

regard

rebuilding after displacement

Output 4

Competency Framework for Built Environment Professionals

Final Report
October 2021



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VERSION HISTORY

Version	Date	Comments
1.0	26 October 2020	First draft of competency framework based on analysis of O1-O3 reports (prior to validation interviews) - shared with Project Team for discussion
2.0	17 June 2021	Draft final report - for partners' comments
2.1	18 October 2021	Final report

IMPORTANT!

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Executive Summary

The REGARD (REbuildinG AfterR Displacement) project aims to develop competencies in rebuilding communities following disaster and conflict-induced mass displacements from the perspective of the built environment. This report reflects Intellectual Output O4 of the REGARD project in which a competency framework for Built Environment (BE) professionals to address the needs of the host and displaced communities was derived. This competency framework forms the basis for developing a series of training courses for BE professionals as well as policy recommendations to BE professional bodies for upgrading professional competencies.

The competency framework was developed in a three-step process as follows:

1. Identifying and categorising relevant BE professionals.
2. Deriving an initial competency framework by reviewing the data collected through literature reviews and interview surveys in earlier REGARD project activities to identify competencies relevant to BE professionals.
3. Refining and validating the competency framework using a Delphi technique with an international panel of 19 experts and 3 rounds of questioning.

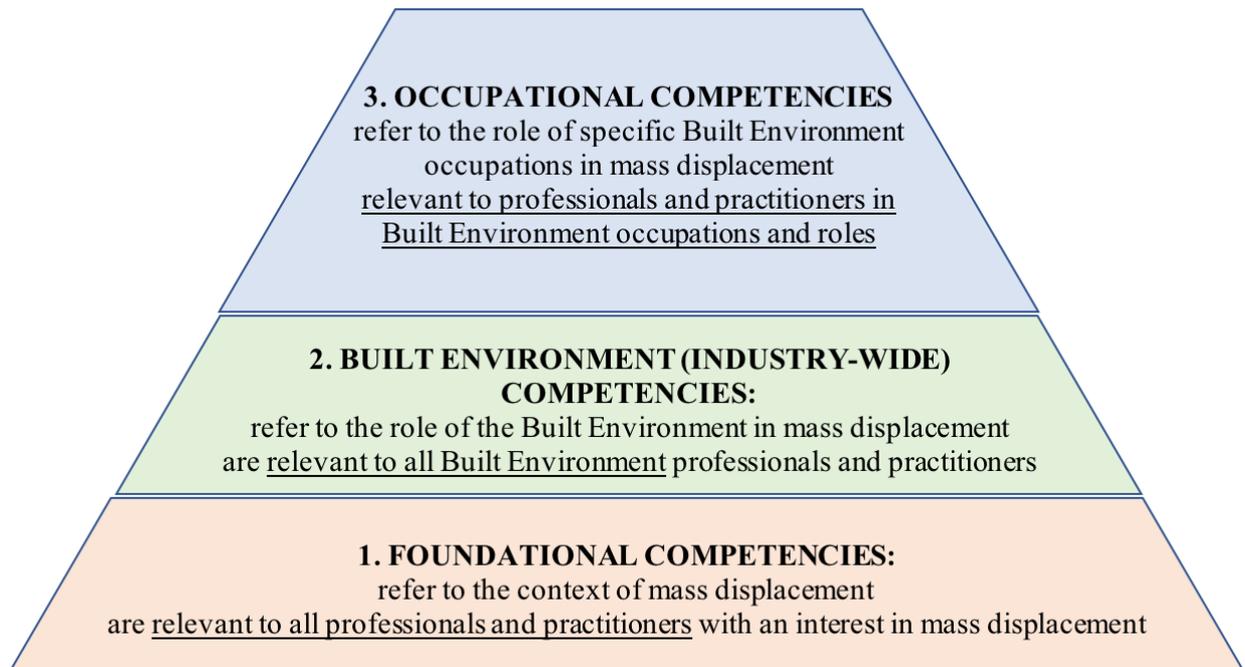
The emerging understanding of mass displacement from the perspective of BE professional competencies revealed several insights as follows:

- A significant proportion of the competencies identified were relevant to all professionals (not just BE professionals) and related to their need to understand the mass displacement context. Further competencies identified were particularly relevant to BE professionals and some were even occupation-specific in their relevance.
- Country contexts differed considerably in terms of BE professionals' involvement in mass displacement-related activities.
- BE professionals are hardly mentioned in some countries' data, but they have an important role in mitigating the effects of mass displacement and promoting social cohesion.
- That role relates to enabling displaced people's access to services through the provision of the necessary infrastructure to deliver services (e.g. housing, transport, schools, etc.) and also through the appreciation of the interrelationships that exist between these accesses (e.g. language, transport, health and employment).

Based on the findings of the desk study, an initial competency framework was derived comprising 3-tiers of competencies as follows:

1. Foundational competencies (of relevance to all professionals with an interest in mass displacement)
2. Industry-wide competencies (applicable to all BE professionals)
3. Occupational competencies (applicable to a subset of BE professionals)

The initial competency framework was then subjected to a Delphi process in which an international panel of 19 experts was questioned in 3 rounds in order to refine and validate it. The resulting, final competency framework is shown in the figure below:



REGARD Competency Framework for BE professionals

and the complete list of competencies identified may be found in the main text of the report using the shortcut below:

[Go to list of competencies in Finalised Competency Framework section of this document.](#)

The REGARD project team would like to thank all the members of the international panel of experts for their insights, efforts and patience in participating in the refinement and validation of this competency framework - its relevance and comprehensiveness have been greatly enhanced with your help.

Introduction

The REGARD (REbuildinG AfterR Displacement) project aims to develop competencies in rebuilding communities following disaster and conflict-induced mass displacements from the perspective of the built environment. Its objectives are to:

- Identify the needs of the communities following disaster and conflict-induced mass displacements in the perspective of the built environment.
- Investigate the role of the built environment in enhancing social cohesion between host and displaced communities.
- Explore the knowledge, skills and competencies required by the Built Environment (BE) professionals to address the needs of the host and displaced communities.
- Develop, test and implement an innovative series of training courses in catering the needs of the host and displaced communities, including relevant resources.
- Introduce new uses of ICT in education by formulating technology-enhanced learning environments and materials to facilitate teaching and learning.
- Propose policy recommendations to BE professional bodies in upgrading the professional competencies to address the needs of the host and displaced communities.

In achieving these objectives, REGARD is organised into 10 Intellectual Outputs which are related to each other in accordance with the framework shown in Figure 1:

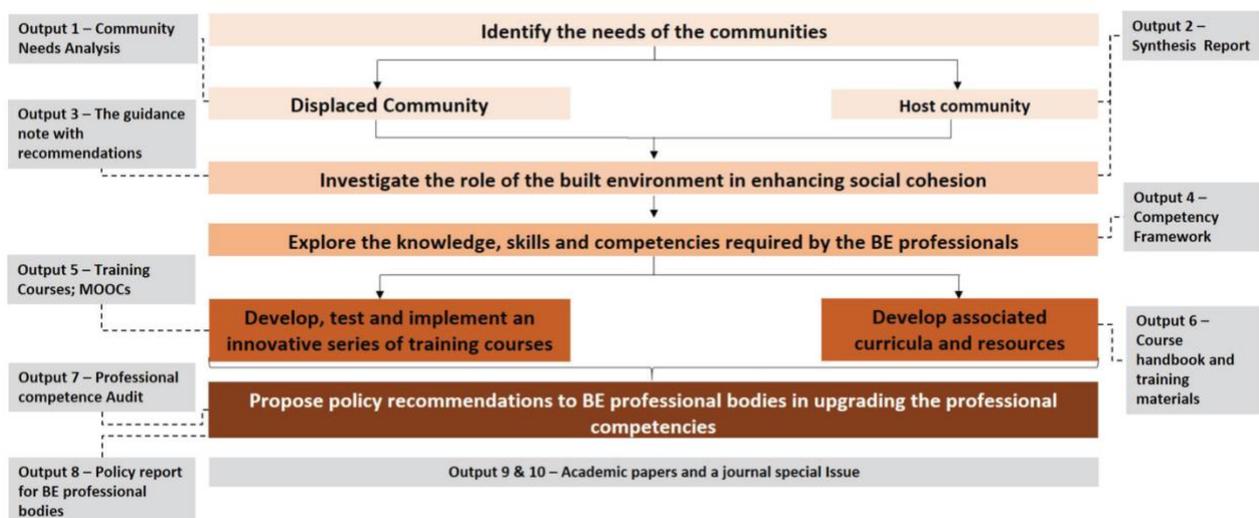


Figure 1: REGARD framework

This report is compiled in fulfilment of Intellectual Output O4 entitled "**Competency framework** for BE professionals to address the needs of the host and displaced communities". It draws on the literature reviews and interview surveys carried out under Intellectual Outputs O1 - O3 which identified and analysed (displaced and host) community needs and investigated the role of the built environment in enhancing social cohesion. The competency framework forms the basis for developing an innovative series of training courses for BE professionals catering to the needs of the host and displaced communities and for the policy recommendations to BE professional bodies for upgrading professional competencies (Intellectual Outputs O5 - O8) as shown in Figure 1.

Methodology

The competency framework was developed in a three-step process as follows:

- 1) Identifying and categorising relevant BE professionals.
- 2) Deriving an initial competency framework by reviewing the data collected through literature reviews and interview surveys reported under Intellectual Outputs O1-O3 to identify competencies relevant to BE professionals and then organizing them in the form of a competency framework.
- 3) Refining and validating the competency framework using a Delphi technique with an international panel of experts and three rounds of questioning according to the process shown in Figure 2 below:

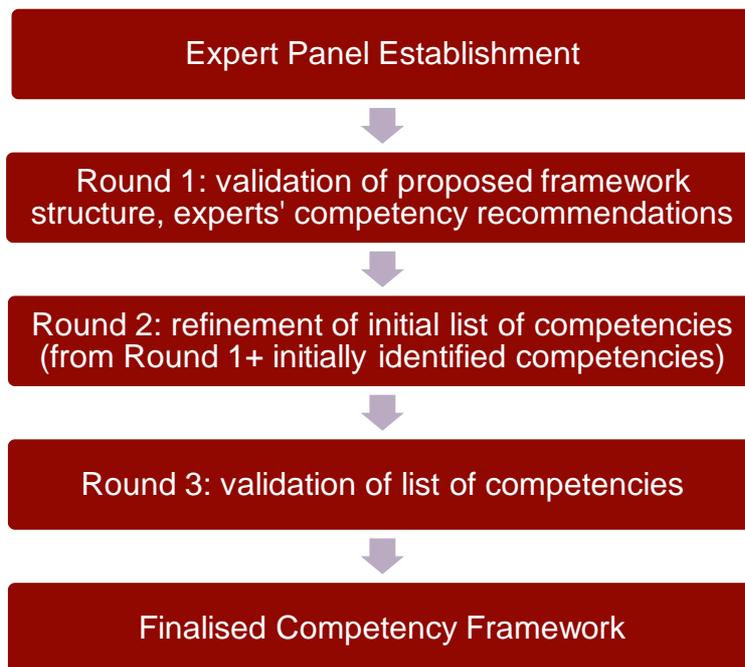


Figure 2: Competency Framework refinement and validation process (Delphi technique)

Each of these process steps is elaborated in the following sections of this report together with their associated results. Detailed response data and analyses are provided in the appendices.

Identifying Relevant Built Environment (BE) Professionals

A list of BE professionals was derived as part of Intellectual Output O2 (shown in the first two columns of Table 1) which identified the BE professional roles associated with mass displacement in the United Kingdom context. From this starting point, each project partner provided an equivalent list of BE professionals reflecting the equivalent professionals' descriptions in their country contexts. However, the logic followed in completing this table was slightly different between the countries. In the case of the UK and Estonia, a list of BE professionals who could *potentially* be involved in processes associated with mass displacement was derived. In the case of Sri Lanka and Sweden, the list rather reflects those *actually* involved in existing processes. Notably, in the case of Sweden, this hardly includes any professionals who would be described as "BE" professionals.

The results of the exercise are shown in Table 1. The main findings from this exercise may be summarised in 3 key points:

1. Country contexts differ considerably in terms of professional descriptions and involvement in mass displacement related activities.
2. The actual involvement of BE professionals currently should not be taken for granted even though the REGARD project is premised on the importance of their roles and input in ameliorating the impacts of mass displacement and promoting social cohesion.
3. The granularity/detail with which BE professionals can be classified may be varied to suit the level of detail of competency specification, i.e. different levels of detail are available for subdividing the BE professionals into convenient numbers of categories, for example:
 - into two groups:
 - i. Planning-Design, and,
 - ii. Construction-Facilities Management
 - into more than ten groups if each professional description (Town Planner, Landscape Architect, etc.) is separated.

Table 1: BE professionals (or other professions / institutions) potentially / actually engaged in mass displacement associated roles per country

United Kingdom		Sri Lanka	Estonia		Sweden	
Category	Professional		Category (subcategory)	Professional	Category	Professional
Planning	Town Planner	Town Planner	Architecture (Landscape architecture)	Spatial planner	Planning and Design	The Swedish Migration Agency Integration officers Integration administrators Integration investigators The Employment Agency Employment officers responsible for refugees' establishment programmes County Boards (responsible for coordination among municipalities) The Swedish Government (deciding on allocation of refugees)
Design	Urban Designer	Urban Designer	Architecture	Architect		
	Architect		Architecture (Landscape architecture)	Landscape Architect		
	Landscape Architect		Architecture (Interior architecture)	Interior Architect		
Engineering	Civil Engineer	Civil Engineer	Engineering (construction)	Civil Engineer in Buildings and Structures	Housing	City Planners
	Structural Engineer	Structural Engineer		Water Supply and Sewerage Engineer		Environmental Officers
	Building Services Engineer			Heating, Ventilation and Air Conditioning Engineer		Landlords and homeowners
						Asylum-seeker housing facilities personnel and administrators
Surveying	Land Surveyor	Land Surveyor	Geomatics	Land Surveyor	Health	The Regions Boards Local Health Centres

United Kingdom		Sri Lanka	Estonia		Sweden	
Category	Professional		Category (subcategory)	Professional	Category	Professional
	Quantity Surveyor	Quantity Surveyor	Engineering (construction)	Civil Engineer in Buildings and Structures	Education	SFI (for adults) – Swedish Language Courses for Foreigners Komvux (for adults) – Komvux is the equivalent to a community college Professionals working within the regular school system (for UAMs)
	Building Surveyor			Civil Engineer in Buildings and Structures		
Management	Project Manager		Engineering (construction)	Civil Engineer in Buildings and Structures	Management	Municipalities (e.g. integration coordinators)
	Construction Manager			Civil Engineer in Buildings and Structures		
	Facilities Manager		General construction	Construction Site Manager		Project Manager
			Real Estate Services	Technical Facilities Manager		Facilities Manager

Deriving an Initial Competency Framework

Reviewing Data and Reports for Competency-related Content

An initial review of the data and reports from the preceding Intellectual Outputs was undertaken to identify all content relevant to competencies. This exercise provided the analyst with an overview of the material that would subsequently be analysed in detail. In particular, it revealed that a considerable proportion of the material referred to competencies in relation to all relevant professionals needing to understand the context of mass displacement in addition to fewer, more specific, occupation-related competencies. It was also evident at this stage of analysis that the data tended to be quite general in that it had low granularity or level of detail with respect to specific competencies and that this would affect the degree to which competencies could be divided between different occupations. For example, most identifiable competencies relevant to Town Planners were equally relevant to all other occupations engaged in planning and design. This overview informed the review of existing competency frameworks and the selection of a coding structure for the detailed content analysis.

Review of Existing Competency Frameworks

To enable detailed content analysis of the community needs analysis report (O1), the report on the role of the built environment (O2) and the guidance note on best practices (O3) for identifying competencies relevant to BE professionals, a cursory review of existing competency frameworks was undertaken. Competency frameworks of some relevance were found to include the Competency Themes developed by the Chartered Institute of Builders (CIOB) (CIOB, 2018 pp.6-16), the RIBA Education and Professional Development Framework for the Royal Institute of British Architects (RIBA) (RIBA, 2020 pp.11) and the US Department of Labor Employment and Training Administration's (USDOL/ETA) Engineering Competency Model (USDOL/ETA, 2021). A version of this adapted in the Missouri Green Industry Competency Model (Missouri State Government, 2009) is shown in Figure 3 and appeared particularly suitable for a competency framework for BE professionals to address the needs of the host and displaced communities as it offered a comprehensive framework as well as a convenient, hierarchical structure of competencies.

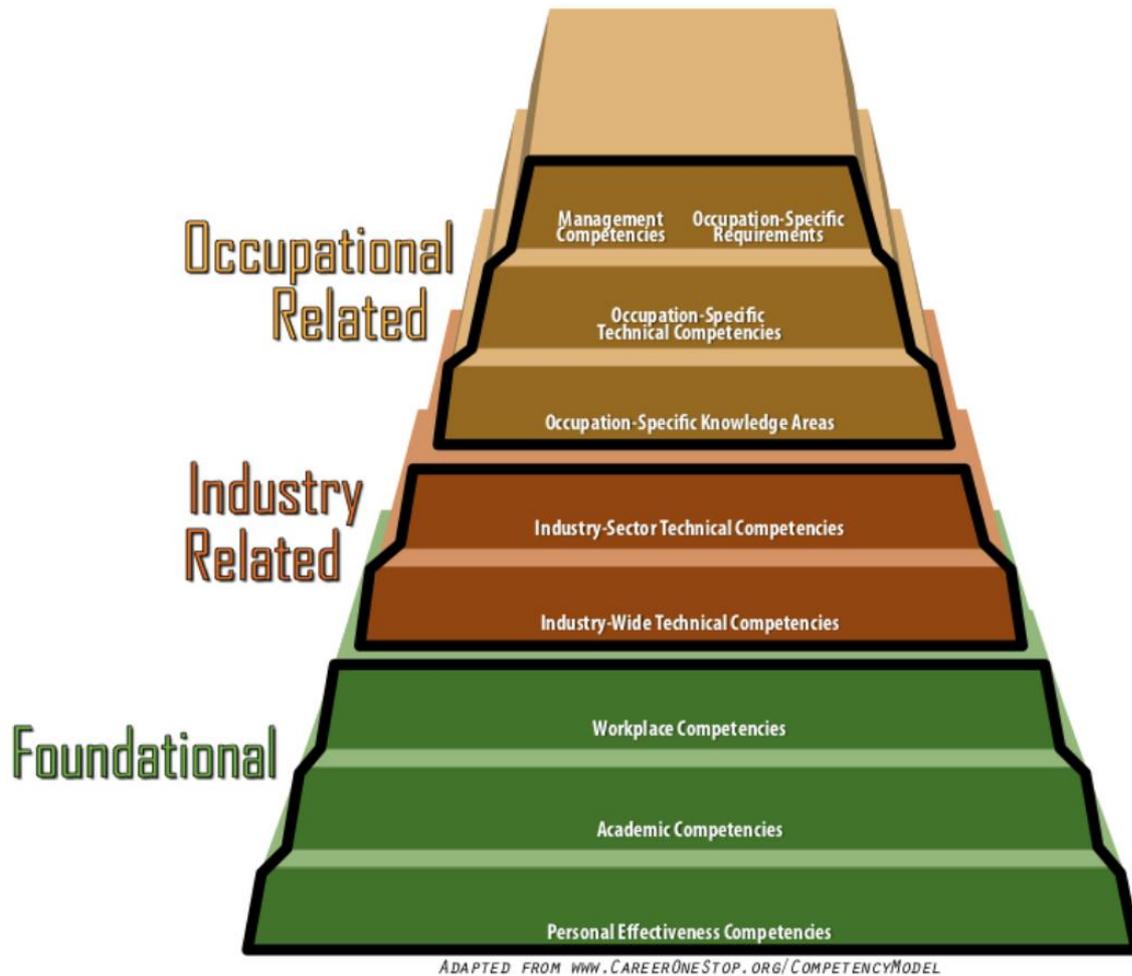


Figure 3: Adaptation of the USDOLETA Competency Model in the Missouri Green Industry Competency Model (Missouri State Government, 2009 pp.6).

Content Analysis of Output O1, O2, O3 reports data

The data collected and reported in the course of delivering REGARD project outputs O1, O2 and O3 were analysed and content relevant to competencies was coded according to emergent themes. NVivo Plus (v.12) software was used to facilitate the content analysis process. The emergent themes and subthemes were continually added to, refined, and redefined during the content analysis and coding process, resulting in Table 2 (below).

Table 2: Content Analysis Findings

Node Name	References
Competencies and knowledge areas	668
\Policy, legal and regulatory	122
\Access to housing	29
\Access to infrastructure and (derivative) services	29
\Building codes and guidelines	1
\Building permits	1
\Economics and financing of interventions	8
\Existing policy, legal, regulatory frameworks	7
\Land issues, ownership and acquisition	7
\Public and voluntary agencies	27
\Temporary and transitional housing	6
\Planning and design	126
\Appropriate housing	46
\Development plans	4
\Infrastructure and service needs	16
\Multi-hazard mapping	3
\Public spaces	12
\Relocation and resettlement	30
\Stakeholder consultation and participation	10
\Structural stability	1
\Waste management (design)	2
\Construction	22
\Employment in construction process	3
\Materials, resources, financing	3
\Procurement, contracts and project delivery	4
\Refurbishment, renovation of housing stock	8
\Operations, maintenance and FM	38
\Community (stakeholder) engagement in maintenance	1
\Housing in use	17
\Social and assisted housing	9
\Use of public spaces	5
\Waste management (operations)	3
\Client-stakeholder focus	8
\Communication	46
\Language issues	25
\Reception, orientation and information programmes	13
\Cultural awareness	3
\Disaster resilience	7
\Environmental sustainability	3
\Health, safety and security	19
\Partnerships, cooperation and teamwork	20
\Multi-stakeholder approach	6
\Professional ethics	0
\Research and data-driven decision making	16
\Identifying future needs	6
\Seeing the big picture	215
\Asylum process	3
\Contextual differences	1
\Discrimination	6
\Education and training issues	37
\Introductory overview of mass displacement and BE	18
\Labour market and employment	38
\Livelihoods	20
\Social cohesion and integration	52
\Societal impacts of mass displacement	21
\Characteristics of displaced and host communities	14
\Stakeholders' (competing) interests	5
\Vulnerable and special needs groups	23

Insights from the Content Analysis

In the course of the analysis, the emergent understanding of mass displacement from the perspective of BE professional competencies revealed three key insights in relation to the development of a competency framework as follows:

1. Built Environment (BE) professionals are hardly mentioned in some countries' data but they do appear to have a clear interest in mass displacement

Whereas BE professionals have a clearly defined role in the resettlement of Internally Displaced Persons (IDPs) and therefore directly contributed to the Sri Lankan data. Few, if any, BE professionals were identified as active participants in the refugee-related findings for Northern Europe (UK, Sweden, Estonia country data). This complicates the issue of determining which BE professionals are involved in the resettlement of displaced people and suggested the following conceptual framing with respect to BE professional competencies:

Mass displacement impacts the BE. BE professionals, therefore, need to understand these impacts. Some of them, who are actively engaged in preparing for and/or dealing with mass displacements, would benefit from specific mass displacement-related competencies. However, all BE professionals would benefit from a general, foundational understanding of mass displacement and its impacts on the BE as we expect that professionals are mobile in the course of their careers and also that, even if their current location is not experiencing the effects of mass displacements presently, it may do at some point in the future.

2. The centrality of access to services and the interrelationships between them

The findings suggest that we can understand the role of the BE in terms of access to services. Contextual differences (industrialized versus developing country contexts, the scale of displacement, etc.) influence the characteristics of the barriers to that access. For example, in developing countries and relatively large-scale displacement contexts (as in examples of IDPs in Sri Lanka), a major challenge relates to providing sufficient physical assets (housing, transport infrastructure, etc.), whereas, in Northern Europe, for the current numbers of incoming refugees, sufficient physical infrastructure largely exists and the challenge relates rather to overcoming other types of access issues - for example, having a sufficiently long-term residence permit to satisfy private sector landlords in order to access appropriate housing.

A second observation is that access to different services is highly interrelated - access to employment is tightly coupled with access to appropriate housing (both with regard to the location of the housing for employment opportunities and the income from employment for suitable housing opportunities) and with access to education and training, etc. Language (and, therefore, access to language learning opportunities) plays a key role in accessing services. Similarly, housing - its location / proximity to livelihood opportunities, affordability, etc. - tends to be of central importance not only for accessing services, but also for achieving wider goals of social cohesion and integration.

3. The granularity of data

The available data are not detailed but rather general, so it is difficult (if possible at all) to relate competencies to specific BE professional roles (e.g. Architect, Town Planner, Structural Engineer, Facilities Manager, etc.). The data provide (anecdotal) evidence of, for example, challenges faced by displaced persons in accessing appropriate housing. However, these challenges are described in general terms and are thus not readily separable into issues concerning only a single type of BE professional. Indeed, the collaborative and interdependent nature of the work of different BE professionals also suggests that there are likely to be urban planning, architectural, engineering, construction and maintenance perspectives for any given housing- or infrastructure-related challenge.

In response to this, the initial competency framework adopts the least differentiated categorisation of BE professional occupations by proposing only two groups:

1. Planning-Design, and
2. Construction-Facilities Management

However, if considerably more detail were to emerge in the refinement and validation stages of competency framework development, this categorisation could be reviewed.

Initial Competency Framework

Based on the findings and following the structure of the USDOLETA Competency Model (Figure 3), a hierarchical, competency framework is proposed comprising 3-tiers of competencies as follows:

1. Foundational competencies (of relevance to all professionals with an interest in mass displacement)
2. Industry-wide competencies (applicable to all BE professionals)
3. Occupational competencies (applicable to a subset of BE professionals)

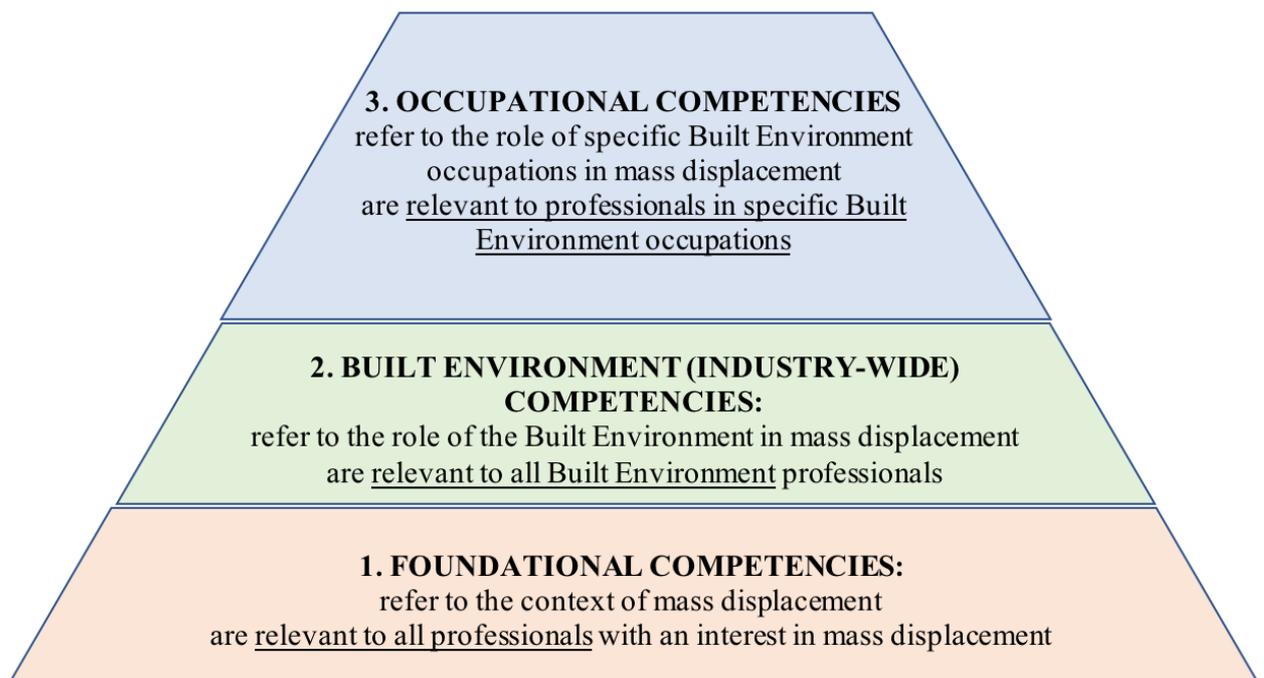


Figure 4: Initial Competency Framework structure

Tier I: Foundational Competencies - Understanding mass displacement

- Refers to the context of mass displacement
- Applicable to anyone with an interest
- Setting the stage for industry/sector-specific competencies
 - Societal impacts of mass displacement
 - Stakeholders, organisations and their characteristics
 - IDPs
 - Refugees
 - Host communities
 - Government agencies
 - NGOs and INGOs
 - Private sector organisations
 - Partnerships, cooperation and teamwork
 - Differing interests of stakeholders
 - Individuality of integration*
 - Importance of data*
 - Integration as a 2-way effort - both displaced people and hosts*
 - Long-term perspective*
 - Reception, orientation and information programmes
 - Language issues
 - Education and training
 - Employment
 - Health
 - mental health
 - dental health
 - Cultural awareness
 - Processes of mass displacement:
 - Causes and dynamics of displacement:
 - Disasters
 - Conflict
 - Climate change
 - Asylum process
 - Discrimination
 - Social cohesion and integration
 - Livelihoods

* denotes a competency relating to one of the four key findings from the Best Practice Guidance (O3) - these would be important to include as foundational competencies.

Tier II: Industry-wide Competencies - Mass displacement and the Built Environment

- Explains the role of the Built Environment
- Applicable to all Built Environment professionals
- Setting the stage for occupation-specific competencies

- Built Environment impacts of mass displacement**
- Policy, legal and regulatory frameworks
 - Building permits, codes, guidelines
- Contextual differences (e.g. industrialised versus developing countries, scales of displacement)
- Economics and financing of interventions
- Housing
 - Temporary and transitional housing
 - Importance of housing for:
 - social cohesion and integration
 - livelihoods
 - Social housing
- Public spaces
- Infrastructure and associated services
- Land issues, ownership and acquisition
- Resettlement and relocation
- Disaster resilience
- Environmental sustainability
- Vulnerable and special needs groups

** Denotes a competency that should logically be included but did not appear through the content analysis.

Tier III: Occupational Competencies:

A. Planning and Design Considerations for Mass Displacement

- Refers to knowledge areas applicable to Built Environment Professionals involved in planning and/or design
 - Development planning
 - Infrastructure and service needs:
 - Water, sanitation and hygiene (WASH)**
 - Access to basic services (health, education, banking, government services, etc.)
 - Transport
 - Energy
 - Waste management
 - Disaster resilience in planning and design
 - Multi-hazard mapping
 - Housing planning and design
 - Public spaces planning and design
 - Stakeholder consultation and participation/community engagement in planning and design
 - Structural stability
 - Client/stakeholder focus
 - Planning and design considerations for vulnerable and special needs groups

** Denotes a competency that should logically be included but did not appear through the content analysis.

B. Construction and Facilities Management Considerations for Mass Displacement

- Refers to knowledge areas applicable to Built Environment Professionals involved in construction and/or facilities management
 - Construction materials and resources
 - Construction financing
 - Procurement, contracts and project delivery
 - Housing construction:
 - Owner-driven approaches
 - Employment opportunities in construction and maintenance
 - Refurbishment and renovation of existing housing
 - Housing in use
 - Solid waste management
 - Use of public spaces
 - Stakeholder consultation and participation/community engagement in construction and maintenance
 - Construction and maintenance considerations for vulnerable and special needs groups

Refinement and Validation of the Competency Framework

As shown in Figure 2 (on page 3 of this report), a Delphi technique with an international panel of experts and three rounds of questioning was carried out to refine and validate the competency framework. Each step of this process is expanded on below section together with its results or findings.

Expert Panel Establishment

Each REGARD project partner provided a list of recommended, relevant experts to include on the panel together with basic details regarding their affiliations and expertise. In this case, relevant experts were defined as those with knowledge and experience of either or both:

- Issues pertaining to displaced people
- Competencies of Built Environment Professionals

From the partners' recommendations, an initial, proposed panel of 25 panellists (generally, 5 experts recommended by each partner) was compiled to ensure appropriate coverage of expertise. Partners were then tasked with contacting 'their' experts and obtaining the experts' consent for inclusion on the panel and also their confirmation/commitment to participate in all three rounds of questioning. 21 of these experts confirmed their willingness to participate. However, of these 21 experts, only 19 actually responded to the Round 1 questioning which included giving their formal consent to participating. Therefore, the expert panel effectively comprised 19 (confirmed, consenting and participating) experts. These experts were affiliated to organisations in 6 different countries, representing 4 different sectors (academic, government (both local and national), industry and nongovernmental organisations) and 11 different areas of expertise as shown in Table 3.

Table 3: Expert panel attributes summary

Countries	Areas of Expertise (some experts have more than one area)	Sectors
Australia (1)	Built Environment	Academic (11)
Estonia (3)	Competencies for BE professionals	Government (4)
Latvia (1)	Displacement	Industry (1)
Sri Lanka (6)	Ethnic relations	NGO / INGO (3)
Sweden (3)	Housing	
United Kingdom (5)	Integration	
	Migration	
	Refugee policy	
	Relocation	
	Urban planning and design	
	Urbanisation	

Each REGARD project partner took responsibility for communicating with 'their' experts and ensuring their timely response to each round of questioning. To ensure anonymity while still allowing experts and their responses to be tracked, each expert panellist was assigned a unique Expert Panellist Identification Code which they were requested to enter in each round's questionnaire. Communication between project partners and experts was always via email with specific, individual experts and messages were never sent to more than one expert at a time.

Round 1: validation of proposed framework structure, experts' competency recommendations

Questioning

In round 1, panel members were first informed of the purpose of their participation as well as the wider project objectives then asked to formally give their informed consent to participate. The

panellists were then introduced to the overall, proposed 3-level (I - Foundational, II - Built Environment, III - Occupational) hierarchical competency framework structure and then asked the following open-ended, exploratory questions:

- Do they have any comments on the proposed structure?
- Do they have any recommendations for revising it in any way?
- For each hierarchical level of the proposed competency framework, what competencies do they propose as being important for Built Environment professionals?

The full Round 1 questionnaire is provided in Appendix 1a.

Panel responses

19 responses (from a possible 21) were received from the expert panellists. With regard to the proposed structure of the competency framework, 79% of respondents (15 out of 19) agreed fully with it and 16% (3 / 19 responses) suggested revisions. 1 respondent (5%) indicated that they disagreed with the structure but then offered no further comments/recommendations (nor any other responses to any of the other questions). So it was unclear whether this response was made in good faith or not.

With regard to panellists' recommendations for competencies to be included within each tier of the framework, the following numbers of suggestions were made:

- Foundational Competencies: 36 suggestions
- Built Environment (industry-wide) Competencies: 34 suggestions
- Occupational (industry-wide) Competencies:
 - 10 suggestions (for unspecified occupations)
 - 12 suggestions (for architects / urban planners / Designers)
 - 6 suggestions for Engineers / Quantity Surveyors / Building surveyors / Project managers

The complete set of responses received is compiled and shown in Appendix 1b of this report.

Analysis

The overall framework structure was (slightly) revised following the comments received. The revised version is shown in Figure 5.

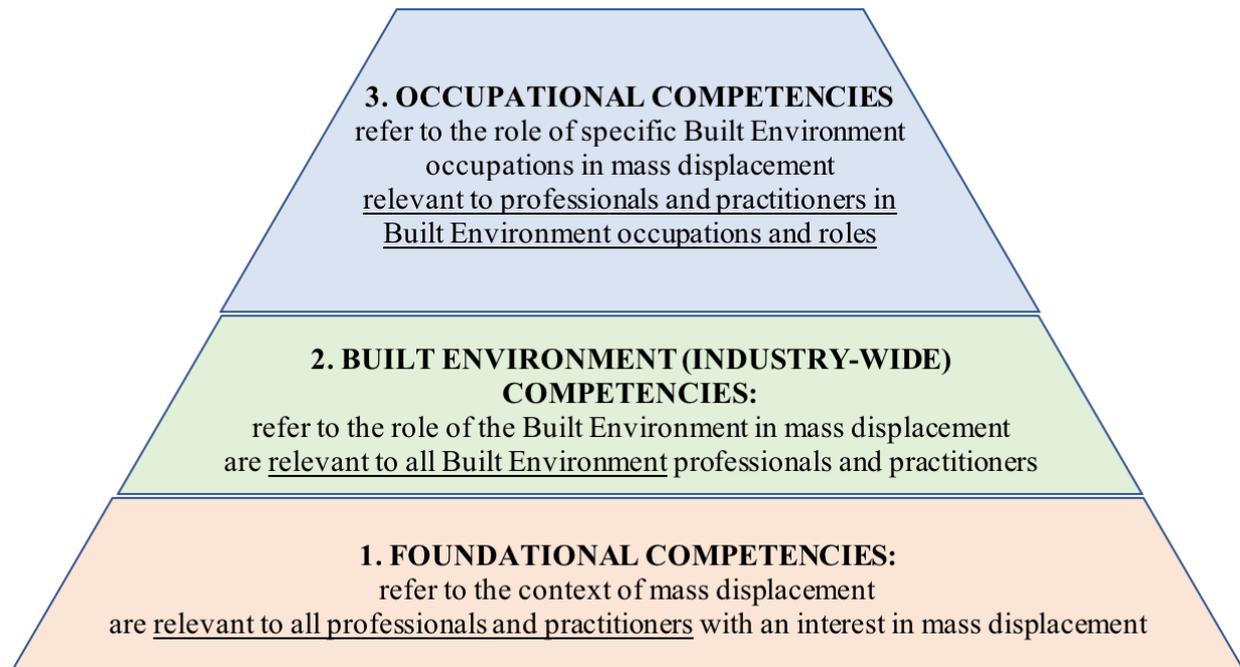


Figure 5: Revised Competency Framework structure following Round 1 responses

The competencies listed by experts were compiled and merged with those already identified from the content analysis of the Outputs O1-O3 reports (i.e. those presented as the Initial Competency Framework above) to generate a comprehensive list of competencies as shown below. (A more detailed summary of the analysis leading to this list of competencies is provided in Appendix 1c.)

Lists of competencies:

TIER 1 - Foundational Competencies

1. Causes and dynamics of mass displacement
2. Societal impacts of mass displacement
3. Legal and policy frameworks
4. Stakeholders of mass displacement and their characteristics
5. Specific challenges of mass displacement:
 - 5.1 Language issues
 - 5.2 Health issues (mental and physical)
 - 5.3 Access to education and training
 - 5.4 Livelihoods and employment
 - 5.5 Discrimination
6. Social cohesion and integration
 - 6.1 Cultural awareness
 - 6.2 Reception, orientation and information programmes
 - 6.3 Community mobilization and leadership
7. Cross-cutting issues for interventions
 - 7.1 Disaster Management and Resilience
 - 7.2 Environmental sustainability
8. Good practices - lessons learned from global cases

TIER 2 - Built Environment Competencies

1. Mass displacement and the Built Environment
 - 1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)
 - 1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, building codes, etc.)
2. Cross-cutting issues in Built Environment interventions
 - 2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)
 - 2.2 Environmental sustainability
 - 2.3 Vulnerable and special needs groups
3. Managing Built Environment interventions
 - 3.1 Economics and financing of interventions (including whole life costing)
 - 3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)
 - 3.3 Ethics and professionalism
4. Housing
 - 4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)
 - 4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)
 - 4.3 Vulnerable and special needs groups
5. Infrastructure and associated services
 - 5.1 Water, sanitation and hygiene (WASH)
 - 5.2 Access to basic services (health, education, banking, government services, etc.)
 - 5.3 Transport
 - 5.4 Energy
 - 5.5 Waste management
6. Good practices from Built Environment intervention cases

TIER 3 - Occupational Competencies

3a: Planning and Design - (for planners, architects, design engineers and all practitioners in planning- and design-related roles)

1. How planning and design can alleviate mass displacement challenges
2. The planning and design context
 - 2.1 Repair / rebuild / resettle decisions
 - 2.2 Disaster resilience (safer settlement planning, multi-hazard mapping, etc.)
 - 2.3 Disaster Management Cycle
 - 2.4 Environmental sustainability
 - 2.5 Planning and design policy, legal and regulatory framework (including building codes)
3. Planning and design considerations for infrastructure and service needs
 - 3.1 Water, sanitation and hygiene (WASH)
 - 3.2 Transport
 - 3.3 Energy
 - 3.4 Waste management
4. Housing planning and design
 - 4.1 Sociology of housing
 - 4.2 Types of housing and their specific planning and design considerations
 - 4.3 Location decisions
 - 4.4 Access to services
 - 4.5 Housing design
 - 4.6 Refurbishment of existing housing

- 4.7 Resource efficiency
- 4.8 Cultural sensitivity
- 4.9 Designing for vulnerable and special needs groups
5. Planning and design of public buildings and spaces
6. Stakeholder engagement in planning and design
7. Planning and design considerations for the construction, in use, and end of service life phases
8. New trends, technologies and good practices in planning and design for mass displacement

3b: Construction and Facilities Management - (for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all practitioners in construction and facilities management / maintenance-related roles).

1. How construction and facilities management can alleviate mass displacement challenges
2. The organisation and management of construction and maintenance in mass displacement contexts
 - 2.1 Construction materials and resources
 - 2.2 Financing of construction and maintenance
 - 2.3 Employment and livelihood opportunities in construction and maintenance
 - 2.4 Project management
 - 2.5 Procurement, contracts and project delivery
 - 2.6 Cost estimating, cost control and contract management
3. Housing construction and maintenance
 - 3.1 Approaches to housing construction (owner-driven, contractor led, etc.)
 - 3.2 Types of housing
 - 3.3 Repair / renovation / refurbishment of existing housing
 - 3.4 Management of housing in use (e.g. solid waste management, maintenance, etc.)
 - 3.5 Consideration of vulnerable and special needs groups
4. Infrastructure provision and management
5. Construction and maintenance of public buildings and spaces
6. Stakeholder engagement in construction and maintenance
7. New trends, technologies and good practices in construction and facilities management for mass displacement contexts

Round 2 questioning: refinement of the initial list of competencies

Questioning

In round 2, expert panel members were presented with the compiled list of competencies (shown above) and asked with respect to each competency should it be:

- Accepted
- Revised (either the competency description or its position within the competency framework) - please comment
- Removed - please comment

In addition, since the experts were presented with a full list of competencies for the first time, it was considered that important gaps might be apparent to some experts and therefore they were asked if any further competencies should be added to any of the levels of the competency framework.

The full Round 2 questionnaire is provided in Appendix 2a.

Panel responses

17 responses (out of a possible 19) were received.

In summary, respondents evaluated the listed competencies (in terms of their validity, description & position in framework):

- Accept (66-100%);
- Revise (0-33%);
- Remove (0-14%)

A few additional competencies were recommended in the following numbers:

- Tier 1 (1 additional competency)
- Tier 2 (3 additional competencies)
- Tier 3 (3 additional competencies each for 3a and for 3b)

The complete set of responses received is compiled and shown in Appendix 2b of this report.

Analysis

The analysis was carried out with the following procedure:

- Compiling the response data
- Identifying and setting aside the unanimously accepted competencies
- Refining the competency lists in terms of competency descriptions/positions according to comments (being careful to avoid any changes that may alienate respondents who have accepted the competencies)
- Compiling a revised competency framework indicating revisions for quick and convenient comprehension by respondents.

In all cases, the principles followed in this analysis and refinement exercise were:

- Respecting the decision of the majority of respondents
- Modifying/refining competencies (but not to the extent that it could alienate respondents who had already accepted them)

The resulting Initial Consensus Version of the competency framework was thus compiled for presentation to the panel for validation in Round 3.

The Initial Consensus Version of the competency framework is shown in Appendix 2c of this report.

Round 3 questioning: validation of the list of competencies

Questioning

In round 3, the expert panellists were asked to consider the Initial Consensus Version of the competency framework and evaluate the competencies of each tier in terms of whether they:

- were (now) acceptable
- needed further revisions (and, if so, what further revisions were needed)

Panellists were also invited to give any final comments on the competency framework.

The full Round 3 questionnaire is provided in Appendix 3a.

Panel responses

17 responses (out of an expected 17) were received. However, it should be noted that 1 panellist who responded in round 2 did not respond in round 3 and 1 panellist who had responded in round 1 but not in round 2 responded again in round 3.

Summary evaluations of the Initial Consensus Version of the competency framework by tier:

- Tier 1: Foundational Competencies (Accept: 100%; Further revisions: 0)
- Tier 2: BE Competencies (Accept: 93%; Further revisions: 7%)
- Tier 3a: Occupational Competencies - Planning & Design (Accept: 79%; Further revisions: 21%)
- Tier 3b: Occupational Competencies - Planning & Design (Accept: 92%; Further revisions: 8%)

The complete set of responses received is compiled and shown in Appendix 3b of this report.

Analysis

Analysis of the round 3 data followed the same principles and process as for round 2. A small number of revisions in terms of:

- 3 competency descriptions being elaborated
- 4 changes in the order of competencies

were made and the resulting lists of competencies were considered to reflect the final, validated version of the competency framework.

These revisions are highlighted in the final, validated version of the competency framework appearing in Appendix 3c of this report.

Finalised Competency Framework

The competencies of the final, validated version of the competency framework are as follows (the final, overall structure of the competency framework is shown in Figure 5 above):

TIER 1 - Foundational Competencies

1. Causes, contexts and dynamics of mass displacement
2. Legal, policy and institutional frameworks
3. Societal impacts of mass displacement
4. Stakeholders of mass displacement and their characteristics (displaced people, host/recipient communities, local and national government, NGOs, etc.)
5. Specific challenges of mass displacement:
 - 5.1 Language issues
 - 5.2 Health issues (mental and physical)
 - 5.3 Livelihoods and employment (including access to means, land, etc.)
 - 5.4 Access to education and training
 - 5.5 Addressing discrimination against displaced people
6. Social cohesion and integration
 - 6.1 Cultural awareness and diversity
 - 6.2 Enabling measures (including host community consultations, reception, orientation, information programmes; supporting community mobilization, etc.)
7. Cross-cutting issues for mass displacement-related interventions
 - 7.1 Resilience (disaster, climate change, etc.)
 - 7.2 Sustainable development
8. Lessons learned from (local and global) cases

TIER 2 - Built Environment Competencies

1. Mass displacement and the Built Environment
 - 1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)
 - 1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, regional and local strategies, building codes, etc.)
2. Cross-cutting issues for Built Environment interventions
 - 2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)
 - 2.2 Green and Sustainable Built Environment (including nature-based solutions)
 - 2.3 Inclusive Built Environment (including supporting vulnerable and special needs groups)
3. Managing Built Environment interventions
 - 3.1 Economics and financing of interventions (including cost-benefit analyses, whole life costing)
 - 3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)
 - 3.3 Ethics and professionalism
4. Housing
 - 4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)
 - 4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)
 - 4.3 Inclusive housing (including supporting vulnerable and special needs groups)
5. Infrastructure and associated services
 - 5.1 Water supply, sanitation and hygiene (WASH)
 - 5.2 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
 - 5.3 Transport infrastructure and services
 - 5.4 Energy infrastructure and services
 - 5.5 Waste management infrastructure and services (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
6. Lessons learned from Built Environment intervention cases

TIER 3 - Occupational Competencies

3a: Planning and Design - (for planners, architects, design engineers and all practitioners in planning- and design-related roles)

1. How planning and design can alleviate mass displacement challenges
2. The planning and design context
 - 2.1 Repair/rebuild/resettle decisions
 - 2.2 Disaster resilience (safer settlement planning, vulnerability and risk assessment, multi-hazard mapping, etc.)
 - 2.3 Disaster Management Cycle (prevention, preparedness, response, recovery)
 - 2.4 Environmental sustainability (including sustainability assessments, green design and building approaches)
 - 2.5 Planning and design policy, legal and regulatory framework (including building codes)
3. Planning and design considerations for infrastructure and service needs
 - 3.1 Water supply, sanitation and hygiene (WASH)
 - 3.2 Transport infrastructure and services
 - 3.3 Energy infrastructure and services
 - 3.4 Waste management (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
4. Housing planning and design

- 4.1 Sociology of housing
- 4.2 Types of housing and their specific planning and design considerations
- 4.3 Location decisions
- 4.4 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
- 4.5 Repair/renovation/refurbishment of existing (damaged) housing
- 4.6 Resource efficiency (including materials, labour, equipment, etc.)
- 4.7 Cultural sensitivity in housing design
- 4.8 Designing for vulnerable and special needs groups
5. Planning and design of public buildings and spaces (including for inclusivity and flexibility)
6. Stakeholder engagement in planning and design
7. Planning and design considerations for the construction, in use, and end of life phases (including whole life costing, constructability, energy efficiency, recycling of building materials, flexibility in use, etc.)
8. Lessons learned from planning and design for mass displacement cases (including new trends, technologies and practices)

3b: Construction and Facilities Management - (for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all practitioners in construction and facilities management / maintenance-related roles).

1. How construction and facilities management can alleviate mass displacement challenges (including cost, time, quality implications, etc.)
2. The organisation and management of construction and maintenance in mass displacement contexts
 - 2.1 Construction materials and resources
 - 2.2 Financing of construction and maintenance
 - 2.3 Procurement, contracts and project delivery
 - 2.4 Cost estimating, cost control and contract management
 - 2.5 Project management considerations for mass displacement construction and maintenance contexts
 - 2.6 Employment and livelihood opportunities in construction and maintenance
3. Housing construction and maintenance
 - 3.1 Approaches to housing construction (owner-driven, donor-driven, contractor led, etc.)
 - 3.2 Types of housing (e.g. emergency, temporary, permanent, etc.) and their specific construction and maintenance considerations
 - 3.3 Construction and maintenance considerations in the repair/renovation/refurbishment of existing housing
 - 3.4 Managing services to and maintenance of housing in use (e.g. solid waste management, maintenance, etc.)
 - 3.5 Consideration of vulnerable and special needs groups in housing construction and maintenance
4. Infrastructure provision and management in mass displacement contexts (e.g. challenges of short time spans, etc.)
5. Construction and maintenance of public buildings and spaces in mass displacement contexts (including for inclusivity and flexibility)
6. Stakeholder engagement in construction and maintenance (including rationale and engagement techniques)
7. Lessons learned from cases of construction and facilities management for mass displacement (including new trends, technologies and practices)

Conclusions

The emerging understanding of mass displacement from the perspective of BE professional competencies revealed several insights as follows:

- A significant proportion of the competencies identified were relevant to all professionals (not just BE professionals) and related to their need to understand the mass displacement context. Further competencies identified were particularly relevant to BE professionals and some were even occupation-specific in their relevance.
- Country contexts differed considerably in terms of BE professionals' involvement in mass displacement-related activities.
- BE professionals are hardly mentioned in some countries' data, but they have an important role in mitigating the effects of mass displacement and promoting social cohesion.
- That role relates to enabling displaced people to access services through the provision of the necessary infrastructure to deliver services (e.g. housing, transport, schools, etc.) and also through the appreciation of the interrelationships that exist between these accesses (e.g. language, transport, health and employment).

The Delphi process for the refinement and validation of the competency framework enjoyed a high level of cooperation from the panellists who were effectively communicated with and managed by the project partners. This resulted in very high response rates and responses that were meaningful and rich in data. Together with the level and range of expertise represented in the panel and the quality of data collected through interviews and literature reviews reflected in the reports analysed to derive the initial competency framework, the finalised competency framework can be seen to be rigorous in terms of its comprehensiveness and the relevance of the competencies identified.

The REGARD competency framework will now provide the basis for developing a series of training courses and policy recommendations to BE professional bodies.

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- USDOLETA (2021) US Department of Labor Employment and Training Administration's (USDOLETA) Engineering Competency Model. Website. Available at: <https://www.careeronestop.org/CompetencyModel/competency-models/pyramid-download.aspx?industry=engineering> (accessed 25 June 2021)



Appendix 1a - Round 1 Questionnaire

(Starts next page)

(Please note that the questionnaire's appearance is slightly changed in downloading it from Google forms)

REFINING AND VALIDATING THE REGARD COMPETENCY FRAMEWORK – ROUND 1

Thank you for agreeing to be a member of the expert panel to refine and validate our competency framework.

This is Round 1 of 3 rounds of questioning. In this round, we first ask you to confirm your informed consent to participate and then respond to 2 questions. We expect that this will take a total of 15 to 30 minutes of your time depending on the breadth of your expertise.

INFORMATION

We have developed a draft competency framework for rebuilding communities following disaster and conflict induced mass displacements from the perspective of the built environment. This competency framework now needs to be validated and a "Delphi method" has been adopted for this in which a series of questions are asked of an international panel of experts. You have been selected as one of these expert panelists. As an expert panelist, you are being requested to respond to 3 online questionnaires (this is the first one). Links to each of these questionnaires will be sent to you approximately 2 weeks apart and each questionnaire should take 15 to 30 minutes of your time to respond to depending on the breadth of your expertise.

This competency framework is part of a research project called REbuilding After Displacement (REGARD) which is co-funded by the EU Erasmus+ programme. The aim of the project is to develop competencies in rebuilding communities following disaster and conflict induced mass displacements from the perspective of the built environment. The project is led by the Global Disaster Resilience Centre of the University of Huddersfield, United Kingdom with partners from Estonia (Tallinn University of Technology), Sri Lanka (University of Colombo), Sweden (Lund University) and the United Kingdom (University of Central Lancashire).

All data collected will be confidential and anonymised before they are presented in any work in compliance with all applicable legal and ethical research requirements and principles. The names (and any other identifiable information) of expert panelists will not be revealed in any outcomes of the research nor to any fellow panelists.

The results of this research will be written up in project reports and academic publications and will provide a basis for a training programme. Please feel free to contact the REGARD project representative who sent you the link to this questionnaire if you have any queries about the research or if you wish to receive a copy of the resulting research reports.

* Required

PARTICIPANT CONSENT

1. Please enter your unique Expert Panelist Identification Code (this is included in the email with the link to this questionnaire). *

2. Confirmation *

Check all that apply.

Please check to confirm

I confirm that I have read and understood the information above and have had the opportunity to ask questions.

I agree to participate in this research.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

I understand that all my data and responses will be anonymised.

I give permission for members of the REGARD project research team to have access to my anonymised responses.

Question
1

The overall structure of the Competency Framework.

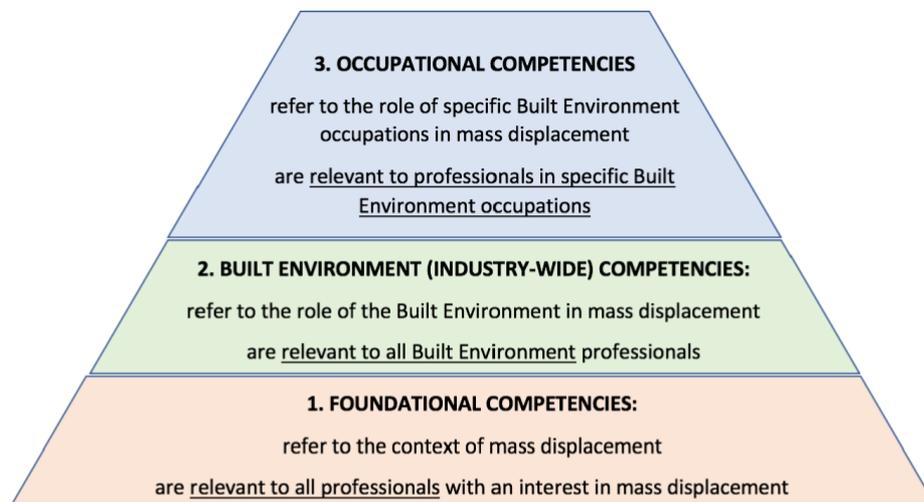
EXPLANATION OF THE PROPOSED COMPETENCY FRAMEWORK STRUCTURE

We have carried out a literature review and interviews exploring mass displacement in different countries and how mass displacement relates to the built environment. By analysing this data, we have identified competencies that would be relevant to built environment professionals (Urban Planners, Architects, Engineers, Quantity Surveyors, Construction Managers, Facilities Managers, etc.)

Our findings suggest that, in the first place, a general understanding of the context of mass displacement is desirable for all professionals who are engaged with issues of mass displacement (including built environment professionals), for example, such foundational competencies would include: "processes of mass displacement" and "societal impacts of mass displacement". Once this foundational knowledge has been acquired, there is a further set of competencies which relate to the role of the built environment in mass displacement and which is relevant to all built environment professionals, for example: "the impacts of mass displacement on the built environment". Finally, we also identified competencies that appear to be quite specific to one or more built environment occupations, for example: "housing planning and design" which is relevant to urban planners and architects.

This has led us to propose a hierarchical competency framework with 3 tiers of competencies as shown below:

Proposed Competency Framework



3. Please evaluate the proposed structure of the competency framework by selecting one of the following options: *

Mark only one oval.

- I agree with the structure of the competency framework exactly as shown.
- I generally agree with the structure of the competency framework as shown, but I would recommend some minor revisions as indicated in the further comments below.
- I do not find the structure of the competency framework as shown to be appropriate. I would recommend the following: (Please write your recommendations in the further comments space below.)

4. Further comments

Question
2

From the perspective of your own particular expertise, please suggest competencies / areas of knowledge that you consider would be important to include within each of the 3 categories of competencies:
(If you do not have suggestions for a particular category - that is no problem.)

5. Foundational Competencies (relevant to all professionals)

6. Built Environment (industry-wide) Competencies (relevant to all Built Environment professionals)

7. Occupational Competencies (relevant to one or more specific Built Environment professional occupations) - please also indicate the particular Built Environment professional occupation(s) which each competency / knowledge area you suggest relates to.

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Google Forms

Appendix 1b - Round 1 Responses

Respondent IDs	Responsible Partner
HU1, HU2, HU3, HU4	UoH
CL1, CL2, CL3, CL4	UCLAN
CO2, CO3, CO4*, CO5	UoC
LU1, LU3, LU4	Lund
TA1, TA2, TA3, TA4	TalTech
TOTAL = 19	

* It is not clear that this respondent is taking the questionnaire seriously.

(below: questions/section labels in blue text, responses in black text, analyst notes in red text)

Please evaluate the proposed structure of the competency framework:

I agree with the structure of the competency framework exactly as shown

15/19 responses = 78,9%

Further comments:

1. Why the triangle is not completed? Do you expect to put a 4th layer? - **The shape is not a triangle - no revisions required.**

I generally agree with the structure of the competency framework as shown, but I would recommend some minor revisions as indicated in the further comments below.

3/19 responses = 15,8%

Further comments:

2. Under 3rd category better to consider practitioners too. - **Practitioners to be incorporated.**
3. From the structure and description of the framework as shown in the figure the differences between the sets of competences No. 2 and No. 3 is not entirely clear. I would like you to elaborate in the figure on how do the occupational competences differ from the industry-wide competences. - **Better elaboration / clarity in Round 2.**
4. Presumably some thought has been given to what is meant by 'mass displacement' which has the potential to introduce ambiguity. For instance, there is a difference in the dynamics of displacement 'en masse' (i.e. group, sudden) as contrasted with displacement on a large scale (i.e. over time, can be accumulation of households). **(This distinction is appreciated but does not seem to alter the need for competencies, nor the competencies themselves).** Moreover, does the 'context' refer to the empirical dynamics or also to the analytical, legal and policy concepts and frameworks used to understand and respond to such processes (which may be different, for instance, for internal and cross-border movement, degrees of voluntariness in the movement etc)? **(To both). => More careful wording on figure.**

I do not find the structure of the competency framework as shown to be appropriate. I would recommend the following: (Please write your recommendations in the further comments space below.)

1/19 response = 5,3% (CO4)

Further comments:

1. **(No further comments were provided by the respondent). - No amendments to be made in response to this.**

Foundational Competencies recommendations:

- management;
- basic of statistics;
- Ability to gauge beneficiary characteristics and requirements including socio-economic issues,
- environmental competencies,
- Competencies on global priorities such as BBB
- Livelihoods,
- socio-economic vulnerabilities,
- community mobilization & leadership
- Psychological impacts (e.g. traumatic experience and the ways to deal with it) of mass displacement on the displaced individuals and groups.
- Sound knowledge about the context
- In depth knowledge of the possible challenges that bedevils the displaced in diverse context.
- what is mass influx,
- how the specific crisis management is regulated,
- who are international and national stakeholders and their role in crisis management,
- dynamics of crises triggered by the migration pressure,
- lessons learned from the hotspot practice
- The overall design of mobile shelters,
- speed of assembly.
- Efficiency of space, materials and budget.
- Disaster type itself. Conflict or Natural?
- Behavioural, social implications of displacement and how design and planning can alleviate challenges.
- An understanding of migration dynamics,
- bottle necks in response time,
- population flow research,
- post-disaster timelines,
- immediate disaster response need, and post-disaster patterns.
- Relevant laws and/ or polices relating to displacement and resettlement in the relevant setting
- Construction technology
- Managing construction projects
- Use of agile approaches in managing projects
- local and national political actors, geographers, anthropologists, sociologists, researchers,
- *Immersion and understanding of the topic and the social, economic and environmental reasons for the variety of ways in which mass displacement takes place. (Comment: Once understand the multiple reasons only then can one have empathy and understand potential solutions to the specifics of each situation.)
- Social impact of relocation,
- Cultural implications,
- Distance to the original location,
- Similarities of the communities

Comments:

- As per my answer to the previous question, there are a potentially wide range of areas of knowledge that could be relevant even just to the 'mass displacement' aspect of the context. Once you go into wider contextual factors, such as triggers for movement or remaining in place etc., this part of the programme could be very broad. I would suggest building backwards from the specific objectives of the narrower competencies to decide what is really needed from this broader foundational knowledge.

Built Environment (industry-wide) Competencies

- engineering economics;
- building physics;
- ergonomics
- Sustainable construction,
- whole-life costing,
- energy efficiency,
- waste management,
- resilient structures and building techniques,
- client care and professionalism,
- ethics,
- infrastructure management
- Physical planning,
- green or nature-based solutions,
- resilience building ,
- safer settlement planning
- The concept of emergency and transitional housing.
- Ways of dealing with pollution emerging from the absence (or lack) of utility infrastructure and congestion.
- Legal framework ,
- institutional framework,
- Financial framework and
- social framework.
- Competence in structuring and designing buildings that can be safe to inhabit while considering the sustainability and resilience factor.
- The overall design of mobile shelters, speed of assembly.
- Efficiency of space, materials and budget.
- Disaster type itself. Conflict or Natural?
- Behavioural, social implications of displacement and how design and planning can alleviate challenges.
- Construction management competencies
- Project management
- Communication
- urban planners, architects, building constructors,
- *Built environment professionals must understand the above (refers to* in foundational competencies list), and be able to define the variety of built environment solutions tailored to each specific situation, for example housing for young homeless, versus families, versus

older generation, cultural and religious differences etc, all requiring a specific solution and a stepping stones approach, emergency, to temporary to permanent accommodation. This requires an understanding of the means to navigate the specific country's processes to provide solutions in its broadest sense, i.e funding, procurement, consultation, design, delivery, review.

- Nature of the displacement,
- Need for housing and infrastructure,
- Type of accommodation required (Permanent/Temporary)

Occupational (industry-wide) Competencies

Unspecified occupations:

- cultural sensibility
- Resilient & Safer construction,
- safer settlement planning,
- infrastructure planning & community services,
- drainage & sanitation,
- livelihood support functions such as agriculture, livestock, etc.,
- Provision of services such as water, electricity, education, transportation, etc.,
- emergency preparedness and response
- global trends, new global agenda, new technology
- Each specific professional should then be able to focus on in the portion above (refers to * in foundational and BE competencies) that is most relevant to their expertise.
-

Architects / Urban planners / Designers:

- Architects / Urban Planners - the concept of resourceful shelter: the shelter, which (or whose materials) could be used to construct the permanent housing.
- To reduce the risks of mass displacement as it relates to the built environment, it is very important to sternly regulate or put to a stop the rate at which people build their houses in disaster prone areas. To achieve this, there is need to put effective and efficient land policies in place. The urban planners should see to this.
- Site specifics of location of settlement itself. Safe zones/typography/geological features.
- Logistics of getting building materials onsite.
- Resources for energy production.
- Timeline of occupancy, this affects the selection of shelter, its temporality,
- (shelter) its assembly/disassembly, materials.
- The number of units, family occupancy.
- Architects: building design, temporary accommodation design, requirement analysis, spatial awareness
- For example if architecture, they should be able to define the design codes and requirements for the built environment solutions and have the skills to advise others in the delivery of projects for each specific need of the displaced people.
- Location of the shelters (Town planners),
- House design (Architects),

Engineers:

- sociology - for housing and planning people; con-mechanics - for all engineers
- Structural needs of housing (Engineers),

Quantity surveyors:

- Quantity surveyors: estimating, cost control, contract management
- Cost of individual houses (QS)

Building surveyors:

- Building surveyors: damage assessment, building defects

Project Managers:

- Project managers: project controls, managing people, communication

Appendix 1c - Round 1 Analysis Summary

Delphi expert panellists' suggestions	Initial Competency Framework competencies	Combined (with common terminology and numbering)
TIER I - Foundational		
<ul style="list-style-type: none"> In depth knowledge of the possible challenges that bedevils the displaced in diverse context. 		5. Specific challenges of mass displacement:
<ul style="list-style-type: none"> 	Language issues	5.1 Language issues
<ul style="list-style-type: none"> Psychological impacts (e.g. traumatic experience and the ways to deal with it) of mass displacement on the displaced individuals and groups. 	Health (with breakdown): Mental Physical	5.2 Health issues (mental and physical)
<ul style="list-style-type: none"> 	Education and training	5.3 Access to education and training
<ul style="list-style-type: none"> Livelihoods, 	Livelihoods	5.4 Livelihoods and employment
<ul style="list-style-type: none"> 	Employment	
<ul style="list-style-type: none"> 	Discrimination	5.5 Discrimination
<ul style="list-style-type: none"> Social impact of relocation, 	Societal impacts of mass displacement	2. Societal impacts of mass displacement
<ul style="list-style-type: none"> who are international and national stakeholders and their role in crisis management, <p>local and national political actors,</p> <ul style="list-style-type: none"> geographers, anthropologists, sociologists, researchers, Ability to gauge beneficiary characteristics and requirements including socio-economic issues, socio-economic vulnerabilities, 	Stakeholders, organisations and their characteristics (with breakdown)	4. Stakeholders of mass displacement and their characteristics
<p>social, economic and environmental reasons for the variety of ways in which mass displacement takes place.</p> <ul style="list-style-type: none"> population flow research, An understanding of migration dynamics, 	<ul style="list-style-type: none"> Processes of mass displacement: <ul style="list-style-type: none"> Causes and dynamics of displacement: <ul style="list-style-type: none"> Disasters Conflict Climate change 	1. Causes and dynamics of mass displacement

<ul style="list-style-type: none"> dynamics of crises triggered by the migration pressure, what is mass influx, Sound knowledge about the context 	<ul style="list-style-type: none"> □ Asylum process ○ 	
<ul style="list-style-type: none"> Cultural implications, Similarities of the communities 	<ul style="list-style-type: none"> Social cohesion and integration ○ 	6. Social cohesion and integration
	<ul style="list-style-type: none"> ○ Cultural awareness 	6.1 Cultural awareness
	Reception, orientation and information programmes	6.2 Reception, orientation and information programmes
<ul style="list-style-type: none"> community mobilization & leadership 		6.3 Community mobilization and leadership
<ul style="list-style-type: none"> Relevant laws and/ or policies relating to displacement and resettlement in the relevant setting how the specific crisis management is regulated, 		3. Legal and policy frameworks
		7. Cross-cutting issues
<ul style="list-style-type: none"> post-disaster timelines, immediate disaster response need, and post-disaster patterns. Disaster type itself. Conflict or Natural? 		7.1 Disaster Management and Resilience
<ul style="list-style-type: none"> environmental competencies, 		7.2 Environmental sustainability
<ul style="list-style-type: none"> lessons learned from the hotspot practice 		8. Good practices - lessons learned from global cases
	Individuality of integration	
<ul style="list-style-type: none"> basic of statistics; 	Importance of data	
	Integration as a 2-way effort - both displacees and hosts	
	Long-term perspective*	
OTHER TIERS:		

<ul style="list-style-type: none"> • Construction technology • Managing construction projects • Use of agile approaches in managing projects • Behavioural, social implications of displacement and how design and planning can alleviate challenges. • The overall design of mobile shelters, • speed of assembly. • Efficiency of space, materials and budget. • bottle necks in response time, • Distance to the original location, • Competencies on global priorities such as BBB 		
<p>NOT UNDERSTANDABLE / INADEQUATELY DEFINED:</p> <ul style="list-style-type: none"> • management; 		

Delphi expert panellists' suggestions	Initial Competency Framework competencies	Combined (with common terminology and numbering)
TIER II - Built Environment		
<p>Disaster type itself. Conflict or Natural? be able to define the variety of built environment solutions tailored to each specific situation,</p> <ul style="list-style-type: none"> • social framework. 	<ul style="list-style-type: none"> o Built Environment impacts of mass displacement** o 	1. Mass displacement and the Built Environment
<ul style="list-style-type: none"> • to navigate the specific country's processes to provide solutions in its broadest sense, i.e funding, procurement, consultation, design, delivery, review. • Nature of the displacement, 	<p>Contextual differences (e.g. industrialised versus developing countries, scales of displacement)</p> <ul style="list-style-type: none"> o 	1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)
<ul style="list-style-type: none"> • Legal framework , 	<p>Policy, legal and regulatory frameworks</p> <ul style="list-style-type: none"> <input type="checkbox"/> Building permits, codes, guidelines o Land issues, ownership and acquisition 	1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, building codes, etc.)
<ul style="list-style-type: none"> • Efficiency of space, materials and budget. 		
	<p>Resettlement and relocation</p> <ul style="list-style-type: none"> o 	
<ul style="list-style-type: none"> • Financial framework and • whole-life costing, • 	<p>Economics and financing of interventions</p> <ul style="list-style-type: none"> o 	3.1 Economics and financing of interventions (including whole life costing)
<ul style="list-style-type: none"> • Need for housing, • Type of accommodation required (Permanent/Temporary) • The concept of emergency and transitional housing. • housing for young homeless, versus families, versus older generation, cultural and religious differences etc, all requiring a specific solution and a stepping stones approach, • emergency, to temporary to permanent accommodation. 	<p>Housing</p> <ul style="list-style-type: none"> <input type="checkbox"/> Temporary and transitional housing <input type="checkbox"/> Importance of housing for: <ul style="list-style-type: none"> • social cohesion and integration • livelihoods <input type="checkbox"/> Social housing o 	<p>4. Housing</p> <p>4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)</p> <p>4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)</p> <p>4.3 Vulnerable and special needs groups</p>

	Vulnerable and special needs groups	
	Public spaces o	
<ul style="list-style-type: none"> • Need for infrastructure, 	Infrastructure and associated services o	5. Infrastructure and associated services
<ul style="list-style-type: none"> • waste management, • Ways of dealing with pollution emerging from the absence (or lack) of utility infrastructure and congestion. • 	<ul style="list-style-type: none"> • Water, sanitation and hygiene (WASH)** • Access to basic services (health, education, banking, government services, etc.) • Transport • Energy • Waste management 	5.1 Water, sanitation and hygiene (WASH) 5.2 Access to basic services (health, education, banking, government services, etc.) 5.3 Transport 5.4 Energy 5.5 Waste management
<ul style="list-style-type: none"> • Construction management competencies • Project management • Communication • 		3. Managing Built Environment interventions
<ul style="list-style-type: none"> • resilient structures and building techniques, • resilience building , • Competence in structuring and designing buildings that can be safe to inhabit while considering the resilience factor. • Competencies on global priorities such as BBB • 	Disaster resilience o	2. Cross-cutting issues in Built Environment interventions 2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)
<ul style="list-style-type: none"> • Sustainable construction, • energy efficiency, • green or nature-based solutions, • Competence in structuring and designing buildings that can be safe to inhabit while considering the sustainability factor. • 	Environmental sustainability o	2.2 Environmental sustainability
		2.3 Vulnerable and special needs groups

<ul style="list-style-type: none"> • 		
<ul style="list-style-type: none"> • client care and professionalism, • ethics, 		3.3 Ethics and professionalism
<ul style="list-style-type: none"> • institutional framework, • urban planners, architects, building constructors, 		3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)
		6. Good practices from Built Environment intervention cases
<p>OTHER TIERS:</p> <ul style="list-style-type: none"> • Physical planning, • safer settlement planning • Behavioural, social implications of displacement and how design and planning can alleviate challenges. • The overall design of mobile shelters, speed of assembly. • infrastructure management • Construction technology • Managing construction projects • Use of agile approaches in managing projects • Behavioural, social implications of displacement and how design and planning can alleviate challenges. • The overall design of mobile shelters, • speed of assembly. • Efficiency of space, materials and budget. • bottle necks in response time, • Distance to the original location, 		
<p>BEYOND SCOPE / NOT UNDERSTANDABLE / INADEQUATELY DEFINED:</p> <ul style="list-style-type: none"> • management; • engineering economics; • building physics; • ergonomics 		

Delphi expert panellists' suggestions	Initial Competency Framework competencies	Combined (with common terminology and numbering)
TIER III - Occupational		
IIIA - Planning and Design - (for planners, architects, design engineers)		
<ul style="list-style-type: none"> • Behavioural, social implications of displacement and how design and planning can alleviate challenges. • 		1. How planning and design can alleviate mass displacement challenges
<ul style="list-style-type: none"> • For example if architecture, they should be able to define the design codes and requirements for the built environment solutions • Physical planning, 	o Development planning	2. The planning and design context 2.1 Repair / rebuild / resettle decisions 2.2 Disaster resilience (safer settlement planning, multi-hazard mapping, etc.) 2.3 Disaster Management Cycle 2.4 Environmental sustainability 2.5 Planning and design policy, legal and regulatory framework (including building codes)
<ul style="list-style-type: none"> • drainage & sanitation, • Provision of services such as water, electricity, education, transportation, etc., • infrastructure planning & community services, • livelihood support functions such as agriculture, livestock, etc., • Resources for energy production. 	Infrastructure and service needs: <ul style="list-style-type: none"> <input type="checkbox"/> Water, sanitation and hygiene (WASH)** <input type="checkbox"/> Access to basic services (health, education, banking, government services, etc.) <input type="checkbox"/> Transport <input type="checkbox"/> Energy <input type="checkbox"/> Waste management 	3. Planning and design considerations for infrastructure and service needs 3.1 Water, sanitation and hygiene (WASH) 3.2 Transport 3.3 Energy 3.4 Waste management
<ul style="list-style-type: none"> • safer settlement planning • To reduce the risks of mass displacement as it relates to the built environment, it is very important to sternly regulate or put to a stop the rate at which people build their houses in disaster prone areas. To achieve this, there is need to put effective and efficient land policies in place. The urban planners should see to this. 	Disaster resilience in planning and design <ul style="list-style-type: none"> <input type="checkbox"/> Multi-hazard mapping 	

<ul style="list-style-type: none"> • Resilient & Safer construction, • safer settlement planning, • emergency preparedness and response 		
<ul style="list-style-type: none"> • Location of the shelters (Town planners), • House design (Architects), • The overall design of mobile shelters, speed of assembly. • Architects / Urban Planners - the concept of resourceful shelter: the shelter, which (or whose materials) could be used to construct the permanent housing. • Site specifics of location of settlement itself. Safe zones/typography/geological features. • Timeline of occupancy, this affects the selection of shelter, its temporality, • (shelter) its assembly/disassembly, materials. • The number of units, family occupancy. • Architects: building design, temporary accommodation design, requirement analysis, spatial awareness • sociology - for housing and planning people; • Structural needs of housing (Engineers), • speed of assembly. • Efficiency of space, materials and budget. <p>Distance to the original location,</p> <ul style="list-style-type: none"> • cultural sensibility 	<p>Housing planning and design</p> <p>Structural stability Planning and design considerations for vulnerable and special needs groups</p>	<p>4. Housing planning and design</p> <p>4.1 Sociology of housing</p> <p>4.2 Types of housing and their specific planning and design considerations</p> <p>4.3 Location decisions</p> <p>4.4 Access to services</p> <p>4.5 Housing design</p> <p>4.6 Refurbishment of existing housing</p> <p>4.7 Resource efficiency</p> <p>4.8 Cultural sensitivity</p> <p>4.9 Designing for vulnerable and special needs groups</p>
<ul style="list-style-type: none"> • Logistics of getting building materials onsite. • and have the skills to advise others in the delivery of projects for each specific need of the displaced people. • con-mechanics - for all engineers 		<p>7. Planning and design considerations for the construction, in use, and end of service life phases</p>

	Public spaces planning and design o	5. Planning and design of public buildings and spaces
	Stakeholder consultation and participation / community engagement in planning and design o Client / stakeholder focus	6. Stakeholder engagement in planning and design
<ul style="list-style-type: none"> bottle necks in response time, 		
<ul style="list-style-type: none"> global trends, new global agenda, new technology 		8. New trends, technologies and good practices in planning and design for mass displacement
<ul style="list-style-type: none"> Each specific professional should then be able to focus on in the portion above (refers to * in foundational and BE competencies) that is most relevant to their expertise. 		
IIIB - Implementation (Construction and Facilities Management)		
<ul style="list-style-type: none"> 	o	1. How construction and facilities management can alleviate mass displacement challenges
<ul style="list-style-type: none"> 	o Construction materials and resources	2. The organisation and management of construction and maintenance in mass displacement contexts 2.1 Construction materials and resources 2.2 Financing of construction and maintenance 2.3 Employment and livelihood opportunities in construction and maintenance 2.4 Project management 2.5 Procurement, contracts and project delivery 2.6 Cost estimating, cost control and contract management
	Employment opportunities in construction and maintenance	

	<ul style="list-style-type: none"> o Construction financing o 	
<ul style="list-style-type: none"> • Managing construction projects • Use of agile approaches in managing projects 	<ul style="list-style-type: none"> Procurement, contracts and project delivery o 	
	<ul style="list-style-type: none"> Housing construction: <ul style="list-style-type: none"> <input type="checkbox"/> Owner-driven approaches o 	<p>4. Housing construction and maintenance</p> <p>4.1 Approaches to housing construction (owner-driven, contractor led, etc.)</p> <p>4.2 Types of housing</p> <p>4.3 Repair / renovation / refurbishment of existing housing</p> <p>4.4 Management of housing in use (e.g. solid waste management, maintenance, etc.)</p> <p>4.5 Consideration of vulnerable and special needs groups</p>
<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> Housing in use <ul style="list-style-type: none"> <input type="checkbox"/> Solid waste management 	
<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> Construction and maintenance considerations for vulnerable and special needs groups 	
<ul style="list-style-type: none"> • Quantity surveyors: estimating, cost control, contract management • Cost of individual houses (QS) 		
	<ul style="list-style-type: none"> Refurbishment and renovation of existing housing o 	
<ul style="list-style-type: none"> • Building surveyors: <ul style="list-style-type: none"> • Building surveyors: damage assessment, building defects 		
<ul style="list-style-type: none"> • infrastructure management 		<p>5. Infrastructure provision and management</p>

	Use of public spaces o	6. Construction and maintenance of public buildings and spaces
	Stakeholder consultation and participation / community engagement in construction and maintenance	7. Stakeholder engagement in construction and maintenance
<ul style="list-style-type: none"> • Construction technology • 		8. New trends, technologies and good practices in construction and facilities management for mass displacement contexts
<ul style="list-style-type: none"> • Project Managers: <ul style="list-style-type: none"> • Project managers: project controls, managing people, communication 		
FROM OTHER TIERS: <ul style="list-style-type: none"> • 		
BEYOND SCOPE / NOT UNDERSTANDABLE / INADEQUATELY DEFINED: <ul style="list-style-type: none"> • management; • engineering economics; • building physics; • ergonomics 		

Appendix 2a - Round 2 Questionnaire

(Starts next page)

(Please note that the questionnaire's appearance is slightly changed in downloading it from Google forms)

REFINING AND VALIDATING THE REGARD COMPETENCY FRAMEWORK - ROUND 2

Thank you for participating in Round 1. Your recommendations in terms of the Competency Framework structure and also specific competencies for the various (Foundational / Built Environment / Occupational) levels of the framework have now been compiled and collated.

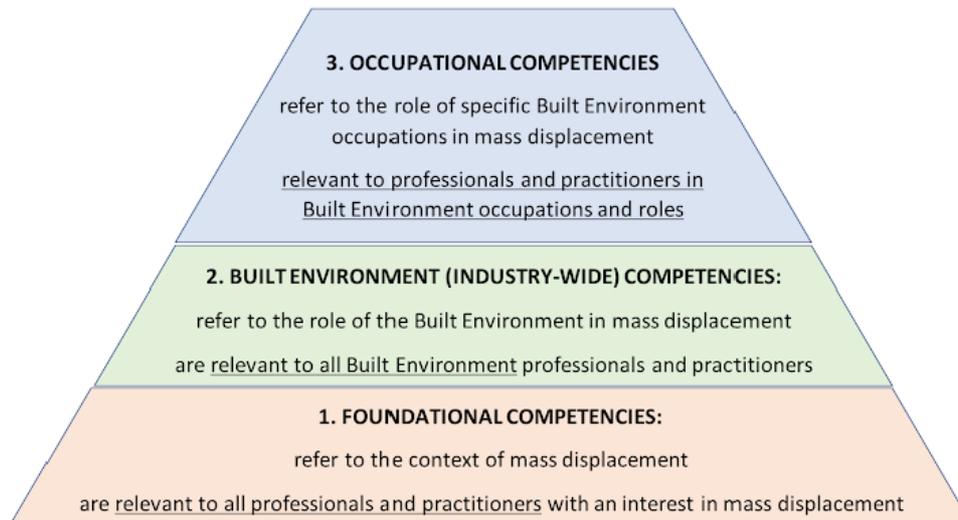
This is Round 2 of 3 rounds of questioning. In this round, we ask you to evaluate the lists of competencies that have been compiled for each tier of the competency framework. We expect that this will take a total of 15 to 30 minutes of your time depending on the breadth of your expertise.

* Required

1. Please enter your unique Expert Panelist Identification Code (this is included in the email with the link to this questionnaire). It will enable us to confirm whether you have responded. *

Competency Framework Structure

The (slightly) revised competency framework structure is shown below.



**Question 1 -
Foundational
Competencies**

Please consider the following list of Foundational Competencies (including subcategories in some cases) and evaluate each of them in terms of whether they should be accepted / revised / removed. If you suggest their revision or removal, then please also include an explanatory comment.

2. 1. Causes and dynamics of mass displacement

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

3. Further comments (if competency should be revised or removed):

4. 2. Societal impacts of mass displacement

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

5. Further comments (if competency should be revised or removed):

6. 3. Legal and policy frameworks

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

7. Further comments (if competency should be revised or removed):

8. 4. Stakeholders of mass displacement and their characteristics

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

9. Further comments (if competency should be revised or removed):

10. 5. Specific challenges of mass displacement:

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Language issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health issues (mental and physical)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to education and training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Livelihoods and employment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discrimination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Further comments (if competency should be revised or removed):

12. 6. Social cohesion and integration

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Cultural awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reception, orientation and information programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community mobilization and leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Further comments (if competency should be revised or removed):

14. 7. Cross-cutting issues for interventions

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Disaster Management and Resilience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Further comments (if competency should be revised or removed):

16. 8. Good practices - lessons learned from global cases

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

17. Further comments (if competency should be revised or removed):

18. Should any additional competencies be added to this list of Foundational Competencies? (If yes, please specify them below.)

**Question 2 -
Built
Environment
Competencies**

Please consider the following list of Built Environment Competencies (including subcategories in some cases) and evaluate each of them in terms of whether they should be accepted / revised / removed. If you suggest their revision or removal, then please also include an explanatory comment.

IF YOU DO NOT HAVE EXPERTISE IN THIS AREA, PLEASE SKIP THIS SECTION

19. 1. Mass displacement and the Built Environment

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, building codes, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Further comments (if competency should be revised or removed):

21. 2. Cross-cutting issues in Built Environment interventions

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Disaster Resilience (including multi-hazard mapping, Build Back Better)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vulnerable and special needs groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Further comments (if competency should be revised or removed):

23. 3. Managing Built Environment interventions

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Economics and financing of interventions (including whole life costing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stakeholders of Built Environment interventions (including typical institutional frameworks)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethics and professionalism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Further comments (if competency should be revised or removed):

25. 4. Housing

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The importance of housing (for social cohesion and integration, livelihoods, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vulnerable and special needs groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Further comments (if competency should be revised or removed):

27. 5. Infrastructure and associated services

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Water, sanitation and hygiene (WASH)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to basic services (health, education, banking, government services, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Further comments (if competency should be revised or removed):

29. 6. Good practices from Built Environment intervention cases

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

30. Further comments (if competency should be revised or removed):

31. Should any additional competencies be added to this list of Built Environment Competencies? (If yes, please specify them below.)

Question 3a - Occupational Competencies - Planning and Design (for planners, architects, design engineers and all practitioners in planning- and design-related roles)

Please consider the following list of Occupational Competencies - Planning and Design (including subcategories in some cases) and evaluate each of them in terms of whether they should be accepted / revised / removed. If you suggest their revision or removal, then please also include an explanatory comment.

IF YOU DO NOT HAVE EXPERTISE IN THIS AREA, PLEASE SKIP THIS SECTION

32. 1. How planning and design can alleviate mass displacement challenges

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

33. Further comments (if competency should be revised or removed):

34. 2. The planning and design context

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Repair / rebuild / resettle decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disaster resilience (safer settlement planning, multi-hazard mapping, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disaster Management Cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planning and design policy, legal and regulatory framework (including building codes)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. Further comments (if competency should be revised or removed):

36. 3. Planning and design considerations for infrastructure and service needs

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Water, sanitation and hygiene (WASH)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. Further comments (if competency should be revised or removed):

38. 4. Housing planning and design

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Sociology of housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Types of housing and their specific planning and design considerations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Location decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refurbishment of existing housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resource efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural sensitivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Designing for vulnerable and special needs groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. Further comments (if competency should be revised or removed):

40. 5. Planning and design of public buildings and spaces

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

41. Further comments (if competency should be revised or removed):

42. 6. Stakeholder engagement in planning and design

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

43. Further comments (if competency should be revised or removed):

44. 7. Planning and design considerations for the construction, in use, and end of service life phases

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

45. Further comments (if competency should be revised or removed):

46. 8. New trends, technologies and good practices in planning and design for mass displacement

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

47. Further comments (if competency should be revised or removed):

48. Should any additional competencies be added to this list of Occupational Competencies - Planning and Design? (If yes, please specify them below.)

Question 3b - Occupational Competencies - Construction and Facilities Management - (for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all practitioners in construction and facilities management / maintenance-related roles)

Please consider the following list of Occupational Competencies - Construction and Facilities Management (including subcategories in some cases) and evaluate each of them in terms of whether they should be accepted / revised / removed. If you suggest their revision or removal, then please also include an explanatory comment.

IF YOU DO NOT HAVE EXPERTISE IN THIS AREA, PLEASE SKIP THIS SECTION

49. 1. How construction and facilities management can alleviate mass displacement challenges

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

50. Further comments (if competency should be revised or removed):

51. 2. The organisation and management of construction and maintenance in mass displacement contexts

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Construction materials and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financing of construction and maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employment and livelihood opportunities in construction and maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procurement, contracts and project delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost estimating, cost control and contract management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

52. Further comments (if competency should be revised or removed):

53. 3. Housing construction and maintenance

Mark only one oval per row.

	Accept	Revise (either the competency or its location in the framework) - please comment below	Remove - please comment below
Approaches to housing construction (owner-driven, contractor led, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Types of housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Repair / renovation / refurbishment of existing housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of housing in use (e.g. solid waste management, maintenance, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consideration of vulnerable and special needs groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

54. Further comments (if competency should be revised or removed):

55. 4. Infrastructure provision and management

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

56. Further comments (if competency should be revised or removed):

57. 5. Construction and maintenance of public buildings and spaces

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

58. Further comments (if competency should be revised or removed):

59. 6. Stakeholder engagement in construction and maintenance

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

60. Further comments (if competency should be revised or removed):

61. 7. New trends, technologies and good practices in construction and facilities management for mass displacement contexts

Mark only one oval.

- Accept
- Revise (either the competency or its location in the framework) - please comment below
- Remove - please comment below

62. Further comments (if competency should be revised or removed):

63. Should any additional competencies be added to this list of Occupational Competencies - Construction and Facilities Management? (If yes, please specify them below.)

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Appendix 2b - Round 2 Responses

Respondent IDs	Responsible Partner
HU1, HU2, HU4	UoH
CL1, CL2, CL3, CL4	UCLAN
CO2, CO3, CO5	UoC
LU1, LU3, LU4	Lund
TA1, TA2, TA3, TA4	TalTech
TOTAL = 17	

Feedback on the competencies

Competency Framework Level / Competency	Accept	Revise	Remove	No response	Comments
TIER 1 - Foundational Competencies					
1. Causes and dynamics of mass displacement	16	1	0	0	<ul style="list-style-type: none"> Built environment (industry wide) competencies Consider the contextual setting (urban & rural, Flood plain, mountain area, coastal area etc.) also
2. Societal impacts of mass displacement	17	0	0	0	
3. Legal and policy frameworks	14	3	0	0	<ul style="list-style-type: none"> I assume that legal and policy frameworks related to mass displacement? Surely prior to societal impacts? Should be moved up one level. it is better to include institutional frame work also in to legal and policy framework. Though if we have very comprehensive legal and policy framework if there is no strong institutional system it is not easy to enforce of implement.
4. Stakeholders of mass displacement and their characteristics	13	2	1	1	<ul style="list-style-type: none"> Prior to social impacts? In my view victims should be separated from other stakeholders Should be moved up one level. "Stakeholders of mass displacement " is not clear. Whom are we referring to here? Clarify and revise.
5. Specific challenges of mass displacement:					<ul style="list-style-type: none"> starting from the term 'discrimination' - this is an umbrella term and also language and health issues go under this;
5.1 Language issues	14	1	1	1	

5.2 Health issues (mental and physical)	15	1	0	1	<p>therefore I cannot accept 'discrimination' is a very specific issue; it includes social aspects - education and also the possibility to be employed</p> <ul style="list-style-type: none"> • (All) Should not be foundational • (Access to education and training) Change the location in the framework • (Access to education and training) Tenancy or ownership of land is more important than access to education. It is necessary to include other services also like transportation, electricity, water , closeness to urban center, • (All) Add all social infrastructure (educational, health and recreational facilities). pl expand little more -conflict and violation of human rights and discriminations.
5.3 Access to education and training	12	5	0	0	
5.4 Livelihoods and employment	13	3	0	1	
5.5 Discrimination	13	3	1	0	
6. Social cohesion and integration					<ul style="list-style-type: none"> • (6.3) I would say that community engagements needs more long-term and resilient support and development programs - so that community has recourses and connections to mobilize itself when needed. • (6.3) Change the location in the framework • (6.1) Cultural diversity (or variation of human society) • (6.1) creation of cultural awareness and build up knowledge and improve the resilience • (6.2 & 6.3) A level of detail that need not be Foundational, but can arrive at occupational competency
6.1 Cultural awareness	14	2	0	1	
6.2 Reception, orientation and information programmes	13	1	1	2	
6.3 Community mobilization and leadership	10	5	0	2	
7. Cross-cutting issues for interventions					<ul style="list-style-type: none"> • (Both) Are these really key to response to mass displacement. What about humanitarian and development? • (7.2) Though 'sustainability' is defined, but for most of the people it is very narrowly defined - 'green' or something like this; in different cultures or languages this approach may be also different • (7.1) Disaster preparedness, climate change adaptation, climate & disaster resilience
7.1 Disaster Management and Resilience	12	3	2	0	
7.2 Environmental sustainability	13	3	1	0	

					<ul style="list-style-type: none"> • (Both) Should be moved up one level. • (Both) Add all kind of resilience without limiting disaster and resilience (disaster, social , environment, economic) and social acceptability. • (7.1) Management is a occupational skill, and need not be a foundational competency
8. Good practices - lessons learned from global cases	12	4	0	1	<ul style="list-style-type: none"> • Rather practices around world (it makes also sense to learn about experiences that did not work, it would be good to learn from the lessons learned) • Should be moved up one level. • both local and global- specially in the region.
Should any additional competencies be added to this list of Foundational Competencies? (If yes, please specify them below.)	No or no comment: 16 Comments: 1				<ul style="list-style-type: none"> • Possibly something regarding the effect on children living under these circumstances. But maybe that's too specific of a detail.
TIER 2 - Built Environment Competencies					
1. Mass displacement and the Built Environment					<ul style="list-style-type: none"> • Consider type of hazards (geological, hydro-meteorological, biological etc.) • (1.2) pl add regional strategies, planning and building regulations special by -laws.
1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)	15	0	0	2	
1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, building codes, etc.)	13	1	0	3	
2. Cross-cutting issues in Built Environment interventions					<ul style="list-style-type: none"> • (2.3) What do you mean by the competence "Vulnerable and special needs groups"? What does this competence include?
2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)	14	1	0	2	<ul style="list-style-type: none"> • (2.2) commented already earlier - too broad approach • (2.3) Change it to be considered under Foundation competencies

2.2 Environmental sustainability	13	2	0	2	<ul style="list-style-type: none"> include sensitivity (2.1 & 2.2) climate change and the good governance; environment sustainability and social acceptancy
2.3 Vulnerable and special needs groups	11	3	0	3	
3. Managing Built Environment interventions					<ul style="list-style-type: none"> accountability, compliance with regulations, codes of practices, guidelines and norms (3.1 & 3.2) Should possibly be moved up one level. why not legal and administrative system.
3.1 Economics and financing of interventions (including whole life costing)	12	1	0	4	
3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)	12	1	0	4	
3.3 Ethics and professionalism	13	0	0	4	
4. Housing					
4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)	15	0	0	2	<ul style="list-style-type: none"> (4.3) Why is this competence repeated here? (4.2 & 4.3) Both to be considered under Foundation competencies (4.2) usage or utility, purpose
4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)	13	2	0	2	
4.3 Vulnerable and special needs groups	13	2	0	2	
5. Infrastructure and associated services					<ul style="list-style-type: none"> (5.3-5.5) Competences "Transport", "Energy", "Waste management" should be more specific. Perhaps, "Provision of food" should be, also, considered. (all) Revise the location in the framework
5.1 Water, sanitation and hygiene (WASH)	14	1	0	2	
5.2 Access to basic services (health, education, banking,	12	3	0	2	

government services, etc.)					<ul style="list-style-type: none"> include drainage, water retention infrastructure/ water bodies (5.4 & 5.5) Should possibly be moved up one level. (5.2) open spaces, recreational is must. (5.2) Banking and access to governmental services are arguably occupational. However, education and health are Built environmental aspects.
5.3 Transport	12	2	0	3	
5.4 Energy	11	3	0	3	
5.5 Waste management	11	3	0	3	
6. Good practices from Built Environment intervention cases	12	2	0	3	<ul style="list-style-type: none"> same comment as before [previous comments: Rather practices around world (it makes also sense to learn about experiences that did not work, it would be good to learn from the lessons learned)]
Should any additional competencies be added to this list of Built Environment Competencies? (If yes, please specify them below.)	No or no comment: 14 Comments: 3				<ul style="list-style-type: none"> Add nature based solutions better to expand as mentioned above [previous comments: pl add regional strategies, planning and building regulations special by - laws.; climate change and the good governance. environment sustainability and social acceptancy; why not legal and administrative system.; open spaces, recreational is must.] 5. infrastrucure- perhaps add in local environmental and ecological factors ?
TIER 3 - Occupational Competencies					
3a: Planning and Design - (for planners, architects, design engineers and all practitioners in planning- and design-related roles)					
1. How planning and design can alleviate mass displacement challenges	14	0	0	3	
2. The planning and design context					<ul style="list-style-type: none"> (2.3) rather than saying DM cycle, add specific elements(such a preparedness, response. Add risk assessment (2.2) add vulnerable and risk assessment too. (2.1) Expertise in wellbeing/social aspects should liaise here, these are not solely planning and design challenges.
2.1 Repair / rebuild / resettle decisions	13	1	0	3	
2.2 Disaster resilience (safer settlement planning, multi-hazard mapping, etc.)	12	1	0	4	
2.3 Disaster Management Cycle	11	1	0	5	

2.4 Environmental sustainability	12	0	0	5	
2.5 Planning and design policy, legal and regulatory framework (including building codes)	12	0	0	5	
3. Planning and design considerations for infrastructure and service needs					<ul style="list-style-type: none"> I think that these competences should be narrowed down. The provision of WASH, transport, etc. infrastructure for the massed in a short time span differs from generic infrastructure provision in the urban environment. add drainage, management of recyclable material (there will be material coming from demolition of different element and they are mostly recyclable, it is necessary to plan this)
3.1 Water, sanitation and hygiene (WASH)	14	1	0	2	
3.2 Transport	14	1	0	2	
3.3 Energy	14	1	0	2	
3.4 Waste management	14	1	0	2	
4. Housing planning and design					<ul style="list-style-type: none"> (4.5 & 4.6) Competence "Housing design" is too broad and repeats the previously mentioned competence ("Types of housing..."). I think that it needs to be more specific. E.g. design of temporary housing. Same comment is valid for competence "Refurbishment of existing housing". Do you mean refurbishment of housing, which was damage as a consequence of natural or man-made disasters? (4.4 & 4.7) both terms are too broad: what services? which resource? (4.8) Revise the location in the framework Construction methods to suit the location(sloping ground), incorporation of nature based solutions, adding green concept at the initial stage (pre-planning) up to occupation of the hpuse.
4.1 Sociology of housing	13	0	1	3	
4.2 Types of housing and their specific planning and design considerations	14	0	0	3	
4.3 Location decisions	14	0	0	3	
4.4 Access to services	13	1	0	3	
4.5 Housing design	12	0	2	3	
4.6 Refurbishment of existing housing	13	1	0	3	
4.7 Resource efficiency	12	2	0	3	
4.8 Cultural sensitivity	12	2	0	3	
4.9 Designing for vulnerable and special needs groups	13	1	0	3	
5. Planning and design of public buildings and spaces	14	1	0	2	<ul style="list-style-type: none"> How is it related to mass displacement? I think that this competence should be either removed, or revised to become more specific. Do you mean design for flexibility of use? E.g. a public building designed in the way that it

					<ul style="list-style-type: none"> could serve as a temporarily shelter, if necessary? add Policies related to norms, design codes, standards
6. Stakeholder engagement in planning and design	15	0	0	2	<ul style="list-style-type: none"> Also, the rationale for and the basic methods of stakeholder engagement.
7. Planning and design considerations for the construction, in use, and end of service life phases	13	2	0	2	<ul style="list-style-type: none"> The phrasing is not entirely clear for the non-native English speaker. Do you mean 2 phases: (1) use phase, (2) end of housing lifecycle phase? What kind of "end of lifecycle" considerations do you mean? Recycling or reuse of building materials? Any other considerations? I guess, that planning and design for a certain lifespan is an emerging topic, and few planning and design professionals are competent in it. energy efficiency and green concept
8. New trends, technologies and good practices in planning and design for mass displacement	14	1	0	2	<ul style="list-style-type: none"> examples - what are the 'good' practices? 'good' is a relative assessment criteria
Should any additional competencies be added to this list of Occupational Competencies - Planning and Design? (If yes, please specify them below.)	No or no comment: 14				<ul style="list-style-type: none"> What about financial considerations? How to lower housing / infrastructure expenditure? nature based built environment solutions, green building techniques, rainwater harvesting local ecology, responding to its environmental context . <p>Community engagement/stakeholder engagement should be central to the design process. Cost benefits should be added to the design process- efficiency in building materials has sustainable benefits and financial.</p>
3b: Construction and Facilities Management - (for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all practitioners in construction and facilities management / maintenance-related roles).					
1. How construction and facilities management can alleviate mass	13	2	0	2	<ul style="list-style-type: none"> Cost and time implications of construction and facilities management in alleviating mass displacement challenges

displacement challenges					<ul style="list-style-type: none"> • service providers should include.
2. The organisation and management of construction and maintenance in mass displacement contexts					<ul style="list-style-type: none"> • (2.3) Revise the location in the framework • landscaping & integrating nature based solution • (2.3 & 2.4) I'm not sure these are all relevant for everyone in the group. • monitoring and evaluation would be the another area to include.
2.1 Construction materials and resources	14	0	0	3	
2.2 Financing of construction and maintenance	13	1	0	3	
2.3 Employment and livelihood opportunities in construction and maintenance	11	2	1	3	
2.4 Project management	13	0	1	3	
2.5 Procurement, contracts and project delivery	14	0	0	3	
2.6 Cost estimating, cost control and contract management	14	0	0	3	
3. Housing construction and maintenance					<ul style="list-style-type: none"> • (3.3-3.5) How competences, such as "Repair/renovation/refurbishment", "Management" specific in relation to housing and facilities for mass displacement? What does the competence "Considerations of vulnerable and special needs groups" include? • (3.2) as to 'types' it should be explained what is the criteria for creating the types • (3.1) donor driven is also included. • Occupational definition expertise needs extending to architects, designers...
3.1 Approaches to housing construction (owner-driven, contractor led, etc.)	14	1	0	2	
3.2 Types of housing	13	1	0	3	
3.3 Repair / renovation / refurbishment of existing housing	13	1	0	3	
3.4 Management of housing in use (e.g. solid waste management, maintenance, etc.)	13	1	0	3	
3.5 Consideration of vulnerable and special needs groups	13	1	0	3	
4. Infrastructure provision and management	14	1	0	2	<ul style="list-style-type: none"> • Needs to be more specific. Infrastructure provision for masses in a short time span.
5. Construction and maintenance of public buildings and spaces	14	1	0	2	<ul style="list-style-type: none"> • How is this related to mass displacement?
6. Stakeholder engagement in	14	1	0	2	<ul style="list-style-type: none"> • Add rationale and methods of stakeholder engagement.

construction and maintenance					
7. New trends, technologies and good practices in construction and facilities management for mass displacement contexts	13	2	0	2	<ul style="list-style-type: none"> as I have commented before - the term 'good' is a relative one; for somebody good, but it may be bad for the others add knowledge sharing.
Should any additional competencies be added to this list of Occupational Competencies - Construction and Facilities Management? (If yes, please specify them below.)	No or no comment: 14				<ul style="list-style-type: none"> integrating green technology, adapting nature based solutions, strategy for achieving carbon neutrality Architects, landscape architects, Industrial designers, Circular economy/designers and ecologists. post occupational analysis of previous schemes to ensure lessons learnt are shared. a constant post occupancy monitoring is an essential part of this role.
	Comments: 3				

Appendix 2c - Initial Consensus Version of the Competency Framework

The following CF has been revised according to levels of acceptance of each competency and comments received. In all cases, a majority of respondents accepted the competencies, so revisions are all minor and aimed at increased acceptability. Revised competency descriptions are shown **yellow highlighted**. In a few cases, the order of competencies has been changed (**numbers shown blue highlighted**).

Lists of competencies:

TIER 1 - Foundational Competencies

1. Causes, contexts and dynamics of mass displacement
2. Legal, policy and institutional frameworks
3. Societal impacts of mass displacement
4. Stakeholders of mass displacement and their characteristics (displaced people, host / recipient communities, local and national government, NGOs, etc.)
5. Specific challenges of mass displacement:
 - 5.1 Language issues
 - 5.2 Health issues (mental and physical)
 - 5.3 Livelihoods and employment (including access to means, land, etc.)
 - 5.4 Access to education and training
 - 5.5 Addressing discrimination against displaced people
6. Social cohesion and integration
 - 6.1 Cultural awareness and diversity
 - 6.2 Enabling measures (including reception, orientation, information programmes; supporting community mobilization, etc.)
7. Cross-cutting issues for mass displacement-related interventions
 - 7.1 Resilience (disaster, climate change, etc.)
 - 7.2 Sustainable development
8. Lessons learned from (local and global) cases

TIER 2 - Built Environment Competencies

1. Mass displacement and the Built Environment
 - 1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)
 - 1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, regional and local strategies, building codes, etc.)
2. Cross-cutting issues for Built Environment interventions
 - 2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)
 - 2.2 Green and Sustainable Built Environment (including nature-based solutions)
 - 2.3 Inclusive Built Environment (including supporting vulnerable and special needs groups)
3. Managing Built Environment interventions
 - 3.1 Economics and financing of interventions (including cost benefit analyses, whole life costing)
 - 3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)
 - 3.3 Ethics and professionalism
4. Housing

- 4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)
- 4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)
- 4.3 Inclusive housing (including supporting vulnerable and special needs groups)
- 5. Infrastructure and associated services
 - 5.1 Water supply, sanitation and hygiene (WASH)
 - 5.2 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
 - 5.3 Transport infrastructure and services
 - 5.4 Energy infrastructure and services
 - 5.5 Waste management infrastructure and services (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
- 6. Lessons learned from Built Environment intervention cases

TIER 3 - Occupational Competencies

3a: Planning and Design - (for planners, architects, design engineers and all practitioners in planning- and design-related roles)

- 1. How planning and design can alleviate mass displacement challenges
- 2. The planning and design context
 - 2.1 Repair / rebuild / resettle decisions
 - 2.2 Disaster resilience (safer settlement planning, vulnerability and risk assessment, multi-hazard mapping, etc.)
 - 2.3 Disaster Management Cycle (prevention, preparedness, response, recovery)
 - 2.4 Environmental sustainability (including green design and building approaches)
 - 2.5 Planning and design policy, legal and regulatory framework (including building codes)
- 3. Planning and design considerations for infrastructure and service needs
 - 3.1 Water supply, sanitation and hygiene (WASH)
 - 3.2 Transport infrastructure and services
 - 3.3 Energy infrastructure and services
 - 3.4 Waste management (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
- 4. Housing planning and design
 - 4.1 Sociology of housing
 - 4.2 Types of housing and their specific planning and design considerations
 - 4.3 Location decisions
 - 4.4 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
 - 4.5 Repair / renovation / refurbishment of existing (damaged) housing
 - 4.6 Resource efficiency (including materials, labour, equipment, etc.)
 - 4.7 Cultural sensitivity in housing design
 - 4.8 Designing for vulnerable and special needs groups
- 5. Planning and design of public buildings and spaces (including for inclusivity and flexibility)
- 6. Stakeholder engagement in planning and design
- 7. Planning and design considerations for the construction, in use, and end of life phases (including whole life costing, constructability, energy efficiency, recycling of building materials, etc.)
- 8. Lessons learned from planning and design for mass displacement cases (including new trends, technologies and practices)

3b: Construction and Facilities Management - (for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all practitioners in construction and facilities management / maintenance-related roles).

1. How construction and facilities management can alleviate mass displacement challenges (including cost, time, quality implications, etc.)
2. The organisation and management of construction and maintenance in mass displacement contexts
 - 2.1 Construction materials and resources
 - 2.2 Financing of construction and maintenance
 - 2.3 Procurement, contracts and project delivery
 - 2.4 Cost estimating, cost control and contract management
 - 2.5 Project management considerations for mass displacement construction and maintenance contexts
 - 2.6 Employment and livelihood opportunities in construction and maintenance
3. Housing construction and maintenance
 - 3.1 Approaches to housing construction (owner-driven, donor-driven, contractor led, etc.)
 - 3.2 Types of housing (e.g. emergency, temporary, permanent, etc.) and their specific construction and maintenance considerations
 - 3.3 Construction and maintenance considerations in the repair / renovation / refurbishment of existing housing
 - 3.4 Managing services to and maintenance of housing in use (e.g. solid waste management, maintenance, etc.)
 - 3.5 Consideration of vulnerable and special needs groups in housing construction and maintenance
4. Infrastructure provision and management in mass displacement contexts (e.g. challenges of short time spans, etc.)
5. Construction and maintenance of public buildings and spaces in mass displacement contexts (including for inclusivity and flexibility)
6. Stakeholder engagement in construction and maintenance (including rationale and engagement techniques)
7. Lessons learned from cases of construction and facilities management for mass displacement (including new trends, technologies and practices)

Appendix 3a - Round 3 Questionnaire

(Starts next page)

(Please note that the questionnaire's appearance is slightly changed in downloading it from Google forms)

REFINING AND VALIDATING THE REGARD COMPETENCY FRAMEWORK - ROUND 3

Thank you for participating in Rounds 1 and 2. The Competency Framework has now been refined according to your recommendations and comments.

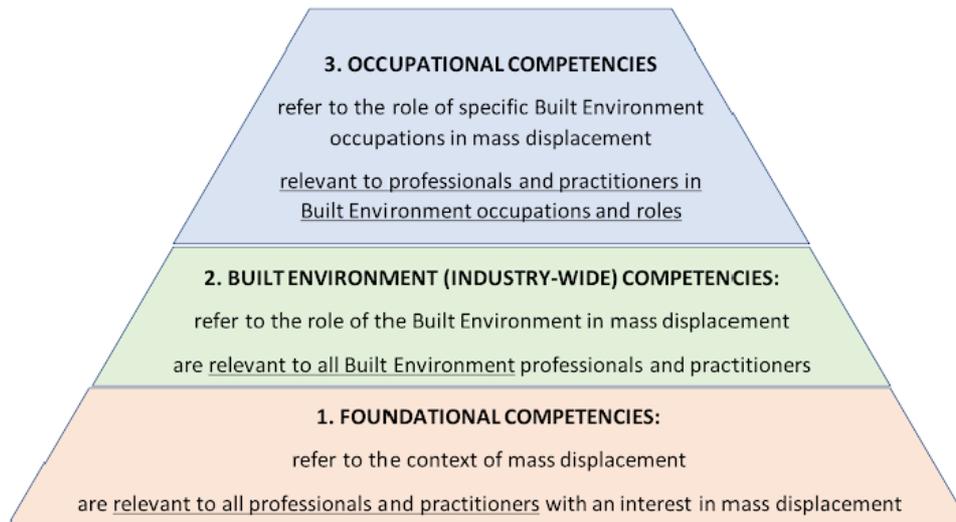
Round 3 is the final round of questioning. In this round, we present the initial consensus version of the competency framework to you and ask you to validate it and / or give final comments on it. We expect that this will take approximately 15 - 30 minutes of your time depending on your expertise and responses.

* Required

1. Please enter your unique Expert Panelist Identification Code (this is included in the email with the link to this questionnaire). It will enable us to confirm whether you have responded. *

Competency Framework Structure

The competency framework structure is shown below (it remains unchanged from Round 2).



Consensus
Version of
the
Competency
Framework

The following Competency Framework has been revised according to the accept / revise / remove responses and comments received for each competency in Round 2. In all cases, a majority (67% - 100%) of respondents accepted each of the competencies, so the revisions that have been made are minor changes to the wording of the competency descriptions aimed at increasing their clarity and acceptability. Revised competency descriptions are shown **YELLOW HIGHLIGHTED**. In a few cases, the order of competencies has been adjusted (their numbers are then shown **BLUE HIGHLIGHTED**).

TIER 1 - FOUNDATIONAL COMPETENCIES

1. Causes, contexts and dynamics of mass displacement
2. Legal, policy and institutional frameworks
3. Societal impacts of mass displacement
4. Stakeholders of mass displacement and their characteristics (displaced people, host / recipient communities, local and national government, NGOs, etc.)
5. Specific challenges of mass displacement:
 - 5.1 Language issues
 - 5.2 Health issues (mental and physical)
 - 5.3 Livelihoods and employment (including access to means, land, etc.)
 - 5.4 Access to education and training
 - 5.5 Addressing discrimination against displaced people
6. Social cohesion and integration
 - 6.1 Cultural awareness and diversity
 - 6.2 Enabling measures (including reception, orientation, information programmes; supporting community mobilization, etc.)
7. Cross-cutting issues for mass displacement-related interventions
 - 7.1 Resilience (disaster, climate change, etc.)
 - 7.2 Sustainable development
8. Lessons learned from (local and global) cases

2. Validation of Tier 1 (Foundational) competencies *

Mark only one oval.

- Tier 1 competencies are (now) acceptable
- Further revisions to Tier 1 competencies are still required (please specify the revisions needed in the space below)

3. Comments (if you have recommended that Tier 1 competencies should be further revised):

Built Environment
Competencies

(IF YOU DO NOT HAVE EXPERTISE IN THIS AREA, PLEASE SKIP THIS SECTION)

TIER 2 – BUILT ENVIRONMENT COMPETENCIES

1. Mass displacement and the Built Environment

1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)

1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, regional and local strategies, building codes, etc.)

2. Cross-cutting issues for Built Environment interventions

2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)

2.2 Green and Sustainable Built Environment (including nature-based solutions)

2.3 Inclusive Built Environment (including supporting vulnerable and special needs groups)

3. Managing Built Environment interventions

3.1 Economics and financing of interventions (including cost benefit analyses, whole life costing)

3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)

3.3 Ethics and professionalism

4. Housing

4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)

4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)

4.3 Inclusive housing (including supporting vulnerable and special needs groups)

5. Infrastructure and associated services

5.1 Water supply, sanitation and hygiene (WASH)

5.2 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)

5.3 Transport infrastructure and services

5.4 Energy infrastructure and services

5.5 Waste management infrastructure and services (including drainage, wastewater treatment, reuse and recycling of materials, etc.)

6. Lessons learned from Built Environment intervention cases

4. Validation of Tier 2 (Built Environment) competencies

Mark only one oval.

- Tier 2 competencies are (now) acceptable
- Further revisions to Tier 2 competencies are still required (please specify the revisions needed in the space below)

5. Comments (if you have recommended that Tier 2 competencies should be further revised):

Occupational Competencies -
Planning and Design

(IF YOU DO NOT HAVE EXPERTISE IN THIS AREA,
PLEASE SKIP THIS SECTION)



TIER 3a - OCCUPATIONAL COMPETENCIES - Planning and Design - (for planners, architects, design engineers and all practitioners in planning- and design-related roles)

1. How planning and design can alleviate mass displacement challenges
2. The planning and design context
 - 2.1 Repair / rebuild / resettle decisions
 - 2.2 Disaster resilience (safer settlement planning, vulnerability and risk assessment, multi-hazard mapping, etc.)
 - 2.3 Disaster Management Cycle (prevention, preparedness, response, recovery)
 - 2.4 Environmental sustainability (including green design and building approaches)
 - 2.5 Planning and design policy, legal and regulatory framework (including building codes)
3. Planning and design considerations for infrastructure and service needs
 - 3.1 Water supply, sanitation and hygiene (WASH)
 - 3.2 Transport infrastructure and services
 - 3.3 Energy infrastructure and services
 - 3.4 Waste management (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
4. Housing planning and design
 - 4.1 Sociology of housing
 - 4.2 Types of housing and their specific planning and design considerations
 - 4.3 Location decisions
 - 4.4 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
 - 4.5 Repair / renovation / refurbishment of existing (damaged) housing
 - 4.6 Resource efficiency (including materials, labour, equipment, etc.)
 - 4.7 Cultural sensitivity in housing design
 - 4.8 Designing for vulnerable and special needs groups
5. Planning and design of public buildings and spaces (including for inclusivity and flexibility)
6. Stakeholder engagement in planning and design
7. Planning and design considerations for the construction, in use, and end of life phases (including whole life costing, constructability, energy efficiency, recycling of building materials, etc.)
8. Lessons learned from planning and design for mass displacement cases (including new trends, technologies and practices)

6. Validation of Tier 3a (Occupational) competencies

Mark only one oval.

- Tier 3a competencies are (now) acceptable
- Further revisions to Tier 3a competencies are still required (please specify the revisions needed in the space below)

7. Comments (if you have recommended that Tier 3a competencies should be further revised):

Occupational Competencies -
Construction and Facilities
Management

(IF YOU DO NOT HAVE EXPERTISE IN THIS
AREA, PLEASE SKIP THIS SECTION)

TIER 3b - OCCUPATIONAL COMPETENCIES - Construction and Facilities Management
(for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all
practitioners in construction and facilities management / maintenance-related roles)

1. How construction and facilities management can alleviate mass displacement challenges (including cost, time, quality implications, etc.)
2. The organisation and management of construction and maintenance in mass displacement contexts
 - 2.1 Construction materials and resources
 - 2.2 Financing of construction and maintenance
 - 2.3 Procurement, contracts and project delivery
 - 2.4 Cost estimating, cost control and contract management
 - 2.5 Project management considerations for mass displacement construction and maintenance contexts
 - 2.6 Employment and livelihood opportunities in construction and maintenance
3. Housing construction and maintenance
 - 3.1 Approaches to housing construction (owner-driven, donor-driven, contractor led, etc.)
 - 3.2 Types of housing (e.g. emergency, temporary, permanent, etc.) and their specific construction and maintenance considerations
 - 3.3 Construction and maintenance considerations in the repair / renovation / refurbishment of existing housing
 - 3.4 Managing services to and maintenance of housing in use (e.g. solid waste management, maintenance, etc.)
 - 3.5 Consideration of vulnerable and special needs groups in housing construction and maintenance
4. Infrastructure provision and management in mass displacement contexts (e.g. challenges of short time spans, etc.)
5. Construction and maintenance of public buildings and spaces in mass displacement contexts (including for inclusivity and flexibility)
6. Stakeholder engagement in construction and maintenance (including rationale and engagement techniques)
7. Lessons learned from cases of construction and facilities management for mass displacement (including new trends, technologies and practices)

8. Validation of Tier 3b (Occupational) competencies

Mark only one oval.

- Tier 3b competencies are (now) acceptable
- Further revisions to Tier 3b competencies are still required (please specify the revisions needed in the space below)

9. Comments (if you have recommended that Tier 3b competencies should be further revised):

Final Comments and
Survey Completion

THANK YOU VERY MUCH FOR ALL YOUR INPUT INTO DEVELOPING
THE COMPETENCY FRAMEWORK!

10. Do you have any final comments on the Competency Framework?

11. Would you like to receive a copy of the REGARD Competency Framework report when it has been produced?

Mark only one oval.

- Yes, please send me a copy
- No

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Appendix 3b - Round 3 responses

Responses

Respondent IDs	Responsible Partner
HU1, HU2, HU3	UoH
CL1, CL2, CL3, CL4	UCLAN
CO2, CO3, CO5	UoC
LU1, LU3, LU4	Lund
TA1, TA2, TA3, TA4	TalTech
TOTAL = 17	

[Analyst notes on revisions made following Round 3 comments are shown in red]

Foundational competencies = 100% validated

Comments received (2):

1. under the 6. social cohesion and integration, please include Carry out consultation with the host community before displacement [Wording elaborated under 6.2 enabling measures]
2. I may have missed a point here, but I notice that 1-4 and 8 do not have sub-competencies. Hope there is good reason why only some competencies have level 2 categorisation.

Built Environment Competencies = 93,3% validated

Comments received (2):

1. Treat livelihoods as holistic, encompassing human, natural, financial, social and physical capital. [I anticipate that it will be dealt with holistically - however, the competencies here are listed sensibly from the point of view of the BE and this has led to livelihoods being referred to in various places under different headings].
2. Something that doesn't seem to have been captured is the technological innovations for re-construction - for e.g. BIM, off-site, 3D printing etc. Without these good opportunities may be missed during the process. [These are adequately dealt with in Tier 3]

Occupational Competencies - Planning and Design = 78,6% validated

Comments received (4):

1. (Comment on reordering the competencies)

4.1 Sociology to be re-ranked to 4.8

4.8 Vulnerable to be re-ranked to 4.5

4.5 Repair to be re-ranked to 4.4

4.3 Location decisions to be re-ranked to 4.1

Hence:

4.1 Location

4.2 Types

4.3 Access

4.4 Repair

4.5 Vulnerable

4.6 Resource

4.7 Cultural

4.8 Sociology [This is controversial, in that sociology can be considered to explain the multi-dimensional role of housing and its importance and therefore appears to be a sensible starting point. In addition, it is more important that relevant competencies are covered than the order of the coverage (which will anyway be rearranged for the training courses) - no change to existing order].

1. Investigate the feasibility of adopting innovative design features, green building concept, particularly environmentally-friendly features [already considered under 2.4] /- Adopt a design that allows for future expansion of the house and for the ancillary facilities [Wording elaborated under 7. planning and design considerations]
- 2.
3. Not my area but looks fine
4. Include sustainability assessments as a competency. [Wording elaborated under 2.4 environmental sustainability]

Occupational Competencies - Construction and Facilities Management = 92,3% validated

Comments received (2):

1. Not my area but looks fine
2. Further evaluation of carbon emissions for new design proposals is an important factor that needs considering. [No revision - rather under planning and design - dealt with under 3a]

Final Comments and Survey Completion

Comments received (2):

1. Thanks for inviting me to participate this framework initiative is very much needed, I'd like to see how it can be implemented in practice. Well organised and communicated.
2. no, thanks

Appendix 3c - Final Validated Competency framework showing revisions

(Description revisions made following round 3 responses are shown green highlighted, revisions in the order of competencies are shown orange highlighted).

TIER 1 - Foundational Competencies

1. Causes, contexts and dynamics of mass displacement
2. Legal, policy and institutional frameworks
3. Societal impacts of mass displacement
4. Stakeholders of mass displacement and their characteristics (displaced people, host / recipient communities, local and national government, NGOs, etc.)
5. Specific challenges of mass displacement:
 - 5.1 Language issues
 - 5.2 Health issues (mental and physical)
 - 5.3 Livelihoods and employment (including access to means, land, etc.)
 - 5.4 Access to education and training
 - 5.5 Addressing discrimination against displaced people
6. Social cohesion and integration
 - 6.1 Cultural awareness and diversity
 - 6.2 Enabling measures (including **host community consultations**, reception, orientation, information programmes; supporting community mobilization, etc.)
7. Cross-cutting issues for mass displacement-related interventions
 - 7.1 Resilience (disaster, climate change, etc.)
 - 7.2 Sustainable development
8. Lessons learned from (local and global) cases

TIER 2 - Built Environment Competencies

1. Mass displacement and the Built Environment
 - 1.1 Contextual differences (causes, scales and dynamics of displacement, industrialised versus developing countries, etc.)
 - 1.2 Policy, legal and regulatory frameworks relevant to the Built Environment (e.g. land issues, regional and local strategies, building codes, etc.)
2. Cross-cutting issues for Built Environment interventions
 - 2.1 Disaster Resilience (including multi-hazard mapping, Build Back Better)
 - 2.2 Green and Sustainable Built Environment (including nature-based solutions)
 - 2.3 Inclusive Built Environment (including supporting vulnerable and special needs groups)
3. Managing Built Environment interventions
 - 3.1 Economics and financing of interventions (including cost benefit analyses, whole life costing)
 - 3.2 Stakeholders of Built Environment interventions (including typical institutional frameworks)
 - 3.3 Ethics and professionalism
4. Housing
 - 4.1 Types and stages of housing (emergency, temporary, transitional, permanent, resettlement, relocation, social housing, etc.)
 - 4.2 The importance of housing (for social cohesion and integration, livelihoods, etc.)
 - 4.3 Inclusive housing (including supporting vulnerable and special needs groups)
5. Infrastructure and associated services
 - 5.1 Water supply, sanitation and hygiene (WASH)
 - 5.2 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
 - 5.3 Transport infrastructure and services
 - 5.4 Energy infrastructure and services
 - 5.5 Waste management infrastructure and services (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
6. Lessons learned from Built Environment intervention cases

TIER 3 - Occupational Competencies

3a: Planning and Design - (for planners, architects, design engineers and all practitioners in planning- and design-related roles)

1. How planning and design can alleviate mass displacement challenges
2. The planning and design context
 - 2.1 Repair / rebuild / resettle decisions
 - 2.2 Disaster resilience (safer settlement planning, vulnerability and risk assessment, multi-hazard mapping, etc.)
 - 2.3 Disaster Management Cycle (prevention, preparedness, response, recovery)
 - 2.4 Environmental sustainability (including sustainability assessments, green design and building approaches)
 - 2.5 Planning and design policy, legal and regulatory framework (including building codes)
3. Planning and design considerations for infrastructure and service needs
 - 3.1 Water supply, sanitation and hygiene (WASH)
 - 3.2 Transport infrastructure and services
 - 3.3 Energy infrastructure and services
 - 3.4 Waste management (including drainage, wastewater treatment, reuse and recycling of materials, etc.)
4. Housing planning and design
 - 4.1 Sociology of housing
 - 4.2 Types of housing and their specific planning and design considerations
 - 4.3 Location decisions
 - 4.4 Access to basic needs and services (food, livelihoods, health, education, recreation, etc.)
 - 4.5 Repair / renovation / refurbishment of existing (damaged) housing
 - 4.6 Resource efficiency (including materials, labour, equipment, etc.)
 - 4.7 Cultural sensitivity in housing design
 - 4.8 Designing for vulnerable and special needs groups
5. Planning and design of public buildings and spaces (including for inclusivity and flexibility)
6. Stakeholder engagement in planning and design
7. Planning and design considerations for the construction, in use, and end of life phases (including whole life costing, constructability, energy efficiency, recycling of building materials, flexibility in use, etc.)
8. Lessons learned from planning and design for mass displacement cases (including new trends, technologies and practices)

3b: Construction and Facilities Management - (for Quantity Surveyors, Construction Managers, Facilities Managers, etc. and all practitioners in construction and facilities management / maintenance-related roles).

1. How construction and facilities management can alleviate mass displacement challenges (including cost, time, quality implications, etc.)
2. The organisation and management of construction and maintenance in mass displacement contexts
 - 2.1 Construction materials and resources
 - 2.2 Financing of construction and maintenance
 - 2.3 Procurement, contracts and project delivery
 - 2.4 Cost estimating, cost control and contract management
 - 2.5 Project management considerations for mass displacement construction and maintenance contexts
 - 2.6 Employment and livelihood opportunities in construction and maintenance

3. Housing construction and maintenance

3.1 Approaches to housing construction (owner-driven, donor-driven, contractor led, etc.)

3.2 Types of housing (e.g. emergency, temporary, permanent, etc.) and their specific construction and maintenance considerations

3.3 Construction and maintenance considerations in the repair / renovation / refurbishment of existing housing

3.4 Managing services to and maintenance of housing in use (e.g. solid waste management, maintenance, etc.)

3.5 Consideration of vulnerable and special needs groups in housing construction and maintenance

4. Infrastructure provision and management in mass displacement contexts (e.g. challenges of short time spans, etc.)

5. Construction and maintenance of public buildings and spaces in mass displacement contexts (including for inclusivity and flexibility)

6. Stakeholder engagement in construction and maintenance (including rationale and engagement techniques)

7. Lessons learned from cases of construction and facilities management for mass displacement (including new trends, technologies and practices)