CONVENTIONAL AND EMERGING DIGITAL CASH AND VOUCHER ASSISTANCE TECHNOLOGIES:

DO BLOCKCHAIN-ENABLED SOLUTIONS ADD VALUE?

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Australian Aid

OXFAM Australia

CONTENTS

GLOSSARY

AA	Anticipatory Action
ADRA	Adventist Development and Relief Agency
API	Application Programming Interfaces
ATM	Automated Teller Machine
BIS	Beneficiary Information System
CaLP	Cash Learning Partnership
CCCV	Conference of Churches of Christ in Vanuatu
CCV	Crypto Collateralised Voucher
CP	Cooperating Partner
CSO	Civil Society Organisation
CVA	Cash and Voucher Assistance
DFAT	Department of Foreign Affairs and Trade
DAC	Development Assistance Committee
DLT	Distributed Ledger Technology
DRA	Dutch Relief Alliance
DRC	Democratic Republic of the Congo
DRR	Disaster Risk Reduction
DSS	Department of Social Services (Zimbabwe)
E-CVA	Electronic Cash and Voucher Assistance
ECHO	European Civil Protection and Humanitarian Operations
ECT	Esteemed Children's Trust
EIP	Ethereum Improvement Proposals
EU	European Union
FCDO	Foreign, Commonwealth and Development Office
FCS	Food Consumption Score
GB	Grand Bargain
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GSMA	GSM Association
IEC	Information, Education and Communication
IHA	International Humanitarian Assistance
IT	Information Technology
KYC	Know Your Customer
LGU	Local Government Unit
LMMS	Last Mile Mobile Solution
MAAT	Municipal Anticipatory Action Team
MMT	Mobile Money Transfer
MNO	Mobile Network Operator
NFC	Near Field Communication
NGO	Non-Government Organisation
OAU	Oxfam Australia
ODA	Official Development Assistance
ODK	Open Data Kit
OECD	Organisation for Economic Cooperation and Development
OFW	Overseas Filipino Workers

OiV	Oxfam in Vanuatu
PDM	Post-Distribution Monitoring
PDRRN	People's Disaster Risk Reduction Network
PIN	Personal Identification Number
POS	Point of Sale
PwC	PricewaterhouseCoopers Australia Pty Ltd.
RBV	Reserve Bank of Vanuatu
REFILL	Recovery Effort for Food security and Integrated Lasting Livelihood
SIMS	Smart Information Management System
TC	Tropical Cyclone
TSP	Technology Service Providers
UBC	UnBlocked Cash
UN	United Nations
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children's Fund
USAP	Urban Social Assistance Programme
VBRC	Vanuatu Business Resilience Council
VCC	Vanuatu Christian Council
VDPAA	Vanuatu Disability and Promotion Advocacy Association
VRCS	Vanuatu Red Cross Society
VSPD	Vanuatu Society for People with Disabilities
WFP	World Food Programme
WHO	World Health Organisation

EXECUTIVE SUMMARY

Since the early 2000s, the aid sector has experienced an increase in the uptake of cash and voucher assistance (CVA) for development and humanitarian interventions. Propelled by the 2016 World Humanitarian Summit and the subsequent Inter Agency Standing Committee's Grand Bargain Commitments, multilateral and bilateral donors have increased International Humanitarian Aid (IHA) spending on CVA programs, including the use of new electronic CVA (e-CVA) delivery mechanisms. E-CVA refers to any method of delivering cash and voucher assistance which utilises electronic transfers or payments of digitally stored cash in place of physical currency or paper vouchers.

To understand whether the increase in CVA spend is generating positive impacts for beneficiaries, the Grand Bargain Commitments #3 calls for donors and humanitarian agencies to contribute to a global evidence base to assess the costs, benefits, impacts and risks of cash relative to in-kind assistance, service delivery interventions and vouchers. This report seeks to contribute to the existing evidence base to inform Oxfam and global cash actors on the lessons learned from different e-CVA approaches across a range of contexts.

This report outlines the strengths and limitations of several key e-CVA delivery mechanisms and solutions used globally in development and humanitarian settings, including mobile money, e-vouchers, banking and blockchain solutions. To understand how these modalities work in practice, we seek to assess the effectiveness, efficiency, relevance, coherence, sustainability and impact of the delivery mechanisms used in four case studies implemented by Oxfam and implementing partners in Vanuatu, Bangladesh, Zimbabwe and Philippines.

As each case study example is context-specific, it is challenging to compare each project's e-CVA mechanism's strengths and limitations. Instead, this report demonstrates that project teams need to holistically consider the potential unintended impacts, efficiency, effectiveness, sustainability, relevance and coherence of e-CVA mechanisms prior to designing and implementing interventions using new technologies. While each e-CVA mechanism assessed has overarching strengths and limitations at present, the rapidly evolving technologies are showing promise for better scalability in reaching beneficiaries across different operating contexts. To make use of these improvements, further investment is required by donors, the private sector and aid agencies to conduct pilot programs to test and strengthen their use cases. Doing so will contribute to both the global evidence base in CVA programs and improve outcomes for disaster and conflict-affected populations at a wider scale than possible today.

Summary considerations for Oxfam project teams to consider ahead of commencing e-CVA programs are presented below and at the conclusion of this report.

BLOCKCHAIN-ENABLED SOLUTIONS

Based on the outcomes of the market scan and the case studies assessed, it is evident that blockchain technology is gaining interest in the development and humanitarian space. However, blockchain technology is still relatively new and many of the projects identified to inform the environmental scan were either pilots or have yet to be tested across multiple countries. A key reason for this is while the core technology is gaining acceptance, the regulatory environment is yet to fully grasp the changes it brings (such as disintermediation and tokenisation of value). Only a limited number of projects identified in the report included full end-to-end traceability using blockchain technology[1]. There are several considerations when developing e-CVA programs using blockchain technologies. These include:

- The appropriateness based on limitations in the country they are operating in, specifically the regulatory frameworks applied for blockchain-enabled solutions. In many cases, they are not well defined or mature in comparison to regulations applicable for non-blockchain based e-CVA programs.
- The pre-existence of a sustainable, secure and interoperable blockchain-enabled solution that is compatible with the regulations, program requirements and financial infrastructure. This will have two key benefits: significantly reduced set-up time for the platform and regulatory acceptance. While a pre-existing solution can help any e-CVA mechanism, a comparatively larger amount of time, funds and effort would generally be needed to establish a blockchain-based mechanism 'from scratch'. A swift response to an emergency would therefore only be possible by re-using or re-purposing an existing solution.
- The availability and affordability of experienced resources who can support the blockchain-enabled program, as well as cost and time associated with upskilling, supporting and onboarding actors to the system unless the overall solution is designed for intuitive use and the technology is transparent to the users.
- The uniqueness of the problem being solved (where specific benefits of the blockchain technology is needed including immutability, traceability, disintermediation or specific application of distributed technology) and whether more economical and efficient alternative e-CVA programs exist.

There is a growing adoption of blockchain technology for many use cases given its unique ability to manage secure, permanent and traceable records, which also lends itself to development and humanitarian purposes. However, developing specific solutions requires significant investment by aid agencies, private sector partners and donors so that the technology (once developed) is efficient, scalable, readily usable, sustainable and economical. Any concepts developed to test a blockchain-based solution must validate these (and other) benefits so that the concept provides sufficient basis for its useability as a standard solution to deliver humanitarian programs. The table below provides a list of observations of blockchain-enabled solutions based on the Unblocked Cash (UBC) project.

Table E.1: Considerations for blockchain-enabled solutions based on the UBC solution

IMPACT	Although the blockchain-enabled e-CVA solution has been proven to be effective for getting cash to unbanked beneficiaries, it may be limited in its ability to scale quickly in countries where the solution has not been pre-established, especially given the need for necessary technical infrastructure and compliance with regulatory requirements. Note, scalability can be an issue for other new e-CVA delivery mechanisms too, however the use of blockchain technology necessitates additional time, effort and funds by comparison.
SUSTAINABILITY	The ability to replicate Oxfam's UBC project in other countries is key for its extended use. However, this involves significant efforts such as set up legal advice, implementation resources, tax and regulatory compliance overhead, upskilling of partners on the use of tokens, etc. There is a need to minimise the lead time and effort by optimising the extendibility and reusability of key program components.
EFFECTIVENESS	The UBC Vanuatu project delivered cash assistance to banked and unbanked people successfully. A wider use of this technology needs to address several issues before it is considered an effective general solution. These include the security exposure[2] of the tokenised funds, catering for communities in countries with stricter tax and regulatory requirements, ability to deploy with minimum dependency on stakeholders, a 'turn-key' capability to reduce the implementation lead times, and a wider utilisation of the blockchain technology across the end-to-end process to maximise its inherent benefits such as immutability, traceability, etc.
EFFICIENCY	The cost and time associated with implementing blockchain based e-CVA programs is not sufficiently understood. As per the environmental scan, the appropriateness of a blockchain-enabled solution varies from country to country based on differences in their preparedness to accept such solutions, resulting in a fluctuating cost base. In countries where Oxfam's UBC solution or other pre-existing blockchain solutions are not compatible with the country's existing infrastructure and regulations, there will be significant cost and time required to build an appropriate solution from scratch in comparison to establishing other e-CVA mechanisms. This is due to the extra time required to understand blockchain as a novel technology and caution toward its ability to disrupt or disintermediate centralised organisations like financial institutions. Currently, we have not found a solution that has been quickly replicated in multiple countries in emergency situations. In future, the creation and testing of a truly transferable blockchain-enabled solution for different regulatory and infrastructure environments might improve the efficiency outlook. For blockchain-based programs to deliver a competitive value-for-money outcome, it may be necessary to widen the use of the blockchain for end-to-end traceability of transactions. Additionally, it will be necessary to rethink areas where manual effort or staff overheads are involved to create cost and

[1] Full end-to-end traceability' means the ability to track the transaction of an assets, in this case donor money, through the entire value chain using blockchain technology. The full record of an asset is on a blockchain and off-chain components are kept to a minimum. If the asset leaves the traceable system, for example, users are paid out in untraceable cash or if there are large amounts of off-chain intervention then the end-to-end traceability is weakened.

[2] Security exposure refers to the cybersecurity of electronically stored funds. When there is a large amount of funds stored in a centralised digital account, this becomes a potential target for malicious hackers. Alternately, private keys, used to access funds on a blockchain, can become a target and must be securely stored.

	time efficiencies. It is advisable for processes to be continually documented, to support repetition and time efficiencies for any future roll outs.
COHERENCE	The use of blockchain technology does provide benefits for transactions performed on-chain in terms of their traceability, immutability and under the right conditions, scalability. However, the use of UBC in Vanuatu did not include the starting and ending activities as part of this traceable mechanism. Furthermore, the solution's process for tokenising government-issued currencies faced challenges with tax and regulatory compliance, requiring parallel accounting efforts to be paid for and performed by an authorised entity. This is a limiting factor when expanding its use beyond the jurisdictions where the concept has been tested. These are considerations for establishing a compliant end-to-end solution, which may benefit from a coordinated advocacy effort to introduce the right conditions for their efficient implementation and operation.
RELEVANCE	The UBC Vanuatu project demonstrated that the technology could be used to address local needs and reach community members at scale. Conducting a feasibility study prior to implementation enabled the project team to carefully consider financial service provisions, the status of technical infrastructure like internet connectivity and mobile coverage, and community willingness to accept the mechanism. This will require repeated effort for future use of this specific construct of the program, especially in different communities and jurisdictions.

OTHER E-CVA APPROACHES

Similar to blockchain-enabled solutions, there are a number of factors that should be considered when planning for other e-CVA approaches (i.e., mobile money, e-voucher systems and banking), including country context. In some contexts, the implementation and integration of multiple CVA approaches may be appropriate, and as such it is critical that comprehensive needs assessments are undertaken for any humanitarian or development program to ensure project teams can identify which CVA mechanism meets the characteristics of the program, target locations and vulnerable community members.

Table E.2: Considerations for other e-CVA approaches

IMPACT	E-CVA approaches can have positive impacts for financial inclusion and increasing digital literacy of beneficiaries. E-CVA approaches should consider potential positive and negative impacts for marginalised community members and vulnerable populations prior to undertaking a large-scale response.
SUSTAINABILITY	Embedding the country office's preferred e-CVA approaches in the humanitarian response plans/standard operating procedures can help ensure that systems and processes are in place when a disaster strikes. Consider budgeting for (and seeking funding for) the provision of regular refresher training for staff (including implementing partners) during emergency response simulations.
EFFECTIVENESS	E-CVA approaches (and the roll out of new, previously untested digital solutions) need to ensure that all participating stakeholders receive sufficient information, education and communication (IEC) materials and capacity building to achieve project goals.
EFFICIENCY	Careful consideration of start-up and delivery costs, governance structures and decision gates can improve the efficiency of e-CVA approaches. Conducting small-scale pilots before undertaking a large-scale response during a crisis may help resolve efficiency issues.
COHERENCE	Receiving government and local authority approval is essential before commencing a project using an untested e-CVA delivery mechanism. This needs to be considered prior to developing standard operating procedures for humanitarian response. In addition, all e-CVA mechanisms will need to be compliant with anti-money laundering regulations, including Know Your Customer (KYC) requirements. Some types of e-CVA (e.g., mobile money where SIM registration is required) may be subject to greater levels of regulation than other forms of e-CVA. The impact of local compliance requirements on the implementation and speed of a response should be considered during project design.
RELEVANCE	To fully understand the optimal solutions for a particular region or operating context, cash feasibility assessments should be conducted by aid agencies prior to starting e-CVA projects, as relevant approaches will vary greatly by context. Additionally, in-depth needs assessments are needed to assess and mitigate against any unintended impacts on marginalised and vulnerable community members. Careful consideration is needed for areas that have low mobile coverage and internet connectivity to ensure that local needs are addressed by the proposed e-CVA mechanism.

1 INTRODUCTION

PURPOSE OF THE REPORT

This report aims to review and understand the comparative strengths and limitations of different electronic cash and voucher assistance (e-CVA) delivery mechanisms. E-CVA refers to any method of delivering cash and voucher assistance which utilises electronic transfers or payments of digitally stored cash in place of physical currency or paper vouchers. Oxfam's global CVA portfolio comprises physical cash grants (conditional and unconditional), cash for work, mobile money, printed and electronic vouchers (e-vouchers) and blockchain-enabled programs, which give people the dignity to spend money on critical needs in response to a crisis.

Oxfam Australia (OAU) commissioned PricewaterhouseCoopers Consulting Australia Pty Ltd (PwC) to conduct this report to determine the strengths and limitations of e-CVA approaches and understand the considerations needed to implement future e-CVA projects. This was achieved through the review of a targeted sample of four e-CVA projects in Oxfam-funded countries, as well as a supporting market and literature scan to understand the current e-CVA landscape.

The report focuses on e-CVA as it relates to digital mechanisms which deliver CVA to recipients. Other digital tools which support CVA programs and integrate with delivery mechanisms are discussed (e.g., biometrics, monitoring systems, etc.), however they are not the focus of this study.

As the use of blockchain-enabled e-CVA solutions in development and humanitarian interventions is new, few studies have been conducted to showcase the strengths and limitations of blockchain applications, as well as their comparisons to other e-CVA delivery methodologies. The Grand Bargain Commitments #3 call for donors and humanitarian responders to contribute to a global evidence base to assess the costs, benefits, impacts and risks of cash (including on protection) relative to in-kind assistance, service delivery interventions and vouchers. This report seeks to contribute to this global aim.

2 OVERVIEW OF METHODOLOGY

This report was informed by a secondary data review of documentation provided by Oxfam, as well as available literature found online. Primary data collection in the form of key informant interviews and focus group discussions with case study stakeholders supported gaps identified through the document review. To guide the methodology and implementation of this report, Oxfam convened a project advisory committee. The committee included former and current Oxfam staff:

- Sandra Hart: former Pacific Regional Cash and Livelihoods Advisor at Oxfam in Vanuatu
- Sem Mabuwa: Portfolio Manager for the Pacific at Oxfam Australia
- Rahul Mitra: Humanitarian Specialist at Oxfam in the Pacific
- Elsa Carnaby: Head of Program Development and Effectiveness at Oxfam Australia
- Lori Banks Dutta: Director for Partnerships Evidence Learning and Innovation at Oxfam in the Pacific
- Cameron Ngatullu: Humanitarian Lead at Oxfam in the Pacific
- Jessica Bird: Human Centred Design Lead at Oxfam Australia
- Stephanie Szkilnik: Legal Counsel at Oxfam Australia.

SECONDARY DATA COLLECTION

Secondary data was used to guide the market and literature scan, as well as the analysis of the four case studies assessed in this study. The case studies analysed included the following programs:

- UnBlocked Cash (UBC) Scaled Response: Tropical Cyclone Harold and COVID-19 (Vanuatu)
- Recovery Effort for Food Security and Integrated Lasting Livelihood for Mahasen affected areas in Barguna (REFILL) project (Bangladesh)
- Caledonia Urban Social Assistance Program (USAP) (Zimbabwe)
- Building Resilient, Adaptive and Disaster-Ready Communities (B-READY) 2 (Philippines)

The project advisory committee proposed these case studies for review as each project:

- Had finished implementation
- Had project staff available to discuss the project
- Used a different e-CVA digital delivery mechanism
- Was implemented in a different emergency and country context
- Had available project data, including proposals, progress and final reports, post-distribution monitoring data, internal or external reviews and evaluations.

The literature and market scan sought to understand the existing landscape of e-CVA delivery methods and tools used in development and humanitarian programming. This was guided by a set of research questions displayed in Table 1.

Table 1: Research questions for the e-CVA market and literature scan

Research areas	Research questions
General	• What digital delivery mechanisms exist? • What different tools are used to assist these delivery mechanisms? • What contexts are these mechanisms best used in? • What gaps in understanding are there for any of the e-CVA mechanisms?
Design and architecture	• How is data validated and verified through this mechanism? • How is confidentiality and security of data ensured? • How easily can the mechanism be customised for different needs and/or contexts?
Governance, operations and regulations	• What is the governance model for the mechanism? • What access management processes are in place? • What jurisdictional laws, regulations and rules govern the use of this mechanism?
Trust and resilience	• How tolerant is the mechanism to faults and errors? • How are the identities of beneficiaries managed and protected?
System integrations	• Is the mechanism interoperable with other systems?
Cost and efficiency	• How much does it cost to implement and utilise the delivery mechanism? • To what extent is the mechanism scalable?

The literature and market scan were limited to the following search parameters:

Type of evidence and databases

- Grey and peer-reviewed literature related to e-CVA delivery in humanitarian settings, including literature from sources such as:
  - Cash and Learning Partnership (CaLP)
  - GSM Association (GSMA)
  - World Bank
  - United Nations High Commissioner for Refugees (UNHCR)
  - United Nations World Food Programme (WFP)
  - Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO)
  - Foreign, Commonwealth and Development Office (FCDO)
  - United Nations Children's Fund (UNICEF)

Search terms

- E-CVA delivery (mobile money, e-vouchers, banking, blockchain)
- Data validation / verification / confidentiality
- Governance model
- Laws / regulation

- Identity management
- Interoperability
- Cost
- Effort / time
- Scalability

Publication time horizon

- Literature published in the past 15 years

Other inclusion or exclusion criteria

- Data and literature reviewed included material available in English. No other published material was reviewed if not available in English.

In addition to the market and literature scan, Oxfam Australia and country teams in Vanuatu, Bangladesh, e and Zimbabwe provided PwC with project documents related to the program case studies. Of the 156 documents received, documentation can be categorised into the following:

- Proposals
- Needs assessments
- Progress reports
- Monitoring and post-distribution monitoring (PDM) reports
- Risk matrices
- Information, education and communication (IEC) materials
- Financial data
- Baseline and endline reports
- Internal reviews and external evaluations.

PRIMARY DATA COLLECTION

To fill in gaps in secondary data, we invited current and former Oxfam project staff – including implementing partners and external consultants – to participate in either one-hour key informant interviews or focus group discussions. In total, 15 stakeholders were invited to participate in consultations, and nine consultations were held. Semi-structured interview and focus group guides (available at Appendix A) were developed for each of the consults based on the overarching review framework questions listed below.

REVIEW FRAMEWORK FOR COMPARATIVE ANALYSIS

To guide the review of the four case studies, we developed and utilised a review framework (Table 3), which aligns with the Organisation for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) criteria. These criteria are described in Table 2 below.

Table 2: Overview of OECD DAC criteria[3]

Criteria	Description
Relevance	The extent to which an intervention's objectives and design aligns with economic, environmental, equity, social, political and capacity considerations to respond to the needs of beneficiaries.
Coherence	The extent to which an intervention is compatible with regulations, policies and other interventions.
Effectiveness	The extent to which an intervention meets its objectives.
Efficiency	The extent to which an intervention is able to minimize the time, resources, cost and effort used to deliver on its objectives.
Impact	The extent to which an intervention contributes to longer-term, higher-level needs, such as general wellbeing, human rights, gender equality and environmental sustainability.
Sustainability	The extent to which the benefits of the intervention last, including the extent to which knowledge is retained by local partners to re-implement a similar intervention in the future.

Table 3: Case study review framework

Key review categories	Criteria	Review questions	Indicative data sources
Preconditions	**Relevance**	How was the CVA mechanism selected to meet beneficiary needs assessed? What selection criteria were applied? How were the needs of marginalised social groups factored into this decision?	Needs assessments Project design / proposal documents

[3] OECD, 'Evaluation Criteria, Oecd.org [website], 2022, https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm (accessed 28 September 2022).

		What level of digital literacy was required from the project team, vendors (if applicable) and beneficiaries to use the CVA mechanism?	Capability assessments Consultations with country office staff
	Coherence (with regulations and other interventions)	How did the CVA mechanism fit within the regulatory landscape in the implementation country? For example, did the implementation country already use emerging technologies such as crypto currencies, stable coins, blockchain based smart contracts and other crypto related assets? Did the CVA mechanism need to be adapted to fit within the regulatory landscape?	Needs assessments Project design / proposal documents Implementation plan Consultations with country office staff
		How did the CVA mechanism integrate with legacy systems, including interoperability, maintenance, and scalability?	
		How did the CVA mechanism demonstrate compliance with requirements and INGO and donor standards relating to security, data protection and privacy?	
	Efficiency	How did the CVA mechanism demonstrate value for money? How much technical support was required to use the CVA mechanism and how much did each payment cost per transaction (excluding beneficiary payment amounts)?	Financial reports Transaction reports Implementation plan Post-distribution monitoring reports Progress reports Consultations with country office staff
		How did the CVA mechanism guarantee reliable data (payments, monitoring and expense tracking)?	
		What technical support, logistics and hardware were required to use the CVA mechanism? What was provided in-country or by head office?	
	Sustainability	Was the CVA mechanism supported by community leaders and government decision makers? What training/orientation was provided?	Progress reports Training material Implementation plan Consultations with country office staff

Digitising stages	**Coherence**	How did the CVA mechanism demonstrate a localised approach to project implementation? To what extent was the CVA mechanism managed in-country versus head office?	Project design / proposal Operational model Consultations with country office staff
	Effectiveness	What steps were taken to enable digital literacy uptake for project staff, vendors (if applicable) and beneficiaries during the beneficiary selection process? How were marginalised groups (including people living with a disability, people in remote locations, women, girls, the sick and elderly) supported with digital literacy training/orientation?	Progress reports Consultations with country office staff KYC criteria prescribed for the selected delivery mechanism
		What Know Your Customer (KYC) information did the CVA mechanism require from vendors (if applicable) and beneficiaries?	
	Efficiency	What role did the CVA mechanism play in beneficiary registration, voucher/payment tracking and expense tracking? How quickly could the CVA mechanism show these results and who could access these?	Transaction reports Post-distribution monitoring repors Consultations with country office staff
		How could the project team and donors access the CVA mechanism to receive timely information pertaining to payment and expense tracking?	
Digitising payment mechanisms	**Effectiveness**	How reliable and accessible was the CVA mechanism for beneficiaries, especially marginalised community members?	Implementation plans Transaction reports Post-distribution monitoring reports Progress reports Consultations with country office staff
		How many beneficiaries accessed their payments out of the total who had been registered (including disaggregated breakdowns)?	
		How did beneficiaries (and vendors if applicable) report finding the CVA mechanism to use?	
		Did the project team have a complaints and feedback mechanism to respond to queries about the CVA mechanism? What feedback did the project team receive?	
	Efficiency	Which and how many stakeholders were involved in-country and in head office to facilitate beneficiary payments and tracking?	Implementation plans Transaction reports
		How long did payments to beneficiaries take via the CVA mechanism?	

		How were the cash payments made to vendors (if applicable) and beneficiaries? e.g., mobile money, electronic or printed vouchers?	Financial reports Post-distribution monitoring reports Progress reports Consultations with country office staff
		Did the CVA mechanism incur additional costs to use intermediaries e.g., banks, exchange apps or platforms? How much were these costs and what were they for?	
		How much did the project cost to set up the CVA mechanism (excluding beneficiary payment amounts)?	
	Sustainability	Was the CVA mechanism able to adapt payment delivery for different contexts? e.g., for areas without reliable internet or low financial or digital literacy? How did the project team adapt the CVA mechanism in these instances?	Post-distribution monitoring reports Progress reports Consultations with country office staff

LIMITATIONS AND CONSIDERATIONS

This report should be considered in the context of the following limitations:

Ability to compare case studies: Each of the four case studies assessed contained differing levels of information regarding the e-CVA mechanisms used, the context and the maturity of the e-CVA mechanisms. Additionally, while the digital technologies used are relatively new, some are more established than others and therefore relatively easier to set up. It should be noted that the available research and literature on e-CVA mechanisms other than blockchain are much more diverse and extend across a longer time period than blockchain-enabled platforms. It would therefore be inaccurate to simply compare more established e-CVA technologies to a nascent technology such as the blockchain-enabled solution used in the UBC Vanuatu project. Accordingly, this study presents strengths and limitations across each of the case studies separately.

Timeframe: this study was undertaken over 40 days between July and September 2022.

Scope: given the timeframe and scope of the study, this project focussed on two key elements: a literature and market scan of available data; and a comparative review of four case studies. Case studies were selected based on whether sufficient documentation was available and whether project teams were able to provide additional information if needed. For each of the case studies assessed, the projects had concluded, meaning that entire project lifecycle data was available to holistically assess project performance.

Project documentation and data: while 156 project documents were received, many did not provide detailed information regarding the operations and performance of the e-CVA mechanism used. In some cases, this has resulted in limitations in providing detailed descriptions to answer the OECD DAC criteria used to guide the review of case studies.

Stakeholder availability: while 15 stakeholders – proposed by Oxfam – were invited to participate in this study, nine stakeholders participated in consultations. If stakeholders were unable to participate in consultations during the three-week consultation period, we were unable to conduct further interviews and instead invited stakeholders to provide feedback and input via email. Two participants shared input via email in the absence of a consultation, and two others also provided further information via email in addition to their consultations.

Experience of case study project recipients: due to the timeframe and scope of this study, we did not consult community members who benefited from the e-CVA projects in scope. Instead, we relied on project monitoring data (especially post distribution monitoring), consultations with project staff and any post-implementation reviews conducted by country teams to understand the insights and views of community members who used the different e-CVA platforms.

Blockchain review scope: as there are a variety ways blockchain can be implemented, this study focussed on applicable mechanisms that can be utilised in development and humanitarian programs. As such, this study focussed on use cases adjacent to Vanuatu's Unblocked Cash project, to illustrate the capability of blockchain in development and humanitarian settings. These case studies are included in the market scan section below.

3 OVERVIEW OF E-CVA MARKET AND LITERATURE SCAN

EXISTING EVIDENCE RELATED TO CVA DELIVERY

Since the early 2000s, the aid sector has witnessed a significant increase in the delivery of CVA programming for development and humanitarian interventions. The uptake of CVA programs over in-kind aid continues to rise, as evidenced by the growth in global figures from USD$ 2.8 billion programmed in 2016 (accounting for 10.6% of International Humanitarian Assistance 'IHA') to USD$ 5.6 billion in 2019 (constituting 17.9% of total IHA).[4]

While physical cash grants and other paper-based transfer modalities are still used in many development and humanitarian contexts, e-CVA delivery mechanisms have grown in uptake over the past decade. The main e-CVA mechanisms used in current humanitarian and development programming can be grouped into four main categories: mobile money, e-vouchers, banking and blockchain-enabled solutions. The market and literature scan below found that there are gaps in available information regarding the strengths and limitations of blockchain-enabled projects for humanitarian interventions, as well as ample evidence of evaluations of e-CVA projects in the humanitarian sector. For this reason, the overviews of the e-CVA categories below are limited to available information sourced online.

MOBILE MONEY

OVERVIEW

Mobile money refers to cash assistance delivered through a SIM card-associated mobile device, through which beneficiaries can access accounts and other financial services such as payments, transfers, insurances, savings and credit. Digital money in these accounts can be transferred to others, cashed out, or used to pay for goods and services (including bills). Mobile money does not require access to a traditional bank account, making it a viable option where a large amount of a population is unbanked.

As at 2019, mobile money was the leading digital delivery mechanism for CVA.[5] Mobile money is particularly prevalent in sub-Saharan Africa, whereby approximately one-fifth (21%) of adults in the region have a mobile money account, and 66% of adults across Kenya, Rwanda, Tanzania and Uganda used mobile money.[6] In recent years, mobile money has also seen significant growth in Asia.[7] Mobile money has become increasingly more accessible globally, mainly due to increased

[4] José Jodar, Anna Kondakhchyan, Ruth McCormack, Karen Peachey, Laura Phelps, Gaby Smith, The State of the Word's Cash 2020 – Full Report CALP Network, 23 July 2020

[5] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', *GSMA LTD*, Atlanta, USA, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[6] Cash Learning Partnership (CaLP) and Inter-Agency Research and Analysis Network (IARAN), 'The Future of Financial Assistance', CaLP and IARAN, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/future-of-financial-assistance-report-fullfinal.pdf

[7] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

access to mobile networks and internet connectivity. In 2016, UNHCR estimated that 93% of refugees have access to some level of mobile coverage, with the caveat that the reliability of connectivity could be poor.[8]

According to the GSM Association (GSMA – formerly the Global System for Mobile Communications), mobile money is generally recommended in low- to lower-middle-income countries, and for some higher-middle income countries (such as Columbia and Jordan).[9] Mobile money is particularly effective where CVA is required to be delivered to a high volume of beneficiaries, but where the transactions are relatively low value.[10] While mobile money is becoming more accessible, it should be noted that rural areas in general remain underserved by this mechanism, largely due to a lack of mobile money agents in the area (agents are discussed further under 'Design and architecture') and the accessibility of mobile networks. [11]

DESIGN AND ARCHITECTURE

The implementation of mobile money requires a number of features, including:

- Mobile infrastructure
- Hardware (mobile handsets)
- Mobile Network Operator (MNO)
- Agent network.

Mobile money requires either mobile network connectivity or access to Wi-Fi internet to be a viable option for CVA programming. As such, significant infrastructure could be required for mobile money to be used in a region that does not already have this connectivity. Connectivity does not have to be constant, however. Mobile money may utilise technology (e.g., QR codes or Bluetooth) which allows beneficiary and vendor handsets to interact in an offline setting. The vendor devices will then need to travel to an area with mobile coverage to sync transaction information to a central online database.[12] Mobile devices can also act as vehicles for e-vouchers, which work similarly in these intermittent offline settings. For the purpose of this report, e-vouchers that are unable to be transferred person-to-person will be classified separately to mobile money and are discussed further in the e-voucher section.

While individuals do require a mobile device to access mobile money, they do not require a smartphone.[13] Many mobile money platforms utilise basic SMS services which do not require internet access, are relatively inexpensive and can operate when only narrowband speeds are available.[14]

[8] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[9] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[10] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[11] Cash Learning Partnership (CaLP) and Inter-Agency Research and Analysis Network (IARAN), 'The Future of Financial Assistance', CaLP and IARAN, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/future-of-financial-assistance-report-fullfinal.pdf

[12] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[13] Cash Learning Partnership (CaLP) and Inter-Agency Research and Analysis Network (IARAN), 'The Future of Financial Assistance', CaLP and IARAN, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/future-of-financial-assistance-report-fullfinal.pdf

[14] Cash Learning Partnership (CaLP) and Inter-Agency Research and Analysis Network (IARAN), 'The Future of Financial Assistance', CaLP and IARAN, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/future-of-financial-assistance-report-fullfinal.pdf

The digital cash itself is generally provided in the national currency of the country,[15] and can utilise a number of supporting delivery tools. For example, mobile money may be transferred via text messages which contain a code that beneficiaries can provide to merchants or agents in order to purchase goods or cash out their digital money. This code verifies the beneficiary's identity and also verifies the value of the cash stored on their mobile device. Sometimes, a bespoke application is developed and installed onto individual SIM cards for a customised delivery of mobile money.[16] Some services also provide cards to beneficiaries which link to their mobile money accounts.[17]

The mobile money service itself is usually managed by a MNO, though other financial entities can also deliver mobile money.[18] Although bank accounts are not required for beneficiaries, it is most often necessary for the MNO or other service provider to utilise a formal bank account so that they are able to match the value of e-money in a separate account.[19] This ensures that if the service provider fails, beneficiaries are able to recover the entirety of the value of their account.

Mobile money systems also require a network of registered transfer agents which are contracted by the service provider to register mobile money users, disburse cash and accept mobile money.[20] Selection of appropriate agents can be critical to the success of mobile money, as operational faults can often be traced back to issues within the agent network.[21] This is particularly the case when a 'Super Agent' is established. A Super Agent is a distribution company which acts as a wholesaler for e-money to other agents for a fee, which can assist with liquidity[22] (liquidity issues are one of the most common issues associated with mobile money agent networks, as agents may not have access to enough cash to service the demand of beneficiaries).[23] Super Agents can also play a role in recruiting sub-agents. Mismanagement or over-reliance on Super Agents, however, can impact overall agent quality if formal agent selection criteria are not adhered to or insufficient training is provided.[24] It may also impact the geographical spread of sub-agents recruited, which can cause a sub-optimal agent network.[25] According to a Roland Berger report, the optimal agent network should aim for a coverage of about 200 users per agent.[26]

[15] Cash Learning Partnership (CaLP) and Inter-Agency Research and Analysis Network (IARAN), 'The Future of Financial Assistance', CaLP and IARAN, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/future-of-financial-assistance-report-fullfinal.pdf

[16] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[17] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[18] N. Naghavi, J. Shulist, S. Cole, J. Kendall, W. Xiong, 'Success factors for mobile money services: A quantitative assessment of success factors', London, UK, GSMA LTD, 2016 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/11/GSMA_Success-factors-for-mobile-money-services.pdf

[19] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[20] Mercy Corps, 'E-Transfer Implementation Guide', Oregon, USA, Mercy Corps, 2018, https://www.mercycorps.org/sites/default/files/2020-01/EtransferGuide2018%2C%20Final.pdf

[21] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

[22] F. Reitzug, 'Digital Financial Services and the Business of Managing Cash: Using Data-driven Insights to Address the Agent Liquidity Challenge', Johannesburg, Africa, International Finance Cooperation (IFC), 2020, https://documents1.worldbank.org/curated/en/794131592190426168/pdf/Digital-Financial-Services-and-the-Business-of-Managing-Cash-Using-Data-Driven-Insights-to-Address-the-Agent-Liquidity-Challenge.pdf

[23] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

[24] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

[25] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

[26] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

System integrations

Where the delivery of mobile money in humanitarian settings involves investment in and distribution of mobile handsets, there can be significant complementary benefits for beneficiaries. Access to a mobile device will allow users to improve their connectivity to other services and information. It can also allow the service provider or aid agency leading a e-CVA project to easily communicate with beneficiaries and request feedback on a live program.[27] Mobile money can also provide beneficiaries with digital transaction records, which can be useful in creating a credit score to access small loans.[28]

From a delivery perspective, secondary partners in the form of technology service providers (TSP) can theoretically enable interoperability between different mobile money services. For example, in a region that might employ different services (e.g., GSMA reports that there are five different mobile money services operating in Kenya[29]), a TSP could potentially build a portal to allow mobile money transfer to beneficiaries utilising any existing service already available.[30] It should be noted though that this can create disincentives for providers in the region who would be expected to share their revenue with competitors, and lack of interoperability for mobile money programs remains a consistent challenge.[31]

GOVERNANCE AND REGULATIONS

Given that there are some banking functions associated with mobile money systems, local banking and anti-money laundering regulations apply to the delivery of mobile money.[32] One of the key barriers to mobile money for certain cohorts is the level of Know Your Customer (KYC) requirements needed for SIM registration, as governed by central banks and financial regulators. SIM cards can also be subject to regulations enforced by telecommunications regulators.[33] As at February 2018, registration was required for SIM cards in 147 countries.[34] This requirement has seen strong adoption across Africa in particular, where most countries have now introduced mandatory SIM registration requirements.[35] While KYC requirements vary across countries, generally acceptable forms of identification include national ID cards, passports, work permits, voter ID cards and other government-issued documentation. While there may be several options for proof of ID, these requirements can tend to exclude beneficiaries who lack official ID, such as refugees or asylum seekers.

Allowances for other forms of ID, however, are more flexible in some countries. For example, Ethiopia accepts refugee ID cards issued by the Administration for Refugee-Returnee Affairs and

[27] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[28] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[29] GSMA, 'Mobile Money Metrics', gsma.com [website], 2022, https://www.gsma.com/mobilemoneymetrics/#deployment-tracker [accessed 12 September 2022]

[30] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[31] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[32] Mercy Corps, 'E-Transfer Implementation Guide', Oregon, USA, Mercy Corps, 2018, https://www.mercycorps.org/sites/default/files/2020-01/EtransferGuide2018%2C%20Final.pdf

[33] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[34] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[35] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

UNHCR as a valid ID for SIM card registration.[36] However, according to UNHCR's 'Displaced & Disconnected' report, low levels of refugees in this context had been issued this type of ID, and so the extent of benefit is limited.[37] There is also a potential for tiered KYC requirements to be applied for the provision of mobile money. This would mean a beneficiary could provide alternative forms of ID or less information than in normal circumstances to access mobile money, but would be limited in what they could access. An example of this is Nigeria's three-tier KYC regulation system. At its lowest level, it requires basic customer information such as name, a passport photo, place and date of birth, gender, address and telephone number. The provision of this information would allow a beneficiary to access low value mobile money accounts. At this level, beneficiaries could access a maximum transaction limit of N3,000 and a daily limit of N30,000 for mobile banking transactions.[38] This tiered system is also applicable to traditional bank accounts in Nigeria (discussed in more detail in the 'banking' section). Other countries have employed the use of biometrics to overcome ID challenges. For example, Thailand and Bangladesh now implement biometric checks for SIM card registration.[39] More information on this can be found in Box 1.

Box 1: Cross-cutting considerations: biometrics for KYC requirements

Note that the information here applies to all digital platforms, not just mobile money.

Biometrics refers to the technical systems involved in the collection of biometric data (which includes measurable physical characteristics of personal traits that are unique to an individual) for the purposes of identification or authentication.[40] Biometrics may include devices such as fingerprint readers, iris scanners or face prints. More advanced tools becoming available also include devices that can register and identify voice prints, retinal scans, vein patterns, tongue prints, lip movements, ear patterns, gait and DNA.[41]

Biometrics have been employed in humanitarian settings to increase access to CVA programs where beneficiaries lack government-issued identification. Once biometric data is collected, this can be used for the initial verification of beneficiaries against a beneficiary database to prevent fraudulent registrations for assistance, and to verify the identity of a beneficiary when they attempt to use a device or card linked to a specific ID.[42]

While this can be beneficial for the inclusion of cohorts in CVA delivery, there are significant risks associated with the replication, distillation and storage of biometric information. This data could provide real-time and direct oversight of how each beneficiary is using their allocations, which can collect granular data on the individual's movements, purchases, attendance at certain locations and access to services. This information is incredibly sensitive and could cause great harm if obtained and used by malevolent actors. This is of particular concern to beneficiaries who may be fleeing persecution.[43]

[36] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[37] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[38] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[39] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[40] The Engine Room and Oxfam, 'Biometrics in the Humanitarian Sector', 2018, https://www.theengineroom.org/wp-content/uploads/2018/03/Engine-Room-Oxfam-Biometrics-Review.pdf

[41] The Engine Room and Oxfam, 'Biometrics in the Humanitarian Sector', 2018, https://www.theengineroom.org/wp-content/uploads/2018/03/Engine-Room-Oxfam-Biometrics-Review.pdf

[42] The Engine Room and Oxfam, 'Biometrics in the Humanitarian Sector', 2018, https://www.theengineroom.org/wp-content/uploads/2018/03/Engine-Room-Oxfam-Biometrics-Review.pdf

[43] The Engine Room and Oxfam, 'Biometrics in the Humanitarian Sector', 2018, https://www.theengineroom.org/wp-content/uploads/2018/03/Engine-Room-Oxfam-Biometrics-Review.pdf

While biometrics can enhance the accuracy of identification and reduce fraud, it is not immune to errors. It has been known to return false matches (possibly reflecting errors in recording biometric data). Fingerprinting has the highest rate of error, and there can also be difficulties with iris scanning as aging impacts the iris and can impact appropriate authentication. Iris scans and fingerprints can also be replicated, allowing deception of biometric systems.

In the EU, the use of biometrics is governed by the European Union's General Data Protection Regulation (GDPR). [44] This has placed new requirements on the management of personal and sensitive data for most EU based organisations.[45] The GDPR defines biometric data as a special category of personal data, and as such imposes strict limitations on the processing of this type of information.[46]

Regulations may also govern the types of companies which can be licensed as mobile money providers, their obligations in regard to the safety of customer funds, and the methods used to recruit and manage agents.[47]

Costs and scalability

The cost of delivering CVA via mobile money can vary largely depending on existing mobile infrastructure. It can be very costly to set up this infrastructure in areas where it is lacking and can be twice as expensive to establish in rural areas compared with urban areas.[48] In addition, mobile money may be costly in locations where consumer uptake of mobile money is limited (such as in Vanuatu). However, operational cost per mobile money account and per transaction tends to be relatively low compared to other financial systems, with evidence suggesting the costs can be 40% lower than the cost of banking products.[49]

As per Roland Berger's 'Mobile money for the unbanked' report, in East Africa, the average costs of mobile money per transaction have been estimated through field interviews. These costs were broken down into three main categories:

- Mobile money agent (USD$ 0.24 per transaction). Agent commission was a key cost driver.
- Mobile money vendors (USD$ 0.11 per transaction). The key cost drivers were vendor onboarding and the equipment to be supplied to vendors.
- Mobile initiation performed by the MNO (USD$ 0.03 per transaction). The key cost drivers were related to the ancillary functions which enabled the delivery of mobile money, including a customer hotline, marketing expenses and an Information Technology (IT) platform.[50]

From the evidence reviewed, total non-transfer costs (i.e., costs outside of the direct transfers

[44] L. Raftree, 'Data Responsibility Toolkit: A Guide for Cash and Voucher Practitioners', The Cash Learning Partnership (CaLP), 2021, https://www.calpnetwork.org/wp-content/uploads/2021/03/Data-Responsibility-Toolkit_A-guide-for-Cash-and-Voucher-Practitioners.pdf

[45] L. Raftree, 'Data Responsibility Toolkit: A Guide for Cash and Voucher Practitioners', The Cash Learning Partnership (CaLP), 2021, https://www.calpnetwork.org/wp-content/uploads/2021/03/Data-Responsibility-Toolkit_A-guide-for-Cash-and-Voucher-Practitioners.pdf

[46] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

[47] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[48] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[49] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[50] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

made to beneficiaries) tend to vary between about 35% and 64% of the total transfer value for mobile money delivery. The cost-transfer ratios of different programs are shown in Table 4.

Table 4: Cost-transfer ratios of mobile money programs

Country and year	Cost-transfer ratio*
Average of 7 projects (2011-2014)[51]	0.64
Kenya (2009-2011)[52]	0.64
Somalia (2012)[53]	0.45
Zimbabwe (2015-2016)[54]	0.35

*non-transfer costs/total transfer value to beneficiaries. This demonstrates the administrative costs associated with delivering $1 of assistance. For example, a cost-transfer ratio of 0.64 indicates that for every $1 of assistance provided to beneficiaries, an additional $0.64 was spent in delivering the program.

Cost saving can be realised through the use of MNOs rather than other financial service providers. The costs of services provided by MNOs as opposed to other financial service providers indicates that MNOs are more efficient and are able to provide services that are better suited for low-income cohorts. This is supported by GSMA's research which finds that countries with a low GDP per capita exhibited the highest levels of active mobile money accounts.[55] Average costs per transaction and average transfer fees are compared between MNO-led and non-MNO led mobile money providers in Table 5.

Table 5: Costs associated with MNO and non-MNO-led mobile money transactions

	Average cost per transaction ($)	Average transfer fee (%)
Global (MNO-led)	USD$ 0.41[56]	2.06%*[57]

[51] N. Maunder, N. Dillon, G. Smith, S. Truelove, V. De Bauw, 'Evaluation of the Use of Different Transfer Modalities in ECHO Humanitarian Aid Actions 2011 – 2014: Final Report', Louvain-la-Neuve, Belgium, Analysis for Economic Decisions (ADE), 2016, https://www.calpnetwork.org/wp-content/uploads/2020/01/evaluationtransfermodalitiesfinalreport012016en.pdf

[52] C. O'Brien, F. Hove, G. Smith, 'Factors Affecting the Cost-Efficiency of Electronic Transfers in Humanitarian Programmes', 2013, https://www.calpnetwork.org/wp-content/uploads/2020/01/opm-cost-efficiency-of-e-transfers-web.pdf

[53] C. O'Brien, F. Hove, G. Smith, 'Factors Affecting the Cost-Efficiency of Electronic Transfers in Humanitarian Programmes', 2013, https://www.calpnetwork.org/wp-content/uploads/2020/01/opm-cost-efficiency-of-e-transfers-web.pdf

[54] N. Tirivayi, P. Matondi, S.M. Tomini, W.M. Tesfaye, S. Chikulo, C. van den Berg Morelli, 'Humanitarian Assistance through Mobile Cash Transfers: Emergency Cash-First Response to food security in drought-affected communities in Southern Zimbabwe through a mobile cash transfer project', Maastricht, The Netherlands, United Nations University (UNU-MERIT), 2016, https://careevaluations.org/wp-content/uploads/evaluations/emergency-cash-first-response-evaluation.pdf

[55] N. Naghavi, J. Shulist, S. Cole, J. Kendall, W. Xiong, 'Success factors for mobile money services: A quantitative assessment of success factors', London, UK, GSMA LTD, 2016 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/11/GSMA_Success-factors-for-mobile-money-services.pdf

[56] N. Naghavi, J. Shulist, S. Cole, J. Kendall, W. Xiong, 'Success factors for mobile money services: A quantitative assessment of success factors', London, UK, GSMA LTD, 2016 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/11/GSMA_Success-factors-for-mobile-money-services.pdf

[57] N. Naghavi, J. Shulist, S. Cole, J. Kendall, W. Xiong, 'Success factors for mobile money services: A quantitative assessment of success factors', London, UK, GSMA LTD, 2016 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/11/GSMA_Success-factors-for-mobile-money-services.pdf

Global (non-MNO-led)	USD$ 0.90[58]	4.28%*[59]

* As a proportion of transaction value

Scaling mobile money services can be challenging due to the requirements to register new beneficiaries while also maintaining active beneficiaries, which can also place demand pressures on the existing agent network.[60] This creates liquidity issues, as agents are unable to service the increased demand of beneficiaries with the cash they have on hand. As discussed in the 'Design and Architecture' section, liquidity issues can be reduced through the use of a Super Agent, though noting this can be associated with other challenges such as a sub-optimal geographic distribution of sub-agents.[61] It also tends to be more difficult to expand services into rural areas where infrastructure is required due to the associated costs. However, it can be relatively easy to expand the agent network, as small-scale traders can serve as agents in some markets, allowing expansion without the need for a large team.[62]

A summary of the strengths and limitations of mobile money is presented in Table 6.

Table 6: Mobile money strengths and limitations

Strengths	Limitations
• Suitable for unbanked beneficiaries • Agent networks can be wide-reaching (better geographic coverage and less travel for beneficiaries) • Improved connectivity with other mobile services (e.g., communication apps) • Integrates easily with feedback mechanisms • Lower cost than banking products	• High KYC requirements • Mobile infrastructure required • Dependent on mobile coverage, which can be damaged during wide-scale disasters • Dependent on liquidity (cash) available across agent network in operating area • Reliant on availability of mobile money services and consumer usage/familiarity

E-VOUCHERS

Overview

E-vouchers include assistance linked to an e-wallet through a physical card or code delivered on a mobile device, which can then be electronically redeemed at selected vendors. E-vouchers are generally used to allow beneficiaries greater access to a particular set of goods or services, as the vouchers can only be redeemed at registered vendors. As such, they are generally more limiting that mobile money accounts or bank transfers.

E-vouchers are often appropriate in settings where there is a lack of ID among beneficiaries suitable to meet KYC requirements for mobile money and banking, as they are usually not subject to

[58] N. Naghavi, J. Shulist, S. Cole, J. Kendall, W. Xiong, 'Success factors for mobile money services: A quantitative assessment of success factors', London, UK, GSMA LTD, 2016 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/11/GSMA_Success-factors-for-mobile-money-services.pdf

[59] N. Naghavi, J. Shulist, S. Cole, J. Kendall, W. Xiong, 'Success factors for mobile money services: A quantitative assessment of success factors', London, UK, GSMA LTD, 2016 https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/11/GSMA_Success-factors-for-mobile-money-services.pdf

[60] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[61] Roland Berger, 'Mobile money for the unbanked – Avoiding common industry pitfalls', Munich, Germany, Roland Berger GMBH, 2017, https://www.rolandberger.com/publications/publication_pdf/ta_16_045_mobile_money_singapore_21_02_2017.pdf

[62] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

or have minimal requirements to meet financial regulations. This will be discussed further in the 'Governance and regulations' section. E-vouchers can also be beneficial in countries experiencing significant inflation or depreciation, as they can be pegged to a stable currency.[63]

Please note that the following sections discuss generalised features of e-voucher systems, but that the product features of specific platforms can impact factors such as systems integration, cost and scalability.

Design and architecture

E-vouchers are generally created using software which needs to be licensed from a third-party technology provider.[64] E-voucher providers can include voucher specialists, some banks and MNOs.[65] The delivery of e-vouchers also requires the establishment of a local vendor network which can accept the e-vouchers through their Point of Sale (POS) hardware (which needs to be distributed by the e-voucher provider). On a regular basis, the aid agency will pay out the amount of purchases made through the e-vouchers to the vendors where they were used.

E-vouchers can be delivered through mobile devices, through cards, or could be a voucher number and PIN provided on paper, which is then redeemed electronically at the vendor site. Vendors will then utilise their POS hardware (e.g., a mobile device or computer) to verify and process the voucher. Usually, devices or cards that hold the voucher value are distributed to beneficiaries once, however they will have the ability to be re-loaded and credited remotely.[66]

E-vouchers can take several forms. In card form, providers may choose to supply pre-paid cards or stored value cards. Pre-paid cards are pre-loaded with the allocation amount and are issued in the name of the beneficiary. These cards can be either disposable or reusable (in which case they can often be reloaded remotely). Stored value cards are similar to pre-paid cards, however, are anonymous. Stored value cards can be useful for crises where there is limited time for beneficiary registration and quick distribution is required, or where a one-off transfer is involved. However, the anonymised nature of the cards means that they are tradable and could be used by someone other than the intended beneficiary.[67]

Cards can use different types of technology to store information on voucher value, balance and any associated ID information. If POS devices used to redeem e-vouchers are able to connect to the internet or mobile networks, this information can be automatically synced to a central database. If connectivity is limited, e-vouchers can still be used, however POS devices will need to periodically travel to areas of connectivity to sync data. More information on this is provided in Box 2. Note that these technologies can also be used by cards associated with bank accounts.

Box 2: Card connectivity types

Several contactless communication technologies enable vouchers to interact with POS machines in offline settings. POS devices will then need to travel to a location with mobile coverage or internet connection to sync data to a centralised database.

Smart cards

[63] Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO), 'DG ECHO Thematic Policy Document No 3: Cash Transfers', Luxembourg, EU, European Union, 2022, https://ec.europa.eu/echo/files/policies/sectoral/thematic_policy_document_no_3_cash_transfers_en.pdf

[64] K. Sossouvi, 'E-Transfers in Emergencies: Implementation Support Guidelines', The Cash and Learning Partnership (CaLP), 2013, https://resources.peopleinneed.net/documents/476-e-transfer-guidelines-english-20-12-2013.pdf

[65] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[66] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[67] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

The most secure type of card are smart cards, which incorporate an embedded microprocessor chip which stores the beneficiary's ID and the voucher value. A PIN, signature or biometric check would be completed upon use of the card to verify the beneficiary's ID.

Near Field Communication (NFC)

NFC is a contactless communication technology which enables the sharing of data between NFC-compatible devices (including between a card and device). [68] The use of NFC is considered secure given that each device and/or card needs to be held very close for the transmission of information to occur (approximately four centimetres or closer).[69] However, there is a risk of skimming and cloning of NFC cards through the use of smartphones.

NFC cards are expensive compared to other technologies, as they require not only specialised cards but also NFC-writable devices.[70] However, NFC cards are reusable, with some programs collecting cards from beneficiaries after a distribution period and reusing them for a new group of beneficiaries.[71]

Magnetic strip cards

The banking industry typically uses magnetic strip cards which can be recognised at POS terminals or at ATMs. These cards can store the ID of the beneficiary and allows the recording of information related to the payment amount and the balance on the card.[72] The card transactions and balance, however, can only be seen when connected to a central processing server. These magnetic strips cards are relatively inexpensive.[73]

Quick Response (QR) codes

QR codes can be printed onto card-based e-vouchers or sent via mobile. These codes can be scanned by mobile applications to provide information about the voucher. QR codes benefit from a high level of flexibility and are highly customisable. They also provide simple reporting of purchases and incur low costs as no additional hardware is required.[74]

Mercy Corps' e-voucher program in 2014 in the Democratic Republic of the Congo (DRC) utilised smart cards and POS devices (tablets) which were often used in an offline environment. The POS devices were able to store transactions, which could then be synced to an online environment at one of Mercy Corps' offices. Mercy Corps reported the system as being relatively accessible for those with low digital literacy. This program, however, did not provide options for authenticating the owners of the vouchers when they are provided to merchants, however Mercy Corps notes that they could have the ability to add a name to the smart card and implement a requirement for the name to be checked against photo ID when used at a vendor site. Another project run by Mercy Corps included the use of smartphones to store e-vouchers and allowed beneficiaries to be assigned a

[68] B. Rust, 'Unblocked Cash: Piloting Accelerated Cash Transfer Delivery in Vanuatu', Victoria, Australia, Oxfam Australia, 2019, https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/unblocked-cash-research-report-web.pdf

[69] B. Rust, 'Unblocked Cash: Piloting Accelerated Cash Transfer Delivery in Vanuatu', Victoria, Australia, Oxfam Australia, 2019, https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/unblocked-cash-research-report-web.pdf

[70] Aria Solutions, 'Mapping Report', Internal Document, n.d.

[71] Aria Solutions, 'Mapping Report', Internal Document, n.d.

[72] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[73] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[74] Aria Solutions, 'Mapping Report', Internal Document, n.d.

PIN. [75]

The setup of an e-voucher system can be time-intensive due the high level of customisation associated with these systems, and to ensure installation of appropriate POS devices at selected vendors.[76]

System integrations

Further examples from Mercy Corps provide examples of the systems used to support e-voucher delivery. As part of their e-voucher programs in the DRC and Nepal, Mercy Corps utilised an online platform that allowed them to top up vouchers remotely. This online platform also allowed Mercy Corps to monitor transactions and produce automated reports (noting that this required internet access to connect to a secure website).

E-voucher systems can also integrate with other forms of cash and voucher assistance. For instance, a digital platform on a mobile device could be developed to facilitate both mobile money and the use of e-vouchers.

Governance and regulations

E-vouchers are usually not linked to local financial institutions from the beneficiary side, and so are not typically regulated by local banking or financial laws and rules (excluding the payment of vendors via financial institutions).[77] As such, e-vouchers are often used when digital cash (i.e., mobile money) is not permitted under a country's regulations, or where lower KYC requirements are desired. Access to these vouchers can be secured by a personal identification number (PIN), or through biometrics to reduce the risk of fraud.

Cost and scalability

E-vouchers may be expensive to set up in the short-term due to the requirement for a network to be established and for appropriate hardware (i.e., POS devices) to be supplied and installed at selected vendors. E-voucher programs can require a high level of system customisation which contributes to the time-intensity of setting up the program.

Other costs may include software licences or services which may need to be purchased to facilitate the distribution and redemption of the vouchers.[78] The expiration of these licences may also result in recurring costs if the system is used in the long-term, although generally the deployment of e-voucher programs is more efficient over a longer time period, once the initial hardware is rolled out. If software and copyrights are owned by the aid agency, system customisation can be conducted without incurring high fees (as is the case with the World Food Programme's e-voucher system).[79]

Limited data on the costs of e-voucher delivery was found, mainly due to a lack of disaggregation in programs that utilised e-vouchers among other CVA delivery methods (e.g., mobile money, paper-based vouchers). However, a study of two projects utilising e-vouchers from 2011-2014 found an average cost-transfer ratio of 0.31.[80] Additionally, a COVID-19 response program led by the Red Cross in the Netherlands utilising multiple CVA mechanisms found that e-voucher delivery was the

[75] Mercy Corps, 'E-Transfer Implementation Guide', Oregon, USA, Mercy Corps, 2018, https://www.mercycorps.org/sites/default/files/2020-01/EtransferGuide2018%2C%20Final.pdf

[76] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[77] Mercy Corps, 'E-Transfer Implementation Guide', Oregon, USA, Mercy Corps, 2018, https://www.mercycorps.org/sites/default/files/2020-01/EtransferGuide2018%2C%20Final.pdf

[78] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[79] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[80] N. Maunder, N. Dillon, G. Smith, S. Truelove, V. De Bauw, 'Evaluation of the Use of Different Transfer Modalities in ECHO Humanitarian Aid Actions 2011 – 2014: Final Report', Louvain-la-Neuve, Belgium, Analysis for Economic Decisions (ADE), 2016, https://www.calpnetwork.org/wp-content/uploads/2020/01/evaluationtransfermodalitiesfinalreport012016en.pdf

most cost-efficient, with a cost-transfer ratio of just 0.08.[81] This is attributed to the scale of the response, and the minimal resources required to implement e-vouchers after the initial setup.[82]

A summary of the strengths and limitations of e-vouchers is presented in Table 7.

Table 7: E-vouchers strengths and limitations

Strengths	Limitations
• Low KYC requirements (i.e., less formal regulation dictating ID requirements) • Can be efficient in the long term once systems and hardware are established • Permits offline transactions, so long as devices have battery and power	• Expensive in the short term due to customised system setup and Point of Sale (POS) devices • Recurring costs associated with software licences • Potentially high monitoring costs • Time-intensive if a high level of customisation is required • Restricted vendors

BANKING

Overview

Bank transfers via licenced banks or financial institutions can also be utilised in the delivery of CVA. Banking products are generally more useful for low volume and high value transactions, and in urban areas.[83] Banking has limited reach in rural areas and in areas where there is limited access to bank branches and/or ATMs and can also be challenging where beneficiaries have a low level of financial literacy.

Although the use of banking services can increase the number of banked individuals in a population and contribute to financial inclusion, banking mechanisms are generally not recommended in areas where a substantial number of beneficiaries are unbanked.[84] In addition, the stringent KYC requirements associated with these services is likely to exclude certain cohorts (e.g., asylum seekers and refugees), which can deepen the divide between the banked and unbanked.[85] Most unbanked individuals live in developing countries, and almost 50% live in either Bangladesh, China, India, Indonesia, Mexico, Nigeria or Pakistan. Globally, women comprise 56% of the unbanked.[86]

Design and architecture

If bank transfers are to be used for CVA delivery and beneficiaries do not already have bank accounts, the bank or financial service provider will open accounts which are allocated to individuals or families or will open one group account which stores the total value for all beneficiaries. Cash is then allocated to these accounts via bank transfer. Bank transfers can be performed digitally through mechanisms such as internet banking, which can be used by the aid

[81] C. Charlot, M. Ossandon, 'Value for Money Study: Red Cross COVID-19 Response Programme in Aruba, Curaçao and Sint Maarten', Tiquetonne, Paris, Key Aid Consulting, 2022, https://deugdelijkbestuuraruba.org/wp-content/uploads/2022/05/20220128-NLRC-COVID-19-Response-Programme-CAS_Final34.pdf

[82] C. Charlot, M. Ossandon, 'Value for Money Study: Red Cross COVID-19 Response Programme in Aruba, Curaçao and Sint Maarten', Tiquetonne, Paris, Key Aid Consulting, 2022, https://deugdelijkbestuuraruba.org/wp-content/uploads/2022/05/20220128-NLRC-COVID-19-Response-Programme-CAS_Final34.pdf

[83] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[84] Aria Solutions, 'Mapping Report', Internal Document, n.d.

[85] Aria Solutions, 'Mapping Report', Internal Document, n.d.

[86] Cash Learning Partnership (CaLP) and Inter-Agency Research and Analysis Network (IARAN), 'The Future of Financial Assistance', CaLP and IARAN, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/future-of-financial-assistance-report-fullfinal.pdf

agency or can be conducted by the financial institution itself with instructions from the aid agency.[87] Beneficiaries can access cash in the account via the bank itself, ATMs (with the use of a card) or via mobile devices. Globally, banks are also increasing access to cash-out services by including locations such as retail stores and pharmacists as cash in and out points.[88] This is particularly important in areas where banking infrastructure, such as branches and ATMs, is underdeveloped.

Cards used for banking purposes can include debit and ATM cards. Debit cards provide a direct link to a bank account and allow the user to use it to withdraw money from an ATM or make purchases at stores. ATM cards also link to a bank account but only allow the user to withdraw cash from an ATM.[89] Regarding card design, the banking industry typically uses magnetic strip cards which can be recognised at POS terminals or at ATMs. These cards can store the ID of the beneficiary and allow the recording of information related to the payment amount and the balance on the card.[90] The card transactions and balance, however, can only be seen when connected to a central processing server. These magnetic strip cards are relatively inexpensive.[91] Different types of card designs can be found in Box 2.

When considering the design of a banking-based CVA program, analysis of local context is critical to understand the viability and sustainability of outcomes for beneficiaries. For instance, beneficiaries may not own bank accounts because they do not know how to use them.[92] Sufficient training would therefore need to be factored into the design of the bank transfer CVA program. The location and reach of banks in the target region are also a key factor in ensuring equitable access. A lack of physical banks can make it challenging to resolve issues for those with low levels of literacy or financial understanding to access internet banking, and beneficiaries often had to travel long distances to seek help at their nearest branch. Choosing institutions that have sufficient geographic coverage can overcome this to some extent. During the 2014 conflict in Ukraine, Mercy Corps utilised bank transfers to provide cash to beneficiaries in government-controlled areas, choosing a financial institution which had reach into rural areas to foster deeper inclusion.[93]

The ease of engagement with chosen commercial banks and financial providers can also be challenging. The procurement and contracting process can take a relatively long amount of time, and financial providers driven by profit may not be willing to engage if the project is not sufficiently profitable for them.[94]

In some cases, a lack of sustainability may suggest banking is not the right option for CVA delivery. For example, some communities may feel that a bank account is not needed as part of their context

[87] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[88] L. Balmer, S. Mohammed Aftab Alam, B. Koirala, 'Cash and Voucher Assistance (CVA): A Step-By-Step Guideline', Plan International, 2021, https://www.calpnetwork.org/wp-content/uploads/ninja-forms/2/GLO_CVA-Guidelines_May-2021_ENG.pdf

[89] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[90] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[91] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[92] The Cash Learning Partnership (CaLP), 'Assessment of Financial Service Providers – CVA in Yemen', 2021, https://www.calpnetwork.org/wp-content/uploads/2021/09/ASSESSMENT-OF-FINANCIAL-SERVICE-PROVIDERS-%E2%80%93-CVA-IN-YEMEN-1409.pdf

[93] Mercy Corps, 'The Cash Transfer Implementation Guide: Part of the Cash Transfer Programming Toolkit', Oregon, USA, Mercy Corps, 2017, https://www.mercycorps.org/sites/default/files/2019-11/CashTransferImplementationGuide.pdf

[94] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

in a cash-based economy.[95] A large initial investment associated with the opening of bank accounts may therefore not be justified if their use is not ongoing.

System integrations

Banks and financial institutions can be integrated with digital CVA systems (such as those created by Last Mile Mobile Solutions, RedRose and Laligurans) through application programming interfaces (APIs). This is software that allows two or more applications to communicate. It allows beneficiary bank account details to be easily shared with the institution and facilitates live reporting of transfers.[96]

Access to banking can provide beneficiaries access to a range of financial products and services, such as loans. However, these additional features may not be helpful for beneficiaries in a humanitarian setting, as typically low-income individuals will not be eligible for loans.[97]

Governance and regulations

Banks are regulated globally and are generally desirable in terms of their established reputation for system reliability, management of financial risks and adherence to laws to protect against corruption and money diversion.[98] They tend to be deemed as one of the most secure methods of delivering cash assistance. Standard specifications which govern the procurement of banks and financial institutions point to criteria such as financial strength, history of safely holding and transferring large volumes of cash, strong reporting requirements and competitive service fees.[99]

Generally, financial institutions must comply with more stringent KYC requirements than other organisations, such as MNOs, which can limit use in humanitarian contexts.[100] A review of 20 countries found that all institutions mandated KYC requirements for bank accounts at some level.[101] Most of the countries reviewed did not allow refugees or asylum seekers to access bank account or other financial services without a valid passport or ID card issued by their home country. One exception is Malawi, which accepts UNHCR registration cards as valid ID for asylum seekers and refugees, however this is uncommon.[102] Even where a valid ID can be presented, sometimes additional requirements (such as proof of address or proof of income) can hinder access to bank accounts.[103] Bank account access in some countries has been facilitated through the issuance of prepaid cards under the name and control of UNHCR, which allow beneficiaries to access certain agencies for assistance.[104] Restrictions are placed on transactions, however, and activities such as receiving deposits from other parties, receiving remittances and performing online purchases are

[95] The Cash Learning Partnership (CaLP), 'Assessment of Financial Service Providers – CVA in Yemen', 2021, https://www.calpnetwork.org/wp-content/uploads/2021/09/ASSESSMENT-OF-FINANCIAL-SERVICE-PROVIDERS-%E2%80%93-CVA-IN-YEMEN-1409.pdf

[96] Aria Solutions, 'Mapping Report', Internal Document, n.d.

[97] GSMA, 'Mobile money enabled cash aid delivery: Essential considerations for humanitarian practitioners', Atlanta, USA, GSMA LTD, 2019, https://www.calpnetwork.org/wp-content/uploads/2020/03/essentialconsiderationsforusingmobilemoney-1.pdf

[98] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[99] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[100] K. Sossouvi, 'E-Transfers in Emergencies: Implementation Support Guidelines', The Cash and Learning Partnership (CaLP), 2013, https://resources.peopleinneed.net/documents/476-e-transfer-guidelines-english-20-12-2013.pdf

[101] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[102] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[103] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[104] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

prohibited when using these cards. [105]

Similar to mobile money, there is the potential to employ tiered KYC requirements for banking. In addition to the allowances for low-value mobile banking, Nigeria also has a tiered system for traditional banking, allowing restricted low value accounts to be allocated to individuals who can provide basic ID.[106] Other countries, such as Uganda, are utilising biometric technology to overcome ID challenges.

Cost and scalability

Banking costs can be incurred from account opening, recurring account charges, the creation of cards, transaction fees and card reload fees. For example, an Action Against Hunger and ACF International-implemented debit card program found that each debit card cost USD$ 0.90 to supply, incurred a service fee of USD$ 0.34 for each card swipe and was also subject to another fee of USD$ 0.11 to reload the cards. [107]

Cost can vary greatly depending on the tools used, as well as how many beneficiaries already own a bank account. The cost-transfer ratios of different programs utilising banking are presented in Table 8. These projects have used varying methods for allowing access to bank accounts, such as debit cards, ATM cards and direct transfer.

Table 8: Cost-transfer ratios of banking programs

Country	Cost-transfer ratio
Turkey – Debit cards (2016 – ongoing)	0.14[108]
Lebanon – ATM cards (2013)	0.55[109]
Philippines – Bank transfer (2013)	0.14[110]
Banking average across 13 projects (2011-2014)	1.03[111]
ATM card average across 2 projects (2011-2014)	0.32[112]

In terms of scalability, banks are well equipped to deliver high value transactions and distributions to many beneficiaries while attracting only low transfer fees and costs associated with human

[105] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[106] The UN Refugee Agency (UNHCR), 'Displaced & Disconnected', UNHCR, 2019, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/04/Displaced-Disconnected-WEB2.pdf

[107] I. S. Navarro, D. D. Militante, K. Hughbanks, 'Vouchers for flood relief in Cotobato city and Sultan Kudarat ARMM, the Philippines', The Cash Learning Partnership (CaLP), 2012, https://www.calpnetwork.org/wp-content/uploads/2020/01/CaLP_Mindanao_Vouchers_Case_Study.pdf

[108] World Food Programme (WFP), 'The Emergency Social Safety Net (ESSN)', World Food Programme (WFP), 2019, https://docs.wfp.org/api/documents/WFP-0000104792/download/

[109] International Rescue Committee (IRC), 'Cost Efficiency Analysis: Unconditional Cash Transfer Programs', 2016, https://www.rescue.org/sites/default/files/document/954/20151113cashcefficreportfinal.pdf

[110] International Rescue Committee (IRC), 'Cost Efficiency Analysis: Unconditional Cash Transfer Programs', 2016, https://www.rescue.org/sites/default/files/document/954/20151113cashcefficreportfinal.pdf

[111] N. Maunder, N. Dillon, G. Smith, S. Truelove, V. De Bauw, 'Evaluation of the Use of Different Transfer Modalities in ECHO Humanitarian Aid Actions 2011 – 2014: Final Report', Louvain-la-Neuve, Belgium, Analysis for Economic Decisions (ADE), 2016, https://www.calpnetwork.org/wp-content/uploads/2020/01/evaluationtransfermodalitiesfinalreport012016en.pdf

[112] N. Maunder, N. Dillon, G. Smith, S. Truelove, V. De Bauw, 'Evaluation of the Use of Different Transfer Modalities in ECHO Humanitarian Aid Actions 2011 – 2014: Final Report', Louvain-la-Neuve, Belgium, Analysis for Economic Decisions (ADE), 2016, https://www.calpnetwork.org/wp-content/uploads/2020/01/evaluationtransfermodalitiesfinalreport012016en.pdf

resources and logistics.[113]

A summary of the strengths and limitations of banking are presented in Table 9.

Table 9: Banking strengths and limitations

Strengths	Limitations
• Reliable and secure • Distribution of high value transactions • Reloading / topping up can occur electronically and remotely	• High KYC requirements exclude vulnerable populations • Establishing partnerships can be time intensive • May be difficult to engage financial service providers • Generally not suitable in rural areas or where there is a lack of banking infrastructure • Requires financial literacy • Slow settlement times for bank-to-bank transfers (compared to mobile money, for example)

BLOCKCHAIN

Overview

Blockchain is one of the technological innovations being explored by humanitarian actors to make e-CVA programs more effective. Blockchain technology has the potential to become a significant enabler for more transparent, efficient, auditable and coordinated cash transfers directed at vulnerable segments of the population.[114] There is increasing interest in the United Nations ecosystem to use blockchain applications, including organisations not yet committed to immediate adoption of the technology.[115] In 2019, UN Secretary General Antonio Guterres said that "for the United Nations to deliver better on our mandate in the digital age, we need to embrace technologies like blockchain that can help accelerate the achievement of Sustainable Development Goals".[116]

Blockchain technology has the potential to assist in achieving the Sustainable Development Goals in several ways. This includes facilitating financial inclusion, banking the unbanked and transforming foreign aid delivery.[117] As the technology has matured, governments and humanitarian agencies across dozens of countries, including all members of the G20, have undertaken blockchain pilots.[118] Use cases are wide-ranging and include solutions that improve payments, security tokens, identity

[113] United Nations World Food Programme (WFP), 'Cash and Vouchers Manual: Second Edition', Rome, Italy, World Food Programme, 2014, https://www.calpnetwork.org/wp-content/uploads/2020/01/cash-and-vouchers-manual-wfp-second-edition.pdf

[114] International Federation of Red Cross and Red Crescent Societies and Kenya Red Cross Society, 'Learning Review Blockchain Open Loop Cash Transfer Pilot Project', Norway and Kenya, 2018, https://www.alnap.org/system/files/content/resource/files/main/1557828622.Blockchain%20pilot%20study%20KRCS%20%26%20IFRC-Kenya%20Oct%202018.pdf

[115] P. Dumitriu et al., 'Blockchain applications in the United Nations system: towards a state of readiness', United Nations Joint Inspection Unit, Geneva, 2020, https://www.unjiu.org/sites/www.unjiu.org/files/jiu_rep_2020_7_english.pdf

[116] P. Dumitriu et al., 'Blockchain applications in the United Nations system: towards a state of readiness', United Nations Joint Inspection Unit, Geneva, 2020, https://www.unjiu.org/sites/www.unjiu.org/files/jiu_rep_2020_7_english.pdf

[117] T. Riani, 'Blockchain for social impact in aid and development', Humanitarian Advisory Group, 2022, https://humanitarianadvisorygroup.org/blockchain-for-social-impact-in-aid-and-development/

[118] C. Liao, 'Why Governments and NGOs Are Behind on Blockchain (and How to Fix That)', Tony Blair Institute for Global Change, London, England, 2021, https://institute.global/policy/why-governments-and-ngos-are-behind-blockchain-and-how-fix

management, supply chain traceability, land registration, corporate registration, health care and taxation.[119] Notable pilot projects include using blockchain to distribute humanitarian assistance in Kenya,[120] the use of distributed ledger technologies in cash transfers in Pakistan, Jordan, Bangladesh and Lebanon,[121] and programs to improve digital inclusive finance in Uganda.[122]

In these cases, blockchain-enabled solutions show promise to help cash actors address e-CVA challenges associated with dependencies on local financial institutions, internet connectivity and risks related to multiple intermediary involvement, while delivering on-time and less expensive assistance to the unbanked and maintaining data privacy. However, they also highlight the newness of blockchain technology, which presents regulatory and educational challenges that need to be addressed for blockchain technology to reach its full potential in development and humanitarian aid.

Design and architecture

A blockchain is a decentralised shared ledger of all transactions in a network which remains append-only and is tamper proof. The key characteristics of blockchain technology are:

- Blockchain is a **shared ledger** across a **secure** and **trusted network**. Up-to-date authentic data is available to all stakeholders in real-time, eliminating a single point of failure.
- Blockchain ensures **immutability** of transactions i.e., records once added onto the shared ledger cannot be tampered ensuring data integrity.
- All transactions happening on the blockchain occur through **consensus** across all parties on the network. Agreement of stakeholders on all transactions ensures transparency and consistency of information across the network.
- **Provenance** and **traceability** of all transactions is ensured i.e., availability of complete history of asset ownership from creation to disposal and an automatic creation of audit trail.
- Blockchain technology allows the creation of **smart contracts** for automation of business logic. Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met. [123]

In terms of design, a 'protocol' is the underlying technology layer that enables blockchain powered applications. It is the 'foundational layer of code that sets the framework for blockchain activity'.[124] Different protocols have varying technical specs that influence the design and future scalability of the blockchain platforms or applications it supports (see Figure 1).

Blockchain applications are usually built on top of a blockchain platform. These platforms do not have blockchain technology built into them, rather they make use of a protocol's blockchain layer by plugging into them.[125]

[119] C. Liao, 'Why Governments and NGOs Are Behind on Blockchain (and How to Fix That)', Tony Blair Institute for Global Change, London, England, 2021, https://institute.global/policy/why-governments-and-ngos-are-behind-blockchain-and-how-fix

[120] A. Slavin, 'Distributed ledger identification systems in the humanitarian sector', Sovereign Identity for All (I4A) Council, New York, USA, 2019, https://sovrin.org/wp-content/uploads/14A-Report.pdf

[121] World Food Program, 'Building Blocks: Blockchain network for humanitarian assistance - Graduated Project', Munich, Germany 2022, https://innovation.wfp.org/project/building-blocks#:~:text=Project%20overview,organizations%20via%20one%20access%20point.

[122] R. Shreves, 'FIELD TRIALS OF BLOCKCHAIN- ENABLED CASH TRANSFERS IN WEST NILE, UGANDA: Lessons learned from field technology testing', Mercy Corps, Portland, Oregon, 2020 https://resource.binance.charity/documents/6067cead56de44a8ac26c768bc730025_MC-Uganda-Cryptocurrency-Blockchain-Final-Report-30Jun20.pdf

[123] PwC, 'Making sense of bitcoin, cryptocurrency and blockchain', USA, 2022, https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html

[124] K. Clarke-Potter, 'Blockchain Protocol vs Blockchain Platform: What's The Difference?', Blockhead Technologies, 2020, https://blockheadtechnologies.com/blockchain-protocol-vs-blockchain-platform-whats-the-difference/

[125] K. Clarke-Potter, 'Blockchain Protocol vs Blockchain Platform: What's The Difference?', Blockhead Technologies, 2020, https://blockheadtechnologies.com/blockchain-protocol-vs-blockchain-platform-whats-the-difference/

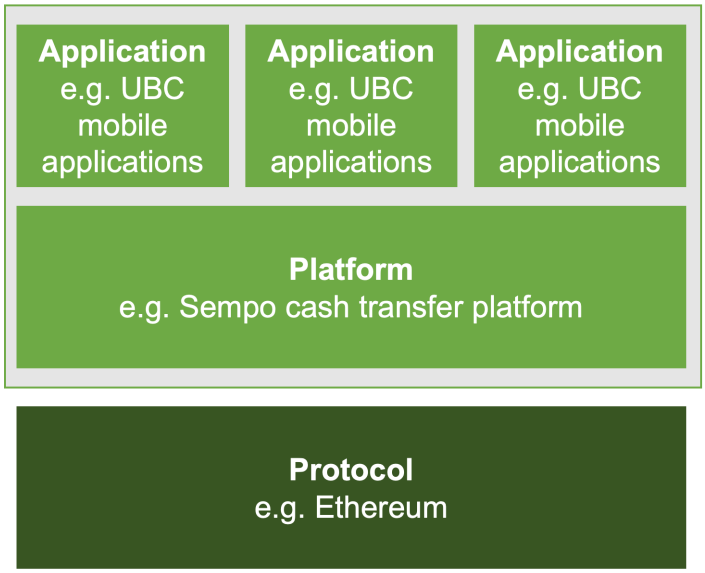
Depending on the type of problem being solved, different choices will be made about which platform or protocol will be used.

The usability designers and architects responsible for designing the application that sits on top of these layers will make choices about the type of platform or protocol used. It is therefore important to consider the application design process when creating a blockchain-enabled CVA program.

This involves a need to understand the environment where the application is being deployed. For example, to get cash to as many participants as possible, it will be important to consider building applications for both IoS and Android mobile devices. Designers and architects may also consider using one particular blockchain-enabled platform over another because it offers a more streamlined ability to upload and store certification. Smart contracts and chain code might also be executed in certain ways to make the applications run more efficiently. Alternately, cosmetic decisions may be made about the copy created in application to explain how to cash-out tokens at approved sites.

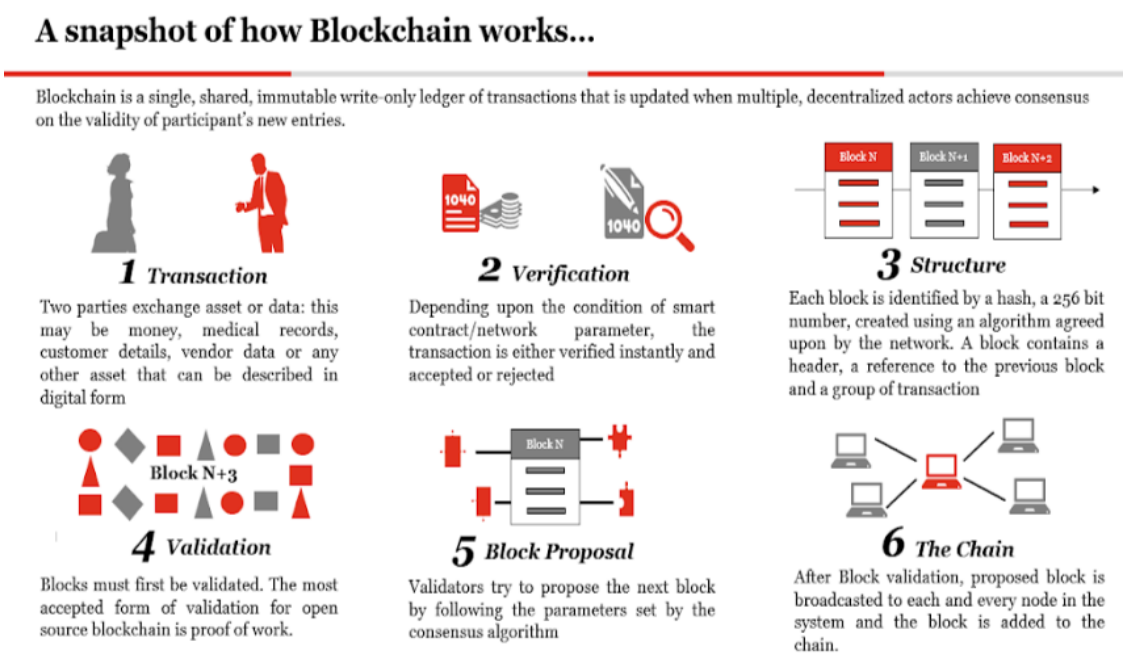
A visualisation of how blockchain enabled platforms is shown below in Figure 1. Platform(s) sit on top of protocol(s) and applications are built using the platform's specific capabilities as a means of engaging with physical world. These may be in the form of mobile apps, desktop apps, sensor and IoT devices or simply integration points for others to connect.

Figure 1: A visualisation of how blockchain-enabled platforms work



A summary of how blockchain works is presented in Figure 2.

Figure 2: A snapshot of how blockchain works[126]



Governance and regulations

Blockchain is a relatively new technology that enables trading of digital assets on a distributed ledger. Regulation around how these digital assets, including cryptocurrencies, can be used and taxed is emerging for different jurisdictions. According to the World Economic Forum's Global Future Council on Cryptocurrencies, there is a lack of internationally coordinated regulation: "... these territorial differences ... create uncertainties and increased compliance burden for businesses operating in the sector".[127]

The newness of digital asset regulatory systems presents a challenge for organisations, especially aid agencies who often operate in multiple jurisdictions. In Kenya, the International Federation of Red Cross and Red Crescent Societies' Open Loop Cash Transfer Pilot Project voiced concerns about data privacy. While the project complied with Kenya's 'minimal requirements for mobile money transfers and the principle of data minimization',[128] this approach would not pass in countries where the European Union General Data Protection Regulation (GDPR) ensures the right for data to be forgotten. It would be difficult to meet these regulations using blockchain technology that stores 'unalterable' data, and extra consideration would need to be made in the design to address this. A potential workaround for this issue could be to store data pertaining to the transactions on the blockchain and store the personal data of the involved stakeholders in a separate off-chain database.[129]

This is not an isolated finding. A total of 73% of 'global financial service institution pioneers' report regulatory blockers as the leading barrier to the acceptance of blockchain's digital assets.[130] The

[126] PwC, 'Making sense of bitcoin, cryptocurrency and blockchain', New York, USA, 2022, https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html

[127] World Economic Forum, 'Cryptocurrency regulation: where are we now, and where are we going?', Geneva, Switzerland, 2021, https://www.weforum.org/agenda/2022/03/where-is-cryptocurrency-regulation-heading/

[128] International Federation of Red Cross and Red Crescent Societies, 'Learning Review: Blockchain Open Loop Cash Transfer Pilot Project', Norway, 2018, https://www.alnap.org/system/files/content/resource/files/main/1557828622.Blockchain%20pilot%20study%20KRCS%20%26%20IFRC-Kenya%20Oct%202018.pdf

[129] H. Baharmand, N. Saeed, T. Comes, M. Lauras, 'Developing a framework for designing humanitarian blockchain projects', Computers in Industry, Volume 131, 2021, https://www.sciencedirect.com/science/article/pii/S0166361521000944

[130] M. Budman et al., 'Deloitte's 2021 Global Blockchain Survey: A new age of digital assets', Deloitte, United Kingdom, 2021, https://www2.deloitte.com/content/dam/insights/articles/US144337_Blockchain-survey/DI_Blockchain-survey.pdf

absence of standardised regulation is considered a risk as, at the international level, multiple legal lenses can apply, requiring aid agencies to involve legal counsel from the early design stages.[131] Before starting their projects, aid agencies must proactively analyse and clarify which regulatory frameworks had been applicable at various levels and with relevant authorities. Without such consultation, it has been noted that regulation uncertainty can be a major roadblock to the use of blockchains in the humanitarian sector.[132]

Security and ensuring financial systems remain stable are focus points of blockchain regulation, particularly for solutions that use cryptocurrency, which remains illegal in some countries.[133] These regulatory blockers designed to safeguard financial systems would have serious constraints for any humanitarian project proposing to use cryptocurrency in their solution. However, there are some workarounds that might be considered to tackle these regulatory barriers, such as using a stable coin or permissioned blockchain-enabled platforms (the difference between permissioned and public blockchains is covered in subsequent paragraphs). Plastic Bank, for example, is a blockchain-enabled platform launched in Haiti that uses a permissioned blockchain network to swap collected recycling for digital tokens used to buy essential goods.[134]

These regulatory blockers may reduce over time, due to large investments backing blockchain as it matures.[135] A report from PwC shows that 'Blockchain technology has the potential to boost global gross domestic product (GDP) by US$1.76 trillion over the next decade'.[136] It is fair to assume this dollar value will drive effort to create regulation that supports using blockchain to its fullest potential. Conversely, investment in the space will support further technology innovation that meets regulatory concerns.

The governance of rules that enable blockchain solutions is evolving and can involve 'a spectrum of arrangements' that often incorporate decentralised governance.[137] To decide on the appropriate CVA mechanism for development and humanitarian projects, aid agencies need to be aware of the different governance structures and how they may affect their project.

There are three main types of blockchain platforms and underlying protocols that could be used in humanitarian CVA programming: public blockchain, permissioned or private blockchain and federated or consortium blockchain.[138] Each of these have different approaches to governance:

- **Public blockchain:** a public (or permission-less) blockchain network is one where anyone can participate without restrictions. Most types of cryptocurrencies run on a public blockchain that is governed by rules or consensus algorithms.
- **Permissioned or private blockchain:** a private (or permissioned) blockchain allows organisations to set controls on who can access blockchain data. Only users who are granted permissions can access specific sets of data.
- **Federated or consortium blockchain:** a blockchain network where the consensus process is closely controlled by a preselected set of nodes or by a preselected number of

[131] H. Baharmand, N. Saeed, T. Comes, M. Lauras, 'Developing a framework for designing humanitarian blockchain projects', Computers in Industry, Volume 131, 2021, https://www.sciencedirect.com/science/article/pii/S0166361521000944

[132] H. Baharmand, N. Saeed, T. Comes, M. Lauras, 'Developing a framework for designing humanitarian blockchain projects', Computers in Industry, Volume 131, 2021, https://www.sciencedirect.com/science/article/pii/S0166361521000944

[133] PwC, 'Establishing blockchain policy: Strategies for the governance of distributed ledger technology ecosystems', Middle East, 2019, https://www.pwc.com/m1/en/publications/documents/establishing-blockchain-policy-pwc.pdf

[134] D. Katz, 'Plastic Bank: launching Social Plastic® revolution', Field Actions Science Reports, Special Issue 19, 2019, p.96-99.

[135] Australian Government Department of Industry, Science and Resources, 'National Blockchain Roadmap Regulation and Standards', Canberra, Australia, 2020, https://www.industry.gov.au/data-and-publications/national-blockchain-roadmap/regulation-and-standards

[136] PwC, 'Time for trust: How blockchain will transform business and the economy', London, UK, 2020, https://image.uk.info.pwc.com/lib/fe3111707564047570 1c74/m/2/434c46d2-a889-4fed-a030-c52964c71a64.pdf.

[137] J. Carlson et al. 'Cryptocurrencies: A Guide to Getting Started Global Future Council on Cryptocurrencies', World Economic Forum, Geneva, Switzerland, 2021, https://www3.weforum.org/docs/WEF_Getting_Started_Cryptocurrency_2021.pdf

[138] IBM, 'What is blockchain technology', New York, USA, 2022, https://www.ibm.com/au-en/topics/what-is-blockchain,

stakeholders.

Blockchain platforms and protocols used in various humanitarian CVA programs include:

- **Ethereum:** a public blockchain protocol used in various programs like the Unblocked Cash (UBC) project by OAU, the Building Blocks program initiated by the World Food Programme, and the Sikka application launched in Nepal and created by World Vision International Nepal Innovation Lab.
- **Binance Chain:** a public blockchain protocol used in the cash transfer program in West Nile, Uganda launched by Mercy Corps in collaboration with the Blockchain Charity Foundation (the charitable arm of Binance, the largest cryptocurrency exchange in the world).
- **Multichain:** a permissioned and public blockchain protocol used in the Open Loop Cash Transfer program implemented in Kenya by Kenyan Red Cross Society and the International Federation of Red Cross.
- **Celo:** a permissioned and public blockchain platform built on the Ethereum protocol selected by CARE USA to leverage the benefits of blockchain in Latin America. Some aid agencies that have used the Celo platform are Hope for Haiti and The Grameen Foundation. [139]

Since many humanitarian aid programs use the Ethereum protocol, we will take a closer look at its governance to show why humanitarian agencies might need to understand how the type of blockchain governance could affect their CVA program. There are other protocols and platforms that have different governance structures, however a full analysis of these is outside the scope for this report.

Ethereum governance

Ethereum governance is a process by which changes to the protocol rules are made. No one person owns or controls the Ethereum protocol, it is a public protocol, however decisions still need to be made about implementing changes to best ensure the longevity and prosperity of the network.[140] It is important to understand that this process is not related to the applications or platforms built on top of the protocol. For example, Ethereum governance processes do not directly control the platform or vice versa. However, Ethereum has a process to propose changes to the core protocol, which these applications or platforms run on top of. Therefore, a change to Ethereum's core protocol may indirectly affect the functionality of a platform or application built on top of it, such as Sempo did for the UBC Vanuatu project (see case study in Chapter 4 of this report).

As many people depend on Ethereum's stability, there is a very high coordination threshold for core changes, including social and technical processes, to ensure any changes to Ethereum are secure and widely supported by the community. Ethereum governance happens off-chain, with a wide variety of stakeholders involved in the process. In the off-chain governance model, any protocol change decision happens through an informal process of social discussion, which if approved would be implemented in the code. There are various stakeholders in the Ethereum community, each playing a role in the governance process.

These stakeholders are:

- **Ether holders:** these people hold an arbitrary amount of ether (ETH).
- **Application users:** these people interact with applications on the Ethereum blockchain.
- **Application/tooling developers:** these people write applications that run on the Ethereum blockchain.
- **Node operators:** these people run nodes that propagate blocks and transactions, rejecting any invalid transaction or block that may come across.
- **Ethereum Improvement Proposals (EIP) authors:** these people propose changes to the Ethereum protocol, in the form of EIPs. EIPs are standards specifying potential new features or processes for Ethereum.

[139] G. Coppi, L. Fast, 'Blockchain and distributed ledger technologies in the humanitarian sector', HPG Commissioned Report, London, England, https://www.econstor.eu/bitstream/10419/193658/1/1067430997.pdf

[140] Ethereum, 'Introduction to Ethereum governance', 2022, 'https://ethereum.org/en/governance/#:~:text=Ethereum%20governance%20is%20the%20process,participate%20in%20on%2Dchain%20activities.

- **Miners/validators:** these people run nodes that can add new blocks to the Ethereum blockchain.
- **Proposal developers:** these people maintain the various Ethereum implementations.[141]

Adverse platform changes are supposedly low risk for large ecosystems such as Ethereum.[142] However, aid agencies need to be aware of the different governance structures and their trade-offs. This is so they can assess the sustainability and risk of blockchain CVA programming, as these blockchain design decisions are particularly difficult to change at a later date.[143]

System integrations and scalability

Blockchain technology, while relatively new, has had considerable focus on improving interoperability and scalability with other solutions. Blockchain interoperability allows information to be shared across various blockchain systems or networks.[144] When humanitarian agencies choose a blockchain-enabled e-CVA program it is important to consider how interoperable the solution is. That is, if another blockchain solution was activated in another country, how well could the systems connect with others? When a network is highly interoperable it can communicate without the help of intermediaries. The result is the development of decentralised systems that reduce silos and enable cross-industry transparency and therefore less administration.[145]

The main goal of scalability is to increase transaction speed (faster finality), and transaction throughput (high transactions per second) without sacrificing decentralisation or security.[146] Different platforms and protocols have different degrees of scalability that are upgraded over time. As with governance, it is important for practitioners to consider the effect this might have on their CVA sustainability.[147] For example, the Ethereum platform is undergoing an important change which is a shift from the proof-of-work to the proof-of-stake consensus model, which aims to improve the security and scalability of the blockchain network. The changes come under an all-encompassing term 'Ethereum 2.0', that explains Ethereum's next evolution into a better-performing, more accessible network.[148]

Although blockchain interoperability and scalability receives considerable attention, the relative immaturity of the technology still means challenges for scalability and integration. Blockchain systems need to be integrated with legacy systems and an estimate of this effort needs to be collated during decision-making for CVA programming. Alternately, multi-party systems require heavy cloud usage, and many government and aid agencies have not yet upgraded their backend to the cloud.[149] The design and architecture of blockchain applications is also important to mention. The application layer must be easy to use on a variety of devices and have features adapted to the

[141] Ethereum, 'Introduction to Ethereum governance', 2022, https://ethereum.org/en/governance/#:~:text=Ethereum%20governance%20is%20the%20process,participate%20in%20on%2Dchain%20activities.

[142] Ethereum, 'Introduction to Ethereum governance', 2022, https://ethereum.org/en/governance/#:~:text=Ethereum%20governance%20is%20the%20process,participate%20in%20on%2Dchain%20activities.

[143] A. Patil et al. 'An integrated approach to model the blockchain implementation barriers in humanitarian supply chain', Blockchain Implementation Barriers, Delhi, India, 2021, https://www.emerald.com/insight/content/doi/10.1108/JGOSS-07-2020-0042/full/html

[144] Cryptopedia Staff, 'Cross-Chain Interoperability: What it Means for Blockchain', Cryptopedia, New York, USA, 2021, https://www.gemini.com/cryptopedia/why-is-interoperability-important-for-blockchain

[145] D. Geroni, 'Blockchain Interoperability: Why Is Cross Chain Technology Important?', 101blockchains, 2021, https://101blockchains.com/blockchain-interoperability/

[146] Ethereum, 'Scaling', 2022, https://ethereum.org/en/developers/docs/scaling/

[147] A. Patil et al. 'An integrated approach to model the blockchain implementation barriers in humanitarian supply chain', Blockchain Implementation Barriers, Delhi, India, 2021, https://www.emerald.com/insight/content/doi/10.1108/JGOSS-07-2020-0042/full/html

[148] W. Duggan and M. Adams, 'What Is Ethereum 2.0? Understanding The Merge', Forbes, New Jersey, USA, 2022 https://www.forbes.com/advisor/investing/cryptocurrency/ethereum-2/

[149] C. Liao, 'Why Governments and NGOs Are Behind on Blockchain (and How to Fix That)', Tony Blair Institute for Global Change, London, England, 2021, https://institute.global/policy/why-governments-and-ngos-are-behind-blockchain-and-how-fix

context, 'users' and structure of a CVA program. Otherwise, it cannot be accessed easily and operated by users with different devices at scale, and therefore becomes limited in terms of improving program utility or outcomes. Other considerations for scalability and integration include the education and involvement of various stakeholders. Government and aid agency employees must also be trained to maintain and use the platforms once an outside vendor has done the initial deployment. As the technology is relatively new, global expertise in blockchain is limited and training staff can be time consuming and challenging.[150] Other reports suggest there is work required to move aid agencies from a siloed mindset into a more cross-organisational ecosystem, in order to reap the full benefits of blockchain's transparency.[151]

Varying regulatory measures mean there may be difficulties shifting a blockchain solution from one country to another[152] and research shows a lack of thorough ethical frameworks and guidelines necessary to uphold humanitarian principles, avoid digital or physical harm, maintain privacy and security, respond to inequalities, demonstrate respect, protect relationships and address expectations.[153] The variability of regulation and lack of standardised guidelines suggests extra effort would be required from aid agency staff when applying a blockchain solution to countries with different regulatory environments.[154]

A summary of the strengths and limitations of blockchain is presented in Table 10.

Table 10: Blockchain strengths and limitations

Strengths	Limitations
• **Security and immutability** – It is impossible for anyone to tamper with transactions or ledger records present in blockchain. Therefore, a malicious stakeholder or any external entity cannot tamper with the transactional data records in order to divert collected humanitarian funds for their own personal benefit. • **Transparency and accountability** – Blockchain stores transactional data immutably with appropriate timestamps enabling end-to-end transparency and real-time auditability. Data transparency and auditability ensures the accuracy of transactional data collected and enables aid workers to collect real-time data useful for prompt response to crises without needing to rely on periodic post-distribution	• **Scalability and energy efficiency concerns** – Blockchain reaches its limits of scalability where there is poor internet and energy infrastructure, which is a common situation during times of humanitarian crisis. Programmers should be mindful of the different consensus mechanisms (e.g., proof-of-work) and how these might be affected by or even cause power outages. • **Data privacy** – Blockchain implementation in the humanitarian aid sector may imply data privacy challenges that are not negligible, taking into account the high vulnerability of affected populations. A system based on the blockchain technology must have infrastructure that can safeguard the storing and sharing of sensitive personal information of the

[150] H. Baharmand, N. Saeed, T. Comes, M. Lauras, 'Developing a framework for designing humanitarian blockchain projects, Computers in Industry, Volume 131, 2021, https://www.sciencedirect.com/science/article/pii/S0166361521000944

[151] A. Patil et al. 'An integrated approach to model the blockchain implementation barriers in humanitarian supply chain', Blockchain Implementation Barriers, Delhi, India, 2021, https://www.emerald.com/insight/content/doi/10.1108/JGOSS-07-2020-0042/full/html

[152] A. Slavin, 'Distributed ledger identification systems in the humanitarian sector', Sovereign Identity for All (I4A) Council, New York, USA, 2019, https://sovrin.org/wp-content/uploads/14A-Report.pdf

[153] H. Baharmanda et al., 'Developing a framework for designing humanitarian blockchain projects', Computers in Industry, 2021, https://www.sciencedirect.com/science/article/pii/S0166361521000944

[154] A. Patil et al. 'An integrated approach to model the blockchain implementation barriers in humanitarian supply chain', Blockchain Implementation Barriers, Delhi, India, 2021, https://www.emerald.com/insight/content/doi/10.1108/JGOSS-07-2020-0042/full/html

reports. It also eases the burden of reconciliation. • **Disintermediation** – Blockchain-enabled e-CVA programs facilitate direct distribution of money to beneficiaries without involvement from a bank or other financial services leading to greater efficiency in terms of time and cost. • **Automation** – Blockchain enabled systems could enhance programmatic efficiency by enabling automatic distribution of beneficiary funds and transaction recording mechanisms. After beneficiary identification and verification, organisations could use smart contracts to manage the disbursement of funds or layer other mechanisms, like forecast-based financing processes on top to further enhance programmatic efficiency. • **Increased coordination** – Blockchain offers a unique platform that gathers all stakeholders and allows global coordination. It helps prevent administrative redundancy and duplication of effort by donors, aid agencies and local governments. It could also allow policy harmonisation and promote minimal waste of resources and more efficient interventions.	beneficiaries so that it cannot be misused by any malicious entity. • **Regulatory challenges** – Compliance with international humanitarian law and country-specific laws must be carefully considered when designing a potential blockchain-based e-CVA system, as regulatory systems are immature and not yet standardised. In particular, solution designs that bypass traditional, centralised financial institutions may not be supported by governing bodies in the delivery of CVA. Security could also be questioned if novel ways of accessing donor funds (wallet structures and public/private key access) are used. • **Cost** – Without an interoperable solution that can be deployed in multiple jurisdictions, the underlying cost of implementing blockchain technology is significant. While most blockchain solutions are open source, they require a lot of investment from the organisation that is willing to pursue it. There are costs associated with hiring developers, managing a team that excels at different aspects of blockchain technology, licensing costs if one opts for a paid blockchain solution, and so on. The implementing aid agency also needs to factor in maintenance costs associated with the solution. • **Lack of digital literacy** – Deploying new technologies such as Blockchain entails significant training, support and onboarding costs so that project teams, vendors and beneficiaries are able to effectively use the system. Experienced blockchain professionals are scarce and could be costly to retain.

The core benefits of blockchain, outlined above, can be further segmented according to the type of blockchain platform, whether it be public blockchain, permissioned/private blockchain or federated/consortium blockchain. Each of these have their own attributes that create various strengths and limitations. The main strengths and limitations are listed below in Table 11.

Table 11: Strengths and limitations of different blockchain platforms

Type	Strengths	Limitations
Public blockchain[112] A public, or permission-less, blockchain network is	A public network operates on an incentivising scheme that en-courages new participants to join and keep the network agile.	The primary limitation to secured public blockchains is the heavy energy consumption required to maintain them in case they deploy

one where anyone can participate without restrictions. Most types of cryptocurrencies run on a public blockchain that is governed by rules or consensus algorithms.	Public blockchains offer a particularly valuable solution from the point of view of a truly decentralised, democratised and authority-free operation. Additionally, the vast number of network participants joining a secured public blockchain keeps it safe from data breaches, hacking attempts or other cybersecurity issues. The more participants, the safer a blockchain is.	the proof-of-work consensus mechanism, which requires participants to compete to validate the information and receive a reward for letting the network use their processing power. Other limitations include the lack of complete privacy and anonymity. Public blockchains allow anyone to view transaction amounts and the addresses involved. If the address owners become known, the user loses their anonymity.
Permissioned or private blockchain[104] A private, or permissioned, blockchain allows organisations to set controls on who can access blockchain data. Only users who are granted permissions can access specific sets of data.	A private blockchain is not fully decentralised. It operates as a closed database system secured with cryptographic concepts and the organisation's needs. Only those with permission can run a full node, make transactions or validate/authenticate the blockchain changes. This often makes it a favorable system for regulatory compliance around security, anti-fraud and financial stability. By reducing the focus on protecting user identities and promoting transparency, private blockchains prioritise efficiency and immutability—the state of not being able to be changed.	While purposefully designed for enterprise applications, private blockchains lose out on many of the 'truly' decentralised and authority-free attributes of permission-less systems. They are instead built to accomplish specific tasks and functions. In this respect, private blockchains are susceptible to data breaches and other security threats. This is because there is generally a limited number of validators used to reach a consensus about transactions and data if there is a consensus mechanism.
Federated or consortium blockchain A blockchain network where the consensus process (mining process) is closely controlled by a preselected set of nodes or by a preselected number of stakeholders.	The number of participants in the consortium blockchain is known and verified. Authentication conducted by them reduces the risk of data threats. Instead of a sole entity, a particular group of authentic participants controls the blockchain. This control helps to set rules, amend balances, edit or cancel an incorrect transaction. The information on the authentic blocks is not permissible for access to the public. But the consortium participants can access the information quickly, ensuring high-end security.	The centralised network structure makes consortium blockchain vulnerable to vicious players. The limited number of participants leads to the assumption that one or more participants may be corrupt. Consortium blockchain lacks the feature of a unified framework. Solutions like R3's Corda, Quorum of JP Morgan, Hyperledger provide the industry standards required by private blockchains. Sometimes, the participants cannot cooperate and reach an agreement, which hampers the development speed.

COMPARATIVE STRENGTHS AND LIMITATIONS

TABLE 12 BELOW PROVIDES AN OVERVIEW OF THE STRENGTHS AND LIMITATIONS OF EACH OF THE E-CVA MECHANISMS INVESTIGATED.

TABLE 12: COMPARATIVE STRENGTHS AND LIMITATIONS OF DIFFERENT E-CVA MECHANISMS

	Mobile money	E-vouchers	Banking	Blockchain
Strengths	• Suitable for unbanked beneficiaries • Agent networks can be wide-reaching (better geographic coverage and less travel for beneficiaries) • Improved connectivity with other mobile services (e.g., communication apps) • Integrates easily with feedback mechanisms • Lower cost than banking products	• Low KYC requirements (i.e., less formal regulation dictating ID requirements) • Can be efficient in the long term once systems and hardware are established • Permits offline transactions, so long as devices have battery and power	• Reliable and secure • Distribution of high value transactions • Reloading / topping up can occur electronically and remotely	• Secure and immutable. Transactional data records cannot be tampered with to divert collected humanitarian funds. • Transparency and auditability. • Greater efficiencies through disintermediation and less reliance on involvement from a bank or other financial services. • Reduced organisational burdens through automated distribution and recording mechanisms. • Increased coordination helps prevent administrative redundancy and duplication of effort by donors, aid agencies and local governments.

Limitations	• High KYC requirements • Mobile infrastructure required • Dependent on mobile coverage, which can be damaged during wide-scale disasters • Dependent on liquidity (cash) available across agent network in operating area • Reliant on availability of mobile money services and consumer usage/familiarity	• Expensive in the short term due to customised system setup and Point of Sale (POS) devices • Recurring costs associated with software licences • Potentially high monitoring costs • Time-intensive if a high level of customisation is required • Restricted vendors	• High KYC requirements excludes vulnerable populations • Establishing partnerships can be time intensive • May be difficult to engage financial service providers • Generally not suitable in rural areas or where there is a lack of banking infrastructure • Requires financial literacy • Slow settlement times for bank-to-bank transfers (compared to mobile money, for example)	• Scalability and energy efficiency is limited by poor internet and energy infrastructure. • Infrastructure that can safeguard storing and sharing sensitive personal information needs to be available. • Regulatory systems that cover blockchain are immature and not yet standardised, compliance in specific countries may cause extra effort. • Without an interoperable solution that can be deployed in multiple jurisdictions, the underlying cost of implementing blockchain technology is significant. • High dependency on scarce, skilled blockchain resources and training, support and onboarding costs associated with running a relatively new technology

4 CASE STUDY FINDINGS

UNBLOCKED CASH (UBC) SCALED RESPONSE: TROPICAL CYCLONE HAROLD AND COVID-19

Details	
Country	Vanuatu
Region	Sanma, Shefa and Tafea provinces
Implementing partners	• World Vision • Vanuatu Red Cross Society (VRCS) • Adventist Development and Relief Agency (ADRA) • Vanuatu Christian Council (VCC) • Conference of Churches of Christ in Vanuatu (CCCV) • Vanuatu Disability and Promotion Advocacy Association (VDPAA) • Vanuatu Society for People with Disabilities (VSPD) • Save the Children • Vanuatu Business Resilience Council (VBRC).[155]
Reason for response	Tropical Cyclone (TC) Harold and COVID-19
CVA delivery mechanism	UnBlocked Cash (UBC), utilising Ethereum blockchain and smart contracts to deliver e-vouchers backed by blockchain technology.
Time period	August 2020 – September 2021[156]
Project budget	AUD$ 5.3 million[157]
Donor	Ministry of Foreign Affairs and Trade (MFAT), Department of Foreign Affairs and Trade (DFAT) through the Australian Humanitarian Partnership (AHP) and the International Organisation for Migration (IOM).[158]
Project summary	From March 2020, the combined impact of Tropical Cyclone (TC) Harold, COVID-19 restrictions and ashfall from the Tanna Volcanic Eruption saw a significant reduction in income and livelihoods across Vanuatu.[159] The Vanuatu UnBlocked Cash (UBC) scaled project sought to address

[155] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[156] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[157] Oxfam Australia, End of Project Acquittal Template, Draft Internal Document, 2022

[158] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[159] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

	these challenges to prevent poverty levels from increasing exponentially.[160] The key objectives of the program were to support vulnerable households to meet their immediate food and non-food needs, protect or restore livelihoods, help improve small business revenue and recovery, and to capacity build implementing partners in CVA.[161] The project targeted 4,500 households over a 12-month period in the Sanma, Shefa and Tafea provinces of Vanuatu, with 358 vendors participating.[162] Participants included vulnerable households and small and medium-sized local vendors. A total of 4,493 households were reached: 2,529 in Sanma province, 398 in Tafea province and 1,566 in Shefa province.[163] Priority 1 initial program roll out occurred in Sanma province in October 2020, Priority 2 in Shefa province in November 2020 and Priority 3 in Tafea province in November–December 2020.[164]

Relevance

The TC Harold/COVID-19 UBC response was scaled from an initial UBC pilot in 2019. A feasibility study, which included a financial sector assessment, was completed prior to the pilot to identify whether viable CVA delivery mechanisms were available.[165] It was found that there was lack of maturity in Vanuatu's financial services sector.[166] In response, various CVA mechanisms were investigated but not considered viable. For example, a key informant indicated that while paper vouchers were widely understood and accepted in Vanuatu, they were expensive to deliver.[167] At the time of this response, mobile money was also reported as not yet mature enough in Vanuatu.[168] This led to thinking around CVA innovation and eventually the potential of blockchain to support cash delivery.

The final mechanism is described as e-vouchers enabled by the blockchain platform.[169] This is reflected in communications around the NFC card provided to recipients, which referenced it as an 'e-voucher', or sometimes a 'blockchain-enabled e-voucher' to avoid confusion about the blockchain platform.[170] E-vouchers were selected due to safety considerations, even though an initial feasibility study indicated a preference for cash.[171]

One key informant indicated that the people of Vanuatu were already familiar with mobile phones

[160] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[161] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[162] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[163] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[164] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[165] Key Informant Interview / Focus Group with UBC Response Stakeholder

[166] Key Informant Interview / Focus Group with UBC Response Stakeholder

[167] Key Informant Interview / Focus Group with UBC Response Stakeholder

[168] Key Informant Interview / Focus Group with UBC Response Stakeholder

[169] Key Informant Interview / Focus Group with UBC Response Stakeholder

[170] Key Informant Interview / Focus Group with UBC Response Stakeholder

[171] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

and cards, which were ultimately used in the response.[172] Sempo, the fintech company who developed the UBC platform, was chosen as the original service provider, as its mobile interface (which would be used by vendors) was user friendly.[173] The Sempo team visited Vanuatu during the initial pilot to work with community members to further design the mobile device interface to ensure simplicity and useability.[174]

To support beneficiary selection, Oxfam completed a needs assessment of local communities through a Vulnerable Livelihoods and Income Impact Survey, which found all respondents had been impacted by COVID-19 and TC Harold to some extent. [175] A set of vulnerability criteria was consequently used to assess which households to target. Shefa and Sanma provinces were found to have experienced a severe loss of income and reduced livelihoods.[176] Small-scale farmers and community stores in Tafea province had experienced decreased purchasing power.[177] Households which were close to Tanna Volcano were also targeted as part of the project to address ongoing food security impacts.[178] The key criteria used for beneficiary selection were single mothers, widowers, elderly, people living with disability and people who had been displaced.[179] Sanma province was the only location to register people who had been displaced.[180]

Just under half the participants (44%), registered were identified as people living with disability.[181] Just over half the participants (53%), were female.[182] The project modified the targeting criteria from 'head of household' to 'the one doing the shopping in the household' to be more inclusive of female recipients.[183]

Substantial training was required to enable the delivery of this mechanism. Both national and field level capacity building was completed with implementing partners and volunteers. These were delivered by Oxfam staff and focused on CVA design, implementation and monitoring.[184] As part of a four-day training session, over 90 volunteers and staff participated and partners in all three provinces attended, encompassing a total of 10 partner organisations.[185]

Sempo training of Oxfam in Vanuatu (OiV) teams was conducted remotely, and focused on the use of

[172] Key Informant Interview / Focus Group with UBC Response Stakeholder

[173] Key Informant Interview / Focus Group with UBC Response Stakeholder

[174] Key Informant Interview / Focus Group with UBC Response Stakeholder

[175] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[176] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[177] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[178] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[179] Key Informant Interview / Focus Group with UBC Response Stakeholder

[180] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[181] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[182] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[183] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[184] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[185] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

the Sempo dashboard, pay out processes and the experiences of beneficiaries and vendors.[186] To align on transaction data requirements and design pay-put processes, Sempo held a workshop with Barrett & Partners, the accounting firm responsible for vendor payments.[187] Additional training was provided through VBRC to support the team responsible for supporting vendors.[188]

Coherence

The Reserve Bank of Vanuatu (RBV) strongly advised against the use of cryptocurrency in a statement issued in 2018.[189] In response, the Oxfam team had briefing sessions with the Reserve Bank to confirm the UBC pilot would not create and use a cryptocurrency, but that the blockchain platform would only facilitate their work at the back-end.[190] The Reserve Bank provided a 'no objection' letter for the purposes of the pilot, with the condition that a third-party trust account must be used to back up the e-vouchers with cash.[191]

As a result, donor funds were deposited into a trust account at Wan FuTeng Bank (managed by Barrett & Partners).[192] Within the blockchain platform, Vatu tokens were created on-chain in an equivalent (1-1) amount to the Vatu in-bank. These tokens were wrapped in a smart-contract enabled Vatu voucher to ensure only pre-approved or 'white-listed' beneficiaries could access wallets and therefore funds.[193] Most of the information required at registration needed to be present to be able to open a beneficiary wallet. For example, if someone's birth date was missing, their wallet could not be activated.[194] According to a key informant, at any point the digital master wallet would reflect one-to-one or less what was present in the trust account.[195] These activities enabled the program to meet anti-money laundering regulations and to ensure donor funds were tied to the program.[196]

The funds were minted into Vatu tokens on Ethereum. From here, vouchers were distributed.[197] Barrett & Partners was responsible for validating all transactions to ensure that the cash reimbursed to vendors from the trust account aligned with the digital transactions reported in the system.[198] A monthly sign off process for the top up of digital wallets was performed, and this included random checks of wallets and accounts to identify any instances of fraud.[199] All transactions were recorded on the Ethereum blockchain, which allowed an immutable and third-party auditable record to be provided to donors.[200]

[186] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[187] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[188] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[189] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[190] Key Informant Interview / Focus Group with UBC Response Stakeholder

[191] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[192] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[193] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[194] Key Informant Interview / Focus Group with UBC Response Stakeholder

[195] Key Informant Interview / Focus Group with UBC Response Stakeholder

[196] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[197] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[198] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[199] Key Informant Interview / Focus Group with UBC Response Stakeholder

[200] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

Efficiency

An NFC card was provided to recipients to enable transactions in low-connectivity environments, and vendors were provided with smartphones which had the Sempo app pre-installed.[201] The smartphone acted as a point-of-sale device, allowing payments to be transferred into the vendor's digital wallet upon interaction with the NFC card.[202] A total of 11,000 NFC cards were procured.[203] The cards were issued in the name of the targeted individual and could only be spent by that beneficiary.[204] In addition, 400 NFC-enabled smartphones were procured.[205] The UBC platform also included a Sempo transaction dashboard which allowed live transaction monitoring and had the ability to export infographics and interactive dashboards to be distributed to partners and external stakeholders.[206]

The beneficiary registration process was found to be very efficient, averaging around one minute for registration and issuance of NFC cards to beneficiaries.[207] The process was highly automated, with cards being automatically loaded with funds once scanned against registration data.[208] A key informant reported that all that needed to be done was to scan a QR code, take the beneficiary's name, and link this information up with the card provided.[209] However, one key informant reflected that creating the list of approved cards prior to registration was a tedious step, as it involved manually scanning each card with an app.[210] This was eventually resolved with Sempo pre-loading card numbers to the platform prior to shipment.

A key informant indicated that expenditure tracking was much more efficient utilising the Sempo dashboard.[211] All transactions appeared live, allowing spending patterns to be easily tracked to understand if the right vendors had been included in the program.[212] This allowed the team to easily make changes to the program design in response to live trends, rather than needing to wait for each PDM report to understand the effectiveness of the program.

Weekly monitoring of the dashboard also allowed users to see who had and had not used their entitlements, making it easy to contact those who failed to use their card to understand why they were not using it (e.g., whether they were having difficulty using the card, wanted to save the money, etc.).[213] Lost or stolen cards could also be easily cancelled via the dashboard and consequently re-issued.[214]

[201] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[202] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[203] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[204] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[205] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[206] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[207] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[208] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[209] Key Informant Interview / Focus Group with UBC Response Stakeholder

[210] Key Informant Interview / Focus Group with UBC Response Stakeholder

[211] Key Informant Interview / Focus Group with UBC Response Stakeholder

[212] Key Informant Interview / Focus Group with UBC Response Stakeholder

[213] Key Informant Interview / Focus Group with UBC Response Stakeholder

[214] Key Informant Interview / Focus Group with UBC Response Stakeholder

A key informant indicated that it took approximately six weeks between the inception of the project and the distribution of payments to beneficiaries, though this depended on the response area. It took an average of five hours to make payments to vendors, and payments were processed weekly and deposited directly into vendors' bank accounts.[215]

The original intention for UBC was to build an end-to-end system that could be used by donors and partners. However, only the delivery end of the blockchain platform has been tested.[216] Additionally, as new processes needed to be created to allow partners to understand the blockchain system, one key informant indicated that many redundancies were created which removed some efficiencies that the platform would have otherwise realised.[217] This could include the fact that the blockchain-enabled solution did not make use of full end-to-end traceability, and activities such as distribution, reconciliation and post-distribution monitoring still needed to be planned separately and integrated with the system with expensive and manual parallel accounting processes that blockchain technology aims to eliminate. This was similarly reflected by another informant who felt there were many intermediary steps which slowed the process down. One comment indicated there could be the potential to incorporate a system of tiered wallets, which would give partners the responsibility of running one part of the system related to their zone of responsibility, however there was little interest from partners to do this.[218]

According to financial records, Oxfam's total expenditure on the response action from April 2020 until the completion of endline data collection in October 2021 amounted to a total of AUD $6,247,929.68, broken down as shown in the table below: [219]

UBC program expenditure Apr '20 thru Oct'21		
Cost Category	**Total**	**% Total**
Human Resources	786,570.78	13%
Direct Implementation (Activity) Costs	514,334.61	8%
Grants to Partners (Partner Costs)	1,101,021.53	18%
Cash Transfer Value	3,079,127.33	49%
Travel & Logistics	158,353.27	3%
IT & Hardware	100,520.52	2%
Administration (Office) Costs	104,827.32	2%
Indirect Cost Recoveries (spending period only)	392,862.68	6%
TOTAL	**6,237,618.04**	100%

The majority of expenditure (80%) was spread across three major budget categories: cash transfers to beneficiaries (49%); partner implementation costs (18%) and human resources (18%). This summary shows that most of the costs were spent on activities directly related to project implementation, which is positive.

From a strict *cost-efficiency* perspective utilising the standard methods used to evaluate the cost efficiency of cash and voucher assistance programs, the program had an overall total cost to transfer ratio (TCTR) of 2:1, meaning that for every $2 dollars spent overall (all costs), $1 went directly into the pockets of beneficiaries and vendors who benefited from the intervention.

[215] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[216] Key Informant Interview / Focus Group with UBC Response Stakeholder

[217] Key Informant Interview / Focus Group with UBC Response Stakeholder

[218] Key Informant Interview / Focus Group with UBC Response Stakeholder

[219] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

Applying the Cost-Transfer Ratio (CTR) metric used to assess the cost of delivery, the ratio is 1:1; in other words, Oxfam spent $1 in order to provide $1 to each beneficiary, over the course of the 12-month program period.

Regardless of which metric is used, this represents a relatively high cost to deliver. There are several cost drivers to explain this, especially considering the location, modality, activity design and outcomes of the response. First, the delivery of cash assistance was only one out of three identified outcomes. Additional activity costs related to assessment, monitoring and staffing, and training were incurred by Oxfam and partners to achieve Outcome 2 (Market Recovery) and Outcome 3 (Capacity Building).

Costs which are potentially non-recurring are displayed in Table 14. If these costs were to not recur in future responses, it is predicted that the cost efficiency ratio would improve significantly.[220] This demonstrates that over time, implementation may become more efficient by the avoidance of non-recurring costs. Again, it is worthwhile to note that for this project, Oxfam also funded the operational costs of all other implementing partners, which inflated the operating cost overall. This can be common in cash consortium interventions.

Table 14: Potential non-recurring costs[221]

Category	Description	Cost (AUD)
One-Time Set Up Costs	Non-recurring costs for the design of systems and regulator permissions	$30,000
Additional Regulator Costs	Costs associated with the use of the trust account which may not recur dependent on future Reserve Bank requirements	$99,500
Partner Capacity Building Costs	Training for 10 partners	$835,000

Given the UBC platform had already piloted in Vanuatu, there were efficiencies associated with the set-up costs for the TC Harold/COVID-19 response. However, the true costs of the pilot itself may be underrepresented, as many services were provided pro bono to Oxfam, and staff time and effort were not comprehensively captured.

As such, replicating UBC in Vanuatu is likely to be efficient, however implementation in a new country context would require all non-recurring costs to be outlaid to ensure set up, governance, stakeholder engagement and advocacy activities could take place. Note this may be applicable for other new e-CVA delivery mechanisms, however in the case of blockchain this may include additional time, effort and funds by comparison. It is worth noting that there may also be a decreased opportunity for Oxfam to receive pro bono services (e.g., additional legal counsel or private sector advisory) to support new UBC projects, as it would no longer be considered a novel intervention.

Effectiveness

At the conclusion of the project, a total of 4,493 targeted households received cash assistance via the UBC mechanism and could use their vouchers across 358 registered vendors.[222] This fell just short of the target of 4,500 households but did exceed the original target of 4,072 stated in the DFAT report.[223] Overall, almost 300 million Vatu was distributed, and 120,000 payments were made

[220] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[221] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[222] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[223] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

using the e-vouchers.[224] A total of 24,255 people were reached directly.[225]

Almost all beneficiaries (96%) indicated that they were able to meet their basic needs with the assistance provided. At the end-line, it was also found that there was a 33% increase in access to savings across beneficiary households.[226] There was a 62% reduction in targeted households considered food insecure by the end of the project.[227] Over 90% of vendors experienced an increase in their revenues since the inception of the program.[228] Vendors reported an increase in revenue of 86%.[229]

Survey results found that 96% of beneficiaries were able to use their NFC cards without any challenges, although vulnerable groups (such as the elderly and people living with disability) were more likely to experience challenges.[230] Post-distribution monitoring data found that the program was successful in empowering vulnerable groups, with both male and female respondents indicating that spending decisions were being made by the person who received the NFC card.[231]

At the conclusion of the program, almost half of vendors reported finding card payments easier than cash, as well as other payment types.[232] The number of vendors reporting a high level of digital literacy after the program rose by 70%.[233]

The project established a toll-free hotline as a means of collecting feedback and complaints, and by the end of the program a total of 1,892 comments were recorded through the call centre.[234] The most common enquiries included:

- Requests for assistance
- Enquiries about the program, including dates for pre-identification, registration and disbursement cycles
- Technical assistance on phone usage and transaction issues from vendors.[235]

Most calls from Tanna were related to hardware and software issues with the smartphone and

[224] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[225] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[226] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[227] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[228] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[229] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[230] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[231] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[232] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[233] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[234] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[235] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

Sempo app.[236] Digital literacy appeared to be lowest among the vendors in Tafea, which may explain this trend.[237] On average, program staff were able to address complaints within one day of receiving a call, and most technical assistance enquiries were addressed within one hour.[238]

There were seven technical incidents reported, including low-level issues related to problems and other larger issues related to downtime and payment errors.[239] A key informant indicated that there were only one or two instances where there were problems with reconciling vendor payments, and a few occasions where vendors were unable to use the system and had to be paid manually. Another informant also mentioned challenges with the smartphones and cards not working. There was one instance identified where an e-voucher was misused by an employee of a store, which was investigated and addressed.[240] There were no records of beneficiaries receiving no payment or incorrect payment. [241]

Impact

Overall, 300 million Vatu was injected in the economy.[242] After the project, the number of participants who reported they were unable to attend school due to a lack of finance decreased by 20%, though it is unclear how much of this is directly attributable to the project.[243] One key informant felt that the project was successful in facilitating financial inclusion and literacy, as many small businesses registered through the program were consequently equipped with business registration and bank accounts.

As per the independent evaluation of the project, access to savings was observed in less than half of the targeted households at the baseline, whereas at the endline the number of beneficiaries able to save increased by 32%.[244] This improved ability to save was attributed to the increased purchasing power brought about by the vouchers and provides long-term benefits in areas such as education and children's health.[245]

In Shefa province, all targeted households were occupied by at least one person living with disability.[246] As a result, over 200 households enrolled as clients with the Vanuatu Society for People with Disabilities, allowing them to access ongoing support services.[247]

One key informant mentioned, "the magic of seeing so many vendors who have never used a smartphone before, learn how to use one", a benefit that would extend beyond the end of the

[236] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[237] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[238] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[239] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[240] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[241] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[242] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[243] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[244] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d

[245] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[246] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[247] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

program.[248]

Sustainability

Oxfam provided technical assistance and oversight to the consortium of International NGOs, civil society and government partners in an effort to contribute to local cash-based programming capacity building.[249] By the end of the project, the percentage of implementing partners who had knowledge in CVA basics increased by 64%, and knowledge of CVA design increased by 83%.[250] Knowledge in CVA monitoring increased by 92%, and knowledge in CVA implementation increased by 88%.[251]

As part of a 'Partner pilot mini-response', which aimed to capacity build partners in UBC, an expression of interest was sent to all partners to pilot the use of the UBC platform themselves.[252] Three implementing partners – ADRA, CCCV and VRCS – participated in the mini-response and were able to plan and conduct response activities with minimal support from Oxfam.[253] The key challenges included minimal initial training on the monitoring of finances and the dashboard, and short timelines for response planning.[254]

However, there were some concerns among respondents in the independent evaluation that UBC knowledge would not be sustained, and that there would be a need for repeated training. [255] There were concerns around whether a project like this could achieve full localisation.[256] A key informant for this study mentioned that financial reporting was a large burden for Oxfam to manage, as many partners were involved and not all were capable of providing satisfactory reporting.[257]

One key informant felt that the dependence on Sempo as the technology provider to run all the back-end functions was a design shortcoming, and that it was necessary to have a technical expert in-country who could help people understand the value of the technology.[258] Sempo also acknowledged that the project was more expensive than they originally expected it to be, and that future projects may require larger budgets to support their role, noting they contributed much of their time to providing technical assistance to the project team (e.g., through the escalation of issues from the call centre and WhatsApp queries).[259] From a practical perspective, contracting is also a key barrier for Sempo, who need to recruit outside of their small core team to meet the demands of humanitarian interventions. Given Sempo's business model, to maintain sustainability they would need to rely on Oxfam to target smaller implementing partners and may be deemed too expensive by local aid agencies who have limited budgets to contract with technical blockchain

[248] Key Informant Interview / Focus Group with UBC Response Stakeholder

[249] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[250] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[251] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[252] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[253] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[254] Author Unknown, 'UnBlocked Cash: TC Harold and COVID-19 Recovery Response program: End-line Report', Draft Internal Document, 2022.

[255] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[256] Human Capacity Development International (HCDI), 'Independent Evaluation of Oxfam UBC Project 2020-21', Internal Document, n.d.

[257] Key Informant Interview / Focus Group with UBC Response Stakeholder

[258] Key Informant Interview / Focus Group with UBC Response Stakeholder

[259] Key Informant Interview / Focus Group with UBC Response Stakeholder

providers.

Another key informant suggested that the design of the CVA mechanism should have incorporated the broader team (i.e., implementing partners) to ensure knowledge was entrenched. They also suggested more skill-building activities could be rolled out for beneficiaries to contribute to longer-term outcomes in food security and other areas (e.g., training in agriculture and livelihoods), as some of these outcomes dissipated soon after the distributions concluded.

One of the informants noted the issue of turnover in the humanitarian sector as a factor impacting sustainability (noting that this is a general constraint across the use of CVA and other types of humanitarian programs). They felt that to ensure sustainability, a longer-term strategy is needed for building, integrating and institutionalising relevant technical capabilities. They also indicated that the lack of integration of the UBC system, and cash transfers in general, into Oxfam's program strategy is hindering its ability to be continually adopted. This was reflected in comments from another key informant, who mentioned that UBC needed to be embedded into disaster preparedness and humanitarian standard operating procedures.

RECOVERY EFFORT FOR FOOD SECURITY AND INTEGRATED LASTING LIVELIHOODS FOR MAHASEN AFFECTED AREAS IN BARGUNA (REFILL) PROJECT

Details	
Country	Bangladesh
Region	Aylapatakata and Gouricharna union under Barguna Sadar Upazila of the Barguna district
Implementing partners	Jago Nari
Reason for response	Tropical storm Mahasen
CVA delivery mechanism	Mobile money utilising the bKash service
Time period	31 October 2013 – 31 May 2014 November 2013 – December 2013 (beneficiary selection and registration)[260] January 2014 – February 2014 (Cash for Work schemes)[261]
Project budget	EUR€267,517 through four modalities for nine months[262]
Donor	ECHO
Project summary	The REFILL project aimed to improve livelihood recovery and food security to households affected by tropical storm Mahasen. Mahasen made land fall on 16 May 2013, damaged crops and fisheries, and consequently contributed to a loss of employment opportunities.[263] The project included several activities for 1,500 targeted households, which were deemed to be severely affected by Mahasen. These included: • A cash for work scheme which aimed to support households through temporary employment, delivered weekly through mobile money transfer (MMT).[264] • Direct cash grants in two phases. The first phase occurred on 20 January 2014 and the second on 30 January 2014. This cash was delivered directly through MMT. [265] • Provision of training on resilient livelihoods, disaster risk reduction and health and hygiene. • Provision of vouchers or cash for vegetable seeds to

[260] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014.

[261] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[262] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MAHASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[263] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MAHASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[264] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[265] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

	support self-sufficient gardening and improve nutrition.[266]

Relevance

In May 2013, a joint needs assessment was conducted to inform the REFILL program.[267] This assessment indicated that around 25% of the population across the districts of Barguna, Bhola and Patuakhali were affected by tropical storm Mahasen.[268] The project targeted households which were significantly affected by agricultural damage and loss caused by Mahasen, and therefore would have low resilience due to poor food consumption. In addition, the project aimed to target female-headed households, lactating and pregnant mothers, and families which included people living with disabilities.[269]

The project was designed based on consultations with communities and local government (particularly the disaster management committees). This participatory approach informed beneficiary selection and was validated by project staff through a door-to-door survey.[270] Proposed participants were reviewed by the project implementation committees, local ward members and the Union Disaster Management Committee.[271] The final participants were approved by Union Parisad and the Upazila Nirbhai Officer.[272] This participatory approach was taken to reduce local pressure surrounding the selection of beneficiaries, to avoid debates and ensure appropriate participants were selected.[273] By December 2013, 1,500 vulnerable households (including approximately 6,000 individuals) were selected as beneficiaries.[274] Nearly 93% of program participants were women.[275]

According to bKash, the service provider selected for the mobile money program, over 68% of people in Bangladesh have mobile phones, while less than 15% are connected to a formal banking system.[276] At the time of the project, however, there was a lack of awareness around mobile money transfers and a lack of literacy among the targeted community.[277] Community training was provided to ensure awareness and understanding of the mobile money mechanism. Oxfam and Jago Nari utilised IEC materials and conducted several awareness training sessions for beneficiaries.[278]

The final report prepared by RDM consulting indicated that beneficiaries felt the project was very relevant to their needs, however it suggested more effective community participation and

[266] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[267] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[268] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[269] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[270] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014

[271] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014

[272] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014

[273] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014

[274] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[275] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[276] BKash, 'About Us', kBash.com [website], 2022, https://www.bkash.com/about-us (accessed 8 September 2022).

[277] Key Informant Interview with REFILL Project Stakeholder

[278] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

engagement should be pursued in the identification of cash for work schemes.[279] The lessons learned workshop indicated that a training needs assessment should have been completed prior to designing training activities, and that community and local government should be engaged to ensure a participatory selection of modules that are most relevant to beneficiaries.[280] For example, it was found that there was a lack of childcare support and enabling environments for people living with a disability at the training venues.[281]

Coherence

In identifying an appropriate mobile money provider, Oxfam considered organisations who had legal permission to operate in the program area, had acceptance among communities and aligned with Oxfam's financial policy.[282] One key informant noted that mobile money was fully supported by government policy in Bangladesh, and that security, data protection and privacy were ensured through the system as it was already a recognised system in the country. BKash, the provider selected for REFILL, operates under the licence and approval of Bangladesh Bank (the Central Bank).[283]

Oxfam worked closely with community and partner organisations to deliver the REFILL program. Local partner organisations were responsible for beneficiary registration as well as monitoring the use of the cash assistance through activities such as assessments, discussions with beneficiaries and direct observations.[284]

A total of 18 project implementation committees were established across the program locations. These committees included representatives from local government and communities.[285] They were involved in community-level monitoring and were also engaged to collaborate on a range of issues, including how to address interference by influential but biased leaders.[286]

Efficiency

BKash was selected as the mobile money provider for the REFILL program. It is currently one of the leading mobile financial service providers nationally and runs a network of more than 180,000 agents in urban and rural areas of Bangladesh.[287] The mobile money system was connected to Oxfam in Bangladesh's Smart Information and Management System (SIMS) which enabled a participatory approach to finalise a database of beneficiaries.[288] The linking of the SIMS and bKash systems enabled efficient delivery of inputs, procurements and communication.[289]

Photographs and national IDs were included in information collected from beneficiaries and were recorded using the SIMS.[290] The incorporation of a printed card with photographs was also found to

[279] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[280] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[281] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[282] Key Informant Interview with REFILL Project Stakeholder

[283] BKash, 'About Us', kBash.com [website], 2022, https://www.bkash.com/about-us (accessed 8 September 2022).

[284] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[285] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[286] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MAHASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[287] BKash, 'About Us', kBash.com [website], 2022, https://www.bkash.com/about-us (accessed 8 September 2022).

[288] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[289] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[290] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

be beneficial for beneficiaries with low literacy who could identify themselves through their photographs.[291]

The final evaluation report classified the project as 'moderately efficient' in the monitoring of results and processes, as well as in the areas of human resourcing and partner capacity building.[292] It classified the project as 'extremely efficient' in terms of transparency and visibility.[293] The mobile money service provided key efficiencies for the program, reducing the cost, time and risk of cash transfers to beneficiaries and general service delivery.[294] A key informant indicated that using mobile money saved on administrative costs such as staff travel, distribution and other staff time.[295] A breakdown of expenditure for the project is provided below in Table 15.

Table 15: Expenditure by budget category for REFILL[296]

Budget category	Actual expenditure (EUR)
Project Supplies and Materials (including distributions to beneficiaries)	209,609.01
Staff Costs	26,423.70
Indirect costs	17,121.52
Other Costs	4,898.76
Property, Transport and Communications	1,740.12
Communication and Visibility	1,297.43
General Equipment and Supplies	624.16
Total	**261,714.70**

Based on the final financial acquittal for REFILL, direct cash distributions to beneficiaries totalled EUR€182,143.58. This figure includes distributions made under the Cash for Work and Livelihood Grants activities. Note that it does not include the 'cash transfer cost' component under 'other costs' in the final acquittal as these funds did not go directly to beneficiaries (e.g., costs associated with SIM cards). Based on this distribution amount, the project's cash transfer ratio is calculated as 1.44.

Oxfam was able to commence the response within 72 hours of Mahasen's land fall.[297] It took approximately one month from project inception to the time payments were made to beneficiaries.[298]

Effectiveness

The final evaluation of the project found that overall, the program was highly effective in achieving outcomes such as employment creation, food security, income generation, inclusivity and resilience.[299] The number of targeted households with a critical Food Consumption Score (FCS)

[291] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[292] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[293] Key Informant Interview with REFILL Project Stakeholder

[294] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[295] Key Informant Interview with REFILL Project Stakeholder

[296] Oxfam GB, REFILL Financial Overview, Internal Document, n.d.

[297] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[298] Key Informant Interview with REFILL Project Stakeholder

[299] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

reduced by almost 64%, indicating that the REFILL project contributed to improved food security through increased income, job opportunities, cash for work and unconditional livelihood support, and improved nutrition knowledge and practice.[300]

The final amount of distribution made to beneficiaries is unclear and there appears to be some discrepancy in the documentation reviewed. For example, the following numbers have been provided:

- Each household received 12,600 BDT in total to cover their entitlements under the cash for work, cash for livelihoods, seed support and training activities.[301]
- A total of 9,700 BDT was distributed to households in the first phase of the project in direct cash grants and cash for work, and 500 BDT was provided for seed and fertiliser support in line with the livelihood restoration activity.[302]
- A total of 6,500 BDT was distributed during the first phase of the project in direct cash grants.[303]
- A total of 466 additional households received 2,400 BDT as part of the second phase of the program through the cash for work scheme.[304]
- In the second phase, 1,034 households received 2400 BDT as cash for work payments.[305]
- Individuals received 3200 BDT to meet immediate food consumption needs.[306]

All of the planned funds to be distributed were transferred to beneficiaries, and mobile money transfers were completed on time for 98% of beneficiaries.[307] The project evaluation team indicated that the transparency, visibility and accountability of the project was high.[308]

The mobile money mechanism allowed beneficiaries to withdraw cash country-wide.[309] Post-distribution monitoring of the program indicated beneficiaries were satisfied with the distribution points for cash and felt that these were easily accessible.[310] The majority of households (82%) were also within one kilometre of the nearest cash distribution centre.[311] While most women in the target households did not manage the cash of their households, the mobile money system allowed them to be connected to mobile bank accounts and IT and provided them with the power to control their cash.[312]

All surveyed households reported zero incidences of bribery, which was attributed to several

[300] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[301] Oxfam HD EFS&VLTeam, 'Post Distribution monitoring Report of "REFILL Project" funded by ECHO', Dhaka, Bangladesh, Oxfam Humanitarian Department, 2014

[302] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[303] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[304] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[305] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[306] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[307] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[308] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[309] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[310] Oxfam HD EFS&VLTeam, 'Post Distribution monitoring Report of "REFILL Project" funded by ECHO', Dhaka, Bangladesh, Oxfam Humanitarian Department, 2014

[311] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[312] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

community meetings and consequent community awareness of entitlements.[313] There were, however, some issues with the mobile money system. This included lost SIM cards, beneficiaries being blocked from their bKash account, network problems and limited service coverage.[314] Additionally, there was a lack of IT knowledge across beneficiaries as well as project staff and no customer service at the local customer level.[315] There was a country-level hotline which beneficiaries could call, but no toll-free hotline.[316] No information was received with regard to how many people called the country-level hotline, or how much it cost to call the hotline.

As part of a lessons learnt workshop, participants suggested that mobile money can be challenging when used for real time emergency response.[317] Recommendations were also provided to improve the CVA system, including:

- improving the SIMS and linking the complaints response mechanism to this system to improve accountability
- improving the capacity building of partners
- performing an in-depth feasibility study of mobile money operators to ensure the most appropriate provider is selected
- Undertaking advocacy to address the Bangladesh Telecommunication Regulatory Commission's regulations around MNOs
- Greater involvement of local government bodies across the implementation process
- Invest in the capacity building of local government, as well as mobile money agents, to help them work effectively in humanitarian situations.[318]

Impact

One key informant felt the project contributed to medium- to long-term financial inclusion by connecting beneficiaries to a financial system allowing them to save money.[319] As most beneficiaries were women, this also meant a larger amount of women were connected with a formal financial system, and with IT in general.[320] The project also supported beneficiaries to invest in things such as their children's education, poultry, livestock and food. [321] Some beneficiaries repaid their loans and invested in health support.[322]

Sustainability

A low level of sustainability of specific project outcomes was found by the evaluation team, mainly due to the short timeline of the project.[323] However, the final evaluation of the project indicated that

[313] Oxfam HD EFS&VLTeam, 'Post Distribution monitoring Report of "REFILL Project" funded by ECHO', Dhaka, Bangladesh, Oxfam Humanitarian Department, 2014

[314] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[315] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[316] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[317] Oxfam HD Team, 'Lesson Learn Workshop Report of the ''Recovery Effort for Food security and Integrated Lasting Livelihood for MA-HASEN Affected Areas in Barguna (REFILL)'' Project funded by ECHO', Internal Document, 2014.

[318] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[319] Key Informant Interview with REFILL Project Stakeholder

[320] Key Informant Interview with REFILL Project Stakeholder

[321] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[322] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

[323] S. Saadi, 'Learning Lessons from REFILL Project', Internal Document, 2014.

there is a high potential to replicate the project with little modification to the existing design and implementation process.[324] Additionally, one key informant indicated that most local partners now use the mobile money system and that it is widely used by marginalised communities in rural areas.[325] This is supported by existing research on cash transfer mechanisms in Bangladesh, which found that the bKash is highly scalable and well established in Bangladesh. [326] BKash currently reports having over 30 million accounts in Bangladesh.[327]

[324] RDM Consulting, 'Final Evaluation Report – REFILL Project', Internal Document, 2014

[325] Key Informant Interview with REFILL Project Stakeholder

[326] M.Abdul Wazed, A. Hannah, K. Bhatnagar, 'Study on Related Pros and Cons of Cash Transfer (Payment Mechanisms) in Bangladesh', Internal Document, n.d.

[327] BKash, 'About Us', kBash.com [website], 2022, https://www.bkash.com/about-us (accessed 8 September 2022).

CALEDONIA URBAN SOCIAL ASSISTANCE PROGRAMME (USAP)

Details	
Country	Zimbabwe
Region	Caledonia Phases 1, 2, 3, 4, 12 and 17
Implementing partners	• Save the Children • Adventist Development and Relief Agency (ADRA) • Mavambo Orphan Care • Action Aid • Department of Social Services (DSS) • Esteemed Children's Trust (ECT) • Padare.[328]
Reason for response	Strengthening resilience in food and nutrition security, particularly in the face of COVID-19 challenges.
CVA delivery mechanism	WFP SCOPE E-Voucher
Time period	August 2020–December 2021
Project budget	USD$ 2.7 million[329] (total project budget)
Donor	World Food Programme (WFP)
Project summary	The Caledonia Urban Social Assistance Programme (USAP) aimed to strengthen resilience in food and nutrition security for vulnerable populations in the informal settlement of Caledonia.[330] Specifically, it aimed at supporting community members impacted due to delayed harvests and crop write-offs.[331] Phases 1, 2, 3, 4 and 17 of Caledonia were identified as the most vulnerable phases within the ward in terms of food insecurity.[332] As part of the program, e-vouchers were delivered through the WFP SCOPE system. There was a total of 15 distribution cycles during the project period.[333] Complementary activities were also undertaken to further build resilience and knowledge in several areas. This included training in gender-based violence, small livestock production and disease control, health and hygiene and business development and enterprise.[334]

[328] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[329] Key Informant Interview with USAP Project Stakeholder

[330] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[331] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[332] Key Informant Interview with USAP Project Stakeholder

[333] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[334] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

	The key objective of the program was to protect the livelihoods for at least 14,000 people through cash assistance and for 800 households to receive relevant trainings.[335] Beneficiaries were entitled to an e-voucher of $12 per person, provided monthly.[336]

Relevance

As an informal settlement, Caledonia experiences several vulnerabilities which renders the community susceptible to food insecurity, among other shocks.[337] This had been exacerbated by economic instability and was further compounded by COVID-19 restrictions.[338] These restrictions affected the livelihood of most urban and peri-urban communities in Caledonia.[339]

USAP proposed to make use of gender sensitive community-based targeting and would determine households with the highest level of food insecurity while also considering other sources of community data.[340] Oxfam proposed that this process would be completed by collecting responses for food insecurity indicators via surveys and through the use of an Open Data Kit (ODK) application.[341]

The WFP e-voucher system was selected mainly due to economic instability within Caledonia. Other modalities using local currency (such as mobile money) would have been vulnerable to currency depreciation, meaning beneficiaries may not have received as much benefit from those forms of CVA.[342] A key informant noted, however, that preferences for CVA mechanisms often fluctuate due to the fluctuating context of Zimbabwe.[343]

The initial registration process for USAP resulted in 42,649 people being registered.[344] 14,000 individual beneficiaries were consequently selected via the WFP system based on their level of vulnerability and capacity to cope with the impacts of droughts, epidemics and economic shocks.[345] These individuals were registered as beneficiaries of USAP in the SCOPE database.[346]

To enable the delivery of the mechanism, vendors were provided with training of program activities at the beginning of the program. This included training on their roles and responsibilities, redemption procedures, humanitarian principles and WFP and Cooperating Partner (CP) standard operating procedures.[347]

Coherence

[335] Oxfam (United Kingdom) Zimbabwe Country Office, 'Proposal Format for Urban Social Assistance 2020-2021', Internal Document, n.d.

[336] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[337] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[338] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[339] Oxfam (United Kingdom) Zimbabwe Country Office, 'Proposal Format for Urban Social Assistance 2020-2021', Internal Document, n.d.

[340] Oxfam (United Kingdom) Zimbabwe Country Office, 'Proposal Format for Urban Social Assistance 2020-2021', Internal Document, n.d.

[341] Oxfam (United Kingdom) Zimbabwe Country Office, 'Proposal Format for Urban Social Assistance 2020-2021', Internal Document, n.d.

[342] Key Informant Interview with USAP Project Stakeholder

[343] Key Informant Interview with USAP Project Stakeholder

[344] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[345] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[346] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[347] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

Inception meetings were conducted at both the district and provincial level.[348] Throughout the program, coordination meetings were also held with stakeholders monthly to provide program updates and reviews.[349] These meetings were also valuable in identifying opportunities to merge existing government efforts with USAP activities, as well as in designing a collective approach to implementation.[350] Meetings included a monthly bilateral meeting with WFP-CP, urban CP meetings, community level engagement meetings and district stakeholder engagement meetings.[351] There were at least five provincial level meetings, two district inception meetings, two community inception meetings and three stakeholder engagement meetings.[352]

Government line ministries were involved in all stages of program implementation, including selecting domain hotspots, facilitating complementary activity trainings, resolving protection issues and facilitating the authorisation of monthly disbursement plans.[353]

Efficiency

The e-vouchers were delivered through the WFP SCOPE system, which is an online database of all registered WFP beneficiaries.[354] Once beneficiaries were registered, they received a SCOPE card which they could redeem at vendors. Each beneficiary was given a unique SCOPE ID which was reflected on their card, along with their name and the names of alternative recipients. This information, in conjunction with the beneficiary's personal ID card, was used to verify their identity when they used their vouchers at vendor locations.[355]

Vendors were supplied with specialised SCOPE card-compatible mobile POS devices which were owned by WFP. These were returned to WFP at the conclusion of the project.[356] The POS devices connected to a mobile network to synchronise transaction activity with the SCOPE database. This occurred at the end of each day and vendors were paid at the end of each cycle.[357] As such, the system allowed offline transaction options, allowing data to be collected and consequently uploaded once an internet network becomes available.[358] Oxfam's specific privileges on the system were limited to managing beneficiary information, with the majority of program tracking completed by WFP.[359]

The program also used WhatsApp to communicate and gather feedback from beneficiaries. This remote communication was required as a result of COVID-19 restrictions, which prevented more direct interaction with beneficiaries from occurring.[360] COVID-19 restrictions also severely impacted the efficiency of beneficiary registration, as the 14,000 beneficiaries needed to be separated into groups of around 50 to take part in registration onto the database.[361] This caused significant

[348] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[349] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[350] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[351] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[352] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[353] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[354] Key Informant Interview with USAP Project Stakeholder

[355] Key Informant Interview with USAP Project Stakeholder

[356] Key Informant Interview with USAP Project Stakeholder

[357] Key Informant Interview with USAP Project Stakeholder

[358] Key Informant Interview with USAP Project Stakeholder

[359] Key Informant Interview with USAP Project Stakeholder

[360] Key Informant Interview with USAP Project Stakeholder

[361] Key Informant Interview with USAP Project Stakeholder

delays, and meant that registration took three weeks to complete.[362] This also impacted the budget for the project as this social distancing allowance was not initially planned.

Actual cost information related to program implementation is unable to be provided due to insufficient information.

Effectiveness

Throughout the duration of the project, beneficiaries were able to redeem approximately USD$ 2.517 million out of the target USD$ 2.520 million, an average redemption rate of 99.85%.[363] The end of project report indicated that overall, the program appeared to help improve and stabilise food consumption and enhanced dietary diversity.[364]

During the first cycle, approximately 9.43% of beneficiaries shared or donated their entitlements.[365] By the September 2021 cycle, a reported 0.94% of beneficiaries sold some or all of their entitlements to pay for items such as rentals and travel costs.[366] These low figures were attributed to the flexibility provided in purchasing decisions, which prevented households from needing to sell their entitlements to access other goods.[367]

About 27.27% of the surveyed beneficiaries indicated that they faced some sort of challenge with voucher redemption during the first cycle.[368] Some of these challenges included theft (experienced by 3.76% of beneficiaries) and long waiting periods at vendors (experienced by 23.81% of beneficiaries). [369] A total of 71.43% of surveyed beneficiaries experienced other challenges, such as being told to provide payment to the guard to enter the store, failure to purchase their items due to congestion, shortage of basic items and small quantities and large expense of available commodities.[370] Some people living with disability were also not able to travel to buy goods at vendors where they were cheaper or more available.[371]

Given that the first two cycles were combined into one, vendors were also initially met with increased demand which in turn resulted in stock challenges.[372] A key informant for USAP indicated that vendors' main complaint was regarding the payment system, given bank tariffs and some delays in the transfer of funds, which affected the vendors' ability to restock.

Only 6% of beneficiaries experienced challenges with redemption during the January cycle, with some of the challenges including discrepancies between the amount redeemed and entitlements, waiting times and vouchers available on their cards.[373] The discrepancy issues were related to the differing exchange rates at different vendors.[374] For example, one vendor used a USD to ZW rate of

[362] Key Informant Interview with USAP Project Stakeholder

[363] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[364] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[365] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[366] Oxfam, 'Caledonia Urban Social Assistance Program: September 2021 (August Cycle) Post Distribution Monitoring Survey', Internal Document, n.d.

[367] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[368] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[369] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[370] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[371] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[372] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[373] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

[374] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

1:83 while another would use 1:120.[375] This meant that beneficiaries who bought goods at the second vendor would be able to redeem more goods than those who bought goods via the first vendor.[376] The distances to these vendors, however, created a trade-off as the first store was a walkable distance from Caledonia, while the other was much further away.[377]

There was only one small retailer in Caledonia, meaning that beneficiaries travelled long distances to redeem their vouchers. Most beneficiaries (85.71%) in Caledonia in the first cycle travelled more than five kilometres to redeem their vouchers, and of these 19.48% travelled a distance greater than 20 kilometres.[378] A lower proportion of beneficiaries travelled more than five kilometres to redeem their vouchers compared to the first cycle. About 42% of surveyed beneficiaries travelled more than five kilometres, however almost none of these beneficiaries travelled more than 20 kilometres.[379]

Just under half (45.28%) of surveyed beneficiaries in the first cycle indicated a preference for e-voucher programming. This was followed by 28.3% of beneficiaries who preferred food-in kind, among other kinds of food assistance programming modalities.[380] In the January cycle, a slight increase of 53% of surveyed beneficiaries indicated a preference for e-voucher programming, followed by 24% who preferred a combination of food and cash.[381]

Only 28.3% of survey participants utilised feedback and complaint mechanisms in the first cycle. Of those who did not use these, 52.83% indicated they had no feedback to give, and 18.87% doubted the effectiveness of these feedback mechanisms.[382] Some participants (12.26%) noted that they were unable to reach the toll-free line.[383] It is unclear whether this was resolved in the following cycles.

Monthly verifications of the target beneficiaries were conducted to ensure households were selected appropriately. This included confirming the food insecurity status of beneficiaries who were late to redeem or did not redeem their vouchers.[384] During the first cycle, monitoring found that 90% of the surveyed beneficiaries were correctly selected for the program, however the remaining beneficiaries appeared to be better off than other households which were excluded. Of the households excluded, 45.45% were found to be deserving of being included in the program.[385] Due to the limited beneficiary target of 14,000, however, many deserving households were not able to be included in the program.[386]

By the end of the program, 102 households had been verified and an additional 46 were deemed inclusion errors. As a result, 40 households which were initially excluded were enrolled into the program.[387]

Impact

Oxfam found that the program helped households to create budgets and learn about savings,

[375] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

[376] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

[377] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

[378] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[379] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

[380] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[381] Oxfam, 'Caledonia Urban Social Assistance Program: January 2021 Cycle Post Distribution Monitoring', Internal Document, n.d.

[382] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[383] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[384] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

[385] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[386] Oxfam, 'Caledonia Urban Social Assistance Program: August/September Post Distribution Monitoring', Internal Document, n.d.

[387] Oxfam, 'Caledonia USAP End of Project Report', Internal Document, 2021

financial literacy and recordkeeping.[388] Women were found to be more involved in decision-making post-program, with at least 60% taking up leadership positions.[389] Records from the Care Champions registers indicated that there was a decline in gender-based violence cases after the program.[390]

There were several positive unintended impacts realised by the program, including an increase in school fee payment among beneficiary households and an improved ability to save and diversify livelihood activities.[391] There were also some negative impacts. This included increased jealousy among those who did not qualify for the program. Some beneficiaries were found to rely heavily on food aid which prevented them from sustaining themselves after the program ended due to a lack of livelihood projects.[392] The cash assistance also seemed to contribute to instances of gender-based violence, where some men left their families and took their e-voucher with them.[393]

Sustainability

The livelihood training aspect of the program was the main source of sustainability for beneficiaries, in that it provided knowledge and awareness to ensure households could improve income and food productivity.[394] In terms of local capacity to implement similar programs, a key informant commented that local partners would be able to and have worked with WFP in the past, but that WFP often prefers to work with implementing partners directly. Additionally, access to the SCOPE system by partner agencies is only provided where a services agreement specifies that the partner will manage and process their own interventions.[395]

The SCOPE system itself is able to 'plug-in' to locally available delivery mechanisms as well as using WFP-designed delivery mechanisms.[396] However, the intellectual property for SCOPE's core application and the specific e-voucher component of the system is fully WFP-owned. SCOPE relies on open-source technology where possible to allow the platform to be available for governments and partners at a low cost.[397] While this means that partners can access the platform if they have relationships with WFP, it can also present challenges for local partners to access the SCOPE system without existing relationships with WFP in country to access the system. Further discussion on the sustainability of e-vouchers in this context is unable to be provided due to insufficient information.

[388] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022

[389] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022

[390] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022

[391] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022.

[392] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022

[393] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022

[394] Oxfam, Notes on the Impact of the USAP Program, Internal Document, 2022

[395] World Food Programme, 'WFP SCOPE | User Manual', n.d., https://usermanual.scope.wfp.org/scope-cards/content/common_topics/setting_up_co/2_assigning_user_roles.htm

[396] K. Sossouvi, 'E-Transfers in Emergencies: Implementation Support Guidelines', The Cash and Learning Partnership (CaLP), 2013, https://resources.peopleinneed.net/documents/476-e-transfer-guidelines-english-20-12-2013.pdf

[397] K. Sossouvi, 'E-Transfers in Emergencies: Implementation Support Guidelines', The Cash and Learning Partnership (CaLP), 2013, https://resources.peopleinneed.net/documents/476-e-transfer-guidelines-english-20-12-2013.pdf

BUILDING RESILIENT, ADAPTIVE AND DISASTER-READY COMMUNITIES (B-READY) 2

Details	
Country	Philippines
Region	Sacledo and Oras in Eastern Samar province and Cotabato City
Implementing partners	Plan International Philippines[398]
Reason for response	Anticipatory action in disaster-prone areas in Philippines. Ultimately helped to respond to Typhoon Rai (Odette).
CVA delivery mechanism	Mobile Money via PayMaya and iAFFORD cards
Time period	April 2021 – March 2022
Project budget	EUR€800,000[399]
Donor	Dutch Relief Alliance (DRA), funded by the Dutch Ministry of Foreign Affairs (BZ)
Project summary	B-READY 2 aimed to use anticipatory action (AA) in line with other local humanitarian actors and local government to improve disaster preparedness across vulnerable communities in Philippines.[400] To do this, it utilised a digital, forecast-based and pre-emptive approach to cash assistance to deliver funds to beneficiaries in the municipalities of Salcedo and Oras in Eastern Samar province and in Cotabato City.[401] Targeted bangarays (districts) were selected based on criteria such as location and vulnerability to hazards, functionality and responsiveness of the barangay council and community acceptance of the project implementation. The program integrated satellite data analytics, weather forecasts and forecasting indexes with the PayMaya mobile money platform to enable cash disbursements to be delivered when parametric indexes were triggered.[402]

Relevance

B-READY 2 built upon the original B-READY program, which ran from 2019 to 2021.[403] The pilot program implemented a pre-emptive cash transfer program partnering with PayMaya, Smart Padala and Visa,[404] and as part of this:

- utilised satellite data analytics and forecasts of weather and climate to contribute to early warning systems
- built community capacity for disaster preparedness, financial management and the

[398] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[399] A.V. Villaneuva, 'Building Resilient, Adaptive, and Disaster-Ready Communities Scale-Up Project (B-READY 2): Randomised Controlled Trial, A Baseline-to-Midline Report', Internal Document, 2022

[400] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[401] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[402] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[403] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[404] Author Unknown, 'Building Resilient, Adaptive, and Disaster-Ready Communities Pilot Project', Internal Document, 2021.

safeguarding of the rights of vulnerable groups

- distributed loadable digital cards (iAFFORD cards) to which cash could be transferred.[405]

Disaster preparedness and pre-emptive action are particularly relevant in the context of Philippines, which is the third most disaster-prone country.[406] The Eastern Samar province is the most vulnerable region to tropical cyclones originating in the Pacific Ocean and is also one of the top 20 poorest provinces in Philippines.[407]

B-READY 2 aimed to scale the original B-READY model to include an additional 10 barangays in Salcedo, 10 barangays in Oras and 10 barangays in Cotabato City.[408] The overall project goal was to help improve disaster preparedness across vulnerable communities by increasing knowledge of the local impact of disasters and the provision of cash grants.[409] There has been greater appetite within Philippines and across partners and donors to implement anticipatory action and preparedness work in the humanitarian space.[410]

Barangays were selected based on criteria such as location and vulnerability to hazards, functionality and responsiveness of the barangay council and community acceptance of the project.[411] There were also considerations of mobile network signals to ensure the digital cash method would be viable.[412]

The project implemented socialisation and training activities to increase awareness of the program and the CVA mechanism.[413] These included safe programming and disaster risk reduction orientations, and training on digital registration, financial literacy and the beneficiary information system (BIS).[414] User education on the PayMaya digital platform was also provided.[415] Further information on PayMaya, the program's payment partner, is provided in the 'Efficiency' section of this case study.

Coherence

B-READY 2 aligned with the goals set out in the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121), which aims "to build the disaster resilience of communities, and to institutionalise arrangements and measures for reducing disaster risks, including projected climate risks, and enhancing disaster preparedness and response capabilities at all levels."[416] It achieved this through provision of early access to forecast information, monetary aid, insurance and credit.[417] As part of the original pilot, PayMaya, Visa and Smart Padala provided a system which

[405] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[406] A.V. Villanueva, 'End-of-Project Evaluation Report: Building Resilient, Adaptive and Disaster-Ready Communities (B-READY) Project', Internal Document, 2021

[407] A.V. Villanueva, 'End-of-Project Evaluation Report: Building Resilient, Adaptive and Disaster-Ready Communities (B-READY) Project', Internal Document, 2021

[408] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[409] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[410] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[411] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[412] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[413] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[414] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[415] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[416] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[417] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

adhered to the governing rules of the Central Bank of Philippines.[418] This meant that the digital cash transactions to beneficiaries were recognised as formal financial transactions by the government.[419] This feature is not common among other digital financial services.[420]

Oxfam and Plan International collaborated with Global Parametrics, PayMaya, Smart Padala and the People's Disaster Risk Reduction Network (PDRRN) as consortium partners for B-READY 2.[421] As part of the project, regular consortium meetings, learning sessions and discussion activities were held.[422] The consortium sought to pilot new financial products such as a pre-emptive micro loan for disaster risk reduction and a micro-loan for livelihood insurance.[423] However, these were not used as part of B-READY 2, as the development of these products was restricted by requirements from the Insurance Commission of Philippines.[424]

Given there is a decentralised governance structure in Philippines, the capacity and performance of local government units (LGUs) is critical to ensure the success of anticipatory action interventions.[425] LGUs are considered to have the appropriate knowledge and awareness of their citizen's needs and working with them ensured greater responsiveness in meeting these needs.[426]

There was a strong relationship between implementing partners and local communities, which contributed to community trust of the project.[427] However, consortium partners only undertook two field visits throughout the project due to COVID-19 restrictions, which left local teams to oversee much of the implementation.[428]

Evidence from B-READY 2 indicated that the program can be successfully integrated into existing local disaster risk reduction and response frameworks if there is both enabling policy and strong buy-in by the local government.[429] A policy brief and policy notes were prepared to provide guidance on institutionalising B-READY and integrating the program with Disaster Risk Reduction and Management policies.[430] A forecast-based technical subgroup was formed, which was chaired by the Department of Science and Technology and supported by NGOs.[431]

Efficiency

As B-READY 2 was scaled from an original pilot, it aimed to use and build upon existing technology. As part of B-READY 2, beneficiaries used smartphones with registered SIMs and a PayMaya application to access their digital accounts.[432] Reporting indicated iAFFORD cards were also used,

[418] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[419] Author Unknown, 'Building Resilient, Adaptive, and Disaster-Ready Communities Pilot Project', Internal Document, 2021

[420] Author Unknown, 'Building Resilient, Adaptive, and Disaster-Ready Communities Pilot Project', Internal Document, 2021

[421] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[422] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[423] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[424] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[425] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[426] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[427] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[428] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[429] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[430] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[431] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[432] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

but further information on these cards and their utility was limited for the scaled project.[433] Minimal start-up costs were associated with B-READY 2 as it utilised much of the activities and preparatory work of the original pilot.[434]

The overarching B-READY model for pre-emptive cash distribution incorporates:

1. Weather stations receive information about a disaster event (e.g., typhoon) and provide forecast information.
2. Forecasts from different weather stations are consolidated to prepare a parametric index.
3. This index is used by LGUs in combination with community insights to create a basis or threshold for early action. If the threshold for the index is met, the LGU will issue a memo for early action.
4. The pre-emptive cash transfer process will be triggered and initiated by the digital financial services provider. In this case, information would be sent to PDRRN, Oxfam in Philippines and Plan International Philippines. Digital cash is then distributed to beneficiaries via registered SIM cards in their mobile phones by the payment partner PayMaya.
5. Recipients travel to cash withdrawal points or vendors to use their digital cash.[435]

For Cotabato, a flood forecasting index was developed to inform the pre-emptive cash transfer. In Salcedo, typhoon triggers were developed. In Oras, both typhoon and flooding triggers were developed.[436] In interviews, LGU officials reported that they felt the program suited the needs and priorities of the program locations.[437] A separate study also showed that due to geography, typhoons affected Salcedo and Oras more frequently and intensely than Cotabato, supporting the triggers that were developed.[438]

By the end of the project, approximately 97% of the budget had been utilised.[439] The expenditure by cost category, as well as by partner, are presented below.

Table 16: Expenditure for B-READY 2[440]

Partner	Actual expenditure (EUR)
Oxfam Philippines and Partner	282,227
Plan International, Inc.	217,637
Oxfam Novib	202,891
Oxfam Great Britain	70,895
Total	**773,650**

Table 17: Expenditure by project partner for B-READY 2[441]

Budget category	Actual expenditure (EUR)

[433] A.V. Villaneuva, 'Building Resilient, Adaptive, and Disaster-Ready Communities Scale-Up Project (B-READY 2): Random-ised Controlled Trial, A Baseline-to-Midline Report', Internal Document, 2022

[434] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[435] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[436] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[437] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[438] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[439] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[440] Isla Lipiana & Co. (PwC Philippines), Agreed-Upon Procedures (AUP) Report for B-READY 2, Internal Document, 2022

[441] Isla Lipiana & Co. (PwC Philippines), Agreed-Upon Procedures (AUP) Report for B-READY 2, Internal Document, 2022

Program implementation costs	423,855
National staffing costs	115,759
International staffing costs	103,221
Indirect cost recovery	56,781
Monitoring and audit	52,378
Other direct costs	11,889
Management costs	7,098
Assets and equipment	2,669
Total	**773,650**

Effectiveness

B-READY 2 reached 2,982 households, exceeding the target of 2,500.[442] In Cotabato, pre-emptive cash was transferred to 959 participants, which was activated in response to triggers linked to a flood forecasting index.[443] In Salcedo, disbursements were delivered to 1,033 participants, prior to the landfall of Typhon Rai (Odette). [444] In Oras, cash was transferred to 991 households (out of 1,000 listed participating households).[445] Specific interventions under the program, such as the localised approach, science-based activities, pre-emptive cash transfer and safeguarding activities, were shown to work in fostering greater multi-sectoral collaboration, particularly in the protection of vulnerable people during disasters.[446]

Technology issues were one of the biggest challenges during the project.[447] For example, the mobile phone signal was weak in Oras, impacting the viability of the mechanism in this location. [448] Community consultation in Salcedo also found that only households who had participated in the original B-READY program were able to receive pre-emptive cash transfers during Typhoon Odette/Super Typhoon Rai, which led to frustration across the community.[449]

There were some issues experienced with the PayMaya platform throughout the project. For example, human errors in data capture and entry, incompatibilities between the beneficiary information sheet and KYC requirements, and potential bugs associated with the Last Mile Mobile Solutions (LMMS) software all affected the beneficiary registration process.[450] Ultimately, this caused the non-disbursement of cash for selected participants in Salcedo and in Cotabato City.[451]

The establishment of the Plan Philippines' PayMaya account was also delayed, which meant that an alternative disbursement needed to be used to deliver pre-emptive cash to households in Oras.[452] Plan International leveraged an existing partnership with Palawan Express Pawnshop to

[442] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[443] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[444] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[445] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[446] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[447] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[448] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[449] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[450] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[451] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[452] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

use its Pera Padala Service to deliver cash remittances.[453] Despite this change, beneficiaries in Oras were still able to receive disbursement prior to Super Typhoon Odette (Rai) in December 2021, albeit without using the innovative digital cash transfer aspect intended under B-READY 2.[454]

Some community members also reported that beneficiaries with low levels of digital literacy (such as senior citizens) had been taken advantage of during the program. This has included individuals charging these beneficiaries fees to assist them with downloading the PayMaya app and charging a 'rental fee' to assist them with inserting SIM cards into smartphones if they originally had a non-smart phone.

Specific outcomes for Salcedo and Cotabato City collected through post-distribution monitoring are presented below.

Salcedo

As part of the distribution, Salcedo respondents should have received a text notification from PayMaya informing them that their entitlement was sent. Approximately 86% of respondents reported receiving this text notification.[455] A total of 80% of the respondents received the text notifications one or two days prior to when typhoon Odette made its landfall, while the remaining respondents received their notifications between the day of the typhoon (16 December 2021) and 27 December 2021.[456] For these Salcedo respondents, 69% stated that the distribution provided them with sufficient lead time to prepare for the typhoon, while 6% indicated that the lead time was too short.[457] The remaining respondents did not provide a response. Taking into account travel to remittance centres and/or ATMs, falling in line and processing, it took most of the respondents approximately 1.5 hours to complete their cash withdrawal transactions.[458]

Just over one quarter (26.42%) of respondents postponed their cash withdrawals.[459] While some of the reasoning was related to prioritisation of other activities (such as securing their houses for the storms), some respondents indicated they were unable to withdraw due to delayed receipt of text notifications from PayMaya (after which withdrawal outlets had already closed), and a loss of power and signal after the typhoon.[460]

Overall, almost all respondents (99.06%) agreed to some extent that the cash assistance was timely, and all agreed it was helpful for preparedness.[461]

Cotabato City

Almost all respondents (99%) reported receiving a PayMaya text notification stating their

[453] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[454] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[455] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[456] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[457] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[458] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[459] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[460] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[461] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

entitlement amount.[462] Just over half of respondents (55%) indicated that they received this notification on 22 November 2021, the date of the disbursement, and about 25% did not receive the text until a day or two following the actual disbursement.[463] It should be noted that some respondents indicated receiving the text up to a month earlier, which were highlighted as potential errors and needed to be revalidated.

A small number of respondents (3.38%) postponed their cash withdrawals, with most attributing this to delayed receipt of the PayMaya text notification.[464]

Just over half of respondents (53.7%) experienced a travel time to cash withdrawal locations of less than 30 minutes.[465] A total of 39.6% of respondents spent 31 to 60 minutes travelling to claim their cash assistance and 6.8% spent between one to two hours travelling.[466]

One evaluation participant noted that the project would have benefited from stronger consideration of the local context to ensure necessary enablers, such as reliable cellular towers, strong internet signals, and ubiquitous use of Android phones being available in the program locations to ensure the successful implementation of pre-emptive cash transfers.[467] Other evaluation key informants provided suggestions for overcoming technology challenges, including having back-up pay out methods.[468] The evaluation of B-READY 2 recommended that more rigorous technology assessments needed to be carried out to assess factors such as mobile signal strength, ATM availability and reliability, and the accessibility of cash remittance centres.[469]

Impact

Randomised controlled trials were conducted to assess some specific impacts of the pre-emptive cash intervention. It found that the intervention group had greater levels of awareness, preparedness, safeguarding, adaption and resilience.[470] The trial survey also found that 89% of participants in the intervention group felt that the views of women in their barangays were being considered in disaster risk reduction and management discussions, and that women were more active in these activities. This was compared to just 50% in the control group. In addition, 85% of the intervention group (compared with 52% in the control group) noted that women in their barangay had taken on leadership roles.[471]

Through the mobile mechanism, participants received additional benefits such as having access to digital accounts and being able to hold their remaining balance as savings.[472] Beneficiaries also saw a potential to use the accounts to send and receive remittances to Overseas Filipino Workers

[462] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[463] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[464] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[465] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[466] People's Disaster Risk Reduction Network, inc. (PDRRN), 'Post Distribution Monitoring Survey Report: Scaling up B READY Project', Internal Document, 2022

[467] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[468] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[469] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[470] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[471] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

[472] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

(OFW) relatives.[473] B-READY was found to have strengthened social cohesion, as it required collaboration and cooperation from various parts of the community to be effective.[474] Additional benefits included voluntary evacuation and communities assisting each other with the dissemination of information.[475]

Sustainability

Since the project commenced, Oxfam has started work to encourage the adoption of the B-READY model at the national level. At the international level, there is a lack of evidence that the model is being adopted by other humanitarian actors, and no evidence that it has been adopted by an aid agency other than Oxfam or Plan.[476] However, EUR€150,000 has been provided by Oxfam Novib to Oxfam country offices to assist with technical support to implement the B-READY model and further develop the appetite for anticipatory action through advocacy and thought leadership.[477] These funds, along with the establishment of a Municipal Anticipatory Action Team (MAAT) office are indicators that there is local appetite to build on the B-READY model.[478]

Limited information was found to be available on the extent to which local partners could sustainably implement the mobile money mechanism. However, the technology challenges that occurred during the project raised some concerns regarding sustainability. In the context of a disaster-prone country, the use of mobile money would require technology and infrastructure to be resilient enough to ensure that any damage to critical infrastructure and communication channels could be repaired quickly. Where this is not possible, project teams will likely need to utilise a mixed delivery mechanism approach (i.e., through other CVA or e-CVA mechanisms) to enable cash to reach affected (or to be affected) communities promptly.

[473] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

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[478] Triple Line Consulting Limited, 'B-READY 2 End of Project (EOP) Evaluation', Internal Document, Triple Line, 2022

5 CONSIDERATIONS FOR FUTURE E-CVA PROJECTS

This study found that conducting a direct comparative analysis of the case studies investigated is challenging, as the variations in the contexts and different levels of information on the e-CVA mechanisms can produce biased and incomplete conclusions. Each of the case studies provided differing levels of information regarding the digital e-CVA mechanisms used in the projects. This analysis found that while all of the digital technologies used are relatively new, some are much more developed than others, which lends them to being more easily set up and implemented. It would therefore be inaccurate to compare these well-established e-CVA technologies to a nascent technology such as the blockchain-enabled solution used in the UBC Vanuatu project which had never previously been established in the country. Accordingly, Oxfam's investment in the establishment of the UBC solution – including the significant investment of the number of internal and external stakeholders involved – may unfairly skew the perceived efficiency and sustainability of the project, should it be replicated in future.

the section below discusses key considerations for both blockchain-enabled e-CVA solutions as well as other e-CVA solutions in a broader context, noting that a key finding is the risk of prescribing an e-CVA solution without appropriate contextual knowledge regarding the feasibility of CVA approaches in-country.

It should be noted that while blockchain-enabled solutions are developing quickly and show promise for future scalability and efficiency, significant investment is required by aid agencies, private sector partners and donors to bring this to fruition. Future pilots may be suited better to developing contexts rather than humanitarian emergencies, as comprehensively setting up a blockchain-enabled project requires significant time, funds and effort to on-board implementing agencies and partners, including CSOs, faith-based organisations, government and private sector partners.

BLOCKCHAIN-ENABLED SOLUTIONS

Based on the outcomes of the market scan and the case studies assessed, it is evident that blockchain technology is gaining interest in the development and humanitarian space. However, blockchain technology is still relatively new and many of the projects identified to inform the environmental scan were either pilots or have yet to be tested across multiple countries. A key reason for this is while the core technology is gaining acceptance, the regulatory environment is yet to fully grasp the changes it brings (such as disintermediation and tokenisation of value). Only a limited number of projects identified in the report included full end-to-end traceability using blockchain technology. There are several considerations when developing e-CVA programs using blockchain technologies. These include:

- The appropriateness based on limitations in the country they are operating in, specifically the regulatory frameworks applied for blockchain-enabled solutions. In many cases, they are not well defined or mature in comparison to regulations applicable for non-blockchain based e-CVA programs.

- The pre-existence of a sustainable, secure and interoperable blockchain-enabled solution that is compatible with the country's regulations and program requirements. This will have two key benefits: significantly reduced set-up time for the platform, and regulatory acceptance. While a pre-existing solution can help any e-CVA mechanism, a comparatively larger amount of time, funds and effort would generally be needed to establish a blockchain-based mechanism 'from scratch'. A swift response for an emergency would only be possible by re-using or re-purposing an existing solution.
- The availability and affordability of experienced resources who can support the blockchain-enabled program, as well as cost and time associated with upskilling, supporting and onboarding actors to the system unless the overall solution is designed for intuitive use and the technology is transparent to the users.
- The uniqueness of the problem being solved (where specific benefits of the blockchain technology is needed including immutability, traceability, disintermediation or specific application of distributed technology) and whether more economical and efficient alternative e-CVA programs exist.

There is a growing adoption of blockchain technology for many use cases given their unique ability to manage secure, permanent and traceable records, which also lends itself to development and humanitarian purposes. However, developing specific solutions requires significant investment by aid agencies, private sector partners and donors so that the technology (once developed) is efficient, scalable, readily usable, sustainable and economical. Any concepts developed to test a blockchain-based solution must validate these (and other) benefits so that the concept provides sufficient basis for its useability as a standard solution to deliver humanitarian programs. The table below provides a list of observations of blockchain-enabled solutions based on the UBC project in Vanuatu.

Table 18: Considerations for blockchain-enabled solutions based on the Unblocked Cash (UBC) solution

IMPACT	Although the blockchain-enabled e-CVA solution has been proven to be effective for getting cash to unbanked beneficiaries, it may be limited in its ability to scale quickly in countries where the solution has not been pre-established, especially given the need for necessary technical infrastructure and compliance with regulatory requirements. Note, scalability can be an issue for other new e-CVA delivery mechanisms too, however the use of blockchain technology necessitates additional time, effort and funds by comparison.
SUSTAINABILITY	The ability to replicate Oxfam's UBC project in other countries is key for its extended use. However, this involves significant efforts such as set up legal advice, implementation resources, tax and regulatory compliance overheads, upskilling of partners on the use of tokens, etc. There is a need to minimise the lead time and effort by optimising the extendibility and reusability of key program components.
EFFECTIVENESS	The UBC Vanuatu project delivered cash assistance to banked and unbanked people successfully. A wider use of this technology needs to address several issues before it is considered an effective general solution. These include the security exposure[479] of the tokenised funds, catering for communities in countries with stricter tax and regulatory requirements, ability to deploy with minimum dependency on stakeholders, a 'turn-key' capability to reduce the implementation lead times, and a wider utilisation of the blockchain technology across the end-to-end process to maximise its inherent benefits such as immutability, traceability, etc.

[479] Security exposure refers to the cybersecurity of electronically stored funds. When there is a large amount of funds stored in a centralised digital account, this becomes a potential target for malicious hackers. Alternately, private keys, used to access funds on a blockchain, can become a target and must be securely stored.

EFFICIENCY	The cost and time associated with implementing blockchain-based e-CVA programs is not sufficiently understood. As per the environmental scan, the appropriateness of a blockchain-enabled solution varies from country to country based on differences in their preparedness to accept such solutions, resulting in a fluctuating cost base. In countries where Oxfam's UBC solution or other pre-existing blockchain solutions are not compatible with the country's existing infrastructure and regulations, there will be significant cost and time required to build an appropriate solution from scratch in comparison to establishing other e-CVA mechanisms. This is due to the extra time required to understand blockchain as a novel technology and caution toward its ability to disrupt or disintermediate centralised organisations like financial institutions. As of yet, we have not found a solution that has been quickly replicated in multiple countries in emergency situations. In future, the creation and testing of a truly transferable blockchain-enabled solution for different regulatory and infrastructure environments might improve the efficiency outlook. For blockchain-based programs to deliver a competitive value-for-money outcome, it may be necessary to widen the use of the blockchain for end-to-end traceability of transactions. Additionally, it will be necessary to rethink areas where manual effort or staff overhead is involved to create cost and time efficiencies. It is advisable for processes to be continually documented, to support repeatability and time efficiencies for any future roll outs.
COHERENCE	The use of blockchain technology provides benefits for transactions performed on-chain in terms of their traceability, immutability and under the right conditions, scalability. However, the use of UBC in Vanuatu did not include the starting and ending activities as part of this traceable mechanism. Furthermore, the solution's process for tokenising government-issued currencies faced challenges with tax and regulatory compliance, requiring parallel accounting efforts to be paid for and performed by an authorised entity. This is a limiting factor when expanding its use beyond the jurisdictions where the concept has been tested. These are considerations for establishing a compliant end-to-end solution, which may benefit from a coordinated advocacy effort to introduce the right conditions for their efficient implementation and operation.
RELEVANCE	The UBC Vanuatu project demonstrated that the technology could be used to address local needs and reach community members at scale. Conducting a feasibility study prior to implementation enabled the project team to carefully consider financial service provisions, the status of technical infrastructure like internet connectivity and mobile coverage and community willingness to accept the mechanism. This will require repeated effort for future use of this specific construct of the program especially in different communities and jurisdictions.

OTHER E-CVA APPROACHES

Similar to blockchain-enabled solutions, there are a number of factors that should be considered when planning for other e-CVA approaches, including country context. In some contexts, the implementation and integration of multiple CVA approaches may be appropriate, and as such it is critical that comprehensive needs assessments are undertaken for any humanitarian or development program to ensure project teams can identify which CVA mechanism meets the characteristics of the program, target locations and vulnerable community members.

Table 19: Considerations for other e-CVA approaches

IMPACT	E-CVA approaches can have positive impacts for financial inclusion and increasing digital literacy of beneficiaries. E-CVA approaches should consider potential positive and negative impacts for marginalised community members and vulnerable populations prior to undertaking a large-scale response.
SUSTAINABILITY	Embedding the country office's preferred e-CVA approaches in the humanitarian response plans/standard operating procedures can help ensure that systems and processes are in place when a disaster strikes. Consider budgeting for (and seeking funding for) the provision of regular refresher trainings to staff (including implementing partners) during emergency response simulations.
EFFECTIVENESS	E-CVA approaches (and the roll out of new, previously untested digital solutions) need to ensure that all participating stakeholders receive sufficient IEC materials and capacity building to achieve project goals.
EFFICIENCY	Careful consideration of start-up and delivery costs, governance structures and decision gates can improve the efficiency of e-CVA approaches. Conducting small-scale pilots before undertaking a large-scale response during a crisis may help resolve efficiency issues.
COHERENCE	Receiving government and local authority approval is essential before commencing a project using an untested e-CVA delivery mechanism. This needs to be considered prior to developing standard operating procedures for humanitarian response. In addition, all e-CVA mechanisms will need to be compliant with anti-money laundering regulations, KYC requirements. Some types of e-CVA (e.g., mobile money where SIM registration is required) may be subject to greater levels of regulation than other forms of e-CVA. The impact of local compliance requirements on the implementation and speed of a response should be considered during project design.
RELEVANCE	To fully understand the optimal solutions for a particular region or operating context, cash feasibility assessments should be conducted by aid agencies prior to starting e-CVA projects, as relevant approaches will vary greatly by context. Additionally, in-depth needs assessments are needed to assess and mitigate against any unintended impacts on marginalised and vulnerable community members. Careful consideration is needed for areas that have low mobile coverage and internet connectivity to ensure that local needs are addressed by the proposed e-CVA mechanism.

6 RECOMMENDATIONS

Based on the findings of this study, we have developed recommendations below to support future e-CVA activities for humanitarian aid agencies and donors.

OXFAM AND HUMANITARIAN AID AGENCIES

- Invest in regular CVA training (including e-CVA) for country offices engaged in CVA projects to mitigate against institutional knowledge loss if CVA specialised staff leave the organisation. Establishing a strong foundation of CVA proficiency is a necessary pre-requisite, regardless of the transfer modality used (with e-CVA being no exception).
- Undertake robust cash feasibility assessments in countries wishing to implement CVA (and e-CVA) programs. Scope should include new and emerging technologies to determine if new modalities could be utilised in CVA interventions. Train staff to conduct the assessments in partnership with lead researchers to ensure that staff learn about CVA during the assessment process.
- Actively engage in – or establish if non-existent – local cash working groups to share knowledge and learnings across cash actors. Ensure that local stakeholders are invited to participate in discussions and knowledge sharing to enable the harmonisation of approaches. This may include civil society organisations, faith-based organisations, government representatives and private sector partners.
- Seek out and develop partnerships with stakeholders (e.g., private sector or technology companies) who are championing new e-CVA technologies. Develop partnerships to augment the OUA's own capabilities while considering the long-term sustainability of the involved parties and the affected programs. While it is necessary to rely on external capabilities, there should be a transition plan for the longer term either by bringing the capabilities in-house or entering into longer-term agreements with external providers.
- Testing concepts in A controlled environment is critical to address any issues with the solution. The concepts should clearly identify the 'standard' conditions and any site-specific conditions that will strengthen the testing process. This may enable humanitarian aid agencies to make a better assessment of the fitness of the programs for the intended broader use. This is critically important for blockchain-based solutions like UBC. Blockchain solutions do present local limitations relating to the access of technology, regulatory environment, local skills, etc. While the core technical solution may have been proven to be successful, other conditions such as its ability to cater for varying local needs might prove to be problematic.
- Dedicate sufficient time for project teams to design inclusive CVA projects prior to commencing project implementation. When trialling a new technology, bring together technical advisors (e.g., child protection, disability and gender advisors) to enable robust planning to mitigate against any impacts on vulnerable community members who are expected to benefit from the project. During the project design phase, carefully consider start-up investment (e.g., time, money, staff effort and governance) for any new e-CVA projects prior to selecting the delivery mechanism.
- Seek funding for small-scale pilots to implement new e-CVA solutions. Undertake real-time-reviews to learn from any issues identified and to inform future designs at a larger scale. This necessitates a clear articulation of the testing conditions to ensure that the tests are representative of the full-scale deployment.

DONORS

- Seek out opportunities FOR aid agencies, THE private sector, technology companies and civil society organisations to pilot new e-CVA projects across a range of operating contexts. Invest in trialling new technologies for end-to-end solutions (i.e., beneficiary and vendor registration, cash distribution and financial reconciliation and post-distribution monitoring). Emphasis should be placed on incorporating 'lift and shift' capability at the start of the design process so that fast and cost-effective roll out in different countries can be tested at scale. This could involve a series of collaborative workshops where industry, regulatory bodies, government and humanitarian aid organisations work together to design a solution or implementation plan. It is important that the collaboration includes all participants in the ecosystem, including technology services providers, banks, regulatory bodies, government and humanitarian organisations to mitigate risk of any roadblocks these organisations might predict.
- Commit to funding real-time reviews and independent evaluations of e-CVA projects to contribute to the global evidence base on e-CVA programming, in line with the Grand Bargain Commitment #3.
- Promote the use of new e-CVA modalities among humanitarian cash actors and donors. Hold events for cash actors, civil society, THE private sector and technology companies to share information regarding digital technology innovations and pilot project learnings from different operating contexts.

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