

# Design and Build Process of MSF Health Facilities

## Summary Report

June 2022



shelter centre



Disclaimer:  
The authors' views expressed in this  
publication do not necessarily reflect  
the views of Médecins Sans Frontières  
or the Stockholm Evaluation Unit.

# Acknowledgements

This evaluation report was commissioned by the Logistics Department of Operations Centre Brussels (OCB) of Médecins sans Frontières (MSF), under the auspices of the MSF Stockholm Evaluation Unit (SEU), and undertaken in collaboration with Shelter Centre, a humanitarian non-governmental organisation based in Switzerland. Shelter Centre offers particular thanks to Francesc López (OCB) and Boris Stringer (SEU) for their constant support and guidance throughout the evaluation process. The evaluators would also like to acknowledge and thank all parties participating in this evaluation.

Shelter Centre subject matter specialists supported the work of the evaluation teams:

Contracts and environment	Chris Nixon
MSF-OCB history in construction	Jérôme Michon
Project management and contractors	Melvin Tebbutt
Theory of Change	Peter Sweetnam
Prefabricated building and environment	Robin Aherne

The evaluation teams at Shelter Centre were co-coordinated by Ama Boamah, Amany Ramadan, Annabel Rayner, Andrew Paraiso, Assia Belguedj, Chiara Giusti, Christian Dela Cruz, David Kithome MD, Didem Yildirim, Fred Culley, Gonzalo Judikis, Jamie Spencer Wright, Judy Wakio Mwangoma, Keshav Agarwal, Magda Cienciala, Marta Guilera, Milena Meester, Paul Schrijen, Rija Habib, Ros Lynch, Sahra Hassan and Teodora Coguric.

The evaluation teams comprised Anthony Etemesi, Ashley Howard, Beatrice Corvucci, Bidemi Ejibunu, Brains Jarwolu Dorr, Daniel Sesay, Ecem Sezer, Ekaterina Nemshevich, Emmanuel Okpala, Giovanni Fiore, Hadil Albarqi, Laurie Martorelli, Marije van der Wal, Maulline Gragau, Melvin B Moore MD, Minoli Malka, Rana Ayub, Rocio Garcia Santamaria, Rommel de Guzman, Sebastian Baumann and Sona Huberova.

Tom Corsellis, Executive Director of Shelter Centre, acted as editor.

## Introduction

In the past decade, the number and scope of construction projects undertaken by MSF have increased considerably, and projects have become technically complicated with higher budgets and requirements that are impacting the organisation's limits. In response to these challenges, OCB operations introduced a revised manual entitled 'Designing and Building Process for Health Facilities' in May 2018 that serves as a reference for MSF teams on the ground and provides a roadmap for the processes of construction of facilities. Since 2018, MSF-OCB has undertaken over 19 construction projects within evaluation parameters, applying the lessons learned from the revision of the manual.

This evaluation focuses on reviewing appropriateness, effectiveness, efficiency, impact, sustainability of projects, stakeholders, and beneficiaries of the 19 construction projects, as well as relating these evaluation components to the projects' output and intended outcomes. Data collection, sampling and analysis were undertaken in two steps, Inception and Evaluation, with activities and methods illustrated on page 6.

The evaluation research seeks to answer the following questions:

1. *How can the conception phase of design and build projects be improved?* (EQ 1: Conception Phase)
2. *How can the project design phase be improved?* (EQ 2: Design Phase)
3. *How can implementation be further optimised?* (EQ 3: Implementation Phase)
4. *How could the project deliverables be improved?* (EQ 4: Project Deliverables)

In this Summary Report, Conclusions and Recommendations are presented first, followed by the Methodology, Findings and Technical Analysis. Thus, there is no in-depth data analysis and specific details on each section particularly on observations and challenges. For this, refer to the main Evaluation Report.

# Conclusions

## EQ1: Conception Phase

**Scope and objectives of projects need to be clearer**



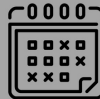
Balancing long-term project outcomes with emergency relief outputs is not possible. Without clarity around what is to be achieved and for whom, the impact and added value of MSF's investments is substantially reduced.

**Risk management responsibilities to be shared across departments**



Changes in plans, design or supplies have downstream effects that must be continuously mitigated. Risk management is currently concentrated to one focal point and is inadequate to account for all risks and ensure mitigation strategies are in place. Therefore, departments must work together to identify and mitigate all risk within their remit, collectively and individually 'owning' their risk and being accountable for them.

**Delay factors to inform planning**



Causes of significant delays are typically analysed but the link between the analyses and taking mitigation measures is sometimes missing. Known delay factors should inform the multi-year strategies, project implementations and budgets.

## EQ2: Planning & Design Phase

**Strategic planning is an area of strength**



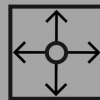
Strategic planning is an area of strength for OCB operations and recent changes to three-year strategic plans have been beneficial. The findings here demonstrate that involving the appropriate people in scenario planning, feasibility assessments and adapting plans to particular contexts has improved. The integration of strategic planning with risk management remains to be demonstrated.

**Use of technology to be defined by functions and maintenance**



Technical analysis on Prefabrication concluded that support for and adoption of innovative technological solutions require systematic investment to introduce and refine. Benefits to be carefully weighed against the need for maintenance, specialists input and resourcing.

**Sustainability requires context-specific design**



Integrating strategic sustainability objectives into broader strategic and design planning requires both analysis and prioritisation specific to the location. Further specific tools supporting sustainability need to be developed, as generic approaches risk undermining significant progress across MSF-OCB, if used inappropriately. Sustainable solutions are intrinsically multidisciplinary in their design and implementation, involving approaches developed across departments..

**Tender and construction processes need standardisation**



MSF's decision-making authority needs to be clarified in project documentation, ToRs and JDs. Processes for checking the budget deviations, forecasting changes, handovers, and sign-offs should all be standardised across MSF projects. Some processes vary between teams but standardisation would improve coherency, effectiveness and staff satisfaction.

**Change management strategies need to be developed during project planning**



Healthcare approaches supported by the facilities must be adaptable enough to respond to temporary shifts in healthcare needs. This necessitates practical collaboration between departments, but it should be established during the design phase and maintained throughout the project.

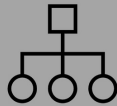
## EQ3: Implementation Phase

**Roles and responsibilities of staff must be clear**



As specialisation among staff is increasing, OCB needs to have a full understanding of the technical skills required for roles. There is a lack of definition of roles and responsibilities, which leads to ineffective activities and poor accountability. Definition of roles and responsibilities in the design and construction processes needs improving, including balancing appropriate multi-skilled generalists with specialists inside and outside of MSF-OCB.

**Simple frameworks with accountabilities assigned are effective**



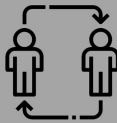
Existing OCB SOPs and guidelines were identified as a strength, but comprehension and accountability could be improved. The findings demonstrate the value of basic frameworks in guiding the construction process and improving facility practices. Accountabilities, when assigned, aid in ensuring that activities are completed.

**Responsibilities for reporting documentation to be clarified**



Clarity around responsibility for project reporting and documentation needs to be improved. Consistent reporting and documentation across departments should take into account operational and contractual risk as well as informing strategic planning, the adaptation of facilities and their maintenance.

**Interdepartmental communication requires a review**



Shared understanding of project objectives, risks, roles and responsibilities is an area for improvement. Current communication patterns between individual departments and between the HQ and the field have resulted in inclusive engagement, but also in teams described as working in silos. Critical input from the medical personnel is often missing or insufficient. Central to improving communications is the coordinating role of the project manager.

**Project continuity plan is needed to mitigate high staff turnover**



High staff turnover is a continuous problem. It leads to loss of information and frequent shifts in strategy which disrupts ongoing activities, creates unforeseen budget and timeline implications, causes frustration among staff and dilutes accountability.

**Field and technical staff must partake in decision-making**



HQ tends to make planning and budgeting decisions without consulting local staff, familiar with the local context, and technical staff. This may lead to overly optimistic expectations for its operations. The absence of this collaboration generates dissatisfaction.

## EQ4: Project Deliverables

**Reinforce collaboration with stakeholders**



Consulting the local community and engaging it in the design and construction process increases community acceptance and the value to be gained from MSF's investment. It also ensures that facilities are sustainable, aligned with cultural practices and fit with the local, regional and national health system.

# Recommendations

Based on the findings and the conclusions, four main areas for improvement emerged: Project Management, Knowledge Management, HR Management and Risk Management. Overall, in order to make the most for itself and for the populations that facilities serve, MSF should focus on the outcomes (the added value) that their investments offer, not simply the output of the construction of the facility itself.

## Project Management (PM)

### Project management and planning processes

Project management and planning process should be overhauled to ensure best practice, especially in the area of support functions, logistics, supply, finance and HR.

PM1

### Adopting PM processes within a project cycle

Reinforcing PM functions, building upon the project cycle set out in guidance, will increase appropriateness, risk management and departmental ownership, also enabling the integration of market analyses, local communities, patient groups and MoH.

PM2

### Planning and needs assessment

Planning and assessment of medium and long-term needs should take place in parallel to the provision of emergency relief with exit strategies between phases driving the processes.

PM3

### Thorough engagement with MoH

Engage with the MoH throughout, to ensure the project can be absorbed into their longer-term plans and budgets.

PM4

### Internal Client

An 'Internal Client' arrangement is suggested, whereby a distinct 'client' group is identified, to define needs and offer feedback on options offered by the project team.

PM5

### Community engagement and feedback

This approach is the bedrock of a good project implementation. It is appropriate for the communities that a facility will serve whilst MSF is running the project and beyond.

PM6

### Improve communications

Under the PM, informed by OCB good practice, the quantity and quality of communications across departments must be improved, supporting scenario planning, project monitoring and risk mitigation.

PM7

### Clarify responsibilities of the MSF Project Manager

The role of the PM should be reinforced across departments, so as to enable continuity and a full overview, recognising also that responsibility and reporting lines may be functionally different.

PM8

### Building upon Climate, Environment and Health

Tools should be developed in design and construction, including reputation, risk, compliance and governance, such as adopting the Environmental, Social and Governance (ESG) approach

PM9

## HR Management (HR)

### **Comprehensive assessments on prefabricated system**

Decisions over the possible use of construction prefabricated systems should be based upon comprehensive assessments, involving the comparison of alternatives.

PM10

### **Stage transitioning of the control of a building**

To contribute to the improvement of the local and nation health systems, a handover to the long-term operator must be staged.

PM11

### **Team approach**

The project should operate as a team, with assigned accountabilities that include HR and other support functions.

HR1

### **Timings and personnel needs**

The roles and responsibilities of staff should be clearly defined at the outset with key indications of timings, allowing HR to find ways of delivering the skill sets required and identifying gaps.

HR2

### **Long-term contracts to mitigate high turnover rate**

Project continuity should be supported through documentation and handovers, longer-term staff contracts and approaches such as 'tag-teaming', pioneered by OCB. Providing longer-term contracts for competent staff improves continuity, which reduces risk and overruns.

HR3

### **Integration of Environmental Guidance**

MSF needs to assess its internal capacities. These must be integrated into the ToRs of all OCB department roles involved in construction. The report will help MSF to achieve environment accountability and support its governance.

HR4

## Risk Management (RM)

### **Create and maintain a risk register for projects**

A multidisciplinary, multi-departmental team should develop and maintain a register of risks for all projects, including technical analysis and mitigations. This register should also inform multi-year planning and scenarios.

RM1

### **A structured system for scenario planning**

Create a structured system for scenario planning which can be implemented across projects.

RM2

### **Flexible and broader risk analysis**

A broader risk analysis needs to be taken into consideration, especially to enable disputes to be resolved through negotiation or arbitration, before resorting to the courts.

RM3

## Knowledge Management (KM)

### **Develop minimum standards for key documentation**

To ensure data is recorded and put into its appropriate context and is transferable between projects, a standardised formats should be used.

KM1

### **Documentation should be accessible to all who need it**

Documents and guidance should be available to and built upon by all stakeholder departments into libraries locally and across OCB, additionally informing interactions with communities, MoH and contractors.

KM2







### **Records and Online Knowledge Management**

Defined responsibilities for documentation by each team member and department should be supported for local and OCB learning, including over each project phase and facility type. Archivists should support these responsibilities.

KM3

# Methodology

## Inception Stage

<p><b>Literature Reviews</b> of available guidance and project case study documentation</p>	}	 <b>19</b> health facilities	 <b>594</b> documents reviewed	 <b>7</b> Design and Build phases	}
<p><b>Interviews</b> with departmental key informants</p>	}	 <b>15</b> interviews	 data classification	 preliminary understanding	}

## Evaluation Stage

<p><b>Literature Review</b> Literature review and document analysis of past evaluations, recommendations and capitalisation reports</p>	}	 <b>10</b> documents analysed	 <b>125</b> challenges identified	 <b>4</b> themes	}
<p><b>Interviews</b> with departmental key informants</p>	}	 <b>5</b> departments	 <b>32</b> interviews	 <b>10</b> questionnaires	}
<p><b>Case Study</b> Bar Elias, Lebanon</p>	}	 <b>5</b> departments	 <b>16</b> interviews	 analysis of costs of delays	}
<p><b>Technical Analysis</b> Contracts</p>	}	 lead: civil engineer	 <b>2</b> interviews (legal)	 <b>6</b> interviews (contracts)	}
<p>Environment</p>	}	 lead: civil engineer	 <b>7</b> interviews	 documents and media posts	}
<p>Prefabrication</p>	}	 lead: specialist builder	 documents and interviews	 experience with MSF	}

# Findings

In this section, the key findings of the literature review, document analysis, interviews and the case study conducted for the evaluation are presented. The findings are discussed under the four Evaluation Questions.

## Conception Phase

*(EQ 1: How can the conception phase of design and build projects be improved?)*

KIs across departments stressed the importance of defining a clear strategy. Approaches within emergency responses should differ significantly from projects undertaken when OCB has been in-country for longer. Although MSF still identifies and is perceived as an emergency relief organisation, it is engaged in an increasing number of longer-term projects, such as Bar Elias. In the past, many challenges originated from a lack of clear definition of the project scope and strategy. Longer-term objectives were tried to be achieved with an emergency mindset.

**“We should start by making clear once and for all that this project has never been an emergency response. [...] However, [...] the project was repeatedly plagued by a misperception of its speed of execution. At all times throughout the project, the expected turnaround time was contaminated by a sense of urgency and haste, incompatible with the characteristics of the structure we wanted to put in place.”** - Rapport de capitalisation du projet de construction. Hôpital modulaire à Tabarre de MSF (Belgique, 2012) – (translated)

In terms of risk assessment, KIs identified a need for context-specific knowledge to better inform risk analysis and for the assessments to be conducted by staff and stakeholders, who must be held accountable. Insufficient assessment leads to delays which often have a downstream effect on the budget, project priorities, due diligence, quality, contract claims, variations, disputes and avoidance. Some KIs explained that if the project significantly falls behind the schedule, OCB undertakes a comprehensive analysis to highlight the cause of the delay. It was suggested that this information needs to feed better into the delay risk analysis.

One KI suggested the formation of a ‘Risk Management Unit’, with responsibility shared among all departments, proposing that identified risks should be communicated to the departments and clear definitions of the responsibilities of each unit provided. Should this be considered, the overall understanding and ownership of risk must be retained accountably within the project team.

In addition, a need for OCB to further engage in scenario planning was identified, in order to develop a more flexible design response. This would enable decision-makers and stakeholders to make better-informed decisions for more suitable design solutions, considering the local context and environment.

## Planning & Design Phase

*(EQ 2: How can the project design phase be improved?)*

The recent development across OCB departments to using three-year strategic plans was praised by KIs. This shift has helped to maintain project flow and improve understanding across departments of timing and involvement. Using multi-year strategising and budgeting offers a broader financial frame, helps planning, limits the impact of unexpected contextual changes on budgets and promotes long-term vision. KIs proposed further standardisation of processes and documentation and implied lack of well-defined guidelines on how to manage records and documentation, as well as effective handover procedures, outlining employee obligations.

KIs indicated that context-specific design choices and considerations are necessary to create sustainable facilities in the long run, but that assessments of local context are often not done or done partly. Each department expressed clearly both their willingness and expertise in contributing or leading such assessments.

It is widely acknowledged across departments that the medical narratives are dynamic and are altered with changing needs, whereas planning and design are typically based upon an early narrative, and often do not keep pace over the project with changes in those narratives.

**“In Haiti after the earthquakes in August of 2021, MSF was so focused on building more permanent structures. It took us two months to finish building and by the time it was finished it became redundant.”**  
- Medical Department KI

KIs thus advocated in favour of more modular designs that can adapt to changes in narratives within agreed parameters, understanding that costs are associated with flexibility. The swift and successful adaptation of the Bar Elias facility addressing the Covid-19 pandemic was highlighted by respondents as an example of OCB’s capacity to quickly respond to a crisis.



## Implementation Phase

*(EQ 3: How can implementation be further optimised?)*

KIs commended existing SOPs and guidance from the Construction Team as beneficial. It was pointed out, however, that the guidance would be helpful for each department on their different roles in both defining and implementing construction activities. Guidelines and SOPs for Bar Elias during the conception and design phases were considered valuable but insufficient by all departments. KIs expressed that the guidelines or SOPs communicated by OCB on supporting the construction process during the planning and design stages should be further developed. As SOPs capture past good practice only, their development should be an ongoing process involving those using them, learning from and supporting trained and experienced practitioners, capable of responding to unforeseen local context.

KIs from the Operations Department expressed that clearer document management systems would help define departmental responsibilities. In Bar Elias, compliance of project management reporting and documentation tasks was identified as a major challenge during project implementation and was recognised as an area requiring optimisation across all project phases.

Despite recent improvements, effective communication was observed as a key challenge in past construction projects. The importance of direct and straightforward communication channels across departments is highlighted as a mitigation strategy against silos arising in each department. Working in isolation leads to confusion on the roles and responsibilities of different positions involved in the construction projects and lengthy decision-making processes. Several reports recommend the need for improving the continuity of key staff across project cycles. Moreover, building collaborative, conversational and multilateral communication channels and valuing multidisciplinary teams was recommended, for more informed decision-making.

All KIs reported high staff turnover at both mission and field levels leading to disruptions and frustrations. In Bar Elias, there was a consensus from KIs that the continuous changeover of facility staff resulted in weak communication systems, confusion in accountability and detached stakeholder relations. Equally, some concerns were expressed over the experience of available project management, specifically in larger medical facilities.

**"In a perfect world, of course having one single Project Manager would facilitate the whole process. But this is not knowing MSF reality: we have a true HR retention problem, causing a lot of turn-over / gaps / lack of handover (in the field and in HQ). This has to do with the salary conditions, the insecurity of the contexts, the lack of skilled available profiles at a given moment."** - Medical Department KI

In terms of decision-making and coordination between MSF-OCB HQ and field staff, KIs generally advocated in favour of keeping OCB HQ as the main focal point for the project and the final decision maker, although it was underlined by all KIs that HQ must rely on contextual information provided by the field.

## Project Deliverables

*(EQ 4: How could the project deliverables be improved?)*

Taking the local capacities and voices into account helps to increase community acceptance of a project. This includes a design of an appropriate healthcare strategy in line with specific needs as expressed by local communities, the choice of construction materials, or locally-purchased medical equipment. According to KIs, reinforcing the collaboration with the local community improves the feasibility of exit and handover of facilities as well as positively impact local economies and ensure that local communities are included in and benefit from the construction project. In addition, the capture of local building practices and materials optimises the long-term sustainability of facilities.

# Case Study - Bar Elias

A rehabilitation project of an abandoned hospital infrastructure in Bar Elias, Bekaa Valley, Lebanon was selected for an in-depth case study. The facility provides healthcare services to vulnerable populations, primarily Syrian and Palestinian refugees, but also migrant workers and Lebanese residents who do not have access to health insurance. Analysis of available documents and interviews revealed significant delays in the planning and design phase (27 months compared to 4 planned) and the total duration (46 months compared to 12 planned). The excess in overheads related to the 34 months of delays was estimated at some USD 637,500. The post-construction reports available show that Bar Elias is not unique in incurring delays during the design and build process. Eight projects studied within this evaluation were found to contain a combined delay of 55 months in planning and design alone, excluding construction delays.

# Technical Analysis

Responding to the ToR, literature available, KI interviews, and in consultation with MSF SEU and OCB Logistics, three areas of technical analysis were identified, agreed and explored: construction contracts, the environment and prefabrication.

## Construction Contracts

### EQ 1: Conception Phase

#### Requirement for an Appropriate Project Preparation Phase

The KIs acknowledged the need to devote more time and attention to the project preparation phase of construction projects, spanning conception and feasibility (EQ1) and design (EQ2) to implementation (EQ3). KIs and contract engineers agreed that this is an investment and insurance against future project failures and, to the extent possible, this should be an holistic multi-disciplinary exercise.

### EQ 2: Design Phase

#### Compliance to international and national design codes and standards

According to KIs, project managers and other technical practitioners without access to appropriate design/building codes, to be referenced in contracts, are obliged to rely on personal experience, judgement, and codes they are familiar with, which may be less than appropriate. KIs confirmed that lack of experience and skills in the project frequently result in failure to comply with codes. Compliance with international or national codes is closely linked with requisite professional standards of competence.

#### Background to Development of MSF Contracts and Legal Guidance

Based on anecdotal opinion from MSF-OCB construction, KIs indicated that they had no knowledge or experience of dialogue between OCB and Intersectional Legal Department (ILD) regarding construction contractual matters, and that they perceived limited flexibility. Both the ILD as well as contracts engineer KIs concluded that this was most likely a misperception and miscommunication, but it also represented a significant failure in critical awareness and communication as well as an opportunity for increased awareness and value.

### EQ 3: Implementation Phase

#### OCB tenders

KIs informed that while the contract templates are standard from the ILD, each OC of MSF has their own standard procurement documents. The ILD contract templates are predominantly used by OCB, subject to limited adaptation for differing contexts. ILD KIs indicated even these short and simple contracts are complained of by MSF project teams as being too long and too complex. The ILD KIs and contract engineer acknowledged this is a common complaint, however other feedback indicates clearly that contracts need to be more detailed and more specific to context, if they are to be of value to OCB. ILD emphasised it is available to adapt its series of contract forms with project teams to each context and highlighted the need to mitigate risk and potential cost/quality/schedule detriments.

#### Protection of Final Owner and Redress Against Contractors

Following the completion of main construction activities and handing over to the contracting client, OCB does include a Defects Notification Period (DNP) or Defects Liability Period (DLP), typically of twelve months, over which claims may be made against the contractor for latent defects which manifest. These provisions should be made effective, however, by OCB maintaining the documentation, commitment and presence to pursue redress. Conclusions and recommendations on documentation are offered in the previous sections, whereas ILD repeated its availability.

### EQ 4: Project Deliverables

#### Timing, Commissioning and Handover

IAs detailed in the full report, there appeared a number of ambiguities in the OCB guideline which KIs were asked to practically clarify in respect of contract completion, commissioning and fit-out, handover of assets, and any protections provided in favour of the final owner, in the event of late manifestation of contractor construction defects. Consequently, there is minimal involvement of the Construction Teams and KIs, and minimal comment possible. Again, reference was made by KIs to the benefits of an experienced Project Manager, with continuity in their position. The potential benefits of OCB considering an 'internal client' approach are also widely adopted strategies in general construction practice and are offered as a recommendation in this report.

## Environment

### EQ 1: Conception Phase

#### Multi-year strategic planning over environmental impacts of construction

KIs recognised that the holistic consideration of environmental factors should be achieved within emerging multi-year strategic planning, currently in place and already being evolved within OCB. Environmental factors should not be perceived as secondary priorities within emergency response contexts, due to their localised impact over time on the safety and efficiency of OCB facilities, as well as on local communities.

#### Alignment of the environmental agenda with OCB's objectives

KIs opined that, although environmental criteria are relatively new within OCB, it is encouraging that MSF has started to discuss an environmental strategy. They agreed OCB has yet to audit the significant progress already being made and 'low-hanging fruit' for further progress can often achieve the majority of environmental benefits. While KIs stressed the importance of bringing environmental discussions into OCB operations, they noted specific tools, such as for rapid environmental impact assessment, need to be developed for construction, aligned with OCB's capacity and mandate.

### EQ 2: Design Phase

#### Information management

Other interviews with KIs included how information management, such as basic Building Information Management (BIM), can be readily adopted in existing computer design drafting, to enhance records and sustainability of works and facilities for future maintenance or repurposing.

## Prefabricated Structures

The use by OCB of prefabricated building and building elements is mentioned in the ToR as 'imported prefabricated solutions'. Whereas the vast majority of facilities built by MSF in recent years relied on locally-available materials and technologies, some also used imported prefabricated solutions, or a combination of both.

### EQ 1: Conception Phase

Each department of the OCB expressed various challenges with prefabricated systems: for instance, comments from the Medical Department ranged from involvement in decision-making and limited lifespan to difficulties in maintaining IPC standards. There was general awareness that the design life of the prefabricated structure systems currently in use by MSF is ten years, however little detailed awareness of specific warranty periods and what they pertain to.

### EQ 2: Design Phase

Concerning prefabricated building elements in the design phase, KIs indicated that they are not considered systematically, but perceived instead as options for the contractor.

### EQ 3: Implementation Phase

For the implementation phase, prefabricated building elements, Medical KIs expressed interest in additional site visits, so that design decisions could be better understood and adapted during implementation, such as the layout of a laundry facility.

### EQ 4: Project Deliverables

Many KIs concluded that project deliverables could be improved through the use of prefabricated building systems under specific circumstances, but that guidance on when and how should be agreed between all departments. KIs suggested that, when considering prefabricated systems, more attention needs to be given also to the feasibility phase, in order to determine, through the detailed comparison of systems and alternatives, whether their use will achieve the desired results. Walk-through computer-aided design modelling in common use can assist all departments in understanding the implications of their decisions, whether using prefabricated or local construction. Such visual modelling or BIM, which integrates data about building performance, can also minimise last-minute on-site adjustments.

## Final Remarks

This Summary Report presented the key Findings, Conclusions and Recommendations of the Evaluation Report 'Design and Build Process of MSF Health Facilities'. The main objective of the Summary Report is to give a broad understanding of the overall assessment conducted. For the full research data analysis, section's details and appendices, please refer to the [Evaluation Report](#).