EVALUATION OF

MSF REACTION ASSESSMENT COLLABORATION HUB

The REACH Project

ACKNOWLEDGEMENTS

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ACRONYMS

DSS	Decision Support System
ERSU	Emergency Response Support Unit
ET	Evaluation Team
EWS	Early Warning System
GIS	Geographic Information System
IKM	Information and Knowledge Management
IT	Information Technology
MSF	Médecins Sans Frontières
REACH	REaction Assessment Collaboration Hub
SC	Steering Committee
SEA	South East Asia
SEU	Stockholm Evaluation Unit
TIC	Transformational Investment Capacity (TIC)[1]
UNISDR	The United Nations Office for Disaster Risk Reduction
OC	Operational Centre
OCB	Operational Centre Brussels
OCP	Operational Centre Paris
SOP	Standard Operating Procedure
WHO	World Health Organization
WMO	World Meteorological Organization

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[1] TIC is an MSF internal fund designed to invest in innovative or transformative projects. It is hosted by MSF Canada, on behalf of the MSF movement.

EXECUTIVE SUMMARY

This brief presents a summary of the evaluation on the REaction Assessment Collaboration Hub (REACH) Project piloted by Médecins Sans Frontières (MSF). The evaluation was held between December 2020 and March 2021 and was commissioned by the Head of Operations Support Unit (OSU) of the Hong Kong (HK) section of MSF.

SUBJECT OF THE EVALUATION

REACH is an online platform that aims to support MSF's needs for improved information management and more efficient decision-making in emergencies. The REACH platform does so by building and mapping regional contacts, archives and manages operational histories, monitoring and updating institutional and crowd-sourced data, and sharing information with internal stakeholders.

The HK section of MSF started the REACH Project in March 2017. Gathering reliable, timely, and actionable information in a diverse and disaster-prone region was found to be challenging. The unit wanted to improve the response time after emergency alerts and to streamline data sharing activities. Therefore, MSF HK developed the REACH platform in collaboration with the London-based cooperative USER Group.

OBJECTIVES AND PURPOSE

The objective of this evaluation was to assess the value of the REACH platform and project. The objective of the evaluation was not to decide if REACH should be continued or not.

The evaluation was designed to answer three evaluation questions: what functional value does the REACH platform have when considering both the operational needs and the use of the platform? What is the structural value of the REACH platform when considering reliability, efficiency, security, and maintainability? What were the main determinants of success for the REACH project and how could they be taken into consideration in the future?

SUMMARY OF FINDINGS

Functional value: The REACH platform has a high potential to be a successful tool in helping its users in making timely and efficient decisions during emergencies. However, the platform was still in its pilot stage during the evaluation and had yet to be fully released. Users of the REACH platform at this stage expected the platform to be fully functional but were disappointed when they found that it was not.

Structural value: The pilot users of the REACH platform were disappointed because they were unable to view data on the platform in a timely manner. Pilot users have also noted how uploading and viewing information on the platform is difficult to do. No privacy or data protection specialist was involved during the concept design of the REACH platform and, as a result, data vulnerabilities were discovered

during the security assessment of the platform. There is no documentation of the infrastructure and coding of the REACH platform, nor is there a centralised location or tools for managing bugs and its fixes.

Determinants of success: Sufficient human and financial resources, as well as good governance, need to be dedicated to the platform, which should be made more user-friendly with a clear and consistent scope. This can be done by opening the platform to partnerships with other branches of MSF and other organisations as well as implement proper change management.

RECOMMENDATIONS

⇒ Recommendation 1:

The REACH project and platform should be rescoped and rebranded. It is important to have a clear purpose and focus for the REACH project and platform, and their objectives need to be aligned. This can be achieved by better determining specific needs in the field, identifying the targeted audience, and developing communication strategies and logical framework with a set of SMART indicators.

⇒ Recommendation 2:

The REACH project needs to carry out proper change management by regularly organising training with customised curriculum for the users in the field. Information shared about the project should be clear, realistic, and consistent. Moreover, every activity of the change management needs to be well-planned, well-documented, and its effectiveness should be measured using the SMART indicators.

⇒ Recommendation 3:

The sustainability of the REACH project and platform requires sufficient human and financial resources as well as good governance. This could be achieved more easily if the REACH project is handed over to an Operational Centre (OC), with Operation Centre Brussels (OCB) being the most logical option. Additionally, partnerships with other OCs as well as other organisations should be considered to strengthen the project's position, know more about the local contexts and needs, and to get support when experiencing challenges. Finally, there should be clear and institutionalised arrangements in terms of resources including human resources and governance mechanisms. Recommended roles set-up for the project are project management, IT team with software development and security background, and operators.

⇒ Recommendation 4:

The REACH platform should be made more agile and user-friendly. Recommended steps include: reducing the maintenance needs; making the platform more accessible in areas with limited internet access and power supply, easier to use for beginner users, more secure in terms of data protection; improving response time; developing realistic and relevant features to respond to or based on the needs of its users; providing reliable and updated information,

including an automated function to pull hazards and relevant information from other organisations and stakeholders.

⇒ Recommendation 5:

Complete all the technical steps that are required for the REACH platform to go live. These steps include adjusting the interface to support people with colour vision deficiency, enabling all the AWS security features to enhance the infrastructural security, penetration testing to ensure that the platform does not have any known vulnerabilities, ensuring there is detailed documentation about the current version of the REACH platform, uploading information regarding the previous MSF projects and events before the platform goes live for users, integrating WhatsApp extension or of other trusted and widely used messengers on the REACH platform, linking external APIs to the REACH platform to improve the timely alert rates on disasters, and using a bug tracking tool to track all the changes and bug fixes.

INTRODUCTION

PROJECT BACKGROUND

REaction Assessment Collaboration Hub (REACH) is an online platform that aims to support MSF's needs for improved information management in emergencies and more efficient decision-making during disasters. The REACH platform builds and maps regional contacts, archives and manages operational histories, monitors and updates institutional and crowd-sourced data, and shares information with internal stakeholders. It gathers data and information from automated alert/RSS feeds from disaster monitoring agencies and Twitter, report cards, direct communication (emails, messages, calls, face to face meetings), and manual scanning from websites and social media. Except for the automated alert, the platform depends on human resources, i.e., MSF staff and external parties, who enter the information on a voluntary basis. See figure 3 for more details.

The Hong Kong (HK) section of Médecins Sans Frontières (MSF) started the REACH project in March 2017. The project was based on the experience gained in the region through the Emergency Response Support Unit (ERSU) in HK, which was set up in 2010 to monitor emergencies in Southeast Asia (SEA) and support MSF's emergency response in the region. The unit found gathering reliable, timely, and actionable information in this diverse and disaster-prone region challenging. It had to rely on a network of in-country contacts, a repository of past operations in the region, websites, and media like WhatsApp, Twitter, Facebook, for information on the nature and impact of disasters. The unit wanted to improve the response time after emergency alerts and to streamline data sharing activities.

Therefore, MSF HK, in partnership with the London-based cooperative USER Group, developed the MSF REACH (**RE**action **A**ssessment **C**ollaboration **H**ub) platform. The platform was planned to function as alert monitoring & filter, contact directory and mission history repository. More specifically, the platform was expected to[2]:

   a. allow users to access previous operational information and contact details via a new online document stall, as well as relevant real-time social media feeds (WhatsApp, Twitter, Facebook and possibly other messaging services) via the CogniCity feeds for Indonesia;
   b. allow users to tag and request additional information from social media users via Artificial Intelligence (AI)-assisted chatbots;
   c. enable multiple users to access and relay this information in real-time, thereby allowing a larger group of MSF staff to support on-the-ground deployments in real-time;
   d. focus on natural disasters, although conflict and epidemiological concerns could be integrated in the future;
   e. support a novel interface with a simple "drag and drop" mechanism for the user;
   f. be designed in the cloud (Amazon Web Services) to increase performance, speed, and security, and to be scalable for additional applications;

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[2] Project card revision 1.0 presented by Natasha Reyes on 6 April 2018.

g. operate as a continually updating system, adding information from deployments to the database in real-time and making it accessible for all users.

The project was first piloted in Indonesia, funded by MSF-HK. The first prototype was presented in August 2017 and phase two was launched in November 2017. In this second phase, the project objectives were adjusted, and the project aimed to release the platform in SEA. In September 2018, phase two was extended until March 2021 and piloted in South Africa, Thailand, Senegal, Ethiopia, and Lebanon. Preparations for the pilot's deployment worldwide were planned for the third and final phase. In June 2020, the version of the tool was released and presented to pilot users.

Phase 2 of the project was funded by MSF's internal Transformational Investment Capacity (TIC), with funds being approved in November 2017 and September 2018. Details of the phases, budget, and objectives of the REACH project are presented in **Annex 1.**

SCOPE OF THE EVALUATION

As per the ToR (Annex 2), the MSF REACH evaluation aimed to answer three evaluation questions and their sub-questions (details are provided in the Evaluation Matrix, EM, in Annex 3):

Evaluation question (EQ) 1: What functional value does the REACH platform have when considering both the operational needs and the use of the platform?

- What were the operational needs the platform aimed to address, and how do they remain relevant to the organisation?
- What is the user experience and how useful is the information generated?
- What alternative ways are available to the organisation to meet the identified needs and how do they compare in terms of efficiency, effectiveness, reliability, and cost effectiveness?

Evaluation question (EQ) 2: What is the structural value of the REACH platform when considering reliability, efficiency, security, and maintainability?

- What threats to the structural value have been identified and how have they been addressed?
- What opportunities can be identified for ongoing maintenance and development of the platform?

Evaluation question (EQ) 3: Considering the answers to the above questions, what were the main determinants of success for the REACH project and how could they be taken into consideration in the future?

The primary purpose of the evaluation was to assess the value or significance of the REACH platform to inform decisions on the future of the REACH project as a tool and as a program (services). Another somewhat related purpose was to support learning around the conditions of the project, its design and implementation, and make recommendations for similar projects in the future. Thus, it is important to note that the ET evaluated the REACH project and product (i.e. tool), not any individual.

Moreover, answering the question to continue REACH or not was not part of the scope of this evaluation. Therefore, the ET does not provide conclusions and recommendations in this regard. The ET did not specifically assess the feasibility of the project extension. Because such activity needs analysis of particular indicators, including (but not limited to) value for money and performance of the project, political will, and availability of resources. Instead, the ET did gather data that could be used for decision making regarding whether or not to extend the project.

METHODOLOGY

FRAMEWORK

The evaluation team (ET) formulated an analytical framework (Figure 1***Error! Reference source not found.***) to answer these evaluation questions and accommodate inputs from the key informants during the inception phase. The framework visualises an ideal state for the REACH project and consists of three main areas: institutional, business process, and technology. It was adapted from frameworks related to and elements of multi-hazard Early Warning Systems (WMO, 2018), Information and Knowledge Management (UNISDR, 2013), Decision Support System (Shan & Yan, 2017), emergency preparedness (WHO, 2017), Disaster Risk Reduction (UNISDR, 2015), project management, and digital platforms.

- **Institutional** consists of governance[3], resources, and sustainability. Institutional acts as an instrumental variable which is not causally related to the evaluation questions. However, it plays an important role to explain unexpected states of the project. Further, effective institutional arrangements are among the critical cross-cutting issues for the development or evaluation of an Early Warning System (EWS) and Information and Knowledge Management (IKM).

- The **business process** covers a number of aspects, such as hazards and relevant information, analysis, dissemination, and communication, which are the key elements when developing or evaluating an EWS and IKM. Relevance, effectiveness, and efficiency are addressed by EQ1a and EQ1c. Gender & diversity/inclusiveness mainstreaming, which are also critical cross-cutting issues to EWS and Disaster Risk Reduction (DRR). Knowledge, acceptance and respect for gender differences and strong social norms in early warning can reduce mortality and morbidity as well as facilitate equitable distribution of emergency relief, improve safety conditions in relief shelters, and improve mitigation (WMO, 2018). The business process also discusses the intended and unintended consequences of the project.

- **Technology** encompasses reliability, efficiency, maintainability, threats, opportunities, and securities which are accommodated by EQ2, while user experience is represented in EQ1b. In any EWS, IKM, and Decision Support System (DSS), technology is an ultimate component for gathering analysing, disseminating, and communicating information on hazards to the community to reduce the risks of disaster.

- Finally, lessons learnt (EQ3) covers all three elements. We presume that institutional, business process and technology all have lessons learnt from the project implementation, which can be considered for future development.

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[3] According to UNISDR (2006) good governance is encouraged by robust legal and regulatory frameworks and supported by long-term political commitment and effective institutional arrangements. Effective governance arrangements should encourage decision-making and participation which are supported by broader administrative and resource capabilities at the national or regional level.

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                        ┌─────────────────────────┐
                        │    REACH Evaluation     │
                        └─────────────────────────┘
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Institutional: Governance Resources Sustainability	Business Process: Management of Hazards and Relevant Information Relevance Effectiveness Efficiency Gender & diversity Unintended Consequences	Technology: Reliability Efficiency User experience Maintainability Threats Opportunities

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                        ┌─────────────────────────┐
                        │        Lessons          │
                        │        Learnt           │
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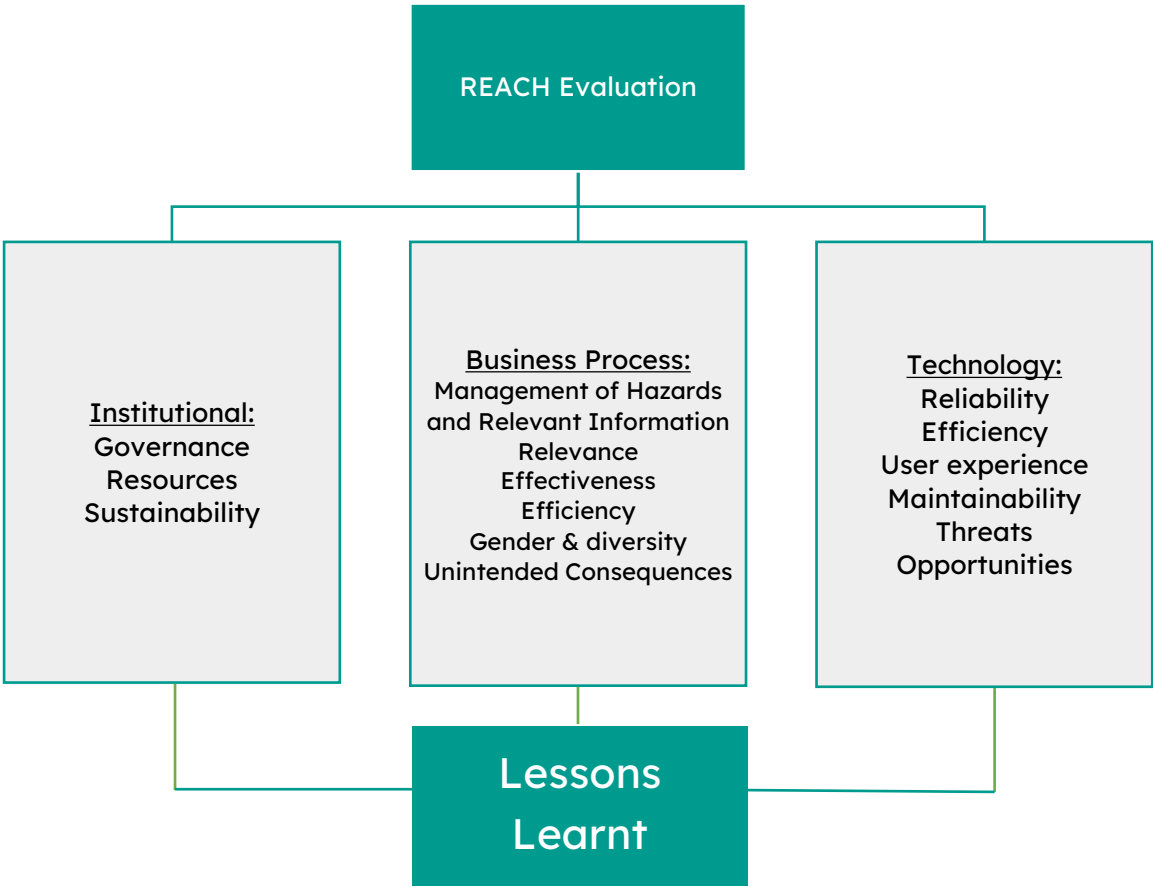
Figure 1. Evaluation Framework

DATA COLLECTION

The ET employed a variety of methods:

- **Desk review** of the REACH project documents, design, and theory of change (if available) and other relevant literature. This included guidelines, reports, videos, and academic publications related to the Early Warning System, Information and Knowledge Management system, Decision Support System, emergency preparedness, similar platforms, and relevant subjects published by other organisations. These documents were used as reference during tool development, analysis and formulation of the recommendations.
- **In-depth interviews or Focus Group Discussions (FGDs)[4]** with the following parties:
- Former and current MSF staff who are familiar with and/or were involved in the development of REACH
- Direct (potential) internal and external end-users of REACH.

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[4] The ET did more group interviews than employed full methodology of FGDs.

- Operators of REACH[5]
- Technical evaluators of REACH (who conducted a separate evaluative exercise)
- As relevant, key informants were sorted into groups of 2-4 for a FGD to understand their experience and opinions regarding the REACH platform. FGDs can provoke more insightful discussions than individual interviews.
- In total, the ET conducted 12 in-depth interviews and 6 FGDs with 28 of the 55 targeted informants (**Annex 4**). The remaining 27 were not available or refused to participate in the evaluation.
- **Online survey** using KoBoToolbox was carried out to compensate for the limited number of end-users of the REACH platform who were willing and able to participate in the interviews and FGDs. The survey also aimed to gain more understanding about the nature and numbers of end-users. In addition, the survey targeted former MSF staff and external stakeholders considered to have knowledge of and experience in utilising the platform. The SEU manager and the ET invited 243 people to participate in the online survey. However, only 19 people responded, 90% of whom were MSF staff and 5% were former MSF staff.
- **Most Significant Change (MSC)** A modified MSC technique was used during the interviews and FGDs. Selected informants were asked to explain the most significant change in the environment where REACH was operating, according to their experience or observation. This technique is useful to complement other methods in identifying and understanding intended and unintended consequences of the project from different perspectives of stakeholders (Davies & Dart, 2005).

DATA ANALYSIS

The qualitative data were analysed using thematic analysis. This approach assists in analysing interviews or focus group discussion transcripts for interpretation. There are six common steps involved in conducting a thematic analysis and they include familiarisation, coding, generating themes, reviewing themes, defining, and naming themes, and doing the final writeup. The themes and coding used for the analysis are provided in **Annex 5**.

Because the quantitative data (from the survey) were only available on a very small sample, no statistical analysis could be performed. Data are presented as percentage of respondents who gave a certain answer. The same was done for some of the qualitative findings.

ETHICAL CONSIDERATIONS

The ET sought informed consent from each informant prior to the start of the interview. Special care was taken to ensure informants understand that their participation is voluntary and anonymous, and that they could discontinue the interview at any point without providing a reason for doing so. The ET upheld the confidentiality of all information provided by the respondents with utmost care throughout data collection, processing and analysis. No direct sources of content or transcript of interviews/FGDs

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[5] MSF considers these to fall under end-users but the ET found it important to mention this group separately because of its specific role.

are disclosed to MSF, or any other information that leads to identifying the sources. The ET worked according to the SEU Ethical Guidelines.

LIMITATIONS

The main limitation of this evaluation was the very short timeline. One of the measures taken to mitigate the short timeline was organising FGDs. This allowed the ET to meet with between 2 to 4 informants at once. The refusal rate of informants was high, despite repeated emails from SEU and the ET (introductory, follow up, and reminder). Of the 55 informants approached, 28 (50.9%) participated in the interviews/FGDs. Of these 28, only 8 could answer the technology questions. In an effort to compensate for these low numbers, the ET launched an online survey. Because there were no valid data on the direct users of the REACH platform, developing the survey distribution list was a challenge. The SEU evaluation manager selected 243 from approximately 500 individuals from a list of people who had been one way or another in touch with the REACH project provided by REACH Project Manager. However, only 19 out of 243 (7.8%) approached people completed the online survey. The main reasons for refusal or unavailability to participate were the Christmas and New Year's holidays, on-going emergency responses in South Africa and Indonesia, and never having used the REACH platform, while some provided no reason.

Hence, the ET did not have opportunity to discuss with and learn from:

- The developer company of the REACH platform. Their contribution would have provided valuable insight for this evaluation.
- Person in charge of another external platform that functioned like REACH
- All the pilot users of the REACH platform, especially from Africa region.

The small number of informants and respondents limits the ability of the ET to gain balanced insights during the evaluation. At the same time, the small number of informants and respondents can be considered as a finding itself and indicated the low number of users of the REACH platform. Data and information presented in this report does not represent the opinion of entire MSF staff or users of the REACH platform. In addition, it was not possible to perform the source code analysis to evaluate the effectiveness of the existing coding practices of the REACH platform. To manage this, the ET referred to the source code analysis carried out by Guillaume Gagnon (2021)

The second limitation was the timing of this evaluation, which coincided with ongoing discussions regarding the project's continuity. This potentially increased information bias (and contradictory findings) during the evaluation.

Due to the nature of this evaluation, which spanned several continents, and during a pandemic, all data were collected online. Remote data collection was challenging and took time, not least due to informants being in different time zones, connectivity or scheduling issues. Security concerns expressed by MSF regarding the use of online data collection through Zoom web conferencing platform were addressed by using Microsoft Teams instead.

FINDINGS

The ET and SEU Evaluation Manager invited 55 people for interviews and FGDs. Of these, 28 participated while 27 refused or did not respond (Table 1). Of the participants, only eight were able to answer the technology questions. Likewise, only 19 out of 243 (7,8%) people completed the online survey. Due to the small numbers of participants, it is not possible to apply inferential statistical analysis and only descriptive tables and figures are provided. When data are presented in this report the source is indicated (interview/FGD and survey). Due to the small number of participants, the results cannot be generalised to the entire MSF organisation.

Table 1. Participants in the Evaluation compared to those approached

Informants	Interview/FGD		Survey	
	Approached	Participated	Approached	Participated
Africa	9	2	16	9
America	7	3	9	0
Asia-Pacific	9	7	78	5
Europe	19	8	114	4
External stakeholders (universities, former MSF staff, other organisations)	11	8	26	1
TOTAL	55	28 (50.9%)	243	19 (7.8%)

INSTITUTIONAL

GOVERNANCE

> Key findings:
>
> The REACH project did not have good governance. The project changed sponsor six times. The Steering Committee (SC) had more of an advisory than a steering function. In addition, one member of the steering committee was also an implementer and two were not aware of their status. The REACH project did not have legal and regulatory frameworks, institutional arrangements, or detailed information on the roles and responsibilities of the governance and other stakeholders.

In general, governance of the REACH project consisted of the sponsor and executive[6]. The sponsor was the MSF HK Executive Director, while the executive consisted of the project lead, project advisors and project manager. During the project period, REACH changed its sponsor at least six times (see **Annex 6**). While the sponsors were supposed to champion the project and get rid of obstructions (HBR Editors,

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[6] A group of people in a high position, who makes decisions and puts them into action.

2016), each one had different interests in and perceptions of the project. Moreover, some had a limited understanding of the project's objectives and the use of the platform. As a result, they did not always provide optimal support to the REACH project. This contributed to a lack of buy in and support from the OC as the owner of the operational mandate.

Only in 2020, a Steering Committee for the REACH project was established. According to MSF OC Brussels (OCB) HQ project status report, the members of the SC were the project sponsor, TIC secretariat and committee, as well as the MSF HK operations support manager and IT manager. Interestingly, the TIC secretariat and committee had not been informed of their SC membership. The ET found that their names had been included merely as a formality, for the sake of the report to OCB. In fact, one of them explained, TIC tend to avoid having a role in the steering committee of the projects that they fund. Instead, the TIC accompanies the projects through six months check-in and status report.

The SC met with the project manager on a quarterly basis to discuss any issues and provide advice. This differs from steering and making decisions. Therefore, it could have been more accurate to refer to them as an advisory committee, rather than a steering committee (Mcgrath & Whitty, 2013). One of the steering committee members was also the project implementer. However, according to Murphy (2006), the steering committee and the project team should have clearly defined and separated responsibilities. A SC should have a monitoring and strategic role while a project team is charged with accomplishing the main objectives. In REACH, this separation of functions was not clear.

Furthermore, there were no legal and regulatory frameworks, institutional arrangements, or detailed information on the roles and responsibilities of governance and other stakeholders in the REACH project. Weak institutional structure and performance can lead to unclear roles, ineffective actions, and a limited impact of risk-reduction measures (UNDP, 2018), and most informants argued this was the case in the REACH project.

> "REACH (should) have someone who oversees the platform, and then people who [are] responsible to collect information, ensuring it is updated, into the mission also ensure that people are engaged, involved, etc. That set up should already [be] in place, in MSF we don't clearly set that up from the beginning [....]. Communication lines become uphill, who is actually having responsibility, where is the accountability of the system and project […]. A governance set up with clear definition of roles would be important for a system like [REACH] in order to be able to be functional."

RESOURCES

> ### Key findings:
>
> In terms of numbers, the REACH project had sufficient financial and human resources. However, the only staff dedicated to the REACH project was the project manager while others were regular MSF staff who supported it voluntarily. This contributed to the challenges of the project.

The REACH project received funding from OCs and TIC for its activities from November 2017 to March 2021 (see Annex 1). However, there were no dedicated project staff, except for the project manager[7]. While on paper the REACH project has 75 operators worldwide supporting the platform, these were all MSF staff with other roles, who volunteered for the REACH project and in fact there were only five active operators worldwide. The REACH project relied on technical support from relevant units within MSF such as IT but this lack of dedicated staff to supervise the software developers contributed to poor product quality and delays during the platform development. Instead, the project could have hired a technical staff to support the project manager in handling technological aspects during the development of the platform.

In addition, the operators and analysts were regular MSF staff (and former staff) who voluntarily populated data and information for the REACH platform. While in times of low to normal workloads, their support to REACH were considered acceptable, providing information to REACH became a burden, during periods with high workload and emergency response.

> "It took a lot of effort to manually input that information (into the platform). […] sometimes I found it very difficult to do it. Because, during an emergency, you are very busy. […] You need to manually input to REACH. That is a burden for me. For me, I would say that is the major setback of this project. It is the time [and] efforts required to input information. For me, [the platform] is not intelligent enough or not straight forward. […] It is pretty labour intensive."

The project manager did not have any previous professional experience in a humanitarian organisation like MSF and therefore, initially, only limited understanding and knowledge of emergency response contexts and issues. The project manager was given short-term (six months) contracts, which were regularly extended, but sometimes with only very short notice. While some informants stated this did not significantly affect the REACH project, short term employment can result in unscheduled turnover in the organisation, low staff morale, and low productivity (Parker et al., 2002; Wandera, 2011; Lisi & Malo, 2017) which should be taken into account by the organisation and the project. Especially for an essential staff member such as the project manager of a multi-year project.

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[7] Desk review shows that the position is referred to as Project Manager in key documents, while post incumbent mentions the title was Project Officer. This discrepancy could not be explored further by ET.

FUTURE RESOURCES

Many informants suggested that the REACH project should have dedicated staff to ensure its operations in the future. For instance, to populate data and information about existing emergencies, previous missions of MSF, etc., which will be useful for the decision makers. This could be done by recruiting additional staff, adding REACH to the existing tasks of current MSF staff, and/or collaborating with the MSF Association. Either way, the roles and responsibilities of these dedicated staff should be institutionalised. In addition, the REACH project could still employ regular MSF staff on a voluntary basis, but incentives are needed in the form of regular communication, trainings acknowledging and showcasing the impact of their assistance to the REACH project, etc.

> "You don't need a big control room. You need one or two dedicated staff or maybe three dedicated staff. […] Maybe that can be put in the job description of the existing staff. I think the problem is very much in investing in the informants, keeping them motivated, keeping them on board, making sure that they keep filling in information."

Likewise, the REACH project must secure funding to continue. The TIC is open for a potential application for additional investment funding from the REACH project. However, according to TIC, in order to be successful in obtaining funding, the project needs to have better direction, ownership, and leadership. More importantly, it should meet the criteria set by TIC: impact, reliability, risk tolerance, and scalability.

Besides TIC, there are several alternatives to source funding as put forward by some informants. MSF HK could invest some of the funds they raised in the REACH project, instead of only to the OC. Secondly, MSF missions that use the REACH platform could share their budget. Another model is various departments in some OCs could fund the project. Regardless of the funding source, any funding model for the REACH project requires a consensus on the usefulness of the project and the need to continue it.

SUSTAINABILITY

> <u>Key findings</u>:
>
> The REACH platform is only partially sustainable due to some aspects: governance, resources, business process, and technology. There was consensus that in order to be sustainable, the REACH platform should be made more agile and user friendly to ensure a broad user base.
>
> Opinions on whether the REACH platform should be sustained were divided. Some informants argued that the REACH platform should be sustained while some others were less sure. Furthermore, some of those who argued for sustaining the platform suggested it would be better placed externally if MSF does not want to keep the platform anymore.

Some informants who argued that the REACH platform should be sustained said that the main objective of the REACH project is, and will continue to be, relevant for MSF (see **Relevance** sub section). In addition, they argued that large investments, in terms of financial and human resources, as well as time, have already been made in the development of the REACH platform, and it would be a shame if it would not be sustained. Interestingly, only a few of these informants had used the platform. Others stated that the REACH platform is a good to have, but not essential, as they were not sure about the current capacity of the platform.

For the platform to be sustained and widely used, informants suggested the REACH platform to be made more agile and user friendly. This includes ensuring accessibility of the platform even when power and internet connection are limited, easy to use for beginners, secure, provides relevant and updated (preferably real time) information to the missions, using several channels like WhatsApp and SMS. More importantly, the REACH platform needs to have an automated function so it can pull information on hazards and other relevant information from respected organisations and push it to the users.

Figure 2 shows the opinion of the nineteen informants about conditions needed for the future of the REACH platform. All of these are related to user friendliness: easier to access when internet connection and electricity network are not stable (42%); sends disaster alert notification to users (32%); provides information through social media, e.g., WhatsApp, Instagram, etc (26%); and available as a mobile phone app (26%). Other answers included the suggestion that the REACH platform should show its value before it can be recommended as a standard tool in MSF and to promote collaboration with the GIS Centre.

In fact, the REACH project had envisioned to have some of these conditions (i.e., offline accessibility offline, and availability as a mobile phone app) from the beginning. These were stipulated as deliverables for the platform's developer[8], who failed to deliver them (see section on Challenges).
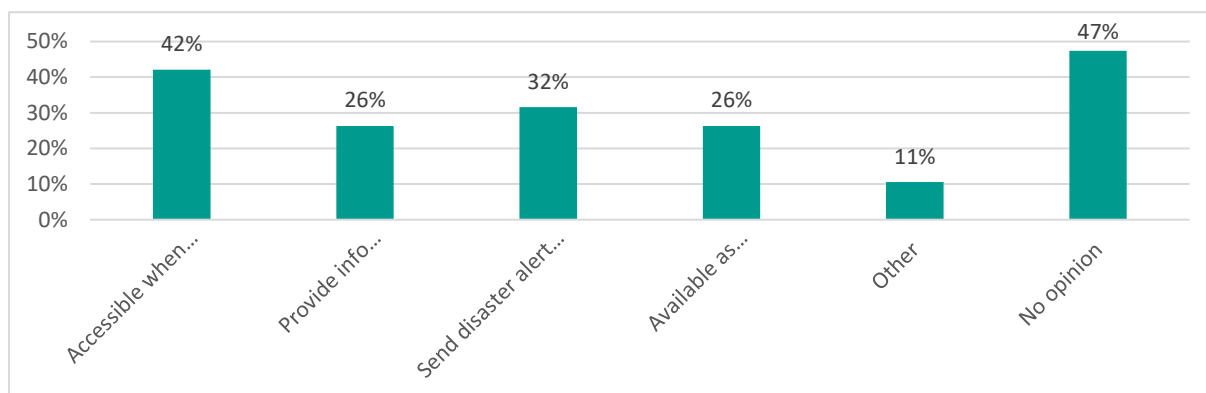

Figure 2. Needs for improvement for a relevant REACH platform (survey; n=19).

In addition to the technology, having the right place to host the platform also contributes to sustainability of the platform in the future. Informants suggested the potential models.

HOSTING INTERNALLY BY MSF

Centralised Model

If REACH aims to cover a wider area or even go worldwide, the platform needs to be managed in a centralised way. The future home for REACH most often mentioned by the informants is the GIS Centre. The respondents based their opinion on the similar features that the REACH platform shares with GeoMSF platform of the GIS Centre, such as the GeoAPP map in REACH. Therefore, informants believed embedding the REACH platform in GeoMSF will increase efficiency. However, this will require analysis of the infrastructure of the two platforms and the best way to smoothly integrate the REACH platform into GeoMSF. The GeoMSF platform was built using proprietary software developed by ESRI (GIS software company) while the REACH uses open-source software. This analysis would take a few weeks and can only be done after the first semester of 2021 since it is not currently in GIS Centre roadmap. The GIS Centre needs justification on the usefulness of the REACH platform, as well as the demand, and buy in at all levels within MSF for its strategic committee (GIS Centre governing body) to approve this new strategic direction. In addition, the REACH platform would need to secure its own funding for the first 1-2 years because the GIS Centre budget is fixed for the current strategic plan.

> "It is not simple [to absorb REACH]. It is not impossible. […] What is [needed] is operational buy in for REACH and demands for more."

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[8] Functional Requirements Document for Médecins Sans Frontières – Reach Project Version 1 Completion. Prepared by Luerrorcie Gueuning. Date of last review: 02/05/2019

The second most mentioned potential home for the REACH platform is the OCs in Brussels, Geneva, and Paris, in particular their emergency pool/unit. Informants explained that the OCs have sufficient financial and human resources to maintain REACH. More specifically, OCB and OCP are both considered open to innovations. However, OCB is referred to as the most suitable because it has been exposed to the activities and challenges of REACH. Hence, the OCB has better knowledge of the platform than the other two.

Alternatively, MSF HK can continue to manage the REACH project, as mentioned by some informants. However, only with additional mandate and dedicated budget from OCB will MSF HK be able to cover a wider implementation area than those (normally) covered by MSF HK. As MSF HK is a partner section of OCB any more global mandate beyond OCB would need to be formalised (see **Annex 10**).

> "Having [REACH] under Hong Kong is going to be an obstacle for the development on the long term. Except (if) there is a clear delegation given by the director of operations say[ing] 'we want to mandate Hong Kong to be in charge for REACH with a specific budget and to develop it for us'. So, if there is the right delegation that can happen. Without this delegation that cannot happen."
>
> >>><<<
>
> "I questioned whether MSF Hong Kong and [its] small team was the right team to develop it. Maybe, if it were a project housed in operational centre already, it would have been developed better […] […] partner sections are normally not leading any operational initiative".

Decentralised Model

The second model to keep the REACH platform internally is by decentralising it to only serve a specific region like South East Asia, Africa, Middle East, etc. According to some informants, this would allow the platform to be more focused on the regional needs, more accepted, and more useful. A few informants mentioned that a potential region-based project for the future home of REACH is the SEEAP (South East, East Asia and the Pacific) partnership between MSF Australia, MSF Hong Kong, and MSF Japan (under OCB and OCP umbrella respectively). However, an informant from the SEAAP project countered the idea, saying having the REACH project was not among their priorities, at least in the next three years. However, they are open to having an indirect partnership with the REACH project i.e., if Hong Kong continues managing it.

HOSTING EXTERNALLY

As an alternative to keeping the REACH platform internally, MSF can turn it into open source and collaborate with other organisations on the management, or hand it over to another organisation. In the past, MSF has given software they developed to OXFAM, Save the Children, and a couple of other

> "It would be a shame to have so much development rotting in a cupboard or in a server somewhere while I would think there is a huge benefit for many other organisations… If MSF is not interested in REACH anymore, they can give it to other NGOs. Just don't waste it."

NGOs. In this case, any information related to safety and security of MSF staff should be removed prior to handover.

BUSINESS PROCESS

HAZARDS AND RELEVANT INFORMATION, ANALYSIS, DISSEMINATION

> Key findings:
>
> There is a big gap between the presentation, interpretation, and the actual condition of the REACH platform. This is due to the absence in the concept note of a clear statement on the model adopted by the REACH platform. Differences, between the initiators and developers, in the understanding and expectations regarding the platform's initial main functions also contributed to the complexity of the platform, and the ensuing confusions among MSF staff.

INITIAL MODEL OF THE REACH PLATFORM

No clear statement on the adopted model of the REACH platform is found in the REACH project concept notes (from the first to second phase extensions). As a result, MSF staff who were involved in the development of the platform differed in their interpretation of its main function. One said that the REACH platform was initially an information and sharing hub, while another mentioned that the platform was set up as an Early Warning System. According to the other informants, the platform was more than this and had many ambitions. Nevertheless, they all agreed that the main intended users of the REACH platform were MSF staff.

Some informants explained further, the interpretation of the technical developer of the REACH platform also differed from the expectations of its initiators, which made the REACH platform more complex. This difference was caused by the fact that the project did not have IT experts who could translate the project's needs in technical terms (see section on Challenges). Unfortunately, the ET did not have the opportunity to ask the developers of the REACH platform for clarification. Other MSF staff, who were not involved in the REACH project said they had no clear understanding of what the platform can and cannot do. In short, there was a big gap between the presentation, interpretation, and the real condition of the REACH platform.

> "It is [presented] a bit like a Disney castle that […] will solve all the problems. […] [but] there is no magic that can solve all the problems about communication, about access to information in one tool. […] maybe there is problem with the scope of the project, what they do exactly, for sure maybe they have something really interesting but they were not so clear at the time."

Figure 3 visualises the ET's analysis and interpretation of the work and information flow of the current REACH platform. The ET concludes that the REACH platform is a combination of an early warning, Information and Knowledge Management, and a Decision Support System. However, it does not fully function as either of these three systems, and therefore cannot fully function as a combined system.
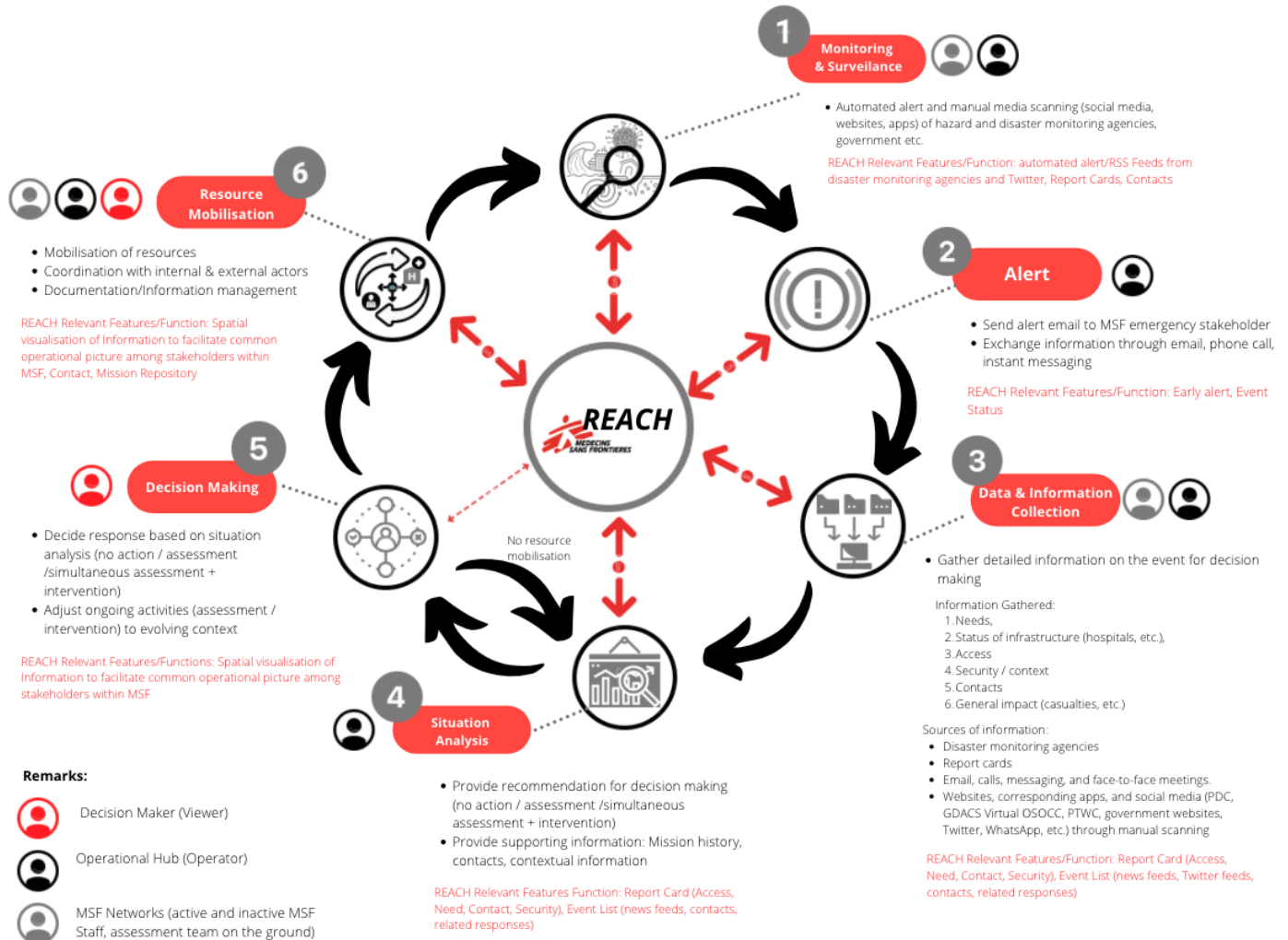

Figure 3. Workflow of the REACH Platform (source: ET based on desk review and KII).

Table 2 shows the qualitative assessment of the extent to which REACH has the components and principles of an Early Warning System (EWS), an Information and Knowledge Management system (IKMS), and a Decision Support System (DSS). This assessment was based on desk review, interviews, FGDs, and exposure to the REACH platform. As an **EWS**, the REACH platform lacks some crucial components of risk knowledge, warning dissemination, and communication. It completely lacks response capability, a forecasting system, and does not provide real time information on disasters. It does, however, allow users to monitor hazards and relevant information entered into the system by the automated alert feeds and manually. There is no institutionalised standard operating procedure (SOP) on the roles and responsibilities of the REACH stakeholders and the way the platform should be used as an emergency alert and monitoring system. For an **IKMS**, instead of catering to a variety of stakeholders, the audience of the REACH platform was limited to MSF staff only (UNISDR, 2013). While

for a **DSS**, the REACH platform did not provide manipulative and analytical tools or modelling facilities to examine a range of scenarios (Shan & Yan, 2017).

Table 2. Comparison between the features of the REACH platform and the standards of EWS, IKMS, and DSS

Early Warning System (EWS) (UNDP, 2018; WMO, 2018)	Information and Knowledge Management System (IKMS) (UNISDR, 2013)	Decision Support System (DSS) (Shan & Yan, 2017)
Risk Knowledge	Demand-driven	Provide management with a usable interface to a shared pool of summarized data from inside and outside the organisation
Identify key hazards and related threats	Based on a thorough user needs analysis	Provide manipulative and analytical tools to transform the data in any way management requires
Assess exposure, vulnerabilities, capacities and risks	Communicate and collaborate with users and stakeholders	Provide presentation facilities through the use of advanced graphics to show the results of analysis
Identify roles and responsibilities of stakeholders	Support and embrace information standards:	Provide modeling facilities to examine a range of scenarios
Consolidate and incorporate risk information into the Early Warning System properly	Interoperability and compatibility	
	Terminology and ontology	
Warning Dissemination and Communication	Collaborative	
Establish organisational and decision-making processes and make it operational	Seek collaborative partnerships to avoid duplication of effort	
Establish communication systems and equipment and make it operational	National and regional initiatives share data, expertise and information	
The project communicates impact-based early warnings effectively to prompt action by target groups	Local and national institutions and agencies share data, expertise and information	
Response Capability	Sustainable	
Develop and operate disaster preparedness measures, including response plans	Be recognised as beneficial knowledge product	
Conduct awareness and education campaigns	Address needs of the business	
Test and evaluate public awareness and response	Manage and maintain systems to be up to-date	
	Establish effective hand-over, migration or integration procedures	
	Identify sustainable funding mechanisms	

Extent to which REACH is meeting the standards of EWS, IKMS, DSS:

Partially

Not at all

KEY ACTORS

> Key findings:
>
> The REACH platform exchanged data and information in all six main phases of disasters and emergencies, from monitoring & surveillance to resource mobilisation. Each involved specific activities, sources of information, and key actors (see Figure 3)). Operation support/emergency cell (operators) is the one who used the REACH platform in these six phases the most. Missions and emergency pools (decision makers) do not necessarily obtain the information they need from REACH.

The key actors of the REACH platform are:

- The **MSF network**, including current and former MSF staff, assessment teams on the ground, NGOs, UN agencies, government, and local contacts. They are expected to share information during monitoring and surveillance, data and information collection, and resource mobilisation phases through submission of report cards or through the operators. Using the report card feature, they and other actors (in particular the operators) can store information gathered from different sources such as alerts from other disaster monitoring platforms, the field, direct communication (emails, messages, calls, face to face meetings), and manual scanning from websites and social media. Sufficient amounts of relevant information on the platform are highly dependent on their contributions. No data was available on the total number of network members who actively provided information through the report cards alone.

- In terms of accessing data and information from the REACH platform, this was only possible for nternal MSF actors despite the contributions of external actors to the platform (see

  Initial Model of the REACH Platform). This lack of downward accountability[9] to the external networks is a bottleneck for the crowdsourcing spirit of the REACH platform. Crowdsourcing initiators must reward the crowd for their voluntary work (Gioachhino & Cisternino, 2010) and keep them involved (Isman et al., 2012). The rewards can be economic, social recognition, self-esteem or the development of individual skills (Estellés-Arolas & González-Ladrón-De-Guevara, 2012), therefore downward accountability is one of them. More importantly, some informants (see also Future

> "The activity was only inputting information (into the REACH platform), but no guarantee whether or not the inputted information is followed up. This is different with for example (a similar platform), where people are willing to employ it because they see its being used. There is a need for success stories on how (information on) the REACH platform really used to help people and emergency response missions".

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[9] Ensuring that people – especially those who contribute – are informed about the processes the platform is meant to influence (including how the information collected is being moderated and used), its successes and failures, and the measures that are being taken to ensure anonymity (Berdou & Shutt, 2017).

Resources) explained that a way to keep people motivated to input the report cards into the REACH platform is to show them the use of provided information by others. Hence, fully barring the external networks from seeing the information could weaken their sense of belonging towards the platform, which in turn will cause them to stop using it.

- **Operational Hub (operators)** play a role in almost all phases, except in the decision making. The ET was told that there are a total of 75 operators worldwide, but that only five are active. Each manually enters their respective context specific data and information into the platform, such as epidemiology and emergency responses in South East Asia, East Africa, West Africa, Canada, and Ethiopia, two to three times every month. Some of them summarised and analysed the events provided in the platform into monthly bulletin and short reports, and shared these with the decision makers through emails, WhatsApp, or messages (see Box 1).

The platform allowed operators to categorise events based on their status: monitoring, exploration, emergency, on-going, or complete (Figure 4). These functions provide the operators a quick overview of the events in their regions. Further, it enabled users to see information of past responses, contacts of personnel, suppliers, and counterparts involved. These can be useful as reference for emergency deployment.

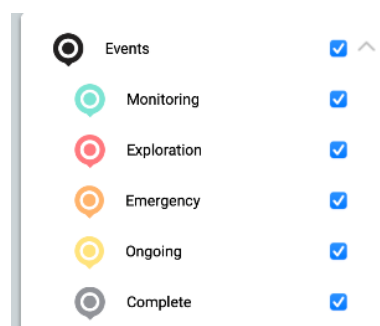Figure 4. Categories of events in the REACH platform

The platform allows OCs responding to the same crisis by resource mobilisation to exchange information. This information includes the needs, access, security, and contacts and is visualised in a map to provide a common operational picture for all stakeholders (Figure 5). However, this is only possible if the information is submitted into the platform.
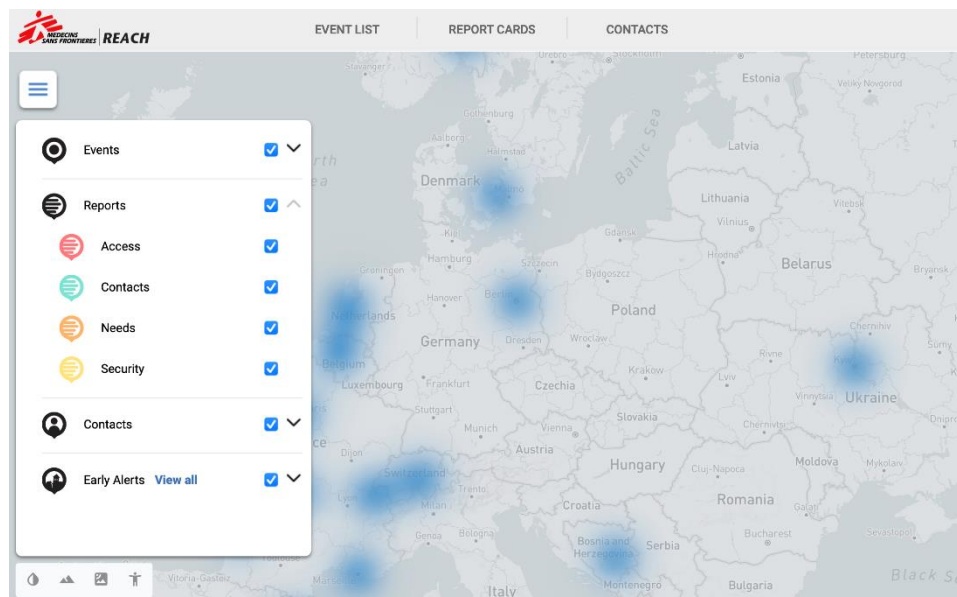
Figure 5. Categories of reporting in the REACH platform

- **Decision makers** include heads of missions, country directors, and emergency pool coordinators. They are generally referred to as end-users of the REACH platform and they play a key role in two critical phases of disaster and emergency response: decision making and resource mobilisation. The primary issue is that they do not have the time to see, let alone analyse, the data and information on the REACH platform. They expect to receive analysed data which is presented in an easy to read and understandable format, in a timely manner, through WhatsApp, social media (Twitter, Facebook, Instagram), one-page briefs, messages, or emails. As the REACH platform was mainly designed to support operational staff to gather relevant information from different sources to perform situation analysis for decision making, the end users do not necessarily see how the platform added value in decision making process during an emergency.

RELEVANCE

> Key findings:
>
> In general, the REACH project remains relevant to the needs of MSF to obtain timely and relevant information during emergencies and disasters. However, MSF staff need to gather data and information from multiple sources, in addition to or instead of the REACH platform, because no single platform can meet all their needs.

Most informants (79%) said that conceptually, the objective of REACH project corresponds with identified needs. It remains relevant to MSF or the environments where the organisation works. In particular, as the current COVID-19 pandemic still restricts travel, MSF staff are expected to be able to gather data and information for decision making on emergency and disaster response without going to the field, which can be supported by the REACH platform.

However, a few informants argued it was no longer relevant due to changes in the humanitarian landscape in the SEA region (and elsewhere in the world) during the long development phase of the platform. In particular, technology and the capacity to respond to disaster of the countries in SEA have significantly improved, making governments increasingly selective with regards to international assistance. The presence of more than one OC in a crisis event, as was common in the past, is less likely to happen now. The presence of MSF at the country level in some countries is considered sufficient to provide neutral and factual information about the needs from a crisis event in their respective areas. The majority of informants and respondents use other platforms in addition to or instead of the REACH platform, to find data and information they need (see Figure 4). Among the platforms mentioned were Diggr, UN-VOSOCC, ReliefWeb, GeoMSF, social media (Facebook, twitter, Instagram, WhatsApp group, etc.), national and local government platforms, local contacts, etc. They always gathered data and information from different sources to be comprehensive.
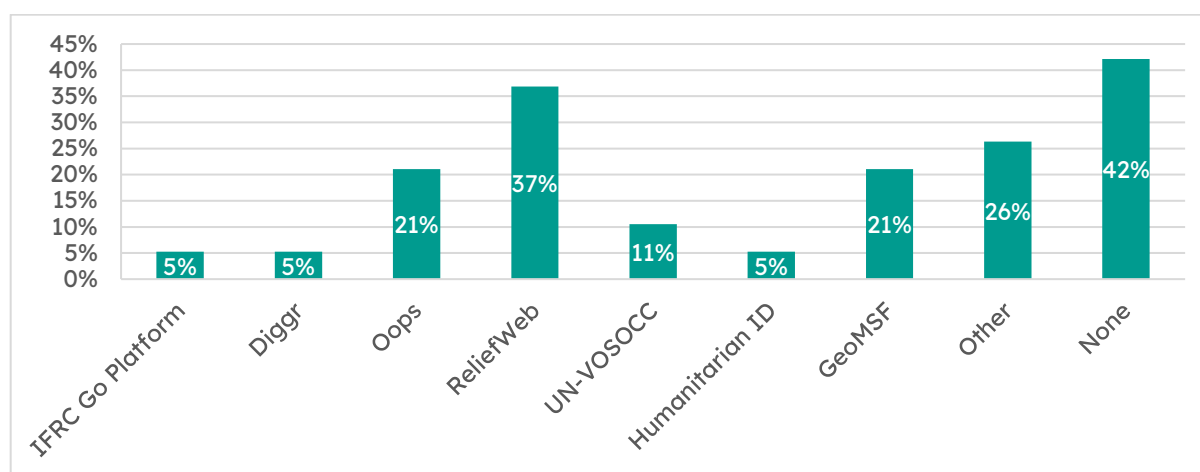
Figure 6. Use of other platform(s) than REACH to obtain information in emergencies (survey; n=19)

Figure 7 (see below) provides a comparison of alternative platforms to the REACH platform based on information from the 11 key informants who had used the platform. Almost half of the respondents of the online survey (45%) felt more familiar with the alternative platforms and 18% said they provided more real time information. The same percentage (9%) answered the other platforms were: easier to use; provided better information in term of geography, demography, topics, and timeline; and more accessible from anywhere in the world.

Figure 7. Alternative platforms compared to REACH (survey; n=11)

EFFECTIVENESS

> Key findings:
>
> The REACH project has partially met its objectives. It contributed to improved information management and efficient decision-making during emergencies. However, the latter tended to be indirectly or through the operators. Information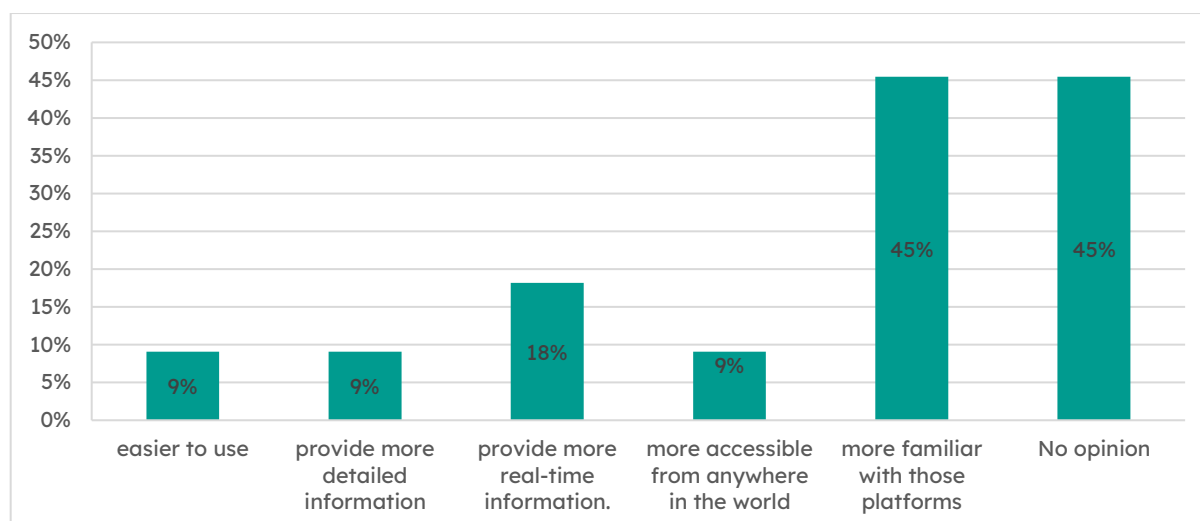 unique to the REACH platform were the histories of missions, and contacts of current and former MSF staff. These were useful during emergency deployment in addition to the disaster monitoring and alert information.

In the four years of its existence (March 2017 – March 2021), the REACH project changed its main objective three times (**Annex 1)**. The objectives are more activity or output based (e.g. develop the REACH platform itself, scale up, extend the use, finalise development, evaluate) than outcome based. Moreover, there is no logical framework with SMART (systematic, measurable, relevant, and time-bound) indicators or theory of change to evaluate the objectives. The indicators were provided on an ad-hoc basis when developing TORs and reports.

The outcomes are:

(i) improved information management in emergencies; (ii) more efficient decision-making during disasters. To be able to assess whether these are reached, the informants need to have used the platform in emergencies and disasters. However, the majority of the informants (11 out of 19) had never used the platform, and of those who did, only a few used it during disasters. Of these, one argued that the platform performed well on both outcomes as it reduced the time required for gathering appropriate information during disaster and emergency response. The rest said that the REACH platform met the first, but not the second outcome.

Half of the survey respondents said that the REACH platform has contributed to improved information management, compared to 37.5% who mentioned it has contributed to more efficient decision-making during emergencies (Figure 8).
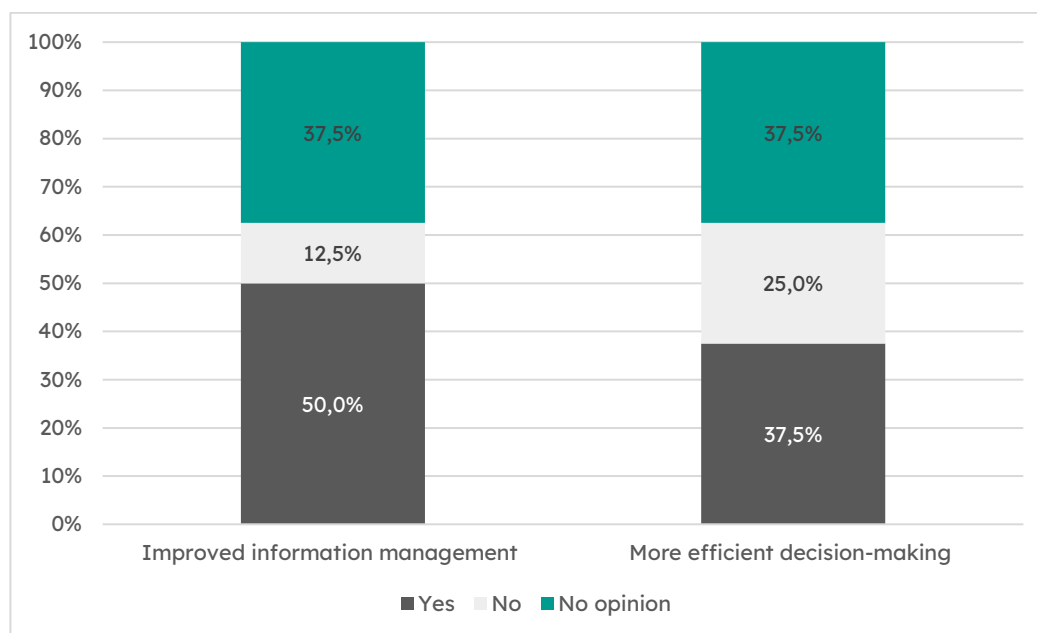
Figure 8. Contribution of REACH platform in emergencies (survey; n=8)

The REACH platform has unique and especially useful information that other platforms lack. According to most informants, these were the histories of missions, and relevant contact information including current and former MSF staff, suppliers, governments, and other NGOs who became counterparts in past missions. These were invaluable for those being deployed to areas they had never been before, in particular during emergency response. Nevertheless, such information was not sufficiently entered into the platform. They expected the REACH project staff to improve this. Interestingly, the majority of informants who never used the platform had the same opinions and requests, based on what they heard from others.

Half of the survey respondents (4) with experience using the REACH platform found the disaster monitoring and alert to be the most useful information of the REACH platform, while one respondent said it was the location of MSF members, while the remainder had no opinion (Figure 9).

Figure 9. The most useful aspect of the REACH platform (survey; n=8)

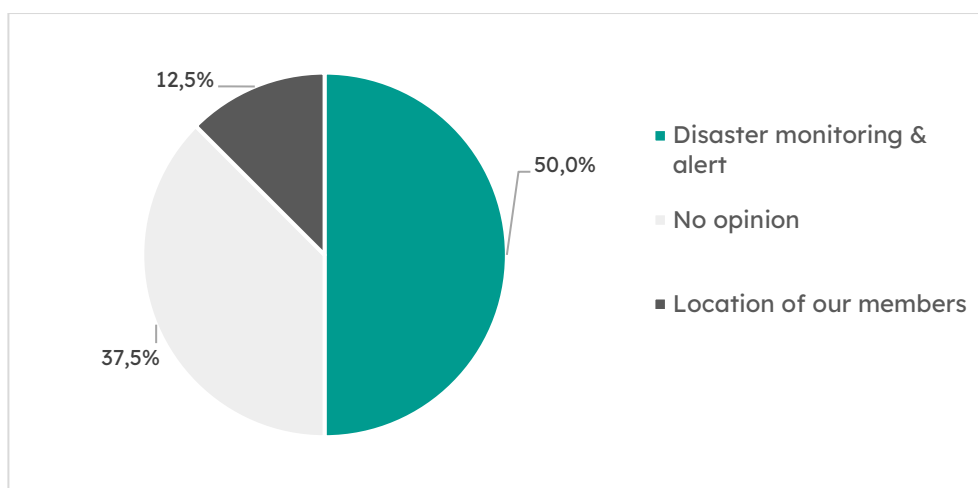One informant who found the REACH platform helpful told the ET that in the past, data and information had to be collected from different sources and entered into an Excel file before they could be shared to others. By using the REACH platform, the informant could see various aspects of an event from different sources in one view. However, the informant added that the REACH platform is not perfect and not easy to use.

> "it did help me. […] I was supporting and advising those directing the operation, head of mission, and the desks […] It helped me to be a better resource person, and help me take better decision, and make better recommendations to the field. […] Also look back before, can you imagine, I had messenger, WhatsApp, fibre, email, plus twitter open, plus Facebook open, some WhatsApp groups, and I was just looking at everything and I would put in an excel file all the information and the sources and everything and it was just hard to manage. And now, some people did input the information directly to REACH. But, most of the time they would send it to me and I put it in. But, it was just better have it all in once space. […] So, it did help me doing my job supporting operations better. So yes, though it was not perfect and struggle to use, I could already see the benefit of using REACH. And I knew it, if it was a tool that actually worked really well, if it could be just well designed, I think it would help other people as well."

The explanation from the informant above shows that the REACH platform supported a more efficient decision-making during disasters. The informant selected and obtained appropriate data and information from the REACH platform to develop reports and recommendations for the decision makers.

Furthermore, the information on the REACH platform contributed indirectly to more efficient decision-making by the decision makers (head of missions, emergency pool coordinator, and country directors). Besides the informant above who used the REACH platform to provide information on disasters in SEA areas such as in Laos and Indonesia in 2018, the operators and the project manager of REACH supplied the decision makers with data and information available on the platform through email whenever needed (see section on Key Actors and Box 1). Otherwise, the decision makers would need to directly access the platform, particularly for contacts and mission histories of MSF (see point f. in Box 1).

> "We (the REACH project) have (has) to make more trainings, more consultations. […] […]I just have (had) one training with (MSF) Hong Kong. They opened (did) it for MSF people here (one of the pilot countries)".
>
> "No one has access to the system. You can click on the website, but you need access code. No one in the mission, deputy Medco have been here from the past few years, HR, none in the mission actually has the access to REACH… In 2018 there was tsunami, earthquake, and volcano eruption. And the mission tried to activate REACH, eventually asked for access code, didn't get a reply".

BOX 1: REQUEST FOR AND SUPPLY OF INFORMATION FROM THE REACH PLATFORM

a. Fiona Chuah, Medical Research Officer of MSF Singapore who was also an operator of the REACH platform, regularly uploaded an outbreak bulletin, including the methanol poisoning monitoring in Asia into the platform. At the same time, she circulated these bulletins through email to internal stakeholders of MSF in the South East, East Asia, and Pasific.

b. On 5 August 2018, Natasha Reyes uploaded and gathered information from the REACH platform regarding an earthquake in Lombok, Indonesia. She also disseminated it through an email to selected internal stakeholders.

c. On 28 September 2018, Ken Xue, the operational support manager of MSF Hong Kong who was also an operator of the REACH platform, uploaded some information into the REACH platform regarding an earthquake in Palu, Indonesia. He also circulated the information through an email to selected internal stakeholders.

d. On 3 October 2018, Lucie Gueuning, the REACH project manager shared to selected internal stakeholders Indonesia a history of the month-long mission to Buol, Sulawesi, Indonesia in 2008. She also shared a link where the country director of Indonesia can access all documents from the mission. In response to this email, the country director asked Lucie Gueuning to keep feeding them with info and add Tommy (log/supply).

e. On 14 July 2021, Ken Xue uploaded information about floods in southern China. He also circulated this through an email to a number of internal stakeholders of MSF.

f. On 4 November 2020, the MSF HoM for the Phillipines sent an email to Ken Xue asking if the REACH platform has the record of MSF mission for typhoon Loleng in Cantaduanes and Hanna, in 1998. Ken forwarded the email to Lucie who then provided the head of mission with the requested data and information, contact information, and a link to access them on the platform.

Informants mentioned several interrelated reasons for not using the REACH platform or thinking it was

not helpful to improve the efficiency of decision-making. Firstly, because the platform was still in its pilot stage, the project did not provide sufficient training in its use to the expected users. Access to the platform was limited as it was only available as a website and not as a mobile app, requiring stable internet connection and electricity, in addition to authorisation from the REACH project manager.

Secondly, people are more familiar with other platforms and do not get used to new technology. During disaster and emergency response, people are busy doing coordination, distributing aid, providing medical assistance, preparing and submitting reports, etc., instead of trying new technology.

Thirdly, information provided in the REACH platform was limited in terms of geography, demography, topics, and timeline. They are also not provided in real time.

Fourthly, the REACH platform was considered not user friendly for beginners.

Of the respondents who had never used the platform (n=11), almost half mentioned reasons associated with poor change management such as not being aware of its existence (37%) and not understanding how it works (9%), as shown in **Figure 10**.
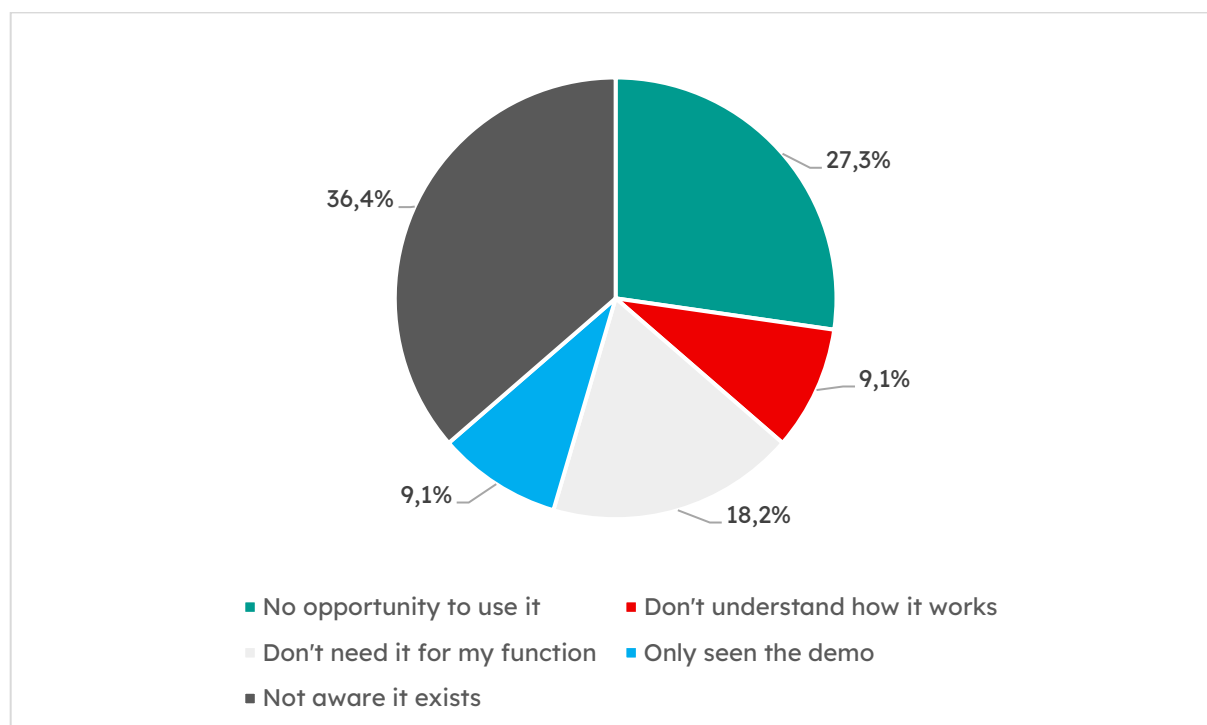
Figure 10. Reason for never having used the REACH platform (survey; n=11)

Meanwhile, 63% of the eight informants with experience using the REACH platform said the information provided by the platform was limited in terms of geography, demography, topics, and/or timeline. Lack of accessibility and challenges with internet/electricity were both mentioned by 38% of the respondents, and likely this refers to the same issue.
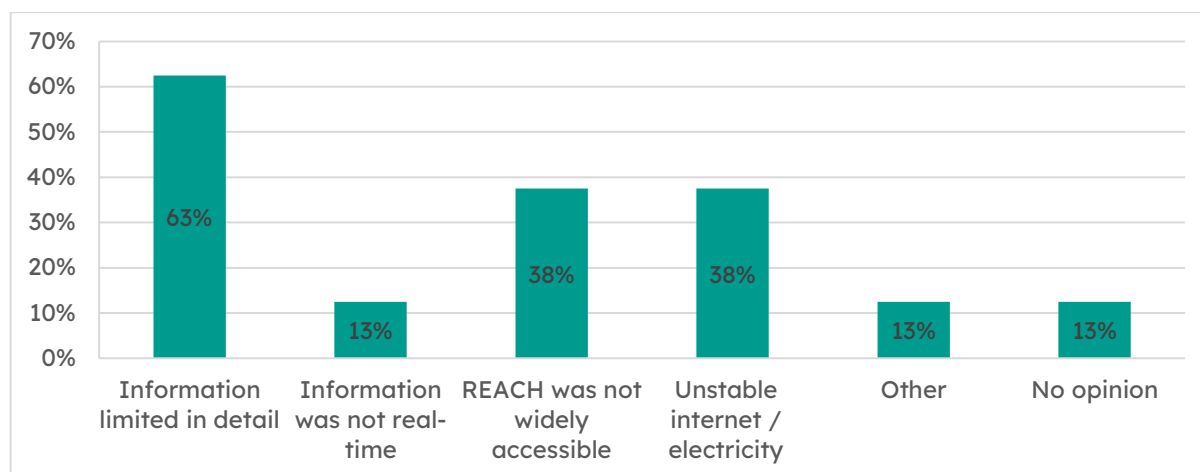
Figure 11. Challenges experienced when using the REACH platform (survey; n=8)

EFFICIENCY

According to some informants, time, financial and human resources of the REACH project were mostly spent in the development of the platform, i.e., finding the appropriate developer, and ensuring the platform was developed as planned (schedule and model). Meanwhile, inadequately resources were allocated for the maintenance of the REACH platform security, data and information update, provision of trainings and support.

> "(the project) came once to give a brief training to some of the users and some of the informants without a lot of follow up. A lot of my disappointment is the fact that it is developed but the implementation was never supported /…. As far as I am concerned, the way it is now, if they are not investing anything, it should die."

GENDER AND DIVERSITY MAINSTREAMING/INCLUSIVENESS

Key findings:

The REACH project does not explicitly state gender and diversity/inclusiveness in its concept notes and other project document. Nevertheless, it has basic demographics data and information of the population that can be used for assessment.

One informant and 12% of survey respondents who were users of the REACH platform were of the opinion that the platform helped to gather information and assess the different needs of men, women, children, elderly, and other vulnerable groups appropriately.

However, this is only possible if the data and information had been entered into the platform. Like all other data and information, whether gender and diversity/inclusiveness data were entered was solely dependent on the interests of the person who entered them. There are no 'mandatory' fields to complete and the entire data entry process is based on voluntary efforts. In addition, there is no filter function to extract particular gender & diversity/inclusiveness data, e.g., number of children or women affected by the earthquake in Palu, Indonesia.

UNINTENDED CONSEQUENCES

KEY INFORMATION: Most informants did not observe or experience any significant changes, either positive or negative, that happened in MSF after the launch of the REACH pilot, and that could be attributed to it. A few informants identified some significant changes they observed or experienced. The changes stemmed from discussions about the REACH platform, facilitated by the REACH project manager, and touching upon social missions, operations, social media, and artificial intelligence.

According to a few informants the REACH pilot has also led to some unintended positive changes. These changes are the results of the discussions and debates about the platform with the REACH project manager and among MSF staff. The changes include: (i) increased literacy of the types of information and system needed for emergencies; (ii) increased awareness among MSF staff that they can enter information into the platform; (iii) increased familiarity among MSF staff of the terminologies for submitting and validating data; (iv) inspired other projects, i.e., MACA and GIS, to develop, improve, modify, and innovate. However, this needs further study as other factors than REACH could also influence the changes.

TECHNOLOGY

NOTE: In order to conduct this evaluation and evaluate both the REACH project and product, including its technical value, an external technical expert joined the main evaluation team from Savica. The evaluation team have worked together across the whole process and the technology aspects have been considered more specifically by Aisvarya Adeseye.

This section is slightly different from the others in terms of contents of course but also language and methodology to some extent, reflecting the expertise and opinion of the author.

RELIABILITY

Key findings:
- The pilot users were only able to upload information into the platform once or twice a month due to insufficient time (additional work for them).
- Users were disappointed because they were not able to view information regarding a specific event as there was no sufficient information on the platform.
- The time gap between identifying an error and fixing it is extensive and disappointing due to the communication gap between the REACH project team from MSF and the development team.
- Information leakage was identified which was not fixed at the time of completing this evaluation.

The Reliability of a platform is typically defined as the ability of the platform to perform or function according to the expectations of the users. From a technical perspective, reliability refers to the probability that the platform provides the expected output when given a certain input without error e.g. "Is the search function producing the correct result?". However, from a user perspective, reliability can also mean the probability that you get what you want from it e.g., "If I want to view an emergency in Indonesia, does the system provide this information?".

The reliability of the REACH platform was evaluated with respect to:

- Platform Users; and
- Technical experts

Platform Users

Users of the REACH platform can be categorised according to the types of operation that they carry out using the platform. Two main operations were conducted during the pilot phase of the REACH platform:

- CRUD (Create, Read, Update and Delete) of an event

- Viewing an event

CRUD (Create, Read, Update and Delete) of an Event

Informants stated that when creating and inputting information regarding an event in the platform, a few critical issues were encountered e.g., some fields of the form that are tagged as not required are actually required before a successful submission can be made, however, this and other issues has been fixed. The informants also stated that they could only input information into the platform once or twice. This is due to insufficient time, considering this is on a voluntary basis, and they have other responsibilities.

Viewing an Event

Informants stated that when viewing information regarding an event on the platform, they were disappointed because they could not find the information being sought, also, when they find a folder that relates to what they are searching, they were empty. Hence, the REACH platform did not meet their expectations as a reliable platform to access information. One of the users stated:

"I was looking for some information, went to REACH and I did not find what I am looking for, so I have to source other resources in finding them, but it was not easy".

Technical Experts

According to some technical informants, the platform works as expected with most of the technical issues and errors rectified over time. However, they expressed disappointments over the prolonged time frame it took to rectify such errors. A significant problem highlighted was the communication gap between the REACH platform management team and the external development team.

On the same note, a serious bug was identified which was yet to be fixed at the time of completing this evaluation; this has led to the platform being retracted from the MSF staff members. More so, a technical informant was able to access confidential information using a publicly available URL[10] without appropriate authentication access; you need to be logged in as a user before gaining access to this type of information, which was not the case. Consequently, it appears that the platform is unreliable for information storage.

EFFICIENCY

This terminology refers to the capability of a platform to use the least number of inputs to achieve the highest level of output. By the least number of inputs, we simply imply the reduction in resource usage which also includes the time and energy expended.

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[10] It represents the address of a web page or any resource that is not a web page e.g., a shared printer in your office network, etc.

In the focus group discussion, one of the informants rightly stated that "*An efficient platform should work for the user to* ease *their workload and not vice versa"*.

> Key findings:
> - It is time-consuming to input information because the REACH platform currently supports manual information key-in rather than document upload.
> - Forefront disaster relief staff members prefer instant communication such as WhatsApp.
> - Unavailability or complexity of the information available on the REACH platform.
> - Only expert users can utilise the platform to its maximum.
> - The REACH platform is not fully functional because it is still in pilot stage.

The efficiency of the platform can differ from user to user with regards to their primary focus of using it. Consequently, the REACH platform was evaluated with respect to two types of users, taking cognisance of the fact that many of the pilot users can also fit into both categories:

- Those that CRUD (Create, Read, Update and Delete) an event.
- Those that view an event.

Creating an Event

Among the informants who create and manage information about an event voluntarily besides their regular responsibilities, a few setbacks are identified which include:

- Almost all of them mentioned that they needed to spend additional time and energy outside their usual workload to input information regarding an event. This is because the input is done by key-in the information rather than uploading documents or voice notes.
- Users at the forefront of disaster relief efforts stated that they prefer to use Email and WhatsApp chat for real-time and efficient communication. However, the REACH platform does not offer instant communication mechanisms which are critical in an emergency. Moreover, they found WhatsApp quite easy to use.
- Other users stated that they would have loved to input real-time or daily updates about the COVID-19 pandemic, for at least the pilot areas of the platform. However, this would drastically lead to additional workloads.

In general, the users voluntarily continued to update the REACH platform because they strongly believed that the information inserted could be useful for decision-making during a disaster.

Viewing an Event

- For informants interested in retrieving information from the REACH platform, generally, there expectations were not met. Some informants expected the REACH platform to be fully functional but were unaware that it was still in the pilot stage. Other negative aspects identified is the unavailability or complexity of the contact information on the contact card feature of the REACH platform; these are the key staff members in charge of an event or a project.
- Some of the informants mentioned that their lack of continual usage was due to the unreliable search system and the fact that they found some information confusing or unavailable. They further stated that it was difficult for a new user to fully grasp all the features available on the platform or to fully utilize them.
- Some informants stated that they prefer to get what they want in a few clicks rather than going through several clicks.
- Some informants did not expect the REACH platform to be fully functional as it was still in the pilot stage.

Also, we conducted a survey to gather opinion on navigating the system, which provided a contradictory finding: many of the respondent had no opinion but amongst the few that responded, they all agreed that it was easy to navigate the REACH platform.

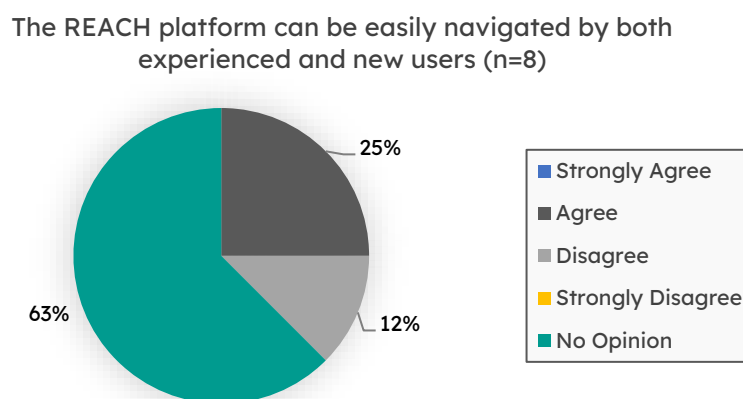

The REACH platform can be easily navigated by both experienced and new users (n=8)

25%

63%

12%

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- No Opinion

Figure 12. Ease of Navigating the REACH platform

SECURITY

> **Key findings:**
> - Lack of coordination and communication between MSF Hong Kong and other MSF IT teams with regards to the security of the REACH platform.
> - Lack of independent security specialist to validate and assess the security features of the REACH platform.
> - Lack of a clear justification for the selection and implementation of specific techniques and frameworks used by the REACH platform.
> - Extended timeframe to fix security breaches identified.

Platform security refers to activities and measures put in place to protect and ensure the continual operation of a platform. It also involves managing vulnerabilities (both human-related e.g., social engineering[11] and software, for example., code vulnerabilities) that can be exploited by malicious attackers. Security is a top priority because it directly affects the confidentiality, availability, integrity, and trustworthiness of a platform.

Results from the focus group discussions and interviews revealed that security is one of the key concerns of many of the REACH platform pilot users, particularly data security because the REACH platform houses information regarding projects, events, and staff contact information. The informants expressed the need for the platform to protect data confidentiality (i.e., it should not violate the three levels of confidentiality used by MSF which are public, internal, and highly confidential). The findings include:

- A lack of information regarding the security of the platform by the IT teams from other MSF offices than Hong Kong. There was no collaboration or meaningful information exchange between the MSF Hong Kong IT team and other MSF IT teams, which paints a picture of the tool belonging exclusively to MSF Hong Kong and not to the entire MSF teams across the globe.

- There is a lack of a security specialist that is independent of the REACH platform development team to validate the security implementations of the platform. An independent security specialist is needed because it will provide an unbiased assessment, validation and evaluation of the security features implemented by the REACH platform.

- The Hong Kong IT team is mainly responsible for hosting the REACH platform and User acceptance testing (UAT) (i.e., to validate that an error in the system has been fixed by the external development team). They are not involved in any form of security implementation and testing of the REACH platform. The hosting was via the Amazon Web Services (AWS) cloud platform in Singapore.

- No clear justification was found regarding the reason for a particular security approach adopted or choice made e.g., why BCrypt was used as an encryption algorithm or why

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[11] This is a psychological manipulation of humans to gain access to sensitive information e.g., when you receive a deceptive email that tries to convince you to enter your confidential email to a website.

AWS was selected as the cloud hosting platform. A lack of a technical or security expert involvement in the development of the REACH platform was also identified.

- Braun et al. (2018) state that security issues identified should be patched or solved within a short period of time.[12] However, an informant mentioned that some of the security issues on the platform have lasted for as long as eight months and yet unfixed as of the time of the interview.

Annex 7 presents a comprehensive summary of the privacy and security issues of the REACH platform, based on the privacy and security assessment conducted by Guillaume Gagnon in December 2020 as well as the data collection and desk review. Even though the privacy and security assessment report were detailed and useful, it does not assess the feasibility of implementing its recommendations, nor provide a plan to implement and validate them. This is an area that needs to be investigated.

MAINTAINABILITY

<u>Key findings</u>:

- No proper documentation of the REACH platform codes or infrastructure.
- Communication gap between the REACH project team and the Roctec development team.
- There is no centralised location or tools for managing the bugs and its fixes.
- Comments from the REACH platform source codes are not precise, also, there are unnecessary comments of the code that needs to be deleted.

Maintainability refers to series of activities such as proper code documentation, structured programs, easily understandable coding practice, code comments, communication mechanisms, etc. that makes it easy for anyone, regardless of whether they were involved in the initial platform design, to add new features or correct/fix errors in minimal time.

The data collection process showed that there was no proper documentation of the platform codes or infrastructure by the current developer (Roctec). Also, Roctec was not the first developer, and even though the initial agreement stated that they were to continue from where the previous developer stopped, they built a new platform from scratch which led to a delay in the project delivery. It was not possible to ascertain the reason for this as the Roctec team could not be interviewed, despite many attempts.

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[12] Braun, T., Fung, B. C., Iqbal, F., & Shah, B. (2018). Security and privacy challenges in smart cities. *Sustainable cities and society*, *39*, 499-507.

Another issue highlighted by informants was the communication gap between the REACH team and the Roctec development team. Despite this difficulty, the REACH team was unwilling to change the developer, dreading that a third developer would also have to start from scratch.

The informants also stated that when an error or bug is discovered, or a few changes need to be made, they are shared with the developers via GitHub and/or Google Sheet. The MSF Hong Kong IT team and the REACH project manager perform user acceptance testing to validate the fixing of errors, bugs, or changes. However, there is no specific centralised location where an authorised person can access information or documentation regarding pending and fixed errors, bugs, or other pending or completed changes, including a timeline of the fixes or modifications.

A technical informant who reviewed the REACH platform code stated that commented codes are left undeleted. Also, when comments are put in place to explain a portion of the codes, they were not detailed enough. Notably, the availability of comments and a complete record of the updates and techniques used to build a platform are important factors for the effective maintenance of a platform. Generally, there is no single documentation that has complete information on the evolution of the REACH platform with respect to features changes, detected errors and bugs, and fixes. It is important to note that this evaluation did not include source code analysis of the REACH platform.

USER INTERFACE AND USER EXPERIENCE

Insights into the user interface and user experience of the REACH platform were gathered through the survey, but the results are mostly inconclusive due to the limited number of respondents (n = 8). Due to the large extent of information on the criteria, only the key findings are presented here, while details are provided in Annex 11.

<u>Key findings</u>:

Data Accessibility
- There is a need for a central portal providing information that enables users to extract useful documents without spending valuable time searching multiple databases.
- There is an expectation that the REACH platform should be fully functional during the pilot phase.
- The REACH platform has a high potential to be a successful platform when it goes live.
- It is easy to upload data and information to the REACH platform in different formats.
- Respondents hold divergent views regarding the accessibility and viewability of data in different formats on the REACH platform.

Data Management
- Ensure that all the features available in AWS comply with the GDPR.
- REACH should address all GDPR violations, following recommendations in the Deloitte assessment.
- No privacy or data protection specialist was involved in the REACH platform concept design.

User and Platform Accessibility
- Pending the time, the evaluation was conducted, the public URL to access the REACH platform was not available due to data vulnerabilities discovered during the security assessment of the platform.
- Respondents hold divergent views regarding the timely availability of information on the REACH platform with more than half negative responses.
- Respondents believe that the platform does not support easy access to information.

Data Usability
- The REACH platform captures all the essential information regarding a specific event.
- Pilot users believe that it takes a lot of time to input data into the system, which could be addressed by allowing users to upload existing documents into the system.
- The map view and the information displayed on the REACH platform are understandable.
- The REACH platform should incorporate more data into the contact card for wider usage.

Visibility of the system
- It is easy to provide and get feedback to and from the REACH platform.
- Match between system and the real world
- Icons used in the design of the interface of the REACH platform are familiar and reliable, but half of the survey respondents held no opinion concerning this.
- A familiar language is used by the REACH platform.

User Control and Freedom
- The REACH platform provides easy access to exit function to its users.
- The REACH platform does not have a redo and undo operations when inserting information into the platform.

Recognition rather than recall
- The REACH platform does not provide a help function to find instructions or assistance to use the platform.

Aesthetic and Minimalist design
- The REACH platform provides an easy search function for its users.

OPPORTUNITIES AND THREATS

> Key findings:
>
> **Opportunities**
> - The primary focus should not be on the use of a new technology but optimising the technologies available on the REACH platform.
>
> **Threats**
> - Pending the completion of the evaluation, no internal or external threats were identified on the REACH platform.
> - The REACH project team should prepare for the mitigation and prevention of threats in the future.

Opportunities

Opportunities refer to the means available to further improve and develop the platform via different technologies, principles, and methods.

From the data collection, we discovered that during the inception of the REACH project, the MSF team were much interested in incorporating AI[13] to build a smart platform with various capabilities. However, the research team from University de Sherbrooke advised that rather than focusing more on technology, the MSF team should, more importantly, study and contemplate the social and technical structures, social inputs or data structure during an emergency which is usually overly complex when designing a system that can assist its users.

The informants also stated that it is a wrong approach to start with the question "Where can AI be used in REACH?", rather specific objectives must be set for the platform to handle and to understand the workflow of the platform.

It was also pointed out that similar systems such as Peta Bencana Jakarta[14] and Quakemap[15] used in Nepal did not utilise AI, rather they only used GIS. Quakemap uses crowdsourcing and the informants strongly believed that crowdsourcing can be a useful technique for the REACH platform.

Also, the informants stated that it is important for the REACH team and MSF to redefine the purpose of the REACH platform. Additionally, from our data collection, it is believed that REACH has its usefulness in MSF, although it needs to clearly define its purpose to ensure that it meets a specific need within MSF. For more information on relevance, please refer to the Business Process section of this report.

Threats

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[13] It is a computer simulation that tries to copy how humans think, solve problems, or learn from past experiences.

[14] https://info.petabencana.id/

[15] http://www.kathmandulivinglabs.org/projects/quakemaporg

Threats are the challenges and attacks that a platform can face while in use. Mainly, there are two types of threats: internal and external. Internal threats are issues caused by the staff members and workflows within MSF and external threats are issues caused by the MSF external environment.

From the data collection, no internal or external threats/attacks nor data breaches were identified to any system that has been used by MSF, including the REACH platform. However, some of the informants pointed out that the REACH platform should be available for use by people outside of MSF as well. Therefore, there is a high possibility of future threats and preparations should be made ahead of time.

LESSONS LEARNT

CHALLENGES

The REACH project team experienced its biggest challenges during its development phase. They found it difficult to communicate with the software developers because the project did not have IT experts who could interpret needs appropriately and ensure the quality and timeliness of the product. As a result, three different software developers were involved, each one preferring to build new codes and architecture instead of using the existing ones. This prolonged the development of the platform and affected other phases, in particular, it

> "…we've been going from one developer to another and…when you have new developer team, you have new version or even a new software. You start from scratch all the architecture and the infrastructure because they don't want to work from the code of someone else."
>
> >>><<<
>
> "I think the biggest, biggest challenge…is with the developer. It's really difficult. First of all, do we provide a very clear requirements to the developer? […] The second thing is with the developer itself, honestly I don't understand at all why they cannot deliver what they promised".

impeded the buy-in for the REACH platform.

Finally, a clause was included in the contract of the third developer that stated they had to use the existing codes and architecture to develop priority features. A new position of IT manager was created in MSF HK in summer 2018 and the IT manager started facilitating the conveyance of the ideas of the project team to the developer, monitoring progress and evaluating the product. However, the quality of the product was still low and delivery was delayed.

The other major challenge was getting buy-in. This was linked to other issues such as governance and resources of the REACH project (see chapter on *Findings*, under section *Institutional*), its pilot status, change management, and user-friendliness of the platform (see section on *Effectiveness and Technology*). The project tried to manage this by organising trainings, providing live demos, launching marketing videos, supplying data and information to decision-makers by email, updating information through newsletters, conducting research, producing reports and papers, and fixing bugs. However, the root causes mentioned above (insufficient governance, resources, change management, user-friendliness of the platform, as well as its pilot status) were not appropriately addressed and the actions that were taken were not sustained, except for the emails and newsletters. More importantly, the REACH project did not have a logical framework and theory of change to monitor, evaluate, and document the effectiveness of its activities. For example, after the training, the number of participants who used the REACH platform, the frequency and timing of their use were not

monitored. In addition, there was no evaluation of how many training participants understood the knowledge, and whether those who utilised the REACH platform found it useful. With a framework or theory of change in place, it would be easier for the REACH project to document the effectiveness and value of any activities and the platform itself, which will increase buy-in. In addition, the framework will be beneficial to guide implementing strategic measures.

> "You (the REACH platform) need a good story… You need to prove success quite early. And if you can't prove added value and document that then you are in trouble."

DETERMINANTS OF SUCCESS

The <u>determinants of success of the REACH project in the past</u>, as put forward by some informants, were:

a. **The vision to identify the needs in MSF**. Nevertheless, the needs should be reflected appropriately in the REACH platform, not only in the project objectives. There is currently a gap between REACH project objectives and the platform functions.

b. **The availability of funding from TIC to support incubation of the project**. Indeed, having an incubator investment fund could help reduce financial vulnerabilities of the project in its early years. However, if the financial resources are not well planned, this could hamper the post-incubation stage of the project;

c. **Good governance at the early stage of the project**. Unfortunately, according to many informants, good governance became a challenge after the initial two sponsors (the executive director and ERSU manager) left;

d. **A passionate team working on the REACH project** despite the voluntary nature of the work for the operators and IT staff. Moreover, the dedication of the project manager played a significant role in the existence of a strong project team;

e. **Engagement from MSF staff in the missions** where the REACH platform was piloted. Retaining their engagement has however been a challenge;

f. **Aggressive marketing strategies** like direct emails, blog posts, YouTube videos, newsletters, and expanding its pilot to other areas than SEA like South Africa, Thailand, Senegal, Lebanon, and Bangladesh[16]. While this is a good way to attract attention, it can adversely affect the reputation of the project if overdone or if raising unmet expectations. In particular, when the presentation of the platform's capability is different from users' experience or reality.

> "Personal congratulations to the lady who managed that project for three years. I was quite impressed with her perseverance."

According to informants, the <u>determinants of the future success</u> of the REACH project include:

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[16] TIC Concept Note Phase 2 Extension

A. **The scope of the REACH project should be clear and consistent.** To ensure this, it is important to determine which specific and real field needs REACH aims to solve and do a thorough analysis of all identified stakeholders and be clear about what the project covers (and not). While the objectives of the REACH project are relevant, they need to be transformed more appropriately into the platform.

B. **Ensure sufficient financial and human resources, as well as good governance** for the REACH project, not only in terms of numbers but also of quality, and institutionalised with clear roles and responsibilities. This includes a REACH project team consisting of project management, IT, and operators.

C. **The REACH platform should be more user-friendly**. It should be able to respond faster, provide information in real-time, be secure, accessible from areas with no electricity and internet connection, have realistic and relevant features to or based on the needs of the missions, be low maintenance. This way it will prove its effectiveness and gain more buy in.

D. The REACH **project should be open to partnership** with other MSF units as well as with other organisations, i.e., MSF associations, governments, universities and NGOs, particularly the ones located in the MSF missions. This will allow the project staff to know more about the local contexts and the needs and receive support when they experience challenges.

E. The REACH project **should implement proper change management**. This includes organising training with customised curriculum for the users in the field and providing intensive assistance afterwards.

CONCLUSIONS

RELEVANCE – EQ1

The REACH project has been piloted for four years (March 2017 – March 2021) and changed its objectives three times. Most of its objectives, including the recent ones, are more activity or output based, e.g., development of the REACH platform itself, scale up, extend the use, finalise development, evaluate, etc., than outcome based. The aspect of outcome lies in: (i) improved information management in emergencies; (ii) more efficient decision-making during disasters. There is no logical framework with SMART (systematic, measurable, relevant, and time-bound) indicators nor a theory of change to evaluate the objectives.

The main objective of the REACH project is, and will be, relevant to MSF or environments where the organisation works. More specifically, the platform is relevant to be used at the operational level to manage crucial information during disasters and emergency responses. Event categorisation of the platform provides a bird eye's view for its direct users in their respective regions to perform situation analysis and provide necessary information for decision making. The platform allows operational centres who are responding to the same crisis to exchange information. It also enables users to see information of past missions, contacts of personnel, vendors, and counterparts involved for emergency deployment. However, the platform will only remain relevant if it is more agile and user friendly.

The REACH project does not explicitly state gender & diversity in its concept notes and other project documents. Nevertheless, the REACH platform has basic demographics data and information of the population that MSF would like to reach. The platform does not have a filter function to help users extract particular gender and diversity data.

MSF staff always gather data and information from different sources, in addition to or instead of the REACH platform, to understand the bigger picture of an emergency or disaster event. This is because no platform fits all the needs of communication, data, and information at the same time. As compared to the REACH platform, people felt more familiar with alternative platforms. These provided more real time information and were easier to use. They also provided better information in terms of geography, demography, topics, and timeline, and were more accessible from anywhere in the world.

EFFECTIVENESS AND EFFICIENCY – EQ1

The REACH project has partially met its objectives. It contributed to improved information management and efficient decision-making during emergencies albeit in an indirect way. Moreover, it contributed to improved awareness and knowledge of online platforms for emergency among MSF staff and be inspiration source for MACA and GIS to develop, improve, modify, and innovate. The REACH platform had unique and especially useful information that

others did not, which were the histories of mission, and contacts of current and former MSF staff. Despite it is not being a unique feature, users also found disaster monitoring and alert information useful.

Resources (time, financial and human) of the REACH project were spent the most in the development of the platform. Meanwhile, resources for crucial activities in the implementation such as maintenance of the REACH platform security, data and information update, provision of trainings and support were inadequately allocated.

STRUCTURE – EQ2

The REACH platform has the combination of an early warning, Information and Knowledge Management, and a Decision Support System, but did not fully function as either of these three systems, nor as a full combination of the three. From the **technical perspective**, the current version of the REACH platform is an information management platform and can also be considered as a decision support platform. In short, it is not a decision-making platform, but rather a platform to support users in making decisions by providing valuable information. The REACH platform currently has limited features such as alerting the operator during earthquakes using RSS Feeds. However, the REACH platform has insufficient features to be considered as an early warning platform. Additionally, it is not an effective communication platform because it does not have an integrated instant communication mechanism. However, the REACH platform is flexible enough to incorporate new features that can make it function as a Decision Support System, early warning, and effective communication platform.

The structural value of the REACH platform when considering reliability, efficiency, security, and maintainability indicates that the platform did not meet the user's expectation and standards during the pilot stage, also, frontline disaster relief worker prefers alternative communication means using instant messaging service like WhatsApp. There was also a gap in communication between MSF staff and the external developer which negatively impacted the project which might affect the maintainability of the platform in the near future. However, the REACH platform needs to focus on fixing all pending issues and enhancing the existing technologies used by the platform as against the addition of new features and technologies.

CHALLENGES & DETERMINANTS OF SUCCESS – EQ3

The REACH project team experienced two main challenges. They found it difficult to deal with the software developers during the platform development and to get buy-in during its pilot periods. This was caused by and interrelated with other issues like governance and resources of the REACH project, its pilot status, change management, and user-friendliness of the platform.

Therefore, the ET summarises the determinants of success of the project as follows:

(i) clear and consistent scope of the REACH project;

(ii) sufficient financial and human resources, as well as good governance;

(iii) agile and user-friendly platform;

(iv) open to partnerships with other MSF units and organisations;

(v) implement proper change management.

RECOMMENDATIONS

As mentioned in the scope of the evaluation, it is not the ET's task to decide whether or not the REACH pilot should be continued or expanded. This is an executive decision that should take into account the findings and conclusions of this evaluation. Therefore, the first step should be that decision. Based on our findings, the evaluation team recommends the following actions for the REACH project if it is extended. The REACH project might adopt or modify some of the recommendations subject to the future model of the project and platform, for instance completely extend its components or hand over some services to other projects. Moreover, some recommendations can be applicable to other MSF projects presenting similar characteristics.

⇒ **Recommendation 1: Rescope and rebrand the REACH project.**
It is important to have a clear purpose and focus for the REACH project and platform. While the project has objectives, they need to be rescoped and rebranded to be better aligned with the platform. To do this, it is recommended that the project:

   i.   determine the specific and real needs from the field/missions to solve;

   ii.   identify and analyse all the targeted stakeholders;

   iii. set the project objectives. The project team should be clear about them (what the project covers and does not) and remain consistent;

   iv. develop a logical framework with a set of SMART indicators or a theory of change to provide strategic guidance for the entire duration of the project and to measure and document its effectiveness. The project should also mainstream gender and diversity issues. The logical framework, theory of change, and mainstreaming gender and diversity issues are not only valid for the REACH project, but also for MSF as a whole.

   v.   develop communication strategy and plan to accompany the change

However, it is not mandatory for the platform to cover all the purposes of the project from inception. A single project can also have several platforms working independently or in combination, to achieve its purpose. While the platform already has unique information that other platforms do not have, the platform needs to focus on and improve the information. The platform can continue to have disaster monitoring and alert functions. In particular, because the survey showed that users of the REACH platform considered it as one of the most useful aspects. However, to differentiate it from the disaster monitoring and alert information provided by other platforms, the REACH platform should add value, for instance by giving analysis from MSF perspective and be neutral.

⇒ **Recommendation 2: Carry out proper change management.**
The project should carry out proper change management by regularly organising training with customised curriculum for the users in the field, if needed, and providing intensive assistance afterwards. The project can continue its aggressive marketing strategy but incorporate it in a broader communication strategy and plan. Related to the first recommendation, the information shared about the platform should be clear and realistic, i.e., what the platform is, what it covers and what it does not, etc. Moreover, every activity of the change management needs to be well planned, its effectiveness should be measured using the SMART indicators, and documented.

⇒ **Recommendation 3: Secure sufficient resources and establish good governance.**

The sustainability of the REACH project and platform requires adequate human and financial resources, as well as good governance. These could be relatively easy to ensure if there is a clear mandate given to MSF HK, with corresponding resources allocated, or if the project is managed by an OC. In this case, OCB seems the most logical, to ensure some kind of continuity. The concerns expressed by some informants related to China's interference in Hong Kong's data protection legislation are not needed, because the REACH platform is hosted in Singapore. While the GIS Centre was most often mentioned by the informants as a suitable future home for REACH, we identified the following benefits and drawbacks for this scenario (**Table 3** below).

Table 3. Benefits and drawbacks of GIS Centre hosting the REACH platform

Benefits	Drawbacks
• Sufficient technical knowledge and expertise • Exposure to the REACH platform. • Possibility of integrating the REACH platform with GEO MSF.	• No current prioritization or commitment for REACH platform • Lack of familiarity with the REACH platform.

▪ The REACH project and the platform are not self-sustained and it is important to allocate long-term resources. While the required funding to maintain the live system is typically low, additional funding would be needed for any additional features or version implementation of the platform.

▪ The REACH project needs to consider having formalised partnerships with GIS and other units or projects in MSF, and external organisations such as MSF associations, governments, university, NGOs, particularly the ones in the missions. The partnerships will allow the project to strengthen its position, know more about the local contexts and needs, get supports when experiencing challenges, etc.

▪ There should be clear and institutionalised arrangements in terms of resources including human resources, and governance mechanisms. Recommended roles set-up for the project are: project management, ITs with software development and security background, and operators (**Table 4** below). Meanwhile, the number of persons and employment type (i.e., full time or part-time) of each role are contingent on the needs and states (e.g., financial) of the future REACH project and platform.

Table 4. Recommended roles for the REACH Project team

ROLES	RESPONSIBILITIES
Project Manager	Represent the project and the platform. Create an effective timeline. Monitor the project progress. Secure and manage funding. Final decision making.
Project Coordinator	Handle the communication between the project manager, users and the developer. Validate security testing from technical specialist.
Software Developer	Develop the platform. Upgrade of the platform. Perform patches and regular maintenance.
Technical specialist	Perform security testing. Involved in the conceptual design of the platform to ensure privacy and data protection from inception.
Operators	Monitor and screen information on disease outbreak and disaster events, and register it into the platform. Send alert to MSF Emergency Stakeholders upon detection of a significant event. Update the status of the event on the platform. This includes but not limited to situation reports/updates, contacts, maps, identified needs, and response gaps. Conduct situation analysis and provide recommendation for decision making (monitoring/field assessment/intervention/demobilisation). Ensure relevant documents of past missions are uploaded in the platform.

⟹ **Recommendation 4: Make the REACH platform more agile and user-friendly.**
Agility and user-friendliness are the main criteria directly affecting buy-in, relevance, and effectiveness for the project and platform. Based on the findings in the technology section, the technical evaluator recommends the platform to aim for the following:
i) Low maintenance needs
ii) Accessibility in settings with limited power supply and internet connection
iii) Easy to use for beginners
iv) Secured
v) Improved response time
vi) Realistic and relevant features to respond to or based on the needs,
vii) Provision of reliable and updated (if not real-time) information, that can be shared or accessed through several communication channels like WhatsApp and SMS.
viii) Automation function to pull hazards and relevant information from other organisations and stakeholders, and to push it to the users.

Detailed technical recommendations are presented in Annex 12.

⟹ **Recommendation 5: Complete all the required technical steps to let the REACH platform go live.**
These steps include:
1. adjusting the interface to support people with colour vision deficiency,
2. enabling all the AWS security features to enhance the infrastructural security,
3. penetration testing to ensure that the platform does not have any known vulnerabilities, source code analysis,
4. ensuring there is detailed documentation about the current version of the REACH platform,
5. uploading information regarding the previous MSF projects and events before the platform goes live for use,
6. integrating WhatsApp extension or that of other messengers that are trusted and used widely by MSF staff on the REACH platform for ease of communication,
7. linking external APIs to the REACH platform to get real time or near real time alerts on disasters to support the platform's EWS function,
8. using a bug tracking tool to track all the changes and bug fixes.

Detailed technical recommendations are presented in Annex 12.

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