



HIF Evaluation Case Study:

WFP Mobile Vulnerability and Analysis
Mapping

prepared by

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Cover Photograph: mVAM respondent in DRC © World Food Programme / David Orr

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Acronyms

WFP	World Food Programme
mVAM	Mobile Vulnerability and Analysis Mapping
DRC	Democratic Republic of Congo
IVR	Interactive Voice Response
FEWS NET	Famine Early Warning System Network
FSMS	Food Security Monitoring Systems
USAID	United States Agency for International Development
HIF	Humanitarian Innovation Fund
ToC	Theory of Change

1. Description of Project

The Mobile Vulnerability Analysis and Mapping, or mVAM, is being developed by the World Food Programme (WFP) to conduct high frequency data collection and monitoring using mobile technology for household food security data collection. The data is collected by SMS, live telephone calls and an Interactive Voice Response (IVR) system.¹ The project received £144,497 GBP from the Humanitarian Innovation Fund (HIF) for an 18 months-long period that ran from June 2013 – April 2017, based in the Democratic Republic of Congo (DRC) and Somalia.² This case study focusses on mVAM in the DRC.

WFP works in four broad types of situational contexts that often overlap: emergencies and protracted crises, structural food insecurity, transitions/recovery, and disaster prevention and risk mitigation.³ People in eastern DRC have faced repeated and protracted humanitarian crises resulting both from internal conflicts and the presence of dozens of local and foreign armed groups.⁴ DRC also hosts more than 450,000 refugees who have fled violence and persecution in neighbouring countries. Food security has consistently been a large sector for humanitarian programming, accounting for at least 30 per cent of humanitarian assistance in 2016.⁵ DRC has also been a major recipient of humanitarian aid for years. Between 2006 and 2015, it was one of the ten largest recipients of humanitarian financing every year but one.⁶

There is therefore an obvious relevance in developing innovations such as mVAM in contexts such as the DRC. As will be discussed further below, WFP is currently revising mVAM's Theory of Change (ToC) which focuses on how the project's capabilities - timely information, increased coverage, and frequency, streamlined indicators and new analysis - create change in the contexts where WFP works and how that change can help WFP achieve its goals.⁷

WFP has long had a global interest in measuring and using information on the food needs, usage, and potential vulnerability of populations in unstable contexts at risk of food insecurity. Its Vulnerability Analysis and Mapping (VAM) unit was established in 1994 and has some similarities with the United States Agency for International Development (USAID) Famine Early Warning System Network (FEWS NET).⁸ Technological advances in mobile phone technology combined with the increasing need to reach ever larger numbers of vulnerable people in hard to access locations has led WFP to give increasing thought about how to collect more and better data as cost-effectively as possible.⁹

WFP's traditional approach to food security monitoring has relied primarily on face-to-face interviews. Although this delivers robust data, it is slow and expensive. Data collection through these types of interviews can cost between \$20 and \$40 per household and it can sometimes take up to six to eight weeks

¹ World Food Program, Homepage, VAM Food Security Analysis, Mobile Vulnerability Analysis and Mapping (mVAM): Delivering real-time food security data through mobile technology, http://vam.wfp.org/sites/mvam_monitoring/, accessed 4 May 2017.

² HUMANITARIAN INNOVATION FUND Large Grant Application, Reference Number HIF/L/2012/4-026 (Hereinafter Large Grant Application)

³ WFP, Mobile Vulnerability Analysis and Mapping (mVAM) - Theory of Change (ToC) Mobilising Technology for Food Security and Nutrition Monitoring, no date.

⁴ For details see, Sarah Bailey *Humanitarian cash transfers in the Democratic Republic of Congo*, London: Overseas Development Institute 2017.

⁵ Ibid.

⁶ *Global Humanitarian Assistance Report 2016*. Development Initiatives, 2016.

⁷ WFP, Mobile Vulnerability Analysis and Mapping (mVAM) - Theory of Change (ToC) Mobilising Technology for Food Security and Nutrition Monitoring, no date.

⁸ See Homepage, USAID Famine Early Warning System Network <https://www.fews.net/>, accessed 1 May 2017.

⁹ Nancy Mock & Nathan Morrow, DISI Review Team Co-Leads Adam Papendieck, Sofia Curdumi Pendley & Margaret Hudson, Team Members, *Review of mVAM programme: novel application of mobile technologies for food security monitoring* DISI – Development Information Services International August 2015.

for reports to be published.¹⁰ This means that information is often already out of date by the time it is produced, so decision-makers do not have the real-time information that they need to shape programming effectively.¹¹ Arrivals of newly displaced people and the return of formerly displaced populations to a particular area can compound these problems. Monitoring also typically focuses on areas where information is available, but the areas of greatest need may also be those about which least information has been collected.¹² Monitoring can also be dangerous to the staff involved as recent attacks on UN and humanitarian aid workers in DRC illustrate.¹³

A lack of available and up to date data means that analysts often rely on proxy measures for different types of food security, which may under-estimate actual need. It has been argued that delayed response to events such as the 2008 global food price crisis may partly be attributed to these factors.¹⁴ Conflicts in the Middle East, North Africa, and parts of the Sahel as well as the emergence of new global health threats such as Ebola have also led to a sharp increase in food-insecure, vulnerable populations. According to the HIF grant application:

Due to high cost and cumbersome implementation, primary household data collection for humanitarian needs assessments is not very frequent. The mVAM approach is expected to increase cost effectiveness and timeliness of data collection for short periodic surveys, such as WFP's regular Food Security Monitoring Systems (FSMS) that track trends over time. mVAM will increase the availability of 'real time' information for decision making. mVAM will assess efficiency of mobile voice applications compared to existing practice (with reference to FSMS), and demonstrate how the technology can be integrated into existing information systems.¹⁵

WFP launched mVAM, as an umbrella programme in 2013 and began to make test live calls in DRC in January 2014. In February 2014, WFP selected Mugunga 3 Camp in Goma, as its pilot site and since that date it has been collecting monthly household food security data through phone surveys via live calls placed by operators in DRC.¹⁶ Each month, respondents are asked a set of questions on their household food consumption and coping strategies, generating high-frequency data showing trends in food security. The surveys include the WFP corporately mandated indicators of Food Consumption Scores (FCS) and the reduced Coping Strategy Index (rCSI). They also sometimes include questions on price data, open-ended questions, and key informant interviews.¹⁷ The scale-up of the project was much quicker than anticipated, and WFP was reportedly 'surprised at the large pent-up demand for the service'.¹⁸ This rapid scale up meant that the mVAM team was able to grow in order to meet the requests for advice, tools and support arising from the field. Donors also became interested in the project and so were able to fund this increased capacity.¹⁹

In May 2016, WFP entered a partnership arrangement with the *Cellule d'Analyses des Indicateurs de Développement* (CAID) of the Prime Minister's Office to launch a national phone-based food security

¹⁰ Alice Robinson with Alice Obrecht, *Using mobile voice technology to improve the collection of food security data: WFP's mobile Vulnerability Analysis and Mapping*, HIF/ALNAP Case Study. London: ODI/ALNAP, 2016.

¹¹ Ibid.

¹² Nathan Morrow, Nancy Mock, Jean-Martin Bauer, Jennifer Browning, 'Knowing Just in Time: Use cases for mobile surveys in the humanitarian world', *Procedia Engineering* 159 (2016) 210 – 216.

1. ¹³ *Al Jazeera*, 'Bodies of missing UN workers found in DRC', 28 March 2017.

¹⁴ Ibid.

¹⁵ Large Grant Application, Reference Number HIF/L/2012/4-026

¹⁶ World Food Program, Homepage, VAM Food Security Analysis, Mobile Vulnerability Analysis and Mapping (mVAM): Delivering real-time food security data through mobile technology, Democratic Republic of Congo, http://vam.wfp.org/sites/mvam_monitoring/dr_congo.html, accessed 4 May 2017.

¹⁷ Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

¹⁸ Large Grant Final Report, no date, no reference number

¹⁹ Ibid.

monitoring system, mKengela.²⁰ Bi-weekly calls are placed by operators to traders in markets in DRC's 145 territories to collect food price information. In addition to market monitoring, mKengela is piloting a household food consumption and coping strategy survey at the provincial level.²¹

Following the success of the pilots in DRC and Somalia, WFP has scaled-up the use of mVAM in its global operations and it is now becoming a standard WFP emergency response tool.²² It was used during the Ebola crisis, in Africa, in 2014-16. It was introduced in Iraq in January 2015 and in Yemen in July 2015. The project is currently being rolled out in 30 other WFP country offices.²³ Other organizations are also now using mVAM-inspired approaches for remote surveys, including UNICEF and FEWS NET. Faced with the challenge of reaching affected populations in highly insecure locations, humanitarian organisations are increasingly turning to remote management and monitoring and so mVAM's data collection methodology may have wider relevance.

2. What is Innovative about it?

The technologies mVAM employed had already been in use in the private sector, and elsewhere in the humanitarian and development sectors, for a number of years.²⁴ WFP's innovation was to integrate these into its existing food security monitoring systems and to use them to conduct high-frequency data collection in remote and hard-to-reach areas. As Robinson and Obrecht have noted, this is innovative: 'not only in the technology employed but also in the shift towards high-frequency data collection away from the large-scale, comprehensive but irregular surveys that are most common in food security monitoring. Through mVAM, WFP is collecting data on fewer indicators but with a higher frequency, which is an approach few other organisations have adopted'.²⁵ Morrow *et al* have also observed that while other organizations are using similar approaches in low income stable contexts, 'WFP is both in the vanguard of the operational use of high frequency information to improve the humanitarian response and has an unequalled scale and diversity of applications in many of the most demanding contexts'.²⁶

An independent evaluation of mVAM in the DRC noted that: 'Mobile technology, the quick setup of mVAM deployment, and the possibility to rapidly customise indicator collection to fit response manager's information needs makes mVAM a truly innovative tool for WFP with great potential to improve programmatic response and impact. High frequency monitoring data of this sort has not been available for programme decision-making before and based on early experience WFP managers are capable of

²⁰ Cellule d'Analyses des Indicateurs de Développement Homepage, <https://www.caid.cd/>, accessed 4 May 2017.

²¹ World Food Program, Homepage, VAM Food Security Analysis, Mobile Vulnerability Analysis and Mapping (mVAM): Delivering real-time food security data through mobile technology, Democratic Republic of Congo, http://vam.wfp.org/sites/mvam_monitoring/dr_congo.html, accessed 4 May 2017.

²² WFP, Mobile Vulnerability Analysis and Mapping (mVAM) - Theory of Change (ToC) Mobilising Technology for Food Security and Nutrition Monitoring, no date.

²³ World Food Program, Homepage, VAM Food Security Analysis, Mobile Vulnerability Analysis and Mapping (mVAM): Delivering real-time food security data through mobile technology, http://vam.wfp.org/sites/mvam_monitoring/, accessed 4 May 2017.

²⁴ Robinson and Obrecht, ODI/ALNAP, 2016. In 2010, the World Bank initiated the Listening to Latin America and the Caribbean (L2L) project, which used mobile technologies, including SMS, IVR and live voice calls, to collect data for use in policy decision-making following crises. Listening to Dar, a project initiated by Twaweza in 2010, uses biweekly phone surveys to monitor citizens' views and experience of the city's public services. Both projects collect high-frequency panel data, contacting the same respondents via mobile technology on a regular basis. Following Haiti's 2010 earthquake, the International Federation of Red Cross and Red Crescent Societies (IFRC) deployed an IVR system in a humanitarian setting for the first time, in order to disseminate information and gather feedback from beneficiaries. Such methods are now proliferating. Ground Truth Solutions, for instance, uses a range of technologies including SMS and IVR to collect regular data on affected populations' experience of and perspectives on humanitarian aid, with the aim of enhancing 'demand-side' accountability.

²⁵ Ibid.

²⁶ Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

interpreting the data and putting it to operational use. Future research and development of mVAM should focus on this interface between high frequency data and decision-making'.²⁷

WFP believes that the project also led to a number of innovations in the way that the organisation collects data.²⁸ Project staff initially implemented the same questionnaire modules that the organisation has traditionally used, but they soon began innovating around this. New survey questions were progressively introduced and new methods were developed to analyse them. WFP also realized that the volumes of information generated by the project called for an overhaul of its information management systems. According to its final project report: 'We realized we were dealing with an innovation that was truly transformative, considering its broad impacts. One of the key insights we had about the innovation involved the application of remote mobile surveys in remote or insecure areas'.²⁹

The mVAM built on lessons already learned by similar projects implemented in other countries. This included the need to provide respondents with incentives and to keep surveys short. The team also decided in the light of these experiences to begin the pilots with live calls and to introduce IVR later, once respondents were familiar with phone surveys.³⁰ Implementation of the project also promoted some field-level innovation and improvisation of the original project design. The mVAM team initially approached commercial call centres, before it was realised that the pilot was too small to involve them. Instead, WFP recruited and trained its own operators to place live calls from local WFP offices.

The next problem encountered was that less than a quarter of respondents owned a mobile phone, so it was decided to distribute mobiles to all those who had signed up to the surveys. Respondents also received a small quantity of airtime credit from WFP, once they had completed the questionnaire, which was extremely popular. People used these phones and credit to obtain information about other issues of interest to them, such as food distributions and security in their home area. Some project participants also used the phones to make mobile money transfers.³¹ As discussed further below this meant that communities were empowered as an unintended consequence of the project.

In February 2014, operators reported problems reaching respondents. A focus group discussion (FGD) revealed that respondents couldn't afford to charge their phones. A solar charging station was initially set up in the camp in collaboration with the camp's incoming-generating activity management committee to allow respondents to charge their phones at no cost on three days a week. Part of the solar charging equipment was stolen and so a contract was signed with a local phone charger who had a small stand and allowed mVAM respondents to charge their phones for free on certain agreed times and days. Respondents in DRC also elected a management committee, which organised FGDs and dealt with issues such as lost or stolen phones, with support from the local WFP team. WFP also learned that engagement through community-based NGOs greatly enhanced responses to the survey and that protection concerns should be prioritized in such contexts.³²

IVR calls were closely monitored in real time via a laptop showing the responses.³³ After the automated call, operators would call back the respondents and ask for feedback, which helped fine-tune the process. Local WFP teams continued to experiment with the IVR approach over time. Response rates increased from 40 per cent in January 2014, to 45 per cent in February and 67 per cent in March. Throughout implementation of the pilots, the mVAM team kept plans flexible and worked closely with WFP Programme

²⁷ Mock & Morrow, DISI Review Team, August 2015.

²⁸ HUMANITARIAN INNOVATION FUND Large Grant Final Report, no date, no reference number Hereinafter Large Grant Final Report)

²⁹ Ibid.

³⁰ Robinson and Obrecht, ODI/ALNAP, 2016.

³¹ Large Grant Final Report, no date, no reference number

³² Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

³³ Robinson and Obrecht, ODI/ALNAP, 2016.

and IT staff to solve problems as they arose. It monitored progress regularly, using a project dashboard to collect key indicators.³⁴

An early use of the mVAM data by the WFP Goma, DRC Area Office was to compare beneficiary and non-beneficiary consumption.³⁵ WFP Country Office staff also used mVAM monitoring to show 'impact of WFPs ration and overall vulnerability situation' following a distribution to the IDP camp. The data was also used in an 'extrapolation' to other camps including those from another displacement event and outside Goma. In each cases the surveys sought to capture information about potential food insecurity in the light of seasonal price fluctuations in particular markets.³⁶ WFP also used mVAM to conduct an m-PDM (post distribution monitoring) in a village where they had distributed food but were unable to visit due to a massacre that occurred just after the distribution.

Another innovation concerns the relationships which WFP built with private sector companies arising out of the mVAM project. These include GeoPoll, a mobile survey platform, Nielsen, a global information, and measurement company and InSTEDD, a software development company. Nielsen was already a WFP partner and provided *pro bono* technical support to mVAM. The contacts with GeoPoll, which specialises in understanding trends in countries where data have traditionally been difficult to obtain, and InSTEDD, which developed the software platform Verboice that mVAM uses for its IVR, were new and developed specifically through the project.

The mVAM team tested a number of soft-ware options and eventually selected Verboice, which is a free and open-source, due its user-friendly interface. InSTEDD helped manage technical issues around Verboice's adoption and provided training to mVAM staff, which they were then able to use to train other WFP staff. Geopoll has developed a user database, built through relationships with mobile network operators, which contains information on 200 million users but had not previously been involved in food security data collection. It signed a five-year agreement to cooperate with WFP directly as a result of the mVAM project.³⁷ WFP used its partnerships with Nielsen and GeoPoll to carry out quantitative comparisons of response rates and other relevant research questions such as recall period. These successes have also helped to stimulate partnership agreements with other private sector donors, including Google.org and the Cisco Foundation. mVAM, has also forged a partnership with the Humanitarian Data Exchange (HDX).³⁸

WFP in the DRC has sometimes been criticized by some NGOs for adopting a 'rigid planning approach' to food distribution and some humanitarians have long expressed concerns that much of the food aid that it has traditionally supplied has been inappropriate given the causes of food insecurity and the availability of food locally.³⁹ Nevertheless, VAM has a reputation for being a relatively innovative space within WFP and has been involved in the emergence of a number of new initiatives, such as the use of remote sensing for food security analysis.⁴⁰ An important factor enabling this innovation to emerge was that VAM senior managers actively created an environment that encouraged experimentation. As will be discussed further below, however, it is widely agreed that HIF's support for the innovation was crucial in its development.

³⁴ Ibid.

³⁵ Mock & Morrow, DISI Review Team, August 2015.

³⁶ Ibid.

³⁷ Large Grant Final Report, no date, no reference number

³⁸ World Food Program, Homepage, VAM Food Security Analysis, Mobile Vulnerability Analysis and Mapping (mVAM): Delivering real-time food security data through mobile technology, http://vam.wfp.org/sites/mvam_monitoring/, accessed 4 May 2017.

³⁹ Interview conducted by email 6 May 2017. See also Bailey ODI 2017.

⁴⁰ Robinson and Obrecht, ODI/ALNAP, 2016.

3. Results, impacts and lessons learned

In its final report on the project to the HIF, WFP stated that: ‘The mVAM approach has increased the cost-effectiveness and timeliness of collecting household level information for food security monitoring. The availability of real-time food security data for programmatic decision making has significantly increased. Thanks to the HIF funded pilot project, mVAM is now a well-established remote data collection approach in WFP and within the food security / humanitarian community.⁴¹ It further noted that remote mobile data collection had proved to be quick and affordable, compared to traditional surveys and that it meant that staff were not required to travel to dangerous or remote places, making their jobs safer. The data quality obtained had been shown to be adequate and had been used to support decision making in the offices where the project has been implemented. There had been interest in mVAM from other departments within WFP and increasing demand from all parts of the organisation, including Headquarters, Regional and Country offices.⁴²

According to the independent evaluation, mVAM ‘demonstrates that inexpensive data collection in difficult contexts is possible and that high frequency monitoring can be efficiently achieved. Data streams add value to existing approaches by providing unique information where none might otherwise be gathered’.⁴³ The evaluation further noted that:

mVAM is a very successful prototype. mVAM was able to provide data that was used in a variety of applications even as the pilot initiative was limited in scope and focused on a modest number of indicators. In the rapidly evolving context of Ebola-affected countries, the mVAM deployment was able to rapidly gather relevant data that informed WFP’s strategy for food assistance. mVAM is a dynamic and flexible programme that contributes to the food security monitoring Community of Practice (CoP) knowledge and learning; providing timely, open data; producing timely information products in difficult settings; and builds upon best practices. mVAM also demonstrates that inexpensive data collection in difficult contexts is possible and that high frequency monitoring can be efficiently achieved.⁴⁴

The two most obvious impacts of mVAM is its speed and cost and efficiency when compared to traditional surveying techniques.⁴⁵ Traditional face-to-face surveys cost \$20-40 per questionnaire to implement, and around six weeks to turn around. By contrast, SMS costs \$5-6 and live calls and IVR cost \$7-9 per questionnaire, with a one week turnaround time for SMS and two weeks for live calls and IVR. Information is at a premium at the early stages of an emergency, especially from hard to reach areas. During the Ebola crisis, mVAM set up an SMS survey in a matter of weeks, allowing the production of data in spite of widespread quarantines and restrictions on the movement of humanitarian staff. Data is also extremely difficult to collect through traditional methods during conflicts. In Yemen, mVAM enabled WFP to reach respondents in all parts of the country through voice calls placed from a third country. WFP was also able to reach respondents in parts of Iraq held by armed opposition groups and mVAM provided it with the only source of household food security data during the first months of these emergencies. In Malawi, mVAM was able to implement nationwide SMS surveys in 24 hours, an unprecedented speed, and at low cost.⁴⁶

Sib Ollo, the mVAM Project Manager in Kinshaha, DRC, notes: ‘The significance of this innovation is because of the sheer size of the DRC. It is one of the biggest countries in the world, but there is practically no infrastructure and so no way of reaching most of its people without enormous difficulties. Although we know

⁴¹ Large Grant Final Report, no date, no reference number

⁴² Ibid.

⁴³ Mock & Morrow, DISI Review Team, August 2015.

⁴⁴ Mock & Morrow, DISI Review Team, August 2015.

⁴⁵ For discussion see Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

⁴⁶ Ibid.

that many of them need the food that we provide during particular crises, it is almost impossible to quantify those needs as the crises happen. So mVAM is absolutely fundamental in getting real-time, accessible, and accurate information at reasonable costs to those doing the data collection. The other great thing about the innovation is its sustainability. It won't cost millions to maintain the systems that we have created and so we can hand everything over to the local authorities with a reasonable expectation that they will maintain it'.⁴⁷

In its final report to the HIF, however, the project noted that 'the most attractive feature of mVAM was not cost or rapidity' but that 'WFP managers were attracted to mVAM's ability to deliver fresh food security information from the most complex and insecure environments and deliver insights that no other tool could offer.'⁴⁸ As discussed above, the distribution of free phones and small quantities of air time credit was very popular and one unanticipated effect of mVAM seems to have been the empowerment of beneficiaries through this. The external evaluation of the project noted that 'the technologies provide a mechanism for stronger connectivity between WFP and its beneficiaries' and that:

beneficiaries interviewed did not consider the short voice interviews as the primary purpose of the pilot and identified a number of other uses of the phones and credit as the key project impacts. The most common response when participants in Goma were asked the purpose of the pilot was "communication." mVAM can also make better use of its strategy of incorporating open-ended questions on survey monitoring tools through successive iterations with participants and more purposeful open ended questions. Additional formative research is required to develop approaches to high frequency measurement among non-beneficiaries.⁴⁹

WFP staff echo these views. Jean Martin Bauer, an analyst at WFP, who had worked for VAM in West Africa for a decade before returning to Headquarters and was one of the pioneers of mVAM, stated that: 'One of the things that respondents and beneficiaries tell us is that – we like it because we can talk to you directly – and that is very powerful'.⁵⁰ 'No one really likes to do data collection', he noted, 'because it is time-consuming and expensive and so mVAM was really created to make our lives easier. However, what we have noted is that the project has also been of direct benefit to the people that we are trying to help'.⁵¹

WFP staff noted from very early on that 'we could see what a difference the mobile phones were making to people's lives and the more information that we could give them access to the more useful it became. We started posting more information about prices and availability of food in local markets, which people found incredibly useful, because around 70-80 per cent of their income goes on food. As the cost of the technology has been falling so we can make the information increasingly accessible. We are using Twitter and Facebook to share information and are seeing a very good take-up from our respondents and beneficiaries'.⁵² A Facebook page we created in Malawi, for example, has received 30,000 visits.⁵³ WFP has also produced video clips about the project which it posts on line.⁵⁴

While mVAM is widely seen within WFP to have been a significant success, it is not without its problems. Although the cell phone network is expanding quickly in the DRC - by 1,000 new base stations a year - many areas are not covered and therefore out of reach of mobile data collection. Towers may also be switched off or destroyed during conflicts, reducing coverage. Respondents may also be put at risk if some armed

⁴⁷ Interview conducted 1 May 2017.

⁴⁸ Large Grant Final Report, no date, no reference number

⁴⁹ Mock & Morrow, DISI Review Team, August 2015.

⁵⁰ Interview conducted 5 May 2017.

⁵¹ Ibid.

⁵² Interview conducted 5 May 2017.

⁵³ WFP Malawi Homepage, <http://www1.wfp.org/countries/malawi>, accessed 6 May 2017.

⁵⁴ Goma – We'll call you back, <https://www.youtube.com/watch?v=Daie6muVXD4>; and Za Pamsika: using Free Basics in Malawi, <https://www.youtube.com/watch?v=HA-eAKxEtA8>, accessed 5 May 2017.

groups find that they have been communicating with UN agencies. Many of the poorest and most vulnerable groups of people still do not have access to mobile phones.⁵⁵

Although less versatile than mVAM, face-to-face interviews provide robust and reliable data that can be supported by direct observation. In Sudan, WFP learned that some better-off respondent households attempted to ‘game’ the calls by underreporting their consumption of high quality foods, when its staff compared face-to-face and mobile data.⁵⁶ This is less of a problem when the surveys take place in camps as it is possible to conduct face-to-face baselines that enable validation of data collected by phone. However, the independent evaluation noted that WFP managers who were interviewed ‘universally acknowledged that mVAM data was largely peripheral to their normal decision-making process’. One interviewee stated that he could not ‘make decisions based on mVAM alone – that is impossible’, since it needed to be factored into a range of all the other ‘contextually relevant information and other security and operational concerns that affect a programme area’. The significance of mVAM was that it provided additional ‘timely, targeted, and programmatically relevant information’ that would not otherwise be available.⁵⁷

A final concern was expressed about the capacity of some local WFP offices to process and analyse all the data that mVAM provides. Morrow, et al, have noted that:

High frequency data collection at scale implies robust capacities to store and process the large volumes of information produced. While barriers to entry for data collection have vanished thanks to free and open source tools, they have to some extent been supplanted by barriers to analyzing information. A related challenge remains the occasional skepticism expressed by some analysts, an attitude that calls for continued transparency and validation of the data that is collected. In such cases, while a data gap may have been covered, a knowledge gap remains. In particular, resource-poor organizations and field offices are likely to struggle to collect and analyze the data, leaving decision-makers back at square one. The important barriers to analyzing and making use of the data also raise the possibility of ‘natural monopolies’ emerging in the field of mobile data collection. A single agency or group of agencies could find itself as the dominant broker of monitoring information, with its findings dominating analysis of the food security situation. Under that scenario, mobile data collection would only perpetuate the top-down, centralized and donor-driven early warning model.⁵⁸

The project is currently revising its Theory of Change (ToC) to help ensure that mVAM’s activities are aligned with WFP’s medium-term goals.⁵⁹ This also gives the organisation an opportunity to reflect upon how the mVAM’s objectives of increased monitoring coverage and frequency for more timely and relevant information, in a wider perspective of how change takes place in the medium- and longer term. The ToC is focused on how mVAM capabilities -timely information, increased coverage, and frequency, streamlined indicators and new analysis - create change in the contexts where WFP works.⁶⁰ It specifically identifies three core building blocks to mVAM capabilities:

First, there is a detailed learning agenda that is the foundation for continued relevance and innovation. Second, a multidimensional knowledge platform links learning, partners, and communication. Third, a partnership strategy maximises the value gained from a wide range of partnerships to mobilise technology for food and nutrition security monitoring. Together these

⁵⁵ Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

⁵⁶ Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

⁵⁷ Mock & Morrow, DISI Review Team, August 2015.

⁵⁸ Morrow, Mock, Bauer and Browning, *Procedia Engineering* 159 (2016) 210 – 216.

⁵⁹ Interview conducted 7 May 2017.

⁶⁰ WFP, Mobile Vulnerability Analysis and Mapping (mVAM) - Theory of Change (ToC) Mobilising Technology for Food Security and Nutrition Monitoring, no date.

building blocks enable the mVAM core areas of work around implementation support and capacity development through needs-based approaches to equip staff and partners with the right tools and methodologies, and sharing of guidance material on standards and best practice.⁶¹

WFP works in difficult and complex contexts, so constraints take centre stage in the mVAM ToC and give direction to its technological and methodological development. Assumptions about how mVAM capabilities work to overcome information scarcity and resource constraints, define the relationships presented in the ToC. The fundamental assumption is that mVAM capabilities when implemented in WFP operating contexts will address the constraints to FSN monitoring and thereby contribute the Pathways of Change.⁶²

4. Role of HIF

Jean Martin Bauer stated that: 'HIF support was fundamental to getting the project off the ground. First of all, their funding was essential. WFP was facing significant funding constraints at the time that we were first thinking about the project and there had been significant budget reallocations within departments. Promoting innovation was not seen at the time as important as it is now and so it would have been very difficult to fund the project without HIF. The funding reduced the risk for WFP, but it also gave us credibility within the organisation.'⁶³ Sib Ollo also stated that: 'HIF's support was crucial at the outset. In the beginning few people were comfortable with the way in which we were using the technology and there was a lot of cynicism and suspicion. Now we have proved that it works we are getting lots of support and both the Korean government and USAID have both recently offered to support further phases of the project'.⁶⁴

Interviewees stressed that the support was not just financial. HIF played a large role in ensuring mVAM published as much as it could about the context, progress, and results of the projects. 'They pushed us to blog about the project' Bauer stated 'and that became a great resource'.⁶⁵ The data captured by these means has helped to diffuse the innovation through WFP and also provided information that was then written into other proposals and grant agreements.⁶⁶

The mVAM team shared learning in articles for the Overseas Development Institute's (ODI's) Humanitarian Practice Network (HPN), the Communicating With Disaster-Affected Communities Network (CDAC Network), the Daily Development blog and the Africa Policy Journal, among others.⁶⁷ The team documented progress and challenges through the project blog, which represents a significant repository of learning about the use of mobile technology for data collection and about the process of innovation. Traffic on the blog has risen from around 150-200 visitors per month in 2015⁶⁸ to around 2,000 a month by 2017.⁶⁹ The project has gained considerable visibility, through media reports, blogs, and participation in

⁶¹ WFP, Mobile Vulnerability Analysis and Mapping (mVAM) - Theory of Change (ToC) Mobilising Technology for Food Security and Nutrition Monitoring, no date.

⁶² Ibid.

⁶³ Robinson and Obrecht, ODI/ALNAP, 2016.

⁶⁴ Interview conducted 1 May 2017.

⁶⁵ Robinson and Obrecht, ODI/ALNAP, 2016.

⁶⁶ Mock & Morrow, DISI Review Team, August 2015.

⁶⁷ See, for example, Bauer, J.M., Akakpo, K., Enlund, M. and Passeri, S. (2014c), 'Tracking Vulnerability in Real Time: Mobile Text for Food Security Surveys in Eastern Democratic Republic of Congo.' The Africa Policy Journal 9: 36-53; Bauer, J.M. (2014) 'Press 1 If You Have Not Eaten Today'. www.dailydevelopment.org/blog/press-1-if-you-have-not-eaten-today;

⁶⁸ Robinson and Obrecht, ODI/ALNAP, 2016.

⁶⁹ Interview with Jean Martin Bauer, 5 May 2017.

events such as the Cartagena Data Festival and the Innovation Fair. In 2014, the project won the WFP Innovation challenge prize.⁷⁰

The independent evaluation noted that the development of mVAM had relied on ‘a great deal of *ad hoc* innovation research and curation’ and that the ‘capacity development based on this knowledge and learning is perhaps the greatest potential role of mVAM at the global level.’⁷¹ It suggested the establishment of an mVAM ‘Learning Lab’ to promote ‘more systematic research and learning as a foundation for an mVAM research agenda for different contexts.’ It argued that ‘learning labs will be essential to the function of WFP as the landscape of technology and population use of technology is changing quickly, as is our collective understanding of how to understand changing trends in behaviour.’⁷² It concluded that:

Based on a ToC with a strong vision of the future and aligned with the organization's mandate, mVAM should engage in the development of an applied research agenda in collaboration with relevant stakeholders. mVAM may consider extending its partnerships to include ‘Learning Lab’ conveners from academic and quasi-academic partners as well as community leaders.⁷³

⁷⁰ Large Grant Application, Reference Number HIF/L/2012/4-026

⁷¹ Mock & Morrow, DISI Review Team, August 2015.

⁷² Ibid.

⁷³ Mock & Morrow, DISI Review Team, August 2015.