

REPORT
EXECUTIVE SUMMARY

The Role of Digital Payments in Sustainable Agriculture and Food Security

APEC FINANCE MINISTERS' PROCESS
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EXECUTIVE SUMMARY

The nations of the world have developed the capabilities to produce enough food for the human population. Solutions have been developed for blight and for drought, for enriching depleted soil and repelling unwanted pests. Yet, in the three-year period from 2014 to 2016, one in every nine people – almost 800 million in total – did not have enough food for at least a year.¹ Effective and proven solutions exist, but they are not reaching enough of those who need them most. As a result, the challenge of hunger continues to be felt every day, during this age of plenty.

Fortunately, technologies exist that can help to eliminate many of these barriers, digitizing financial transactions and connecting farmers more closely to their buyers and suppliers. Digital payment instruments can help farmers sell more quickly for a higher price, allow them to access sorely needed credit for the fertilizer that will help their harvest thrive, and enable their governments to provide aid in case crops do not grow.

This paper by the Better Than Cash Alliance examines how a shift to digital payments can provide powerful solutions that help countries improve agricultural productivity and ensure food security, thus raising incomes, reducing hunger, and driving financial inclusion. These issues have specific relevance to the Asia-Pacific Economic Cooperation Forum (“APEC”), given that agriculture makes a substantial economic contribution to the APEC economies. Additionally, one of the key priorities for APEC Viet Nam 2017 is enhancing food security and sustainable agriculture in response to climate change.³ This report aims to help APEC economies begin (or expedite) the shift to digitize payments in their agriculture sectors. In addition, the information and recommendations herein are likely to assist APEC economies and other countries in fulfilling their commitments toward Sustainable Development Goal #2: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture.”

The paper begins by summarizing the state of food security, agricultural productivity, and the interplay between the two across several geographies, and then examines digital payments as a specific mechanism for improving agricultural productivity and providing social support. Three key barriers to a sustainable agricultural sector are reviewed: inefficient value chains and markets, an overall lack of financial services for farmers, and unreliable safety nets.

This document is intended to help guide APEC decision-makers in the private, public, and development sectors as they work to increase digital payments. To this end, specific actions are presented to enable key stakeholders, including agribusinesses, governments, payments providers, and donors to deliver these solutions.

KEY FINDINGS

Expanding digital payments and building responsible digital payments ecosystems are fundamental to creating a sustainable agricultural sector and addressing poverty and hunger.

By enabling farmers to be compensated quickly, transparently, and securely for their crops, digital payments allow them to save money and reinvest it in their livelihoods. In sparsely populated rural areas, where the majority of smallholders live, digital payments are the crucial first step to providing financial services in a sustainable, profitable manner. The study also finds that inclusive digital payment ecosystems⁴ are critical to building resiliency in vulnerable communities, as they allow governments and NGOs to reach those afflicted by crisis rapidly and effectively.

Investing in agricultural productivity and capacity by enabling more digital payments is likely to have outsized returns.

Seventy-five to 85% of the world's poor live in rural areas and account for the majority of the world's hungry.^{5,6} Of the poor that live in rural areas worldwide, at least 80% depend directly or indirectly on agriculture for their household income.⁷ Regionally, Asia has the greatest absolute number of undernourished people (490 million), while sub-Saharan Africa has the highest prevalence of undernourishment, at 23% of the overall population.

The world's rural poor tend to rely upon agriculture for income and survival, and as a result of this reliance, there are outsized returns to investments in their agricultural capacity and productivity. A 1% increase in agricultural production in eight APEC economies was associated with a 1.4% decrease in the number of rural people living under the poverty line,⁸ and growth in the agricultural sector has been shown to reduce poverty more than industrial or service growth worldwide.⁹ Further, subsistence farmers, who make up roughly 60% of all smallholders,¹⁰ consume most or all that they produce and have little connection with markets, meaning improvements to productivity and capacity can have a considerable impact on their levels of nourishment.

“ The first essential component of social justice is adequate food for all mankind. Food is the moral right of all who are born into this world.”²

DR. NORMAN BORLAUG
AGRONOMIST AND NOBEL LAUREATE

The vast scale of smallholder farming in aggregate also makes investments in productivity and capacity crucial for addressing hunger and financial inclusion, as well as providing broader economic benefits. There are more than 570 million farms globally, of which 84%, or a little over 475 million, are smaller than two hectares.¹¹ These are collectively known as smallholder farms, and are home to as many as 2.5 billion people worldwide.¹² Smallholder farmers produce up to 80% of the food in Africa and Asia.¹³ However, up to 37% of all food produced in sub-Saharan Africa and South Asia goes unconsumed due to difficulties farmers face getting their harvested crops into production and to market, including problems associated with cash-based payment for their crops.¹⁴

Accordingly, this paper finds a key target for process and efficiency improvement is in the area of payments made along the agricultural value chain.

The disadvantages of cash are magnified for people in rural and remote communities.

Farmers, particularly smallholders in the developing world, are overwhelmingly paid in cash. In lower- and middle-income countries in 2014, according to the Global Findex report, 95% of those receiving agricultural payments were paid in cash. Even the least cash-heavy agricultural countries still report 75% of agricultural transactions in cash.¹⁵

The rural poor are disproportionately disadvantaged by the shortcomings of cash. Cash is costly to collect and to send, it can be stolen or misappropriated, and it is slow to transport, leaving farmers waiting days or weeks for compensation. Each of these drawbacks is magnified the farther removed (physically or socially) a person is from a central market. The longer the transfer process of cash, the more expensive, time-consuming, and insecure that process becomes.



There is a wide gender gap in agricultural opportunities and outcomes, which digital payments can help to address.

There is a distinct gender element to agricultural productivity. Women make up 43% of the agricultural labor force,¹⁶ but are “more likely to be asset-poor subsistence farmers.”¹⁷ Female farmers produce less per acre than male counterparts, having less access to seed, fertilizer, and tools.¹⁸ Across the world women are significantly less likely to own land, and to own much smaller plots if they do.¹⁹ The underlying cause, according to the FAO, is “repeated across regions: social norms systematically limit the options available to women.”²⁰

The disparities continue beyond physical inputs. Women are less likely to have access to financial services: 43% of women in India have a bank account, for example, compared to 63% of men.²¹ If women farmers had equal access to non-land inputs, agricultural production could be increased enough to meet the nutritional requirements of up to 150 million people annually.²² Digital payments and digital financial services offer women new ways to transact, save, and borrow, potentially allowing them to circumvent traditional limits to their access.

Digital payments have been slow to catch on with smallholder farmers in poor rural communities.

Barriers of geography, infrastructure, and affordability prevent many smallholder farmers from connecting to domestic markets. As a result, the simple act of selling a harvest in exchange for income is beyond the capability of millions of farmers.

Further, because they operate in heavily cash-based economies, farmers often do not see the value of holding digital currency, and cash out their payments at the first possible opportunity, incurring significant fees.

In order to replace cash, digital payments must offer a greater value proposition and operate within a far broader digital payments ecosystem.

Until farmers can be paid digitally for their crops, then use those funds to buy the things they need (fertilizer, food, tools) in the same digital currency, cash is likely to continue dominating rural transactions. The Better Than Cash Alliance’s report *Accelerators to an Inclusive Digital Payments Ecosystem* set out various measures that can help improve the value proposition of digital payments, including the promotion of merchant acceptance infrastructure.

KEY BARRIERS

There are three principal barriers to improving agricultural sector efficiency and food security which can be addressed by digital payments.



Cash-based value chains and inefficient markets

- Agricultural value chains entail numerous transactions between all types of stakeholders: farmers, input sellers, creditors, local buyers, global agribusinesses, and others. The high volume of transactions creates a multiplier for any inefficiencies, such as cash payments.
- In addition, many farmers incur considerable risks when selling their crops due to information asymmetries and other barriers.
- Digital payments help by shortening transaction times and improving transparency through quicker, traceable payments. For agribusinesses procuring from a large group of distributed suppliers, digital transactions offer greater security, speed, and efficiency.
- At the same time, new payment channels could facilitate the establishment of digital marketplaces or virtual trading floors²³ for farmers, allowing them to sell their crops directly to buyers, and for large-scale buyers to track behavior of designated buyers.
- Mobile industry association GSMA estimated that the potential market for digital value chain payments would reach US\$394 billion by 2020, paid to 370 million farmers.²⁴



Lack of non-payment financial services suitable for smallholders

- There is an urgent need for financial services among smallholder farmers. Credit is needed to finance investments, while savings and insurance enable farmers to mitigate risk and build up wealth.
- Financial service providers have struggled to meet the needs of smallholder farmers, due to their volatile incomes and low density.
- Digital payments facilitate access to financial services for smallholder farmers by lowering transaction costs, providing flexibility, and improving the customer experience. This is critical to building a business case for financial service providers in rural areas.
- Demand for just agricultural credit has been estimated to be as high as US\$450 billion.²⁵



Inefficient delivery of social programs and remittances

- Social protection, whether it be in the form of private remittances or public transfers, is necessary to maintain food security.
- Unfortunately, 73% of the world's poor lack the social support structures necessary to assist them during inevitable food shortages,²⁶ and three-quarters of the most vulnerable households are not covered by a social safety net program.²⁷
- Digital payments can help improve the efficiency of social program delivery by reducing costs and leakages for government transfers aimed at the rural poor, and can increase access to private support by lowering the cost of remittances.



ECONOMY-SPECIFIC FINDINGS

MEXICO has a robust social safety net for the poor in general and farmers in particular, with large-scale conditional transfers reaching more than 25 million low-income beneficiaries²⁸ and subsidies to over 1.5 million farms in 2016.²⁹ Both programs are moving to digital payments; however, less developed digital payments ecosystems mean that the vast majority of recipients cash out their payments.³⁰ Only 54% of Mexican municipalities had an ATM, and there were just six POS terminals for every 1,000 inhabitants, compared to 22 for Brazil.^{31,32} A 2014 study estimated that cash costs Mexico over \$100 million and 48 million hours annually.³³ This presents a major opportunity for Mexico to deliver significant economic and social benefits by building out digital payments ecosystems in rural areas, particularly through collaboration between the public and private sector.

INDONESIA has made great progress, almost doubling its financial inclusion rate, from 19.6% of adults having an account to 36.1%, in just three years.³⁴ However, around one-third of the population work in agriculture in some way, and of this cohort, 81% lived below the poverty line in 2015.³⁵ The digitization of Indonesia's rice subsidy, and a wide-scale pilot of a single social payments instrument, currently underway, have the capacity to substantially expand the digital payments ecosystem for the rural poor and drive further gains in financial inclusion. Digitization of agricultural payments in the palm oil industry – valued around US\$2.8 billion³⁶ – is also gathering momentum, with significant benefits expected to flow to rural communities.

ETHIOPIA is among the countries in the world that have the most to gain from digitizing payments in the agricultural sector. In 2013 (the last year for which data is available), agriculture accounted for 73% of total employment, and agricultural value added made up 45% of Ethiopia's GDP, both among the highest in Africa.³⁷ Ethiopia is also one of the most food insecure nations in the world, with almost a third of the population undernourished in 2015.³⁸ To its credit, Ethiopia already has a tremendous asset for any digitization campaign: Its extensive agricultural extension service provides an invaluable tool for training farmers in the use and benefits of digital payments.

Digitization of agricultural payments in the palm oil industry - valued around US\$2.8 BILLION³⁶ - is also gathering momentum, with significant benefits expected to flow to rural communities.

IMPROVING FOOD SECURITY THROUGH DIGITAL PAYMENTS



DID YOU KNOW?

ALMOST **800 MILLION** PEOPLE
WENT **UNDERNOURISHED**
BETWEEN 2014 AND 2016



Cash-based value chains and market barriers lead to lower returns for farmers
Digital value chain payments to reach \$394B by 2020



Lack of financial services prevents farmers from hedging against risk and investing
\$450 billion unmet demand for agricultural credit



Inadequate social support leaves poor families with no buffer
75% of the most vulnerable households are not covered by social safety net programs

SOLUTION

DIGITAL PAYMENTS CAN HELP
IMPROVE AGRICULTURE
PRODUCTIVITY AND FOOD SECURITY



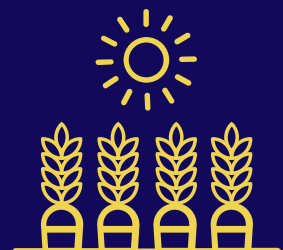
Digital payments tighten links in the value chain,
reduce costs, and enable scalable market solutions



Digital financial services can lower cost of credit and **expand access to savings/insurance**



Digitizing social transfers and remittances can **lower costs and improve access**



Recommended Actions that Can Enable Digital Payments in the Agricultural Sector

In order for digital payments to strengthen the agricultural sector, this study lays out several immediate actions that can be taken by governments, agribusinesses, payment service providers, and donors:



GOVERNMENTS, PARTICULARLY MINISTRIES OF FINANCE AND AGRICULTURE

- Digitize the payment of routine subsidies, social transfers, and food aid as a means of more effectively reaching remote populations and encouraging digital payment uptake.
- Incorporate training in digital payment usage as a standard part of agricultural extension services.³⁹ Digitizing extension worker salaries can also strongly underpin this effort.
- Investigate cost-effective ways to incentivize the expansion of rural digital payments infrastructure and increase the adoption of merchant digital payments.
- Implement a low-cost, voluntary digital ID program as a way of allowing millions of smallholder farmers to access digital payments and financial services.

Ensure that the regulatory framework for financial services enables safe, low-cost, low-value payments. Examples of such a framework include proportional know-your-customer regimes that allow for remote account opening, agent banking, and a transparent consumer protection regime that allows for timely redress and dispute resolution.



LARGE-SCALE AGRIBUSINESSES

- Evaluate the potential for digitizing crop purchases, as well as other cash flows, as a means of reducing costs, improving productivity, and creating transparency throughout the value chain.
- Work with agricultural supply stores to enable interoperable digital credit and payments services that let farmers use one transaction account for both receiving crop payments as well as making agricultural purchases.



PAYMENT SERVICE PROVIDERS AND MOBILE MONEY OPERATORS

- Particularly in rural markets, integrate payment platforms with leading agricultural buyers and providers of agricultural credit in order to leverage their ties into rural economies.
- Explore new business models for serving rural populations. As mentioned in the Better Than Cash Alliance's "Accelerators"⁴⁰ report, a likely driver of digital payment activity will be the degree to which any one payment service or platform can interoperate with other services or platforms. This is particularly relevant to low-income rural areas that are unable to profitably sustain multiple agents.



DEVELOPMENT ORGANIZATIONS AND NGOS

- Support projects that digitize bulk payments from agribusiness to smallholders, fund digital innovation research aimed at the agricultural sector, and work with payment service providers to support outreach efforts in rural areas.

By incorporating digital payments into the agricultural value chain and opening the door to essential financial services, the productivity and growth potential of the world's 475 million smallholder farms⁴¹ can be substantially increased. Increases in the productivity of these farmers have been shown to have outsized benefits in terms of poverty reduction, inclusive growth, and economic opportunity. At the same time, enabling poor and vulnerable populations to receive digital payments will help governments to respond rapidly and efficiently in the case of drought or famine, while building resilience against future climate shocks. Steps such as these are critical to building a vibrant and sustainable agricultural sector, while providing a reliable social safety net and acceptable standards of living for all people.

Priority Actions for Using Digital Payments to Improve Food Security and Agricultural Productivity

1. Governments

Encourage adoption of digital payments by incorporating training on their benefits and use into existing channels for agricultural education, such as extension officers

2. Agribusinesses

Analyze the business case for digitizing aspects of the value chain, including bulk payments to farmers and supplier credit

3. Payment Providers, Governments, and Aid Organizations

Work together to identify existing food aid, social transfers, and subsidies that benefit smallholder farmers and could be made more efficient through digitization

The Better Than Cash Alliance

The Better Than Cash Alliance is a global partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments in order to reduce poverty and drive inclusive growth. Based at the United Nations Capital Development Fund (UNCDF), the Alliance has over 60 members, works closely with other global organizations, and is an implementing partner for the G20 Global Partnership for Financial Inclusion.

Asia-Pacific Economic Cooperation (APEC)

The Asia-Pacific Economic Cooperation (APEC) is a regional economic forum established in 1989 to leverage the growing interdependence of the Asia-Pacific. APEC's 21 members aim to create greater prosperity for the people of the region by promoting balanced, inclusive, sustainable, innovative and secure growth and by accelerating regional economic integration. APEC's 21 member economies are Australia; Brunei Darussalam; Canada; Chile; People's Republic of China; Hong Kong, China; Indonesia; Japan; Republic of Korea; Malaysia; Mexico; New Zealand; Papua New Guinea; Peru; The Philippines; The Russian Federation; Singapore; Chinese Taipei; Thailand; United States of America; and Viet Nam.

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