

EVALUATION OF

DESIGN AND BUILD
PROCESS OF MSF HEALTH
FACILITIES

JUNE 2022

This publication was produced at the request of Médecins Sans Frontières (MSF) – Operational Centre Brussels (OCB) under the management of the Stockholm Evaluation Unit (SEU).

It was prepared independently by Shelter Centre.

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of MSF and the SEU.

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 Cienicala, 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.

CONTENTS

ACKNOWLEDGEMENTS	1
CONTENTS	2
ACRONYMS	3
LIST OF TABLES	4
LIST OF FIGURES	4
EXECUTIVE SUMMARY	5
1. INTRODUCTION	8
EVALUATION CONTEXT	8
EVALUATION BACKGROUND	9
EVALUATION SCOPE	9
EVALUATION PURPOSE	10
EVALUATION QUESTIONS.....	10
2. METHODOLOGY	10
3. FINDINGS	14
3.1. LITERATURE REVIEW.....	14
<i>Bar Elias Literature Review</i>	15
3.2. DOCUMENT ANALYSIS	15
<i>Risk Assessment of Challenges and Recommendations of Past Evaluations</i>	16
<i>Key Lessons from Past Evaluations</i>	17
3.3. INTERVIEW FINDINGS	21
3.3.1. <i>Conception Phase</i>	21
3.3.2. <i>Planning and Design Phase</i>	24
3.3.3. <i>Implementation Phase</i>	26
3.3.4. <i>Project Deliverables</i>	29
3.4. CASE STUDY: BAR ELIAS.....	30
3.4.1. <i>Conception Phase at Bar Elias</i>	31
3.4.2. <i>Planning and Design Phase at Bar Elias</i>	37
3.4.3. <i>Implementation Phase at Bar Elias</i>	38
3.4.4. <i>Project Deliverables at Bar Elias</i>	41
4. CONCLUSION	43
5. TECHNICAL ANALYSIS	43
5.1. CONSTRUCTION CONTRACTS	44
5.1.1. <i>Introduction to procurement and contracts considerations</i>	44
5.1.2. <i>Methodology for the construction contracts and procurement considerations</i>	44
5.1.3. <i>Findings and Conclusions for Construction Contracts</i>	45
5.1.4. RECOMMENDATIONS	56
5.2. ENVIRONMENT	58
5.2.1. <i>Introduction to Environmental Opportunities in Construction</i>	58
5.2.2. <i>Methodology for environmental opportunities in construction</i>	58
5.2.3. <i>Findings and Conclusions for Environmental Opportunities in Construction</i>	58
5.2.4. <i>Recommendations for Environmental Opportunities in Construction</i>	60
5.3. PREFABRICATION	62
5.3.1. <i>Introduction to Prefabrication</i>	62
5.3.2. <i>Methodology for Analysing Prefabrication</i>	62
5.3.3. <i>Findings and Conclusions for Prefabricated Solutions</i>	63
5.3.4. <i>Recommendations for Prefabricated Systems and Elements</i>	65
6. CONCLUSIONS AND RECOMMENDATIONS	67
6.1. CONCLUSIONS	67
6.2. RECOMMENDATIONS	70
APPENDICES	75
APPENDIX A: LIST OF 19 PROJECTS UNDER THE SCOPE OF THE EVALUATION	75
APPENDIX B: LIST OF EVALUATION DOCUMENTS ANALYSED IN THE DOCUMENT ANALYSIS - RECOMMENDATION REGISTER..	76
APPENDIX C: PROJECT ID CARD BAR ELIAS	77
APPENDIX D: 7 DESIGN AND BUILD PHASES	78

ACRONYMS

CEH	Climate, Environment and Health
EQ	Evaluation Question
ESG	Environmental, Social and Governance
FIDIC	Fédération Internationale des Ingénieurs Conseils (International Federation of Consulting Engineers)
Field Co	Field Coordinator
HOM	Head of Mission
HMSU	Hospital Management Support Unit
HR	Human Resources
ILD	Intersectional legal department
IPC	Infection, Prevention and Control
KI	Key Informant
KII	Key Informant Interview
Med Co	Medical Coordinator
MoH	Ministry of Health
MSF	Médecins Sans Frontières
MSF-OCB	Médecins Sans Frontières - Operational Centre Brussels (see OCB)
MSPP	MSF Strategic Procurement Programme
OC	Operational Centre
OH	Overheads
OCB	Operational Centre Brussels
PDO	Planning and Design Officer
PHC	Primary Health Centre
SEU	Stockholm Evaluation Unit
SitRep	Situational Report
SOP	Standard Operating Procedure
ToR	Terms of Reference

LIST OF TABLES

Table 1. Project assumptions, the risks/impacts of these assumptions and mitigation strategies to counter risks.	13
Table 2. Planned vs. actual duration of planning, design and build phases at Bar Elias (*All figures in number of months).....	31
Table 3. Loss in medical services provided as a result of delays at Bar Elias	32
Table 4. Project start and end dates for overhead calculation	32
Table 5. Total Expenses (all figures in EUR).....	32
Table 6. Estimated overhead and support service costs for total project (all figures in EUR)	32
Table 7. Difference between estimated log annex and expenditures log annex as a ratio (all figures in EUR)	33

LIST OF FIGURES

Figure 1. EQs and Phases with corresponding '7 Design and Build Phases' of the 'MSF OCB Operations Designing and Building Process for Health Facilities' Protocol	12
Figure 2. Challenges and Recommendations by Theme	16
Figure 3. Challenges and Recommendations by Department.....	16
Figure 4. Gantt Chart demonstrating planned vs. actual project phases at Bar Elias health facility	36

EXECUTIVE SUMMARY

The evaluation focuses on reviewing the project relevance and appropriateness, effectiveness, impact, and sustainability – with special attention to the organisational experience of designing and building health facilities such as the Bar Elias hospital. It elicits from project documents, past evaluations, and interviews, the achievements, opportunities, challenges and progress against those challenges of MSF-OCB.

The process followed the four main evaluation questions of the ToR, namely:

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

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

EQ 3: How can implementation be further optimised?

EQ 4: How could the project deliverables be improved?

In order to deliver the consultancy, agreed with SEU and OCB Logistics were two interlocked stages:

Inception Stage: Data collection from interviews, based on the ToR plus a literature search. An analysis, based on risk scoring, of this data informed the following phase.

Evaluation Stage: More comprehensive interviews, with questions that arose directly from the Inception Stage and a deep dive into the Bar Elias construction in Lebanon. This was complemented by a meta-analysis of previous construction focused MSF evaluations and capitalisation reports.

This, in turn, led to three technical assessments examining contractual arrangements, environmental opportunities and issues around prefabricated construction.

Finally, this information was distilled down to a series of recommendations, based purely on the data gathered and its analysis. A set of conclusions which answer directly the four main questions posed by the ToR and listed above, concludes the process.

Whilst every step was taken to mitigate risks in this project, there were limitations to this evaluation, foremost of which was the fact that no direct project beneficiaries (patients), MoH and stakeholders were consulted, since the evaluation was conducted entirely remotely. Furthermore, this meant that only primary qualitative data were used, while secondary quantitative data were drawn from reports and surveys conducted in the area.

Overall, the following were undertaken to inform this process and provide valid results:

594

Documents
Reviewed

51

Interviews

1

Case Study

The consultancy focused on key areas that could enhance the MSF-OCB’s future project’s relevance, effectiveness, continuity, and connectedness. It also looked at construction efficacy and suitability of facility for the long-term use by the health system of a region and country. The suggested improvements fall into the categories of Project Management, HR Management, Risk Management and Knowledge Management. These areas are very much interlinked and co-dependent and progress has to be made against each of them to see significant improvements and cost savings.

Further attention is need on the definition of each project, increasing understanding of what problem is being solved and how it changes in the volatile contexts in which MSF operates. With this understanding will come greater ability to balance needs in the design with managed flexibility, to compensate for changes that inevitably occur.

Developing further community engagement offers perhaps the greatest opportunity to optimise the value of medical facilities for communities and for MSF, through maintaining an understanding of their needs or the local context with respect to environmental conditions, architectural style, cultural/religious traditions, and security concerns.

In the same vein, with the same root cause of low levels of consultation outside MSF, there are also opportunities to reinforce engagement with Ministries of Health, to understand how the facility fits into health systems, and hence MSF contributions to the sustainability of those systems, including upon handover.

Technically, the design and build of complex health facilities is a by definition a complex and long-term commitment. As such, it requires effective plans, a clear understanding of when and how to move between phases, multi-year budgets. As staff turnover is a major issue for projects, the project needs staff who have clear roles and responsibilities and a path that enables their longer-term commitment to project.

For example, an analysis of the issues facing Bar Elias alone, show that delays have impacted healthcare opportunities for patients, due to the delays in opening the facility, and that EUR 654,560 of additional costs were incurred by MSF.

Internally to OCB, existing guidelines and SOPs constitute a foundation to validation and elaboration across all departments with broad staff participation and support ongoing processes. Additional

guidance and SOPs are needed in areas such as contract and tender processes, to meet the challenges throughout the project cycle.

An analysis of past construction programmes found that information is lost or not communicated to key enablers within the rest of the MSF-OCB or the rest of MSF in country. This has led directly to cost overruns and a lack of timeliness in supporting the programme. It is also known that internal communications are a key challenge for MSF as a whole.

In relation to project phases referred to in the four evaluation questions, the findings can be concluded as follows:

(EQ.1): To improve the **conception phase** of design and build projects, the scope and objectives of the projects need to be clearer. Risk analysis to be broader, more flexible and integrated with strategic planning, and risk management shared across all departments with clear assignment of accountabilities. Link between known delay factors and mitigation measures is to be strengthened.

(EQ.2): To improve the **design phase**, constructions of buildings should be projected in multi-year planning, scenarios and realistic budgeting. All aspects of building use as well as continued operations post MSF exit need to be considered. Technical solutions should be assessed against the long-term and proposed on understanding of locally available skills and materials that aid sustainability and maintenance of the facility. Globally, tender and construction processes need to be standardised across MSF, whilst maintaining the ability to fit a facility into the local context.

(EQ.3): To improve the **implementation phase**, assign roles, responsibilities and accountabilities to staff more clearly and improve comprehension of SOPs and guidelines. Review communication and collaboration between departments and the HQ and the field to improve shared understanding and break silos. Project continuity is often severely hampered by high staff turnover and inadequate knowledge management.

(EQ.4): To improve the **deliverables of projects**, local community should be consulted and engaged from project inception. The longer-term perspective needs to be taken with the project delivered to fit into the health system and governance structures.

Based on the identified issues and in consideration of own internal expertise in the field, the evaluation team recommends the improvements grouped into four main areas: Project Management, Risk Management, HR Management and Knowledge Management.

Within **Project Management**, best practice in planning, project management and communication should be employed. Project Management to follow project cycle to maximise integration of inputs and MSF Project Manager's responsibilities to be set out more clearly. Needs assessment should look at medium and long-term needs in parallel with emergency relief. Initiate community and MoH engagement and consultation in the early stages and maintain the collaborative relationships throughout all project cycle. Consideration should be given to adopting the concept of the '*internal client*' to prevent departmental staff asking themselves what they want and attempting to meet their

own needs. Develop tools for climate, Environment and Health such the ESG (Environmental, Social and Governance) approach. Stage transitioning of the facility’s handover to the long-term operator.

Within **HR Management**, all involved departments should be encouraged to see themselves as parts of a team and support each other’s functions. Project continuity to be enhanced though longer staff contracts, tag-teaming, handovers, clear definition of staff responsibilities and timing as well as better knowledge management. ToRs to include environmental accountability of all staff involved in construction.

Within **Risk Management**, risks registers to be developed and maintained by an interdepartmental, multidisciplinary team. The risk data and mitigation measures should then inform multi-year planning and a structured scenario-planning. Risk analysis to be broadened and allow for areas such as dispute resolutions.

Within **Knowledge Management**, minimum standards of key documentation should be developed and translated into accessible language. Record keeping and knowledge management system should also be standardised and maintained online with clear responsibilities for archiving defined for each team member, supported by an archivist. Documentation libraries to be accessible to stakeholders and across OCB.

1. INTRODUCTION

EVALUATION CONTEXT

From the outset it has been clear that without exception, every challenge and opportunity the evaluation team saw had been witnessed by MSF, who willingly, openly and generously raised them with us. We saw strong corroboration across past recommendations and capitalisations, implying that there is general consensus over a significant proportion of conclusions and recommendations.

As importantly, we do not intend that any observations or suggestions offered are seen as negative criticism or that evidence demonstrates negligence or blind spots in MSF’s approach to your work. Indeed, we hope that all of our conclusions and recommendations will be familiar to you and that you are all already progressing solutions to them. It has been pointed out to us though that many of the recommendations from other studies have yet to be ratified at all levels.

Médecins Sans Frontières’s (MSF) primary mandate is to save lives and alleviate suffering. To carry out this mandate, MSF seeks to provide medical assistance to people affected by conflict, epidemics, disasters, or those excluded from national healthcare systems. Providing such assistance requires appropriate and functioning health facilities, and such facilities are not always available or meet basic utility standards in crisis contexts and beyond. Consequently, MSF often undertakes the construction and/or rehabilitation of health facilities to assist populations in need.

For the purpose of this evaluation, unless indicated otherwise in the context, ‘construction’ is deemed to variously include new construction, rehabilitation and/or repair of health or health support facilities.

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. This is evidenced by the 2021 Complex Health Facilities report, which found that MSF-OCB projects conducted between 2015 and 2020, had a delay ratio between 2 – 6.7 in the design phase times and 1.3 – 4 in the construction phase. Challenges were often seen to arise in areas such as speed of deployment, suitability of technical solutions, changes in operational strategies and human resource capacity. These operational demands can result in conflicting priorities within the organisation, potentially contributing to or exacerbating interdepartmental tensions. In addition, the overstretching of capacity to deliver health services can cause friction between MSF and local authorities, communities, private businesses and other civil society facilitators.

In response to these challenges, OCB operations introduced a revised manual entitled ‘Designing and Building Process for Health Facilities’ in May 2018. This was based on findings from workshops with stakeholders involved in two large projects: Kenema (Sierra Leone) and Kunduz (Afghanistan). The manual capitalises on previous design and build experiences and provides lessons and suggestions for consideration in future projects. The document serves as a reference for MSF teams on the ground and provides a roadmap of practices, responsibilities, milestones, and approval mechanisms for separate phases of the construction project cycle for medical and non-medical facilities.

However, since the introduction of the formal ‘Designing and Building Process’, there has been a need to reflect on the experiences following its publication, to inform future choices and decisions. This requires a systematic and in-depth analysis of what happens, in real terms, during the process of designing and building MSF health facilities.

EVALUATION BACKGROUND

This evaluation was commissioned by the MSF Operational Centre in Brussels (OCB) and managed by the MSF Stockholm Evaluation Unit (SEU). The evaluation commenced in June 2021 with an inception phase designed to facilitate an initial understanding of OCB’s interventions within the Design and Building process of health facilities. The outputs from the inception phase provided a foundation for the methodology used to address a set of Evaluation Questions (EQs) within the SEU/OCB Logistics ToR.

EVALUATION SCOPE

This evaluation aims at assessing MSF projects since the revision and reintroduction of the 2018 *MSF OCB Operations Designing and Building Process for Health Facilities* protocol. The evaluation focuses on reviewing appropriateness, effectiveness, efficiency, impact, sustainability of projects,

stakeholders, and beneficiaries, as well as relating these evaluation components to the projects' output and intended outcomes. Following the formal reintroduction of the Process in 2018, MSF-OCB has undertaken over 19 construction projects within evaluation parameters, applying the lessons learned from the revision of the manual. These projects varied vastly in scope and size and were considered the focus of this evaluation. While the findings broadly address the designing and building processes of the 19 projects, the Bar Elias health facility in Lebanon was, in consultation with MSF, further isolated for a detailed case study evaluation (Appendix A).

EVALUATION PURPOSE

This evaluation aims to document and reflect on OCB's experience in designing and building health facilities and assess the strengths and weaknesses of the processes. The evaluation further has the objective to provide meaningful recommendations for improvement.

EVALUATION QUESTIONS

The evaluation addresses four main aspects of the design and build process and seeks to answer the following questions:

1. How can the conception phase of designing and building projects be improved?
2. How can the project design phase be improved?
3. How can implementation be further optimised?
4. How could the project deliverables be improved?

Concerning EQ.1, the term 'design and build' has specific meaning in construction, however in the context of the Terms of Reference it will be used to describe general designing and building.

2. METHODOLOGY

The four Evaluation Questions (EQs) above from the ToR correspond in general terms with the phases of construction outlined in the guidance '*MSF OCB Operations Designing and Building Process for Health Facilities*' protocol (2018), also referenced in the ToR. These are summarised in Figure 1, listing the questions and sub-questions from the ToR against the implicit project phases in the protocol.

Data collection, sampling and analysis were undertaken in two steps, inception and evaluation, with activities and methods listed below and illustrated overleaf.

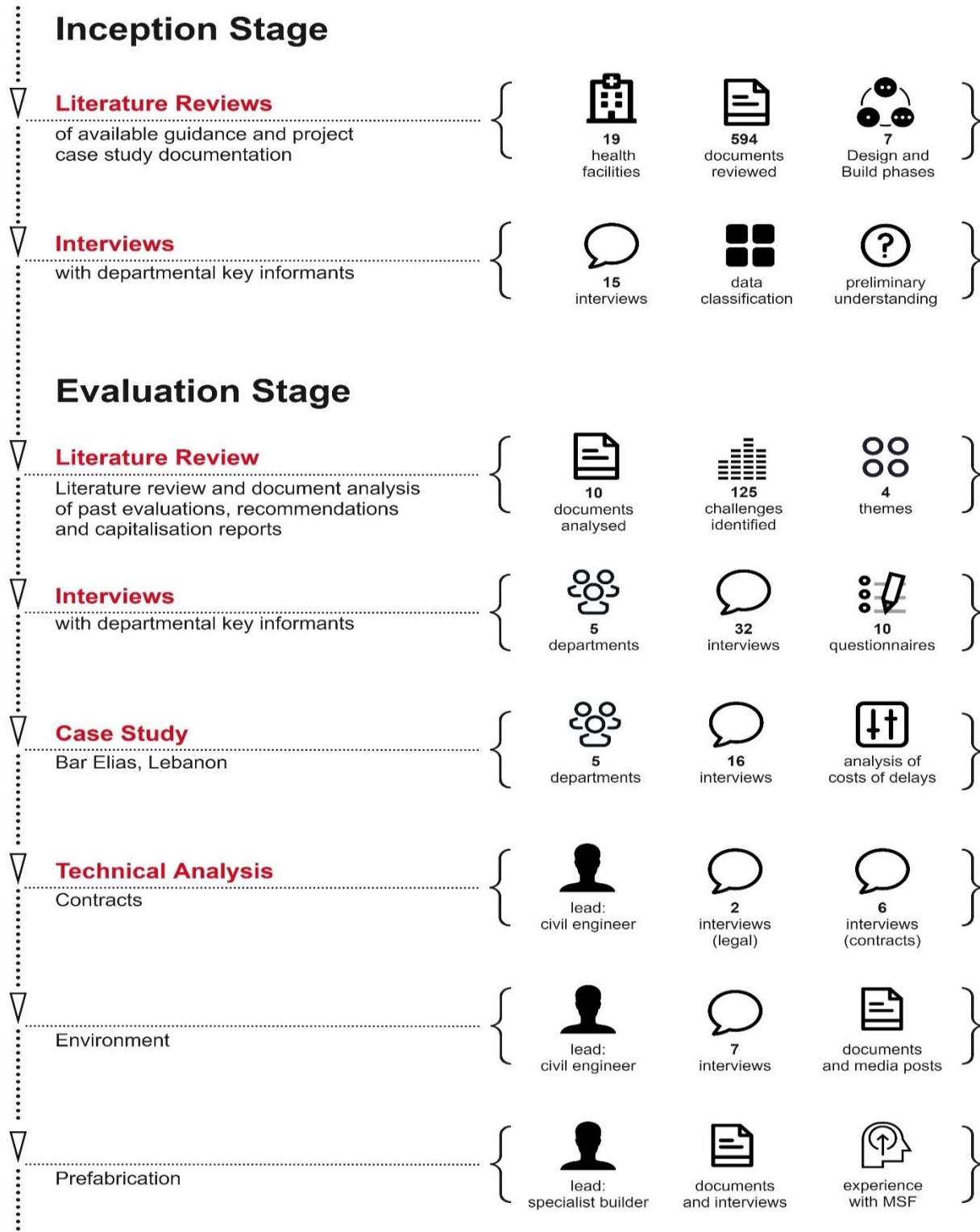
Inception Stage

- Literature reviews of available guidance and project case study documentation
- Interviews with key departmental informants

Evaluation Stage

- A meta-analysis of past evaluations, recommendations and capitalisation reports
- Interviews with all departmental informants
- Bar Elias case study
- Technical analysis of contracting and legal, environment and prefabrication

Methodology



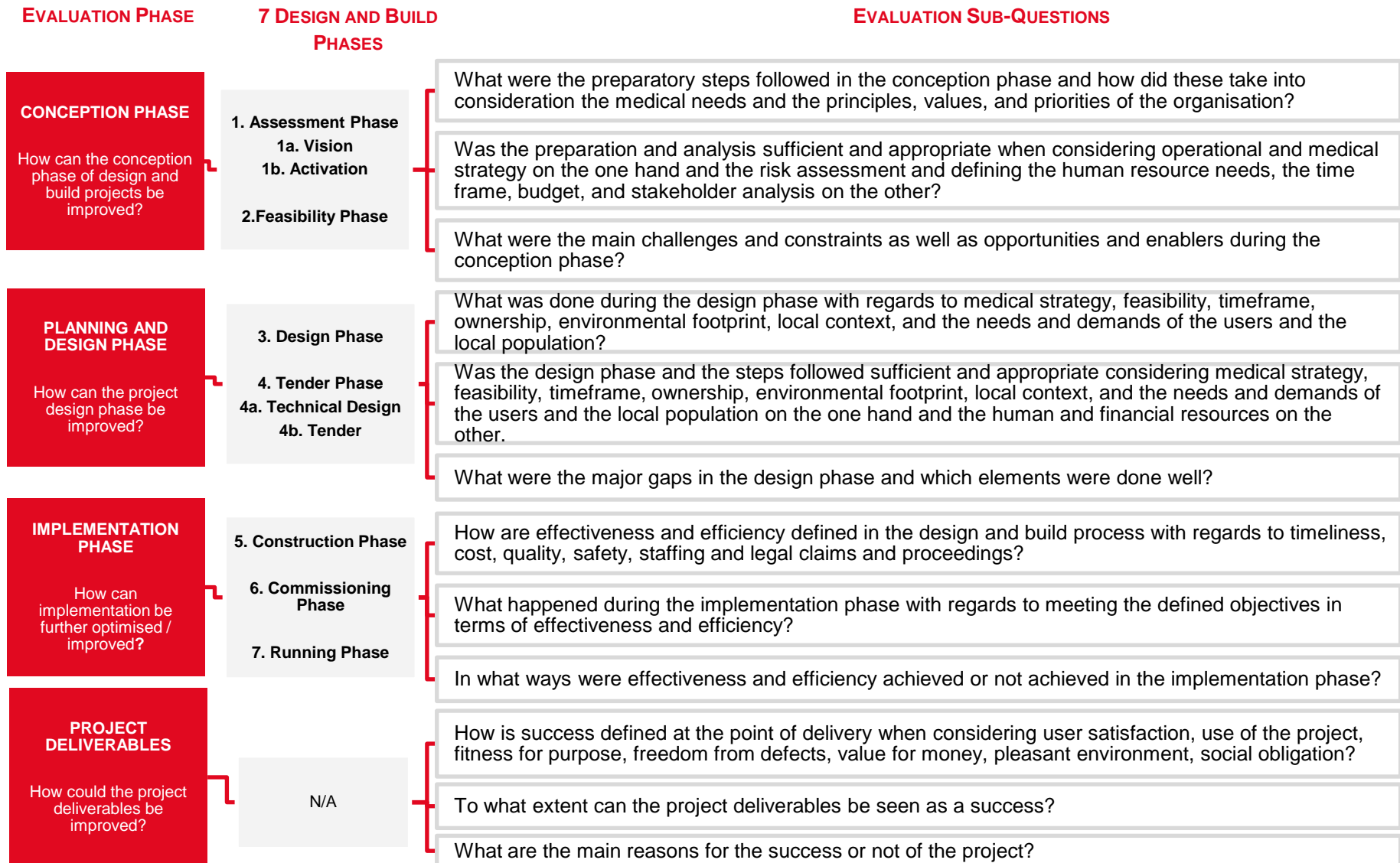


Figure 1. EQs and Phases with corresponding '7 Design and Build Phases' of the 'MSF OCB Operations Designing and Building Process for Health Facilities' Protocol

	ASSUMPTIONS	RISKS/IMPACT	MITIGATION
Guidance Documents	Applicable to and followed by all projects in each project phase.	Projects may have followed guidance to different degrees, making project comparison around this indicator more difficult.	Developing other complementary means of comparison such as classifying the projects by scale, context, and budget.
Project Document Availability	Sufficient documentation would be available for all 19 projects.	Consistent levels of documentation would be lacking for all projects, making it difficult to reach conclusions.	Developing other complementary means of comparison.
MSF-OCB	MSF personnel from OCB would be able to provide complete sets of documentation in terms of guidance and project documents.	There would be a document gap due to only OCB personnel being consulted in this inception phase.	Applying a broader search for documents and exploring further secondary contacts provided by key informants.
Key Informant's availability	Key Informants would be available to contribute their time to participate in interviews.	Key Informants had moved to other projects and organisations, or they were under paused employment and therefore would be unable to respond.	Developing a detailed and extensive list of possible contacts and determining the availability of Key Informants to engage and participate in the inception phase of the evaluation.
Key Informant Interview Questions	The list of questions posed was sufficient to collect data on all the 19 projects.	The list of questions might be insufficient or inaccurate.	Conducting one-hour, semi-structured interviews which would allow the main challenges or points of concern to be mentioned, and consequently considered as themes to be addressed in the following phases.
Themes	The emergent themes from the Key Informant interviews would overlap and be recurrent across many departments.	The themes would be unique to each department and would not intersect with other departments' themes.	During data triage in the first part of the Evaluation Phase, data were collected per department and later classified by themes.
MSF Personnel	Personnel from MSF in OCB were representative of all MSF personnel in other MSF operational centres.	Other MSF operational centre personnel would not share the same viewpoints as those in OCB.	This risk was accepted and not mitigated.
Patients, all stakeholder, MoH	The evaluation did not allow for patients to be consulted.	It was difficult to explore participatory planning, user satisfaction, economic benefits and impacts of projects.	This risk was accepted and not mitigated.
Evaluation conducted remotely	Every aspect of the evaluation, including interviews, was conducted remotely which provided enough input to conduct a thorough evaluation.	Certain logistical and psychological aspects of remote evaluation were not explored due to evaluators not being able to visit locations or conduct interviews in person.	The risk was accepted and mitigated by conducting a broader range of interviews and focusing on one case study analysis for a more in-depth perspective.

Table 1. Project assumptions, the risks/impacts of these assumptions and mitigation strategies to counter risks.

Risks and Limitations

Table 1 sets out risks identified while planning and implementing this evaluation and mitigation measures for each. The main risks identified which were not mitigated relate to the participation and consultation of patients and communities, national ministries of health, as well as other agencies offering similar medical services. Extensive engagement of these groups is recommended, as each offers an external perspective upon OCB activities, otherwise absent.

Ethical Considerations

Proposed evaluation objectives and modalities were shared with all participants, prior to and at the beginning of each interview. Participants were asked for their consent to be interviewed, as well as for the recording of their interviews, to assist note taking. Notes were shared back with individual participants only, who were asked to comment, and only approved notes were included in analysis. All identifying information was excluded from the Report.

3. FINDINGS

3.1. LITERATURE REVIEW

A review of literature was conducted against the documentation made available for the 19 MSF health facilities constructed since the publication of the *MSF OCB Operations Designing and Building Process for Health Facilities* protocol in 2018. The scope of the documentation reviewed included all documentation available on the OCB knowledge sharing platforms *Sherlog* and *Oops*, as well as any documents or files shared by evaluation focal points and KIs.

The documentation was reviewed with a purpose to better understand the MSF design and build process and its application in construction projects. The documents were chiefly of two categories:

Guidelines, protocols, templates, and Standard Operating Procedures (SOPs) developed by MSF as tools for developing project specific documentation.

Project documents concerning OCB design and build projects, particularly the 19 health facilities.

An assessment of the completeness of documentation was conducted to gain an understanding of areas with adequate documentation and clear guidelines or SOPs and an identification of any gaps in record keeping. Due to the inconsistencies and gaps in documentation across various phases for each of the 19 projects, it was concluded that there was insufficient documentation to conduct a comparative review of the 19 facilities that was initially requested by MSF-OCB ToRs.

The inadequacy of archiving project documentation was found to be significant, to the extent that if MSF-OCB was to be held liable for any aspect of a project by a third party, OCB may struggle to provide proof of documentation to defend itself.

Bar Elias Literature Review

The evaluation team received 495 documents on the design and build project 'Bar Elias', thanks to the Head of Mission, key previous staff members, current staff at Bar Elias and the evaluation focal points. The documents covered all project phases and a few SOPs or guidance documents that were used in the running of the structure.

- Conception phase, 16 documents
- Planning and design phase, 29 documents
- Tender process, 15 documents
- Construction phase, 398 documents
- Implementation phase, 26 documents
- SOPs and guidelines, 11 documents

Most documentation received originated from the construction phase of the project, the majority of which was produced by external parties, such as contractors or consultants. The complete list of documentation requested by the evaluation team was not available to the staff of Bar Elias and thus a complete analysis could not be performed.

Available HR information was inadequate in forming complete staff records for the Bar Elias project. The evaluation focal points reported that getting this type of information required a lot of 'institutional memory'. The list of staff members is incomplete, and the precision of the start and end of mission dates did not allow the evaluation team to identify gaps. The project management documentation was also limited. The evaluation team was therefore not able to track the decision-making processes across the project.

The evaluation team concluded that this case study could not reach the level of knowledge and detail needed for a full analysis, nor that of the *Capitalisation Bar Elias Hospital* report. With the available information, the team was able to conduct an evaluation of the impact of delays, in terms of financial costs and loss of services. The findings of these are discussed below.

3.2. DOCUMENT ANALYSIS

A review of past MSF-OCB evaluations and capitalisation reports was conducted in order to identify recurring challenges and key recommendations previously made to MSF related to the Evaluation Questions. The analysis intended to identify whether any of these challenges and recommendations were echoed by the KIs for this evaluation, as well as the degree to which they had been implemented.

The analysis was based upon 10 documents¹, comprising 7 end-of-mission reports, a case study, a guidance document, and an evaluation report. The documents were chosen due to the depth of detail

¹ Of the 10 documents used, only one document was of an ongoing project during the analysis; that is the "Operational Capitalisation and Lessons learned" for Kenema, Sierra Leone (Appendix B).

and understanding they provided. The evaluation team found valuable insight in these documents which was difficult to establish through other means. The reports together discussed 15 different design and build projects spread over four continents between 2012 and 2021.

Risk Assessment of Challenges and Recommendations of Past Evaluations

After a thorough review, the challenges and recommendations previously identified in MSF OCB documents were compiled into a weighted risk matrix, with entries limited to strategic and management-related concerns. Entries were sorted to reflect the themes and departments concerned and were assigned a risk score:

$$Risk = Impact \times Likelihood \text{ of Occurrence}$$

Challenges & Recommendations By Theme

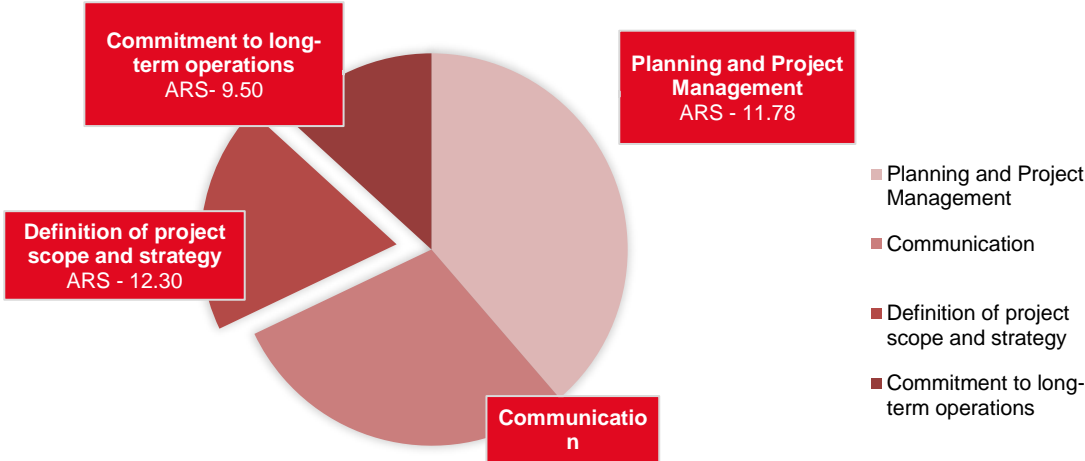


Figure 2. Challenges and Recommendations by Theme

Challenges & Recommendations by Department

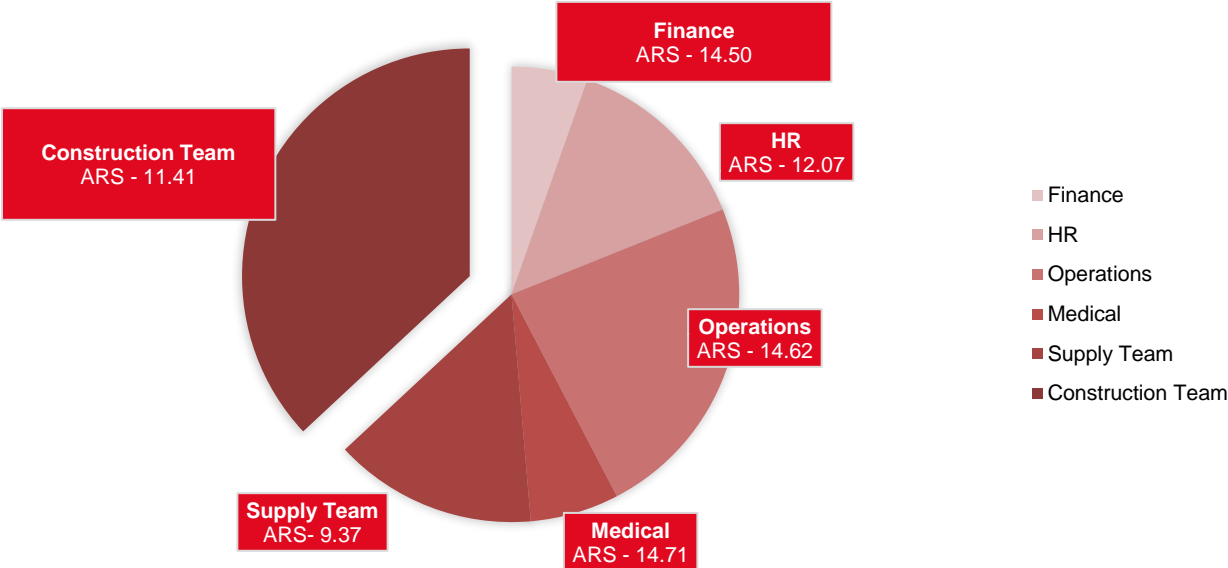


Figure 3. Challenges and Recommendations by Department

From the 10 reports analysed, 125 key challenges and recommendations were identified. Of these 125 inputs, 106 fell under one of four key themes, while the remaining 19 fell outside of the research focus. The four themes identified were:

- **Planning** - Setting out a thorough plan and following set procedures, protocols, and SOPs to achieve said plan step-by-step.
- **Communication** - Promoting intra- and inter-departmental collaboration & multidisciplinary teams particularly in decision making.
- **Definition of project scope and strategy** - Adequately defining project scope and strategy informed by local healthcare needs, local context, culture, socio-economic situation etc.
- **Commitment to long term operations** - Reflecting on the sustainability of a facility and ensuring commitment to facility's operations accordingly. Considering long term goals, handover to local authorities, legal implications, environmental impact etc. in the conception phase.

While Planning and Project management had the highest share of challenges and recommendations, the average risk score (ARS) of this theme was 11.78 (Figure 2). Despite having the third highest number of entries, it was the Definition of project scope and strategy theme that had the highest average risk score. Communication and commitment to long-term operations had average risk scores of 12.26 and 9.5 respectively.

When considering the entries against departments concerned, we can identify those departments that have a high impact on the smooth running and successful completion of the design and build process. As depicted in Figure 3, Construction and Supply Teams and Operations Department have had the highest share of entries of challenges and recommendations. In the case of the Construction Team, this observation is hardly surprising since the Construction Team is the main driver of the design and build projects.

When looking at the Average Risk Scores (ARS) (Figure 3), the highest scorers were linked to the Medical (14.71), Finance (14.50) and Operations (14.20) departments, whereas the Construction Team (10.12), which has the highest number of inputs, comes in at 5th place. It is important to note that the underrepresentation of the severity of the challenges faced by the Construction Team could be an outcome of the evaluators' interpretations. Nevertheless, this finding advocates for greater involvement of all the relevant teams and departments in construction activities.

Key Lessons from Past Evaluations

Recurring challenges and recommendations from the 10 reports were identified and are discussed below. They are grouped into four themes: definition of project scope and strategy, communication, commitment to long-term operations and planning and project management.

Definition of project scope and strategy

All but one document analysed made mention of one or multiple challenges originating from a lack of clear definition of the project scope and strategy. Overall, three key issues relating to insufficient or improper definition of project scope and objectives were identified.

First, the need for a clearer definition of sustainable healthcare needs is commonly described as the main source for subsequent issues. Nevertheless, most reports recognised that, although setting an outline of the healthcare services provided early on is advisable, the volatility of the contexts in which OCB operates can hinder the definition of a precise and fixed healthcare strategy. It was often recommended that the definition of a strategy should be developed upon reflection of potential adjustments needed to contextual changes.

Secondly, it was reported across various projects that a lack or inaccuracy of assessments frequently resulted in ill-conceived project definitions. These assessments range from mapping the local health service industry to conducting geological assessments, identifying local contractors, available skilled labourers, materials suppliers and local construction methods. Recommendations were emphasised repeatedly across the reports on the importance of conducting adequate assessments prior to construction, to prevent avoidable setbacks surfacing at later stages in the project.

Thirdly, past reports stressed that the clear establishment of project scope and sustainability in the conception phase are critical to successfully managing subsequent phases.

“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.”

Capitalization report of the construction project. MSF modular hospital in Tabarre (Belgium, 2012)

It must be noted that approaches to projects undertaken within emergency responses should differ significantly from projects undertaken when OCB has been in-country for longer.

Effective multidisciplinary, inter- and intra-departmental communication and participation

Effective communication, especially when compared to some organisations, was observed directly throughout the evaluation process, however, was identified in many reports 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. To address this concern, it was recommended that emphasis upon investments in systematising information and knowledge sharing could help offset internally faced obstacles. The evaluators note this recommendation is already being progressed by OCB.

Moreover, building collaborative project communication channels and valuing multidisciplinary teams was recommended, for more informed decision-making. The value of creating multidisciplinary teams

has not only been part of 'end-of-mission' reports but is also mentioned in more structured leading documents.

“Planning and design of health facilities requires specialized human resources and should be carried out by a multidisciplinary group adapted to the complexity and the size of the project.”

Planning and Design of Health Facilities, 2013

Several reports recommend the need for reinforcing interdepartmental communication through improving the continuity of key staff across project cycles, with clear and defined responsibilities for each position.

Planning and project management

The creation of a realistic and clear plan is advocated for in nine reports. Although recommendations to 'plan better' are a clear expression of frustration within the planning process, they do not lead to implementable or actionable solutions in all cases.

Poor planning in all recorded cases is identified as the cause of insufficient time allotted to carrying out construction activities while following protocol and procedures. Unrealistic timelines lead to construction cost increases, more construction delays and inappropriate or ill-conceived designs. Such delays are particularly detrimental in terms of HR and procurement activities, which call for constant pushing back of schedules of work and reframing of needs.

“Be candid to the fact that these projects are high-scale infrastructure projects which require the adequate amount of time and effort in the planning and design stages.”

Project Summary and Capitalization, Mosul CPOC Construction Team, 2018

Pressures on planning have led also to several reports noting premature advancement to next steps in the project cycle. All reports advise a step-by-step approach to a project and avoid rushing into the next phase, without first finalising critical loose ends.

Commitment to long-term operations and assimilation of local context

For more permanent structures, the design and build of complex health facilities is a multifaceted and long-term commitment. For both temporary and permanent structures, every construction project demands clear decisions, as well as human and financial resource commitment.

Three reports make mention of a lack of knowledge of local contexts, or poor engagement with local communities. This can take the shape of a lack of knowledge of local regulations and also a lack of acceptance of MSF's presence by the community.

One report is very explicit over the failure to consider long-term consequences of engaging in full-fledged construction projects. The author reflects on the long-term possible outcomes of high maintenance costs, as well as the consequences of not being able to hand over a facility:

“There is reason to fear that no matter how long MSF management lasts, the future of the structure will be a gradual and disorderly abandonment, including compulsive dismantling for use of many elements among neighbouring communities. This confronts us with a moral dilemma of importing tons of material without a recycling and disposal strategy.”

Capitalization report of the construction project. MSF modular hospital in Tabarre (Belgium, 2012)

Two reports advocate for commitment towards complex facilities by increasing the technical and organisational skills of OCB staff that are needed to meet new challenges and engagement in long-term project contracts.

Conclusions

Based on ‘lessons learned’ from past evaluations and missions, it becomes clear that recurrence of certain challenges is more likely a result of deeper issues at the core of a project. For instance, a clearly defined scope and strategy for a facility are conducive to good planning, otherwise issues and risks can occur over the course of time. It follows that the conception phase should be given particular attention, since it is likely to deeply affect the subsequent steps of the project.

Similarly, many of the challenges reported in past construction projects involve departments other than the Construction Team. Risks related to the Medical and Operations departments on the design and build process have been identified as especially significant in past projects. It emerges from past evaluations that particular attention should be devoted to promoting multidisciplinary collaboration, whilst ensuring clear definition of roles and responsibilities to avoid inconsistent decision-making.

In summary, OCB believes through its past evaluations that construction projects at OCB are inherently intricate, interdisciplinary and have far-reaching implications, which requires appropriate consideration in the early stages that are consistent with the urgency of the project as well as frequent monitoring throughout operations. Many of the challenges faced by OCB have found solutions within OCB itself and the staff responses merely need to be amplified. In that sense, past evaluations and capitalisation documents are a precious resource for OCB to reflect upon and find ways to improve its activities. Consequently, this Evaluation reflects what OCB already knows and, observing proactive initiatives across departments, the solutions are already within OCB.

3.3. INTERVIEW FINDINGS

This section looks at key findings from 32 interviews with KIs of 5 departments: Operations, Medical, HR, Finance and Logistics, including the Construction, Procurement and Supply Teams under the Logistics Department, in addition to those interviews undertaken during the Inception Phase. As some interviews considered more than one topic, the interviews per topic are summarised in the Methodology table.

The findings are discussed under the four Evaluation Questions as phases: Conception Phase; Planning and Design Phase; Implementation Phase; and Project Deliverables. The phases defined in the evaluation ToR are not the same as the phases defined in the *Operations Designing and Building Process for Health Facilities* protocol. The phases defined in the ToR are used, with the comparable phases in the protocol described for each (refer Figure 1).

3.3.1. Conception Phase



The Conception Phase of the ToR corresponds to the Assessment and Feasibility Phases of the *Operations Designing and Building Process for Health Facilities* protocol.

Community engagement and participation in planning processes

KIs within the Operations Department identified that while the increased involvement of local stakeholders and authorities is desirable, it is not always optimal, with some projects prioritising short-term plans over longer-term community-centric solutions.

Considering from project conception the longer-term objectives of OCB and construction

All departments reported that OCB struggles to acknowledge its longer-term objectives, opportunities and responsibilities, whilst recognising being present in some countries for decades. Furthermore OCB, as in other OCs, no longer operates exclusively in remote, volatile contexts, considering a single and temporary medical narrative, and is increasingly assisting local authorities in developing more reliable and inclusive health systems by investing in large-scale construction or rehabilitation projects, with a long-term expected lifespan. Personal opinions appear polarised over whether MSF is an emergency or a development organisation.

“We should have better exit strategies because we get stuck into the countries and then we keep just renewing and renewing contracts and projects... it cannot still be an emergency. We just try to find reasons to stay, which I mean, of course, there are. That’s why we are there. But then... we cannot call ourselves an emergency organisation anymore.”

Operations Department KI

Considering construction alone, however, respondents accepted that MSF has the capability to be both an emergency and a development organisation. Most challenges encountered appeared rooted in attempting to achieve longer-term objectives with an emergency mindset, additionally hampering emergency response by inadequate risk management. In contrast, KIs also reported overambitious projects that seek to achieve long-term goals in a very short time, which eventually impact patient safety, MSF's credibility with communities, as well as staff morale.

“A hospital is a long-term investment and therefore it needs long term vision, long-term planning and long-term commitment. So that means thinking about what the evolution of this hospital is going to be. [It must be looked at] from an opening phase to its operational [phase], but also in terms of the people [HR and staffing].”

Medical Department KI

Coordinating and phasing the transition from temporary emergency facilities to longer-term facilities

The phasing of construction activities providing healthcare services in parallel with construction activities was praised by a few KIs as a mitigation strategy to alleviate delays in longer-term projects. In particular, the phasing was said to be valuable in helping establish needs and understanding context, functioning as a pilot phase, prior to setting up permanent structures.

Definition of project scope and strategy

KIs across departments stressed the importance of defining a clear and, if necessary, flexible healthcare strategy, informed closely by the local context, at the early stage of the process. Several KIs recalled past instances where the design and build activities have not been informed by the specific healthcare needs, which resulted in inadequacy between the layout of the building and the services provided.

Assessment and feasibility

Strategic planning, accuracy of assessments and feasibility were identified as a challenge of MSF-OCB conceptual operations. KIs from the Logistics Department emphasised the importance of context-specific preliminary assessments of both the physical context, such as geotechnical, as well as operational context, such as the availability and nature of contractors. Further to this, one KI reported that such the design and conclusions of assessments should be coordinated more comprehensively, enabling emphasis on key limitations faced in specific contexts, to help departments understand what is feasible. To demonstrate this issue, another KI stated that new construction projects are sometimes undertaken when rehabilitation projects would have been sufficient.

Risk management

Risks related to delays include increased cost, redefinition of project priorities and limits, concessions on due diligence and possibly forgoing design or construction processes due to time constraints. Considering the importance of risk management, having one referent per project managing risk was deemed insufficient to some KIs. 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. Finally, benefits

of maintaining a risk management checklist integrated into strategic planning mechanisms were discussed, to keep track of relevant contextual changes and, based on those, make appropriate design adjustments whenever needed.

Finance Department KIs added that OCB undertakes real-time comprehensive analyses to examine causes for projects experiencing significant delays. It was suggested that this information needs to be better incorporated into existing contingency plans, so that delay factors may inform the project schedule and long-term programme budgets.

Scenario planning

Many KIs identified a need for OCB to further engage in scenario planning, 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. KIs suggested that better use of scenario planning could assist with mapping out potential risks and help prepare more precise mitigation, continuity and contingency strategies. An example of this was given by one KI in the Medical Department who reflected that planning for predictable seasonal outbreaks could help determine project phasing and shift in operations.

Planning for an exit strategy

All OCB construction has opportunities to optimise sustainability options, once MSF moves to different priorities. Overall, KIs mentioned that issues related to the handover of the facility and the alignment of the project with the local context originate from the unclear definition of the project's scope and its final objective: the achievement of final-stage objectives was dependent on early-stage considerations and planning for handover procedures from MSF to a country's MoH, or to any other local or international agency.

KIs suggested that collaboration with the MoH should be strengthened from the inception of the project as it will clarify the expectations for the facility and improve the level of satisfaction from local authorities. In addition, KIs warned against the consequences of assuming that MoH will take over the project without appropriate negotiation, as this could lead to complications for MSF withdraw especially if the scope of operations is unfeasible for other actors to manage. Nevertheless, KIs commented that MSF is correct to resist an MoH dictating the project's strategy, as the MoH may favour facilities which might not always align with the humanitarian objectives or resources available for the project. Furthermore, the MoH may seek to influence MSF designs in their interests, creating problems if they have limited vision over standards. An example offered of this scenario was a Minister choosing a poor location for a TB ward.

KIs identified a recurring challenge in the availability of resources nationally and discrepancy of expected standards between MSF and the MoH, such as in terms of technical equipment, the number of staff and standards of care: the MoH often struggles to maintain the same level of standards as MSF. When handover to MoH is agreed, KIs recommend paying special attention to HR activities to alleviate continuity issues, in particular investing in training for national staff and aligning salaries with local

standards. Finally, the potential was highlighted for the Hospital Management Support Unit (HMSU) to support the transition process.

3.3.2. Planning and Design Phase



The planning and design phase of the ToR corresponds to the design and tender phases of the *Operations Designing and Building Process for Health Facilities* protocol.

Application of budgeting tools and frameworks

Currently, OCB prepares monthly project budget forecasts with the budget holder taking prime responsibility for checking the budget deviation and managing the budget lines. Planning and forecasting changes are then made in line with the deviation with approval from the Director of Operations.

According to KIs, budget estimation is very difficult with changes administered as a failure in project management rather than valued adaptation. Overall, final costs are consistently higher than initial estimates. Some KIs suggested that budget estimates should be done by phases rather than by year. To do this, however, there must be an understanding of the interdependencies between the phases and how to navigate between them.

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 strategizing and budgeting was also widely praised by KIs for offering a broader financial frame, helping to plan and limiting the impact of unexpected contextual changes on budgets, as well as promoting long-term vision, reducing pressure on justifying budgetary changes and finally facilitating the amortisation of initial costs.

KIs proposed further standardisation of processes and documentation, as well as agreeing the selection of appropriate industry-standard construction contracts and project management software, configured to interface with new OCB financial management tools.

Assimilation of local context in planning and design

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. Assessments mentioned included of communities, environmental and hazard factors, local capacity such as contractors and HR, legal factors, banking mechanisms, in-country taxes, and authorities. Each department, however, expressed clearly both their willingness and expertise in contributing or leading such assessments. Suggestions included: market assessments and identifying different contractors as a 'Plan B' along with favouring local purchases over imported goods, involving Procurement and Supply; contracting and financial transfer options appropriate to local banking

infrastructures, arranged to award suppliers from different locations to avoid financial irregularities. Some KIs also expressed that the construction project management team should capitalise on the local knowledge of hospital design and general construction as much as possible.

Flexibility in the Design Phase

It is widely acknowledged across departments that the medical narratives are dynamic and get altered with changing needs, whereas planning and design are often 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. Referring to MSF’s earlier ‘health centre’ models, one KI suggested enabling greater flexibility in meeting changing healthcare needs by opting for constructing larger compounds, making greater use of generic and standardised layouts, also involving more adaptable building designs.

Effective multidisciplinary, inter- and intra-departmental communication and participation

All department KIs identified interdepartmental communication as key in the project planning process, in minimising costly and/or irreversible design flaws. KIs pushed for more ‘conversational’ rather than ‘bilateral’ communication, celebrating OCBs evolving cafe/webinar project group mechanisms, especially in the planning and design phase. KIs added that conversational, interdepartmental communication will allow each department to gain a more holistic understanding of any opportunities and challenges of the project, however, in doing so, they found that lengthy design discussions delayed project implementation.

The Medical Department’s KIs stated that involvement of the Medical Department was limited around agreeing the medical narrative informing the design, with little room for follow-up and feedback. There was consensus that they did not understand fully the implications of the narratives upon design and future operations, as this required knowledge outside their remit to answer questions outside their area of medical expertise. They, with KIs from other departments, agreed on the need for specific communication processes and methods be developed to raise understanding and elicit more accurate feedback, including developing a series of scenarios with alternative design options, as well as site visits and walk-through visualisation opportunities, whether virtually or through models. These were perceived as valuable in ensuring that the hospital design process aligns with the current healthcare standards, as well as helping decision-makers trial the experiences of patients, staff members and use personnel medical equipment such as PPE.

3.3.3. Implementation Phase



The implementation phase corresponds to the construction, commission and running phases of the *Operations Designing and Building Process for Health Facilities* protocol.

Implementation of SOPs and guidelines

KIs commended existing SOPs and guidance from the Construction Team as beneficial. It was pointed out, however, that this guidance has yet to be ratified by all departments, as well as that guidance would be helpful for each department on their different roles in both defining and implementing construction activities. It was noted by a KI that the small number of people that are currently involved in producing SOPs may be why teams do not take ownership of existing SOPs throughout all project phases and do not use these existing tools at full capacity.

Medical Department KIs noted that the implementation of emerging IPC guidelines was dependent upon human behaviour changes required to adhere to them, rather than the technical guidance itself. One KI added that proposed IPC requirements can be unnecessarily complicated and simpler solutions could have been found for some contexts.

These comments talk to both the development of construction guidance, as well as the integration of IPC considerations into construction implementation, for example technical devices such as infrared operated sinks or permanent structures are often unnecessary and a hindrance in the workplace that do little to contribute to promote hygienic practices.

“... putting a wall is not necessarily going to increase hygiene. I would say rather the opposite because the more surfaces you have, the more you need to clean and the more risk you have that there is some fungi or increase in nosocomial infections... It means that the nurses will lose time by going from one bed to the other.”

Medical Department KI at OCB

One KI detailed the need for a required ‘basic’ set of IPC standards for challenging contexts that may struggle to implement the more technical standards due to scarce resources or other context related challenges. The KI also suggested drafting guidelines in plain language, amending manuals with images and annotations and possibly translating into several languages.

Knowledge management

Archiving project documentation and linking archives across departments was emphasised by KIs in each department, with an operational example of good practice shared by a KI in Operations, separately from news from OCB HQ that a new knowledge management platform is under development. A Supply Team KI added that they helped set up a record database to share reports,

minutes and alike and observed the resulting improvement in construction project record-keeping as compared to 2010.

KIs celebrated the efforts from OCB in seeking feedback and compiling lessons learned from previous projects. To further promote such mechanisms, it was suggested that OCB introduces more frequent and systematic channels for collecting feedback, keeping record of related discussions, and reflecting upon past activities on a continuous basis. KIs mentioned that existing platforms enabling knowledge sharing and exchanging expertise are valued, but underused both in sharing complete project documents sets, and in accessing these documents to inform decision-making. In particular, national and regional knowledge was repeatedly mentioned as beneficial for improving OCB activities in the long run.

Poor institutional memory was also identified as a contributing factor to challenges deriving from high staff turnover, both in missions and in the field, as a new team may decide to re-do certain steps, rather than build off the work done by the previous team. There have been recent improvements in information transfer during the handover with templates and guidelines to ease the process, however, this does not guarantee that they will be implemented.

Inter-departmental communication during implementation

KIs emphasised that departments are impacted differently by changes in plans and have varying capacities to respond to such changes during the implementation phase. Plan changes are already a part of the construction process and are expected, however, are perceived often as indications of failures in project management, rather than a valuable and necessary adaptation process, to maintain relevance to medical narratives. That said, KIs from all departments concurred that changes leave room for improvement and allow for flexibility. It was noted that the use of 'agile' project management methods is already being explored by the Supply Team to improve consultation and communication.

The need for each department to be supported in their roles around construction, differing in each phase, is further emphasised by KIs from the Construction Team, describing how they often need to offer guidance on which tools should be used for operational project reporting and how to complete necessary documentation.

Contracts management

All KI responses related to contracting are considered together in the technical review chapter. Many KIs believed that MSF uses templates and annexes for contracts that are non-negotiable and non-changeable, which is at variance with the position of the Intersectional Legal Department (ILD). All agreed that contracts need to be formed in a way that they are respected and carried out by all parties involved, and that compliance with contractual obligations from suppliers or contractors is difficult to achieve if OCB does not follow its own obligations.

In addition, when suppliers fail, Supply Team KIs described how they need to restart the process, which is a significant loss of time. MSF focuses primarily on local suppliers and has a reactive mitigation strategy that involves extending the search areas for suppliers from local areas to regional and central

areas. To mitigate this risk further, KIs suggested MSF could expand surveys and databases of local, regional, and central suppliers.

High staff turnover at cell, mission and field levels

All KIs reported high staff turnover at both mission and field levels, also resulting from the reallocation of cell remits, leading to loss of project information, frequent shifts in strategy, disruption of ongoing activities, frustration among staff, and has negative budget and timeline implications. Staff frustration from the impacts of turnover also contributes to a low levels of job satisfaction that becomes a deterrent for future collaboration. Other causes of poor staff retention mentioned by HR KIs were relatively low pay as well as unstable and insecure contexts, however other KIs simply sought more progressive careers with MSF in construction.

Achievements in medical HR in introducing specialist capacities were discussed with HR KIs implying that, with appropriate institutional support, similar but different approaches are achievable in construction, integrating internal OCB, inter-sectional and external capacities. Polyvalent medical staff are not sought to undertake all medical tasks, however the expectation of polyvalent construction staff being able to undertake every construction task appears to remain in some quarters, possibly rooted in personal positions over OCB being either an emergency or a development organisation. Construction Team KIs emphasised the importance of agreeing additional ToR profiles of construction specialists and opportunities for capacity building, combined with improving the shared understanding of who will be needed when, in order to better anticipate HR needs.

Roles, coordination and communication between MSF-OCB HQ and field staff

According to KIs, HQ ensures stability and breadth of experience. In general, KIs 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. In particular, KIs mentioned that expertise provided by the Medical Department should be more systematically included in decision-making activities at every stage, as it will help maintain realistic expectations and accurate projections. The HQ Logistics Department described its support to the field as especially valuable when it comes to providing warning signs for teams on the ground.

Where KIs offered example of HQ referent support and communications breaking down, a common cause appears to be independent approaches taken by Heads of Mission, however some noted care should be taken in understanding what has prompted the HoM to increase independence from HQ. That said, examples were offered of changes against technical requirements made during projects without consulting relevant HQ referents.

KIs from the HMSU outlined OCB progress made in developing this function, common across medical service providers, and explored with evaluators the implications and opportunities such focus on facility management offers both their construction and maintenance.

“I think part of the problem is people recognise that hospitals are large, complex systems to be managed. The expertise is not there and the understanding is not there about what that actually means...the people in the Cells, they're not experienced to manage hospitals, that's why you needed and wanted this [HMSU] unit. They want to have the hospital management team training revamped and be able to offer that to the people in the field. That's great, we will work on that but hospital management cannot be taught in two weeks.”

KI from the Hospital Management Support Unit

Clearly defined roles and responsibilities

KIs reported that not all stakeholders in all departments understand fully their roles and responsibilities in construction, despite being clearly set out in Construction guidance. Any lack of clarity can also result in different styles of management, based on the individual rather than a standardised processes.

KIs from the Operations Department expressed that clearer reporting lines and document management strategies would help define departmental responsibilities, leading to improvements in calculating resources, scheduling activities, and achieving milestones. Additionally, Finance Department KIs suggested that it is important to understand who is responsible for delivering project management tasks, so that supervision can be streamlined, and risk reduced.

3.3.4. Project Deliverables



This section looks at key observations, challenges and recommendations surrounding project deliverables.

Community engagement

KIs commented that community acceptance is not adequately considered before the projects begin, and that there is limited initial and ongoing communication with the local medical service providers. Several Medical Department KIs deemed community outreach to be insufficient in general and highlighted the weakness of most preliminary studies in reflecting on the integration of a project within the local healthcare landscape.

KIs further expressed that MSF project designs sometimes did not consider local cultural/religious beliefs and practices, as this could help to inform project deliverables, such as provisions for patients' families, the size of the rooms/wards, as well as segregated areas for men and women.

Including some highly frustrated voices, there was consensus across KIs for an appropriate healthcare strategy in line with specific needs as expressed by local communities, for complementarity of MSF interventions with other local healthcare service providers, and for more systematic consultation,

participation, sensitisation and information-sharing with future beneficiaries across all stages of the project. KIs stressed that MSF should not ‘shout louder’, but instead invest more consistently in a patient-centred approach and develop participatory planning procedures, to promote a comfortable and familiar environment and encourage patients to seek healthcare.

Assimilation of local culture and context in facility design

Although the creativity and resourcefulness of MSF was repeatedly commended by KIs in adapting to contexts, it was noted that complex design features can lead to the alienation of the community: security and safety checkpoints, admissions spaces and intricate patient flow in multiple-story buildings especially can make patients anxious, intimidating and discouraging communities from seeking healthcare.

In response, KIs suggested investing in simple, reliable, and sustainable medical services and facilities, rather than introducing complicated technologies for either that require substantial investment in time and resources. One KI commented that a reasonable compromise on quality could lead to simpler solutions which focus more on meeting patient expectations and providing better care.

Use of local materials and mechanical plant options

KIs, mainly from the Logistics Department, identified multiple benefits connected to building a more in-depth understanding of how they can positively impact local economies and ensure that local communities are included in and benefit from the construction project. They recommended conducting better assessments of the availability and quality of local resources at an early stage in the conception and design phases and creating linked national, regional and MSF databases of locally-available materials and plant, with full technical specifications. They also suggested further developing a series of standard designs for each type of facility that can be adapted to the local context, considering locally available and appropriate materials.

Environmental considerations

With all responses integrated into the technical section of this Report, KIs expressed that design choices need to further interrogate environmental as well as social contexts, to capture local building practices and materials to optimise the long-term sustainability of facilities.

3.4. CASE STUDY: BAR ELIAS

The OCB Bar Elias medical facility is located in the Bekaa Valley, Lebanon. Bar Elias is a rehabilitation project of an abandoned hospital infrastructure, strategically located close to the Syrian border. The facility provides healthcare services for vulnerable populations, initially Syrian and Palestinian refugees but including migrant workers and Lebanese populations without access to health insurance coverage. It is spread across a three-floor facility and is one of OCB’s most complex and technical facilities.

This section looks at key findings from 16 interviews with KIs across all departments. The findings are presented under the four Evaluation Questions: conception phase; planning and design phase; implementation phase; and project deliverables.

3.4.1. Conception Phase at Bar Elias



The conception phase corresponds to the assessment and feasibility phases of the *Operations Designing and Building Process for Health Facilities* protocol.

Definition of project scope and strategy

After an assessment period between 2013 and 2014, rehabilitation works started in 2015 once the project was approved however, the initial strategy of building a trauma centre for Syrian refugee populations was revised after the Syrian border closure. With construction ongoing in parallel, another context assessment was carried out in 2017 to identify healthcare needs in the region and redirect the healthcare strategy of the facility. As a result of this assessment, the project was repurposed for essential elective surgery and wound care. The first patients were admitted in the facility in October 2018.

Both documentation and KIs confirmed these shifts in healthcare strategy in the early conception and planning phases. These shifts continued well into the rehabilitation and construction process, risking healthcare services adapting to the existing infrastructure, rather than the other way around. Nevertheless, all departments and especially Logistics demonstrated outstanding agility in ensuring facilities remained relevant and well maintained.

Impacts of delays

The impact of delays can be significant and an analytic model is presented below to better understand those impacts, offered to inform OCB developing similar analytic models, to assist in its planning processes. The total delay in the completion of the Bar Elias facility was 34 months: whereas the total planned duration for the two phases design and build was 12 months, the process took 46 months to complete. Table 2 presents the planned and actual duration, in months, of the planning, design and build phases.

PROJECT PHASE	PLAN*	ACTUAL*	DELAY*	DELAY RATIO
Planning and design	4	27	23	6.75
Construction	8	19	11	2.4
Total duration	12	46	34	3.83

Table 2. Planned vs. actual duration of planning, design and build phases at Bar Elias (*All figures in number of months)

Estimating the implications of delays in terms of medical outcomes should be left to medical professionals, however, to offer a simplistic extrapolation, the evaluators assumed the reported annual activity at Bar Elias and therefore a usual monthly rate of activity. The 34 months of delay in opening the facility at Bar Elias meant that an estimated total of over 10,000 medical interventions were foregone. The general impacts on individual lives and local communities due to delays in opening the facility on time is more challenging to quantify.

PATIENT NUMBERS ²	ANNUAL	MONTHLY
OT patients	3,120	260
Wound care patients	700	58
Total	3,820	318
Total medical interventions foregone in 34 months of delay	10,823	318

Table 3. Loss in medical services provided as a result of delays at Bar Elias

Delays in the design and build process also result in additional costs related directly to:

- the design and build process,
- Overheads and support services incurred directly by MSF throughout the entire period of delay.

Table 5 below highlights the additional costs incurred during the 34 months of delay at Bar Elias.

Direct project costs

Bar Elias time frame and additional costs taken from the MSF OCB Complex Health Facility Case Study 2015 to 2022. Any works undertaken prior or after this timeframe were not considered.

PROJECT TIME FRAME (BAR ELIAS)	
Start	09.03.2016
End	22.12.2018

Table 4. Project start and end dates for overhead calculation

Considering the parameters mentioned above, the following expenditures were found per project.

	Log	Transport	HR	Others	Total
Bar Elias	4,251,261	3,415	102,188	6,868	4,363,733
Difference			112,471		

Table 5. Total Expenses (all figures in EUR)

Overhead and support service costs

OCB overheads and support service costs were estimated at 15% based on the original planned budget cost, used to estimate the overall overhead and support service costs for the total project delay, presented in Table 6 below.

Estimated overhead (OH) and support service costs	Total	# Months	Per month
Estimate, at 15% of the budget (EUR 1,5 mil)	225,000	12	18,750
Actuals, at rate calculated from the budget	862,500	46	18,750
Delay cost OH & service costs , at rate calculated from the budget	637,500	34	18,750
Actual OH & service costs, at 15% of actual project costs (EUR 4,36 mil)	654,560	46	14,230

Table 6. Estimated overhead and support service costs for total project (all figures in EUR)

Estimated figures taken from Bar Elias ID Card (Appendix C). The facility estimated a total of 3,820 annual patients.

The more a project is delayed, the more expenses it will accrue, due to site running costs, HR, guesthouse rentals and so forth. To focus on how well the first estimation was done, when compared with the final expenses, a comparison is offered only of the LOG Annex, and more specifically, the codes mentioned in Table 7, as those expenses usually do not vary over time, beside inflation, which in this instance should be considered carefully for a full analysis.

Project	Estimated Log Annex	Expenditures Log Annex	Ratio
Bar Elias	1,500,000 (05.2014)	4,251,261	2,8

Table 7. Difference between estimated log annex and expenditures log annex as a ratio (all figures in EUR)

Table 7 highlights the difference between the expenditures and estimated log annexes with a ratio of 2.8. The difference highlights the cost of delays as expenses incurred by OCB. The difference between the two figures is substantial and represents the cost of delayed decision-making in the Bar Elias facility. It is impossible to quantify the opportunity costs of expenses in terms of alternative services provided and lives impacted.

KIs also identified a lack of responsibility concerning expenditure from OCB in the case of Bar Elias:

“When you have a narrative that ‘money is not an issue’ from the cell, you don’t have to justify that you didn’t open the hospital and that you have staff that is without a job. They’re sitting there waiting for it to be built.”

Finance department KI

The post-construction reports available show that Bar Elias is not unique in incurring delays during the design and build process. Eight projects listed in the document ‘Complex Health Facilities Case Study’ contain a combined delay of 55 months. These do not include construction delays.

The Gantt chart in Figure 4 maps the overall Bar Elias project cycle from conception to completion, highlighting the ‘planned’ alongside the ‘actual’ duration of each stage. Critical points to note include:

- OCB pre-planning time frame from March 2014 to final technical *patios* and MSF registration in Lebanon in April 2016, 25 months total duration.
- OCB registration in Lebanon April 2016 to signing MoU with design consultancy in October 2016, 6 months.
- Construction tender launched October 2016, construction contract awarded December 2016, 2 Months.
- Construction contract signed December 2016 planned construction start December 2016. Actual construction starts February 2017.
- Planned construction 8 months; actual construction 19 months.

This Gantt chart clearly highlights that the original plan did not adequately take into account and manage such risks, indicating fundamental concerns over the understanding within OCB of causes and impacts of delays, but also the concept of the design and build process with respect to risk management.

Risk analyses, needs assessments and scenario planning

KIs identified a need for better defined and informed feasibility studies during the conception phase, along with clearer operational strategies to facilitate risk forecasting and contingency planning. KIs also reported that new risk scenarios and changes in project approaches were often received at the last minute, impacting planning, and leaving teams in reactive positions. Inconsistencies between risk analyses and design decisions presented project challenges, and KIs expressed the need for early risk identification and mitigation tactics.

““[At Bar Elias] There is a strong lack of cohesion between operational ambitions, medical activities and physical infrastructure.”

Medical department KI

KIs identified a need for a more thorough needs assessment, informed by context-specific knowledge and conducted by actors who may be held accountable. KIs added that procedures need to be adaptive and feedback from staff should be integrated to improve existing systems. KIs suggested keeping material catalogues and documentation of assessments, available resources and contractors employed by MSF alongside MSF feedback of service provided, in order to ease selection for future projects and achieve better informed decision-making.

The *CoPro* (May 2014) document sets the initial objective of maintaining surgical capacity in the region after loss of MSF’s activities in Syria. The *CoPro* sets out four possible scenarios as ‘a speculative exercise’, with consideration of the volatile context in Lebanon. The scenarios cover a range of possible futures and include a minimal description of a possible appropriate response. In all other available documentation, such as Project Proposals, *SAGE* reports and *Patio* reports up until December 2015, the evaluation team did not find any references to these scenarios, or to risk mitigation strategies.

Long term commitment to operations at Bar Elias

According to KIs, financial struggles and local instability in Lebanon led to difficulty in opening the second wing of the Bar Elias facility, combined with OCB’s reluctance to commit to long term operations at Bar Elias adding to these challenges. Additionally, uncertainty over running of Bar Elias led to negotiations made on a short-term basis, resulting in poor contract terms and investment decisions. Discussed with KIs were modifications to the budget framework, in order to better reflect the short-term, emergency conditions MSF operates in, as well as to help with better investment terms and a simpler design for the hospital in the early stages, exploring how to prevent high maintenance and running costs.

“HQ needs to make bolder decisions on operations relating to Bar Elias [whether to close it or keep it running]. Present decisions are a weak compromise resulting in uncertainty and other problems.”

Supply team KI

Planning for an exit strategy

The absence of a long-term plan outlining a realistic exit strategy was identified across all departments, leading to stress related to job insecurity, as well as service provision commitment issues with the community. The perception was repeated of considerations for a long term renewed healthcare strategy moving toward developmental interventions and away from OCB’s emergency mandate.

Although handover to the Lebanese MoH was discounted in early meetings, contributing further to delays, findings highlighted that credible sustainability scenarios must be established at the conception phase. KIs added that the economic context of Lebanon, maintenance costs, supplies and staff salaries must be considered beforehand and advance training planned to ease handover.

Year	2014												2015												2016												2017												2018														
	Month												Month												Month												Month												Month														
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55								
MSF Preplanning																																																															
Phase 1 and phase 2 assessment																																																															
WATSAN, Sage and constr referent visit																																																															
Strategic Copro trauma centre approved																																																															
Project proposal 1																																																															
Technical discussions																																																															
Pre patio meetings (mission - tech depts BXL)																																																															
Proposed facility tech review by ext consultant																																																															
Lebanese border closure summer 2015																																																															
Facility reassessment																																																															
Revised medical strategy proposed by annual ARO																																																															
Impact assessment for proposed change																																																															
Technical Patios																																																															
MSF registered in Lebanon																																																															
MoU signed Spectrum and HCP (?)																																																															
Construction tender launched																																																															
Construction contract awarded																																																															
Construction contract signed																																																															
Construction contract start																																																															
Construction starts.																																																															
Planning time frame Months																																																															
Facility Planning and Design																																																															
Plan																																																															
Actual																																																															
Construction																																																															
Plan																																																															
Delay to start of construction																																																															
Plan revised start																																																															
Construction extension																																																															
Hospital Open																																																															
Planned																																																															
Actual																																																															
Delay to providing medical services (months)																																																															
Planned medical services																																																															
Medical services provided																																																															

Figure 4. Gantt Chart demonstrating planned vs. actual project phases at Bar Elias health facility

3.4.2. Planning and Design Phase at Bar Elias



The planning and design phase corresponds to the design and tender phases of the *Operations Designing and Building Process for Health Facilities* protocol.

Effective multidisciplinary, inter- and intra-departmental communication and participation

According to KIs, field staff were consulted on the technical requirements of the facilities during the design phase. They noted, however, that involvement by OCB by HQ but mainly field teams in the strategic planning and decision-making needs to be more substantial. Several KIs suggested a need for the Hospital Facilities Manager (HFM) to become more involved in the planning and design stage, with a more systemised and structured communication channel to the HFM. Additionally, professionals with construction experience were asked to be involved in preparing contracts better suited to the local Lebanese context, considering additionally risks of financial irregularities.

KIs across various departments agreed that continuous redefinition of the healthcare strategy during the conception and leading into the design phase resulted in excessive wastage of time and resources due to the need to adapt IPC standards, equipment and staff to changing needs. Additionally, insufficient attention to the healthcare strategy at the conception phase resulted in healthcare strategy having to adapt to the building, rather than the other way around. Inter-departmental collaboration during the needs assessment phase was suggested by KIs, in order to make better-informed decisions in the early stages, and minimise costly adjustments needed in the implementation phase.

KIs further suggested that the Supply Team should assist with the drafting of SOPs regarding contract tenders and help provide input from a commercial perspective, filling in gaps between technical, HR, operations, and architectural input in planning decisions. Additionally, the Supply Team KIs highlighted that consultations with local hospitals and NGOs led to valuable exchanges in knowledge of good practices, including over choices of equipment and suppliers.

Contract and tender processes

Guidelines and SOPs during the conception and design phases were considered valuable but insufficient by all departments across Bar Elias. KIs expressed that the guidelines or SOPs provided by OCB on supporting the construction process during the planning and design stages should be further developed. According to KIs, engaging with the local community was a challenge, as MSF was unknown in the area and there was no health promotion strategy during the early stages.

Allowing a contractor to be previously associated with their advisors, appointed to audit the contractors' work, undermines objectivity and was identified as a limitation of the contract and tendering process. It was suggested that technical points be clearly defined in all documents, contracts and project work, including the 'as-builts', prior to payments being made, so as to disallow contractors

from avoiding repair or follow up work that may need to be redone. Furthermore, the sub-contracting of multiple positions resulted in increased needs for site coordination and contracts administration.

Flexibility in the design stage

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, as an emergency agency supporting the healthcare sector, even in high-standard-of-care countries such as Lebanon. KIs suggested further flexibility in design plans, in order to more easily adapt to the changing context and healthcare needs in the future, and better prepared SOPs were identified as a key factor in facilitating this.

“[We were] able to shift from a surgery project to a Covid project. That needs a lot of changes and yes, the hospital was able to accommodate the change...It was hard work at the time from everybody but it was done very well. It was good cooperation from all the teams, the medical, the logistics, law, biomedical, finance...there was a very big collaboration, and everybody was working very hard.”

Medical department KI

Bar Elias hospital has made some proactive efforts to develop a positive relationship between the hospital and the community, raising bed capacity within the region and providing employment opportunities. Some KIs observe that health outreach and communication between the hospital departments and the local community have been limited, which may have had an adverse impact on understanding the community’s needs. In an effort to address the communication challenges, Bar Elias has undertaken several types of community assessments, including some in collaboration with other health organisations and NGOs active in the region. KIs raised concern that Covid-19 may have affected this positive relationship, as the functionality of local facilities may have changed the dynamic of this relationship.

To enhance this communication, KIs concurred in proposing the development of a pragmatic engagement strategy, specifically for engaging with the local community and understanding their needs. Some KIs further suggest increasing medical outreach to improve the accessibility of health services, as many refugees are unable to leave the camps to visit the hospital.

3.4.3. Implementation Phase at Bar Elias



The implementation phase corresponds to the construction, commission and running phases of the *Operations Designing and Building Process for Health Facilities* protocol.

Inter-departmental communication during implementation

In order to address the need for better practices, the HR Department at Bar Elias developed a collaboration framework in order to encourage inter-departmental and cross-project knowledge sharing, record staff expertise and skills, and create a database of information, supporting access to knowledge and capacities.

Despite this, inter-departmental collaboration was identified by KIs as an operational mechanism that required strengthening, to ensure effective and efficient outcomes materialised across all project phases. It was stipulated that multiple departments needed more active input in decision-making, to ensure cross-department representation.

“If the medical staff were involved in the construction phase, then the problems with the lack of oxygen sources and the inappropriate floor material would not have occurred.”

Medical department KI

Expanding on this finding, the management of aspects of the construction phase off-site by OCB resulted in some KIs perceiving inadequate involvement in operations. It was suggested that all departments should build upon communication and collaborations, to facilitate transparent knowledge sharing and capture departmentally specific inputs. KIs informed that closer project relationships could help facilitate critical project functions which are under stress, such as contracts management, purchasing and maintenance, as well as the actioning of project management reporting and documentation.

“[During the annual review of operations] I saw for example Finance and Supply [Departments], were not on the same table. And this was a point of concern for them... and they received the decision as a final decision. And it was something for them that ‘... we have the right to say we agree with or not agree’. It should involve all the departments from the initial stages of the discussion. But here in Bar Elias... the problem was the way it was perceived - as a lack of trust in national staff.”

HR department KI

Additional to these points, there were further suggestions by KIs for the development of further multi-disciplinary fora, where members from different departments and projects can exchange expertise and discuss project matters. It was stated that a refined collaboration tool could assist in reinforcing institutional memory, by increasing shared knowledge on project factors such as risk mitigation, continuity, activities and projections.

Planning and project management

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. Time constraints were offered by KIs as the key factor to the shortfall in project proceedings, alongside deficiencies in inter-departmental collaboration.

Design and planning documents, Work Breakdown Structure schedules, employee contracts, maintenance logs, material catalogues and staff roles and responsibilities were exemplified as some of the main functions said to have been impacted by inadequate project management compliance. According to KIs, some departments may have enacted their own *ad-hoc* systems, outside the principal tasks delegated by the PM and Construction management team.

Expanding on these findings, some KIs implied they were not issued with well-defined guidelines on how to manage records and documentation, as well as effective handover procedures, outlining employee obligations. KIs also stressed the need for clearer roles and responsibilities, along with project management training to improve accountability and the mobilisation of institutional memory.

High staff turnover

Staff turnover within project teams but also in missions, along with changing and parallel reporting to cells, was recognised as a prominent disabler of effective and efficient project outcomes during construction, commissioning and running phases. 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. As mentioned, uncertainty surrounding the continuation of operations at Bar Elias impacted staff morale and job security concerns.

Breaking down some of the reasons for increased staff turnover, finding specialist staff was considered a challenge by HR and more technical positions during the project were outsourced, despite the presence of highly skilled individuals in the Lebanese job market. It was implied by KIs that there was further need to focus on the retention of national staff, as the limited duration of MSF mission employees meant that transient workforces were less informed and adaptive to contextual procedures. KIs also stipulated that the frequent turnover of staff in decision-making positions resulted in regular strategic changes from new staff members, who had limited knowledge of the project's history.

“I think one of the downfalls is there's so much reliance on international staff and this idea that you need international staff to manage. But at the end of the day, when you look at it in a hospital context...new people come in, they have new ideas, they want to implement something new. So we already know that in any standard project, that's very difficult for national staff.”

Medical department KI

Consistent with general findings across OCB, suggestions by Bar Elias KIs to mitigate staff turnover included longer-term mission contracts, professional and personal development programmes, facilitation of handover procedures, and the sharing of project dossiers between departing and incoming coordinators.

3.4.4. Project Deliverables at Bar Elias



This section looks at key observations, challenges and recommendations surrounding project deliverables.

Maintenance of IPC standards

OCB has been lauded by KIs for maintaining a good level of sterilisation and patient hygiene standards at its facilities, in comparison to the Lebanese MOH. Although this makes it more difficult for stakeholder such as the MOH to take over the facility upon vacation by MSF, it ensures that optimum healthcare quality is offered to patients.

KIs indicate that all the staff are aware and involved in implementing IPC guidelines, although some attitudes on the subject were a cause for concern at times. Comments were also received that as much as they put effort into maintaining these standards during the operation phase, the staff were not consulted during planning and design, and this led to costly irreversible decisions in construction. KI staff, however, celebrated good hiring practices in the IPC department.

“Hiring Lebanese nationals in key positions such as the IPC manager was an excellent decision as it helped provide much needed context-based expertise and helped with the continuity of the project.”

Medical department KI

Good hiring practices in the early stages aided in the hospital design. Effective and regular communication between the HQ and field staff also aided in the implementation of IPC standards.

Flows of ‘staff and stuff’ as well as of patients

Reportedly, the Bar Elias facility operates smooth flows of equipment and operations. This is evident in quick access of supplies due to close proximity of the warehouse, as well as a proper inventory management system. Concern was raised, however, in relation to staff flow, along with limited interaction between medical, technical and management staff, due to the separation of respective activities in separate buildings. The limited interaction among staff hinders cooperation and knowledge sharing. One KI suggested occasional rotation of staff between the buildings, to enable smoother communication between departments.

Community engagement

As the operationalisation of Bar Elias hospital got underway, challenges arose in the implementation of the extensive OCB guidance related to serving the local community. According to KIs, staff struggle to clarify the guidelines to those patients seeking healthcare who do not meet the admission criteria and have to be referred to MoH.

“You need a PhD just to understand the admission criteria at Bar Elias.”

Medical department KI

According to KIs, insufficient engagement with the community and limitations in understanding of MSF-OCB’s recruitment policy combined with the community’s presumption of the hospital as a development opportunity has created unrealistic expectations of employment and business opportunities. In response to this, there are ongoing efforts by MSF with the support of local leaders to clarify misconceptions and reinforce SOPs as well as recruitment guidelines with the community.

Use of technical systems

Previous handover evaluations have shown that capacity building, as part of the project’s exit strategy, is a sustainable and efficient method of ensuring continuity of services in a post-MSF setting.

“The choice of mechanism, products and materials is very very important during the initial construction stage. You cannot limit yourself to one exclusive brand when you are running a hospital, you need to have options...Now it’s [Bar Elias hospital] depreciating, so I have to relocate each of the suppliers...and then I have to see if these people have the items in stock, which is not the case anymore, because of economic deterioration...and it means that a purchase is going to cost more in terms of value and time. Time is more important because if you have something not functioning and you don’t have the product - time is of essence, and then you have to negotiate the price and so on.”

Supply team KI

The choice of construction materials instances and locally purchased medical equipment determines the feasibility of exit and handover of facilities generally. In Bar Elias, the KIs observe that challenges upon MSF’s exit will include: the economic crisis in Lebanon; inadequate record keeping of purchases at Bar Elias; funding the complex and technical systems and technologies; restocking; and the maintenance of some existing structures. On the other hand, KIs lauded good water and waste management practices, and the high standards of quality and reliable service provision at the Bar Elias hospital.

Longer-term objectives of OCB and Bar Elias

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, stretching over many years in multiple countries. This dichotomy creates confusion, issues with quality and continuity, and tension between the long-term goals and the emergency tools used to achieve them.

These findings demonstrate that longer-term planning tools could help the Operations and Logistics departments make more optimal use of resources, by investing in items depending on the return over the coming years. According to the KIs, the OCB mission strategy needs to be clearer over the scope,

length and aim of its initiatives, to engage more consistently in projects with longer-term goals for beneficiaries and healthcare providers. Suggestions were raised to integrate learning processes within long-term OCB construction projects and focus on creating procedures that are less personality-dependent and which provide longer recruitment and planning timelines.

The KIs lauded OCB's efforts in providing capacity-building training support to Bar Elias hospital. They also raised concerns over facility's continued operational sustainability. It was suggested that moving towards longer-term activities would further position OCB to raise the standards of general healthcare service within the region by providing logistics, supply, construction support to other facilities and local organisations.

4. CONCLUSION

The Bar Elias project meets some needs identified during the conception phase, however the project missed opportunities to streamline activities. Key findings identified proactive initiatives by the Supply Team in establishing good practices concerning the choice of suppliers and equipment. The findings also revealed challenges occasioned by insufficient needs assessment procedures, lack of long-term operational commitment at Bar Elias, along with the absence of an exit strategy design and planning at different levels. An impact assessment of the delays at Bar Elias estimated that 10,823 healthcare services were foregone due to the delays in opening the facility, with EUR 654,560 of overhead costs incurred.

The planning and design phase identified limitations in the existing guidelines and SOPs regarding contract and tender processes and challenges centred on limited effective multidisciplinary, inter- and intra-departmental communication and participation.

The implementation phase identified good practices surrounding the implementation of IPC standards, the need to improve and systemise inter-departmental collaboration, limitations in planning and project management procedures and limitations concerning hospital and staff flow.

The project deliverables identified certain key areas that could enhance the project's relevance, effectiveness, continuity and connectedness, including community engagement and ownership, in addition to the organisation's engagement in longer-term projects, along with the feasibility and implementation of an exit strategy.

5. 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. Recommendations of each analysis are presented at the end of each section, as well as the final chapter of the Report.

5.1. CONSTRUCTION CONTRACTS

5.1.1. Introduction to procurement and contracts considerations

Internationally acknowledged construction industry stakeholders and engineering professional institutions identify prime contributors to construction project failure typically as shortcomings in planning, procurement, contract management, administration, risk identification and management. Additional contributing factors may include unbalanced and adversarial contracting strategies, deficiencies in technical resources, siloed rather than holistic focus of the stakeholders, and an emphasis upon deliverables rather than end-user outcomes. Most importantly however, failures in construction projects are widely documented as attributed to, or exacerbated by, mutual inability of clients, contractors and supply chain to communicate and accommodate compatible objectives and a shared vision of a successful project outcome. These challenges are exacerbated between non-profit clients versus private sector contractors and supply chains, through a disparity of world views and perceived conflicting priorities.

These characteristics were also observed and cited by KIs in respect of OCB's construction projects and will be further examined in this section.

KIs interviewed during the Inception Phase raised contract management as a central point, noting that a standard contract template is used: across all Operational Centres; for all scales of 'construction' activity; and in all country responses around the world. The term 'construction' is assumed here to include all aspects and phases of the construction process, from initial conception and feasibility, through design and implementation, to include maintenance, long with decommissioning or repurposing.

The accuracy of the statement on contract management as being a central point, and the ability of a standard contract to fulfil this range of requirements, were therefore explored by a contracts engineer, as part of this evaluation.

5.1.2. Methodology for the construction contracts and procurement considerations

Following a literature analysis of a limited selection of key MSF Construction documents, an impression was formed of the way in which contracts are procured and used within OCB projects. Interviews were undertaken with six people from three teams linked to using OCB contracts. Subsequently, two interviews were undertaken with the Intersectoral Legal Department (ILD).

The first interview cycle, with members of the Logistics Department Construction and Supply teams, involved a specific questionnaire structured around interdependent considerations recognised across the international construction industry for effective contracting. The aim was to elicit responses over how projects are developed, and hence contracts are planned, procured and managed.

Based on the initial background and earlier practitioner interviews, the second interview cycle of two legal specialists from ILD explored legal and policy considerations with respect to facilitating effective construction through appropriate legal, contracts and procurement support to field teams.

5.1.3. Findings and Conclusions for Construction Contracts

EQ 1: Conception Phase

Phasing of Key Designing and Building Activities

Based on the *MSF OCB Operations Designing and Building Process for Health Facilities* protocol (2018), it was perceived by the evaluation team that a number of aspects in the Feasibility and Design Phases appear to be absent or only lightly touched on. These include the overall provisions of procurement, feedback from contractors on local market and supply chain capacities/reliability and risk analysis. Some of these activities are either considered later in the protocol, such as under technical design, tendering, or implementation. Potentially, these aspects can have significant impact, or constraints, on the selection of contract type or the design approach taken, beyond the new and rehabilitation options in the protocol. Furthermore, these activities can affect the buildability of designs, the robustness of planning, project schedules, as well as the financial estimates.

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 a holistic multi-disciplinary exercise. The scope and detail can be scaled to the particular project, recognising that there are trade-offs. A less robust preparation, for example, includes more contingencies for unforeseen and unquantifiable risks.

Constraints to an Appropriate Project Preparation Phase

The KIs identified constraints and resistance to the holistic preparation exercise as a result of OCB's emphasis on timelines, as well as clarity over medical narratives and lengthy decision-making processes. This is particularly applicable for the design and function requirements which are exacerbated by factors such as staff turnover. Several KIs perceived that the rigid nature of existing tools, especially contract forms, could be challenging for the efficient and appropriate management of contracts. An alternative perspective on options for contract flexibility was offered in discussions with the Intersectional Legal Team, which are discussed subsequently.

Management and Responsibility

KIs indicated that there are frequent unresolved disparities and ambiguities in authority and decision-making between the team in the field and headquarters, again exacerbated by staff turnover. In a number of instances cited, it has resulted in significant late design changes in substantive construction projects, with consequent impacts. KIs observed that within OCB there is a fear of perceived top-down management and resistance to that management. Consequently, much decision-making is delegated to the field project team. Also, KIs noted that decision making can be challenging when it is separated between HQ, region and field. Therefore, KIs indicated that there is the potential for greater clarity in

authority and decision-making between the team in the field and HQ, which would help mitigate challenges caused by staff turnover.

Several KIs were asked about the feasibility of instituting commonly used construction practices and raised possible solutions. One approach explored with KIs was OCB considering reinforcing the approach of the 'internal client', whereby a distinction is made between a group representing project needs from medical facilities - the client - and another group representing those seeking to develop those facilities. Confusing these roles risks OCB staff asking themselves what facilities they need wearing one 'hat', then changing their 'hat' to answer their own questions. What changing this conflict of interest implies is that construction activities within OCB need a clearer focus of which departments serve which group, responsible for the direction of the health facility, rather than simply everyone serving everyone. An alternative solution was agreeing a point 'to freeze the design' against further changes, except in exceptional need of change, for which additional costs, delays or functionality constraint would be justified. Where it is not possible to substantially finalise user requirements and design, adequate time and cost contingencies would be incorporated, hedging potential impacts of changes.

While the consensus amongst KIs is that these are desirable and appropriate means to minimise risks to quality, economic, schedule and functionality, it was felt they would be currently unworkable in OCB, due to both the management decision-making culture and staff turnover. It was perceived that end user departments may be unable to readily identify or agree upon needs. Another observation made by a KI is the need for more hospital design specialists in OCB, the development of which may resolve some issues. The same applies for standard designs for new works, in certain contexts³.

EQ 2: Design Phase

Defined Authority, Accountability and Reporting in Construction Projects

Within the *MSF OCB Operations Designing and Building Process for Health Facilities* protocol (2018), evaluators observed some ambiguity in the roles, accountability, authority, and reporting of the various key personnel in the construction project. This included roles of the Project Manager, Field Coordinator, Head of Mission, Construction Specialist, Medical Focal Point, TechP, LTL Construction or Logistics Coordinator. Various, these management roles include accountability for compliance, guaranteeing progress, standards and norms, providing inputs for healthcare narrative, and developing a project plan. Given numerous lines of authority, however, the KIs identified that it creates inaccurate and conflicting narratives. Consequently, it can be value diminishing, and may dilute authority and accountability. As a result, various OCB roles and authority were explored with OCB KIs as they function, including KIs perceptions on the strengths, weaknesses and potential improvements.

³ Appropriate contexts of standard designs are a separate topic. The contracts engineer observed that in some medical NGOs and similar organisations, standard designs may have limited application in reconstruction, rehabilitation of existing structures due to practical limitations, context and structure constraints, though standard components can be useful.

Clarifying Management Roles and Decision-Making Procedures

Construction KIs expressed uncertainty about project team compositions and key decision-making roles across different missions. The traditional OCB managerial culture and structure, according to KIs, indicates that OCB is expected by the construction industry to play a specific role, however OCB may not fully understand those expectations. It was also stated that, in OCB, balancing the functions of operational and technical leadership within a project team is challenging. As a result, KIs explained that teams are frequently confused about who is in charge and the decision-making protocols, resulting in unclarity in accountability and decision-making processes.

Consequences of Management Ambiguity, Discontinuity, and Impaired Institutional Knowledge

Uncertainty in decision-making might impact the evolution, finalisation, and implementation of designs and construction. Once again, all KIs mentioned staff turnover as an exacerbating factor of institutional knowledge failures and late design changes. It further presents a challenge to smooth transition of responsibilities between teams, as well as consistency of approach in the construction processes. These two effects ripple through the project and have an impact on capacity and ability to ensure project continuity as well as minimise potential practical, contractual, and legal risks.

Constraints in Interdepartmental Communication

Construction KIs expressed concern and frustration with communication challenges, particularly interdepartmental communications, in some cases drawing comparisons between roles in other organisations and roles in private sector construction activities. KIs indicated that these challenges had a negative impact on the construction processes, schedule, budget and in particular on finalising a design, minimising late design changes and their impacts. Several KIs noted a pervasive 'culture of emergency' that persisted, even in longer-term projects. Working in 'emergency' mode becomes a justification to work in departmental isolation, referred to as 'silos', thus contributing to a lack of effective project management and planning.

Particularly, working in silos contributes to confusion and ambiguity about the roles and responsibilities involved in construction projects, according to KIs. This exacerbates decision-making processes. Eventually, it contributes to unforeseen changes in project specifications, timeline, and budget. Furthermore, in contexts of challenged interdepartmental communication and institutional record-keeping, KIs pointed clearly to the design process for the construction of health facilities typically relying upon the medical coordinator's knowledge, experience, and preferences. This runs the risk of being driven by individual personnel-specific criteria, rather than a systematic approach to all designs across individual projects.

Institutional and Handover Protocols

KIs confirmed MSF already has guidelines and toolkits for handover between teams. According to those KIs, however, the existence of these templates has not guaranteed their use. The use of existing tools for handover they see again as dependent on staff personalities and discretion. As a result, there is no awareness of what is acceptable and unacceptable, because the documentation requirements are unclear. As an example, monthly situation reports or *SitReps* are mandatory reporting to HQ. The

mandatory minimum *SitReps* have a limited, if any, role in site and contract administration, or contractual relationships. *SitReps* assist instead HQ with progress reporting and institutional knowledge. The KIs mentioned the role of the Planning and Design Officers (PDOs) at headquarters, who are in charge of institutional memory for the countries in their portfolio. While desk officers can act as a link between departing employees and new recruits, providing advice and information is subject to available institutional knowledge.

Continuity and Institutional Memory

KIs confirmed that the OCB construction process is based on team handover from one phase to the next, and with changing personnel within phases. KIs agreed that team handover and retained institutional knowledge are critical for the success of all construction phases of the project but are frequently limited. Additionally, KIs identified that information loss causes frequent shifts in strategy, disrupts ongoing activities, and creates unforeseen budget and timeline implications. As a result, this leads to employee frustration. These issues, as identified by KIs, are exacerbated by a lack of discipline, system, and consistency in site records, as well as a lack of normal project construction records by senior personnel. Records are said to be at the discretion of individual staff and are not kept by OCB, even in copies.

Conception, Analysis and Design Capacity

The evaluation team sought to understand the extent to which OCB has the capacity and is technically resourced, in terms of consultants and in-house staff to carry any statutory liability for design and/or construction supervision of health facilities. Overall and in the detailed design of health facilities, interviews reviewed the extent to which the design is undertaken by MSF staff, external design consultants and construction contractors who are also undertaking facility overall and detailed design. Additionally, construction practitioner KIs were asked to provide an indication of the extent to which OCB in-house staff is able to adequately address key elements of construction duty of care and potential liabilities in respect of: professional standards of competence; compliance to international/national design codes and standards; duty of care/legal liability obligations in respect of the various disciplines of analysis, design, detailing and specification⁴.

Requisite Professional Standards of Competence and Compliance

According to KIs, prerequisites exist for technical and management competency, but are not standardised across OCB. As a result, aspects of project management and technical inputs rely on potentially inconsistent individual management styles. As discussed in previous sections, aspects of management style, authority, and hierarchy may contribute to this. KIs consulted advocated OCB to embrace independently-recognised professional competency frameworks, which provide more guidance on what is expected from key positions and then hold both the candidates and HR facility

⁴ Construction disciplines that likely apply in health facility construction and rehabilitation typically including, but not limited to structural, architectural, mechanical / electrical /utilities, mechanical/HVAC/ waste disposal, geotechnical designs; specialist and / or heavy duty utility and support [e.g. for X-ray, IT, etc.]; sustainability and ESG design considerations; supervision of construction and installation of plant, equipment and utilities; structural evaluation,

accountable. The adoption of recognised competencies and accountability is consistent with KI discussions with the Intersectional Legal Department.

Compliance to international and national design codes and standards

KIs observed that OCB codes compliance is frequently not possible, due to a lack of skills within the project and limited technical support. According to KIs, project managers and other technical practitioners without access to appropriate design/building codes are obliged to rely on personal experience, judgement, and codes they are familiar with, which may be less than appropriate. KIs confirmed that lacks of experience and skills in the project frequently result in failure to comply with codes. One illustration of this is architects and engineers using the building codes from their own home countries during MSF responses in different countries, because they are comfortable with those codes and national codes and standards are not always available in environments in which OCB operates. KIs pointed out that where engineers were sourced externally, they were typically expected to provide their own design codes and standards, resulting in inconsistent approaches and standards. It was advocated by KIs that even where specialisations are outsourced, OCB as a client should provide technical resources and codes to support a consistent approach.

Compliance with international or national codes is closely linked with requisite professional standards of competence. Since there is limited technical support in OCB, compliance again becomes an issue of personal style in management and personal experience in, or perceptions of, industry norms and professional practice.

KIs emphasised that, as OCB undertakes more complex and long-term construction projects, increasingly important becomes the capacity of OCB to adequately consider required professional standards of competence; compliance with international and national design codes; standards, regulations; and legal liability obligations of health facility constructions. This is currently perceived by some to be lacking, and a significant portion of the burden falls on individual construction practitioners, who are absent from technical and peer support review typically required in the construction industry.

Perceived Capacity of MSF and Potential Duty of Care of MSF over activities on site

KIs from the IDL were asked from their general or anecdotal knowledge or experience of whether MSF construction initiatives were meeting standards, and if these are considered relevant in humanitarian construction. These might include: requisite professional standards of competence; compliance to international/national design codes and standards⁵; duty of care/legal liability obligations in respect of the various disciplines of analysis, design, detailing, specification, construction, maintenance, and safety that likely apply in a health infrastructure facility construction.

⁵ As reflected in the International Humanitarian Minimum Standard “Sphere” (Shelter & Settlement; Section 5 Technical Assistance).

In general, the ILD KIs had little or no experience on the requisite professional standards of competence or the compliance to international/national design codes and standards as these are not typically manifest to the legal team. One KI indicated that most personnel are competent in this regard, although noted varying levels of competency, exacerbated once again by turnover in staffing, particularly in longer project durations.

On the duty of care and legal liability obligations both KIs were unambiguously emphatic that MSF as an organisation, and particularly the ILD, see duty of care and liability as central issues that are taken with utmost seriousness: being a humanitarian organisation does not diminish these obligations and requires robust accountability.

Resource Adequacy and Adoption of Appropriate Construction Modalities

It is unclear whether there are consistent criteria within OCB for which modality is used for specific applications and contexts. Furthermore, OCB KIs believe that the contract and procurement templates available limit their options. Existing tools are perceived by them as rigid and limiting, which can make efficient and appropriate contract procurement and management particularly difficult. Construction contract templates and tools are available from OCB. According to construction KIs, however, existing tools do not meet all needs. Reportedly, topics to be reinforced within existing guidelines and tools include procurement guidance, compounded by a lack of in-house expertise in managing various types of contracts. An alternative perspective is offered in discussions with the Intersectional Legal Team, discussed subsequently.

Background to Development of MSF Contracts and Legal Guidance

Construction KIs had stated that they do not know the exact legal background and inputs to contract forms. KIs from the Intersectional Legal Department were asked to comment on the history of the contract templates and the intersectional legal advice; specifically, whether this took into account specific construction issues or was solely legal in nature. According to one ILD KI, the templates and legal guidance were prepared by external consultant lawyers. Based on anecdotal opinion from MSF-OCB construction, KIs indicated that they had no knowledge or experience of dialogue between OCB and 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. ILD reiterated its availability to support the understanding, adaptation and use of contracts across the project cycle.

Procurement and Contracts Management

The contracts engineer opined that the “*Intersectional Document Construction, Key Legal Considerations*” appears to be drafted with a predominantly civil law bias, some aspects of which may not be applicable in common law and some other jurisdictions. Inter alia, it appears to have some inconsistencies and potential flaws, which may include being: legally invalid in some jurisdictions; inconsistent with normally-accepted potential liability issues, such as Intellectual Property and contractor professional liability; confusing or conflating warranties, contractor liability and defect liability periods; somewhat ambiguous or inconsistent over substantial completion and acceptance, which have wider construction impacts.

Following some background and context discussion and elaboration, ILD KIs were asked to share their perspectives on integrated procurement and contract management activities. Concerning the use of contracts, opinions differed between ILD KIs and other KIs over aspects such as terminating contracts, with some feeling that terminating contracts should be a last resort, implying greater emphasis upon using contracts as a basis to resolving inevitable differences by negotiation, rather than adversarial disputes. ILD KIs were asked specifically whether MSF adopts: international standard form tendering and contract documents; contracts and bidding documents that are closely based on, adapted/downscaled from widely used international contracting standard forms and bidding documents; or bespoke MSF internal standard contracts and bidding documents. The KIs indicated various MSF bespoke contract templates that can be used with alternative standard wordings. The standard template is typically seven pages long and intended for use with smaller contractors. It is based on a lump sum but includes a bill of quantities (BoQ) for variation adjustment. Due to limited capacity in MSF field teams to administer contracts and BoQs at the time, a lump-sum basis was implemented. The importance of integrating construction and procurement contracting approaches was discussed with some KIs.

Also, ILD KIs were asked if MSF has a legal and contracting strategy in place, or offers legal advice to operations teams, to protect OCB's investment as well as the investment of the eventual owners, such as MoH. Maintaining community infrastructure assets after MSF's departure by continuing to hold contractors liable for defects, such as after the Defects Notification Period but within statutory warranties. KIs stated that they are unfamiliar with this situation, but in general, MSF will be on site or in contact with the owner for an extended period of time and will be able to support the owner to the contractor with whom MSF contracted.

Legal review of contracts

All contracts are expected to be subject to legal review and, in a number of missions, there is reportedly local legal expertise available. Some KIs perceive that the OCB Legal Department has limited construction law expertise and there is limited dialogue with the Intersectional Legal Department (ILD). A separate subsequent dialogue with KIs from the ILD indicated an apparent disparity in communication and awareness between OCB and ILD. One example of this is the perception by some in OCB that there is only one contract form, whereas ILD was happy to confirm that a diversity of contract options and support for them exist. There are potentially very significant mutual benefits and added value, with proportionately more added value to OCB, in improving dialogue, information exchange, and awareness between OCB and ILD. *Inter alia*, a range of contract templates are available to reflect different procurement and contracting needs. These various templates are fully supported and can be further varied, by advice on request from ILD. There is currently a senior specialist construction legal adviser within ILD, to support MSF sections. Also, ILD KIs actively advocate against the termination of contracts; and the general MSF induction refers to the ILD facility and its support. Normally, finance and administration staff receive additional legal induction. This might be considered for key construction personnel, whereas finance and administration staff might benefit from induction into construction processes and contracting.

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. One KI had experience in using international standard FIDIC construction contracts, such as Kibera in Kenya, Bar Elias in Lebanon and Amman in Jordan. The ILD KIs and contract engineer acknowledged this is a common complaint, but agreed. It is a case of balancing the potential risk and impact of default, against contract simplicity. ILD KIs 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 detriment.

Also, KIs highlighted that the existence of the templates does not guarantee quality, especially for tendering documents. The effectiveness and diligence in completion of the tender package and tender evaluations rely on the capacities of resources in the field such as management, competence and time, which vary from project to project.

With respect to how these tendering and contract documents are received and accepted by MSF tenderers, both successful and unsuccessful, and contractors, the ILD KIs both indicated an absence of feedback from contractors who, it is felt in many cases, will sign any contract simply to get work. According to KIs, there appears little if any prior negotiation by contractors.

Choice and Substitution of Optimal Contracting Forms

ILD KIs were asked to elaborate on policy flexibility with respect to contracting options and contract forms, regarding: MSF's legal policy directives and/or guidance on how risk allocations are reflected into permitted standard bidding documents and contracting options; the contracting options, such as differing bidding processes and the associated choice of construction general conditions of contract, particular conditions of contract that are available to MSF construction teams; and, in terms of authorising alternatives or safeguarding modifications to the standard MSF contract with BoQs, who can authorise such adoption, and what criteria would they require from the construction field practitioners?

ILD KIs confirmed that the various options in the standard contract templates and alternative contract forms available on request allow for differing contexts and risks. Procurement using the forms is by the project teams. Furthermore, the KIs referred to template choices and text options open to the field teams, at the discretion of the project teams. KIs confirmed the adoption of alternative contract forms, adjustment of contract text, etc. is at the discretion of the project teams, but they are encouraged and welcomed to seek support from the ILD.

Allocation of Employer and Contractor Risk

KIs were asked to elaborate specifically on MSF contracting policy with respect to allocating contract risks between the OCB and the contractor, in particular:

1. Does MSF attempt to divest itself of all risks possible, and contractually allocate risks to consultants and/or contractors and the supply chain?
2. Does MSF as an employer and contract administrator, emphasise a fair and balanced contract or prioritise defending MSF against any and all contract claims and disputes?
3. In frequently contentious issues and disputes, what approach does MSF legal guidance advocate or direct?

KIs indicated that MSF seeks to be a fair client, although they prefer to reserve their position to avoid unnecessary liabilities. Consequently, the risk is allocated to the contractor. One KI clarified that while the formal contract terms allocate risk to contractors, MSF at its discretion does not invoke these clauses and typically they are flexible. One KI explained project teams often seem not to consider risk as a priority, but focus instead upon schedule and costs as priorities, without clarification over how risks impact these priorities.

Suitability of Contracts in Producing Favourable / Unfavourable Project Outputs

The construction KIs confirmed that contract disputes do occur and opined that the perceived absence of procurement or contract management expertise might provide a challenge, in the event of disputes and/or contract terminations. The construction KIs acknowledged terminations as a fact of life in their working contexts, as well as considering the constraints and capacities of contractors. KIs indicated contract terminations are typically due to material contractor default, gross deficiencies / non-compliances in quality, and/or inappropriate procurement of contractors with inadequate technical or operational capacity.

In general, across all projects, construction KIs were not aware of excessive contract terminations, with some having no experience of terminations. One KI indicated awareness of eight substantial project terminations, and this was considered by the KI and evaluators to be of note and potential concern. Separately, the ILD KIs indicated only limited instances of terminations and that they actively advocate against terminations. The view of OCB KIs is that terminations and redress are not pursued due to documentation, personnel continuity and local legal constraints. ILD KIs confirmed redress is rarely sought, though there were exceptions.

Construction KIs had no consensus on the causes of disputes. Their speculation on causative factors closely reflected the stated causes of terminations. Other potentially contributory or exacerbating factors in disputes opined by the KIs included: ineffective profiling of contractor technical or operational capacities, due to deficiencies in the OCB procurement process and diligence prior to contracting; again, a lack of continuity in OCB staff; poor record-keeping, which impeded effective communication with contractors; timely decisions; addressing contractor expectations; and consistency of standards required from contractors. One KI indicated that while OCB has detailed procurement measures and a “7 Steps Procurement Policy”, construction-related contracts are procured in the field, sometimes without Supply Team support, though acknowledged there is a need to separate the disciplines of construction procurement and general supply procurement.

Perceived Robustness and Credibility of MSF Contracts Management

The ILD KIs were asked to reflect on not only how robust and enforceable OCB contracts are in their work environment, but also how they are perceived by contractors as a binding agreement that may be enforced. Both KIs recognised that in many locations, there are no reliable tribunals or courts. Additionally, corruption may undermine credible mediation, adjudication, arbitration, or court judgement. Notwithstanding, the KIs felt that in general ILD contract templates are still enforceable, although they may be unbalanced in the formal contract conditions. The ILD KIs also acknowledged that some contractors do not consider MSF credible when it comes to enforcing contracts. One of the ILD KIs observed that, even in the absence of a functional and fair, transparent judicial or arbitral system, contracts serve as a minimum as an agreed Memorandum of Understanding, albeit unenforceable. This is further enhanced if the contracts are translated to the local language, whilst stating English/French original versions prevail. The KIs observation included that in most circumstances where formal legal redress is absent, there are local traditions, dispute avoidance/resolution systems and even strong avoidance of reputation or credibility loss. Consequently, there is a good chance of the agreement being moderately functional. One of the KIs highlighted that these challenges underline the need for MSF construction focal points to be not only competent, but have a strong and fair personality, to be taken seriously by local stakeholders.

Furthermore, the ILD KIs were asked to what extent MSF is willing and able to enforce contracts. Does OCB pursue action against defaulting or deficiently performing contractors, pursue recovery of reasonable damages for terminations; liquidate contractors' performance securities, or does OCB seek redress / formal transparent debarment - not informal 'black-listing' - with respect to performance warranties in lieu of security by defaulting/terminated contractors?

Both KIs indicated that more frequently MSF would not seek redress, given the constraints, costs and potential impact of sanctions or redress against a defaulting contractor in the communities that MSF is supporting, or to local MSF staff. Notwithstanding, one KI pointed out that there are instances of serious default, with substantial economic ramifications, in which MSF sought contractual/legal redress through the judicial system. One KI acknowledged that although the issue of sanctions is a sensitive topic in terms of potential impacts, it has been employed in some instances. It is hampered, however, where there is no way to formalise a debarment because MSF staff leave, with continuity of records not retained, and corrupt protagonists may find ways to circumvent the sanction. Also, the ILD KIs were asked to reflect on MSF's track record over being the subject of major disputes, terminations by contractors against MSF, and/or successful judgements or settlements in the contractors' favour. Neither of the KIs had information of any instances of MSF having judgements or decisions against MSF, with the contractor prevailing, nor information on the number and outcomes of any disputes.

Protection of Final Owner and Redress against Contractors

Normally, following the completion of main construction activities and handing over to the contracting client, here OCB, there is a period of typically twelve months Defects Notification Period (DNP) or Defects Liability Period (DLP) over which claims may be made against the contractor for latent defects which manifest. DNP or DLP is referred to by OCB as '*Provisional Acceptance*' or '*warranty*'. In many

countries and jurisdictions, there are also further legal warranties which exceed the DNP, during which redress may be made against a contractor. Other provisions possible are tripartite agreements between OCB/contractor/owner, or collateral warranties by the contractor to the eventual owner.

Information from the construction KIs is that OCB does not, with limited exceptions, make provision for redress by the owner against the contractor for defects after DNP, even if there may be legal entitlements. This is explained as resulting from the impacts of commissioning, difficulties in achieving legal enforcement of rights, lack of continuity of MSF staff, lack of records and, in some instances, MSF may not be present on-site after the facility has been handed over. The KIs noted that defects also mostly occur after MSF hands over the facility to another party. In such cases, MSF often does not have the capacity, funding and presence to pursue redress. Also, KIs reported limited instances where MSF had retained a presence on-site, or ongoing communication with the final owner. Only one instance was recorded where a tripartite contract had been signed between the contractor / MSF-OCB / final owner. In these cases, MSF was able to support the final owner in seeking redress for contractor defects through, and after the DNP.

EQ 4: Project Deliverables

Timing, Commissioning and Handover

Concerning the timing and implementation of commissioning, although in conventional contracts fit-out and commissioning are undertaken prior to *'taking over'* and the start of the DNP, in OCB this is typically undertaken under the control of the Logistics Department, after the contractor and OCB construction team inputs are concluded. KIs indicated that this practice can result in damage to the completed structure. Even within the DNP, OCB generally accepts the consequences of defects and waives redress against the contractor, for all but the most severe defects which can be shown conclusively to be significant contractor construction default.

When considering the commissioning, acceptance and handover of construction projects, *'construction completion'* typically encompasses: the very last stages of the construction phase; contractor handover of the completed facility and handover of liability; the DNP; and the finalisation of the contract performance certificate, with returns of sureties and retentions. In some instances, specialist equipment, such as X-ray units and biomedical waste management, might be covered by specialist subcontractors, under the main construction contract; in other cases, by separate contractors engaged by MSF; or by MSF direct labour. These latter two alternatives can result in overlaps, complexities, even claims and disputes between the main contractor, subcontractors and/or the client, OCB.

The OCB guideline (OCB / 05.2018) appears to potentially overlap or conflate aspects such as: MSF's *'provisional acceptance'* with *'completion'*; *'substantial completion'* with *"taking over"*, in conventional contracts; the start of the DNP as a *'warranty'*, without apparent acknowledgement of the normally longer statutory defect liability periods; and fit-out and commissioning within the DNP, after contractor handover. It is unclear if MSF provides in their contract's protection for final owners such as MoH over redress against a contractor after MSF has departed. In summary, 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.

In general, construction KIs acknowledged there was some ambiguity in terminology and practices, compared to the construction industry and international standard contract norms, but that they had few comments or clarifications to make, as typically a handover is under the control of a Head of Mission, and the completed structure, prior to fit-out and specialist installations, is handed to and is the responsibility of the OCB Logistics Department. Construction KIs indicated this is consistent with the handing over of roles and responsibilities during the construction works. Consequently, there is minimal involvement of the Construction Teams and KIs, and minimal comment possible.

It was also advocated that a regional quality assurance focal point, and operation centres for support, would be beneficial. Particularly, one KI advocated for key facilities to have a multidisciplinary handover, using SOPs, ensuring maintenance plans and accurate as-built records are developed for future use. Again, reference was made by KIs to the benefits of project manager / focal point continuity, and the potential benefits of OCB considering an '*internal client*' approach.

5.1.4. RECOMMENDATIONS

For consistency, recommendations are articulated using the following general headings.

Project management

Handover of the Work

KIs indicated that typically the works are handed over to OCB, normally by the Logistics Department, under the responsibility of the HoM, at the time of '*Provisional Acceptance*', which is reportedly the '*Taking Over*' or start of '*Defect Notification Period*' in conventional contracts. KIs opined the process is somewhat *ad hoc* and there is perceived to be limited accountability. One KI advocated as beneficial to have a basic but systematic quality assurance (QA) approach, with audit, additionally offering verification that guidance steps have been followed. Particularly, another KI advocated for key facilities to have a multidisciplinary handover using standard operating procedures, ensuring maintenance plans and accurate as-built records are developed for future use. Again, reference was made by KIs to the benefits of project manager / focal point continuity, and the potential benefits of developing across OCB an '*Internal Client*' model.

Responsibilities and Continuity in Construction Projects

The guideline *Operations Designing and Building Process for Health Facilities* (OCB, 05.2018) envisages that during the course of the construction project implementation, "... project management responsibilities will be handed over from the Project Team to the Construction Team". Handovers risk breaking continuity, producing gaps in project institutional knowledge, and in administration with potentially significant consequences. Therefore, ideal would be the continuity of key personnel and institutional memory throughout a project.

Facilitate Interdepartmental Communication

OCB is already good at inter-departmental communication, relative to many organisations experienced. A number of KIs pointed to further optimising inter-departmental communication to resolve fundamental challenges in construction. Whereas such communication indeed offers the only way for each department to play its critical role in construction activities.

Through discussion, construction practitioner KIs explored positively consideration by OCB of moving towards a holistic '*Internal Client*' approach, which is a well-established quality assurance principle adopted in some construction projects and organisations. The '*Internal Client*' serves as a focal point for all project sponsors and end users, representing and maintaining communication with the construction team. The '*Internal Client*' would provide a basis of design for development by the Construction Team. The approach seeks to distinguish, for example, between defining the needs of a department within a health facility and its role in helping construct it.

Risk management

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. As contract administrators, MSF personnel are encouraged to be fair and the process to be well-documented. One example, if rare, is of contractor insolvency or default. Wherever possible, flexibility is needed to try and avoid the contractor going into default, avoiding the works being terminated and OCB incurring consequent impacts. A quantified risk decision defines as to what additional support and/or costs could be justified.

HR management

Continuity of key personnel

The continuity of key personnel might be achieved through longer contracts, 'tag team' job shares or, as a last resort, optimising physical handover periods. Institutional memory offers a further mitigation of high staff turnover, implying emphasis and capacity for the real-time archiving of all project documents.

Knowledge management

Continuity and Institutional Memory

KIs indicated project knowledge management would be helped immeasurably by a rigorous system and consistency in developing and maintaining site records and project construction records by senior personnel, consistent with construction industry norms. Typical construction documentation requires personal diaries, institutional site records or day sheets, and administration beyond the detail and frequency of usual emails and monthly *SitReps*.

KIs identified loss of information leads to frequent shifts in strategy, disrupts on-going activities, creates unforeseen budget and timeline implications and causes frustration among personnel. KIs confirmed that the OCB construction process relies on handover between teams from one phase to another, and with changing personnel within phases; including at HQ level. KIs noted that the handover between the teams, and retained institutional knowledge is crucial for the success of all construction

phases of the project but is frequently limited. Archiving is sometimes developed *ad hoc* by individual staff, with some records not retained even in copies.

5.2. ENVIRONMENT

5.2.1. Introduction to Environmental Opportunities in Construction

Although not mentioned specifically in the ToR, environmental progress by OCB is summarised in its outline strategy '*Climate Environment and Health (CEH) Action Plan 2020-2023*', was visible in past evaluation reports, and voiced by KIs, especially across the Logistics Department.

The Action Plan of the Strategy is to take “field-oriented actions to improve [MSF-OCB’s] emergency preparedness planning while reducing environmental-related impacts, adapting and upscaling advocacy and synergies.” For environmental consideration to be integrated into OCB strategy and operational, an holistic approach is implied, as each activity impacts the other.

It is widely recognised that construction requires specific environmental tools, needed to undertake activities such as environmental impact assessments. KIs acknowledge that many of these tools exist in the construction industry or are being developed by other agencies.

This section identifies potential opportunities, added value, and value for money by environmental criteria within MSF-OCB activities.

5.2.2. Methodology for environmental opportunities in construction

The activity was led by a civil engineer. in the evaluation team. Although none in the team are specialists in environmental work, all have contributed proactively to technical environmental management initiatives for many decades.

The literature review was based on the available literature, including the CEH Action Plan 2020-2023. As the climate and environment conversation is relatively new in MSF, the literature available at this stage is limited in terms of guidance and tools.

The first round of interviews was conducted in a semi-structured way with seven technical KIs from four teams in OCB, who are all part of the environmental circle, to assess MSF’s activities and policy. Additional interviews were conducted with two KIs as representatives of the MSF Climate, Environment and Health Circle about the potential scope or practical application in humanitarian construction of environmental criteria.

5.2.3. Findings and Conclusions for Environmental Opportunities in Construction

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. Therefore, environmental targets which might be perceived as complicated, or with over-ambitious targets, can raise concerns. Particularly, one KI identified constraints within the OCB, with suggested mitigations including the need to develop greater operational openness and a willingness to embrace change, which will not affect OCB's core vision and mission. To effectively quantify and plan for project lifespans and environmental consequences, functional current and future needs, and prioritise key activities, a separation between emergency and medium and long-term interventions is required, along with an acceptance of increasing environmental priorities, increased budgets and timelines

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. KIs were asked to consider whether, as a humanitarian NGO, MSF-OCB might be more appropriate and credible to narrow the scope to a smaller number of 'SMART' environmental objectives and focus on these, without compromising focus and budget for core health activities. 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.

EQ2: Design Phase

Context considerations

KIs advocated for small interventions and innovations at the field level, such as better insulation and ventilation for buildings, with Construction Teams considering energy efficiency in different contexts. Furthermore, KIs suggested that incorporating the sustainability concept into the design of projects, such as adaptation strategies and modifications, mitigates current and future impacts of increasing environmental and climate threats to OCB projects. Localised disaster risk reduction was recognised as an environmental priority in certain contexts, such as those in seismic zones.

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. Information gathering designed in to facilities offers numerous opportunities in optimising the performance and maintenance of those facilities, including in environmental impacts, such as energy use. A number of KIs outlined a series of proactive explorations ongoing by Logistics of integrating and using BIM, offering another starting point for developing credible environmental measures. For BIM to generate representative data, it must be considered in the design phase.

EQ3: Implementation Phase

Organisational transition

An observation made by a KI is that OCB is currently seen to be in organisational transition. As a result, realignment of roles and priorities in the organisation is vital to simultaneously embark on environment and sustainability programmes in parallel. If governance were more structured, in particular with respect to the governance of strategic and integrated environmental approaches, there could be greater benefits.

Added value and value for money of environmental opportunities

Embracing environmental practices can bring tangible benefits of added value, value for money and sustainability. KIs mentioned in addition to individual initiatives as, for example, reducing air travel, global initiatives, such as reducing construction emissions by repurposing and reusing existing structures, building with minimal waste, smart environmental designs and adaptation. The KIs confirmed that within the field there is a strategy for applying realistically-achievable and value-adding climate and environmental targets in construction activities. Discussed with KIs was quantifying the value over time of environmental measures in MSF which are observed as credible, as well as with potential to be credible, such as increasing thermal insulation in the roofs of warehouses, especially those supporting cold chains.

Challenges and constraints to incorporation of the CEH Action Plan 2020-2023

The KIs emphasised that CEH Action Plan 2020-2023 have become part of the current implementation discourse, but that an Action Plan should be about the taking actions, not semantics. Other KIs commented on the difficulty to convince other departments of the benefits, added value and overall value-for-money of sustainable solutions, such as *'cradle to grave and decommissioning'* economic evaluations, despite the progress made in robustly validating these initiatives.

EQ 4: Project Deliverables

Agreement or development of appropriate specialist environmental tools for construction

KIs expressed the need for specialist environmental guidance and tools for construction, such as for undertaking assessments of likely environmental impacts. They were aware that many such tools exist, but were uncertain both over which were suited to their needs, or how their use integrated with Action Plan objectives, which promote holistic, prioritised and coordinated environmental interventions.

5.2.4. Recommendations for Environmental Opportunities in Construction

With the creation of an internal community, the MSF Climate, Environment and Health Circle, as well as the outline strategy, OCB has a dynamic basis for further environmental actions in the future. As a next step, the proportion of environmental exposure of OCB through construction and facilities maintenance needs to be understood and examined. Additionally, the integration of construction-specific objectives in the next version of Action Plan is essential, as well as the development of a list of tools and guidance for the implementation of the environmental strategy in construction.

Recommended is for OCB is to adopt a holistic approach, integrating its construction projects with its strategies and other activities, across environmental and social considerations, within structured management contexts. Different models or approaches are emerging in other humanitarian agencies and already exist in the construction industry, one example being the ‘*Environmental Social Governance*’ (ESG) approach.

Adopting an approach such as ESG serves the following purposes: improve current sustainability activities; reduce climate change causes; mitigate the impacts of climate on construction and buildability; and provide coping and adaptation to unavoidable residual effects of climate change.

There are in addition recognised intangible benefits to embracing more holistic environmental and social approaches, which include reputation, compliance and governance. Private and state sectors as well as non-profit organisations are increasingly mandating aspects of regulated compliance, good governance, perceived social responsibility and/or corporate vision embracing, advocating and displaying environmental credentials. The general public is, for a variety of principled, ethical, or social conformity reasons, similarly embracing and advocating elements of environmental and social action. These corporate and individual priorities are increasingly reflected into the perception of, and support for, organisations by stakeholders. Other KIs referred to initiatives that are effective environmental measures as examples of good practice and added value.

For consistency, recommendations are articulated using the following general headings.

Project Management

Realistic and thorough project planning. Ambitious targets should be clearly articulated in OCB’s project planning and design. Good practices regarding environmental criteria should be embraced and integrated in future planning.

Risk Management

From the first consideration of offering medical services in any given context, before the conception and design phase of longer-term facilities as part of strategic multi-year planning, efficient adaptation strategies should be adopted and implemented. Whereas environmental priorities may be considered more fully in later project phases, in many instances the key decisions which impact the environment are made during earlier phases, sometimes during an emergency. It is therefore credible that, unless basic considerations are integrated in emergency-phase guidance and operations, a significant proportion of OCB environmental effort will be expended ‘undoing’ impacts incurred inadvertently during emergency phases. One example for this is the selection of the site for the facility, avoiding localised hazards and not creating additional ones.

HR Management

For the development of environmental guidance and tools for construction, MSF needs to first understand and assess its internal capacities. For comparison, an assessment is needed of environmental activities and the skills required to implement them, with these subsequently integrated into the ToRs of all OCB department roles involved in construction, so as to achieve

environment accountability and support its governance. Specialists for undertaking environmental assessments can be identified in-house, but also externally.

Knowledge Management

Both evidencing the value of environmental initiatives as well as achieving and monitoring their implementation relies upon well-designed and continuous data gathering. To inform decision-making, however, this data needs to be analysed into understandable knowledge, made accessible appropriately to decision makers. Sufficient record keeping over existing and past action plans, environmental initiatives and data use, such as from Building Informational Management systems, strengthens the longer-term sustainability, environmental and governance diligence of projects, and informs future projects.

5.3. PREFABRICATION

5.3.1. Introduction to Prefabrication

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.

Prefabricated solutions currently are understood across OCB departments mainly as full construction systems, such as those produced by *Gaptek*⁶. In general construction, however, pre-fabrication can also refer to preparing elements of buildings, prior to assembly on a construction site. One example might be the selection of sinks and taps most useful in a laundry facility in West Africa; another would be fabricating roof trusses and transporting them to site, if quality assurance is critical and can be better achieved off-site.

Both prefabricated building systems and prefabricated building elements are considered in this review.

5.3.2. Methodology for Analysing Prefabrication

This review was led within the evaluation team by a specialist builder with extensive experience in general construction, building and use of the prefabricated building system currently in use by OCB, however all evaluators have direct experience in the use of prefabrication over many years.

References to prefabrication were sought while undertaking all literature reviews, including of project documents, SOPs and guidance, as well as the conclusions and recommendation of past evaluations and capitalisation reports. In the interviews conducted, questions relating to prefabrication and the use of local materials were included in interviews across all departments.

⁶ <https://gaptek.eu/>.

5.3.3. Findings and Conclusions for Prefabricated Solutions

EQ 1: Conception Phase

KIs appeared polarised by discussions over whether to use prefabricated systems or not, again linked to discussions over whether MSF is an emergency or a developmental organisation. Again, explored with KIs was not whether prefabricated systems are valuable to MSF *per se*, but instead when they should be used and why, as part of integrated strategies for developing facilities over time.

The concern was shared that inappropriate or unclear use may damage unnecessarily the ‘reputation’ of prefabricated systems across departments. 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. Specifically, no positive comments were received from users.

As emphasised by KIs, prefabricated systems are extremely expensive per square metre, when compared with permanent construction, and have limited operational design lives. There was general awareness that the design life of *Gaptek* systems is ten years, however little detailed awareness of specific warranty periods and what they pertain to. Concern was raised over the common impression that, as soon as the systems are handed over for operation, the ‘clock is ticking’ on the life of the facilities, sometimes when exist strategies are weak or effectively absent. It was unclear from responses whether prefabricated systems are sometimes convenient to OCB to avoid or push back key decisions, such as over exist strategies.

From the KI interviews, it became clear also that prefabricated systems such as *Gaptek* are perceived to be quicker, especially by the Operations and Medical departments: they reported that the assembly of prefabricated buildings is sometimes possible in weeks or months, rather than the years often needed for permanent construction. They noted in addition, however, that the intention to save time in achieving medical facilities by using prefabricated components oftentimes is not achieved. KIs pointed to delays in transport and importation but, in discussion, recognised also that many of the steps presented in construction guidance for conception, feasibility and design are still required for both prefabricated systems and permanent construction, such as a hazard risk assessment and obtaining building permission. It was understood, therefore, that time savings are limited to construction activities only, once transport and importation challenges are overcome.

Concerning the consideration by OCB of prefabricated building elements, KIs commented that each context implies different opportunities and constraints in selecting local materials and in constructing with them, expressing additionally their ability across departments to assess materials availability and logistics, as well as the construction skills and capacities of the contractors available.

To inform project conception and feasibility phases, all KIs expressed support to developing further: more detailed market assessments of materials, manufacturing and logistics, to determine the value and capacity for off-site pre-fabrication; as well as linked local, regional and OCB knowledge management libraries of what works best for a given context or function.

EQ 2: Design Phase

In the design phase, concerning prefabricated building systems, KIs saw opportunities in exploring with systems manufacturers configurations which better mitigate contextual challenges, such as thermal performance and interfacing with other construction approaches, such as physical linkages to existing buildings. Equally, when considering OCB's environmental Action Plan, opportunities exist to work with manufacturers to minimise negative environmental impacts, including in manufacture, transport, design and operation.

Concerning prefabricated building elements in the design phase, KIs indicated that they are not considered systematically, but perceived instead as options for the contractor. Nevertheless, discussions with medical KIs indicated that they have a detailed knowledge over which specifications and materials work best in different contexts, such as which sinks in West Africa. Discussions with Logistics KIs indicated clear understandings of which materials are best to build from and how. Both Medical and Logistics KIs agreed that much of this knowledge is held by local staff, but little is systematically recorded or consulted.

EQ 3: Implementation Phase

For the implementation phase, concerning the use of prefabricated building systems, a number of respondents requested improved access to all available past project documentation by those considering, constructing, and using prefabricated building systems, through the strengthening of knowledge management systems and capacities, in order to learn from previous usages across all departments and project phases.

Concerning 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.

A number of KIs commented that the prefabricated systems they have experience are parts of larger complexes of medical facilities, each with significant infrastructure such as perimeter walls and water treatment plants, not all of which was built using the systems. Equally, they noted that in each complex, there was usually a transition process between temporary and permanent construction, and that

prefabricated systems may have positive roles in those transitions. Project deliverables could be improved through the use of prefabricated building elements through appropriate assessments combined with the systematic capitalisation of what has worked in the past in given contexts.

5.3.4. Recommendations for Prefabricated Systems and Elements

For consistency, recommendations from the evaluation team are articulated using the following headings.

Project Management

Once a decision has been made to consider prefabricated systems or elements, further decisions are needed over their roles in the evolution of facilities, as part of an integrated, multi-year strategy. In comparison to permanent constructions, for example, dismantling and relocation during and after the construction phase is more effective with prefabricated buildings. This allows for flexible support of medical service delivery in emergency contexts. Additionally, its use can be combined with permanent construction methods during and after the construction phase. For example, buildings could be used as the main clinic whilst permanent clinics are built in other materials and then moved on to another similar project.

The relative technical characteristics of different construction approaches must be considered together, to achieve consistent performance. As examples: while the prefabricated buildings offer a lot of flexibility, the blast and ballistic protection against both direct and indirect fire in insecure contexts is relatively poor; as well as systems having different fire spread characteristics, when compared to permanent buildings.

Accountability should be further reinforced through the systematic archiving of technical advice and decision-making. This is to ensure that stakeholders understand the reasons for selection or non-selection of such systems at the decision point and later, as the usage of the system is developed.

Based on direct experience with the construction of prefabricated building systems by OCB, the following list of technical considerations focuses solely on construction and building characteristics. As respondents emphasised, however, the decisions to use them and decisions over how to use them should be based on broader assessments and strategic planning, with technical construction and building being factors to consider.

In order to better adapt the prefabricated systems to the local contexts, design recommendations should be explored with manufacturers. Climate and context adaptation SOPs, designs and kits should be prepared in readiness for responses in specific climates and contexts. One example is making thicker panels with extra insulation for the walls. Another example might be developing ceiling panels with better load bearing characteristics, to support the mass of extra insulation, additionally providing a stronger platform for the installation and maintenance of all overhead utilities.

In terms of construction materials, aluminium is the main material of the prefabricated systems currently used by OCB. Aluminium is resistant to rot, termites/white ants, IPC cleaning fluids and needs little maintenance. Also, with respect to the environmental Action Plan of OCB, aluminium is an energy-

intensive and polluting material to produce and, in systems, can be used only over a limited life span. It could be recycled, although local recycling facilities are unlikely to do so. Maintenance and repair are further limited, as the materials and parts cannot easily be fabricated or worked using local skills and tools, in many local contexts. Alternative materials and approaches to pre-fabrication should be explored by MSF and OCB, such as timber, as well as increased predictability, speed and quality through the optimised standardisation of layouts and internal fit-outs, informed by national context and medical function.

In terms of build, the prefabricated systems are raised on columns and designed with 'stilts', with the internal floor level significantly higher than the ground level, allowing potential use in areas prone to slow-onset flooding if other flood mitigation measures fail. Lightweight constructions such as the prefabricated buildings are prone to wind damage, however, and they are poorly insulated against heat and cold. With the disaster-prone locations of many OCB facilities and predictions suggesting that global wind strengths will become stronger, design and configuration options can mitigate some risks. For example, the large overhanging roof might be separated into two, with the section over the external walkway set at a lower height and separated structurally, so if the walkway is damaged by wind lift, it is sacrificed however the main roof over the clinic remains intact. Depending upon the context and likely risks, limited mitigations can be made, for example with the use of external gabions and appropriate compartmentalisation, also designing evacuation options for patients and staff to ground level.

Risk Management

A risk assessment identifies if a prefabricated system could be adopted. Decisions over the possible use of prefabricated systems in any context should be based upon comprehensive assessments, involving the comparison of alternatives and consideration of different scenarios, including exist strategies. The planning and assessment of medium and longer-term needs must take place in parallel to the provision of emergency medical services. By putting more emphasis on the feasibility phase of the project, a better understanding of the locally available materials and technology can be formed, as well as of the potential delays of imported prefabricated system at sea or customs.

HR Management

HR management opportunities presented by the construction of prefabricated systems are often not factored into decision-making, but may offer a critical enabler, as assembly is possible without the need for external contractors, using only a small team of semi-skilled labour. This minimises the need for tools as well as equipment and health/safety considerations are easier to manage. Conversely, little contribution is made to the local economy through construction or labour contracts, as assembly requires little labour.

Knowledge Management

For any prefabricated solution employed by OCB, alternative designs and layouts should be informed by experience from different contexts and environments, such as hazard resistance, climatic control, as well as what local optimisation is available that support medical functions.

Access to previous project evaluations in prefabrication selection can further be strengthened by improving knowledge management systems and expanding central databases between departments that share past technical and building outcomes.

6. Conclusions and Recommendations

6.1. CONCLUSIONS

Based on the findings in this report, the following conclusions were derived. The conclusions are structured around the four evaluation questions.

EQ1: How can the conception phase of design and build projects be improved?

Conclusion 1: The scope and objectives of emergency and development projects need to be clearer

MSF has identified a challenge that MSF tends to remain in a short term and emergency mindset whilst trying to evolve longer/medium term programmes such as construction programmes. 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.

Conclusion 2: 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.

Conclusion 3: Delay factors are known but need to better 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.

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

Conclusion 4: Strategic planning is an area of strength

Strategic planning is an area of strength for OCB operations and recent changes to its three-year strategic plan 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.

Conclusions 5: The use of technology to be defined by functions and maintenance

Innovation remains key to MSF to supporting and adopting technological advances in medicine and across construction, such as BIM, requiring systematic investment to introduce and refine. Due to the need for specialist maintenance and difficulty in sourcing the parts, innovative technology must be carefully selected. The innovation may be in identifying an old solution, or asymmetrically, for example adding roof insulation to lessen peak energy loads. Also, 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.

Conclusion 6: Sustainability requires context-specific design and delivery solutions

Integrating strategic sustainability objectives into broader strategic and design planning requires both analysis and prioritization 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.

Conclusion 7: 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.

Conclusion 8: 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.

EQ 3: How can implementation be further optimised?

Conclusion 9: 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.

Conclusion 10: The production of project management reporting documentation needs to be improved

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. Taking steps to facilitate this process would allow for departments to spend time on their own work, streamline supervision and reduce operational risk.

Conclusion 11: Interdepartmental communication requires a review

Despite recent advancements, shared understanding of project objectives, risks, roles and responsibilities has been identified as an area for improvement by all the departments. 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.

Conclusion 12: Project continuity plan is needed to mitigate high staff turnover

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

Conclusion 13: Roles and responsibilities of staff during a project 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.

Conclusion 14: Decision-making in HQ needs to be based on experiences of field and technical staff

Based on findings across departments, it is expressed that HQ has a tendency to make planning and budgeting decisions without consulting local staff who are already familiar with the local context. They may also make these decisions without consulting technical staff, which may lead to overly optimistic expectations for its operations. The absence of this collaboration generates dissatisfaction.

EQ 4: How could the project deliverables be improved?

Conclusion 15: Reinforce collaboration with all 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.

6.2. RECOMMENDATIONS

Based on the findings and the conclusions, four main areas for improvement emerged, these were: project management, risk management, HR management and knowledge management. Then, based on the conclusions, recommendations to address each of areas for improvement are presented.

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.

Through the facilities it builds, MSF is extending its reach and providing additional value. To achieve this means maximising, as far as is practical, the value not just of the construction, but also the use to which it is to be put. In its turn, to achieve that means working with patients, communities, extremal colleagues in equivalent roles of MSF departments, as well as supporters of the building and the process it will serve, such as local governance and national health system.

The process is often characterised by being either sticks or bricks, however in reality it is a phased movement. So, MSF moves from sticks to bricks, depending on the exit strategy that has been developed and in collaboration with communities, supporting their lives and reducing their suffering, but also their development and resilience to withstand future shocks.

MSF can capitalise upon the presence, achievements and significant investments of MSF in each context if it retains strategic control of moving from sticks to bricks, so its medical facilities dynamically enable programmes, rather than constraining them.

Project Management

The active management of projects and their functions enable cost effective and timely delivery of projects. Keeping project management within a project cycle process, further enables a project to become embedded in its context and deliver for the diversity of stakeholders.

From the analysis of the findings of the evaluation process, as contained in this report, the main issue that arose was the ability of MSF to undertake progressive project management. Therefore, it is recommended that engagement, collaboration, and coordination across operations should be improved, together with the development of an internal client to represent stakeholders, be developed to aid project management. To deliver this, the following propositions have been made that address current gaps in the project management process.

Recommendation A: 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.

Recommendation B: Adopting project management 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. It also enables the integration of market analyses, local communities, patient groups and MoH (both regional and national), MSF staff and technical experts globally. A project cycle approach means that a project is developed through consultations with stakeholders and that their views accommodated, where practical.

Recommendation C: Internal Client

This data gathered by this consultancy process, repeatedly noted that a range of stakeholders were missing from the thinking at all stages of the project, including the design stage. There has been a singular focus on the medical aspects of a health facility, and this means MSF has been more comfortable internalising issues rather than seeking guidance across the use and lifetime of a facility, post MSF's involvement. Therefore, there are voices and influences missing as a project is conceived and delivered. These include local communities to be served, future governance, future operations, management and maintenance (there is always a significant trade-off between build costs and future operational and maintenance costs which appear not to be balanced in MSF thinking). Further, the medical-centric thinking means that how and who will run the facility and with what oversight, is a question that appears not to be considered and whilst patient flows are considered, staff flows and how the necessary supply movements are not considered. To support this and represent stakeholder views within a project, an internal client process is suggested. Such a process means that as each phase is developed and completed, the views and requirements of stakeholders are fully accounted for as the internal client has to agree and sign off.

Recommendation D: Planning and assessment of medium and long-term needs

Developing an intention to provide medium term and long-term support should be developed in parallel with emergency operations, with exit strategies between phases driving the processes and giving MSG a Go/No Go option and a way to respond to changes in circumstance. Practically this means developing an understanding of the context and health needs of communities and blockages to them accessing effective health care in both the short and medium terms.

Recommendation E: Stage transitioning of the control of a building

To contribute to the improvement of the health system both local and national, a handover must be staged, to reflect the ability of staff and structures to support the process and successfully operate the facility. Medical services will have to be altered to match the ability of the longer-term operator to deliver them, noting that these may not be to the MSF standard. Where necessary training must be planned into the process for facility staff and MoH staff alike. In fact, emerging facility management and governance, will be key to the continuity of care.

Recommendation F: The experiences of field staff should inform decisions made by HQ

To support the change recommended above and to ensure that the facility meets the requirements of various stakeholder groups, MSF HQ should allow for more input from field staff, as well as local experts who understand the locale and possible challenges OCB might face. While HQ informs the process, experienced field staff should be allowed the flexibility to make changes based on conversations with HQ and stakeholders.

Recommendation G: Community engagement and feedback

Community engagement and participation have been shown repeatedly to be the bedrock of good project implementation. Such an approach, devised to be appropriate for the communities that a facility will serve, will therefore reduce risks and hence costs whilst MSF is running the project and beyond. Processes would include: community meetings, surveys, feedback processes, design methodologies to ensure needs are being met, gates between phases that require support before moving to the next phase, and the development of a database which would capture knowledge to influence future design and build. These can then be routinely represented by the internal client.

Recommendation H: Improve communications

Under the PM, informed by OCB good practice, the quantity and quality of communications across departments must be improved and a team atmosphere created with the project team and support functions held accountable for delivery of the project. This includes supporting scenario planning, project monitoring and risk mitigation.

Recommendation I: Thorough engagement with MoH

Engagement with the MoH throughout, to ensure the project can be absorbed into their longer-term plans and budgets. Early engagement with a MoH can prevent delays with securing approvals and funding. It also ensures that the system, skills and knowledge needed to run a facility, when it is handed over, have been developed, which in turn enables sustainability and adds value to MSF endeavours.

Recommendation J: Clarification of Responsibilities of the MSF Project Manager

KIs indicated that the normal Project Manager (PM) role should apply in OCB and should be reinforced, to avoid project aspects being considered piecemeal, or focused on individual disciplines or interests. KIs who were experienced construction practitioners had a consensus that the typical PM role is optimal, meaning a PM who sees all aspects, has an overview of all technical, practical, operational, budget, schedule, contractual aspects, but is not hands-on or micro-managing. This PM delegates to specialists in disciplines, coordinating their inputs, outputs, and reporting. All information, reports, feedback, coordination, and decisions flow through the typical PM, a single focal point of information, management and coordination. Ideally, the PM has continuity through the development and implementation of all phases and handover and is a key part of the institutional memory.

Thus, further clarity is needed in the role of a Project Manager in terms of reporting lines. There are currently various reporting lines, depending on the project, individuals, and the PM's role. There is frequently a separate non-managerial technical reporting line. There are differing reporting lines depending on the project, individuals, and the role of the PM.

Recommendation K: Building upon Climate, Environment and Health

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

Recommendation L: 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.

Risk Management

The ability to understand and account for risks is largely missing from the project management processes we have seen. Given the volatility of many of the environments and the multi-year nature of construction, risk management and mitigation are areas that can have very real and positive effect on construction costs and timelines for MSF. At present risks are not managed proactively or across the lifecycle of a project. Hence MSF is running considerable additional costs and uncertainties which combine to increase costs complexity, overruns and quality of output. Therefore, it is recommended that more risk assessments are undertaken in the conception phase. To deliver this, the following recommendations were made.

Recommendation M: 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.

Recommendation N: A structured system for scenario planning

Create a structured system for scenario planning which can be implemented across projects. A multidisciplinary team should be engaged in developing scenarios and reviewing them, to create coherent ways of addressing probable adverse risks.

Recommendation O: 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.

HR Management

High staff turnover is a central issue for MSF in multi-year construction programmes. The quality and timeliness of staff being available is an issue for MSF, partly as the demands of longer-term construction is not a known or usual activity. The HR requirements, skill sets of specialist staff, need for continuity and contract lengths that reflect the demands of the project. Current HR practices need to be revised to accommodate them.

Recommendation P: Team approach

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

Recommendation Q: 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.

Recommendation R: 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.

Recommendation S: Long-term contract missions to mitigate high turnover rate

Continuity is a major issue for construction projects with a loss of knowledge and momentum a significant contributor to time and cost overruns. Project continuity should be supported through documentation and handovers, longer-term staff contracts and approaches such as 'tag-team', pioneered by OCB. Providing longer-term contracts for competent staff improves continuity which reduces risk and overruns.

Knowledge Management

Accumulating, storing and effectively sharing knowledge allows MSF to create a culture that can significantly improve efficiency and employee engagement.

The development of an active accessible knowledge management system is seen by many as a significant missing link between construction projects and lesson learning specific to MSF and its mandate.

Past evaluations and standardized documents ought to be relied upon in the conception and design phase as they often contain solutions to challenges that commonly arise in construction projects. To deliver this, the following propositions have been made that address current gaps in the knowledge management process.

Recommendation T: Develop minimum standards for key documentation

To ensure data is recorded and put into its appropriate context and is transferable between projects, a standardized format should be used. The recording of data should be a part of job descriptions and part of M&E oversight.

Recommendation U: Documentation should be accessible to all who need it

Ensure that documents are translated into the required language and that non-technical language is used in guidance. Documents and guidance used by staff, sub-contractors, and user groups, and MoH need to be as easily understandable and as accessible as possible and so should be written with the appropriate level of expert language.

Recommendation V: Records and online knowledge management

Defined responsibilities for documentation by each team member and department should be supported for local and OCB learning. This should be included in each project phase and facility type. This could be achieved partly with an organisational or departmental archivist.

APPENDICES

APPENDIX A: LIST OF 19 PROJECTS UNDER THE SCOPE OF THE EVALUATION

S/N	Country	Project location	Title of the project	Date
Focused case studies				
1	Afghanistan	Khost	Maternity OBS Building	
2	Bangladesh	Jamtoli	New ER, OPD Maternity	2020
3	Belgium	Brussels	Tour & Taxi Covid-19 Isolation	
4	Bolivia	San Roque	OPD, Maternity	2017
5	CAR	Bangui	Bangui SSR - CHUC (sonuc, sonub, HIV)	2019
6	DRC	Masisi	HGR Rehabs	
7	DRC	Masisi	Nyabiondo Maternity	2019
8	Egypt	Cairo	Migrant Victims of Violence	
9	Guinea	Conakry	Donka HIV Clinic	
10	Iraq	Mosul	Al Shifaa Infectious Disease Ward	2020
11	Iraq	Mosul	CPOC Hospital	
12	Kenya	Kiambu	Drug Users Clinic	2019
13	Lebanon	Bar Elias	General Hospital	
14	Mali	Niono	CS ref and CS com Rehabilitation	2021
15	Palestine	Gaza	Emergency Hospital	
16	Sierra Leone	Baama	Gorama Mende Wandor CHC	2018
17	South Sudan	Pibor	New PHCC	
18	Ukraine	Zhytomyr	TB Lab	
19	Venezuela	Santo Domingo	Las Claritas Hospital	2019
Supplemental Case Studies				
	Afghanistan	Kunduz	Kunduz Trauma Center	
	Sierra Leone	Kenema		
	Yemen	Mocha		

APPENDIX B: LIST OF EVALUATION DOCUMENTS ANALYSED IN THE DOCUMENT ANALYSIS - RECOMMENDATION REGISTER

S/N	Title of the document	Type of document	Date	Location	Author(s)
1	Evaluation of the Construction/Rehabilitation Management Process. MSF-OCP, 2012-2014	Evaluation	2015	Multiple locations	Nicolas Bérubé; Vincent Brown
2	Planning and Design of Health Care Facilities, draft	Guidance	2013	n/a	Guilherme Coelho
3	Project Summary and Capitalisation. Mosul CPOC Construction Team	End-of-mission report	2020	Mosul (Iraq)	Alex Davey Thomson
4	Project Capitalisation and Lessons Learned. Zhytomyr Construction Team	End-of-mission report	2021	Zhytomyr (Ukraine)	Abdul Samad Khan
5	Lessons Learned Report	End-of-mission report	2020	Kunduz (Afghanistan)	Viviane Mastrangelo
6	Rapport de capitalisation du projet de construction. Hôpital modulaire à Tabarre de Médecins Sans Frontières – Belgique	End-of-mission report	2012	Tabarre (Haiti)	Alberto Jodra Marcos
7	Kenema Construction Project. Operational Capitalisation and Lessons Learned	End-of-mission report	2019	Kenema (Sierra Leone)	Antonio Limanni Macaione
8	Capitalisation Bar Elias Hospital. 1° Phase	End-of-mission report	2018	Bar Elias (Lebanon)	Daniela Munoz Sahr
9	Complex Health Facilities 2015-2020. MSF-OCB Construction Case Study	Case Study	2021	Multiple locations	Viviane Mastrangelo
10	Cantahay Hospital Construction Project. Technical Capitalization Report.	End-of-mission report	2018	Philippines	Marcello Mazzotta

APPENDIX C: PROJECT ID CARD BAR ELIAS

4. ID CARD

PROJECT D	
GPS COORDINATES	LAT 33.733460°, LON 36.900807°
LAND SURFACE	4.343,17 m ²
HOSPITAL SURFACE	4.371,48 m ²
SERVICE BUILDING SURFACE	1173,8 m ²
N° FLOORS	3
SUPPORT SERVICES	KITCHEN (Outsourced)
	LAUNDRY (Outsourced)
	WASTE TREATMENT (Outsourced)
BED CAPACITY	51 TOTAL
	24 beds + 2 CU beds TO BE OPENED
N° OT	2
N° POTENTIAL BENEFICIARIES	3120 OT patients /year
	700 wound care patients /year
PLANNED SURGICAL INTERVENTIONS	8/day with 1 OT team
PLANNED INTERNATIONAL STAFF	10
PLANNED NAT STAFF	139
PLANNED LOGISTIC STAFF DURING RUNNING	36
ESTIMATED FUEL CONSUMPTION	275.000 lts / year
FUEL STORAGE	18 m ³ / 18.000 lts
ESTIMATED KVA CONSUMPTION	600 KVA (Summer peak)
TOTAL INSTALLED POWER	960 KVA
	EDZ 110 KVA
	GEN 600 KVA
	GEN 250 KVA
ESTIMATED WATER CONSUMPTION	40 m ³ /day
WATER STORAGE CAPACITY	30 m ³ Treated water
	128 m ³ Untreated water

APPENDIX D: 7 DESIGN AND BUILD PHASES

Below are the 7 Design and Build Phases of the 'MSF OCB Operations Designing and Building Process for Health Facilities' protocol.

PHASES	STEPS	Located in FIELD		Located in FIELD or HQ	Located in HQ		OUTPUT	Estimated timing	REMINDER / RECOMMENDATIONS
		PROJECT	MISSION COORDINATION	PROJECT TEAM dedicated hired staff or mandated roles	CELL	SUPPORT			
ASSESSMENT	1A Vision (proposal)	PROJECT INITIATOR					Concept Paper	4 to 8 weeks	- Informal discussion with the Ministry of Health and key stakeholders - Do not make any commitment to authorities - Do not produce drawings to avoid raising expectations
	1B Activation (project initiation)	PROJECT INITIATOR					Strategic CoPro Template (BACT matrix) PATIO TBR	4 to 8 weeks	- Do not make any commitment to authorities - Do not produce drawings to avoid raising expectations
FEASIBILITY	2 Feasibility (frame)	PATIO TEAM		PROJECT TEAM			Feasibility Report (BACT matrix & Jap feasibility Report)	2 to 3 months	- Start Memorandum of Understanding negotiations - Sound out authorities and regulations - Capture rational behind decisions made during Patio
	3 Design (develop)	PATIO TEAM		OPS / MEDICAL NARRATIVE			Project Plan (Resource CoPro template)	2 to 3 months	- Review local regulations - Review safety & security measures - Submit building permit - Capture rational behind decisions made during Patio
No changes to the scopelmasterplan of the project from this milestone onwards									
TENDER	4A Technical Design (dossier d'adjudication)	CONSTRUCTION TEAM		PROJECT TEAM			Technical Design Package	2 to 3 months	- Signature of Memorandum of Understanding - Secure regulatory approvals - Building permits approvals - Legal risks according to the context
	4B Tender (request for proposal)	CONSTRUCTION TEAM		PROJECT TEAM			Set of Contracts	2 to 3 months	- Site visits with shortlisted contractors
CONSTRUCTION	5 Construction (or rehabilitation)	CONSTRUCTION TEAM		PROJECT TEAM			Construction follow-up Package	6 months to 2 years	- Site supervision - Site meeting minutes - Shop drawings control - Budget & timeline follow-up - long leadtime biomedical, medical and internal fitting orders
	6 Commissioning (Fit-out)	PROVISIONAL ACCEPTANCE		Signature by FieldCo or Head of Mission			Fit-Out Docs	1 to 2 months	- As-built documents revision - Building technical warranty - Put up signage and set-up contingency plans
RUNNING	7 Running (Year 1)	HANDOVER OF THE KEYS					Project evaluation	1 year	- Opening ceremony and party
		DEFINITIVE ACCEPTANCE							

Operational team Field/Coord/Cell
 Project Manager
 Medical Focal Point
 Construction Specialist
 Medical Refereents
 Log Techns NRJ HVAC Biomed
 Wash Officers
 Supply Refereents
 Legal Unit
 Hospital Mangint Unit
 Construction Team multi-tech profiles

RESPONSIBLE for completing the step in the process
ACCOUNTABLE for ensuring that the step is completed, ownership
CONSULTED must be consulted before a decision or action is taken
INFORMED must be informed that a decision or action has been taken

MILESTONES
 if validated go to next phase
 if not, go back to previous

Process Owner: Director of Operations
 Date of application : May 2018 onwards
 Bertrand Ferrochet Director of Operations MSF-OCB
 Marc Biot Director of Operations MSF-OCB

Stockholm Evaluation Unit
<http://evaluation.msf.org/>
Médecins Sans Frontières

Independently written by
Shelter Centre
June 2022