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Launching Mobile Money in Ecuador

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ACRONYMS

Bottom of the Pyramid	BoP
Central Bank of Ecuador	CBE
Conditional Cash Transfer	CCT
Government of Ecuador	GOVEC
Government to Person Payments	G2P
Liquid Petroleum Gas	LPG
Ministry of Economic and Social Inclusion	MIES
Mobile Money System	MMS
National Secretariat of Telecommunications	SENATEL
Peer-to-Peer	P2P
Point of Sale	POS

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CALEB VARNER

SECTION 1: EXECUTIVE SUMMARY

Final Recommendations

- Recommendation 1: Rollout the Mobile Money System Payments to BDH recipients on a selected basis
- Recommendation 2: after recommendation 1 has been accepted by the BDH recipients, Rollout the Mobile Money System to all BDH recipients

Initially, the MMS system should be phased-in for BDH recipients. While it is outside of the scope of this document, this should be an “opt-out” system where recipients must complete a form asking for consideration for payment via the legacy system. Overtime, however, all BDH recipients should be transitioned to the MMS payment system. By these means, all of the benefits of the complete transition to the MMS are captured, while still preserving the political feasibility of a partial initial transition.

Payment of the BDH via the MMS is essential to drive MMS adoption rates. Without this key ability for the government to drive adoption, uptake of the MMS will likely be slow, and not by the poorest.

Background: G2P payments in Ecuador

The *Bono de Desarrollo Humano*, (BDH) Human Development Grant, is a conditional cash transfer program that was initiated by the Ecuadorian government in 2003 that remains active today. It pays \$35 per month to 1.6 million people. This targeted payment is focused on households with children aged 0-16 in the poorest 40% of the population. In addition to this focal group, the payment is also focused on the elderly and the disabled.

Purpose of this document

The primary purpose of this document is to recommend to the Government of Ecuador how to best leverage the implementation of a Mobile Money System (MMS) in order to increase the efficiency of current governmental conditional cash transfer programs (CCT).

Focus

This document focuses on how implementation of a MMS by the Central Bank of Ecuador can increase the efficiency of current governmental CCT payments. The paper centers on the CBE as the primary stakeholder and coordinating body. However, the inclusion of the Ministry of Strategic Sectors and the Ministry of Social and Economic Inclusion, among others, will be essential in the final implementation of any recommendations regarding modifying the current CCT system and/or other governmental programs.

Problem Statement

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The major issues that this document identifies with the current format of the BDH are the following.

Transaction costs represent significant percentage of the BDH

- Transaction costs for recipients to receive the BDH represent up to \$288 Million or 43% of the value of the BDH
- Significant transaction costs limit the population's willingness and ability to save money currently, and the BDH does little to help this.

The current system was created for ease of use for banks, not focused on recipient benefit

- The BDH only allows for recipients to make a single transaction per month--limiting the usefulness of the program.
- Forced, complete withdrawal of all funds negates financial inclusionary aspects of the BDH
- The *Tarjeta MIES bono rápido* is an incomplete answer that is focused on cheaper, not better service and is more convenient for banks, than for BDH recipients.
- Single-service accounts result in only nominal financial inclusion. Recipients want a way to save.
- Financial Inclusion via the *Crédito de Desarrollo Humano* misses the mark, but is cheaper for banks, but not necessarily better for the BDH recipient.
- By a majority of recipients accessing their payment on the same day of the month, the current system creates unneeded bottlenecks that stifle economic progress.
- The current system creates security concerns by due to 3rd party withdrawals in the ATM-based model
- Limited bank and ATM access affects the rural poor disproportionately—further increasing transaction costs

Policy Option

These are three main options that the GOVEC has in regard to the use of the MMS platform in regard to the BDH.

1. Maintain legacy payment system for BDH disbursements
2. Transition select BDH payments to the mobile money platform
3. Transition all BDH payments to the mobile money platform

Criteria for analysis

The above options are evaluated on their ability to satisfy the following criteria.

- 1) Ensures political feasibility
- 2) Maximizes efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients,
- 3) Has scalable impact to a national level,

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- 4) Increases the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor,
- 5) Maximize adoption of mobile money system within the country.

Analysis of options

The analysis explored the potential benefits of three policy options. Based on this analysis, the options that best achieve the stated purpose of this paper to recommend to the Government of Ecuador is a combination of options 2 (transition selected CBH payments to the MMS) and option 3 (transition all payments to the MMS). These options best satisfy the stated purpose and present sustainable changes that benefit the current activities of the GOVEC and the CBE.

Risks to Consider

- Insufficient number of agents and difficulty with the “cash-in” & “cash-out” transactions
- The system will lack critical mass to achieve network effects
- There is a danger of misuse of the MMS for illicit activities
- With MMS, there is a need for redesigned bankruptcy legislation
- Working with other governmental stakeholders is essential for a successful launch
- There is an increased need for understanding how to work with key private sector stakeholders
- Private sector response is unknown, but could fill important efficiency gaps in cash-in and cash-out transactions
- *Pico y Placa* Payments: Pay the BDH on a rolling basis

Considerations for the pilot project and taking it to scale

- The pilot project should be used as a proof of concept
- Duke University could be a source of resource for the design and interpretation of the pilot and what that means in taking it to scale

Next steps for research

While the payment of the BDH via the Mobile Money system represents significant benefits for the government and citizens of Ecuador, there are other possible applications for the MMS that could continue to increase the benefits that the system produces.

- Financial Inclusion: The business case for overcoming transaction costs in the banking sector to increase financial inclusion.
- PayPal.com and similar services could limit the MMS’ useful life
- E-Vouchers via the MMS seem to be the wrong move
- Reforming the LPG Subsidy as another use for the MMS system

SECTION 2: INTRODUCTION

PURPOSE

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The primary purpose of this paper is to recommend to the Government of Ecuador how to best leverage the implementation of a Mobile Money System (MMS) being created by the Central Bank of Ecuador (CBE) in order to increase the efficiency of current governmental conditional cash transfers (CCT). Secondly, this paper provides the Government of Ecuador (GOVEC) with a preliminary outlook on how to use the MMS platform to focus other governmental programs.

The current CCT scheme creates governmental and societal inefficiencies that the Ministry of Economic and Social Inclusion (MIES) estimates at upwards of \$300 million yearly. This document examines how the CBE, and the Ecuadorian Ministry for Coordination of Strategic Sectors, can leverage the impending implementation of a MMS in Ecuador to increase efficiency and focus current subsidies.

In addition to the central purpose of this research, the core of this document is that the analysis and resulting recommendations be useful for increasing governmental efficiency of successful CCT and subsidy programs in contexts similar to those found in Ecuador. There is a significant opportunity in many countries across the world to leverage mobile payment innovations to increase governmental efficiency and service delivery—the implementation and usage of the MMS is only one of those opportunities. As the first government to implement such a system in Latin America, the GOVEC, will serve as an example to other regional governments and will have the power to disseminate lessons learned and recommendations that are produced from this project.

Finally, this document considers how to go beyond traditional CCT systems via mobile payments, and analyze other ways to use a MMS on a larger scale to contribute to solving some of Ecuador's most difficult economic and political problems. This document analyzes new solution opportunities that the MMS allows in resolving legacy problems.

Although the GOVEC is making concerted efforts to address significant inefficiencies within these systems given traditional tools, there are significant political, and tactical constraints on the government's capacity to make the needed policy changes. There are stakeholders throughout the value chain that have deeply rooted financial interest that the systems remain the same. Given the governance and increasing financial constraints faced by the GOVEC, there is a clear role for the CBE in increasing the efficiency with which the GOVEC is able to serve its people.

THE FOCUS

This paper focuses on how implementation of a MMS by the CBE can increase the efficiency of current governmental CCT payments. The paper centers on the CBE as the primary stakeholder and coordinating body. However, the inclusion of the Ministry of Strategic Sectors and the Ministry of Social and Economic Inclusion, among others, will be essential in the final implementation of any recommendations regarding modifying the current CCT system and/or other governmental programs.

The CBE has ultimate responsibility for creating a platform by which these efficiency gains can be realized. However, the CBE will have to rely on strategic partners within the government if

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these gains are to be realized. There are many ways, outside of the examples that this document will focus on, that the GOVEC could leverage the MMS to drive better service, and increased economic gains for the government and society. However, the core work and expertise of the CBE, is in the creation and management of the money supply. Therefore, the focus of this document is on options that leverage opportunities generated by the creation of a new currency—Mobile Money.

THE CENTRAL BANK OF ECUADOR

Article 303 of the Ecuadorian Constitution of 2008¹ charges the CBE with the right and responsibility of monitoring the money supply of currency that circulates within Ecuador. However, the CBE lost most of its regulating power over the monetary supply when the GOVEC dollarized the economy in January 2000.² Recently, the CBE, via the creation of Mobile Money, is again resuming some monetary control in Ecuador.

The President and other important stakeholders see the creation of this new currency as an additional lever by which the internal money supply can be regulated. The extent of the effective power of this new currency lever is still unclear. This will largely depend on consumer uptake and acceptance of the new tender.

STRUCTURE OF THE DOCUMENT

Section three will define the problem of inefficiency in the payment of the CCT program in Ecuador, and will describe the key issues that frame the problem. Section four will provide three options for the CBE and the GOVEC to leverage the MMS to increase economic efficiencies in the payment of the BDH. Section five will describe criteria and provide an analysis of each option. Section six will identify recommendations based on the analysis, and will provide implementation guidelines for the final recommendations. Section seven offers options for further research.

BACKGROUND & KEY CONTEXTUAL ISSUES

CONDITIONAL CASH TRANSFER PROGRAMS GLOBALLY

Governments around the world make payments to 170 million recipients both via conventional and electronic methods.³ However, less than one quarter of these payments are made to recipient

¹ National Government of Ecuador. 2008. “The Constitution of the Republic Of Ecuador.” 20 October. Accessed 2 April 2011 from <http://pdba.georgetown.edu/Constitutions/Ecuador/english08.html>.

² Quispe-Agnoli, Myriam, Elena Whisler, 2006. “Official Dollarization and the Banking System in Ecuador and El Salvador.” 20 October. Accessed 2 April 2011 from http://www.frbatlanta.org/frbatlanta/filelegacydocs/erq306_quispe.pdf.

³ Gonzalez, Adrian. 2008. “How many borrowers and MFIs Exist?” Washington, D.C.: MIX, 31 December.

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accounts that could strengthen the financial stability via Government to Person (G2P) payments (i.e., Savings Accounts).⁴ Conversely, 75% of these payments are made directly to individual and do not pass through an account that could be used to offer the client other types of financial services. The broad body of literature argues that the poor are risk averse, and that increasing the banked population via savings accounts has a positive impact on economic stability and progress.

Governments around the world use a wide variety of G2P payment programs. The most ubiquitous G2P transfer is payments of salaries to government workers. There are other types of G2P payments programs that transfer cash from the government to the poor. Of these pro-poor payments, we can further break them down in the three general categories:

- 1. Conditional Cash Transfers (CCT):** G2P payments that are given to financially vulnerable families in exchange for their completion of conditional requirements. (e.g., ensuring that their children attend school or receive proper vaccinations).
- 2. Unconditional Payments:** G2P payments that are not contingent upon any requirements.
- 3. Workfare Payments:** G2P payment programs that alleviate unemployment and smooth income via providing un- and underemployed populations short-term jobs that are paid for by the government.

For the purposes of this document, we will only focus on the first two: Conditional and Non-Conditional G2P payments.

Traditionally, G2P payments have been made in person at a bank teller's window. This required that the recipient be at a specific location at a specific date—resulting in increased transportation costs, opportunity costs of time, and sheer inconvenience to receive his or her payment. However, increasing coverage of telecommunications networks and similar increases in worldwide ownership and usage of mobile devices has made an impact on G2P payment schemes. In short, the ubiquity of mobile devices creates a platform on which G2P payment systems can be mounted. In countries where mobile G2P payments have been used in place of in person payments, significant efficiency gains have been realized. In one of the mobile G2P payment systems in Brazil, *Bolsa Familia*, switching from in person transfers to electronic transfers reduced administrative costs by 82%.⁵ Moreover, the South African Social Security

⁴ Dupas, Pascaline, and Jonathan Robinson. 2008. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya." *Journal of Economic Literature*, December.

⁵ Lindert, Kathy, Anja Linder, Jason Hobbs, and Benedicte de la Briere. 2007. "The nuts and Bolts of Brazil's Bolsa Familia Program: Implementing Conditional Cash Transfers in a Decentralized Context." Social Protection Discussion Paper 0709. Washington, D.C., World Bank.

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Administration saw its costs reduce from about \$5.25 to less than \$2.00 per transaction, a savings of 62%⁶.

Not only does an electronic transactions based mobile G2P system frequently result in government administration savings, it can also reduce “leakage”—leakage being the euphemistic term for fraud and corruption. The advantage of this technology is that governments can link each payment to the individual via a fingerprint or a personal identification number. However, the World Bank estimates that even still 6 – 15% of the total G2P payments are fraudulently directed.⁷

The broader body of literature indicates that the safe storage of funds (savings) and the ability to make transactions (debit card, or mobile payments) not only offer financially vulnerable populations cash infusions into their home cash flows, but also smooth those cash flows. Electronic G2P transactions add value by increasing service accessibility by decreasing transaction costs and increasing the overall program footprint. Traditionally banks have been the center point of the G2P transaction. However, mobile phone companies and other non-bank entities (i.e., Telecoms) that offer account options have contributed to the reach and success of electronic G2P programs.

CARD-BASED SYSTEMS

While significant savings have resulted from switching traditional G2P payment schemes to electronic based payment schemes, there is still a question as to which electronic payment platform to use. In South Africa, Brazil, and in Dominican Republic, governments have opted for card-based systems. However, in the Ecuadorian context, high-level decisions have been made to not pursue a card-based platform due to a lack of current Point of Sale (POS) systems and general credit card penetration. While there is no reliable data on the number of POS terminals in Ecuador, nor the credit card penetration within Ecuador, it is commonly believed that outside of the urban centers, credit card and POS terminal penetration is virtually nil. This assumption is confirmed by the National Secretariat of Telecommunications (SENTAEL) in a face-to-face meeting with Christian Rivera, General Manager at the SENATEL in March 2011.

Assuming the validity of these claims, the installation of POS terminals would be an additional cost of implementation that either the government would have to find additional funding for or the private sector (the merchant or payment network) would likely have to fund. The additional investment would decrease the network effects⁸ of the technology by slowing its diffusion.

⁶ Bankable Frontier Association. 2009. “The Mzansi Bank Account Initiative in South Africa.” Johannesburg: FinMark Trust.

⁷ World Bank. 2007. Control and Accountability Mechanisms in Conditional Cash Transfer Programs. Washington, D.C.: World Bank.

⁸ *The effect that one user of a good or service has on the value of that product to other people. When network effect is present, the value of a product or service increases as more people use it.*

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Furthermore, network effects for mobile devices already exist in Ecuador with 106% penetration as of 2011, according to the most recent figures.⁹

Interestingly, ATM card based delivery systems are the most common electronic based G2P system.¹⁰ These cards substitute for costly in-person transactions via bank tellers. In Ecuador, however, the recent transition to an ATM card based system had few other benefits. Since the beneficiary is not able to transact with his ATM card, only withdraw cash, he or she must withdraw cash from the ATM and pay for other goods and services in a separate, cash-based transaction. Furthermore, in an effort to reduce bank transaction costs, banks require that beneficiaries withdraw all of their cash at once.

While this system is advantageous in increasing throughput at the banks and ATMs, it does little to facilitate increased efficiency in Peer-2-Peer transaction, or to drive financial inclusion. The main possible advantage, though not available in Ecuador, is that with the optional use of cards with a chip embedded. The chip allows the card to function off of the electrical grid, and outside of cellular coverage.¹¹

The main disadvantage of this system, however, is that customers frequently lose or damage their cards, forget their pins, or somehow render their cards non-functional.¹² Surprisingly, with the *Familias en Acción* study, bank teller transactions cost \$2.50, versus the costs of using a prepaid card of \$4.90.¹³

Given these realities, and the current administration's dedication of resources to developing a mobile money system, this study will not consider the option of increasing the uses of the card-based system.

THREE CASE STUDIES OF SUCCESSFUL ELECTRONIC G2P PAYMENTS ON A GLOBAL LEVEL

The following three case studies are widely referenced in the literature as successful examples of national G2P programs that are large (smallest 9 Million beneficiaries), electronic (debit card based), and focused on adding banking services to the poor (mostly via savings accounts in national banks).

⁹ Superintendencia de Telecomunicaciones. 2008. Accessed on 20 February, http://www.telegeography.com/cu/article.php?article_id=27178

¹⁰ Pickens, Mark, David Porteous, Sarah Rotman. 2009. "Banking the poor via G2P Payments." December. Washington, D.C., World Bank.

¹¹ *Ibid.* 9.

¹² Marulanda, Beatriz. 2008. "Social Protection Payments: A Case Study of *Familias en Accion* in Colombia." Presentation at DFID-CGAP G2P and Financial Inclusion seminar, South Africa, 3-4 November.

¹³ *Ibid.* 11.

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Brazil: The Brazilian federal government uses an electronic card G2P electronic delivery system, similar to a debit card, and reaches 11 million people per month. Started in 2003, *Bolsa Familia* in conjunction with the national bank that administers the conditional cash transactions (CCT) payments, *Caixa Economica* is in the process of migrating all 11 million beneficiaries to savings accounts.¹⁴

India: India's workfare program, National Rural Employment Guarantee Scheme, focuses its payments on 30 million un- or underemployed workers. As is the case in Brazil, many of the recipients access their funds via debit card. Hence, the beneficiaries are able to make transactions at their convenience, and are not required to be in a specific place at a specific time to receive the transaction.¹⁵

South Africa: South Africa also has a significant G2P programs – more than 9 million beneficiaries.¹⁶ The program in South Africa is predominately debit and smart card based with beneficiaries receiving their payments electronically. Nearly 25% of the recipients receive their payments to a financially inclusive bank account.¹⁷

G2P PAYMENTS IN ECUADOR¹⁸

The BDH (*Bono de Desarrollo Humano*, Human Development Grant) is a Conditional Cash Transfer program that was initiated by the Ecuadorian government in 2003 that remains active today. This targeted payment is focused on households with children aged 0-16 in the poorest 40% of the population. In addition to this focus group, the payment is also focused on the elderly and the disabled.

At present, there are approximately 1.6 Million people (families) receiving the payment that is \$35 a month and is paid to the woman of the household in most cases. However, according to a recent internal audit, even the total number of beneficiaries is under debate.¹⁹ The payment

¹⁴ Lindert, Kathy, et al 2007.

¹⁵ Reuters. 2008. "Bangladesh launches 100-day job scheme for the poor." 15 September. Accessed 5 February 2011 from <http://www.reliefweb.int/rw/rwb.nsf/db900SID/VDUX-7JHN9L?OpenDocument>.

¹⁶ Barclays. 2009. "Developing new products." Accessed 5 January, at <http://group.barclays.com/Sustainability/Reporting/Sustainability-Report-2008/Our-sustainabilitythemes/Inclusive-banking/Developing-new-product>

¹⁷ Pickens, Mark, et al 2008.

¹⁸ Fiszbein A. and N. Schady (2009). Conditional Cash Transfers: Reducing Present and Future Poverty. Policy Research Report World Bank. Accessed 5 January, at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALPROTECTION/EXTSAFETYNETSANDTRANSFERS/0,,contentMDK:20968008~pagePK:148956~piPK:216618~theSitePK:282761~isCURL:Y,00.html>

¹⁹ Efraín Cartagenova Sisneros, Luis. (2009). Informe General, Auditoria Interna. Contraloría General del Estado. Accessed 5 January, at <http://www.mies.gov.ec/index.php/descargas/category/37?download=1540>

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method for most of the country requires that the person present him- or herself in person at a teller or via an ATM—both of these methods use *BanRed* (a national payment system in Ecuador), and are accessible at various banks across the country. The benefits continue as long as eligible (re: entitlement program), but the BDH offers no additional benefits outside of the monthly cash transfer.

For the family to be eligible for the BDH, children aged 0-5 must take part in bimonthly doctoral checkups, have all of the required vaccines, and immunizations. From age 6-15, all children must be enrolled and with school attendance of at least 90%. However, according to the Ministry of Economic and Social inclusion, there is no verification of compliance with these conditions.²⁰

The BDH is paid via in-person transactions, or via ATM cards that require that the recipient withdraw all of the funds at once. Programmatic costs, according to most recent data from 2010, were \$660.5 million (.8% of GDP, 2.25% of total nonfinancial public expenditure. Administration costs are 4.12%, or about \$27.21 million.^{21, 22} The current cost of paying the BDH is \$0.38 per person per month. \$0.13 of that amount is paid to *BanRed*, and the remaining \$0.25 is paid to the paying institution where the beneficiaries receive the transfer. (\$0.38 per transaction x 1,600,000 beneficiaries x 12 months = \$7,296,000 annually)

RESPONSE FROM THE PRIVATE SECTOR IN ECUADOR

One of the key areas of interest that is absent from this investigation is an analysis of the predicted response of the private sector. *Banco de Guayaquil* (BdG), who currently has a mobile account access system, and has launched a *Banco de Barrio* (Neighborhood Bank).²³ While it is not possible to execute transactions via BdG's mobile technology, it is possible to see one's account balance. The application is more for information transfer, than for cash-in, cash-out operations. However, in their Neighborhood Bank approach, cash-in and cash-out transactions can be made. The mobile application and Neighborhood Bank seem to be operating together to form a banking ecosystem for the BdG. With that said, it appears that BdG would be interested in being involved with some portion of a national Mobile Money system. There are certainly other private sector stakeholders in this context, but that analysis is outside of the scope of this document.

²⁰ Ministry of Financial and Social Inclusion. Bono de Desarrollo Humano. Accessed, January 6 at, http://www.mies.gov.ec/index.php?option=com_content&view=article&id=103&Itemid=74

²¹ World Bank and The Inter-American Development Bank. 2005. "Creating fiscal space for poverty reduction in Ecuador: A Fiscal Management and Public Expenditure review". World Bank.

²² Munduate, Cristian. 2009. "La inversión social en la Pro forma 2010." Presentaiton at El Foro de Análisis hacia la aprobación participativa da la pro forma 2010, Quito, Ecuador. 19 November. Accessed, January 11 at, http://www.unicef.org/ecuador/media_16535.htm

²³ More information on the *Banco de Barrio* Program that the BdG is running is available here <http://www.bancoguayaquil.com/bg/banco-del-barrio.html>

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Secondly, this analysis does not consider the responses of the three telecoms (*Telefónica*, *América Móvil*, and state owned *Telesca*) that operate in Ecuador. *Telefónica* had already enabled a payment system on their platform that would have been sufficient to make P2P payments.²⁴ However, SENATEL rejected *Telefónica's* bid to operate the system in Ecuador.

Other countries outside of Latin America that have implemented mobile P2P payment systems in Europe, Asia and Africa (e.g., Kenya and the Philippines), have allowed the telecoms to manage the transactions and play a large role in how the systems are developed in these countries. However, there appears to be a trend in Latin America that the Central Banks will serve as a clearinghouse for all payments and will regulate and control the use of mobile payment systems—actually housing the servers that execute the payments. While this dichotomy does seem noteworthy, this document will only briefly consider these trends and their impacts.

SECTION 3: PROBLEM & CONTEXT

PROBLEM STATEMENT

TRANSACTION COSTS REPRESENT UP TO \$288 MILLION OR 43% OF THE BDH

In addition to the bottlenecks that BDH system artificially creates, an additional transaction cost is present regardless of the means by which the beneficiary receives his or her payment—reduction in productivity due to lost time at work. While it would be erroneous to assume that all of the 1.6 Million people who receive the BDH miss time at work to withdraw their payment, there is a non-zero cost that is represented by this activity in aggregate.

These transaction costs affect the rural poor most acutely, given that they have less access to ATMs and banks, than do urban dwellers. This case of more limited access translates into longer distances that the rural populations travel, therefore, higher transaction costs to withdraw the BDH. These transaction costs have been estimated by the MIES and the PPS at between \$10 and \$15 per person per transaction. In percentage terms, 29% to 43% of the value of the BDH is consumed via transaction costs.²⁵ Moreover, in aggregate these transaction costs represent up to \$288 Million of deadweight loss to society via transaction costs and inefficiencies.

²⁴ Rivera, Christian, General Manager for the SENATEL, interview held during meeting in the office of the National Secretariat of Telecommunications in, Quito, Ecuador, March 2011.

²⁵ Interview with Lic. Carlos Cañizares Garcés, Gestión de Proyectos, BANCO CENTRAL DEL ECUADOR. 10 March 2010.

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SIGNIFICANT TRANSACTION COSTS LIMIT THE POPULATION'S WILLINGNESS AND ABILITY TO SAVE

While little country specific data exists on this subject, economic theory holds that as savings transaction costs increase, individuals' willingness and ability to save decrease. Theory also holds that as savings increase, so does family economic stability. Therefore, increased transaction costs create lower savings rates, which in turn, contribute to more economic instability of the family. Lower transaction costs, on the other hand, will increase individuals' savings rate, therefore, contributing to economic security of the family, and nationally.

THE BDH ONLY ALLOWS FOR RECIPIENTS TO MAKE A SINGLE TRANSACTION PER MONTH LIMITS THE USEFULNESS OF PROGRAM

The GOVEC's social and economic inclusion CCT program, the *Bono de Desarrollo Humano*, pays \$35 a month to 1.6 Million families for a monthly total of \$56 Million, and annually of \$672 Million. Currently, this money can and must be withdrawn from a teller or ATM location in a single transaction. Therefore, these nominal bank accounts do little to increase savings rates, or financial inclusion of the poorest.

THE CURRENT SYSTEM CREATES UNNEEDED BOTTLENECKS THAT STIFLE ECONOMIC PROGRESS

Every month when the BDH is paid, bottlenecks, that drain the economy of productivity, are artificially created. From bottlenecks in transportation that slow commerce, to bottlenecks at banks that cripple the banking sector for one day a month (and increase congestion other days), to bottlenecks at shops where goods are purchased. Merchants must manage their inventory so as to have sufficient inventory for the rush of consumers on the days that the BDH is paid. These bottlenecks, while alone may seem insignificant, have ripple effects throughout the rest of the economy. While these effects, in aggregate, have not been quantified, this document assumes them to be more than zero, and expects them to be a significant drain on the economy.

THE *TARJETA MIES BONO RÁPIDO* IS AN INCOMPLETE ANSWER THAT IS FOCUSED ON CHEAPER, NOT BETTER SERVICE

While the addition of the *Tarjeta MIES bono rápido*, an ATM card that allows beneficiaries access to their payment on given days of the month has reduced the negative externalities in terms of congestion. However, the ATM technology is only in use by 28.2% of the 1.6 Million recipients according to the *Programa de Protección Social (PPS)*.²⁶ This payment scheme is less

²⁶ Samaniego, Pablo, Luis Tejerin. 2010. "Financial Inclusion Through the Bono de Desarrollo Humano in Ecuador." Washington, D.C.: MIX, 31 December. Inter-American Development Bank, Social Protection and Health

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of a convenience for the recipient, but saves the banks time, and resources. In short, the ATM solution appears to be more beneficial to the banks, than to the 1.6 million poor families.

FORCED COMPLETE WITHDRAWAL OF FUNDS NEGATES FINANCIAL INCLUSIONARY ASPECT AND INCREASES SECURITY CONCERNS DUE TO 3RD PARTY WITHDRAWALS

Security is also a significant concern that the Intern-American Development Bank Survey of beneficiaries in Quito highlights.²⁷ 23% of all beneficiaries have someone other than themselves who withdraws their money. By having someone else withdraw these funds, the chances of withdrawer using the funds increases, and so does the chance that the withdrawer will charge a commission to for his service. While it appears that the children of the family make a significant number of these 3rd party transactions, there are other transactions that are made by individuals who may misuse the BDH funds.

Moreover, the IDB study was conducted only in Quito, an urban capital. Given that transaction costs are lower for city dwellers to withdraw their BDH (due to the higher concentration of ATMs and banks) than for the rural populations, it is reasonable to expect that the percentage of rural populations who get others to withdraw their money to be even higher, and likely significantly so.

Since all of the cash must be withdrawn at once, there is an increased risk of loss or robbery versus a system where money can be used as it is incrementally needed. 5.8% of the cards were robbed in the first 8 months of their use—yielding an 8.7% annual loss or theft number. This would equate to the replacement of almost 140,000 new cards per year. While no data exists to represent the costs of replacing these cards, in Colombia card losses increased the cost of administering the program past what in-person, teller transactions cost.²⁸

SINGLE-SERVICE ACCOUNTS RESULT IN ONLY NOMINAL FINANCIAL INCLUSION

Only 36.8% of Ecuadorians have access to the formal financial sector—63% or 8.8 Million are unbanked.²⁹ In the literature, and in practice, making payments of the CCTs via an ATM card or in person by a bank teller does not contribute significantly to financial inclusion. While these

Division. TECHNICAL NOTES, No. IDB-TN-20. Accessed 4 April, at <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35522623>

²⁷ Samaniego, Pablo, Luis Tejerin. (2010)

²⁸ Marulanda, Beatriz. 2008. “Social Protection Payments: A Case Study of *Familias en Accion* in Colombia.” Presentation at DFID–CGAP G2P and Financial Inclusion seminar, South Africa, 3–4 November.

²⁹ Hoy. 2011. “El 36,8% de ecuatorianos tiene acceso a la banca.” *Hoy*, 11 January. Accessed on 4 April, at <http://www.hoy.com.ec/noticias-ecuador/el-368-de-ecuatorianos-tiene-acceso-a-la-banca-453755.html>

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recipients may well have a bank account (nominally), it is not a useful account for savings, insurance, making payments, or other financial needs of a poor home.

In a situation that is not unique to Ecuador, exposing these beneficiaries to banking products, and allowing banks the opportunity to cross-sell their financial services is frequently out-weighted by the additional cost that servicing these beneficiaries represents to the financial institutions. The beneficiaries' limited demand for financial services creates an environment where financial institutions cannot or do not attend beneficiaries' needs in a financial attractive manner.

Therefore, the financial inclusionary effect of the CCTs to these single-service accounts is limited in scope and in depth and offers little in terms of additional financial inclusion for the poor.

FINANCIAL INCLUSION VIA THE CRÉDITO DE DESARROLLO HUMANO MISSES THE MARK, BUT IS EASIER FOR BANKS

An interesting increase of financial inclusion arises from the *Crédito de Desarrollo Humano* (CDH). The CDH is a system where the beneficiary is provided with a loan that is guaranteed by the future monthly payments of the BDH. These loans have a below market rate of 5% interest (market being around +/-20%, and are repaid over 24 months). While this does increase the financial tools at the disposal of the beneficiaries, it fails to offer the service that most poor in the survey requested most—savings. In the IDB survey, 85% of all respondents indicated that they would like to be able to use the card for savings.³⁰

LIMITED BANK AND ATM ACCESS AFFECTS THE RURAL POOR DISPROPORTIONATELY—FURTHER INCREASING TRANSACTION COSTS

Bank and ATM accessibility also creates a problem for recipients of the BDH.³¹ While this is less of a problem for urban recipients, rural recipients are impacted more by the limited number of banks and ATMs outside of the main commercial centers of Quito, and Guayaquil and other secondary cities.

SECTION 4: OPTIONS

Given the scope of the problem, and the capacity constraints currently faced by the GOVEC, there is a clear role for the Mobile Money System in increasing the efficiency of the BDH in Ecuador. This section lays out three options for leveraging MMS to increase efficiency and effectiveness of Government to People transfers in Ecuador.

³⁰ Hoy. 2011. *Ibid*

³¹ Samaniego, Pablo, Luis Tejerin. (2010)

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OPTION 1: MAINTAIN LEGACY PAYMENT SYSTEM FOR BDH DISBURSEMENTS

This option advocates for leaving the current BDH system as-is with no change in the way that the BDH is currently distributed.

OPTION 2: TRANSITION SELECT BDH PAYMENTS TO THE MOBILE MONEY PLATFORM

This option advocates for identifying key populations that receive the BDH where the Mobile Money technology could be leveraged in the system that would meet the solution criteria. However, it leaves the option for not transitioning all BDH payments to the Mobile Money platform.

OPTION 3: TRANSITION ALL BDH PAYMENTS TO MOBILE TECHNOLOGY

This option advocates transitioning all BDH payments to the Mobile Money platform.

SECTION 5: CRITERIA AND ANALYSIS

CRITERIA³²

Each option will be evaluated on the extent to which it: 1) *Ensures political feasibility*, 2) *Maximizes efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients*, 3) *Has scalable impact to a national level*, 4) *Increases the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor*, 5) *Maximize adoption of mobile money system within the country*. These criteria were selected to ensure that the recommended options address the problem and are aligned with the missions of the National Government of Ecuador, the Central Bank of Ecuador and other key stakeholder ministries.

1. *Ensure political feasibility*

The current administration of Dr. Rafael Correa has two years remaining and will be eligible for reelection. The administration has high approval ratings. However, in order for Mobile Money to be implemented, the system must have at least a neutral effect politically. In no case will a negative political effect be acceptable.

Each option will be evaluated based on the extent to which it satisfies this criterion for political feasibility internally to the administration, and externally to the population. Under this criterion,

³² The criteria are arranged in accordance to their relative importance.

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public stakeholders will be defined as all stakeholders who are in the voting populous and as all non-voting institutions that may have political and economic influence. Internal stakeholders refers to all individuals and organizations in the government that have political influence over this set of decisions.

This is a threshold criterion and is ranked highest due to its importance in regard to implementation. If this criterion is not satisfied, the government will not support the option, and therefore would render the option non-implementable.

2. Maximize efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients

Any change in policy that utilizes the Mobile Money system must increase overall efficiency gains to the government and/or to the BDH recipients. Moreover, these efficiency gains must not result in increased overall costs to either recipients or government. These costs will be accounted for in both real costs and opportunity costs incurred by either party.

This is a threshold criterion and is ranked high due to its importance in regard to making the political case for the intervention. If this criterion is not met, the government will not support the option, and therefore would render the option non-implementable.

3. Scalable impact to a national level

While it is likely that any implementation will initially be rolled out via a pilot project and only on a small scale, each option will be judged by its ability to achieve scale of impact. In this context, we define scale as the ability to roll out the option on a national basis. Any solution that is not scalable to a significant portion of the nation will not be considered.

While this criterion is not a threshold criterion, a significant scale will be important for the implementation of the alternative that is selected.

4. Increase the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor

The gap between the demand for multi-service accounts (84% of BDH beneficiaries) and their supply by the private or public sectors leaves the poor with inequitable access and decreases utilization rates of essential financial tools like savings accounts and payment services.³³ This paper seeks to address this gap and alleviate the associated problems by increasing the supply of these services.

Each option, therefore, will be evaluated on the extent to which it increases the supply of affordable, multi-service financial tools for the poor and marginalized—specifically the recipients of the BDH. Under this criterion, increasing the supply means increasing the total number of multi-service accounts available for this population. The term multi-service means

³³ Samaniego, Pablo, Luis Tejerin. (2010)

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that they offer, at a minimum, a savings account and recipient account for the poor. Driving financial inclusion of the poor refers to services that are flexible, financially accessible and available at a national scale.

While this criterion is not a threshold criterion, financial inclusion will be an important political value-add and will likely ensure that the acceptance of the policy option that is selected.

5. *Maximize adoption of Mobile Money System within the country*

The Central Bank of Ecuador’s key focus is that the selection of a social program on which to implement the mobile money system must drive wide adoption of mobile money. This metric will be measured by an average percentage increase in the number of Mobile Money users on a national basis. Finally, while this is an important criterion, it is considered last because it is somewhat less significant compared to the other criteria.

This criterion is not a threshold criterion. Financial inclusion will be an important political value-add and will likely ensure the acceptance of the policy option that is selected. The fulfillment of this criterion will also contribute to the option’s political feasibility.

ANALYSIS

Each option is analyzed on the above criteria to produce final recommendations that address the problem at hand in a sustainable manner and are aligned with the missions and capacities of the Central Bank of Ecuador and the Government of Ecuador. Options are given a summary score, on a scale of zero to five, for each criterion. Options that best satisfy a criterion are scored five and options that do not satisfy the criterion are scored zero. Options scored three may improve the situation but only moderately. The scoring is not intended as a precise measure, but as a mechanism for comparing options across criterion.

ANALYSIS OF OPTION 1

Maintain Legacy Payment System for BDH Disbursements

<i>Political feasibility</i>	<i>Maximize efficiency gains without increasing cost</i>	<i>Scalable Impact</i>	<i>Financial inclusion of the poor</i>	<i>Adoption of mobile money</i>	<i>Aggregate Score</i>
5	0	5	2	0	2.6

Summary Analysis of Option 1

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Overall, the “as-is” option of continuing with the legacy payment system scores an aggregate 2.6 of a possible 5. Given that this is a current program that has political momentum, this option shows strong political feasibility. This option does not increase efficiency, and will increase costs to government and to recipients over time. The option is already at a national scale, and depends on recipients to incur the majority of the transaction costs that allow for this type of scale—having somewhat of a counter effect to overall program efficiency. The option only partially increases the financial inclusion of the poor. Finally, the legacy system does not contribute to the adoption of the mobile money system.

Criterion 1: Ensure political feasibility

Given that the legacy system of BDH payments is already in place and is suffering no significant pressure to change from government, or the populous, the political feasibility of this option is driven largely due to momentum. Governmental executives have limited knowledge of other options available (e.g., MMS), and the knowledge of other alternatives by the populous appears to be even less. Given the political momentum of the legacy payment system, and the lack of awareness of other options available, this option receives the highest score on political feasibility.

Criterion 2: Maximize efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients

The legacy payment system option does not maximize gains to efficiency because of the high transaction costs that are incurred by the populous, banks, the government, and others. Not only does this option not satisfy this criterion for increases in efficiency, it will likely continue to increase in cost as bank’s opportunity cost for serving this population increase. Moreover, these costs will increase without additional service being provided to the individual. Finally, as transportation and opportunity costs of the BDH recipients increase, so will the overall inefficiencies of the system.

Therefore, this option, instead of increasing the efficiencies and reducing costs will actually produce an inverse effect – increase costs, and reduce current efficiencies. This option receives a zero on this criterion.

Criterion 3: Scalable impact to a national level

Given this option’s current national coverage, in terms of population reached, it is viewed favorably. However, this national coverage is dependent on BDH recipients’ willingness and ability to travel long distances to banks in order to receive their payment. The current system is accessible to a significant number of beneficiaries, therefore contributing to this option’s high rating. The argument, however, as is made in other criteria, is that while the legacy method has significant scope in terms of population accessibility, it comes at a high cost to efficiency to the individual.

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That is, while costs to the government remain the same on a per person service charge (via the bank charges for distribution)³⁴, the national coverage of the BDH is currently significant because the government transfers the costs to the BDH beneficiary.

Given the government and banks can transfer these additional transaction costs to beneficiaries to achieve national coverage, the government has been able to reach significant national scale. For that reason, this option receives a score of five for national coverage.

Criterion 4: Increase the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor

This option only partially satisfies this criterion. The legacy BDH payment system does provide “better than nothing” access to the formal banking system via an account to which the beneficiaries can receive payments. However, it does not provide useful services other than this payment service. Savings cannot be deposited to these accounts, nor can these accounts be used to make 3rd party payments (e.g., checks). The accounts only provide for a minimal level of banking to the BDH recipients. In this sense, this option only partially drives financial inclusion for the poor.

Given the BDH and its dependence on the formal banking sector, the 1.6 million recipients do have more interaction with the formal banking sector, than in the absence of the BDH. Therefore, theory holds that given more access there are some BDH recipients who may access additional service that the banks, and other financial institutions offer and thus drive financial inclusion to some degree.

For these reason, this option receives a score of two for minimally and only partially driving financial inclusion of the poor.

Criterion 5: Maximize adoption of mobile money system within the country

This option does not address this criterion and, thus, receives a zero.

³⁴ That is to say that a bank charges the government the same fee to distribute the BDH to someone who traveled one mile and to someone who traveled one hundred miles.

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ANALYSIS OF OPTION 2

Transition Select BDH Payments to the Mobile Money Platform

<i>Political feasibility</i>	<i>Maximize efficiency gains without increasing cost</i>	<i>Scalable Impact</i>	<i>Financial inclusion of the poor</i>	<i>Adoption of mobile money</i>	<i>Aggregate Score</i>
4	4	5	4	4	4.2

Summary Analysis of Option 2

Overall the “transition select BDH payments” option scores an aggregate 4.2 of a possible 5. *BanRed* and others who benefit from the current system will likely create political pressure for the system to remain unchanged. However, recipients and banks stand to benefit from this payment system and will improve political feasibility. A dual system approach (both legacy and MMS) would require additional resources to administer and monitor, but would also allow BDH recipients to maximize their personal efficiencies by choosing the system that is most beneficial for them—maximizing overall system efficiency. By taking advantage of the current system and leveraging any new coverage that the MMS would offer, this option is able to reach national scale.

Moreover, by offering BDH recipients multi-service accounts, this option will significantly drive financial access to the poor. Finally, by exposing this service to 1.6 million families, this option leverages the MMS adoption significantly.

Criterion 1: Ensure political feasibility

The political feasibility of this option depends largely on the extent to which BDH recipients are forced, or given the option to transition their payments to the Mobile Money platform. That is, the greater the number that is forced to transition, the less political feasibility this option will have. As the number of BDH recipients that are transitioned to the MMS increases (forced or unforced), banks, *BanRed* and other stakeholders that have an economic incentive to maintain the legacy system will continue to create greater political opposition. In turn, this opposition decreases overall political feasibility.

If the entire system were based on an “opt-out” clause whereby recipients were automatically signed up to receive their payment this way, but there were ways in which the payment could be received via the legacy system, political feasibility on the recipient side would be significantly increased. Formal financial institutions might well be inclined to support the initiative if it

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reduced their congestion, and provided them with more opportunities to serve the BDH population. This opportunity may come about via new financial products that could be provided to the BDH population that leverage volume to reduce transaction costs.

Due to this options implementation flexibility, this option receives a score of four on political feasibility. The main reason why it did not receive a complete score is that this option still removes *BanRed* from the value chain. This will likely cause some type of political pushback.

Criterion 2: Maximize efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients

This option would significantly present government with an opportunity to drive increases in efficiencies via decreasing programmatic costs. What is more, BDH beneficiaries will also see a significant decrease in their transaction costs. Therefore, there would be overall efficiency gains throughout the system, primarily driven by lower costs.

On the contrary, a dual payment system (in which some people are paid via MMS and others are maintained on the legacy system) would generate systemic inefficiencies that limit this option from taking full advantage of the efficiencies available. An example of that inefficiency would be ensuring that recipients are paid by one and only one channel. Ensuring this type of control should not be difficult, but does require using resources for monitoring and control of the system. In administering the “opt-out” clause of the program, there are additional inefficiencies that create costs for the system.

However, within a system where BDH recipients are given the option to choose how they would prefer to receive their BDH payment, rational behavior theory indicates that the recipients would make the most efficient choice between options, given their individual circumstances. Thus, allowing this method to reach a higher efficiency equilibrium than mandating that all recipients receive the payment via one channel or the other.

In summary, this option would create a dual system that will have increased administration and control costs. Contrarily, increased system efficiencies are produced from recipients being able to maximize their individual efficiencies. Given these constraints, this option receives a score of four.

Criterion 3: Scalable impact to a national level

This option leverages the benefits of having a dual system operating approach by taking advantage of the current national scale of the legacy payment system. At the same time, this option benefits from any cost and efficiency savings that could be seen as a benefit from making these transactions more easily accessible.

Since the current payment system has national scope, by leveraging that system, this option would also have that same national scope. Furthermore, in areas where the current legacy system does not have coverage, the MMS would increase existing coverage.

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This option receives a five in terms of scalability to a national level due to its ability to build on the current system and leverage any coverage increases from the MMS.

Criterion 4: Increase the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor

By providing a platform that is accessible to all recipients, this option will increase the financial inclusion of the poor. However, it does not maximize this criterion due to the portion of the population that may self-select out of receiving their BDH payment via this method. Even if a portion of the population does self-select out, that does not mean that they are better off not having a multi-service account. Rather, it may mean that there are other perceived switching costs that keep the user from taking advantage of the full suite of benefits that the product offers.

This option does not maximize this criterion, but it does significantly increase the supply of multi-service accounts that the BDH recipients have access to. Therefore, this option receives a rating of four for not completely fulfilling the criterion.

Criterion 5: Maximize adoption of mobile money system within the country

This option could significantly drive the adoption of the MMS. However, the extent to which it will drive that adoption depends on how beneficiaries' are encouraged/able to switch to the MMS. For example, in an "opt-in" to the MMS scenario, the impact of this option is less significant given that beneficiaries would be slower to adoption according to the theory of behavioral economics. Contrarily, if an "opt-out" clause were used, the impact of this option on the adoption of the MMS would be more significant.

In either case, however, opening the MMS to 1.6 Million families will no doubt drive the adoption of the system significantly. For this, this option receives a rating of four in terms of its ability to drive MMS adoption.

ANALYSIS OF OPTION 3

Transition All BDH Payments to the Mobile Money Platform

<i>Political feasibility</i>	<i>Maximize efficiency gains without increasing cost</i>	<i>Scalable Impact</i>	<i>Financial inclusion of the poor</i>	<i>Adoption of mobile money</i>	<i>Aggregate</i>
3	5	4	5	5	4.4

Summary Analysis of Option 3

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Overall the “transition all BDH payments” option scores an aggregate 4.4 of a possible 5. Forcing BDH recipients to receive their payments via the MMS will likely create political opposition. The political feasibility of this option is difficult to determine given the impacts it has on stakeholders. By removing *BanRed* from the value chain and forcing BDH recipients to transition to the MMS, political opposition will reduce the political feasibility of the option. However, the financial sector and the majority of the BDH recipients will likely be in favor of the MMS and create a more politically favorable environment.

Creating a single MMS payment system will reduce the costs of maintaining dual payment systems. However, the single payment system will potentially leave out those who do not have a cell phone or whose community does not have signal. However, given that the cellular network has significant coverage, and cell phone penetration is assumed more than 90%, the national scalability of the program is possible.

Finally, given this national reach, the “transition all BDH payments” option would provide financially inclusive, multi-service accounts and force recipients to use the MMS on a national basis—driving adoption of the MMS platform.

Criterion 1: Ensure political feasibility

Transitioning all BDH payments to the MMS will create several political opponents that will contribute to this option’s partial political feasibility. The government would see increased benefits from efficiency gains. However, *BanRed* would be completely removed from the system. Banks and other financial institutions would be political in favor of a full transition based two key reasons. First, they would be able to focus on higher-value clients instead of having to dedicate one day a month to paying clients that are relatively low-value. Secondly, the financial institutions would also focus their efforts on the BDH recipients towards higher-value transactions that are conducted virtually—credit, savings, and insurance, for example.

However, some BDH recipients would weaken this option’s political feasibility because they would prefer to receive the payments via the legacy system. In a system of where no payments are made via the legacy system, those BDH recipients that do not have cell phones, would effectively be left out and not receive the payment. It is also plausible that BDH recipients may not be under cell phone coverage, and therefore would see increased inconvenience and transaction costs due to the implementation of this option. However, based on cell phone penetration rates, it is believed that very few people fall into the category where they would experience increased transaction costs in a MMS scenario.

The vast majority of recipients, this paper assumes, would rather experience the switching costs associated with their transition to a new payment system, versus continuing to lose 29-47% of their BDH in transaction costs. These transaction costs could be reduced to near zero according to Central Bank figures based on estimated cost structures that would produce a transaction cost of between \$0.01 and \$0.05. Furthermore, this analysis does not consider other advantages that the BDH recipients would receive from their usage of the MMS.

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For these reasons, this option only partially satisfies this criterion with a rating of 3. The accuracy of this rating will largely depend on three variables: 1) how the population sees the benefits from switching to the MMS, 2) the banking sector's ability to develop new revenue streams, while focusing on higher-value/lower-cost transactions, 3) *BanRed's* political influence *vis-à-vis* the other variables mentioned above.

Criterion 2: Maximize efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients

By transitioning to the MMS as a single payment system, the government recipient, and system will see the highest efficiency equilibrium by driving costs lower. In this scenario, there is a single payment system that reduces monitoring and administration costs. While this scenario ensures that the majority of individuals will use the lowest cost, and highest efficiency method, there may be individuals who will be forced to use the MMS when the legacy system might have been more efficient for them individually. Based on estimated transaction costs, cell phone coverage, and cell phone penetration in Ecuador, the proportion of the population that will be forced to a less efficient equilibrium under the MMS is assumed to be minimal, if not zero.

In summation, this option is rated five on overall gains to efficiency while not increasing costs. This document assumes that the MMS will increase efficiency to all parties: recipients, government, and to the system. Driving costs lower creates most of the increases in efficiency.

Criterion 3: Scalable impact to a national level

The total transition to the MMS system will be complicated in areas where cell phone ownership and signal are low. While the SENATEL does not possess either of these data points, (what percentage of the population owns a phone, or what percentage to the population is under cell phone coverage), it assumes that both are high, and above 90%.³⁵ However, the current model of in-person payments does not need this type of infrastructure to have national scale and is already at national scale.

While a total conversion to the MMS would reach a national scale, it is likely that there are places where people live that do not receive cell phone signal, rendering the MMS much less useful. Secondly, there are likely to be individuals who do not have cell phones that would be left out in this system. Again, both of these figures are assumed to be minimal, but would result in some recipients having to find alternative payments methods.

Overall, this option receives a score of four. This option, while reaching a national scale quickly, does possibly leave out some populations. Therefore, while it mostly satisfies the criteria, it does not completely satisfy.

Criterion 4: Increase the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor

³⁵ Rivera, Christian, General Manager for the SENATEL, interview held during meeting in the office of the National Secretariat of Telecommunications in, Quito, Ecuador, March 2011.

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This option completely satisfies this criterion. By forcing all 1.6 million BDH recipients to receive their payments through the MMS platform, they are, by default, being provided with a multi-service account that would include a savings option.

This option would significantly drive financial inclusion via providing the 1.6 million beneficiaries with access to the formal financial sector. It would also create a critical mass that would encourage financial institutions to craft products that would leverage the large market that is accessible at a lower cost—further driving financial inclusion of the poor.

This option fully satisfies the criterion and is rated a five.

Criterion 5: Maximize adoption of mobile money system within the country

By forcing the BDH recipients onto the MMS platform, the government could drive the adoption of the technology very rapidly. By allowing the individuals to choose if they would like to be transferred to the MMS or by allowing them to opt-out, adoption becomes much less predictable.

However, in this case, the government can mandate the usage of the MMS system. This mandate power will force adoption, and will create a critical mass that will draw the private sector into the market. The private sector will likely continue to offer more products, and continue improving the service that is provided. Improved service and new products will bring even more users onto the platform, thus forming a virtuous cycle.

This option completely satisfies this criterion by pushing the MMS to the BDH recipients. It also creates a virtuous cycle that will drive the adoption of the MMS in the economy over a sustained period of time. This option receives a rating of five.

SECTION CONCLUSION

Analysis in this section has explored in depth the potential benefits of three policy options. Based on this analysis, the options that best achieve the stated purpose of this paper to recommend to the Government of Ecuador how to best leverage the implementation of a Mobile Money System to increase the efficiency of current governmental conditional cash transfers is a combination of options 2 (transition selected CBH payments to the MMS) and option 3 (transition all payments to the MMS). These options best satisfy the stated purpose and present sustainable changes that benefit the current activities of the GOVEC and the CBE.

SECTION 6: RECOMMENDATIONS AND CONCLUSION

RECOMMENDATIONS FOR IMPLEMENTATION

Transitioning all BDH recipient payments to the MMS has significant potential to increase the efficiency of current governmental conditional cash transfers. This section will provide recommendations that draw on the above analysis.

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Options 2 and 3 can be considered independently or as a single option that can be phased in over time.

Option 2 focuses on transitioning some, but not all of the BDH recipients' accounts to the MMS. This recommendation focuses on increasing political feasibility during the transition, by allowing some level of flexibility to the transition. In turn, this option does not take advantage of the full gains in efficiency of a single payment system. Nor does this recommendation leverage the network effects that are generated by instantly forming a critical mass of BDH recipients on the MMS system.

Option 3 transitions all 1.6 million BDH accounts to the MMS. By doing so, it is benefited by the critical mass that generates network effects, and the single payment system efficiencies. However, it loses a significant portion of its political feasibility in the process.

This document recommends a combined approach of option 2 and option 3. Initially, the MMS system should be phased-in for BDH recipients. While it is outside of the scope of this document, this should be an opt-out system where recipients must complete a petition to the BDH administrators for them to be considered for the legacy payment system. Overtime, however, all BDH recipients should be transitioned to the MMS payment system. By these means, all of the benefits of the complete transition to the MMS are captured, while still preserving the political feasibility of a partial initial transition.

The analysis recommends that the GOVEC execute a pilot rollout that will produce initial strategy feedback. Based on this feedback, adjustments to the plan can be made in order to have a successful full-scale rollout.

RISKS TO CONSIDER

GOVEC benefits from access to information, but has to reassure the public that it will not be used against them

While this is more of a MMS platform question, concerns over secrecy of information are important. BDH recipients are allocated \$35 a month to spend. However, with the MMS system it is imaginable that purchase information would be obtained, and recipient spending patterns be scrutinized. If that is the case, then two questions arise: 1) Who will have access to this data and 2) how will BDH recipients be reassured that the data will not be misused.

Moreover, GOVEC stands to benefit from additional insights into the informal sector that will enable the government make better policy decisions. With that said, however, this information could be used against the BDH recipients (e.g., misuse of funds to purchase items that the BDH was not intended for).

Further more, in a scenario where more and more transactions are taking place via the MMS, the GOVEC would gain increased insight into consumer and voter behaviors that might also allow better, and more equitable policy making.

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Creation of a new currency in a country that has had various currency crashes may prove difficult to achieve quick population buy-in

Since the early 1900s, Ecuador has experienced several severe currency crashes and devaluations. In 2000, after the dollarization of the country, a portion of that risk was eliminated due to the use of an internationally recognized currency. However, the MMS system does create a new currency that will be managed by the CBE. Given this potential partial reversal of the dollarization policy (via introducing a new currency to the national market), there is an increased risk of misuse of the monetary supply levers.

Not only does this cause a possible policy risk, it also indicates that the national levels of trust in the MMS system may be a significant barrier to implementation and reaching a critical mass of users.

Insufficient number of agents and difficulty with the “cash-in” & “cash-out” transactions

At some point, one will be able to move between using either the dollar or the MMS. However, until that point, change agents will be an important part of the system. As individuals work between both currencies, the CBE will need to ensure that there are a sufficient number of agents.

As has been the case in other countries that have implemented the MMS, one of the most significant barriers to the success for this system has been the inadequacy of the cash-in and cash-out transfers. How the CBE and the GOVEC manage this bottleneck will be important in their ability to reach scale within the country.

The system will lack critical mass to achieve network effects

Reaching a critical mass will be absolutely essential for the MMS to add value and produce significant efficiency gains. Unless the GOVEC rolls out the MMS using a mass G2P payment such as the BDH, uptake of the technology may well be slow and incomplete. However, by using a system like the BDH to push the technology to 1.6 million families and force them to transact using the MMS could reach a critical mass in a shorter amount of time.

Pricing of the MMS transactions will need to be studied so as to fix a price that incentivizes BDH beneficiaries (and other citizens) to use the MMS. Ariely (2008) refers pricing strategies and “The Cost of Free” that may help drive the critical mass that will be important for the effectiveness of the MMS to be realized³⁶. While this aspect is outside of the scope of this document, it will be important in generating the critical mass necessary for the MMS and, therefore, to make BDH payments via the MMS.

Private sector response is unknown, but could fill important efficiency gaps in cash-in and cash-out transactions

³⁶ Ariely, Dan, Predictably Irrational, HarperCollins, 2008.

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The private sectors usage of the MMS, and their response to the GOVEC using the MMS to pay the BDH was not considered in this document. This analysis should be carried out, and investigated in the pilot.

Specifically, future studies should investigate a market for *currency conversion arbitrage*. The brief analysis in this document indicates that while the CBE pays agents to change currency at a given rate, the private sector will likely arbitrage the market to fill market inefficiency gaps. In short, if the government moneychangers (agents) are not available in sufficient supply or at the appropriate cost, private individuals will serve as arbiters in an effort to earn a profit.

There is a danger of misuse of the MMS for illicit activities

Even given the limits that are set on amounts of money that can be transferred via the MMS, illicit activities (e.g., drug transactions) will possibly take place via the MMS. A key concern is how the GOVEC will ameliorate these risks.

With MMS, there is a need for redesigned bankruptcy legislation

Never before has there been a situation where the use of the currency would be impossible until one has repaid his debts. There will be a scenario where an MMS user will to have an outstanding debt drawing on his account. Every time he converts cash to the MMS, or receives an MMS payment, the money would flow from his account to the creditor's. In essence, the debtor would not be able to use the MMS until he canceled his debts to the creditor.

While this feature may increase the number and offering of loan-based financial products due to creditors' increased ability to recover their assets, it may be impractical and further contribute to the informal market. Furthermore, this arrangement may artificially give too much power to the creditor to recover his debts from the debtor. Finally, this type of risk exposure will slow the uptake of the MMS and increase time to reaching a critical mass.

New legislation protecting the MMS from this type of activity should be investigated, and will be needed to protect the users from overaggressive creditors.

Working with other governmental stakeholders is essential for a successful launch

The political feasibility within the government will be crucial for the successful transitioning of the BDH payment from its current legacy system to the MMS based payment system. Principally, the Social Protection Program at the Ministry of Economic and Social Inclusion has been somewhat resistant to the idea of a significant transition to the MMS. Given the apparent resistance, a significant portion of the effort will need to be focused on navigating the political barriers, and reaching toward upper level government executives to push the initiative forward.

Without upper level support (i.e., from the president), BDH payments using the MMS will reach political roadblocks that will stagnate, if not eliminate implementation possibilities. Given the BDH's significance to the rollout of the entire MMS payment system (creating network effects), leveraging key contacts will be important to this aspect of the project, but will also be crucial in the rollout of the MMS to the greater population outside of the BDH recipients.

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There is an increased need for understanding how to work with key private sector stakeholders

While on the local level private sector will likely arbitrage the market to resolve inefficiencies, at a national level, key economic players will need to be brought on board to accept the MMS payment systems. While this is outside of the scope of this paper, it will be important to reaching a critical mass, nonetheless.

However, private sector innovation in this space will be a key economic driver, and further increase the critical mass needed for the MMS to be beneficial to individuals and corporations.

Pico y Placa Payments: Pay the BDH on a rolling basis

So as not to create the artificial bottlenecks (at banks, on buses, and in stores) that ripple throughout the entire economy that are created by the legacy BDH payment system, the GOVEC should pay BDH recipients via the MMS according to their social security number throughout the whole month. That is, the population who's SSN ends in 00, 01, 02, 03 or 04, would receive their payment on the first day of the month. Subsequently, on day two those with a SSN ending in 05, 06, or 07, would receive their MMS payment. This process would continue until all of the BDH population received their payment, and would restart the following month.

CONSIDERATIONS FOR THE PILOT PROJECT AND TAKING MMS TO SCALE

The pilot as a proof of concept

A key success of the pilot will be the proof of concept. Not only will this prove the technology, but it will also substantiate beneficiaries' use and benefit from the MMS payment system. With the information from the pilot, convincing other individuals and policy-makers for a larger-scale rollout will be more feasible.

Duke University involvement in design of pilot

Careful consideration should be taken in the design, implementation, and interpretation of the results from the pilot study. Given Duke University's expertise in this type of engagement, the GOVEC should seek out qualified members from the academic faculty with experience in service delivery, governmental change, and controlled experiments to serve as the designers of the pilot.

Furthermore, once the proper specifications for the pilot are determined and implemented, the research team should be able to interpret the results. This interpretation would yield an analysis of the adjustments that need to be made, and how best to modify the pilot for full-scale rollout.

RECOMMENDATION 1: ROLLOUT THE MOBILE MONEY SYSTEM PAYMENTS TO BDH RECIPIENTS ON A SELECTED BASIS

Option 2 is not the most desirable option on four of the five criteria: 1) maximizing efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients, 2) scaling impact to a national level, 3) increasing the supply

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of multi-service accounts that include a savings option and drive financial inclusion of the poor, and 5) maximizing the adoption of mobile money system within the country.)

However, option 2 does completely satisfy the political feasibility threshold criterion. This aspect of this recommendation will be critical in getting buy-in from the various stakeholders on the issue. Going to a full rollout seems to risk a significant backlash by some or all of the stakeholders.

RECOMMENDATION 2: AFTER RECOMMENDATION 1 HAS BEEN ACCEPTED BY THE BDH RECIPIENTS, ROLLOUT THE MOBILE MONEY SYSTEM TO ALL BDH RECIPIENTS

As illustrated in the above analysis, option 3 best meets the criteria of 1) maximizing efficiency gains to the government and BDH recipients, without increasing overall programmatic cost to the government or to BDH recipients, 2) scaling impact to a national level, 3) increasing the supply of multi-service accounts that include a savings option and drive financial inclusion of the poor, and 5) maximizing the adoption of mobile money system within the country.

However, option 3 does not completely satisfy the threshold criterion of political feasibility and would likely be more difficult to implement. By allowing early adopters to selectively switch to the MMS platform (option 2), and for BDH recipients to get used to transacting in by this new method, a final transition to the MMS platform would be less disruptive, and more politically feasible.

GUIDELINES FOR IMPLEMENTATION

A gradual approach will be necessary to ensure political feasibility, while still capturing all of the MMS benefits. For this reason, this document recommends that initially the GOVEC start with a partial rollout and gradually phase-in a complete rollout of the MMS platform for BDH payments.

SECTION 7: FURTHER RESEARCH

Based on the case studies and analysis in this document, there is a strong case for Ecuador to at least partially shift its Conditional Cash Transfers (BDH) to the Mobile Money platform. This section seeks to expand the vision of where and how the MMS might be used to increase governmental efficiency in other programs. Here we call the reader's attention to several high-impact options for leveraging the MMS technology. While they are only considered at a high-level in this document, they do warrant further, deeper consideration as policy options.

FINANCIAL INCLUSION: THE BUSINESS CASE FOR OVERCOMING TRANSACTION COSTS

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Of Ecuador's 14 Million inhabitants, only 36.8% or 5.2 million people, have access to the formal financial sector.³⁷ That means that 8.8 million people do not have access to the formal financial sector. Even assuming that the average income of these individuals is \$2/day³⁸, that creates a 17.7 million dollar a day revenue. Furthermore, if we assume a 6% savings rate (similar to that of the United States), and annualize the total national savings we see \$387 million a year in national savings.

Currently, however, actually depositing that money in a formal banking account would require too high of a transaction cost—outweighing the benefit from the system. Therefore, much of that almost \$400 million savings market is actually invested locally in-kind or consumed due to not having an appropriate place to store the funds that provide safety, and a possible return.

However, by leveraging the almost zero transaction cost feature of MMS, financial markets could absorb the \$400 million and reinvest that money in developing the country—privately or publicly via the government. Not only could that money be used to develop the national economy, but it could also generate a return to investors (savers in this case)—stimulating an even higher rate of savings and contributing to the virtuous funding cycle.

While enabling the savings markets does also provide an interesting business case, there is an opportunity for financial institutions to lower transaction costs for Bottom of the Pyramid (BoP) populations. Lowering transaction costs would allow the financial institutions to generate a profit and provide much needed financial services to the BoP.

PAYPAL.COM AND SIMILAR SERVICES COULD LIMIT THE MMS' USEFUL LIFE

The GOVEC is investing considerable resources in ensuring the functionality and acceptance of the MMS platform. While this platform has the possibility to change the dynamic of the local economy, and reduce transaction costs significantly, technology continues to evolve. One such evolution, the 3G network that allow Internet connectivity, is already functioning in much of Ecuador.

With only superficial analysis, we see examples of possible competing platforms for mobile payments. Paypal.com for example, is a P2P payment system that uses the Internet as a platform to make transfers from one account to another. Currently, PayPal is not restricted in Ecuador, and can be used to make payments (drawn and deposited on international accounts). In short, the means already exist for Ecuadorians to make mobile payments without the need for the MMS. Therefore, the means already exist of private parties to make MMS-like transactions, but that go around the government using an Internet platform.

³⁷ Hoy. 2011. "El 36,8% de ecuatorianos tiene acceso a la banca." *Hoy*, 11 January. Accessed on 4 April, at <http://www.hoy.com.ec/noticias-ecuador/el-368-de-ecuatorianos-tiene-acceso-a-la-banca-453755.html>

³⁸ Earth Trends. 2003. Ecuador Country Profile, 11 January. Accessed on 4 April, at http://earthtrends.wri.org/pdf_library/country_profiles/eco_cou_218.pdf

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Currently, one of the key limiting factors for this type of technology explosions (e.g., PayPal) to happen is the limited penetration of Smartphones in the Ecuadorian market. In conversations with the SENATEL, initial statistics indicate that less than 1% of all Ecuadorian cell phone lines are connected to Smartphones. However, as is the case with technology and economies of experience, products tend to become less expensive as time passes. In fact, in March 2011, Nokia announced the release of a \$99 smartphone.³⁹ The lower price point for non-smartphones in Ecuador is around \$35-\$45. That said, as smartphones continue to see reduce prices, and consumers are exposed to the advantages of Internet access, smartphone penetration in Ecuador will continue to increase.

With an increase in smartphones, other P2P options like PayPal.com will become available for Ecuadorians to leverage. The government of Ecuador will have little control over these transactions. Moreover, it will have little authority to collect taxes on these transactions or limit their usage for illicit activity.

On the contrary, the country could see benefits from this type of transactions via PayPal.com, for example in the remittance space. The +\$3 billion that are remitted to Ecuador each year may increase due to decreases in transaction costs—yielding a net benefit to the country.

However, the more troubling aspect of the scenario is that there is little indication that the GOVEC is planning for this type of evolution of the technology. The opportunity for policy makers is to anticipate what impact a rapid expansion of Internet access will have on the country. Specifically in this case, the GOVEC should be aware of the impact of a mobile payment system that may draw on an international account to cancel debts within the country.

While this payment revolution stands to have a significant impact on Ecuador vis-à-vis the rest of the world, this is a subject that will have significant impacts on many of the countries in the world, not just Ecuador.

E-VOUCHERS VIA THE MMS SEEM TO BE THE WRONG MOVE

As part of the regulation on MMS in Ecuador, a loophole has been left that will allow the transfers of vouchers for goods. One can imagine that the e-vouchers would be similar to a ration card, but electronic. The main focus of the vouchers is to ensure that the recipients (e.g., poor families) do not spend their money on unintended merchandise, beer for example.

The main idea is that you issue the family a voucher for a gallon of milk, and that family must use it to buy the gallon of milk, not for anything else. While the an e-voucher concept appeals to the “common sense” of many voters and law makers in terms of political feasibility, it seems that the e-voucher would hold little value in the real economy.

³⁹ The Venure Beat. 2011. “Nokia releasing yet another cheap Symbian smartphone.”, 31 March. Accessed on 4 April, at <http://venturebeat.com/2011/03/21/ctia-symbian-astound-nokia/http://venturebeat.com/2011/03/21/ctia-symbian-astound-nokia/>

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In the real economy, the e-vouchers would likely be sold on a “gray-market” if the recipient did not want to use the item to which the voucher allowed access. Rather, the gallon of milk could be sold for cash that would in turn be used to buy the product that the recipient might have wanted in the beginning—beer. Furthermore, the costs of enforcing these e-vouchers would be high, and an unproductive uses of resources. Thus, the issuance of vouchers would create and further a gray- or black-market system that undermines the initial intent.

REFORMING THE LPG SUBSIDY AS ANOTHER OPTION TO USE THE MMS SYSTEM?

Given the regressive nature of the current LPG subsidies, the MMS could be used to focus cash payments that reverse the regressive nature of the current subsidy. The regressive nature of the subsidy is such that the bottom decile receives \$70/yearly subsidy and the top decile receives \$170 from the subsidy, according to the Central Bank of Ecuador’s statistics in confidential papers.

Of the overall \$1.1 billion in subsidies, nearly 25% of the domestic LPG is sold as contraband to Colombia and Peru where the world market price prevails. Simply controlling the contraband would represent over \$300 million in revenue that would be returned to the government. Moreover, there is a significant level of internal contraband that takes domestic gas (subsidized for home and restaurant purposes) that is used for industrial purposes.

At current, the breakeven analysis indicates that if the GOVEC used the MMS for direct cash subsidy payments to the poor (the 1.6 Million families that currently receive the BDH) the GOVEC could issue them a cash payment that would represent a \$57 a month. Those 1.6 million families are currently receiving about \$16 per family in benefit from the subsidy.

By issuing a cash payment and increasing the internal price of LPG to the world market price, the GOVEC would drive reduced gas consumption, and pollution. Furthermore, the GOVEC could transition those families (the poorest) to electricity that is currently cheaper to subsidize, and would take advantage of the natural hydrologic resources that the country has. This could be a program that exchanges free electric stoves for gas stoves that would be destroyed.

In addition, a significant advantage of electricity is that it can be metered to the house, and is more difficult to sell as contraband when compared to the current LPG system.

In terms of political feasibility, eliminating the internal contraband might cause political instability. Moreover, eliminating the contraband to Colombia and Peru may cause political unrest for the families that currently make their money from this business. However, political feasibility would be increased because the GOVEC currently purchases all of the subsidized LPG from the US. If the GOVEC could leverage this relationship and break its ties with the US, the national political feasibility would be increased.

Finally, with the potential savings that would be incurred, the GOVEC could invest in building hydrologic power generation plants that would drive the cost of electricity down in the country. Moreover, it would allow the GOVEC to make investments in the infrastructure of the country

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that would continue to pay dividends in terms of jobs. The GOVEC typically takes out significant loans from other governments to finance their infrastructure investments. However, in this setting, the income that is currently being paid in subsidies could be invested in the infrastructure of the country, instead of being paid in interest to other governments.

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