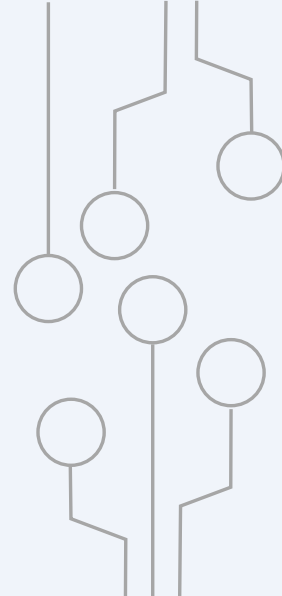# TECHNOLOGIES IN HUMANITARIAN SETTINGS: ENGAGEMENT AND INCLUSION OF WOMEN

DECEMBER 2022

In brief:

- While the pledge by humanitarian actors to include women in the development and implementation of information and communication technologies (ICTs) is strong, at least rhetorically, it is not consistently integrated into humanitarian programming. Debates persist on what meaningful inclusion looks like and what is required to achieve it in humanitarian settings.

- Gender gaps and digital barriers have the potential to limit women's abilities to fully benefit from the use of ICTs. More qualitative, localized research is needed to understand how technology impacts different women in different environments.

- Technological products are inherently biased and digital tools that are designed for women (but also for both women and men) should receive input by women at the design and implementation phases of product development to ensure they meet women's specific needs.

- The intersection of gender and technology must be mainstreamed in humanitarian organizations, which requires cultural and organizational changes, long-term programming, financial support, the development of digital standards, and capacity building. Organizations should also more frequently consult and work with local women-led organizations.

- Evaluating safe access to ICTs should be part of any ICT assessment in humanitarian contexts, with the active participation of women. Teaching women about the risks associated with the use of digital tools and how to safely use the Internet should also be part of any ICT intervention in humanitarian settings.

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INTRODUCTION

Inclusivity has been an important goal for humanitarian actors for decades, but there are significant questions around what the inclusion of women in information and communications technology (ICT) in humanitarian contexts should look like. While the use of digital tools in humanitarian spaces is not new, as reliance on technology increases, so does the risk of excluding groups lacking meaningful access, increasing the potential for digital harm. Recognizing this risk, some humanitarian organizations are starting to take mitigating action, but how much of this increased awareness around inclusion has been translated into action in ICT innovation and programming is under scrutiny.

The goal of this report is to explore the ways in which humanitarian actors are including women in the decision-making process related to ICT innovation and programming in the different phases of humanitarian intervention: prevention; mitigation; preparedness; immediate response; and recovery and assistance in protracted crises. The ultimate objective is to identify challenges and opportunities, best practices, and lessons learned, and to provide recommendations to help a wide range of humanitarian stakeholders more effectively use digital tools in an inclusive manner.

The report is divided into five sections. Following the introduction (section one), the second section, Research Approach, provides a brief summary of the general methodological approach, the period covered, and the type of stakeholders that were interviewed. The third section of the report, Subject, provides a general overview of gender inclusion and the digitalization of the humanitarian space. The fourth section, Findings, is devoted to the presentation of the findings based on desk research and the analysis of more than 30 open-ended interviews. The final section, Areas for Consideration, provides a list of recommendations for humanitarian actors to consider in order to support and promote the inclusion of women in the decision-making process in ICT innovation and programming.

RESEARCH APPROACH

CONCEPTUAL FRAMEWORK

The research was structured according to a "technology use" conceptual framework which uses a systems approach to place technology within a wider system of multiple components including (i) technology, (ii) policies and processes, (iii) people, (iv) partnerships, and (v) operating environment. These components are dynamic and linked, and their interactions lead to the system's observed behavior in rolling out digital technology in the humanitarian system. Drawing from this framework, the research study focused on the five primary questions in Table 1.

METHODOLOGY

The goal of this research is to understand how women are (or should be) integrated in ICT innovation and programming when the project's primary target is not solely women but the entire crisis-affected population. It is important to note that analyzing the impact of ICTs in humanitarian assistance is hard to measure given that digital tools are one (or sometimes more than one) component of a broader intervention, making it harder to isolate their impact. They mostly act as enablers and their impact is reliant on several interdependent factors [1].

This research was undertaken between the months of January and July 2022. It is qualitative in nature and uses a hybrid methodology, involving the analysis of primary and secondary

Table 1: Analytical framework and research questions

TECHNOLOGY	How are ICTs being designed and used to be sensitive to societal and power dynamics?
POLICIES AND PROCESSES	How appropriate are the policies and processes in place (by whom?) to ensure the inclusion of women in the decision-making process in ICT innovation and programming?
PEOPLE	How does the use of technologies impact women as beneficiaries and how do women affect the use of technologies in humanitarian contexts? How do humanitarian actors impact the use of technology (and how does this affect women's ability to engage actively in the decision-making process)?
PARTNERSHIPS	How are partnerships used to support the inclusion of women in the decision-making process of ICT innovation and programming?
OPERATING ENVIRONMENT	How has the COVID-19 pandemic impacted women's inclusion in the decision-making process of ICT innovation and programming?

material, and virtual open-ended interviews with humanitarian stakeholders.

A detailed and comprehensive desk review of relevant primary and secondary documents was initially undertaken (including evaluations, research papers, project reports, academic articles, toolkits, principles, frameworks, etc.). Additional quantitative data was reviewed, including gender and digital divide statistics. Here, gender refers to "the social differences between females and males throughout the life cycle that are learned, and though deeply rooted in every culture, are changeable over time, and have wide variations both within and between cultures. Gender, along with class and race, determines the roles, power, and resources for females and males in any culture" [2].

The team then conducted more than 30 in-depth interviews (virtually) with practitioners who have expertise in gender inclusion in ICT innovation in humanitarian contexts. This group included UN officials; service providers; and humanitarian practitioners working at international Non-Governmental Organizations (INGOs), INGO country offices, or locally-based NGOs. Throughout this report, remarks made by interviewees affiliated with local organizations are identified as such, while all other key informants are affiliated with international organizations (including local affiliates), donor or granting institutions (both private and government-based) or research organizations. Some of the International Non-Governmental Organizations (INGOs) mentioned in this report engage in both humanitarian and development work and their programs often fall in a continuum from rehabilitation and recovery to development. These organizations will be referred to as humanitarian or aid organizations, even if their work sometimes is development-oriented. Interviews were anonymized to ensure the information provided remains confidential and protected.

SUBJECT

Over the past few years there have been a number of important developments in gender inclusion and digital humanitarian assistance. It is only recently that the two have begun to coalesce however, and challenges in terms of best practices and standards have become more pronounced as the two agendas have come together.

In this report, inclusion is defined as ensuring "that the most at-risk crisis affected people have access to the basic aid and specific services essential for their survival, protection and recovery [irrespective of who they are and through] deliberate action from the humanitarian community" [3]. Inclusion is intimately related to the humanitarian principle of impartiality, which asserts that "humanitarian action must be carried out on the basis of need alone, making no distinctions by nationality, race, gender, religious belief, class or political opinion" [4].

Since the mid-1990s, a number of inclusion-related global milestones helped propel this agenda within the humanitarian sector (see table 2). But it was recently, with initiatives such as the World Humanitarian Summit (WHS) in 2016, that a more concerted effort to address inclusion in humanitarian contexts began [5-7]. With the Agenda for Humanity's goal to 'Leave No One Behind', the World Humanitarian Summit identified women and girls, among others, as groups of people who are "at higher risk of exclusion and vulnerability" [6]. Significant commitments were made at the time to address structural and behavioral barriers to gender inequality and to align funding and programming accordingly (as well as securing financial support to women's groups, which was pledged by several Member States) [8].

Notwithstanding the advances and the development of policies and strategies to include women, realizing meaningful inclusion has remained challenging for many humanitarian actors. Debates persist on what inclusion means in practice and what is required to achieve it [2,4,9,10]. A recent study designed to assess gender-specific benchmarks from the WHS, for example, indicates that international humanitarian actors have not sufficiently resourced and supported gender equality, the leadership of women, and women-led organizations in crisis-affected countries [11]. Similarly, based on evaluations and interviews with informants at the country level, ALNAP finds that overall, humanitarian actors are not particularly good at addressing the needs of women, the elderly, disabled people, LGBT people, and other groups who may have specific needs in addition to basic life-saving interventions [4].

One of the problems, Megan Daigle argues, is that gender-focused programming is not seen as critical in comparison with other potentially life-saving interventions in humanitarian contexts, "and is often the first to suffer in the face of limited resources or time constraints" [12]. Despite being considered as a 'crosscutting issue' or something that requires mainstreaming, "inclusion generally remains an extra activity– something added onto humanitarian assistance to improve it–rather than an overall approach or modality" [2] Furthermore, the emergence of multiple and overlapping forms of discrimination, which has often resulted in increased vulnerability and exclusion (what is described as intersectionality [13]) has added new operational complexities to addressing inclusion within the humanitarian system. As Veronique Barbelet argues, "the sector has struggled to find the best way to translate the concept into an operational approach. Intersectionality in some ways invites endless complexity, whereas operationalization necessarily requires simplification" [10].

In this context, starting in the early to mid-2010s, a shift occurred within the humanitarian

sector. Faced with the challenge of reaching affected populations in highly insecure locations, humanitarian agencies increasingly turned to digital tools for service delivery [14,15]. But with increased reliance on technology and digital infrastructure, the risk for those with less meaningful digital access became exacerbated, leading to a digital divide or gap in unequal access and use of digital services, especially among women. (Here, the digital divide is defined as the gap in unequal access to and use of digital technologies among different groups. In the context of women, digital inequalities relate to the potential obstacles and differential options available to women when attempting to access, use, and learn about digital technologies) [16,17].

As of today, more than half of the world's women are offline: in developing countries, the internet penetration rate for women on all devices is 40.7 percent, compared to 52.8 percent for men [18]. While the mobile internet gender gap has decreased over the past few years, progress has stalled with 256 million fewer women than men in low-and middle-income countries using mobile Internet, representing a gender gap of 16 percent (this gap is widest in South Asia and Sub-Saharan Africa, and has remained largely unchanged across the globe since 2017) [19]. There are still 372 million women in low- and middle-income countries who do not own a phone, which poses critical questions about access and meaningful connectivity for ICT programming in the humanitarian sector [19]. There is also overlapping discrimination at play. Based on survey data from two refugee camps in Rwanda and Uganda, GSMA found that refugee women with disabilities were 7 percent less likely to own a mobile phone than women with no disabilities. Similarly, women with difficulty reading and writing were 14 percent less likely to have access to a phone and 48 percent less likely to own one compared to women with no such difficulties [20, 21].

Most barriers to women's ICT engagement have involved affordability, time, literacy, relevance, and safety, but it is social and cultural norms in different contexts that have the greatest impact on women's access to digital tools (and are the main root cause of all other barriers above) [22]. Whether humanitarians should be in the business of transforming social norms, however, has been the subject of debate for years. As Barbelet has argued, "The mainly technical focus of inclusion work (developing guidance, training, and deploying technical advisers) has not answered these larger, perhaps more political, questions" [10]. But provided that humanitarian action entails paying attention to the people in most need, and ensuring their access to assistance, humanitarian assistance inevitably becomes political as it disturbs the prevalent political economy of communities [10,12,23]. Thus, while it may fall out of the scope of humanitarian action to address power dynamics and fully transform them, at the very least humanitarian assistance needs to be sensitive to gender dynamics and at the very best be gender-responsive [24, 25]. In other words, humanitarian work needs to understand the conditions under which women can use technology and use that analysis to inform all stages of project design and implementation.

Table 2: Global drivers of change in inclusion. Based on [2].

YEAR	MILESTONE
1993	ECOSOC Decision 1993/205–including vulnerable groups in consolidated appeals
1994	Code of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Relief–aid based on need without adverse distinction
2004	The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response–inclusion of cross-cutting themes
2009	CDAC network – making communicating with communities integral
2011	The Sphere Handbook–Humanitarian Charter and Minimum Standards in Humanitarian Response – understanding vulnerability in context
2011	OECD Evaluation insights from the Haiti Earthquake Response – exposed inclusion bias towards those who are more visible and accessible
2012	Minimum Inter-Agency Standards for Protection Mainstreaming – Core standards 2 and 4 emphasize inclusive participation and prioritizing those most vulnerable
2013	Statement on the Centrality of Protection in Humanitarian Action by the IASC Principals – identifying persons at risk and the specific vulnerabilities that underlie these risks
2014	Core Humanitarian Standard – enabling first responders
2015	Sendai Framework for Disaster Risk Reduction 2015-2030 – inclusion of gender, age, disability, and cultural perspectives
2015	2030 Agenda for Sustainable Development– empowering vulnerable people and removing obstacles and constraints
2015	ADCAP Pilot Minimum Standards for Age and Disability Inclusion in Humanitarian Action
2015	Security Council Resolution 2242 [2015] on Women, Peace, and Security.
2016	World Humanitarian Summit and Agenda for Humanity–Core responsibility three: leave no one behind
2018	The Whistler Declaration on Gender Equality and the Empowerment of Women and Girls in Humanitarian Action

FINDINGS SUMMARY

- ► The incorporation of ICTs in humanitarian action may benefit women and can potentially provide women and other at-risk groups access to services that were previously unreachable.
- ► Technology can also fail to fully capture complex social interactions and power dynamics and exclude the most at-risk beneficiaries.
- ► Safety, particularly online safety, is a critical consideration when designing technology in constrained environments and women should be consulted about what they consider safe access to ICTs.
- ► Technology is often assumed to be neutral, but digital tools are designed, developed, and implemented by people. Given women's unequal access to technologies, the differing literacy rates, and looser standards in open, unregulated platforms, the lack of representation in the design, development, and implementation phases of technological development can potentially be problematic.
- ► ICT innovation and programming is sometimes designed *for* women but less *with* women. The inclusion of women at the design stage is critical to design digital tools that are appealing and useful to women and women's specific needs.
- ► There is a mismatch between the increasing use of digital tools in the humanitarian field and the development of sector-wide standards needed to ensure technologies are used effectively and in an inclusive manner.
- ► Needs assessments, a common practice in the sector, have been slow in adapting basic questions about digital access and use among at-risk populations.
- ► Sex disaggregated data is increasingly being collected by humanitarian actors but is generally quantitative in nature rather than a qualitative analysis of some of the access challenges faced by women.
- ► Gender gaps and digital barriers have the potential to limit women's ability to fully benefit from the use of ICTs in the absence of inclusive practices.
- ► Trust and low confidence in technology among women is an important consideration when designing and using digital tools in constrained environments.
- ► The rapidly evolving nature of humanitarian contexts forces humanitarians to react to the needs in the field, leaving less room for in-depth consideration of human-centered design strategies.
- ► The development of inclusive strategies often depends on humanitarian actors' awareness of how their own values play out in the inclusion or exclusion of certain crisis-affected populations.
- ► There is a need to "fight the assumption" that gender mainstreaming and the inclusion of other at-risk groups is merely an exercise as a part of projects and is instead an integral and consistent part in any project.
- ► Digital inclusion is ultimately and consistently left to individuals on the ground who lack resources and are under a lot of pressure to roll out digital products and scale them quickly.
- ► There are important capacity, training, and financial gaps within humanitarian organizations at the intersection of inclusion and technology.
- ► Increased partnership with women-led local organizations is critical to ensure that ICT innovation and programming is inclusive.
- ► The COVID-19 pandemic has increased reliance on technology to support humanitarian operations and the urgency to put women at the center of digital design and programming.

FINDINGS

TECHNOLOGY

ICTs can be employed for a number of purposes and has the potential to provide both opportunities and benefits for women in humanitarian contexts.

ICTs can extend the scale and reach of services provided, where movement is limited, and, in so doing, expand the number of people who may be able to benefit from humanitarian assistance. In other words, digital tools can potentially provide women and other at-risk groups access to services that were previously unreachable. They can also help with data collection, substantially reducing its costs; allow for "real-time" information; reach areas where a physical presence is not safe; and allow for access and meaningful remote engagement with at-risk populations via social media, direct messaging and/or other platforms. ICTs can also help organizations analyze information more efficiently, generate evidence for impact, and disseminate information more effectively.

Technology can also exclude and pose risks for the most at-risk end users.

Technology can exclude some of the most at-risk beneficiaries and increase the actual distance between user and provider. In the context of 'digital cash,' for example, it can lead to potential abuse when users lack digital skills and are first-time users, which is often the case for women, or generate additional vulnerabilities. A survey of Syrian women refugees, intended to assess an eye-scan cash transfer system introduced in refugee camps, offered mixed results. Some appreciated a sense of independence, given their unique access to the funds, while others expressed a lost sense of financial security in the face of potential electronic malfunctioning or unreliable internet

connectivity in the refugee camp, which can result in cash delays [26]. Even when programs target women, the risks of exclusion are still significant. A recent World Bank study on women's inclusion in digital cash transfers noted that women are often "unaware of their benefit entitlements, the timing of disbursements, what money is available in their accounts, and how to use the accounts" [27].

Technology can also fail to fully capture social interactions and power dynamics. For example, Bastagli et al [28]. state that the use of electronic payments, which requires less physical interaction, may reduce the opportunity to understand the complexities of power dynamics on the ground and how those may impact the evolution and impact of technology-based approaches. As a result, purely remote and quantitative approaches may risk creating alternative realities. As Susanne Jaspars contends, "just because existing techniques do not allow you to see the political economy of aid does not mean it is not there" [23,29]. Face to face engagement or in-person verification are thus necessary to mitigate risks associated with digital access and to ensure technology-based programs are inclusive [30].

Technology is often assumed to be a purely technical, neutral instrument but digital tools are designed, developed, and implemented by people with preferences.

Open-source initiatives and organizations have been introduced as a more democratic and participatory platform, giving everyone, including crisis-affected people, an opportunity to participate [31]. But whether this model leads to greater inclusivity in and of itself is unclear [30]. Given women's unequal access to technologies, the differing literacy rates, and looser standards in open, unregulated platforms, the lack of representation can potentially be problematic. A recent study of OpenStreetMap

suggests that mapping activities are still overwhelmingly dominated by men and a male culture [32]. For feminist GIS scholars, this participation model not only fails to represent the geospatial interests of women (and the broader community) but given the gender divide, it also means that women are repeatedly and consistently excluded by the process [32].

> *[There is] a much lower representation of female mappers in OpenStreetMap in general. So it's a pretty safe assumption to say that … OpenStreetMap is [not] representative of the experience for most women. I'm talking about large numbers here, like 90 percent of mappers will be males. There's a lot of work to be done for sure.*
> INGO/IGO Key Informant

New initiatives such as G*eochicas*, a women-led network that aims to bridge the gender gap in the mapping community and expand safe spaces in cities across Latin America, and efforts by the Humanitarian OpenStreetMap Team to support various women-led groups and projects, represent important developments in the right direction. More efforts are, however, needed in order to make digital mapping a more inclusive space and culture.

Technology also entails the risk of 'shiny new toy syndrome', which values novelty and sophistication as an end goal irrespective of the context and the needs of the population it intends to serve [33].

Tech-based solutions become very attractive because they make humanitarian organizations look 'innovative' and 'high-impact' in the eyes of donors [34] and may become part of a marketing strategy to generate further revenue. The risk, as Maria Fernanda Novelo Duarte and Theresia Thylin state in a recent study, is that new technologies can generate more inequality, primarily because of the digital divide, low

literacy, the unexplored impact of such technologies amongst populations in need, and the general lack of participation [33]. Indeed, when literacy becomes a prerequisite, the introduction of new technologies will further discriminate against women and other at-risk groups because they are less likely to be literate than men [35]. The gender digital gap thus grows exponentially, "as technologies become more sophisticated" [36].

> *[Ultimately] you end up with the solution driving the problem, or the solution overtaking the problem.*
> Research Organization Key Informant

Digital tools have to be appealing and useful for women and adapt to and meet women's specific needs.

To build digital tools that work for women, inclusion needs to be fully embedded at the design stage. In other words, digital products need to both consider women's literacy levels, preferences, and experiences, and must be informed by the power dynamics associated with the digital divide. This approach to technology must start at the beginning of the innovation and programming process. Using digital products off the shelf that are not informed by women's needs or preferences can be problematic. (According to the OECD, men are four times more likely than women to be ICT specialists and numerous studies show that a male dominated tech industry has failed to accommodate women and other vulnerable groups and contributed to exacerbate inequalities [37-39]).

1. Voice, gesture, and other text-free user interfaces are considered more appropriate for women of low levels of literacy and digital literacy.
2. Offline internet services and products (such as Amplio, Solar SPELL, offline cloud), rent-to-own models, are good fits for women in constrained environments with limited digital access.
3. Interactive Voice Response (IVR), which allows callers to access information through a pre-recorded voice response system, are also appropriate for women with low literacy levels and limited web and smart phone access.
4. Community media (especially radio) remain strong, accessible technologies in constrained environments, taking away the burden of someone who does not know how to use a phone, and reaching large parts of the population.
5. Multi-platform approaches are generally best suited to reach women and other at-risk groups with different levels of access and literacy.

Source: adapted from [22] and KIIs

The user experience for a young mother in Tanzania is very different from the user experience from a working father in Tanzania. So, you need to design the product very differently for each user … We actually want to design the product with this in mind, not just pick up a product at the end and then deal with the problems.
INGO/IGO Key Informant

Off the shelf solutions tend to be built and created by [mostly] male, rich people in Silicon Valley or London. Are there women included in that? Yes. But hardly any. And is there a data feminist approach to the design? No. There's hardly anybody in the sector who even understands any of that language.
INGO/IGO Key Informant

There are some feminist approaches in design that are more aligned with the values of the humanitarian sector but according to a key informant, few people in the tech sector think in that space [40,41]. Some humanitarian and development organizations that actively engage in innovation understand this challenge and have

adapted human centered design approaches with additional checkpoints to ensure they intentionally includes women and other marginalized groups. The Nepal Innovation Lab, for example, has developed a cash transfer blockchain tool called Sikka to streamline the provision of relief materials and make it easier for financially vulnerable groups to collect cash. The blockchain platform was designed to work on feature phones and had a simpler user interface so that people with low levels of digital literacy and living in remote areas could redeem cash or goods at the local market [42]. According to a key informant, women have busy schedules, "they can't travel to the district headquarter. It takes like 6 hours or 7 hours, and the cost is high. … we came up with a very easy solution so that they can."

The design of digital tools needs to also be informed by the gender digital divide (see section 4.2. for more on the digital divide). Unfortunately, as Novelo Duarte and Thylin state, "this type of analysis tends to be a missing piece of the puzzle when emerging technologies are being introduced" [33]. It is paramount that technology reaches everyone and that efforts are made to ensure that women "are able to

access it regardless of its form, and that they can benefit equally from it" [33]. As Revi Sterling argues, all digital interventions need to respond to a set of questions about social norms and context for it to be best fitted for a specific environment: "under what conditions will women be allowed to use [your] technology? Who is not engaging with your technology and why not? Are there gatekeepers you need to enlist? Have you engaged in co-creation activities? Are you fully aware of potential risks and backlash [associated with the use of your technology" [22]?

Online risks and safety are another important consideration when designing technology in constrained environments, especially for women.

Online and ICT-facilitated gender-based violence [43] is "overwhelmingly skewed towards women and girls, and it can include risks in [both] the physical world, such as theft of a device or even physical violence … from their partners and families," and in the digital world, such as harassment, abuse, online or social media threats, revenge pornography, cyberbullying, etc. [44, 45].

Based on a survey conducted in 2020, the Web Foundation found that more than 50 percent of young women globally had experienced some form of online harm, including threating messages, sexual harassment, and the sharing of private images without consent [36, 46]. While data from humanitarian contexts is limited, technology-facilitated gender-based violence is likely happening at similar or higher rates, given the increased vulnerability associated with women in emergency contexts [47]. In fact, interviews conducted in August 2019 with 35 refugee women living in Uganda showed that three in four of respondents had experienced some form of online harassment including abuse, stalking, unwarranted sexual advances, and hacking of social media accounts by

anonymous individuals, security agents, friends, and ex-partners [48]. Moreover, the risks are greater in constrained environments because "the threat of gender-based violence impacts how women interact with technology" [49] and can compromise their ability to seek critical services and even push them not to go online at all. Along similar lines, a study of media use among women in India, for example, showed that women tend to reduce their online presence when experiencing online harassment [50]. A UN Women study of women in refugee camps in Jordan showed that privacy and safety issues remained a deep worry for women. More specifically, fear of "surveillance and distrust [was] rife and there [was] widespread anxiety that … internet usage may be picked up on as a security threat" [21].

Safety is thus a crucial component to consider when designing and engaging technologies in humanitarian contexts. Evaluating safe access to ICTs should thus be a requirement of any ICT assessment, and women should be consulted about what they consider safe access to ICTs "to avoid causing unintentional harm" [49]. Teaching women about the risks associated with the use of digital tools (i.e. how to identify threats and understand online privacy) and how to safely use technology and the Internet should also be an integral part of any ICT intervention in humanitarian settings.

Reliance on technology as a preventive and response tool for GBV has increased in humanitarian settings, especially since the pandemic [51]. GIS technology, for example, has allowed women to develop mapping tools that can alert other women of safety risks and help raise awareness (e.g. Geochicas, Walk Freely, and Safetipin, etc.). Chatbots and virtual safe spaces are also being used to provide resources and services to women experiencing or witnessing online harassment and other forms of GBV. UNICEF, for example, has launched a virtual safe space platform for girls to access

gender-based violence information that was piloted in Iraq and Lebanon. Feedback from the users was positive and the information provided by the platform was considered essential to the users [52]. Plan International and Feminist Internet, for their part, developed chatbot Maru in 2020 to support girls and women experiencing online harassment, in close consultation with young activists from six different countries, using feminist design principles [53]. Considering the potential risks involved, developing digital tools to address online GBV risks requires intense and close collaboration with the users to understand how to safely design and develop those tools. Further support and resources are urgently needed to ensure that online safety assessments (as well as digital tools designed to address online risks) are available in emergency situations and as part of ICT interventions.

All things considered, it is important to recognize that technologies are not adopted in a social or political vacuum. They are designed, developed, and implemented by people with their own perceptions, agendas, and preferences; and they are used by individuals who have widely different levels of digital access and literacy. Thus, for the potential benefits of technology to materialize in the context of humanitarian assistance, much will depend on internal processes and policies in place (section 4.3) and on the people implementing them (section 4.2).

POLICIES AND PROCESSES

ICT innovation and programming is sometimes designed for women but less with women.

Generally speaking, and outside of projects that target women as the primary end user and organizations with a long-standing, strong gender focus, women tend to be excluded from meaningful engagement in the decision-making process of ICT programming in humanitarian

contexts. There is some consultation, with varying degrees of engagement, but for the most part women and other at-risk groups are typically involved only at certain stages, not throughout the program cycle. As a key informant suggested, "the idea is to use them as the validation mechanism rather than a codesign partner." There are prominent exceptions and best practices are starting to develop, but, overall, there is a lack of consistent approaches.

There is a mismatch between the increasing use of digital tools in the humanitarian field and the development of sector-wide standards needed to ensure technologies are used effectively and in an inclusive manner.

Some organizations have put in place internal practices designed to use ICTs in an inclusive fashion (especially organizations that have been in the digital space for a long time or that have a long-standing gender focus internally); others are in the process of developing policies and processes, while the majority have yet to start putting systems in place.

In the absence of sector-wide standards, numerous humanitarian organizations have endorsed the Digital Principles for Development, a set of nine guidelines designed to help integrate best practices into technology-enabled programs, including: design with the user; understand the existing ecosystem; design for scale; build for sustainability; be data driven; use open standards, open data, open source, and open innovation; reuse and improve; address privacy and security; be collaborative [54].

These principles were developed by a number of implementation organizations and donors (including USAID, UNICEF, the Bill and Melinda Gates Foundation, SIDA, etc.) in 2014-2015 with the goal of providing guidance and unifying practices in the area of digital programming. While initially designed for the development

sector, these principles can offer a suitable framework for humanitarian contexts, but there have been some challenges associated with implementation both in the development and humanitarian sectors. The principles are currently not particularly actionable and there are no accountability mechanisms in place to ensure implementation. As a case in point, 'design with the user' which is related to the inclusion of women and other at-risk groups in the decision-making process, is too general for humanitarian actors to understand how to implement it, according to some key informants. All in all, there has not been a lot of guidance or sector-wide discussions on how to use them and what are some necessary steps or questions that you need to ask to effectively apply and implement the principles. Others, however, suggest that instead of further developing the principles, you need people to apply thoughtful designs.

> *...sensible design and common sense [to] work with the people that you are building something for [...] It's really about how we ask better questions and how we can be more thoughtful.*
> INGO/IGO Key Informant

The lack of accountability mechanisms is another problem. The question of how to ensure principles are applied successfully and consistently across the board continues to haunt the sector, and it is no different in the digital space. There is a difference between adhering to or endorsing a set of principles and being an effective implementer. In this context, internal capacity, leadership, and organizational culture all play a critical role in promoting effective implementation. As one interviewee from Hart and Krueger's study argued, "it does not matter how good your tools are if you do not have the right people. You create people that think they know what they are doing even though they might not, and … that is even more dangerous" [55]. A lot of work needs to

be devoted to building internal capacity and internal awareness about what these principles, standards, and guidance mean, when to apply them, and even when to start thinking about them.

> *To make digital principles applicable, you need to actually invest, change the structure, change the way in which you design [and evaluate] programs … you involve the community … and all of those things require a lot of changes structurally, both in terms of human resources, and money.*
> INGO/IGO Key Informant

Due in part to the lack of clear guidance on what specific questions to ask, the humanitarian sector has experienced a proliferation of "toolkits" designed to provide assistance and direction in the use of ICTs in various areas of the humanitarian program cycle. While some of these toolkits have become reference points within the humanitarian sector [56], there is, as yet no agreement on the minimum standards and what are the basic questions that humanitarians need to address in constrained environments.

Most toolkits are too long, too dense, too time consuming, too generic (with an unclear target stakeholder), and not particularly actionable for people on the ground, leading to a potential disconnect between direction and country level execution. A donor interviewee from Hart and Krueger's study argued that these toolkits are often written for donors instead of being developed for field-level implementers. It is then "unsurprising that they are of little use to the staff who implement them" [55]. There is also confusion around what toolkits are most appropriate based on the context, program type, or intervention approach. As a humanitarian practitioner from headquarters recognized, the toolkits are "very comprehensive [but] they are often heavy, and they are not easy to integrate into a quick

response." Toolkits and guidance become just one more thing that headquarters is telling country offices to do with few resources, time, and capacity on the ground; resulting in a situation where toolkits are not used at all or are used on an ad hoc basis.

When you have the time and luxury to design for women and girls, that's great, you can focus on inclusivity and use these toolkits. But if you're trying to roll things out quickly, with the whole population in mind, it's a challenge.
INGO/IGO Key Informant

There is a delicate balance that needs to be defined between: 1) headquarters wanting to ensure processes and policies are followed and that technology is used safely, responsibly, and inclusively, and 2) ensuring people are not overwhelmed with procedures and policy requirements and allowing for local innovation.

Needs assessments, a common practice in the sector, have been slow in adopting basic questions about digital access and use among the population at risk.

One interviewee contended that there are not a lot of ICT assessments happening in the humanitarian sector; "it seems obvious, but it's really not happening … there's a lot of exceptions being made." While the practice is not widespread, some organizations have been doing ICT assessments consistently (especially those who have been in the digital space for longer time). One practitioner described the process as follows:

Every program will include [an assessment] to some degree or at least within the country portfolio. If they've done a large information ecosystem that year that is pretty comprehensive, they would then just add a module on any particular group they

were trying to reach with a new program. This is based on what the portfolio already looks like, how recently we have done an assessment, what groups did we talk to [in that assessment] and who was missing from the assessment.
INGO/IGO Key informant

Another key informant noted that if humanitarian actors are unable to do comprehensive assessments, "maybe they can do a quick focus group or … a proxy survey. […] that's better than not doing anything and just making assumptions."

Some of the basic questions that ought to be asked when ICT tools are part of the response (and so that actors understand the digital ecosystem in which they operate), involve the following: What access to technology do at risk groups have? What type of technology or digital tools are they already using? What are their perceived risks associated with the use of digital tools? These questions can be easily added to community engagement and needs assessments processes that humanitarians routinely engage in prior to launching any intervention.

Donors have a critical role to play in providing support and incentives for the development of standards within the sector, but a more concerted effort is required in the area of gender and technology, moving beyond ticking a box, which usually involves simply stating the number of women reached. Focusing on numbers as a proxy measure for impact is unlikely to lead to meaningful change. Even when traditional donors become sensitized to gender issues, one interviewee acknowledged that a gender lens was rarely applied in the humanitarian sector, resulting in a pervasive disconnect between donors' stated gender agendas and how this plays out in the context of humanitarian emergencies. Discussions on how to better serve the inclusion digital agenda are happening, but based on the information

provided by interviewees, private and non-traditional donors are more likely to think about how to change reporting on impact and include more qualitative information, or how to define basic standards for digital inclusion.

There are still a number of challenges that preclude donors from playing a more proactive role in supporting digital and gender inclusion in humanitarian contexts. First, there are no specific benchmarks or standards related to gender and digital inclusion. As a result, the use and implementation of digital tools becomes secondary in the process. For example, if there is an ICT platform or digital tool included in a budget or in a programmatic activity proposal, it should be a requirement that an assessment is done to justify the use of these tools. Often times, however, it is ultimately up to the implementing partner to decide what role ICTs should play to enable some of the project's activities, and what role, if any, digital principles should play to ensure the project is implemented in the most inclusive, secure, collaborative way, with the understanding of the ecosystem. Some progress has been made in this area. USAID, for example, is trying to address some of these gaps with the recently launched digital strategy, but it remains unaddressed. Donors need to integrate digital indicators to encourage implementing partners to think about these issues from program inception.

Second, the learning and research pieces are also largely missing from grants. According to key informants, very limited funding is devoted to research on gender and technology in humanitarian contexts. Private sector donors tend to be more flexible and some have been particularly active in supporting the generation of evidence (such as GSMA and Elrha). As a UN official contended during interview, some private donors "have allowed us to do innovation and exploration [and] help build out best practices." But all in all, there are no

channels within the sector to share lessons learned and best practices.

Third, timelines are also generally too short to undertake the kind of work that is required to ensure women and other at-risk groups are included. As Catherine Highet has argued, shifting social norms, which are at the heart of the digital divide, require a significant amount of time, "generally beyond a typical 4-5-year donor program cycle. Progress is rarely linear and can unexpectedly slow down or backfire, which can be challenging to address in a single funding cycle" [35]. Last but not least, evaluation processes are very piecemeal and there are no standardized indicators across the board. Every program is evaluated based on its funding source.

Sex disaggregated data is increasingly being collected by humanitarian actors, but it primarily relies on numbers, rather than a qualitative analysis of some of the access challenges faced by women.

The role of social norms and power dynamics – as well as the role that intersectionality plays – need to be incorporated into the analysis, as this can have significant implications in relation to the response. As Barbelet argues, "relational issues such as exclusion and marginalisation tend to be harder to measure quantitatively … As a result, not only are there data gaps on specific groups, but more fundamentally there are limits on what realities data … can actually describe" [10].

Furthermore, there are significant differences in sample sizes and the demographic groups represented in the sample. "In typical studies," Sterling argues, "the small sample size does not reach into more remote rural areas or insecure regions" [22] which results in gaps in the data that could potentially exclude at risks groups in the response. Part of the challenge is related to an overreliance on quantitative data, which

results in "a statistical tyranny of the majority" [24] and the underrepresentation of women and other minority groups. Being invisible in the data "means being invisible in the analysis that underpins the prioritization of aid and funding, therefore being invisible in the response itself" [24].

PEOPLE

There are different ways in which technology may impact (and benefit) women in humanitarian contexts.

The use of technology can potentially facilitate women's empowerment and access to information. At its best, and according to anecdotal evidence in refugee camps, access to ICT can strengthen self-esteem and provide literacy opportunities; enhance earning potential; lead to greater participation in the decision making processes; strengthen social networks, and help achieve a more level playing field [49]. Syrian female refugees interviewed by UN Women, for example, described internet access as critical to be informed about everyday developments in the refugee camp [20, 21]. The use of technology in certain areas of humanitarian assistance, such as the delivery of cash, can also support and contribute to gender empowerment, and improve the physical safety of women [21,27,28,57].

More localized research (and less reliance on general assumptions about impact) is however needed to understand how technology impacts different women in different environments.

There is an assumption that women experience the same type of digital restrictions and barriers irrespective of their social, local, economic, and personal circumstances, and that, in turn, their interactions with technology are homogeneously shared. As Novelo Duarte and Thylin note, humanitarian actors tend to "at worst, see women and girls as one homogenous group and, at best, tend to englobe [them] into

neat, clearly defined sub-groups such as 'adolescent girls', 'women living with disabilities', or 'women heads of households', often wrongly assuming that every member of such a sub-group experiences the same oppressions and privileges" [33]. As a key informant noted, "if you treat women as a minority group you are probably not going to get it right […] There are so many different personas. … The idea that you could say, 'we're designing for women, so we're trying to make sure that when we have focus groups there's childcare available.' That's great. But it's more than that."

Gender gaps and digital barriers have the potential to limit women's ability to fully benefit from the use of ICTs in the absence of inclusive practices.

As noted above, technology can be a double-edged sword for women depending on how gender is addressed in ICT innovation and programming. The challenge is particularly prominent on the ground, where male gatekeepers hold great influence within local communities and have the power to decide whether women are allowed to participate. Some best practices in this area include providing incentives to community leaders so that they buy into the process. As a local practitioner stated, it is important to put emphasis on the benefits for the leaders and for the community as a whole; "once they get to appreciate it, they're going to direct you" to the women groups and will invite their leaders. Other times, local and international practitioners involve male members of a community to prevent suspicion and avoid community-level tensions that could lead to gender-based violence. As a local practitioner argued, you have to be very strategic with your communication: "we say, we are not completely leaving the men out, we want men too. If there are five champions or leaders that we need to manage a facility, we want three women and two men [so] that they feel not left out. If you

give all to women," there will be problems. You also have to beware of hierarchies and identify socially acceptable uses of technology so that their use is normalized among women in the community [35]. As a local practitioner contended in an interview, it is a give and take:

You have to really understand the political context and make sure that you include everyone, because otherwise they might feel left out. You have to know your chain [and] the hierarchy of the powers within so that you follow them accordingly [and win their hearts]. If you fail one, then it's going to take you backwards …. [You talk] about the benefits and relate the challenges to the solutions but also make them feel that they are part of the solution. How? Like they choose, they select who the champions are. I will not go to them and say I want this person.

A local actor also noted that a multi-pronged approach is often needed to address women's ICT barriers. As she explained, "we do advocacy [for gender sensitive ICT policies], we raise awareness, we promote women's online rights, we train them, […] we provide equipment, smartphones, a connection point, but also money for Internet access. …. We want [women] to get into the ICT space and benefit from the opportunities provided by the technology. So basically, we are doing a lot of things to bring women into the ICT space and so that they're able to benefit" [58].

Gender barriers can also manifest in how others see women and "how women see themselves and their roles […] as well as the beliefs about what they can and can't do" in terms of accessing and using" digital services [35]. Patriarchal assumptions and expectations about income-generating activities, for example, undermined women's participation in an

income-generating digital project for refugees in Uganda. As GSMA noted, men tended to recommend the App to other men based on established social interactions and the belief that it was better suited for them. It is thus important to understand these types of social dynamics and belief systems, and design strategies that reduce the risks of exclusion and do not exacerbate prevailing inequalities [59].

Trust and low confidence among women is also an important consideration when designing and using technology in constrained environments.

According to GMSA, women are understandably more risk averse and take more time to trust digital tools like mobile money [60, 61]. As a local key informant noted, in addition to language barriers, and other access challenges, there is technophobia, especially among women who have never engaged with ICTs before. A lack of confidence has also been identified as a barrier to adoption of mobile money services [60] and other digital tools. Addressing trust and low confidence should thus be a critical component of ICT programming "before putting a device in front of someone who believes they are not intelligent enough to use it" [62].

Local practitioners interviewed for this project argued that it is essential to not only explain what the benefits are but also provide incentives to women, such as inviting their daughters to come with them. For example, "in a situation where some women felt they [were] too old, we encouraged them to bring their daughters. And they've responded well to that." Similarly, a local actor explained, when I train women on how to use smartphones, "I make sure the news spread among them (before I arrive)… the first day we train [only a few of them] and then they open up, ask questions. They say 'I didn't know that this was a good machine;' […] I share with them the benefits and how I got a scholarship through the

internet. … The following day they bring their daughters. They understand the benefits, and they say, my daughter also needs to study this … and the number increases the following day."

Digital training and interventions designed to change social and digital behaviors should thus be undertaken as part of prevention, preparedness, and recovery programs. In these contexts, scheduling around women's needs and availabilities is as important as the training itself. As a local actor notes, women's priority is not studying ICT; "In most cases I have to tailor my time [around them]. I wait for them […] We start at 3 pm. Why? Because they [have many household responsibilities] … So if you want to really get their attention, it's very important to schedule the program according to their [availability] and involve them in identifying their needs." Another local key informant noted that you need to use time as part of your strategy when you involve and consult with women; "you have to be intentional. You discuss with them the time they are available." Similarly, you need to meet women wherever they are; "we go to their homes. We do community meetings wherever they are … if you simply call them they will not come."

All in all, overcoming these social barriers, and using behavioral strategies to address them, requires more flexible funding for iterative approaches and more involvement of women at every stage of the process of innovation and/or programming. As Bryant et al. state, "the elements that determine inclusivity remain largely offline and are time- and labor-intensive to carry out" [63], especially in emergency response contexts. It is also important to address digital divide issues holistically. For example, while digital training can contribute to enhancing women's digital literacy and confidence, it is unlikely to eradicate social barriers in the absence of other strategies that are more specifically designed to tackle power

dynamics, such as social awareness, advocacy, community level engagement, etc.

Humanitarian actors need to move beyond simplistic views on technology.

The thinking amongst practitioners in relation to technology is sometimes polarized: (1) technology is viewed as neutral and, as a result, no efforts are needed or taken to reach women and other at-risk groups. This represents a form of tunnel vision, based on the notion that digital technology improves service delivery without thinking about the real-life consequences. (2) Technology is viewed as intrinsically biased and potentially harmful, and, as a result, no efforts are taken to consider how technology or low technology initiatives can be used to positively impact the life of women. Technology is seen as something to avoid.

The rapidly evolving nature of humanitarian contexts forces humanitarians to react rather than being responsive and agile to the needs in the field.

As a key informant contended, sometimes humanitarians "don't have the time to sit down with a human centered design and think about women and about all the different audience segments." In other words, inclusion is not prioritized because of the environment in which humanitarians operate, which provides little space to engage at a deeper level. Indeed, there is still "a minority but pervasive view that inclusion is 'too hard' in the emergency phase [2], which is aggravated in the context of ICT as a result of capacity issues (see discussion on capacity below) and assumptions about the neutral status of technology (see section 4.1.).

While the development of inclusive policies and processes can help resolve some of these challenges, much depends on humanitarian actors' awareness of how their own values play out in the inclusion or exclusion of certain groups within the crisis-affected populations.

Inclusion is not simply a technical issue, it is also a political one, grounded in values and judgements [2]

An important challenge in the humanitarian sector involves "fighting the assumption" that gender mainstreaming (and the inclusion of other at-risk groups) is another exercise as opposed to being part of the onboarding part of project planning.

This relates to a degree of gender 'fatigue' and a sense of 'having to do gender', as expressed by some participants in a study conducted in 2016, as opposed to understanding gender equality is a basic human right [2]. As Searle et al. suggest, "A conviction that gender equality is vital for inclusive, equitable humanitarian action, is largely held by gender specialists, and not understood to the same extent by generalist humanitarians" [2].

Digital inclusion is ultimately and consistently left to individuals on the ground who lack resources and are under a lot of pressure to roll out digital products and scale them quickly.

Generally speaking, there is an absence of standards and institutionalized practices for ICT innovation and programming in humanitarian contexts, which results in decisions about the inclusion of women being made by individuals on the ground. Even when inclusion frameworks exist in the context of ICT programming, they do not necessarily trickle down to the country/national level where leaders operate in rapidly evolving environments and are forced to make decision in a void. It is ultimately about the will of the staff who are actually implementing the projects or procuring the technology, and how much they make inclusion an integral part to their work.

There exist important capacity gaps and financial constraints within humanitarian organizations that may constrain their ability to

be more intentional in the area of inclusion and technology.

As one key informant contended, some organizations "don't have the structure, the resources, and the systems to do it." Skill sets are also lacking in terms of the intersection between gender and technology: "you may have gender specialists inside an organization, but you may not have gender specialists who specialize in creating digital products; the two are not necessarily the same thing." There is also confusion about what kind of expertise is needed or required to embed gender in technology-based approaches and vice versa. Furthermore, prior to the emergence of technology-based approaches, gender expertise was considered an "add-on" and was not necessarily well resourced or well defined within many organizations [55] (in both donor organizations and INGOs). With the development of new technologies, gender and digital expertise has become even more difficult to define in terms of knowledge, capacity, and resources. The very few humanitarian professionals with both gender and digital expertise are part of a very selective group that only well-resourced and strategic organization are capable of investing in. Without an understanding of what gender (or more broadly inclusion) and digital expertise looks like, and without a commitment to intentionally seek out and hire that type of expertise, change will be harder to bring about.

There is also an identity crisis within the T4D (Technology for Development) sector, related to its place within the humanitarian sphere, that has a significant impact on how prepared these organizations are to effectively integrate technology in an inclusive manner. This is aggravated by the fact that T4D is not considered a core function within many humanitarian organizations and often ICT functions are not fully integrated in the organizations (instead they are added on an ad-

hoc basis). This can result in fewer resources overall, and significant disconnects between gender inclusion advisors and digital (or T4D) advisors, as teams often work in silos. This is sometimes exacerbated by the fact that ICT staff has been traditionally dominated by men, which can introduce biases at different points in the design and roll out of digital products. Another practitioner argued that the two teams do not 'speak the same language'. Gender teams tend to "talk about fuzzy concepts like empowerment, and things that are quite academic," which can be hard for people to understand and think about how those concepts may inform the roll out of digital tools; "there is another disconnect there."

Training on the intersection of gender and technology is rare.

When it does happen, it is often optional and reliant upon self-study [12]. This has two important byproducts. On the one hand, it limits "the potential to embed an awareness of gendered impacts across responses" [12]. On the other hand, it creates a mismatch and widening gap between the exponential proliferation of guidance and standards on gender and technology, and staff readiness and capacity to navigate such guidance. Some organizations have started to implement practices intended to address capacity and learning gaps across the organization, but these are ad hoc for the most part. One such initiative includes learning webinars designed to discuss ways in which different teams across an organization are utilizing ICTs in their respective fields. The ultimate goal is to facilitate synergies across the organization in terms of ICT innovation and programming and allowing for lessons learned and best practices to become embedded in the organization. While these practices are a step in the right direction, a concerted effort is needed to make sure these practices become part of a broader strategy to strengthen capacity and learning in

the area of ICT innovation and programming (Annex III).

PARTNERSHIPS

It is of paramount importance to work with local women-led organizations to ensure ICT innovation and programing is inclusive.

Here we define Women-Led Organizations as "organizations with a humanitarian mandate and/or mission that is 1) governed or directed by women; or 2) whose leadership is principally made up of women, demonstrated by 50% or more occupying senior leadership positions" [21]. According to humanitarians interviewed for this work, not only do women-led organizations have a better knowledge of local needs in terms of technology but they also can provide critical access to communities where trust is critical and can help reach women who could otherwise be left behind. They are best suited to become the first line of engagement with the community.

According to GSMA, Mercy Corps saw an uptick in women's participation in its Chanter platform (designed to use IVR technology for early warning and response in Haiti) when the service was publicized in public areas frequented by women and when a number of women's groups were engaged to help reach women. As an interviewee indicated, humanitarian actors who are actively seeking to include women in the decision-making process in ICT programming would be lost without women-led organizations; they have an "incredibly rich knowledge of women's lives and all of the challenges that women are facing and all of the normative barriers that they're up against… And of course, they also have access to the community."

Women-led organizations are also a critical component for sustainability because they can find value in the service that international humanitarian organizations provide during

crises. Some humanitarian organizations have actively sought to leverage locally-led women-led networks to include women in decision-making processes. In the Pacific Islands, for example, where women's voices are often absent from disaster disk reduction's decisions, ActionAid supported women-led networks to adapt an innovative early-warning system created by women that now brings together over 4,000 women "who meet regularly through women's collectives to respond to climate change and disasters" [64,65]

The relevance of working with women's groups was underscored during the WHS where UN agencies and INGOs committed to increasing the percentage of their implementing partners that are women's groups [66]. Some humanitarian organizations even committed to ensuring at least 50 percent of its implementing partners in humanitarian action would be women-led or women's organizations by 2020. But while working with women led organizations represented one of the key commitments at the time, very little progress has been made so far. Direct funding to local women's organizations has remained poor but the lack of data to track progress has made accountability particularly challenging [11]. Based upon progress on a set of gender-specific benchmarks from the WHS in 2016, a study conducted by CARE in 2021 found that with some exceptions donors and UN agencies had failed to increase funding to women's groups in fragile and conflict-affected states to the agreed 4 percent. Seven out of eleven top donors allocate less than 1% of aid to women's groups. CARE notes that while "the benchmarks were not universally or formally adopted … they remain the most unified and concrete set of gender-specific goals for funding and leadership in humanitarian contexts" [11]. Furthermore, according to the latest UN Secretary Report on Women, Peace and Security, "bilateral aid to women's rights organizations and movements in fragile or conflict-affected countries remains

strikingly low, well below 1 percent (0.4%), and has been stagnant since 2010" [67].

OPERATING ENVIRONMENT

The COVID-19 pandemic increased the use of technology to support humanitarian activities, which risked the exclusion of underserved populations and increased the risk of digital harms.

The pandemic has demonstrated the importance of digital access in humanitarian contexts. Phones, for example, have become critical "to mitigate some of the negative impacts of the pandemic by providing ongoing access to information, health care, education, e-commerce, financial services and income-generating opportunities" [19]. But with reliance (and almost dependence in some cases) on technology to enable and support humanitarian operations, the risk of excluding underserved groups lacking meaningful access has increased (and so has the potential for digital harm). At-risk groups often face additional challenges accessing face-to-face and digital services. As the GSMA reported, the trend towards digital inclusion slowed down, and in some cases, reversed during the pandemic [19].

Furthermore, with more time at home and online, the risk of GBV and technology-facilitated GBV has also increased during the pandemic, with less opportunities for women with limited resources to access protection services. Based on an analysis of case management data in fragile countries, the International Rescue Committee (IRC) found that "the suspension of essential protection services for women, as well as restrictions on mobility, lack of information, and increased isolation and fear, have resulted in a dramatic drop in the number of reported cases of violence against women and girls" [68,69] The household burden on women has also increased

significantly during the pandemic. One interviewee noted that "[their] bandwidth to actually manage and adopt new behaviors or new technologies is much reduced; you're suddenly trying to tend to sick relatives, perhaps their parents, uncles, aunts and children, you've got to stay in the vicinity of your house. Or maybe you can't go to the market and sell vegetables anymore. You're suddenly balancing all of these extra activities."

The COVID-19 pandemic has heightened the need to put women at the center of digital design and programming. This said, there have been some positive developments, especially in the GBV and emergency space, with humanitarian actors trying to better understand how to design safely and in a more systematic way.

> Before COVID, very few people were having that conversation. We're still few, we're still not many people, but I think that the conversation has picked up more heat because we're realizing this is quite urgent, people are going to keep using technology and they're going to use it more, it's not going away. INGO/IGO Key Informant

Discussions about how to design with women (not just for women) have also increased in other areas. An interviewee, for example, described efforts in design "to think about what participatory iterative process we need to build, what partnerships do we need to do in order to make sure that our end product isn't just something that people at headquarters cooked up with an app developer and then launch somewhere. It takes a lot longer, but definitely it's the way to go." She also explained, "I see more understanding now … A lot of people in my team who never cared about technology are now curious and asking questions […] how this can be done safely and also understand that this isn't something you can just pick up and run with it, it's really positive."

All in all, while there have been positive developments in terms of enhanced awareness amongst humanitarians, it is unclear how much will translate into the increased inclusion of women in decision-making processes and if progress will revert once humanitarian access is fully restored [10].

KEY AREAS FOR CONSIDERATION AND ACTION

This section provides a set of specific recommendations based on the challenges, lessons learned, and best practices identified in the findings section, but for these recommendations to have a meaningful impact on the inclusion of women (and other at-risk groups) in ICT innovation and programming there needs to be a change in thinking related to culture and systems within the sector. While the pledge by humanitarian actors to be inclusive has been strong, at least rhetorically, more action is needed to systematically include women's voices and ensure women are an integral part of the decision-making process in ICT innovation and programming.

CONSIDERATIONS AND ACTIONS TO SUPPORT THE DEVELOPMENT OF MIMUMUM SECTOR-WIDE STANDARDS FOR THE USE OF ICTS IN THE HUMANITARIAN SPACE.

Rationale: Given the increasing reliance on digital tools, humanitarian actors should develop minimum sector-wide standards for the use of ICTs in the humanitarian space. In the absence of such standards (and the policy tools required for implementation), the adoption of inclusion practices in the digital space will continue to be done on an ad hoc basis and will be dependent upon the presence (or absence) of internal champions within the organization. Donors can provide critical incentives for the development of digital inclusion standards, but other humanitarian stakeholders have important roles

to play. As part of this process of standardization and benchmarking, humanitarian actors should take the following steps.

Considerations and Actions for Donors:

► **Digital Mapping Exercise.** Fund and support scoping and mapping exercises, as well as best practices, in order to assess the state of digital inclusion in humanitarian innovation and programming and to better understand the gaps, challenges and 'readiness' for digital transformation.

► **Benchmarking on Digital Inclusion.** Consider digital inclusion indicators to be part of benchmarking. As noted earlier, humanitarian organizations do not abide by any digital standards and are not required to report on digital inclusion indicators, missing a critical opportunity for donors to provide incentives for organizations that most need it.

► **High-Tech vs. Low-Tech.** Consider setting standards around the use of technology to avoid the shiny new toy syndrome. For example, implementing organizations should justify the use of ICTs in project proposals and clarify the way in which the chosen technology (or technologies) is fit for purpose and designed to reach the target population irrespective of nationality, race, gender, religious belief, class or political opinion. Low-tech options will likely reach the most at-risk groups but using multiple platforms or digital tools will be needed to reach groups with different levels of digital access and literacy.

► **Changing How Impact Is Measured.** Consider changing how impact is defined and measured (as well as the approach to reporting) so that qualitative data on digital inclusion is provided. For example, request that organizations provide qualitative evidence of how women and other at-risk groups are consulted and involved throughout the process, and how their particular digital situation impacted the roll out of the response (i.e. direct feedback from women as a measure of performance) [70]).

Considerations and Actions for INGOs, IGOs, and local NGOs:

► **Sector-Wide Standards.** Consider who are the individuals and groups who will be using, supporting, and/or affected by the technology. Understand your position (as an individual and an agency) within or in relation to this community to be clear about power dynamics.

► **Internal Audit on Digital Inclusion.** Consider creating and implementing an internal review/audit [55] of policies, capacities, resources, and organizational practices on inclusion in ICT innovation and programming within the organization.

► **Digital Standards.**
  - Articulate a clear, coherent vision for humanitarian assistance that addresses, advances, and promotes digital inclusion of women and other at-risk groups and, by doing so, ensures that underserved groups are actively engaged at every stage of the innovation and programmatic cycle.

  - Consider engaging actively with other humanitarian organizations, both local and international, in order to develop basic principles and standards on digital inclusion. As part of this joint exercise consider the creation of accountability mechanisms so that stated commitments are implemented. Another key discussion should revolve around how to maintain best practices and consistent application

of standards while avoiding excessive bureaucracy and/or top-down micro-management.

► **Systems Thinking Approach.** Consider introducing multiple checkpoints that are embedded in the system to ensure the use of digital tools is cross-examined throughout the humanitarian programmatic cycle.

► **Accountability and Self-Assessment.** Consider setting up accountability or feedback mechanisms for beneficiaries and mechanisms within the organization to allow teams to self-assess their 'inclusion footprint' in the digital space

Considerations and Actions for Local Women-led Organizations:

► **Advocacy.** Engage actively in advocacy efforts, bilaterally and multilaterally, to ensure women-led organizations are incorporated in discussions about women's inclusion.

► **Partnerships.** Consider partnering with other local women-led organizations or with an international organization with a long-standing gender focus so that women-led organizations' voices are amplified in international, regional, and national fora.

► **Staffing Advocacy Efforts for Women's Online Rights.** Support or join other local organizations that are actively empowering women in the digital space, raising awareness about the digital divide, and advocating for gender-sensitive ICT policies.

CONSIDERATIONS AND ACTIONS TO BALANCE PROCESSES AND PROCEDURES TO ENSURE THE SAFE, EFFECTIVE, AND TIMELY

IMPLEMENTATION OF TECHNOLOGIES IN THE FIELD.

Rationale: There is no agreement on the minimum standards for digital inclusion and what are the basic questions that humanitarians need to ask in constrained environments to assess digital access. Instead, the humanitarian sector has seen a disjointed proliferation of toolkits that are too long, too dense, too consuming, and too generic. There is a need to strike a balance between lengthy processes that ensure technology is utilized safely and inclusively and allowing implementers to act without being overwhelmed by procedures, toolkits, policy requirements, and tight timeframes in rapidly evolving environments.

Considerations and Actions for Donors:

► **Ensure budget and time is allocated** to allow implementing organizations the time and the resources to run digital- and gender-based assessments

Considerations and Actions for INGOs and IGOs:

► Access to rapid, synthesized information on gender and digital access is crucial early in the process but this information is not always readily available. **Consider the creation of an inter-agency platform for sharing information on rapid analysis and data**, potentially in real time, to overcome silos mentalities (similar to the humanitarian data exchange, but with an inclusion lens).

► **Include a few digital access questions as part of a rapid gender analysis** to quickly roll out in an emergency, including: what access to technology do at-risk groups have? What type of technology or digital tools are they already using? What are their perceived risks associated with the use of digital tools?

- ► Develop quick, field-level and actionable guidance that can be easily used in constrained environments. For example, use simple decision-making trees, making it easier for people on the ground to act quickly in highly volatile, rapid environments.

CONSIDERATION AND ACTIONS TO ADDRESS STAFFING GAPS IN GENDER AND TECHNOLOGY WITHIN ORGANIZATIONS.

Rationale: Given the staffing gaps in gender and technology within many humanitarian organizations (including donors and INGOs/IGOs), a concerted effort is required to address this deficit. It is important to provide T4D teams with the capacity and resources needed to become part of the organizational DNA. Well integrated digital teams will be more likely to set clear standards and processes for the whole organizations. Furthermore, for digital inclusion to be part of such processes, and be consistently applied, there needs to be an understanding of what the expertise on inclusion and technology looks like and nurture it within the organization. Breaking down silos within the organization and eradicating a male dominated culture where it may still be prevalent within the technology sector should be a priority [71].

Considerations and Actions for Donors:

- ► **Adopt a digital inclusion first approach** that starts with the promotion of inclusion POCs and digital development advisory roles in country with financial support.

Considerations and Actions for INGOs, IGO, and local NGOs:

- ► **Diversify boards** and consider technical expertise with a strong proven commitment

to gender/inclusion agendas as a prerequisite for hiring T4D leadership roles.

- ► **Support the creation of a strong T4D leadership role** with the ability to set the direction of the T4D agenda within the organization; develop guidance and best practices; and support the implementation of basic digital standards throughout the organization.

- ► **Consider creating a flexible internal structure with the intention of breaking down organizational silos.** For example, consider temporary co-location for T4D staff so that they can be embedded in different thematic/technical teams within the organization.

CONSIDERATION AND ACTIONS TO INVEST IN LEARNING, TRAINING, AND RESEARCH.

Rationale: There is a widening gap between guidance tools at the intersection of gender and technology, and staff readiness and capacity to navigate these tools. Some organizations are starting to implement innovative practices intended to address capacity and learning gaps but more resources are urgently needed to ensure that the generation of best practices trickles down to those in charge of designing and rolling out ICT programs on the ground.

Considerations and Actions for Donors:

- ► **Actively ask how technologies are being adapted to context and needs, and allow flexible funding for iterative, ongoing community and stakeholder engagement processes** throughout the lifecycle of a technology (rather than once-off consultations early in the design period).

- ► **Make sure local stakeholders are at the front of grant writing**, or at minimum co-drafters.

- **Consider channeling funds for more coordinated research** and learning efforts across organizations. More specifically, consider supporting humanitarian organizations that are already investing resources in research and learning, and undertaking high quality research in the field of ICT and innovation in humanitarian settings.

- **Provide flexibility in grants** with digital technology so that organizations can allocate proportionate funding for research and learning in terms of accessibility, reach, and impact, that can be fed back into the system and inform future programming.

Considerations and Actions for INGOs and IGOs:

- **Consider core training on digital inclusion** for onboarding processes.

- **Consider creating and implementing capacity building for staff** (irrespective of their area of expertise) on how to include women and other at-risk groups at every stage of the innovation and programmatic cycle.

- **Actively seek and create more opportunities for research (and sharing) within and across organizations**. For example, as standard practice (especially in the absence of sufficient resources for full-scale research), consider embedding learning questions on inclusion in the design phase. As one key informant suggested, having learning questions from the beginning "can help put people in the mindset and [encourage them to] think about those issues throughout" the lifespan of a project. This can help humanitarians think about inclusion from the outset; promote the right mindset; and support learning within the organization.

- **Consider creating research/learning partnerships** with other humanitarian organizations to amplify learning opportunities and for burden sharing. Efforts to collect context-specific, evidence-based knowledge about the impact of different technologies on women in different local and social contexts remain limited [57].

CONSIDERATIONS AND ACTIONS TO WORK WITH LOCAL, WOMEN-LED ORGANIZATIONS.

Rationale: Tapping into women-led local networks is important in terms of access, trust building, and sustainability. While UN agencies and humanitarian organizations committed to increasing the percentage of women-led groups as their implementing partners at the WHS, little progress has been made so far. Some of the challenges involve the absence of a commonly accepted definition of what a local women-led group is; the lack of available data to track pledges; and a shortage of political will to turn commitments into reality.

Considerations and Actions for Donors:

- **Provide data on funding allocations devoted to support women's organizations** (including both formal organizations that are governed by women and informal groupings such as movements, grassroots groups, activists and individuals), and women-specific digital programs in the humanitarian sector

- **Include budget lines in response funding that mandate** engagement with women-led organizations.

- **Provide direct, flexible, and streamlined funding channels** for locally

led women's organizations, allowing for funding to cover different types of costs (i.e. operational, management, capacity building, childcare, etc.) and provide technical assistance throughout the process.

► **Provide support and funding for women-led local organizations** that are working to empower women in the use of ICTs, raising awareness about the digital divide, and/or advocating for gender-sensitive ICT policies

Considerations and Actions for INGOs, IGOs, and local NGOs:

► Encourage funding for projects that will allow the development of longer-term relationship building with women-led organizations and community members [72].

► Identify local women-led organizations and build relationships for immediate (or future) response.

► Partner with and support existing local women-led networks.

► Provide data on funding devoted to supporting women's organizations and women-specific programs in ICT innovation and programming.

CONSIDERATIONS AND ACTIONS TO ENSURE THAT RISK MITIGATION SYSTEMS ARE AVAILABLE FOR GBV EMERGENCIES DURING WHICH ICTS ARE USED.

Rationale: For the past few years, and especially since the pandemic, incidents of online GBV have increased substantially, but so has the reliance on technology in GBV prevention and response. Developing safe technologies to address GBV in these contexts

requires close collaboration and consultation with women to better understand their realities and preferences. Further support and resources are needed to ensure safety assessments and GBV risk mitigating systems are available in emergency situations and as part of ICT interventions.

Considerations and Actions for Donors:

Consider the following actions for proposals that involve digital tools:

► **Ensure funding is allocated for online safety mapping analyses** designed to understand safety concerns associated with the use of technology and ways to mitigate risks.

► **Ensure safety and risk mitigating systems and processes are integrated into ICT proposals.**

► **Ensure funding is provided to conduct online safety training for women.**

Considerations and Actions for INGOs and IGOs:

► **Ensure that digital safety assessments are undertaken as part of ICT programs**. Kristy Crabtree and Geara Petronille, for example, propose community and safety mapping analysis that can provide visual information about power dynamics (i.e. information about high rates of intimate partner violence combined with trends in device sharing), which should trigger a consideration of harm reduction techniques [49].

► **Put systems and processes in place to respond to online harassment and violence as a result of your intervention**. In situations where women use phones that are shared or monitored, for example, tools should incorporate 'quick escape' or exit buttons "so the user

can quickly leave the site if someone starts to monitor their use" [49]. In low or no tech contexts, GBV responses should be required to consider alternate entry points for women with limited phone access.

► **Ensure that digital solutions to address GBV are designed, developed, and implemented in close collaboration with women.**

► **Work with women-led local organizations to train women on how to be safe on the Internet and how to safely use technology.**

Considerations and Actions for Coordination Mechanisms:

► **Consider including incidents of online-based GBV as part of the inter-agency GBV Information Management System** (GBVIMS), which "allows agencies to collect and secure standardized incident data in order to inform programming, allocate resources, and develop advocacy and intervention efforts" [73].

CONSIDERATIONS AND ACTIONS FOR FIELD-BASED COUNTRY OFFICES AND LOCAL ORGANIZATIONS
BASED ON KII AND [22, 35, 74-78]

Preliminary Work

► Consider undertaking much of the work required in an emergency prior to the crisis and conduct regular ICT assessments of women and other at-risk groups.

► Conduct a mapping analysis of women-led organizations to partner with (building relationships with some of these organizations prior to a crisis could save valuable time).

► Advocate for and ensure donors provide funding for digital training for women.

► Undertake digital literacy training for women (or work with local women-led organizations that work in that space), as part of broader interventions intended to address digital divide barriers

Access and trust: Approaches to Reach Women on the Ground

► Partner with a locally based women's organization in order to: (1) build trust and gain access; and (2) understand the situation of women in that specific context.

► Given their thematic expertise and access, support the engagement of women's organizations and participation throughout the process.

Assessments/Ecosystem Analysis

► Once access is granted (and trust is built), assess digital opportunity and literacy within the target community, specifically in relation to women (and other at-risk groups as needed). Do not assume or expect base levels of literacy, numeracy, or access [35].

► There are a number of toolkits that can help local implementers assess the digital situation on the ground (to understand who has access to technology and who is excluded), and to know about women's digital skills, digital habits, and factors influencing them. This said, in emergencies and rapidly evolving environments, there are three basic questions that can simply be asked in order to understand digital needs: what access to technology do women have (i.e. do they own a phone or do they share it)? What tools are they already using? What are their perceived risks and safety concerns?

► Address communication with women who do not have meaningful access to a mobile phone or other digital tools, including face-to-face communication.

► Talk to a diversity of female users [76]. Do not assume that women and women's groups are uniform and indivisible. It is important to understand how social, ethnic, linguistic, and political dynamics may impact the design and implementation of ICT interventions in each context.

Social Norms as Part of the Ecosystem Analysis

Look for the social norms and power dynamics at play, which may negatively affect women's access to digital tools and services. There are some strategies that can be designed to address social barriers:

► Identify the male gatekeepers and those who hold influence within the community so that you can obtain buy-in and avoid tensions that could lead to obstruction, community-level conflict, and gender-based violence.

► Provide incentives to community leaders and gatekeepers so that they provide access to women. It is important to inform gatekeepers of the benefits for the community and explain carefully why it is relevant to involve women.

► Use "behavioral hacks" with both women and men within the community. For example, motivate women to use digital tools with examples of other women using and benefiting from the use of the same tools [35]. Behavioral strategies should also be used with male members of the community so that they do not feel left out.

► Identify "socially acceptable entry points for women" [35] so that technology use is normalized among women and within the community. For example, women can be involved in managing or assisting in an ICT facility or center in a refugee camp or village.

Approaches to Co-design

► Use women-centered design methodologies "to co-create solutions with women who represent different segments of the target population, to improve accessibility, usability and relevance" [74]. Involving women to learn how to identify their needs is key.

► As part of the co-design process, create spaces where women are comfortable expressing themselves.

► Work with female facilitators.

► Allow women to define their involvement and their own schedule.

► Use realistic timelines for reach and engagement, "based on the level of social media access, skill, and use in the target population" [75]

► Do not work with solutions in search of a problem; "it is important to lead with the problem (rather than a pre-ordained solution)" [35].

► Test, test, test, until, a key informant contended, the maximum number of women in the target population "comprehend it, recall it, are engaged by it, find it relatable, relevant, useful."

► Design is not a one-off exercise; it needs to be iterative "and should not end with a product or service launch" [35].

Designing and Using Digital Tools for Women

► Design differentiated digital strategies, using different digital channels and tools (IVR, SMS, chat applications, specific social media platforms, etc.) and different approaches (such as storytelling, comic books, workbooks, radio dramas, etc.) to engage a diversity of needs and different segments of the target population.

- Design and work with digital tools that are already in use among the target population. Do not burden women (and other at-risk groups) with learning new behaviors that "may overly pressure a person's cognitive bandwidth" [35]. Use digital tools that are relevant and appealing to women

- Have processes in place to respond to online harassment and violence as a result of your intervention.

ANNEX I: TOOLS AND GUIDANCE FOR THE INCLUSION OF WOMEN IN THE DESIGN, DEVLEOPMENT, AND IMPLEMENTATION OF DIGITAL TECHNOLOGIES IN HUMANITARIAN AND DEVELOPMENT SETTINGS

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ANNEX II: CASE STUDY QUESTIONS AND SUB-QUESTIONS

Research question: How are current ICT innovation processes/ICT programming working
to include women and minorities into their decision-making processes?
Sub-questions

► How can we build inclusive technology processes, products, and services and meaningfully engage
women and minorities in all phases of ICT innovation/technology programming? How can we use
technology for humanitarian assistance in a way that does not reinforce unequal power dynamics or
create new inequalities?
► What innovative approaches/frameworks/standards are needed in the design of ICT programs for
humanitarian assistance to effectively engage women and minorities in the decision-making process?
What are the ongoing challenges?
► Who is successfully engaging women and minorities in the planning, design, and implementation of
ICT innovation/programming for humanitarian assistance?

TECHNOLOGY

► How can ICT technologies help humanitarian organizations reach vulnerable
populations/women/minorities in humanitarian environments?
► How can ICTs be sensitive to societal and power dynamics?
► What tools/standards/methodologies can ICT innovation systems use to overcome these
challenges?
► How do we define risk in the contexts of ICTs for women?

POLICIES AND PROCESSES

► What policies are needed to support the inclusion of women/minorities in ICT innovation?
► What policies/frameworks are needed in the design of ICT programs to engage more effectively
women/minorities? Are there any frameworks in place in your organization?
► What are the evaluation frameworks in place for programs that use ICT innovation? Do these
frameworks focus on the use, design and/or overall impact of ICTs? What kind of evaluation
frameworks are needed to assess the inclusiveness of ICT programs?
► What's the connection between data responsibility and data inclusion in ICT programming? Do
responsible data policies focus on data inclusion?
► How are lessons learned being captured, shared, and disseminated?

PEOPLE

► How are women and minorities included in the ICT innovation process and in ICT programming?
What are the lessons learned?
► What are the ongoing challenges in the inclusion of women and minorities in ICT innovation and
programming?
► How is the community at large (and men) involved in ICT programming that engages women?

- ► Who provides funding and support to find innovation solutions that are inclusive?
- ► What are the key obstacles in the development or implementation of inclusive approaches to innovation in terms of internal capacities, skills, knowledge, attitudes, risks (inside the organization)? In other words, if the inclusive approach is ad-hoc, is it a question of means/resources/capacity?

PARTNERSHIPS

- ► How can partnerships be strategically used in the design and implementation of ICT innovation for women to optimize impact?
- ► Is partnering with women local organizations during design and implementation a common practice? If so, what are the challenges, best practices and lessons learned?
- ► Do the set up of partnerships (with local/INGOs/government/iOs) support or hinder the inclusion of women/minorities?

OPERATING ENVIRONMENT

- ► How has the pandemic impacted women's access to ICT innovations? What are the new challenges?
- ► What tools have been put in place to overcome these challenges? What are the best practices? lessons learned?

ANNEX III: T4D TEAMS AND HUMANITARIAN ORGANIZATIONS

The way humanitarian actors have integrated T4D functions within the organization (and how T4D teams interact with other thematic areas) varies widely across organizations. There is limited evidence about which model is best suited to ensure ICT innovation and programming is developed and implemented in an inclusive manner. Some organizations bring T4D and IT teams together to allow the T4D team have an IT systems mindset, but not fully integrating the digital team with the programmatic side of the organization can lead to silos and a ticketing service mentality. As a humanitarian practitioner argued, "it was not a requirement that program management teams engaged with the T4D team, it was always the T4D doing outreach … The team got to a point where they wanted to do programming and they started doing programming that may or may not have been tied into the rest of the organization. … It was doing great work, but it was not being incorporated into the larger organizational DNA."

A number of INGOs have recently transitioned to a model in which T4D is integrated with the programming arm to promote greater impact and better synergies between the different arms of the organization. T4D specialists then become embedded within non T4D teams. The challenge in these contexts is making sure there is room for thought leadership about the direction of T4D across the organization and within the sector; "a T4D director who can build a strategy and a road map, push boundaries," and feed best practices back to the whole organization. As one key informant noted, with the new reorganization, there is a better programmatic alignment, "but perhaps there will be a loss of leadership and innovation because we don't have a director [overseeing the T4D work]."

Source: KIIs (INGOs)

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