trainings would benefit from being run more as **interactive, iterative learning workshops**, with problems and challenges in different construction typologies shared with participants and best practice solutions collated together, then brought forward to better guide the next steps.

3.4 Development of a Methodology Document

In-line with pre-discussion with donors and cluster partners; the project should continue to develop a 'Methodology Document', to help progress best practice in designing and delivering Rapid Damage Assessment Tools and trainings. This would ideally be based on the decision tree framework recently developed by the Gaza Cluster and on learnings from the planned trainings in Myanmar. Ideally this would include such things as; how to conduct an assessment safely, appropriate tools and resources, noting each context is different but observing common best practice.

3.5 Recommendations for Further Consultation

While this initial Learning Needs Analysis has definitely validated that technical training on Damage Assessment and Repairs remains timely, and relevant, it has also identified a range of complexities in targeting trainings to ensure they are of the most benefit to the overall response. Further consultation is required to ensure RedRs training efforts are well aligned and coordinated with the emerging plans of the few remaining larger actors, and relevant and supportive to smaller actors. Preferences on exact timings, design and format of trainings could be better defined through further consultation. A few potential approaches are suggested.

1) **Continue to pursue key interviews** with a few key agencies to ensure maximum alignment of effort and coordinated common messaging across the response. Ideally this would continue to explore potential partnerships and fill in any gaps remaining related to training needs;
2) **Undertake a rapid bilingual Training Survey** through the Shelter and Early Recovery Clusters, specifically targeting potential participants and potential supporting agencies to better understand their specific needs.

4 Annexes

4.1 Annex 1: List of Key Informants

The list of key informants remains confidential due to security concerns in the current response.

4.2 Annex 2: Indicative Key Informant Questions

The following provides a list of the indicative questions used to guide the semi-structured Key Informant Interviews (KIIs) as part of this Initial Learning Needs Assessment. The questions were used flexibly and adapted to each interviewee's role, experience, and organisational context. Not all questions were appropriate nor asked in every interview, other lines of inquiry were also taken as appropriate.

Respondent Background and Role

1) Can you briefly describe your role and responsibilities in the Myanmar earthquake response?
2) What is your organisation's involvement in shelter, housing, Damage Assessment, or repairs?
3) Are you engaged in implementation, coordination, advisory, or strategic role, in-situ or remote?

Damage Patterns and Building Performance

4) Based on your experience, what are the most common building typologies in the affected areas?
5) What types of damage or failure mechanisms are you seeing most frequently?
6) Are there particular construction types or materials that performed better or worse?
7) What are the common failures you see in seismic resilient design and construction in the area?

Assessment Tools and Current Practices

8) What Damage Assessment tools or methodologies do you know that are currently being used in Myanmar?
9) How effective are these tools for informing decisions for immediate life-safety, habitability and repairs?
10) Do you see any gaps or limitations in existing assessment approaches, if so what are they?
11) Who is carrying out most assessments? Engineers, Architects, Tradespeople or non-technical people?

Repair Practices and Technical Capacity

12) What types of repairs are most commonly being undertaken, and by whom?
13) How capable do you think implementing teams are in identifying appropriate repair solutions?
14) Where do you see the greatest technical weaknesses or challenges in current repair practice?
15) Do you know of any examples of good practice or innovation that could be built upon?

Human Resource and Capacity

16) Is there sufficient capable technical human resource capacity to meet current needs?
17) In practice, who is making key technical decisions on repairs at site level?
18) If there are capacity gaps, what risks are the greatest risks that you think RedR training could address?

Training Needs and Learning Priorities

19) Do you think RedR providing training related on Damage Assessment and repairs is still needed, why?
20) Which groups would most benefit from such trainings?
21) What specific skills or knowledge areas should training prioritise or include?
22) Are there topics that are already well covered and should not be duplicated or should be included?

Coordination and Existing Initiatives

23) Are you aware of other existing or planned trainings, assessment, or capacity-building initiatives?
24) How well coordinated are technical approach/responses across different organisations?

Training Design and Delivery Considerations (Indicative)

25) What training formats do you think would be most feasible effective (face-to-face, online, hybrid)?
26) What language considerations need to be taken into account, and how best should RedR do that?
27) What other practical constraints could affect trainings (access, visas, security, time availability)?

Broader Strategic Reflections

28) From your perspective, where could technical training add the most value to the current response?
29) How could training support more consistent, safer, and more appropriate repair practices?
30) Are there opportunities for lessons from Myanmar to inform wider regional or global practice?
31) Any other issues or concerns that you would like to share, or questions you would like to ask?

4.3 Annex 3: Desk Review Documents

More than 200 documents, photos and videos were gathered as part of the desk review process. This included a significant number of working documents that were shared confidentially from key agencies or individuals involved in the response and are therefore not listed here. Many of the documents reviewed turned out to be not overly relevant to the training needs in Myanmar and are therefore also not included. The following list is of the top 20 documents most relevant and useful in compiling this Initial Learning Needs Assessment.

1) Applied Technology Council (ATC) (n.d.). *ATC-20 rapid evaluation safety assessment form*. Applied Technology Council.
2) Applied Technology Council (ATC) (n.d.). *ATC-20 detailed evaluation safety assessment form*. Applied Technology Council.
3) Arup (2023). *Review of housing damage assessment approaches: Ukraine*. Arup, United Kingdom.
4) Byun, J. (2025). *Myanmar earthquake briefing*. Technical presentation.
5) Engelbrecht, J. (2025). *GEER webinar: Myanmar earthquake observations*. Global Earthquake Engineering Reconnaissance (GEER).
6) International Federation of Red Cross and Red Crescent Societies (IFRC) (2017). *Technical note on damage assessment*. IFRC.
7) Japan International Cooperation Agency (JICA) (n.d.). *Seismic evaluation and retrofitting of existing reinforced concrete buildings in Myanmar*. JICA.
8) Opdyke, A., et al. (2018). *Household construction knowledge acquisition in humanitarian shelter projects*. Academic paper.
9) Shelter Centre (n.d.). *Assessing damage after disasters: A participatory framework and toolkit*. Shelter Centre.
10) Shelter Centre (n.d.). *Literature review for shelter after disasters*. Shelter Centre.
11) Shelter Cluster (2009). *Damage, shelter and needs assessment: Padang earthquake*. Shelter Cluster.
12) Shelter Cluster (2022). *Shelter damage and needs assessment report: Bangladesh floods*. Shelter Cluster.
13) Shelter Cluster Myanmar (2022). *Shelter and settlement terminologies*. Shelter Cluster Myanmar.
14) Shelter Cluster Myanmar (2025). *Contingency plan for shelter, NFI and CCCM national cluster*. Shelter Cluster Myanmar.
15) Shelter Cluster Myanmar (2025). *Shelter, NFI and CCCM earthquake response strategy*. Shelter Cluster Myanmar.
16) UN-Habitat (2019). *Field guide: Rapid post-disaster damage assessment – Myanmar*. UN-Habitat.
17) UN-Habitat (n.d.). *Guideline for rapid visual screening of buildings for potential seismic hazards*. UN-Habitat.
18) UN-Habitat (n.d.). *Guideline for retrofitting of rural houses in Myanmar*. UN-Habitat.
19) United Nations Development Programme (UNDP) (n.d.). *Household and building damage assessment (HBDA) overview*. UNDP.
20) World Bank (2010). *Damage, loss and needs assessment: Guidance notes*. World Bank.

4.4 Annex 4: Plain English Explanation of Terminology used in this Report

The following plan English explanations are included to ensure accessibility for readers with English as a second language

Term	Plain-language explanation
Damage Assessment	A structured process to evaluate building damage after a disaster in order to inform safety, access, repair, or demolition decisions.
Learning Needs Assessment (LNA)	A structured process used to identify skills gaps, priority knowledge areas, and training needs within a defined group.
Key Informant Interview (KII)	A qualitative interview conducted with selected individuals based on their expertise, role, or experience rather than statistical sampling.
Purposive sampling	A non-random sampling method where participants are deliberately selected because they are considered knowledgeable or relevant.
Desk-based review	Review and analysis of existing documents, tools, and guidance rather than new primary data collection.
Early recovery	Activities undertaken shortly after a disaster to restore basic services, livelihoods, and housing while longer-term recovery is planned.

Term	Plain-language explanations
Self-recovery	Recovery actions carried out directly by affected households, often with limited or no external technical or financial support.
Transitional shelter	Temporary housing intended to bridge the gap between emergency shelter and permanent housing solutions.
Life-safety assessment	An assessment focused solely on whether a building presents an immediate risk of injury or death.
Habitability	Whether a damaged building can be safely occupied, even if not fully repaired.
Repairability	Whether a damaged structure can be feasibly repaired rather than requiring demolition or full reconstruction.
Incremental Repair	A step-by-step approach to repairing buildings over time as budget allows rather than through full repair or reconstruction at once.
Incremental Risk Reduction	Progressive improvements that reduce risk without necessarily achieving full building code compliance.
Building typology	Classification of buildings based on construction materials, structural system, and construction method.
Non-engineered structures	Buildings constructed without formal engineering design, calculations, or professional supervision.
Semi-engineered structures	Buildings with some engineered elements but lacking full professional design or oversight.
Hybrid structures	Buildings that combine multiple structural systems (e.g. timber, masonry, reinforced concrete).
Load path	The route by which forces (such as earthquake loads) are transferred through a structure to the ground.
Failure mechanism	The way in which a building or structural element fails under stress (e.g. cracking, sliding, collapse).
Brick-nogging	Brick masonry infill constructed within a timber frame, common in Myanmar and seismically vulnerable if poorly detailed.
Confined masonry	Masonry walls bounded by reinforced concrete elements intended to improve seismic performance.
Unconfined masonry	Masonry walls without structural reinforcement, typically vulnerable in earthquakes.
Degraded supply chains	Disrupted systems for sourcing, producing, and delivering construction materials.
Untreated / timber or bamboo	Wood or bamboo used without proper drying or treatment, increasing risks of decay, insect damage, and poor performance.
Aggregates	Sand, gravel, or crushed stone used as a component of concrete.
Saline water concrete	Concrete mixed using salt-contaminated water, which can reduce durability and long-term strength.
Participatory training	Training approaches that actively involve participants through discussion, problem-solving, and shared learning rather than lectures.
Harmonised technical messaging	Consistent technical guidance shared across organisations to avoid contradictory advice to communities.
Codesign workshop	A facilitated session where stakeholders jointly develop tools, methods, or approaches.

4.5 Annex 5: Report from the Co-Creation Workshop and Key Findings

On Tuesday March 17th, RedR ran a half day online Co-Creation Workshop to provide additional input to this Learning Needs Assessment.

The Co-Creation Workshop was open to actors actively involved in Damage Assessment and Repairs & Retrofit Training in the ongoing response. The workshop included over 40 key participants from more than 10 organisations in the humanitarian sector and some from private sector as well. It was conducted online using a range of tools to ensure maximum opportunities for participation and feedback. Key sessions included:

1. **SESSION 1: KEY FINDINGS OF THE DRAFT LEARNING NEEDS ASSESSMENT**
    - Background on the LNA
    - Sharing of the Key Findings,
    - Detailed discussions on the relevance and accuracy of the findings
    - Capturing of areas for improvement.
2. **SESSION 2: DAMAGE ASSESSMENT METHODOLOGY DOCUMENT/TOOL**
    - Background on the call for the document/tool (both globally and locally)
    - Sharing of a range of Similar Tools
    - Discussions on the most appropriate tools for Myanmar, and what should be included.
3. **SESSION 3: TRAINING DESIGN**
    - Sharing of Existing and ongoing Training efforts
    - Discussion on what trainings are still needed and how RedR can add value
    - Discussion on potential training topics and structure

In general the co-creation workshop ratified the findings of the Draft LNA, providing valuable additional input on a number of 'context specific nuances'.

In particular workshop participants noted that:

- A range of trainings are ongoing, and loosely coordinated/noted by the cluster
- Larger recovery plans remain unclear
- Significant Recovery Needs remain unaddressed
- Resulting in significant need for ongoing training
- Technical messaging has not yet been universally agreed upon, so efforts remain fractured.
- **Training needs** are now more focused on:
    a) More advanced online Technical Training on Damage Assessment and Retrofits for Engineers, largely as professional development and preparedness.
    b) More hands-on face-to-face training for Households, Carpenters and Masons
- **Damage Assessment needs** are now more focused on:
    a) Improved tools for non-engineering background enumerators and assessors to more readily assess damage and determine BOQs for Repairs and Retrofits

These findings are now reflected in the executive summary above and will be taken forward by RedR in the ongoing design of tools and trainings to improved Damage Assessment and Repair and Retrofit in Myanmar.