

# **Laidlaw Scholars Undergraduate Leadership and Research Programme Research Report**

## **From Aid to Autonomy: The Unblocked Cash Project's Impact on Disaster Recovery Efforts**

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**1st September 2024**



**UNIVERSITY OF  
TORONTO**

## **Acknowledgements**

This research was conducted through the Reach Alliance, a student-led, faculty-mentored research organization at the University of Toronto's Munk School of Global Affairs & Public Policy, in partnership with the Laidlaw Foundation, a global non-profit dedicated to enriching lives through education. The project received funding from the Ralph and Roz Halbert Professorship of Innovation at the Munk School of Global Affairs & Public Policy. Appreciation is also extended to the Laidlaw Scholars Foundation and the University of Toronto's Laidlaw Scholars Programme for their support in advancing knowledge on disaster recovery.

This research was conducted as part of a collaborative effort within the Reach Alliance, and I am deeply grateful to the exceptional team involved. My sincere thanks to Madalena Liougas, MSc, from the Rehabilitation Science Institute, Temerty Faculty of Medicine, University of Toronto, for her invaluable expertise; Sumayyah Shah, Honours BA in Peace, Conflict, and Justice and Criminology from the Munk School of Global Affairs & Public Policy, for her insightful contributions; Selina Yang, a graduate in Commerce and Economics from the University of Toronto, for her support and dedication; and Priyank Chandra, Assistant Professor at the Faculty of Information and Director of the STREET Lab at the Knowledge Media Design Institute, University of Toronto, for his guidance and leadership. Their collective efforts were instrumental in the success of this research.

Gratitude is extended to all community organizations, stakeholders, service providers, and interviewees who contributed their invaluable insights to this case study. Thanks to Oxfam Vanuatu, the Vanuatu Business Resilience Council, and the Vanuatu Red Cross Society for their crucial assistance during the fieldwork in Port Vila. Their dedication to inclusive humanitarian aid responses was essential to the success of this research.

This research was conducted at the University of Toronto, located on the traditional lands of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Deep appreciation is expressed for the opportunity to work on this land. The study examines the disaster recovery efforts of Ni-Vanuatu in Vanuatu, with special recognition to the Indigenous Ni-Vanuatu communities who generously shared their knowledge and experiences. Their perspectives on innovative and inclusive disaster relief were central to the research findings. It is hoped that this work highlights the resilience of Vanuatu's Indigenous populations and contributes to future research that upholds the principles of dignity, autonomy, and self-determination in humanitarian responses.

## **Abstract**

This research evaluates the impact of the Unblocked Cash Project (UBC) in Vanuatu, a nation highly susceptible to natural disasters. Initiated by Oxfam Australia in collaboration with Sempo and Consensus, UBC is a blockchain-powered cash-and-voucher assistance (CVA) system designed to enhance the efficiency, accessibility, and inclusivity of humanitarian aid. This study assesses how UBC addresses the limitations of traditional aid distribution methods, including geographical isolation and financial exclusion, and its role in boosting economic empowerment and resilience among communities in Vanuatu.

**Keywords:** Unblocked Cash Project (UBC), cash-and-voucher assistance (CVA), blockchain technology, humanitarian aid, Vanuatu, economic empowerment, disaster recovery

## **Introduction and Background Information**

### ***Geographic, Environmental and Socio-economic Context of Vanuatu***

Vanuatu, an archipelago in the South Pacific Ocean composed of 83 small islands, is one of the most disaster-prone nations globally due to its location within the Cyclone Belt and the Ring of Fire [1]. The country frequently faces a range of natural hazards, including earthquakes, volcanic eruptions, cyclones, droughts, tsunamis, landslides, and floods [2]. Vanuatu suffers an estimated annual loss of USD 48 million due to earthquakes and tropical cyclones [3]. The escalating effects of climate change have intensified the frequency and severity of these disasters, leading to increasingly significant economic damages for the country. Vanuatu's decentralized geography exacerbates its vulnerabilities, with a substantial portion of the Ni-Vanuatu population residing across over a dozen small, remote islands. The geographic scattering of the population contributes to many unbanked individuals and isolated communities, complicating disaster response and aid distribution.

The country's socioeconomic conditions further hinder recovery efforts. As a Small Island Developing State (SIDS), Vanuatu is characterized by limited land area, a predominantly rural populace, low-income levels, high poverty rates, reliance on cash-based economies, and limited human resources. The Ni-Vanuatu<sup>1</sup> people face significant challenges in meeting their daily needs and recovering from disasters due to high living costs, limited job opportunities, and dependence on agriculture and tourism—sectors that are particularly susceptible to natural disasters [4]. While the resilience of the Ni-Vanuatu people plays a crucial role in post-disaster recovery, the challenges they face in rebuilding their lives after disasters are considerable.

Oxfam's recent feasibility study (2015-2018) found that 68% of Ni-Vanuatu communities received external disaster recovery aid for basic needs [5]. However, this aid often excluded the most vulnerable groups—such as the elderly, people with disabilities, widows, single mothers, children (especially girls), and LGBTQ+ individuals—and typically took over three weeks to

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<sup>1</sup> Term used to refer to people Indigenous to Vanuatu

arrive. With lower incomes, limited savings, and dependence on disaster-prone livelihoods, these groups face increased vulnerability during and after disasters.

Vanuatu's traditional social security system, where young earners support those unable to work due to age, disability, or gender, is strained during disasters. Marginalized groups often struggle to access necessary resources [5]. The male "head of household" typically oversees family recovery, leading to the needs of marginalized members being overlooked. In Vanuatu's predominantly patrilineal society, the voices of individuals with specific age, disability, and gender characteristics are often disregarded, leaving them reliant on the head of the household's support.

### ***Traditional Disaster Recovery Procedures***

Traditional disaster recovery efforts in Vanuatu often involve the Natural Disaster Management Office (NDMO), which coordinates with various stakeholders, including provincial and local authorities, communities, and international partners. Following a disaster, the NDMO conducts needs assessments to identify recovery requirements and estimates costs [6]. The subsequent response typically includes distributing relief items such as food, water, clothing, and tarpaulins, usually about three weeks after a disaster.

However, traditional methods face several challenges. Local economies struggle to recover due to market saturation from free relief items, which undermines local businesses. Additionally, relief items may only sometimes meet the specific needs of affected populations. Traditional recovery frameworks can also be hierarchical and colonial, often excluding local knowledge and undermining the autonomy of Indigenous communities.

### ***Cash and Voucher Assistance (CVA)***

Cash and Voucher Assistance (CVA) has emerged as a more flexible and inclusive approach to addressing the limitations of traditional aid. By providing beneficiaries with cash or vouchers, CVA enables them to purchase goods and services that meet their specific needs, empowering them with greater autonomy and choice [7]. This approach also supports local economies by encouraging using locally available resources and services.

In Vanuatu, CVA has gained popularity as a tool for disaster recovery, particularly in remote areas where financial and logistical challenges complicate aid distribution. However, the country's cash-based society presents unique obstacles. Many Ni-Vanuatu lack bank accounts and the national identification required to open them. Previous cheque-based interventions were resource-intensive, requiring beneficiaries to obtain a national ID and open a bank account before receiving aid [8]. Additionally, the process of writing, managing, and distributing paper cheques was time-consuming. While CVA provides dignity and empowerment by allowing beneficiaries to choose their recovery items, traditional banking methods for cash distribution are not always practical or efficient in Vanuatu.

### ***The Unblocked Cash Project (UBC)***

In 2018, Oxfam, a leading humanitarian aid provider in Vanuatu, launched the UBC to address challenges in disaster recovery aid distribution using blockchain technology. The UBC pilot was conducted in two urban communities in Vanuatu's Efate province—Pango and Mele Maat—selected through a feasibility assessment. A total of 1,209 beneficiaries and 29 vendors participated, with beneficiaries receiving Near Field Communication (NFC) cards preloaded with funds [9]. NFC, a short-range wireless technology similar to Apple Pay, enabled recipients to make purchases by scanning a QR code on their cards, with transactions securely recorded on a decentralized blockchain ledger. The payment process did not require an internet connection; however, vendors needed to access the internet weekly to "cash out" the transactions. The pilot distributed approximately \$11,300 CAD, leading to a scale-up in 2020 [9].



*Figure 1.0 A beneficiary scans their NFC card at a participating vendor. Credits: Keith Parsons/OxfamAUS (photo provided by Oxfam).*

UBC was built on the Ethereum platform, a decentralized network supporting "smart contracts," self-executing agreements coded with specific conditions. In UBC, donors' funds were governed by these smart contracts, which set conditions such as the amount and designated beneficiary. Once recorded on the blockchain, transactions became immutable, ensuring that aid could only be accessed by the intended recipients without intermediary interference. This method streamlined the distribution process and addressed concerns about fraud and accountability in traditional aid systems. The transparency and security of blockchain provided stakeholders with confidence in the integrity of the aid distribution, making UBC a pioneering model for future humanitarian efforts.

In response to COVID-19 and Tropical Cyclone Harold, UBC was expanded across three additional provinces in Vanuatu, reaching 24,000 vulnerable individuals across 13 islands and distributing around \$3,400,000 CAD [9]. This scale-up demonstrated UBC's effectiveness in

disaster relief and economic recovery, injecting significant funds into the local economy while improving digital access and literacy among beneficiaries.

UBC's blockchain-powered system ensured transparency and accountability in aid distribution, addressing concerns over the misuse of humanitarian funds. The use of NFC cards and a decentralized ledger eliminated the need for intermediaries, allowing for direct, secure transactions that respected the autonomy of beneficiaries. Despite initial challenges, such as language barriers and the technical nature of the program, local organizations and community leaders played a critical role in implementing UBC on the ground, furthering its success.

This research will evaluate UBC's impact on disaster recovery in Vanuatu and explore its potential for broader application in humanitarian strategies.

### **Methodology**

This study explored the barriers and facilitators to implementing the UBC for reaching underserved populations in Vanuatu—the research combined secondary desk research with virtual and in-person primary interviews. Research Ethics Board (REB) approval was obtained, and the virtual interviews were conducted using established contacts. Data was gathered from publicly available sources, including reports from VBRC, Sempo, Consensus, and Oxfam, along with primary data collected during fieldwork in May 2023. As of August 2024, the study has concluded data analysis and report writing.

### ***Secondary Desk Research***

Secondary desk research was conducted by identifying, analyzing, and discussing scholarly articles and reports. These sources, published by credible entities, covered topics such as backend blockchain technology, disaster relief cash transfer programs, the socio-political context of Vanuatu, and the ethical regulation of blockchain. Publications from the UBC project stakeholders (Oxfam, Sempo, and Consensus) were also reviewed, noting the limited availability of impartial third-party sources. Only one publication on the UBC project came from an impartial third-party source, highlighting a knowledge gap in credible literature specific to UBC in Vanuatu. Most of the literature focused on its implementation, with data demonstrating success in reducing humanitarian aid delivery times and distribution costs.

### ***Primary Interviews***

Semi-structured interviews were conducted with key stakeholders, including Oxfam staff in Vanuatu, private sector representatives from Sempo and Consensus, policymakers, Reserve Bank of Vanuatu representatives, program implementers, and academic experts. Only high-level representatives were interviewed to ensure participant safety and no frontline user interviews were conducted. Participants were selected through purposive and snowball sampling methods, with new stakeholders identified via secondary desk research and Reach Alliance connections. Contact was made through University of Toronto institutional emails using a standardized

recruitment message, with participant information obtained from public domains or Reach Alliance contacts.

Online interviews were conducted using encrypted Microsoft Teams. In-person interviews were conducted in private rooms, with online communication only. Verbal consent was obtained before each interview, with participants allowed to review the participant information form, ask questions, and ensure informed consent. If an individual declined participation, their contact information was discarded. Those who consented proceeded with the interview using the sample guide. Participants were reminded of their right to withdraw from the study at any time and were provided with contact information for withdrawal after the interview and before the report's publication.

### ***Data Analysis***

The analysis phase involved creating an initial list of codes collaboratively with the broader Reach Alliance team. Transcripts were distributed among team members, who coded them according to the code list. Weekly meetings facilitated the refinement of the code list, ensuring each transcript was reviewed by at least two team members. Codes were organized into potential themes, reviewed and refined by comparing them with existing literature and consulting new sources as needed. This iterative process ensured the themes were comprehensive and validated.

## **Findings and Discussion**

### ***Impact and Success in Vanuatu***

UBC has substantially impacted Vanuatu, demonstrating significant success across the region. Facilitated by Oxfam, the project managed to oversee more than 200,000 transactions, directly benefiting hundreds of vendors and 35,000 participants spread over 11 islands [10]. Notably, many of these participants had little to no prior experience with digital payments or banking services. The collaboration between Sempo and Oxfam has dramatically streamlined the enrollment process, reducing the time required for beneficiaries from over an hour in earlier cash and voucher assistance (CVA) programs to just 3.6 minutes on average. Similarly, vendor enrollment now takes just eight minutes, a considerable improvement over the traditionally lengthy processes that often involved prolonged waiting periods and cumbersome ID verification. As one respondent observed:

"The program's efficiency has greatly improved compared to previous systems. The ease of use and quick processing times are significant advancements."

Feedback from the community indicates a strong preference for UBC, particularly due to its user-friendliness, security, and the broader range of choices it offers. Beneficiaries have praised the card's ability to facilitate diverse purchasing options, addressing a gap left by traditional aid methods. The program has injected approximately \$4,300,000 USD into the Vanuatu economy,



However, despite these advancements, questions remain regarding the sustainability of UBC, its genuine impact on individuals' lives, and its long-term scalability. These concerns underline the need for continuous evaluation. While UBC's global recognition underscores its innovative approach, it also raises critical questions about its long-term viability and overall impact.

To explore these issues further, we conducted interviews with 11 participants from various organizations, including Oxfam, the Red Cross, Sempo, the Vanuatu Government, and the Vanuatu Business Resilience Council. Given the sensitivity surrounding blockchain technology in Vanuatu, we have chosen not to disclose the demographic details of the participants in this report.

Our data analysis indicates that utilizing blockchain technology for delivering CVA humanitarian aid can foster resilience by decolonizing disaster aid response. In the following sections, we will examine how this technology has been leveraged to enhance the dignity of choice, build digital literacy, and integrate seamlessly with Ni-Vanuatu culture within the UBC project.

### ***Theme 1: Enhanced Dignity of Choice - Shifting Perceptions of Independence***

The UBC program has played a crucial role in preserving the freedom of choice for its beneficiaries, a vital aspect of maintaining their dignity. Before UBC was implemented, Sempo surveyed 80 participants from the 2019 Pango and Melamat pilot project to explore Ni-Vanuatu's views on having autonomous choices in disaster relief. The survey revealed a sharp difference in beneficiaries' experiences before and after introducing the NFC card system. When asked about their previous disaster experiences regarding "choice" in resource allocation (rated on a scale from 1 to 5, where 1 represented minimal choice and 5 represented significant choice), 85% of participants rated their experience as a 1, indicating a severe lack of autonomy. In contrast, 96% felt they had considerable options with the NFC card system, rating their experience as a 5. Additionally, 86% of participants linked monetary aid with increased choice. Looking forward, over 98% favoured using NFC cards in future disasters, with many finding them more accessible to use than goods or cash. As highlighted by a local community partner of the program:

“In the natural disaster, they get rice. With the card, they can make a choice about what they want.”

For the first time, traditionally unbanked populations were able to exercise agency and financial independence, not only in making purchases but also in saving for larger expenditures.

### ***Cultural Shifts in Financial Empowerment***

The introduction of NFC cards also brought about a notable cultural shift, particularly in traditionally unbanked communities. Unlike traditional cash transfer programs managed by the Natural Disaster Management Office (NDMO), which often result in long-term dependency due

to the distribution of cash without stringent qualifying criteria, UBC has addressed this issue by targeting only marginalized and vulnerable populations in the immediate aftermath of disasters. These groups, including the elderly, people with disabilities, and single mothers, were identified through a combination of survey methods and recommendations from community chiefs.

As one local government representative from Port Vila, Vanuatu noted:

“I knew about ATM cards because you have them in government jobs. But these cards [the NFC] are new. I thought, what is in the card? When Sempo came, [omitted] explained to us how to use the NFC card. It took us some time because we were used to the normal physical response with a protocol from the NDMO, Shefa to the Area Councils and you go up that same tunnel. With the card, disaster relief was your choice. It was really nice.”

This quote highlights the transformative impact of NFC cards on local perceptions of financial independence and disaster relief, where individuals could now make their own choices in a process that was previously highly regulated and hierarchical.

### ***Empowerment Through Shared Family Usage***

A key finding from the survey revealed that 38% of respondents noted that daughters in their families were actively using the NFC card to make purchases for the primary cardholder. This highlights the card's effectiveness in facilitating shared family use and empowering members who previously lacked access to financial resources. The introduction of NFC cards has also significantly reduced household disputes related to lost or stolen money, leading to fewer conflicts over financial matters. Furthermore, 95% of respondents stated that the items bought with the card were intended for their family members. This finding emphasizes the importance of family and community values, where collective empowerment after a natural disaster is crucial to the program's success.

### ***Empowering Marginalized Populations - building on culture of reciprocity***

The program represents a shift away from traditional social security models, showcasing the potential for integrating technological innovations to create more efficient, user-friendly, and adaptable aid distribution methods. Individuals who previously lacked identification or access to traditional banking services gained not only financial independence but also the dignity of choice. For many of the most vulnerable, this marked the first time they could spend money independently without relying on others.

This newfound independence was further validated through interviews with local government and Oxfam personnel involved in both the pilot and subsequent programs. Stakeholders shared stories of young individuals with disabilities who, for the first time, were able to purchase necessities from stores, breaking free from their dependence on others. Introducing a bus service designed to assist those with limited mobility was also highlighted as a significant advancement,

restoring dignity by providing enhanced mobility and increasing spending agency to people with disabilities.

In several provinces, widows even entrusted their NFC cards to local stores, allowing larger families who were ineligible for the program to benefit from the surplus funds they did not require. These instances illustrate how a strong sense of community naturally fostered a sustainable approach within Vanuatuan communities. The values of sharing, reciprocity and communal support were clearly evident as widows and their families extended the program's benefits beyond their immediate households, reinforcing the positive impact of UBC on the broader community. As accounted by an implementor of the program:

“There was one man on Efate – he had a child with a disability and was given a card. [It] helped to build and extend the house for the child to play outside. It had a really big impact on their homes. A lot of them also built little canteen or shops after the program ended – it provided them with financial income after the program ended.”

### ***Paradox of Independence***

While UBC's innovative approach has infused aid distribution with efficiency and dignity, leveraging blockchain technology and community upskilling, it has also sparked a debate about its impact on long-term community resilience. Proponents of the program highlight its ability to promote resilience through localized, community-based solutions. However, contrasting opinions suggest that UBC's reliance on foreign aid workers and technology companies may create a dependency that undermines the very resilience it aims to build. The success of UBC has been largely attributed to the support from donors and a leading NGO, raising concerns about the sustainability of the program without these external influences.

### ***Tensions with National Authorities***

Despite receiving approval from the presidential office and regional governments during the recovery phase of disaster management, UBC's relationship with the Natural Disaster Management Office (NDMO) has been strained. Miscommunication and lack of coordination during the early piloting of UBC led to tensions, as national disaster response officials felt sidelined by Oxfam and Sempo, who prioritized immediate, short-term solutions over long-term sustainability. One of the local government authorities noted:

“I didn't hear from them instead only from the locals. Asked the local government official and asked why they weren't involved in it. I approached them [Oxfam] and asked what they were doing here, anything you do will affect what we do, it's best we are all involved in the process. They didn't really explain everything and didn't really explain the project.”

These officials who were left out of the planning of the program, believed that the project's reliance on large donors, cash transfers, and advanced technology overshadowed local authorities' efforts to develop sustainable disaster recovery solutions.

### ***Impact on Community-Led Solutions***

The introduction of UBC also had unintended consequences on community engagement. National agencies have initiated training programs to encourage local communities to develop their own disaster response plans and implement community-led recovery solutions, such as providing land for farming and organizing labor programs for displaced individuals. However, with the advent of UBC, many locals became less willing to participate in these initiatives, preferring the immediate cash transfer solutions offered by Oxfam. This shift in focus raised concerns about the long-term effectiveness of UBC as a sustainable solution, with NDMO officials questioning whether dependence on cash transfers could erode the community's inherent resilience:

“My worry is the long-term response for the people - what happens when cash runs out? How can we sustain this cash transfer program?”

The NDMO advocates for the integration of Indigenous knowledge in disaster recovery efforts, emphasizing its value in rebuilding, resource distribution, and recovery processes. While UBC has undoubtedly benefited vulnerable populations, such as the elderly and people with disabilities, there is concern that scaling the project to the broader population could undermine long-term resilience. As one local government official corroborated:

“For immediate response, it's [UBC] a yes, but for long-term, no [...] We want to be resilient in a way so that you can save some resources and use them in a disaster. When people wait for cash voucher, it's not as resilient.”

The paradox lies in UBC's ability to increase choice and independence in the short term while potentially fostering a long-term dependency on external aid and technology.

### ***Theme 2: Building Digital Literacy - A Path to Enhanced Resilience***

In disaster recovery and aid distribution, building digital literacy is essential for fostering long-term resilience. The UBC project not only addresses immediate needs with innovative technology but also enhances users' digital skills, paving the way for lasting empowerment. This project illustrates how integrating digital tools and training into disaster response strategies can turn perceived challenges into opportunities for growth and self-sufficiency.



*Figure 3.0 A community focus group hosted by Oxfam during the pilot stage of UBC. Credits: Keith Parsons/OxfamAUS (photo provided by Oxfam).*

### ***Opportunities to Build Digital Literacy***

The UBC project highlights that what is often seen as a lack of digital literacy can be an opportunity for development. Initially, users of the NFC cards faced distrust, confusion, and apprehension, feelings that were also common among many partner implementors who were unfamiliar with the new system. As one local partner involved in vendor training observed:

“For Vanuatu training, in town it was ok, in the remote community it was hard because technology was new to them. For some of them, it was the first time with a smartphone. They were originally scared but they got pride, and they liked it. It gives them pride using the smartphone. People who were low in the community, you could see it was so so good, they learned something in their old age.”

To overcome these barriers, Oxfam leveraged trusted community members for training. By partnering with local chiefs, churches, and NGOs with deep community ties, Oxfam was able to build trust and reassure users. They established a call center for inquiries, offered responsive support, and conducted home visits to strengthen relationships and address concerns directly.

In Vanuatu, where interpersonal relationships are crucial, Sempo staff played a key role by addressing questions and resolving issues face-to-face during the first month. Beneficiaries were supported by various aid organizations, including World Vision, Save the Children, ADRA, and

Red Cross. This approach effectively used local networks to foster understanding and acceptance of the new technology.

### ***Foundations of Trust and Communicating Technical Concepts Effectively***

Building trust within the UBC project hinged on communicating technical details effectively. Rather than focusing on the intricate workings of blockchain technology and crypto-tokens, Oxfam emphasized practical outcomes and user-friendly concepts. The training highlighted that the NFC card functioned much like a voucher or gift card, redeemable for goods at selected vendors. Vendors were informed that their Sempo accounts would be converted into weekly fiat currency payments, with an initial sign-on bonus to foster confidence in the system.

Despite these efforts to simplify the technology, significant knowledge gaps persisted, especially concerning blockchain. While the benefits of UBC were broadly acknowledged, many individuals outside Sempo had limited understanding of blockchain's function or the data collection process. Despite their positive experiences with Sempo, local NGOs and Red Cross staff also had a limited grasp of blockchain technology.

As one respondent noted:

“The [blockchain] itself, it’s about the digital, how you can make the money align. This is the tricky part, I don’t understand the concept itself.”

Locals generally accepted the simplified explanations from Oxfam, recognizing that blockchain enhanced the speed and efficiency of cash transfers, but lacked deeper knowledge of its operation and data storage. Training often oversimplified or omitted blockchain details, likely because a deep understanding of this complex technology was not necessary for using the NFC cards. However, this lack of comprehensive training left local stakeholders with limited insight into data collection and usage. An implementor remarked:

“It is a new thing for most of us in Vanuatu, so there is still some debate – some of us are excited [...] some of us who are educated [...] will question it more.”

This gap presents a challenge for the sustainability of UBC, as local stakeholders were not fully prepared to manage the blockchain component. Nevertheless, a 2019 Oxfam survey revealed that fewer than 4% of beneficiaries faced issues with NFC card usage, highlighting its user-friendly design. Moreover, 91% of respondents were satisfied with the assistance they received, and 95% felt confident entrusting their information to the NFC card, despite 82.5% being unaware of the technical details. This trust underscores the convergence of enhanced digital and financial literacy, enabling participants to embrace the system without deep technical understanding. However, these positive outcomes also bring to light ethical considerations regarding data

governance and transparency, emphasizing the need for a balance between leveraging technology for improved aid and maintaining ethical standards.

Addressing these knowledge gaps is crucial for ensuring local ownership and the long-term success of the UBC project.

### ***Limitations to Local Adoption - The Complexities of Blockchain Technology***

The integration of blockchain technology adds another layer of complexity. While the innovation has attracted international attention and praise, it has also generated substantial profits for technology companies. Critics argue that the emphasis on ‘for-profit’ solutions in humanitarian efforts, especially in developing countries like Vanuatu, may result in long-term dependence on external, foreign technology providers.

Vanuatu lacks the infrastructure to support blockchain technology, with data stored in Australia, where Sempo is headquartered. This reliance on foreign servers and the inability to control or own the data collected by Oxfam further entrenches Vanuatu's dependence on external entities. The significant energy demands of blockchain make it impractical for Vanuatu to manage this technology independently, forcing local stakeholders to cede control of data to Australia.

Stakeholders also raised security concerns about storing data in Vanuatu, highlighting that:

“[It’s a] lot safer to store in Australia than in Vanuatu. [...] smaller sovereign states keep getting hacked.”

### ***Theme 3: Localisation - Taping into aspects of local Culture***

In Vanuatu, resilience in disaster recovery is deeply intertwined with the country's culture of collectiveness. The Ni-Vanuatu way of life emphasizes strong interpersonal relationships and communal support, where extended families and entire communities rely on each other to share resources and recover from adversity. This cultural framework creates a unique environment where the impact of aid programs, such as the UBC project, extends well beyond the individual beneficiaries, affecting entire families and communities. Rooted in Vanuatu’s tradition of communal support and resource sharing, the project demonstrated that even a limited distribution of NFC cards could have a profound impact across entire communities. The benefits of these cards extended beyond the individual recipients, reaching local vendors and their families, thus amplifying the aid’s effectiveness.

### ***Vanuatu’s Collective Culture and its Role in UBC***

The UBC project’s success can be largely attributed to its alignment with Vanuatu’s collective culture. Although only a select number of people within each community received NFC cards, the benefits of the program resonated throughout the broader community due to the inherent

communal nature of Vanuatu society. This cultural context helped alleviate potential conflicts over card ownership and ensured that the advantages of the program were widely shared.

The intervention was carefully designed to fit within the existing cultural structures. Oxfam leveraged traditional community-based systems by collaborating with local chiefs, elders, community councils, and churches to assess needs, redistribute resources, and support rebuilding efforts. As one local government official emphasized:

“They find out whose houses are destroyed; it is like an assessment. The chief sees whose shelter needs help, its community based, sharing and caring [...] the chief is paramount in this setting.”

The endorsement of UBC by these traditional leaders was pivotal for gaining community acceptance. Their involvement leveraged existing trust and respect, facilitating the integration of new technology within established cultural practices.

Oxfam effectively merged traditional disaster response methods with provincial government resources, utilizing NGOs with local expertise to tailor information dissemination, training, and NFC card distribution. This strategy is built on the community’s trust in traditional systems, easing the introduction of blockchain technology by reinforcing its alignment with familiar structures.

### ***Decolonization through Localization and Cultural Integration***

The increasing focus on decolonizing the aid sector since the 1980s aims to address the power imbalances that historically undermine the agency of recipients in the Global South. Traditional Cash and Voucher Assistance (CVA) programs often face scrutiny due to concerns about misuse of funds—concerns rooted in a legacy of Western dominance that questions the ability of local communities to manage financial resources autonomously. The UBC project challenges these narratives by recognizing the capability of Indigenous communities to make informed decisions about disaster responses.

In post-colonial contexts like Vanuatu, where sovereignty and self-reliance are paramount, there is a strong emphasis on reducing dependence on foreign aid and asserting local control. UBC’s approach exemplifies this shift by respecting and incorporating local traditions and practices, enhancing local business resilience and empowering communities through culturally attuned methods.

Stakeholders involved in the UBC pilot highlighted the departure from a “top-down” approach towards one that emphasizes local input and agency. This shift aligns with broader decolonization efforts by integrating local culture and decision-making into humanitarian

solutions. Community members responded positively to this approach, feeling empowered and involved in the aid process. As one local government official remarked:

“They felt that they were part of the relief, and they had a choice [...]”

This focus on localization and cultural integration underscores the importance of adapting aid initiatives to local contexts, reinforcing community resilience, and supporting autonomy.

### ***Challenges to Local Ownership and Sustainability***

For the long-term sustainability of the UBC project, it is crucial to address the need for local ownership without external interests dominating the process. Although the blockchain technology underpinning UBC is open-source and can be provided at a low cost, its maintenance, updates, and monitoring require technical expertise. This expertise is only to be sustained with continued involvement from external parties.

Currently, Sempo and Oxfam hold intermediary ownership of the data collected from NFC cards stored in Australia. Vanuatu's inadequate data infrastructure and energy limitations restrict the capacity to host local data servers. This limitation hinders UBC's potential for scaling and local implementation. The introduction of blockchain technology in Vanuatu has sparked significant interest from both the private sector and government. A comprehensive report by the Vanuatu Business Resilience Council, supported by USAID, outlines an “Adaptation Roadmap” for blockchain technology in the country's expanding economy. The study explores blockchain's potential beyond aid, including creating national IDs and a functional government database for linking digital IDs with access to services. It also considers digitizing financial transactions, drawing from the experiences with UBC.

The expansion of blockchain in Vanuatu underscores the broader implications of foreign technology involvement in humanitarian aid, highlighting the need to balance technological progress with local autonomy. In conclusion, while the UBC project's alignment with Vanuatu's collective culture and decolonization objectives marks significant progress toward local empowerment and resilience, addressing the challenges of ensuring local ownership and overcoming infrastructure constraints to achieve sustainable and authentic local autonomy is crucial.

### **Conclusion**

The UBC project's success underscores the transformative impact of shifting power dynamics in humanitarian aid, mainly through the enhancement of dignity, the advancement of digital literacy, and the integration of cultural resilience into disaster recovery efforts. These elements are crucial for building local resilience and provide key insights for future interventions incorporating complex technologies within humanitarian contexts.

### ***Leveraging Technology to Empower Communities***

The introduction of blockchain technology in the UBC project has revolutionized aid distribution by enhancing transparency, reliability, and beneficiary choice. In remote and isolated regions of Vanuatu, where traditional infrastructure is often inadequate, blockchain proved more effective than conventional methods. By facilitating real-time monitoring, Oxfam could make iterative improvements, such as providing additional mobility support for individuals with disabilities. This ensured that aid reached the community's most vulnerable members and addressed gaps in the distribution process.

However, the integration of blockchain also highlighted several challenges. Despite its advantages, the complexity of blockchain technology and the lack of familiarity among many stakeholders revealed the need for a balanced approach. The data ownership and storage issue, with data currently managed by foreign entities in Australia, underscores the limitations and potential drawbacks of relying on external, for-profit tech companies. As UBC strives to empower beneficiaries, it must address how this reliance might impact local autonomy and the program's long-term sustainability.

### ***Ensuring Long-Term Sustainability Through Localization and Cultural Sensitivity***

The experience of Cyclone Pam in 2015 underscored the inefficiencies of traditional disaster response methods, particularly in remote areas of Vanuatu. The UBC project's use of smartphones and NFC cards streamlined the aid distribution process, reducing it from four weeks to just three days. This efficiency allowed resources to be redirected to other critical needs and demonstrated the value of integrating technology into disaster response efforts.

Oxfam's commitment to localization is evident in its staffing practices and approach. By employing ni-Vanuatu staff and using localized materials, Oxfam enhanced communication and engagement with the community. This approach proved particularly effective during the vendor enrollment phase, where understanding and navigating local financial processes was key to successful implementation.

### ***Future Considerations***

While blockchain technology presents substantial benefits, its success depends on careful and thoughtful implementation. To fully leverage blockchain's opportunities, engaging a diverse range of stakeholders and creating an environment conducive to innovation is crucial. Balancing technological advancement with local empowerment will be essential for achieving sustainable and impactful outcomes. Ensuring that technology serves the needs of local populations without compromising their autonomy remains a central challenge for future humanitarian projects.

Addressing these challenges will be key to harnessing technology's full potential while respecting and enhancing local capabilities and resilience as we move forward.

This paper is part of a larger research initiative on the UBC project, conducted in partnership with the Reach Alliance. A more comprehensive study has already been published on the Reach Alliance website, offering in-depth analysis and findings [11]. Additionally, my team is preparing a conference paper for the Association of Computing Machinery CHI Conference on Human Factors in Computing Systems 2025, which will explore the subject further and provide additional insights into the project's impact and outcomes.

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