CHEAPER, FASTER, BETTER?
a case study of new technologies in cash transfers from the Democratic Republic of Congo

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EXECUTIVE SUMMARY

The woman pictured on the cover of this report, Sifa Machozi, is a single mother of four living in the Democratic Republic of Congo. Sifa and her children have been forced from their home on numerous occasions by armed conflict. Speaking of their most recent displacement, she said "we left very quickly for Goma when the fighting reached the village. I thank God that we had a goat to take with us – that saved our life. In the camps [in Goma] we had nothing." Without a bank account or easy access to savings, the goat itself represented Sifa's sole savings. When Sifa and her family returned home, Mercy Corps was able to provide a cash transfer and mobile money account. Using the cash assistance, she purchased basic household supplies, bought small livestock and restarted her small business selling oil. Sifa is now rebuilding her life and able to plan farther ahead due to the cash assistance she received.

Sifa's experience is not unusual. We live in a time of unprecedented humanitarian crises, with millions of people around the world in need of assistance. Over the past decade, there has been a growing consensus in the humanitarian community that cash, as compared to in-kind aid, offers aid recipients more flexibility and the opportunity to prioritize their most urgent needs. With broad consensus that cash assistance can offer advantages over in-kind humanitarian aid, the debate now focuses on *how* best to deliver that cash.

Traditionally, cash transfer programs have relied on manual distributions of physical cash or paper vouchers. While physical cash offers a reliable and flexible way to deliver assistance, it also presents challenges including security concerns for recipients and aid agencies, a lack of privacy during the transfer of funds, and difficulty in scaling up and monitoring the distribution of funds. Electronic transfers (e-transfers) can help surmount these challenges, but do they deliver those benefits in remote and off-the-grid implementing environments? And how do costs of e-transfers compare to traditional delivery methods?

This study compares three different cash transfer mechanisms used in one humanitarian program in the Democratic Republic of Congo: physical cash, electronic vouchers, and mobile money. The study set out to answer two specific questions:

1. **What are the differences in cost and time required to deliver cash assistance through these three different mechanisms in the DRC?**

2. **How do electronic transfers (e-vouchers and mobile money) affect the user experience in the DRC?**

The research took place between October 2013 and June 2014 as part of an existing humanitarian program. As part of the study, 3,355 individuals received assistance from Mercy Corps in the form of electronic vouchers (e-vouchers), mobile money or physical cash. While previous research has been conducted to understand the cost efficiency of e-transfers, it has often relied on comparisons between programs operated by different organizations at different scales and in different contexts.

Mercy Corps' study provides an opportunity to directly compare the time and cost efficiency of cash transfer mechanisms used in the same program during the same period. The study's findings can be separated into three distinct areas: cost to deliver assistance, time to deliver assistance, and user experience:

- In the DRC, e-vouchers were the most expensive way to deliver assistance, mobile money was the next most expensive, and cash was the least expensive when measured by cost per transfer and when transfer values are standardized. Staff time used to manage both types of e-transfers as well as hardware and service fees for e-vouchers contributed to the higher costs compared to cash.

- Mobile money was by far the slowest mechanism to set-up. The hundreds of hours required to contract a mobile money operator was related to the country's underdeveloped mobile money environment. E-vouchers and cash were quicker to deploy, and e-vouchers could become even faster in subsequent deployments if global agreements with e-voucher providers and hardware were pre-positioned.

- E-transfers (both e-vouchers and mobile money) required more time from recipients than physical cash, reducing time available for other productive and leisure activities. Mobile money users had difficulty understanding the technology and carrying out transactions. However, e-vouchers posed minimal technical difficulties to program participants.

Comparing the transfer mechanisms side by side, we found that cash was the fastest, simplest and most straightforward to set up, but was not available to all program participants because of security risks. E-vouchers worked reliably and offer an alternative where cash is unavailable or too risky. Though expensive for short programs, their up-front costs could be offset in longer programs, and are expected to fall as demand increases. Mercy Corps' recommendation is to not use mobile money for humanitarian cash transfers in places like the DRC, where service providers are inexperienced and infrastructure is weak. Although mobile money fees were comparable to using cash, it was more expensive overall because it required greater staff time to manage.

Despite expectations that technology and electronic transfers could lower cost and improve efficiency in cash transfer programming, this study demonstrates that in challenging environments, like the DRC, it can have quite the opposite result. Here, e-transfers took longer to implement, made program implementation more expensive, and in the case of mobile money, were also less reliable. However, even with current limitations, our staff and beneficiaries continue to express interest in e-transfers because they see real opportunity for technology to improve humanitarian assistance and access to financial services. For example, our program participant Sifa was interested in saving money on her mobile money account, despite a bumpy first experience with the technology. She was interested in using her account as a new way to save for emergencies.

The study provides several recommendations for implementing agencies and e-transfer service providers. For example, implementing agencies should take time to assess the capacity of service providers, using recommended assessment tools. Thorough assessments can often reduce the need for expensive pilots. We also recommend pre-positioning agreements with service providers as a way to save resources and improve deployment speed.

For service providers, lowering costs of hardware and fees will make e-vouchers more accessible to humanitarian programs and increase their usage. For mobile money operators, stating known limitations of their networks and services upfront will reduce delays in the delivery of humanitarian assistance to populations in need. Improving the reliability of mobile money agent networks outside of urban areas will make that mechanism more appropriate as a tool for humanitarian cash assistance. Complete results, analysis and recommendations can be found in the full study.

TABLE OF CONTENTS

ABBREVIATIONS

ARCC II	—	Alternative Responses for Communities in Crisis II program
CaLP	—	Cash Learning Partnership
CTP	—	Cash Transfer Programming
DFID	—	U.K. Department for International Development
DRC	—	Democratic Republic of Congo
E-transfers	—	Electronic Transfers
E-voucher	—	Electronic Voucher
IDPs	—	Internally Displaced Persons
HH	—	Household
M&E	—	Monitoring and Evaluation
MM	—	Mobile Money (also M$)
NGO	—	Non-Governmental Organization
OPM	—	Oxford Policy Management
PIN	—	Personal Identification Number
POS	—	Point-of-Sale
SMS	—	Short Message Service (i.e., text message)
SOP	—	Standard Operating Procedure
UNICEF	—	United Nations Children's Fund
VSLA	—	Village Savings and Loan Associations

CHEAPER, FASTER, BETTER?

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DRC – Sara Murray/Mercy Corps

CHAPTER 1:

INTRODUCTION AND BACKGROUND

PURPOSE OF THE STUDY

Since 2005, cash transfer programming (CTP) has gained tremendous momentum across the humanitarian aid sector, becoming a standard methodology for emergency response and recovery efforts. As one practitioner commented, "The discussion is no longer about whether cash transfer programming is a legitimate intervention type, but about how best to use cash assistance."

With broad consensus that CTP can offer advantages over in-kind humanitarian aid, the debate now focuses on how best to *deliver* that cash and voucher assistance. Many humanitarian agencies, previously reliant on manual distributions of cash and paper vouchers, are exploring and piloting electronic transfers (e-transfers)[1] with the expectation that new technologies can improve the efficiency and security of cash programming, and may even connect recipients with new financial services.

In countries with developed digital payment or mobile money (MM) ecosystems, such as Kenya and Somalia, e-transfers have become a standard tool for distributing humanitarian assistance. But technological advances mean that even programs in remote and poorly connected areas, suvh as the Democratic Republic of Congo (DRC), can take advantage of e-transfers. But when are e-transfers better than traditional delivery methods? Differences in cost, time and user experience, which affect the quality of humanitarian programs, are just beginning to be understood.

This study compares three different cash transfer mechanisms used in one humanitarian program in the DRC: electronic vouchers, mobile money and physical cash. By examining cost-efficiency and user experience, it

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1   "E-transfers" include electronic vouchers, mobile money and ATM or prepaid cards.

provides a direct comparison of the advantages and disadvantages of each transfer type. The cost efficiency analysis replicates the methodology used in a 2013 study by OPM/CaLP/Concern, contributing to a growing body of evidence that is benchmarking the costs of humanitarian cash transfer programs.

This study is written for humanitarian practitioners who face an increasing – and dizzying – number of options in transferring cash to those in crisis. Choosing the best transfer mechanism is an increasingly important part of response analysis, which "helps us to determine whether we are doing the right thing, for the right people, in the right way and at the right time."[2] This close look at cash programming in the DRC will help practitioners understand when e-transfers can add value to programs in remote operating environments – and when they can be detrimental. Our findings may also interest donors looking to maximize the impact of each humanitarian dollar spent, and private sector actors hoping to better understand the humanitarian aid sector's product needs.

RESEARCH QUESTIONS

There is no silver bullet: No cash transfer mechanism will ever be the best response in each and every humanitarian context. But certain mechanisms may have distinct advantages and disadvantages in remote implementing environments with weak financial service providers. To determine whether e-transfers are **cheaper, faster or better** than manual cash and voucher transfers in the DRC, we asked the following specific questions:

1. **What are the differences in time and cost required to deliver assistance through three different cash transfer mechanisms (electronic vouchers, mobile money and physical cash) in the DRC?**

This analysis answers the following time and cost-efficiency questions:

- How much does it cost to deliver each transfer?
- What is the cost-efficiency ratio, defined as administrative cost versus value of the transfer, for each transfer mechanism?
- How are costs distributed between activity categories, including program design, institutional arrangements, communication and advocacy, targeting, training, disbursement, and monitoring and evaluation?
- What factors influence the cost-efficiency of electronic transfers?
- How much time is required to set up and manage each mechanism?

2. **How do electronic transfers affect the user experience in the DRC?**

This analysis looks at staff and program participants' experiences with new technologies and responds to specific questions around two themes:

- Transfer process ease and efficiency

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2   Sara McHattie, "Cash Transfers and Response Analysis in Humanitarian Crises," Humanitarian Exchange Magazine, May 2012, http://www.odihpn.org/humanitarian-exchange-magazine/issue-54/cash-transfers-and-response-analysis-in-humanitarian-crises.

  o Which transfer mechanisms require the least amount of time from participants?

  o How long do individual transactions take to complete?

 • Participant comprehension and mastery of new technology

  o Which e-transfer mechanism is most understood by participants?

  o How do sex, age and numeracy affect the capacity of participants to use e-transfers?

STUDY BACKGROUND

This research takes place in the context of a humanitarian response program funded by DFID, coordinated by UNICEF and implemented by a group of NGOs, including Mercy Corps, Solidarités International and Concern Worldwide. The Alternative Responses for Communities in Crisis II program (ARCC II) is a 15-month program that started in October 2013 and is scheduled to end in January 2015. MasterCard provided additional support to this program through a global grant called the Electronic Vouchers and Transfers in Emergencies (ELEVATE) program that enables Mercy Corps to test new payment technologies. ARCC II targets conflict-affected households in the North Kivu and Orientale provinces of eastern DRC, working towards three outcomes:

1. Eight thousand conflict-affected households are better able to meet basic needs, access basic services and invest in livelihoods thanks to cash-based interventions.
2. Populations have increased access to financial services.
3. The humanitarian community benefits from operational research on best practices for cash transfer programs in transition and emergency settings.

To achieve these outcomes, Mercy Corps is delivering electronic vouchers (e-vouchers), mobile money and physical cash and supporting the launch of new Village Savings and Loan Associations (VSLA). Though VSLA activities are an important component of ARCC II's strategy to increase access to financial services, they are not examined here as they were not used to deliver cash transfers.

The program aims to provide unconditional cash transfers, but vouchers are used in situations where unconditional cash is not possible, as explained in more detail below. The study took place during program implementation, analyzing a snapshot of transfers made to 3,355 households between October 2013 and June 2014. The types of transfers that were analyzed for this study are shown in Table 1 below.

Table 1: Transfer Types (Mercy Corps' ARCC II program in the DRC)

Transfer mechanism	Region(s)	No. of transfers	No. of recipients
Electronic Vouchers	Orientale	862	862
Mobile money	Orientale and North Kivu	2,134	2,134
Cash	Orientale	758	359

Source: Mercy Corps

The study undertakes a *cost efficiency* analysis for the three types of transfer mechanisms. We also look at

the setup time and accessibility of each transfer mechanism to program participants, using detailed staff time sheets, structured observations and participant surveys. A broader review of literature on global and country-specific experience with e-transfer mechanisms provides the context for the analysis.

To date, the Cash Learning Partnership (CaLP), Oxford Policy Management (OPM) and Concern Worldwide have undertaken the most systematic look at the impact of new technologies on the cost-efficiency of cash transfer programs. Completed in December 2013, this research compared the cost-efficiency of seven different manual and electronic cash transfer programs implemented by Concern Worldwide, SOS Children's Villages and Oxfam in Somalia and Kenya. Key findings from their research include the following:

- "Evidence does not suggest that e-transfers are systematically cheaper than manual transfers. They incur much higher start-up costs, but have reduced costs for disbursement later and so a short term, emergency programme may not reach the point of this payoff."

- "Many costs of running an emergency cash transfer programme have little to do with whether an agency chooses an electronic or manual payment mechanism."

- "It is possible for a humanitarian cash transfer programme to try to drive innovation in the development of the requisite national infrastructure but this is likely to be hugely expensive and risky and may take too much time in an emergency."

- "When an agency selects a payment mechanism … it is likely to be more appropriate to make the selection on the basis of the mechanism's non-financial merits rather than just on its cost. These non-financial reasons might be related to e.g. speed of implementation; time savings for the participant; security and the reduced risk of fraud; ease of communication; improved dignity and financial inclusion; or secondary benefits to markets."[3]

The 2013 CaLP/OPM/Concern study was successful in identifying trends and common characteristics of cost effective e-transfer programs. However, it was not possible to compare the cost-efficiency of e-transfer mechanisms *against one another* because it examined programs operated by different organizations at vastly different scales and in different contexts. It also took place in two countries with robust mobile money networks. Our study aims to add to these research findings with a direct comparison of transfer mechanisms in one program, in an area with nascent digital payment networks.

Description of Transfer Mechanisms

During the period studied, 3,355 individuals received cash, mobile money or e-vouchers from Mercy Corps. The size, frequency and type of transfer mechanism were tailored to respond to feasibility considerations, participant needs and security risks. All three transfer mechanisms were used in Province Orientale, and mobile money was used exclusively in North Kivu due to participant proximity to mobile money services. Installments varied from one large transfer of USD $120 to two or three smaller transfers. While all program participants will receive a total of $120 USD before the program ends, most participants received only part of their transfer amount during the period studied. All currency denominations referenced in this report are USD.

In this program, unrestricted **electronic vouchers (e-vouchers)** were used where cash or e-cash distributions were unfeasible because of security, market or infrastructure limitations. E-vouchers replace paper vouchers with "smart" credit cards embedded with a chip. ARCC II used an e-voucher system from

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3   Quotes taken from: Clare O'Brien, Fidelis Hove and Gabrielle Smith, "Factors Affecting the Cost-Efficiency of Electronic Transfers In Humanitarian Programmes," Oxford Policy Management, http://www.opml.co.uk/sites/default/files/OPM%20Cost-efficiency%20of%20e-transfers.pdf

sQuid, a U.K.- and Kenyan-based contactless payments company. The e-voucher system operates in offline, low power environments using battery operated point-of-sale (POS) devices that use SIM cards to transmit transaction data to a centralized, cloud-hosted platform. When used in areas without mobile network coverage, the POS devices can store transactions and send that data to the server when they reconnect to a mobile network. Credit is deducted directly from the chip storing value on each card, so participants are unable to "double dip" or spend more than their available balance even in offline environments.

Mercy Corps organized voucher fairs in communities where markets did not supply needed quantities of goods required by participants. As in all voucher programs, Mercy Corps established a network of vendors willing to accept vouchers in exchange for payment at a later date. Vendors committed to supplying goods that were desired by program participants and not usually available locally. By doing so, Mercy Corps ensured that markets could respond to increased demand brought about by the program.

During the period studied, 486 participants received an e-voucher worth USD $100 and 376 received an e-voucher worth $80. E-voucher cards were loaded with credit and distributed to participants, while vendors were equipped with POS devices.

Mobile money is digital currency that can be accessed through accounts associated with SIM cards. The first mobile money systems in the DRC were launched in 2012. Because the ecosystem is very young, there are still few places to use digital currency. As a result, mobile money is primarily used to transfer money between account holders and is quickly "cashed out" (exchanged for physical cash). Mobile money operators in eastern DRC include Tigo Cash, Vodacom's M-Pesa and Airtel Money.

In ARCC II, mobile money was used to complete "bulk payments" to participants: Participants registered for a mobile money account, received a SIM card that allowed them to accept digital currency from Mercy Corps, and then exchanged that digital currency for cash at a registered mobile money agent. Mercy Corps explored partnerships with all three mobile money operators and ultimately selected Vodacom's M-Pesa for transfers during the period studied.
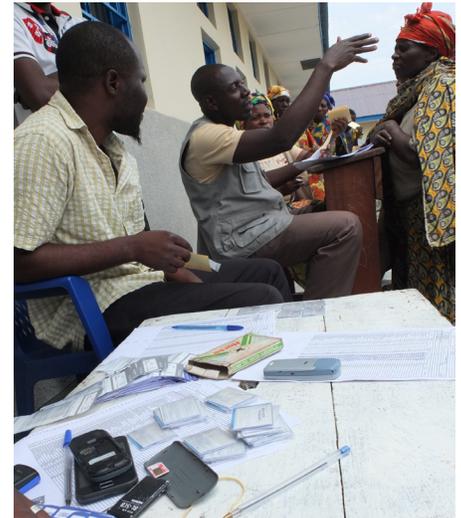
Mercy Corps and Vodacom staff register program participants for mobile money accounts.
Photo: DRC - Sara Murray/Mercy Corps

Between October 2013 and June 2014, 2,134 ARCC II participants received mobile money transfers. Of these participants, 1,370 were located in North Kivu and received a single transfer of $80, and 764 were located in Province Orientale and received a single transfer of $60.

Physical cash was delivered by a money transfer service (Soficom) that manages 80 cash transfer offices throughout the country and has operated in the DRC for 13 years. The transfers observed in this research were collected by ARCC II participants at Soficom's office in Dungu, Province Orientale.

Between January and June 2014, 359 ARCC II participants received 758 physical cash transfers through Soficom. Seventy-eight participants received a one-time transfer of $120 to facilitate investment in livelihood activities. One hundred eighteen participants received three transfers (worth $60, $30 and $30). A third group of 163 participants received two transfers (worth $60 and $30) and received a final transfer after the study concluded.

SCOPE OF THE STUDY

Cost-efficiency Methodology

Our study relies on a cost efficiency analysis to compare the costs of delivery per transfer mechanism. This analysis tells us both how much it costs to deliver each discrete transfer, as well as the costs associated with transferring one dollar to a single participant. Similar to the 2013 CaLP/OPM/ Concern study, our analysis splits the cost of the ARCC II program into two categories: the amount that was given to the participant (the "transfer value") and the amount spent on getting that money to the participant (the "administrative cost"). The administrative cost was then further analyzed by spending category and activity.

For the purposes of this study, all resources used for implementation fall under the definition of "administrative costs." These include all levels of staff (from managers and community mobilizers to finance and logistics personnel) and cost recovery for headquarters support. It also includes all non-staff implementation costs, such as transportation, security arrangements, printing, cash transfer fees, hardware, and the costs associated with monitoring activities and community events. Only costs related to VSLA activities were removed from the analysis.

We made a **key assumption** required to complete the cost efficiency analysis: The majority of administrative costs (excluding e-transfer hardware and service fees) were used for general program administration and not attributable to a single transfer mechanism. To derive different total costs required to administer each transfer mechanism, we relied on a breakdown of staff time, and used this breakdown to assign costs between transfer mechanisms. For example, "office rent" costs were assigned to each transfer mechanism based upon the amount of staff time spent on each transfer type. This methodology is explained in further detail in Section six.

The analysis relies on two data sources:

1) Detailed time sheets by Mercy Corps and partner agency staff, that tracked hours dedicated to each program activity. All in all, seven categories of activities were considered, as shown in the Table 2, below. The time sheets also tracked whether employee time was spent on activities related to e-vouchers, mobile money or cash transfers.
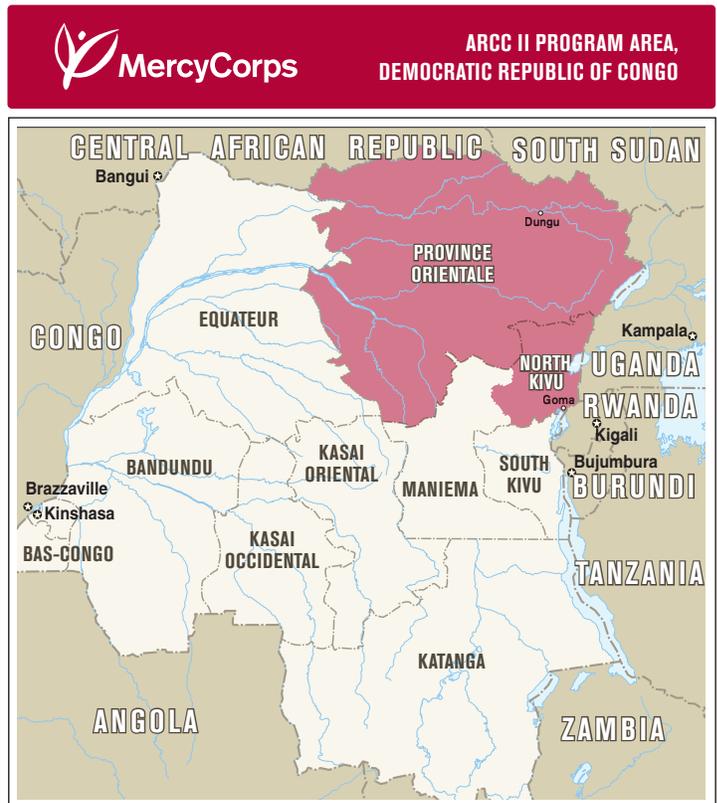
Table 2: Activity Categories in ARCC II

Activity Category	Types of activities included
Program Design	Needs assessments, infrastructure assessments, geographic targeting
Institutional Arrangements	Local partner selection, e-transfer service provider feasibility assessments, agreements with local community leaders, negotiating and establishing contracts
Communication/Advocacy	Community meetings, complaint management
Training	Preparation of training materials, training for staff on technical approaches or new tools, participant training, local partner training, vendor training
Targeting and Registration of Program Participants	Participant selection, registration and verification, updating participant lists
Disbursement	Developing SOPs for payment mechanisms, selecting vendors, distributing "jetons" (program token), supervising transfers, preparation of distribution events and sites, vendor contracting and reimbursement, payment requests, coordination meetings with e-transfer providers
Monitoring & Evaluation	Baseline assessments, tool development, survey administration, data entry and cleaning, data analysis, hiring and supervising survey enumerators

2) A **single expenditure record** that combined all sources of funding for the program, by line item and spending category, on a single worksheet. This project was funded by two sources: UNICEF, which provided a subgrant to Mercy Corps through the ARCC II program funded by DFID; and MasterCard, which supported the use of new payment technologies through a global technical support grant. In total, $786,714 was used to implement program activities during the period studied.

Using those two information sources, the cost efficiency of each transfer mechanism was calculated using the following three steps:

Step 1: Subtract the value of transfers to participants. The value of transfers to participants ($272,310 in total) was subtracted from the total expenditure record.

Step 2: Split costs by transfer mechanism. Costs clearly dedicated to only one transfer mechanism (e.g., e-voucher hardware or transfer fees) were assigned to that transfer mechanism's expenditure record. Costs that were not clearly associated with a specific transfer mechanism (e.g., office rent) were split by transfer mechanism based on the percentage of staff hours dedicated to each. After this step, we could calculate a cost-transfer ratio for each transfer mechanism by dividing the total administration cost by the total value transferred to participants.

Step 3: Split costs by activity. Costs clearly associated with a specific sub-activity (e.g., disbursement or training) were assigned to that activity. Costs not clearly associated with a specific sub-activity (e.g., office rent) were assigned to sub-activities using the existing time split.

While the total administrative costs were the same, splitting the administrative costs of each transfer modality by both spending category (and line item) and by activity allowed us to perform different types of analysis beyond the initial cost-per-transfer and cost-transfer ratio calculations.

User Experience Methodology

To assess aspects of the e-transfer user experience, including the ease of the transfer process and participant mastery of the technology, we administered surveys and performed structured observations of transactions. Transaction observations were completed by Mercy Corps and partner staff during 317 mobile money cash-outs, voucher purchases and physical cash distributions. Transaction observations always took place at first distributions, and then they were periodically carried out, as feasible, by program staff. Observations were not randomly selected.

Exit surveys were carried out with 322 participants as they exited cash and e-transfer sites. Follow-up surveys were conducted with 146 participants several weeks after they received their transfers. These participants were selected randomly by Mercy Corps staff members using the "randomize" function on Excel.

Limitations of the Methodology

A high degree of flexibility was required to carry out this study without interfering with the primary goal of delivering humanitarian assistance to families in need. This section highlights the main limitations of the study related to the research context.

Focus on Mercy Corps' experience over participants': We initially sought to compare paper vouchers vs. e-vouchers and cash vs. mobile money. The ARCC II implementation team, however, realized that implementing all four transfer mechanisms would be unwieldy, and decided to eliminate paper vouchers. We realize that comparing e-vouchers with cash and mobile money offers somewhat of an apples-to-oranges comparison. However, we also know that unrestricted vouchers and cash are often considered side by side where flexibility for recipients is a priority but cash is difficult because of logistics and security. This study is useful for agencies making those side-by-side comparisons. It also illuminates some of the cost differences between voucher and cash programming.

Focus on Mercy Corps' experience over participants': We also recognize that this study focuses primarily on benefits and challenges to Mercy Corps, the implementing agency, rather than to the program participants. When we asked program participants about their preferences and experiences with electronic transfers, comparisons were difficult as most had never used the other two transfer types. There were also few differences in levels of beneficiary satisfaction between transfer mechanisms, signaling that the receipt of aid – through any transfer mechanism – was more important than the way it was delivered. Similarly, we monitored security incidents and asked participants about their feelings of security, we saw few differences between transfer mechanisms. While we recognize the importance of the recipient experience, this study focuses primarily on the resources required to deliver aid through different types of transfers.

Not a controlled study – comparing across different locations and amounts: While we compare costs between all three transfer mechanisms, direct comparisons are limited by the fact that transfer mechanisms were used to distribute different numbers of transfers, of different amounts in different locations (see Table 1). These choices were necessary to respond to differences in local infrastructure and best meet recipient needs. We use scenarios to help us understand the implications of some of these differences.

For more detail on methodology, please see Part 6 - Research Framework.

CHAPTER 2:
THE NEED FOR HUMANITARIAN ASSISTANCE IN THE DRC

The population of eastern DRC has been deeply affected by that region's protracted conflict. Two decades of complex, multifaceted conflicts involving dozens of armed groups have displaced 2.6 million people,[4] destroyed livelihoods, eroded human capital and damaged physical infrastructure, financial institutions and markets of an already poor nation. The recovery process is impeded by weak governance institutions and the continued presence of nonmilitary armed actors.

Ongoing insecurity combined with a largely absent state safety net has disrupted food production patterns, forcing many households to adopt negative coping mechanisms, including selling assets, withdrawing children from school and consuming seed reserves. As a result, 6.7 million Congolese are considered by the World Food Program to be experiencing a severe food crisis, with a notable increase of malnutrition and food-insecure families in conflict-affected areas of North Kivu.[5] Of the country's 2.6 million displaced, 52 percent come from North Kivu and Province Orientale.[6]

Humanitarian Responses

The DRC has been a long-term recipient of international humanitarian assistance. In 2011, it was the 12th- largest recipient of official humanitarian assistance, which accounted for 52 percent of its gross national income.[7] International assistance has tended to focus on responding to acute vulnerability through short-term humanitarian aid, as opposed to addressing the chronic vulnerability that is suffered by large segments of the population.[8]

Short-term humanitarian aid tends to target the most visible and accessible populations. In North Kivu, about 70 percent of the region's internally displaced persons (IDPs) live outside of camp settings; yet, the majority of humanitarian assistance is provided to the 30 percent of all IDPs who reside in camps.[9] This pattern reflects the relative ease of identifying and delivering aid in camp settings. Correctly targeting and serving conflict-affected populations outside of the camps is more challenging, given the DRC's largely absent state apparatus, poor infrastructure and chronic security problems. These challenges have also contributed to a slower uptake of cash programming compared with that of other humanitarian environments. While the first CTP pilots took place in 2004 and 2005, CTP did not become a regular feature of humanitarian assistance until 2008-09. Even today, humanitarian aid is most commonly delivered as in-kind assistance, with concerns about corruption, violence and poor banking infrastructure contributing to the slow uptake of CTP within the aid community.[10]

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4   UNHCR, "2014 UNHCR Country Operations Profile - Democratic Republic of the Congo," http://www.unhcr.org/pages/49e45c366.html.
5   World Food Programme, "Democratic Republic of Congo Overview," June 2014, https://www.wfp.org/countries/congo-democratic-republic-of/food-security.
6   UNHCR, "D.R. Congo Fact Sheet," July 2014, http://www.rdc-humanitaire.net/attachments/article/4908/UNHCR%20DRC%20Fact%20sheet%20as%20 of%2031%20July%202014.pdf.
7   Global Humanitarian Assistance, "Democratic Republic of Congo," http://www.globalhumanitarianassistance.org/countryprofile/democratic-republic-of- congo#tab-home.
8   Sarah Bailey, "Humanitarian Action, Early Recovery and Stabilisation in the Democratic Republic of Congo," Humanitarian Policy Group Working Paper, July 2011, http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7239.pdf.
9   OCHA, "Province du Nord-Kivu: Personnes en situation de déplacement interne (au 25 aout 2014)," http://reliefweb.int/sites/reliefweb.int/files/resources/ Goma%20region%20IDPS_25%20Aout%202014a_02092014_001.pdf.
     Markus Rudolf, "Assessing the Humanitarian Response to Chronic Crisis in North Kivu," 2014, forthcoming..
10   CaLP. "Cash & Voucher Learning Event Goma Final Report, 2011." Accessed at: www.cashlearning.org/downloads/~8889959.pdf.

FINANCIAL SERVICES AND CASH TRANSFER APPROACHES IN THE DRC

The DRC remains a predominantly cash-oriented society, with minimal access to formal financial services. At 17.5 percent, the penetration of mobile phone subscribers exceeds the reach of financial services; only 4 percent of the population has an account at a formal financial institution.[11]

Following the DRC Central Bank's release of a new regulatory framework on electronic money services, three mobile money services launched in 2012 (Vodacom's M-Pesa, Airtel Money and Tigo Cash).   By December 2013, uptake of mobile money services was sluggish, with only 8,140 active agents and 377,400 active customers.[12] Mobile money agents are limited to urban centers, such as Goma, and their services are beginning to be utilized by the professional class in these cities. Access in rural areas and uptake by long-term conflict-affected populations remain extremely limited.

Mobile money could offer Congolese populations targeted by cash transfer programs a more secure way to save and transfer money. Focus group discussions with ARCC II participants revealed a lack of reliable tools to save and transfer money.[13] When saving money, participants rely on hiding cash around their homes, keeping it with trusted relatives or buying commodities that can later be resold. Options for transferring money are also limited; many participants rely on sending money through a network of church parishes when the need arises. Participants noted many shortcomings in their current options for saving and transferring money.

Among humanitarian agencies in the DRC, mobile money has been used by a handful of organizations in small-scale deployments that have struggled with issues ranging from liquidity constraints to the reliability of service providers.[14] The more standard approach to delivering cash has involved agencies directly delivering cash in envelopes to participants, or relying on third parties (such as Soficom) to deliver physical cash. Voucher programs in the DRC have relied on paper vouchers, and to the best of our knowledge, the ARCC II program was the first use of e-vouchers in the country.

ARCC II PROGRAM INTERVENTION APPROACH

ARCC II targeted long-term conflict-affected populations including IDPs and host family households outside of IDP camps. ARCC II's work is spread between two provinces in the eastern DRC, Province Orientale and North Kivu.

Nyiragongo Territory – North Kivu

North Kivu borders Rwanda and Lake Kivu in eastern DRC. It has suffered from conflict linked to its strategic location since the mid-1990s. The provincial capital, Goma, is one of the DRC's largest cities and hosts Mercy Corps' main office in the DRC. During the period studied, ARCC II's work in North Kivu targeted Nyiragongo Territory to the east of Goma. This area has been greatly affected by the March 23 (M23) rebel

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11   Lara Gilman, Aneta Genova and Michelle Kaffenberger, "Mobile Money in the Democratic Republic of Congo: Market Insights on Consumer Needs and Opportunities in Payments and Financial Services," GSMA, July 2013, http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/Mobile-Money-in-the-DRC_July-2013.pdf.

12   Simone Di Castri, "Enabling Mobile Money Policies in the Democratic Republic of Congo," 2014, http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/04/Enabling-Mobile-Money-Policies-in-the-Democratic-Republic-Of-Congo.pdf.

13   Mercy Corps ARCC II Progress Report, February 2014.

14   Oxfam, the Norwegian Refugee Council and Diakonie, specifically.

movement, which caused massive displacements between 2012 and its defeat in October 2013. Many residents of Nyiragongo, including ARCC II program participants, are just returning to their land and homes after a prolonged absence and are in the process of rebuilding in the relative calm. Residents still suffer from harassment by various armed groups and unorganized banditry and crime.

Dungu Territory – Orientale

Located in the DRC's northeastern corner, Province Orientale borders North Kivu to the south, the Central African Republic and South Sudan to the north and Uganda to the east. Mercy Corps' provincial base is located in the city of Dungu, capital of Dungu Territory. Both the town and territory are accessible to Goma-based staff only by humanitarian flights as poor road conditions make driving between the regions nearly impossible. The main security threat in the area is the Lord's Resistance Army (LRA), which invaded Dungu town in 2008, causing mass displacements. In recent years, the LRA has significantly weakened, and its activity is limited to small incursions. Mass displacements did not occur during the time period studied, which allowed vulnerable populations to start rebuilding their lives with assistance received through ARCC II. Communities served during the period of study included residents from Dungu and surrounding communities located as far as 45 kilometers from Dungu. One of the biggest implementation challenges in Orientale was the lack of road access to remote populations.

Key differences between the two implementing areas are summarized below in Table 3.

Table 3: Key Geographic Differences

	North Kivu	Province Orientale
Conflict and security status	Recovering from M23 conflict	Recovering from LRA attacks
Access	Target communities located between 5 and 20 km from Mercy Corps base in Goma over mostly paved roads. Participants travel frequently to Goma.	Target communities located between 1 and 45 km from Mercy Corps base in Dungu over unpaved roads. Participants do not often travel to Dungu.
Transfer mechanisms used	1,370 MM recipients, no e-voucher or physical cash recipients	862 e-voucher, 764 MM and 359 physical cash recipients

CHAPTER 3:
FINDINGS: COST-EFFICIENCY ANALYSIS

During the study, Mercy Corps delivered $272,310 through e-vouchers, mobile money and cash to 3,355 participants. Because some participants received multiple transfers, the total number of payments (3,754) exceeds the total number of program participants.

Table 4: Summary of Transfers

|	E-voucher	Mobile Money	Direct cash	Total/Average
Total number of recipients	862	2,134	359	3,355
Total number of transfers	862	2,134	758	3,754
Average transfer size (USD)	91.28	72.84	50.38	72.54
Total distributed (USD)	78,680	155,440	38,190	272,310

3.1 THE COST OF DELIVERING CASH-BASED ASSISTANCE IN ARCC II

As we present the findings, please keep in mind a few important elements of the study's design:

- **Program snapshot approach:** This study examines a snapshot of activity within the program, not the entire program life cycle. Specifically, it includes the first transfers to less than half of the total program participants. While this limits our ability to benchmark results against previous cost-efficiency studies, it does allow us to closely compare startup costs for the three transfer mechanisms. It also means that cost-efficiency ratios will begin to decrease once the program reaches its participant and transfer targets (8,000 and $960,000, respectively). To enable comparison with other studies, we offer an "end of program" scenario at the end of this section.

- **Experimental design:** One of ARCC II's objectives was to test new cash transfer technologies influencing Mercy Corps' decision and to study multiple transfer mechanisms within a relatively small program. Negotiating contracts with three separate service providers required substantial time during start-up, as did developing internal procedures for two new e-transfer mechanisms. Both factors contributed to a five-month startup period where operating and staff expenses were incurred before a single distribution took place. A less experimental program would have lower upfront administrative costs.

- **Negotiation and discounts:** Pricing for all cash transfer services involved different levels of negotiation with service providers. The cash distribution agent did not offer standard pricing, necessitating the negotiation of delivery fees. The mobile money service provider offered standard transfer rates, but required negotiation on the levels of service it provided to the program. The e-voucher service provider offered a discount equivalent to 7 percent of system costs. These variations impacted the overall cost-efficiency of each transfer mechanism, influencing the applicability of findings outside of this program.

- **Cost allocations in the program:** We will analyze administrative costs, which include all costs required to implement the ARCC II program. While the bulk of this analysis deals with costs by transfer mechanism and activity, it is helpful to also consider how overall program costs were allocated. The graph below shows the distribution of administrative costs between spending categories in the ARCC II program.[15]

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15   Note that indirect cost recovery was removed from this graph.

Figure 1: ARCC II Administrative Costs by Spending Category

50%	■ Personnel Costs Source: Expenditure Records
13%	■ Transport/Travel
13%	■ Office & General Supplies
11%	■ Transfer Fees & Hardware
8%	■ Communication
3%	■ Partner Budget
2%	■ Monitoring & Evaluation
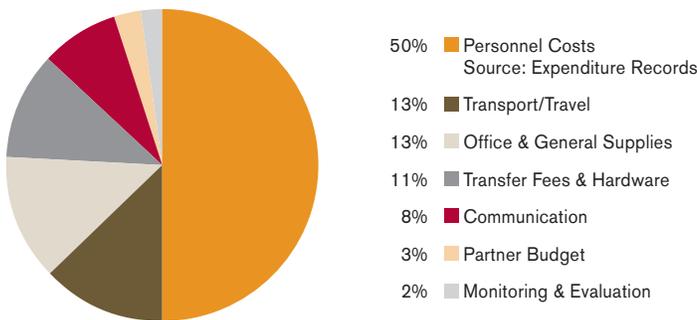
Half of all program expenditures were dedicated to personnel, which reflects the high level of oversight and technical assistance required during the startup period. As staff costs were a principal expenditure of the project, we look carefully at the use of staff time in supporting the project (section 3.2).

Finding 3.1: By all cost-efficiency measures, e-vouchers are the most expensive way to deliver assistance. Mobile money is the next most expensive, and cash is the least expensive when measured by cost per transfer and when transfer values are standardized.

In ARCC II, each participant will receive a total of $120 before the end of the program, but most participants had not yet received their full amount during the period studied. In addition, the value and number of transfers varied greatly between program participants: Some received a single lump sum payment of $120, while others received several smaller payments. The average size of all e-voucher transfers was $91, followed by an average mobile money transfer size of $73 and an average cash transfer size of $50.

To best understand overall cost-efficiency, we assessed the program using a cost-per-transfer approach. This approach examines what it cost to make one distribution through each of the three channels. According to the analysis, it cost $222 to transfer one e-voucher, $106 to send one mobile money transfer, and $77 for a cash disbursement. We arrived at these conclusions by dividing the total administrative cost per mechanism by the number of transfers made.

Table 5: Cost-per-Transfer ratio

	E-vouchers	Mobile Money	Cash
Total number of transfers (a)	862	2,134	758
Total admin cost (b)	$191,088	$226,403	$58,377
Cost to deliver one transfer (b/a)	**$222**	**$106**	**$77**
Variance to cash	**+188%**	**+37%**	

Note that these calculations **do not take into account the amount of the transfer** and focus only on the administrative costs of the transfer.

Another way to interpret the data is to compare the *value* of the amount transferred to the total administrative costs per mechanism. We call this the **cost-transfer ratio**. In this case we compare administrative costs to the actual value of money transferred through each **mechanism**.[16] To deliver $1 in aid, Mercy Corps spent $2.43 to use e-vouchers, $1.46 to use mobile money, and $1.53 to use direct cash.

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16   The 2013 CaLP/OPM/Concern study relies on the cost-transfer ratio.

Table 6: Cost-transfer ratio

	E-vouchers	Mobile Money	Cash
Average transfer value[17]	$91	$73	$50
Total admin cost (b)	$191,088	$226,403	$58,377
Total transfer value (c)	$78,680	$155,440	$38,190
Cost-transfer ratio (b/c)	**2.43**	**1.46**	**1.53**
Admin as % of total b/(b+c)	**71%**	**59%**	**60%**

Using the cost-transfer ratio approach, cash became more expensive than mobile money. This is related to the size of the average transfer value, which was $73 for MM and $50 for cash.

To better understand the importance of **transfer amount** on overall cost-efficiency, we modeled a program scenario in which $73 was distributed per transfer, regardless of the distribution channel.[18] Under this scenario the *cost-transfer ratio* would be

- $3.04 to deliver $1 of aid through e-vouchers,
- $1.46 to deliver $1 of aid via mobile money, and
- $1.08 to deliver $1 of aid through direct cash.

Table 7: Cost-Transfer Ratio With Standard Transfer Size

	E-vouchers	Mobile Money	Cash
Total number of transfers (a)	862	2,134	758
Total admin cost (b)	$191,088	$226,403	$59,818
Scenario transfer value (c)*	$62,788	$155,440	$55,213
Cost-to-transfer ratio ratio (b/c)	**3.04**	**1.46**	**1.08**
Admin as % of total b/(b+c)	**75%**	**59%**	**52%**
Calculated by multiplying the number of transfers (a) by $72.84			

Assuming all transfers delivered the same value ($73), the results show that e-vouchers are the most expensive way to deliver assistance, followed by mobile money, then cash. We also see that when the amount per distribution increases, the ratio decreases, making cash more cost-efficient than mobile money.

In all analyses, e-vouchers are clearly the most expensive mechanism for transferring assistance. When the transfer amount is standardized, we see that cash is cheaper than mobile money. The next section looks at the reasons for the cost differences between the three transfer mechanisms.

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17   Given that during each transfer round both the value distributed and the number of participants were different, a weighted average was calculated.

18   This standard amount was chosen because it is the average MM transfer size and in the middle range of the three transfers. For cash disbursements, it was estimated that a transaction fee of 2.61% of value transferred would have been paid. This was calculated using simple proportions, based on the charges Mercy Corps paid to deliver 60 USD (3.23%) and 100 USD (2.44%), respectively.

Causes of Cost Differences Between Transfer Mechanisms

Finding 3.2: The cost-efficiency of transfer mechanisms is greatly influenced by the value and number of transfers made.

The scenario above illustrated that simply increasing the value of each transfer greatly improved the cost-efficiency of cash. Likewise, we would see an immediate decrease in cost per transfer if the number of transfers increased. In this study, the largest amount of money and the highest number of transfers were made through mobile money, reducing the relative impact of high setup costs on overall cost-efficiency. As the 2013 CaLP/OPM/ Concern study showed, the "amount of new activity required in … [a] humanitarian programme, is a key determinant of its cost."[19] The substantial costs associated with setting up new transfer mechanisms meant that those used to deliver fewer numbers and smaller sums of assistance (cash and e-vouchers) were more expensive. It is therefore probable that the cost-efficiency of e-vouchers, with 862 distributions, and cash, with 758 distributions (versus 2,134 distributions through mobile money), would have been more favorable had these modalities been used to complete more transfers.

Finding 3.3: Disbursement was the most expensive activity in the project.

The graph below shows the distribution of administrative costs by activity. We can see that costs related to disbursing transfers far outpace the costs of other program activities. Disbursement costs include service fees, hardware and all staff time required for activities ranging from developing internal SOPs to managing service providers and supervising transfer events.

Figure 2: ARCC II Administrative Costs by Activity Category

33%	Disbursement
17%	Institutional Arrangements
13%	Monitoring & Evaluation
11%	Training (program specific)
10%	Targeting/Program Registration
8%	Communication/Advocacy
8%	Program Design

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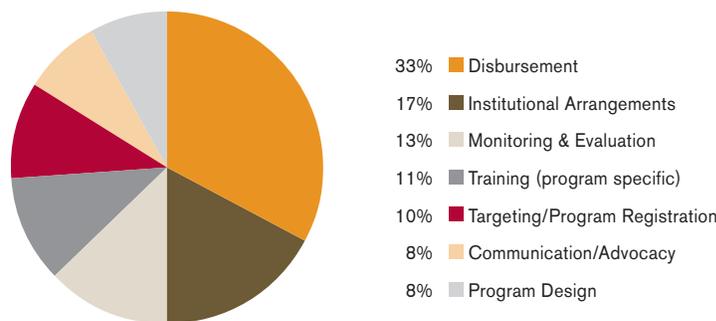
19   Clare O'Brien, "Factors Affecting the Cost-Efficiency of Electronic Transfers in Humanitarian Programs," 66.

Figure 3, below, compares the administrative costs for delivering a single transfer through each of the three transfer mechanisms. Average transfer values to participants per mechanism are captured in the legend.

Figure 3: Administrative Costs per Transfer by Activity
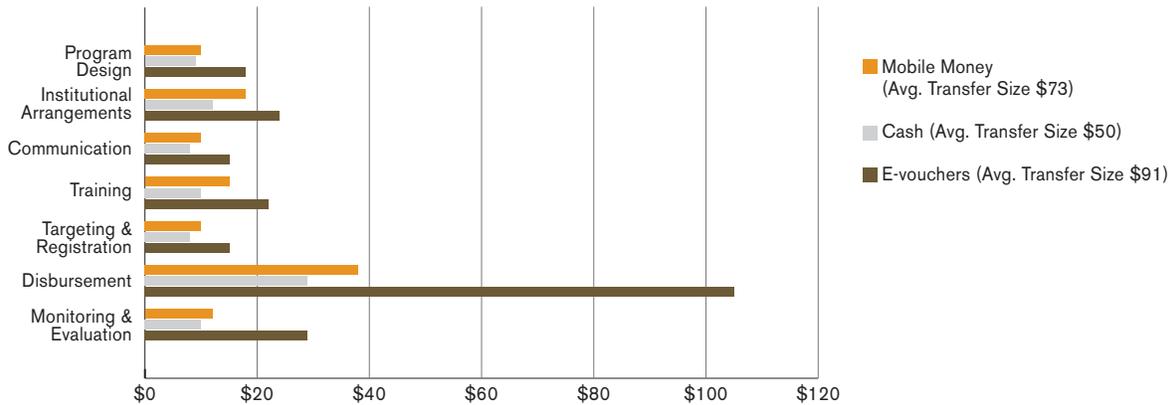
This graph further illustrates that disbursement costs for e-vouchers were a significant expense. Figure 4, below, details the disbursement costs vs. average transfer values per mechanism.

Figure 4: Disbursement Costs per Mechanism
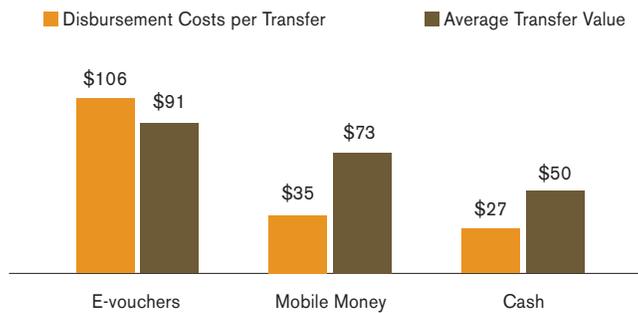
Source: Program Expenditure Records

Finding 3.4: Mercy Corps and partner staff time required for distributions was the largest direct program expense. Hardware and transfer fees were the second-largest expense.

Personnel and partner staff time costs were the biggest driver of costs for the whole program. After that, hardware, service and transaction fees were the second-highest cost category, driven largely by the cost of e-voucher hardware and services. The graph below shows the sources of disbursement costs, per transfer mechanism.

Figure 5: Distribution of Disbursement Costs

Source: Expenditure Records
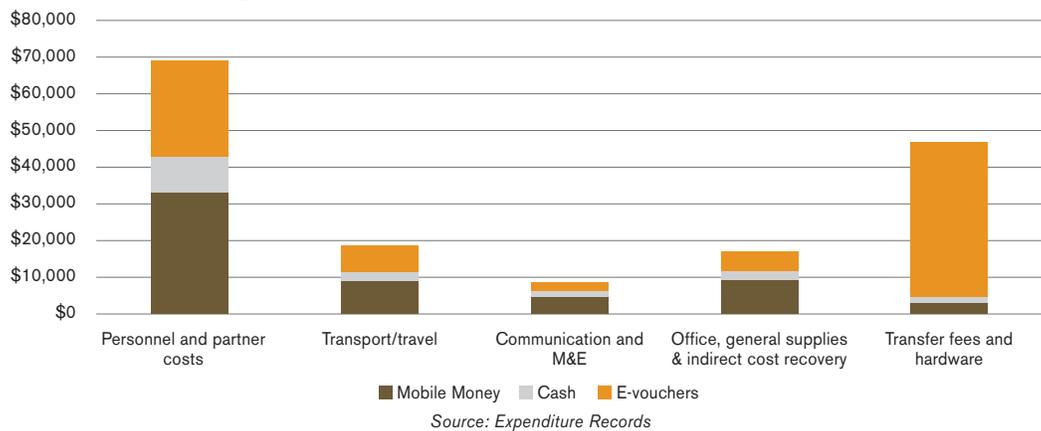
Finding 3.5: Hardware and transfer fees for e-vouchers are 12 times more expensive than mobile money

The table below describes charges required by each transfer service provider. The high cost of e-voucher hardware and software partially account for their overall high disbursement costs.

Table 8: Transfer Service Provider Charges

E-voucher	$39,585 (Includes cost of smart cards and POS devices, service fees, training and import fees. Cost per participant = $44.98.)
Mobile Money	$3,094 (SIM cards were given free to participants, so the only costs charged were the service fees charged per transfer to Mercy Corps. Cost per participant = $1.45.)
Cash	$1,594 (Includes service fees. Cost per participant = $4.44.)

Within the fees charged by sQuid, our e-voucher provider, we can differentiate between costs that were required once, at program setup, those required for each new participant, and ongoing costs required for each distribution. Startup costs, including platform customization, training and shipping, totaled $17,729, or 45 percent of all e-voucher costs. Hardware costs, reliant on each new participant and vendor, accounted for $11,601, or 29 percent of e-voucher expenses. Monthly operating costs, at $10,255, accounted for 26 percent of all e-voucher costs.

Setup costs, which included training from sQuid to Mercy Corps and design of the reporting suite, would not be required for additional transfers and may not be required in future deployments. Hardware and software, the second-highest expense, could also be reused in future deployments, though hardware would need to be purchased for each additional vendor and participant. Monthly operating fees (which covered seven months of operations in this analysis) are a recurring expense, but are independent of transfer numbers and volumes.

When thinking about how hardware and transfer fees may change at scale or in future deployments, we can consider a scenario comparing costs for all three transfer types in a larger program. The scenario below assumes a program has 8,000 participants receiving two transfers of $73 over a six-month period (meaning a total of $1,168,000 is transferred to participants). We assume that the program has 80 vendors (1 per 100 participants) and that the e-voucher customization, shipping and training fees are not required because the agency has previously used the system. We have assigned a 2.36 percent transfer fee for mobile money and a 2.61percent transfer fee for cash, the same fee rates used in the earlier scenario.

Table 9: Hardware and Service Fee Projections in a Larger Program Scenario

	Transfer fees	Cards ($2.83/unit)	POS devices ($410/unit)	TOTAL
E-voucher	$8,790*	$22,640	$32,800	$64,230
Mobile Money	$27,565**	0	0	$27,565
Cash	$30,485**	0	0	$30,485

*Monthly operating fee ($1,465) x 6
**Total transfer value ($1,168,000) x 2.36%
***Total transfer value ($1,168,000) x 2.61%

In looking at hardware costs and transfer fees alone, we see that e-vouchers remain the most expensive transfer mechanism and that the cost of hardware is the principal source of higher expense. While it is possible that agencies such as Mercy Corps could reuse e-voucher hardware, it would require careful efforts to manage and deploy, especially if used between country programs. We also anticipate a high degree of damage and loss in our operating environments, particularly of the smart cards that participants return to Mercy Corps. We also recognize that technology is evolving rapidly in this space and that hardware will quickly become outdated.

For these reasons, investing in e-voucher hardware in places where vouchers are routinely used could help reduce long-term costs, though the payoff of such an investment would depend on the durability and low losses of hardware. Because of the high one-time costs, e-vouchers are not cost-efficient in short, one-time voucher programs.

Finding 3.6: One-off and recurring administrative costs were similar between all three transfer mechanisms.

When thinking about how administrative costs would change in programs of different duration and scales, we can consider the amount of money required for "one-off" (fixed) activities compared to "recurring" (variable) activities. The table below compares one-off vs. recurring costs per transfer mechanism. The similar spread of costs between the three transfer types suggests that **program scale may not change costs significantly between transfer mechanisms**.

Table 10: Percentage of Administrative Costs Dedicated to One-Off and Recurring Activities

	E-vouchers %	Mobile Money %	Cash %
One-off per program activities	44.1%	43.6%	42.6%
One-off activities per new participant	11.8%	8.7%	8.6%
Recurrent activities per transfer	44.1%	47.7%	48.8%

One-off per program costs include all activities related to program design, communication, training and institutional arrangements (including e-voucher setup costs). **One-off per new participant costs** include all activities related to "targeting and registration" (including e-voucher hardware for vendors and program participants). **Recurrent costs per transfer** include the remaining activities (disbursement and M&E, including monthly e-voucher fees).

Total Administrative Cost

Mercy Corps spent $475,868 to deliver $272,310 through three transfer mechanisms, with administrative costs accounting for 64 percent of program expenditures.[20] Mercy Corps spent $136 to deliver each transfer (with an average value of $78). Another way of looking at this is through a cost-transfer ratio. Using that analysis, Mercy Corps spent $1.75 to deliver each dollar to participants (a cost-transfer ratio of 1.75).

When we look beyond the startup period and model the total transfer amounts and administrative costs for the life of the project, the ratio reaches 1.05, captured in Table 11, below. This ratio is based on the total project budgets currently available for this project from UNICEF/DFID and MasterCard, and it assumes that the projected transfers ($120 plus fees) will be made to all 8,000 participants.[21]

Table 11: Life of Program Cost-Transfer Ratio

	All values in USD
Total administrative cost (a)	1,020,914
Total transfer value (b)	975,000
Total program costs (a+b)	1,995,914
Cost-Transfer Ratio (a/b)	**1.05**
Admin as % of total a/(a+b)	**51%**

How does this cost-transfer ratio compare to those of other programs?

The 2013 CaLP/OPM/Concern study examined seven programs in Somalia and Kenya ranging in size from 1,400 participants to 17,000 participants, with an average of 5,399. Their cost-transfer ratios ranged from 0.11 to 0.64.

At 1.05, the ARCC II ratio is considerably higher than the ratios from the 2013 study. This is related to factors such as the high amount of new activity required to establish three transfer mechanisms, high operational costs in the DRC (a product of poor infrastructure), a more nascent mobile money infrastructure, the relatively low number of participants, and the wide geographic area that was targeted.

3.2 TIME REQUIREMENTS

The amount of time required to set up and manage transfer mechanisms affects cost, but it also impacts the speed at which aid can reach recipients in need and the ability of staff to perform other necessary program activities (including monitoring and quality assurance). This section analyzes the time requirements of each transfer mechanism. In total, Mercy Corps and partner staff dedicated 16,130 hours to program implementation between November 2013 and June 2014. The split of those hours by program activity is described below.

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20   "Administrative costs" in this study refer to all staff, transportation, negotiation and coordination, partners, events, monitoring and all other inputs required to deliver the assistance.
21   Note that we cannot project the cost to deliver one transfer as the number of transfers to be made are unknown.

Figure 6: Distribution of Mercy Corps and Partner Staff Time Use

32%	Disbursement
14%	Monitoring & Evaluation
13%	Institutional Arrangements
12%	Training
11%	Communication/Advocacy
10%	Targeting/Program Registration
8%	Program Design
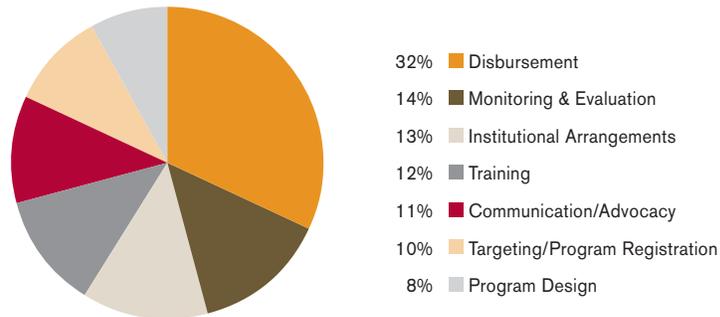
Finding 3.7: Mobile money was the slowest mechanism to establish and is not well-suited to humanitarian cash transfer programs in the DRC.

Deployment speed is critical when responding to emergencies. When looking at the amount of time required to screen, select and sign contracts with our three service providers (sQuid, Vodacom and Soficom), mobile money required the most time to establish, at 540 hours. By comparison, e-vouchers required only 160 hours to set up (despite issuing a global tender to select sQuid among globally available e-voucher companies), and cash required slightly more time at 179 hours, mostly due to negotiation with local cash distribution agents.

Figure 7: Hours Required for Feasibility Assessment and Contract Negotiation

■ Total number of hours required

E-vouchers	160
Mobile Money	540
Cash	179
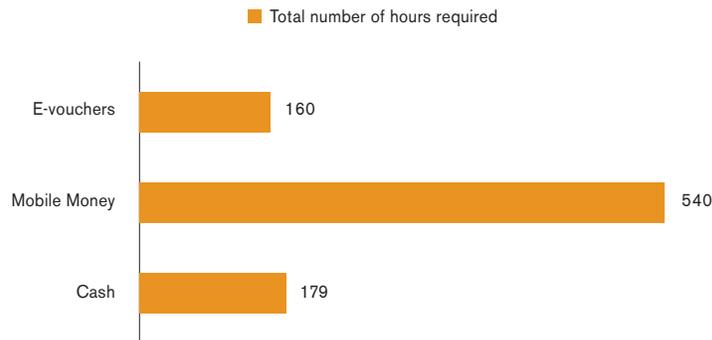
Source: Staff Time Tracking Sheets

The high number of hours required to contract a mobile money operator was related to the country's underdeveloped mobile money environment. While the country's three mobile money operators expressed interest in providing services to Mercy Corps and spent time "pitching" their products to the ARCC II program team, they were poorly prepared to sign contracts that met international NGO standards. Mercy Corps launched a tender in December 2013 to select the best mobile money provider(s), and not a single mobile money operator responded. Applications arrived only after a second tender was launched in January 2014.

One mobile money operator under consideration significantly and unexpectedly increased transfer fees just prior to scheduled distributions, and eventually stopped communicating with Mercy Corps altogether. This forced Mercy Corps to pursue a contract with the second-choice mobile money operator, which had less

experience with bulk transfers and a negative history with another NGO. A protracted negotiation took place before both parties were ready to sign a contract. As a result of these challenges, the first mobile money contract wasn't signed until March 2014.

The 540 hours (or 13.5 work weeks) spent by ARCC II staff to establish a working relationship with the selected mobile money operator in the DRC was tolerated because of the program's focus on experimentation with new technologies. Until mobile money bulk payment systems and contracting processes are improved in the DRC, our experiences suggest that it cannot be relied upon as a viable tool to deliver humanitarian aid. (Chapter 4 illustrates that the actual implementation performance of the mobile money operator was just as weak as its contracting abilities.)

Finding 3.8: E-vouchers and cash were quick to deploy, and e-vouchers could become even faster if global agreements were established with e-voucher providers.

E-voucher setup hours were mostly related to the time spent on a global tender for e-voucher services (the first time this type of tender was issued by an international NGO for e-voucher services). We could expect this time requirement to decrease in subsequent deployments, particularly as Mercy Corps plans to establish preferred supplier agreements. Cash negotiations were slowed by the informal operational style of the cash distributor, which does not offer standard rates or service contracts. The operator also needed time to confirm whether cash delivery was possible in remote program locations where it normally does not facilitate cash distributions. This time requirement will not likely improve with repeat deployments, even in the same areas, as rates are negotiation dependent. Once the providers were selected, however, cash contracting arrangements moved much more quickly than mobile money.

Staff Labor Requirements for Disbursements

Below, we examine the time spent by Mercy Corps and partner staff members on disbursement activities to better understand the labor requirements and associated costs for each transfer mechanism. This includes all of the activities required to complete distributions of cash, mobile money or e-vouchers to participants. The majority of these activities would be repeated with any subsequent distribution.

Figure 8: Time Required for Disbursement Activities
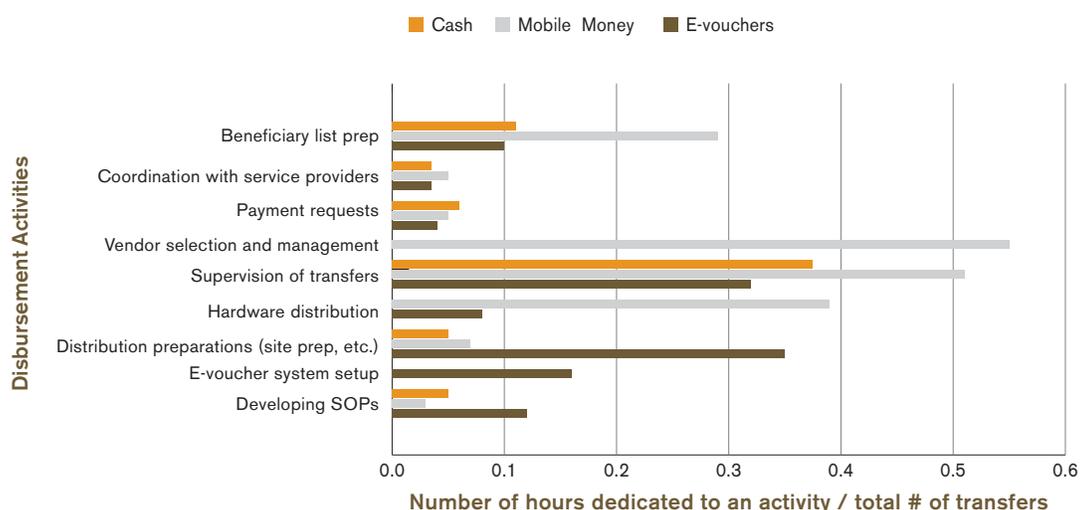
Source: ARCC II staff time tracking sheets. We chose to present the number of hours divided by number of transfers (instead of total hours) in order to be able to compare across transfer mechanisms.

As seen above, **mobile money** required the most preparation and supervision hours. Preparing participant lists for mobile money was also more time intensive due to the need to merge and verify the accuracy of new participant mobile money account numbers prior to sending transfer requests. The significant time requirement was also partially due to the reliance on mobile money operators who were unorganized, often leaving Mercy Corps and program participants waiting when operators delayed or canceled SIM distribution events or cash-outs altogether (see further discussion about mobile money service provider problems in Chapter 4). Time required for mobile money coordination meetings, transfer supervision and hardware distribution could decrease in situations with a more reliable and professional service provider.

In contrast to e-vouchers, mobile money at least hypothetically offered Mercy Corps an opportunity to invest significantly less time in distributing cash assistance. However, this benefit was not achieved because the mobile money operator's lack of capacity required Mercy Corps and partners to supervise each transfer and build the capacity of both regional mobile money staff and local dealers to manage bulk humanitarian payments. The capacity-building role played by Mercy Corps included working with mobile money agents to ensure that SIM cards were activated prior to disbursement, ensuring local agents had sufficient liquidity to meet participant cash-out demand, facilitating "offline" procedures when the mobile money platform was not connected, and advocating for more reliable financial reporting.

As expected, **e-vouchers** required extra hours to establish a network of participating vendors, which is necessary for any voucher distribution. In this program, e-vouchers required additional efforts to address weak local markets that were too small to absorb large spikes in demand. Mercy Corps responded to this problem by inviting larger merchants from neighboring communities to participate in e-voucher fairs open exclusively to ARCC II participants. Setup for voucher fairs required preparation of the physical site (such as setting up stalls and securing the perimeter), security management and extensive coordination with local authorities (these hours are included in the "distribution preparations" category).

In addition to e-voucher fair preparation, the first few e-voucher deployments also required significant technical support and setup since it was the first time this smart-card technology had been used by Mercy Corps and by any agency in the DRC. The significant investment of time and high cost for this e-voucher product was viewed as justified in this case, considering the goal of piloting new technology. This time requirement would likely reduce significantly if e-vouchers were used again by the same team, or by a different team within Mercy Corps.

CHAPTER 4:
FINDINGS: E-TRANSFERS AND THE AID RECIPIENT USER EXPERIENCE

We know that e-transfers affect the cost of humanitarian programs. New technologies can also impact the experience of the users – the people we are ultimately trying to help – by creating both opportunities and barriers. This is especially true in places such as the DRC, where many aid recipients have never made a phone call, much less used any type of electronic payment. In this section, we explore how e-transfers affected the aid experience for ARCC II participants. We look at two key elements: (1) transfer process ease and efficiency, and (2) participant mastery of new technology. (add period at end).

E-transfers provide an opportunity to modernize and improve aid recipient's experiences by delivering aid more securely and quickly in a form that allows them to prioritize their own needs. While ARCC II aimed to deliver these benefits, many of these advantages were not experienced by program participants. Below we explain why.

Transfer Process Ease and Efficiency

This section explores if – and how – e-transfers make the aid experience quicker and more flexible for program participants.

Finding 4.1: E-transfers were structured similarly to traditional aid distributions, so advantages of new payment technologies were limited

ARCC II was designed to allow program participants to receive and utilize their e-transfer as part of their normal shopping or market routine. The intention was for participants to redeem their e-voucher at the market or to withdraw cash gradually from their mobile wallets as needed. Unfortunately, realities on the ground prevented this. Markets could not handle the increased demand following e-voucher disbursements, and mobile money agent networks were limited in number and their capacity to manage high numbers of spontaneous (i.e., unsupervised) cash-outs. In addition, very few cash-out points were located outside major cities. As a result, Mercy Corps was forced to organize events that looked very much like traditional cash or in-kind disbursements. The weak environment for e-transfers and the strategies Mercy Corps developed in response to it are described in Table 12 below.

Table 12: Mercy Corps' Responses to E-transfer Challenges in the DRC

Poor e-transfer preconditions	E-transfer mechanism affected	Mercy Corps' Responses
Weak markets not able to supply desired types, quantities or quality of needed goods in some targeted communities.	E-vouchers	Mercy Corps organized e-voucher fairs to attract larger vendors who could meet program participant demand.
Weak mobile money agent networks with liquidity constraints.	Mobile money	Mercy Corps organized and supervised cash-out events to ensure that mobile money agents could meet liquidity demands and that participants could redeem their transfers close to home.
Insufficient participant capacity to enter PIN codes and complete transactions independently.	Mobile money	Mercy Corps offered supervised, planned distributions so that participants would not be forced to complete transactions on their own.

Source: Mercy Corps staff interviews

Mercy Corps responded to these gaps by organizing large cash-out events where participants cashed out their mobile money, rather than visiting their local mobile money agent on their own time. Similarly, e-voucher recipients redeemed their vouchers at fairs organized by Mercy Corps, rather than at their local markets as part of their normal shopping routine. These changes limited the anticipated gains in privacy, efficiency and autonomy that are typically associated with electronic payments. The limited added benefits of using e-transfers in the DRC do not justify the added expense required to use them.

Finding 4.2: E-transfers require more recipient time than physical cash, while offering limited added benefit.

In any CTP program, several steps are required to correctly identify and train participants as well as facilitate the ultimate transfer of cash. In these processes, Mercy Corps strives to minimize the time burden placed on participants. We found that the amount of time spent by program participants was higher for those using e-transfers compared whith those receiving direct cash.

For all mechanisms, the first step was to register program participants with Mercy Corps. This allowed us to confirm the identity of selected participants and verify that targeting criteria were met. At registration, participants received a registration ticket *(jeton)*. Completing this first step with Mercy Corps typically took several hours per participant, excluding travel time to the location.

Cash distribution process: On the scheduled distribution day, cash recipients proceeded to Soficom's office (the contracted cash distributor) with their ID and *jeton* and collected their cash. The money was distributed by Soficom, although Mercy Corps staff were present to supervise.

Mobile money distribution process: After registration, mobile money recipients attended a second event to enroll as a Vodacom M-Pesa clients and receive their SIM cards. During this step, Mercy Corps and Vodacom provided classroom-style training on mobile money. Typically, it took a participant about three hours to complete this second step. Unfortunately, almost half of the SIM distribution events were canceled because of logistical or planning constraints on the part of the mobile money operator. Participants often waited

several hours to attend events that were ultimately rescheduled. Once participants received their SIM cards, Vodacom had to activate their accounts and transfer the electronic value from Mercy Corps.

Once Vodacom transferred e-money to accounts, a third cash-out event was held to deliver cash to participants. Similar to the distribution of physical cash, mobile money cash-out events were managed by mobile money agents but supervised by Mercy Corps. Mobile money agents were typically small-business owners who sold airtime as part of their business and were registered as M-Pesa agents with Vodacom. While program participants could have gone to these agents at any time to cash-out, all attended the organized events offered by Mercy Corps. This is likely due to mobile money participants often lacking phones, so they did not receive SMS messages notifying them of their new account balances. Going to a Mercy Corps event also increased the likelihood that agents would have cash on hand, and that assistance was available for the cash-out process.

Staff from Mercy Corps provided additional training about mobile money to participants at these events, working with small groups as they waited in line for the cash-out process. These events, too, were plagued by difficulties, ranging from SIM cards not being successfully charged with e-money, unstable mobile networks and mobile money platforms, and agents not having sufficient cash on hand to complete distributions. Aside from troubleshooting these setup issues, Mercy Corps often helped resolve more routine problems, including lost or damaged SIM cards.

The mobile money platform was so unreliable during the period studied that Mercy Corps and Vodacom developed offline and online mobile money cash-out procedures.[22] In events where the mobile money platform was unavailable, offline transactions required participants to temporarily hand over SIM cards and PIN codes to mobile money dealers, who would then perform transactions later, in the absence of participants, when the network became available. These difficulties often required participants to visit the mobile money operator several times to collect their transfer. Alongside the difficulties experienced by participants, mobile money cash-out events required significant additional effort on the part of Mercy Corps staff members, who logged each problem and followed up until every individual issue was resolved.

E-voucher distribution process: Participants gathered to collect their e-voucher (a smart card embedded with a chip) from Mercy Corps staff, and they generally spent it the same day they received it, at a voucher fair or in a regular market. Mercy Corps trained participants about e-vouchers as they waited in line to receive their e-voucher card. This process required more time than that of cash because of the e-voucher training and the need to distribute e-voucher cards, but the process was more predictable, orderly and less time intensive than that of mobile money.

As summarized in Figure 9, **at 11 hours, mobile money required the most participant time to redeem the first cash transfer, then e-transfers (7 hours), followed by cash (4 hours)**. These categories should not be compared directly, as the activities offer different benefits for participants. For example, training on mobile money could help recipients become more familiar with new technologies and even adopt mobile money as a new financial management tool, and e-voucher redemption allows participants to walk away from the transaction with goods in hand. But even when taking these differences into consideration, it is clear that mobile money distributions do not use participant time in the unique eastern DRC environment.

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22   Both network access and the mobile money platform could be offline, making mobile money transactions impossible. There were times of day, such as early morning or afternoon, when the network and platform would be more reliable.

Figure 9: Hours Required to Enroll and Redeem First Cash Transfer

■ First registration   ■ Hardware distribution   ■ E-transfer training   ■ Transfer redemption
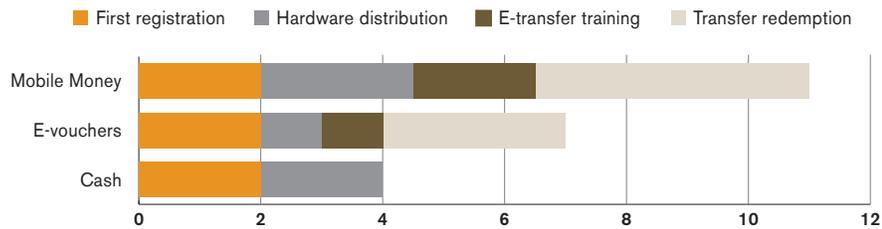
Source: Mercy Corps staff interviews. Note that training hours included here reflect only the training provided specifically on e-transfer technology, not on general program topics.

Participant Mastery of New Technology

In general, e-transfers pose challenges for participants who have limited experience with technology or formal financial institutions. This section explores how the ARCC II participants understood and successfully utilized the new payment technologies. We will start with a description of the participants' interaction with the technology.

E-vouchers: Mercy Corps distributed the e-vouchers to participants. The cards were preloaded with a specific amount of credit that could be used with participating vendors. When the participant was ready to make a purchase, the vendor entered the purchase total on a POS terminal and then showed the screen to the participant. After verifying the total was correct, the participant waved her/his smart card across a sensor on the terminal, which debited value from the card. The POS device then printed receipts for the participant and the vendor.

Mobile money: Once participants opened an account with a mobile money provider, they were given a SIM card and secret PIN code on a piece of paper. Following this, Mercy Corps electronically transferred money to participant accounts. Though participants were able to cash out at any mobile money agent following the transfer, nearly all cashed out at events organized by Mercy Corps. To complete the cash-out, the participant brought her/his SIM card and PIN code (either memorized or written down) to the agent. While participants could have completed the transaction on their own, most allowed the agent to complete the transaction on their behalf, by entering the amount of cash desired and their "secret" PIN code.

E-voucher Benefits According to Mercy Corps Staff

Although this program did not use paper vouchers, several ARCC II staff members had previously worked on programs with paper vouchers. Deputy Program Manager Marc Kalaba (supervising activities in Province Orientale, where all three transfer types were used) described the differences: "Paper coupons took a lot of time to print and count. They were complicated because we created different color vouchers to represent different denominations, to offer purchase flexibility and so that illiterate recipients could understand the value. With e-vouchers, we save time and they are easily used by most recipients. We can also use them again in the future. Of the three transfer mechanisms, I find e-vouchers to be the most effective since the technology is flexible and easy to manage, and it works for even remote households. E-vouchers worked where cash and mobile money could not."

Finding 4.3: It was easier for participants to use e-vouchers than mobile money.

Participants encountered difficulties using both e-vouchers and mobile money, but they encountered far fewer with e-vouchers. The elderly and illiterate had the most difficulty using both types of e-transfers. In observed transactions, 59 percent of e-voucher users were able to independently complete a transaction, compared whith only 5 percent of mobile money users (source: Individual Transaction Monitoring Forms). This is because the simpler e-voucher transactions required fewer steps and no PIN entry.

How Was Mobile Money Used?

ARCC II program staff reported that the vast majority of recipients withdrew their full amount at mass cash-outs organized by Mercy Corps. Staff noted that a very small number of beneficiaries added some value to their mobile money accounts to use them as a savings tool.

In addition to observing use, we tested participants' comprehension by asking them to explain how the technology worked. As seen in the table below, e-voucher users were able to describe their role in completing transactions in 76 percent of cases, contrasted with only 13 percent of mobile money users.[23]

Table 13: Ability to Explain Their Role in a Transaction

	E-voucher	Mobile Money	Grand Total
Cannot explain	24% (19)	87% (152)	68% (171)
Can explain	76% (59)	13% (23)	32% (82)
Grand Total	**100% (78)**	**100% (175)**	**100% (253)**

Source: exit surveys

When asked to explain how they could check the credit remaining on their respective e-transfer device (smart card or SIM card), 65 percent of e-voucher users could do this, compared with 13 percent of mobile money users.

Table 14: Ability to Check E-transfer Balance

	E-voucher	Mobile Money	Grand Total
Cannot check balance	35% (27)	87% (153)	71% (180)
Can check balance	65% (51)	13% (22)	29% (73)
Grand Total	**100% (78)**	**100% (175)**	**100% (253)**

Source: exit surveys

Finding 4.4: A participant's sex did not influence her/his mastery of e-transfers

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23   "Able to describe" means that e-voucher users interviewed could explain when and how to swipe their card to confirm payment. Mobile money users were able to explain how they entered a PIN code to complete a cash-out.

When comparing the ability of males and females to understand the transfer mechanisms, we did not see substantial differences. Both showed similar capacity to explain the transfer process and check their balance, though males were slightly more successful at mobile money. Both sexes understood e-vouchers better than mobile money.

Table 15: Sex and Comprehension of E-transfers

	E-voucher	Mobile Money
% of female respondents able to check their balance	64%	11%
% of male respondents able to check their balance	67%	18%
% of female respondents able to explain their role in a transaction	79%	12%
% of male respondents able to explain their role in a transaction	72%	18%

The lack of gender differences may be related to the universally low levels of education and literacy/numeracy among the ARCC II target population.

Finding 4.5: Elderly participants experienced more difficulties using e-transfers than younger participants.

Elderly participants (those over the age of 60) made up 28 percent of the population completing transactions. Not a single elderly participant, however, was able to independently complete an observed e-voucher or mobile money transaction without assistance. We also tested elderly participants' comprehension of transfer mechanisms in interviews, which showed that they had more difficulty understanding mobile money than they did e-vouchers, similar to the general population.

Finding 4.6: Numeracy contributed to mastery of e-transfers.

As seen in the graphs below, numerate participants were more successful at understanding the transfer mechanisms than non-numerate participants. We can also see that both numerate and non-numerate populations struggled to explain mobile money.

Figure 10: Numeracy and Mastery of E-transfers

Ability to Explain Transaction Process, E-vouchers

Not numerate · Numerate

Cannot Explain: 22% (Not numerate), 3% (Numerate)
Can Explain: 28% (Not numerate), 47% (Numerate)

Ability to Explain Transaction Process, Mobile Money

Not numerate · Numerate

Cannot Explain: 41% (Not numerate), 46% (Numerate)
Can Explain: 4% (Not numerate), 9% (Numerate)
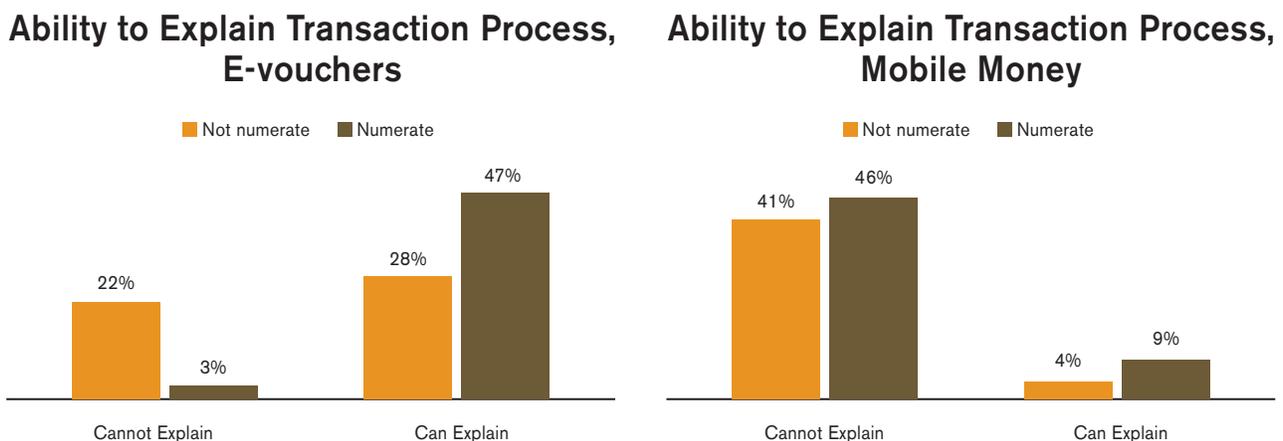
CHAPTER 5:
CONCLUSIONS AND RECOMMENDATIONS

This study sought to determine the best ways to deliver cash assistance in challenging implementing environments such as the DRC. In exploring whether E-transfers are cheaper, faster or better than cash and paper vouchers, we found quite the opposite: e-transfers made program implementation more expensive and, in the case of mobile money, less reliable. The necessary partnerships and preconditions for mobile money do not yet exist in the DRC, and relying on a partner with low implementation capacity negatively affected our ability to deliver aid as quickly and consistently as we hoped to.

In exploring whether **e-transfers are cheaper**, we found that current market prices for e-voucher products are prohibitively expensive for short-term humanitarian programs. But we are not willing to abandon them entirely, as they show promise as an appropriate technology in difficult and remote environments. We will look for opportunities to reduce their costs through repeat and longer-term deployments. We also recognize that e-vouchers are a new tool for humanitarian agencies, and that costs are likely to decrease with additional demand.

In comparing the costs of cash and mobile money, we found that despite offering lower transaction fees, mobile money transfers are more costly to implement than direct cash because the services and underlying technical networks in the DRC are unreliable and immature.

In exploring whether **e-transfers are faster**, we found that e-vouchers were the quickest mechanism to select and contract. This is notable, considering it was the first time Mercy Corps had used this type of technology. We also expect contracting time to decrease with future deployments. However, e-vouchers – as with all voucher programs--require an additional step: establishing a local vendor network, which typically adds at least two weeks before vouchers can be deployed. Especially when pre-positioned, e-vouchers can offer a quickly deployable cash transfer mechanism. This may be valuable when cash or e-cash is unavailable or inappropriate.

Cash was relatively quick to set up, making it a reliable transfer mechanism when available and when speed and flexibility for recipients are program priorities. But security constraints and a lack of money transfer services prohibited us from using cash in the most remote communities. Mobile money required more than three times the amount of setup time than either cash or e-vouchers and was delayed at nearly every step of implementation. Mobile money was also limited to more urban environments. Our experience with mobile money in eastern DRC highlights the unpredictability and risks of relying on weak service providers.

In exploring whether e-transfers are **better for participants**, we found that e-vouchers posed minimal difficulties, and were successfully used by even our most vulnerable program participants. They also allowed us to deliver aid reliably to the target population. Mobile money, by contrast, caused significant delays both in the overall program timeline, and during distribution events organized for beneficiaries. Cash-outs using mobile money were extremely difficult for ARCC II participants, and few were able to enter their PIN codes without help during initial disbursement rounds.

While we initially hoped that mobile money would offer a new financial management tool for participants, we found that this is unlikely to occur for ARCC II mobile money recipients because of user difficulties with the transaction process, the unreliability of services offered by Vodacom and the lack of permanent cash-out points outside of urban centers. These factors reduce the accessibility and convenience of mobile money for participants and reduce their confidence in the service. Despite the current limitations, our staff and beneficiaries expressed interest in the service, and we see potential for the future if mobile money services

expand beyond major urban areas and became more reliable.

In eastern DRC, the current challenges of working with relatively new mobile financial service providers and poorly established agent networks override the potential benefits of increased security, flexibility and access to new financial services for participants.

Our findings largely confirm and build upon findings in the 2013 CaLP/OPM/Concern study:

- We confirm that e-transfers are not "systematically cheaper than manual transfers" and that in some cases can dramatically impact both overall program cost and program quality.

- We confirm that "the amount of new activity required in any aspect of a humanitarian programme, not just in relation to its payment mechanism, is a key determinant of its cost."

- We build upon the finding that "innovation costs money." In ARCC II, though it was expensive to try a new transfer mechanism (in this case, e-vouchers), we uncovered valuable information about its ability to digitize paper vouchers even in remote and offline environments. The e-voucher pilot is an example of a good investment in innovation. By contrast, using immature mobile money services required hundreds of hours of extra work by Mercy Corps program staff and offered none of the benefits that mobile money hypothetically provides in contrast to direct cash disbursements (more privacy, flexibility on when to cash-out, linkages to financial services). Any future pilots using mobile money in the eastern DRC before there is evidence of improvements in the service may be a poor investment in innovation.

Our findings challenge one conclusion presented in the 2013 CaLP/OPM/Concern study, wich made the case that "many costs of running an emergency cash transfer program have little to do with whether an agency chooses an electronic or manual payment mechanism." We found, instead, that choosing to use an e-transfer mechanism can significantly and negatively impact program costs, through hardware costs and staff time.

There is no silver bullet for delivering assistance of any kind — cash, in-kind or electronic — to participants in contexts such as the DRC. All approaches are complex, expensive and time-consuming. Despite these challenges, we see tremendous possibilities for e-transfer mechanisms, particularly when they improve aid delivery and fulfill the promise of offering participants new financial management tools. In order to make progress toward those benefits without sacrificing program quality in the process, we offer the following recommendations for implementing agencies and e-transfer service providers.

Recommendations for humanitarian agencies:

1. Choosing a cash transfer mechanism is a critical decision that will significantly impact program cost and speed. It is crucial that agencies understand the operating environment and capacity of partners and participants alike before selecting the mechanism. They should also consider whether programs are stand-alone or are the beginning of longer-term activities. Using experiences from the DRC and other e-transfer deployments, Mercy Corps has developed an E-transfer Implementation Guide,[24] which includes a decision tree that can help agencies systematically approach the selection of a transfer mechanism.

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24   http://www.mercycorps.org/research-resources/e-transfer-implementation-guide-cash-transfer-programming

2. While piloting new technologies is one way to fully understand their strengths and weaknesses, it is also expensive and time-consuming. One way to reduce the need for continuous piloting is through developing clear minimum requirements needed of service providers and making sure service providers offer minimum requirements before agreeing to pilots. This can help agencies make good investments and pilot new cash transfer technologies that are capable of offering their anticipated benefits.

3. For e-vouchers, we recommend that agencies regularly using vouchers start exploring and building relationships with global e-voucher service providers at an HQ level. Having those relationships in place can speed up deployment during startup phases in individual programs.

4. If connecting participants with new services such as mobile money is an explicit program objective, a clear understanding of participant capacity and the limits of their ability to change must be understood. Extensive training plans should be developed to help users overcome barriers and to accommodate users who are unlikely to gain fluency within the program cycle. These plans should actively include the service provider, as new users will require more time to complete transactions without assistance and build their comfort with new services.

5. It is clear that there is a minimum level of capacity necessary within the mobile money operating environment in order to effectively implement mobile money transfers. What those minimum criteria are, however, is still not clear. Implementing agencies can continue refining service provider assessment tools to determine whether a mobile money environment is able to support a cash transfer program.

Recommendations for e-transfer service providers:

1. In the case of e-vouchers, lowering costs will make them more accessible to humanitarian programs and thus increase their usage. At the moment, e-vouchers must be redesigned and negotiated for every unique project. Developing standard e-voucher products that meet industry-wide humanitarian program requirements could help create efficiencies of scale and help this tool to become widely used.

2. For mobile money operators, reliability, the strength of agent networks and liquidity management are key areas for improvement in humanitarian cash transfer programs. Poor delivery in these areas will create long-term resistance to using new technologies in these programs. If the current infrastructure is too weak to accommodate bulk transfers, it is better to state those limitations upfront, rather than testing the strength of the product in short-term humanitarian programs.

Recommendations for researchers:

1. Operating environment and program design play an important role in the cost efficiency of humanitarian programs. New studies in different programs and locations could help us better isolate the role of these factors on the cost-efficiency of transfer mechanisms.

2. It is unclear whether humanitarian cash transfer programs offer a viable business opportunity for both e-voucher service providers and mobile money operators. A deeper look into the business model behind services may help the industries make investments necessary to improve service offerings over the long-term and lower costs.

3. There is much more to be learned about the link between electronic cash transfers and financial inclusion. Do recipients use mobile money accounts for anything beyond the transfer of aid? If so, how do they affect the lives of people using them? Future research could shed light on these important questions.

CHAPTER 6:
RESEARCH FRAMEWORK

In general, costing analyses can be done either "ex ante," i.e., before a humanitarian program starts as a budgeting exercise, or "ex post," i.e., during and after program operations in order to review how much was actually spent. This study is an ex post analysis of costs, and the following is a description of the retrospective costing analysis that was carried out on the ARCC II program.

COST-EFFICIENCY, COST-EFFECTIVENESS OR COST-BENEFIT ANALYSIS?

What is presented in this report is a cost efficiency analysis. A cost-efficiency analysis asks, "How much did it cost to run the program?", and so allows for accountability for spending without the need to consider the outcome or impact achieved. In this study, the costs were divided into two categories: the value of the transfer disbursed to participants, and the amount spent in delivering that transfer to them (administration costs). This approach allows us to say, "Program Y spent [$Z] to deliver [$X] in cash to participants."

Unlike a cost-efficiency analysis, a cost-effectiveness analysis asks, 'How much did the program cost, for each [Y%] change in the intended (single) objective?' and a cost benefit analysis asks, "How much did the program cost, and what is the value (monetary) of all the benefits it delivered?" While a cost effectiveness analysis was not attempted because it was not possible to quantify the outcome of the program, a cost-benefit analysis was also infeasible since it would have required large-scale surveys of all the program benefits.

HOW COSTS WERE MEASURED

General Methodology – Apportioning Costs Across Transfer Mechanisms

Mercy Corps program budgets are not typically recorded by transfer mechanism. This means that, save for a few budget lines such as for the purchase of specific equipment or transfers to a particular service provider, the recording of costs is non-transfer-mechanism-specific. In order to apportion costs across different transfer mechanisms, program and finance staff were consulted to ascertain the proportion of time they spent on each mechanism. Once all budget lines had been ascribed to each of the different transfer mechanisms, further disaggregation by type of activity was done. The following section presents more details on this approach.

General Methodology – Apportioning Costs Across Program Activities

In accordance with normal accounting procedure, Mercy Corps records its program expenditure by date and by line item (salaries, equipment, transport, etc.), which allows analysis of how much was spent, by whom and on what.

However, in order to make projections of costs over time, a different way of disaggregating expenditure can be used. Classifying expenditure by the activities on which it was spent allows for a distinction to be made between costs for one-off activities such as program design, contracting and institutional arrangements and those for activities that will need to be repeated, such as the ongoing/recurring distribution of cash to participants.

Since costs are not presented in accounting records in this way, program and finance staff were consulted in order to attribute salary and non-salary costs to various program activities. This included recording what proportion of time staff members spent on different tasks, and what resources they needed to achieve them (see next subsection). The different levels of expenditure, with a description of activities for a typical program, are presented in Figure 11.[25]

Figure 11: A Scheme for Measuring Cost by Activity
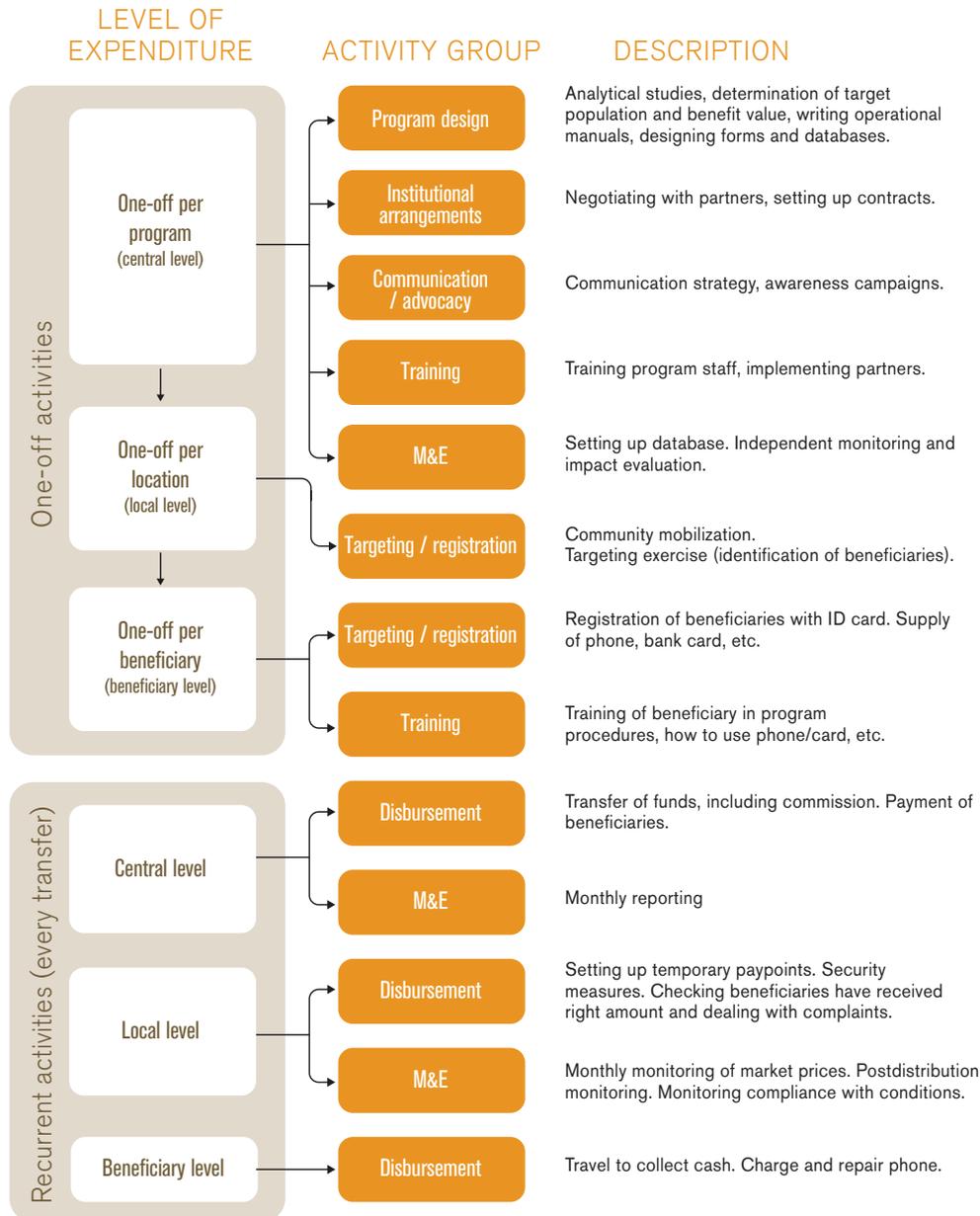
Source: CaLP – OPM (2013)

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25   This is a refinement of the typology of costs that OPM developed for assessing the costs of long-term cash transfer programs in Kenya in 2009 and in Kazakhstan in 2011, and that is highlighted in White et al. (2013) 'Guidance on measuring and maximising value for money in social transfer programmes—second edition', DFID.

As Mercy Corps programs were implemented with support of local partners, most of the data required of Mercy Corps were also required of the implementing partners. This includes staff and non-staff costs.

STAFF TIME AND COST ALLOCATION

Program Staff Time Use

To determine program staff costs and then apportion them to relevant program activities, data on time spent by staff members on various training activities and their annual remuneration were needed. Unlike the case of the CaLP/OPM/Concern study, where information on staff time use was obtained retrospectively through interviews, the current study had the opportunity to design a staff time use questionnaire, which was administered weekly during the implementation period studied. This was complemented with in-depth interviews with the staff.

Each of the program staff was requested to record the total hours (per week) on different program activities through a time use survey. The results of weekly surveys were tabulated and assigned to the main program activity categories used in this study, i.e., program design, institutional arrangements, communication/advocacy, training, targeting/registration, disbursement and M&E.

Support Staff

Staff members in Mercy Corps administrative offices perform duties that are of a general nature and that support the program as a whole. The time-use questionnaire was not administered to members of the support staff pool that work across a number of programs in Mercy Corps' DRC country portfolio.

The nature and range of duties conducted within administrative and support units made it difficult for support staff to disaggregate their time by transfer modality or activity. To address this issue, data gathered from the time-use surveys for program staff were used as a proxy to apportion support staff time across modality and within each modality's budget, across various activities. In other words, if program staff members demonstrated that, on average, 50 percent of their total training time was spent on mobile money, this information was used as a proxy for apportioning support time to training.

Steps for Estimating Staff Costs per Activity

Step 1: First, each program staff member's hours (by program activity) were converted to a percentage of the official working hours on a weekly basis and eventually over the program duration.

Step 2: These percentages were simply multiplied with each staff member's annual salary (or total cost as shown in the program accounting reports/budgets) to obtain the share of staff remuneration attributable to the activity. Thus, using these two simple steps, staff costs for the different program activities were obtained.

Non-staff Costs

Data on non-staff costs (such as telephone expenses, furniture and equipment, utilities, fuel and other transport related expenses) were obtained from program accounting reports and budgets. Apportioning criteria (to transfer modality and then to program activity) for uncategorized non-staff items was carried out using the same

methodology as that used for support staff costs, except for where these costs were clearly related to one transfer mechanism (for example, service fees to a particular e-transfer provider, or hardware costs).

User Experience Data

Program monitoring data were of used in the analysis around user experience. Using surveys and structured observations, this analysis looked at transfer ease and efficiency, participant mastery of new technology, security and user preferences. Details about the methodology are provided below.

Table 16: Exit Survey Participants

	# respondents	% (#) Female	Elderly respondents (% 60+)
M$	175	81% (141)	26% (45)
Cash	69	59% (41)	28% (19)
E-vouchers	78	50% (39)	29% (23)
Total or average	**322**	**63%**	**28%**

Exit surveys were carried out with 322 participants as they left e-transfer sites (including cash distribution locations, mobile money offices and e-voucher fairs).

Table 17: Follow-Up Survey Participants

	# respondents	% (#) Female	Elderly respondents (% 60+)
M$	55	36% (52)	12% (18)
Cash	21	11% (16)	7% (10)
E-vouchers	69	32% (46)	14% (20)
Total or average	**145**	**26%**	**11%**

Follow-up surveys were conducted several weeks after participants received transfers. Follow-up surveys were completed with 145 participants.

Table 18: Transaction Observations Sheets

	# respondents	% Female	Average age
M$	187	78%	54
Cash	69	63%	55
E-vouchers	61	69%	42
Total or average	**317**	**70%**	**50**

Transaction observations sheets were completed by Mercy Corps staff and partner staff while observing mobile money cash-outs, voucher purchases and physical cash distributions. Information about 317 separate transactions was logged in an observation sheet.

ABOUT MERCY CORPS

Mercy Corps is a leading global humanitarian agency saving and improving lives in the world's toughest places. With a network of experienced professionals in more than 40 countries, we partner with local communities to put bold ideas into action to help people recover, overcome hardship and build better lives. Now, and for the future.

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ABOUT MASTERCARD AND THE CENTER FOR INCLUSIVE GROWTH

MasterCard is a technology company in the global payments industry. We operate the world's fastest payments processing network, connecting consumers, financial institutions, merchants, governments and businesses in more than 210 countries and territories. MasterCard's products and solutions make everyday commerce activities – such as shopping, traveling, running a business and managing finances – easier, more secure and more efficient for everyone.

ABOUT OXFORD POLICY MANAGEMENT

OPM enables strategic decision-makers to design and implement sustainable solutions for reducing social and economic disadvantage in low- and middle-income countries. We do this by providing a unique combination of analytical and practical support across the policy cycle.