

**Enhancing Rural Development through Improved Infrastructure and Innovative
Information Applications**

Philippines Country Report: Applications

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3 June 2007

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I. Introduction

This report is part of the study "Enhancing Rural Development through Improved ICT Infrastructure and Innovative Information Applications". The study seeks to show how improved connectivity and use of ICT applications in the East Asia and Pacific Region can facilitate economic diversification in rural areas, reduce transaction costs and improve public service delivery. Four broad sets of questions are addressed.

First, how well connected are rural populations in East Asia and Pacific (EAP) and what policy changes are needed to improve rural connectivity?

Second, how can high-value information applications be mobilized and scaled-up to improve rural productivity, livelihoods and living standards in the countries selected? What are the lessons learned from experiences elsewhere, and what kinds of advisory support and investments are required?

Third, how much capacity building is required for rural areas to create a society of producers of local knowledge and of users of that knowledge?

Fourth, how can government efforts to promote rural development – in various forms – and to develop rural infrastructure be more closely integrated, conceptually, institutionally and in practice?

The study focus is on four countries - Indonesia, Philippines, Lao PDR and Vietnam – and on three key applications selected for their potential impact on rural livelihoods: *Wireless-enabled financial services; Wireless or Internet-based Market or commodity price information; Internet-based Land Management Systems.*

This Country Report presents the study's findings for the Philippines. It seeks to identify key demand and supply features associated with the three applications selected and help chart a strategic course of action for realizing their potential.

II. Wireless Financial Services

Critical Challenges of Mobile Phone Service in the Philippines

Wireless mobile networks using GSM technology are radically lowering the costs of micro-payments, financial transfers, and various type of mobile commerce (*m-commerce*), potentially enabling a significant expansion in service to low income and rural populations (Ivatury 2004, 2006). These applications have been developed by private enterprise with own resources in response to profitable opportunities opened up by innovative ways to overcome three special challenges posed by the Filipino mobile market.

First, with a per capita national income of about US\$ 1,300, in order to expand operators need to serve a large potential market made up of low income literate customers (Table A1). Filipino mobile operators have tailored pre-paid plans of low cost services (i.e. text messaging) and made these available in increasingly lower denominations to make them affordable to a cash-based target consumer.

Prepaid mobile subscriptions make cellular telephony more accessible for low income cash customers. Most mobile subscribers in the Philippines are prepaid; i.e. in 2006 99% of Smart and Piltel and 96% of Globe subscribers were prepaid. (Manila Times 2006, Globe 2006). The proportion of pre-paid subscribers is higher in the high income markets of the region, for example in Thailand (51.8%) and Singapore (36.7%) (Table A1).

Text messages are cheaper than voice calls – US\$ 0.02/sms compared to US\$ 0.13/minute, but a suitable means of communications by a predominantly young (54% <= 19 years) and literate (93%) population (Table A1). About 94% of all Filipinos using mobiles send text messages (San Andres 2004). In 2005, Filipinos exchanged an average of 250 million text messages a day (NTC 2005).

According to Business Week (2004) “a few years ago the penetration rate for wireless subscribers was expected to peak at around 25% of the Philippines' population”. In practice, between 2002 and 2004 mobile telephone subscribers doubled (Table A2) and by the end of 2006 the country had over 40 million mobile subscribers serving nearly 50% of the population. A Pulse Asia survey of March 2003, when only 34% of Filipinos were using mobiles, penetration in urban areas was high (48%) but rural areas also had significant diffusion (19%) (San Andres 2003). With subscribers practically doubling between 2003 and 2007, rural mobile use has no doubt increased significantly.

A second challenge of Filipino operators is to keep distribution costs low to achieve profitability while serving many low-income customers each generating a small amount of revenue. To address this challenge operators use their financial wireless service platform to load air time electronically and make it possible for customers to transfer load time, effectively making every customers a potential retailer.

Third, Filipino operators need to keep customers loyal to their network. Churn is a major concern in a low income pre-paid market.¹ In 2006, average monthly churn among Smart's pre-paid customers was 3.1% compared to 1.2% among postpaid clients (PLDT 2006, page 11). Churn can change rapidly from one month to the next, particularly in a pre-paid market. Globe, for example, experienced average monthly churn rates of 8.4% in the first quarter of 2005 (Globe 2005), but managed to reduce them to 4.7% by the fourth quarter of 2006 (Globe 2006).

Financial products like Smart Money and GCash help increase customer loyalty and reduce churn. Smart's CEO has estimated that churn among Smart Money customers is only about 0.5% per month compared to 3% among non-Smart Money customers (Wishart 2006, page 16).

Churn rates also vary by type of customer. The 3% churn attributed to Smart Money users probably applies mainly to well off customers. Low income customers can only afford a few occasional text messages and their loyalty to any operator withers rapidly as air time in a prepaid SIM card is exhausted. Most prepaid plans carry an expiration date which is shorter for low denomination air time purchases. For example, Globe's Prepaid P100 call cards have a 15 days period during which customers must either use or recharge their load. Their P250-P1,000 have a 60 day expiration period. Similarly, Smart's Buddy P30 e-loads buy customers either 3 calls or 30 text messages with a 3 day expiration date; P60 buy 6 calls or 60 text messages and are valid for 6 days; P200 buy 25 calls or 200 messages over a 30 day period.

Operators catering to the "bottom of the pyramid" tailor and continuously test new products to reduce churn in this segment. Two common strategies have been to reduce the denomination of air time loads and enabling users to share air time. Some companies – e.g. Chika (www.chika.com/) - have emerged with a business model based on the notion that at any point in time five in every six mobile phones have run out of air time: they enable registered customers to send prepay air time loads to friends via the Internet.

Smart Communications

Smart is the leading mobile phone provider in the Philippines. It is a subsidiary of PLDT, the land line operator. Cellular service revenues from Smart and from another subsidiary, PilTel, have surpassed and are rapidly leaving behind land line service revenues (Table A2). At end 2006 Smart had 16,882,442 subscribers representing about 42% of the more than 40 million Filipino mobile subscribers (PLDT 2007).

Text messaging contributed an estimated 45.5% of service revenues of PLDT's mobile companies (Table A3); nearly as much as voice revenues (46.6%). These are remarkable figures, compared for example with an sms contribution of only about 20% to mobile operator revenues in the UK (www.funsms.net/sms_facts.htm).

Smart Money

Smart Money was introduced in December 2000. Smart Money is run in partnership with Banco de Oro (BDO), one of the top seven commercial banks in the country with total assets of US\$ 4.2 billion (as of March 2006) and an estimated market share of 5.7% (The Economist 2006). Profits from the Smart Money product are shared between Smart Communications and BDO.²

Initially Smart Money was linked to a customer's bank account with Banco de Oro; a feature that from the start enabled customers to load or cash out their Smart Money account. Presently the service operates in conjunction with a prepaid debit card issued by Banco de Oro enabling lower income subscribers to participate using BDO ATM machines and making payments in stores that accept Master Card.

To sign up for Smart Money a customer must be a mobile phone client of Smart. She then needs to activate the Smart Money account by visiting a SMART Wireless Center and paying P200 for a Banco de Oro Pre-Paid Card. BDO Smart Money prepaid cards have a maximum value of P 100,000 (US\$ 2,067) and a maximum withdrawal amount of P 20,000 (US\$ 413).

Once registered, customers may use their mobile phone without having to visit an agency to transfer credit to a prepaid account, transfer cash to and from other users, transfer airtime credit from one user to another, make cashless purchases at shops

where the retailer has SMART Money account and at any MasterCard enabled retailer, receive payroll credit on their phones directly from an employer signed into the system, pay their utilities and receive international remittances.

The service is easy to use through a menu driven inter-phase in the mobile phone (Sample transactions are shown in Annex B).

Smart Load, Pasa Load and Smart Padala

Smart's e-Load was enabled by the Smart Money platform. Introduced in May 2003, e-Load reduced distribution costs by eliminating the need for the production, storage and distribution of prepaid scratch cards. A potential retailer now needs very little money to start reselling air time: a GSM handset, a retailer SIM card preloaded with 50 text messages and costing P150 (US\$ 3.10) (Palma 2006). By September 2003, two thirds of Smart's pre-paid user's were re-loading electronically (Smith 2004, PDLT 2004).

Smart air time loads are sold retail and distributed over the air (OTA) in small denominations. Scratch cards continue to be sold but in higher denominations and with a longer validity period (Table A4).

From May 2003 to the end of 2004, the number of retail dealers increased from 50,000 to 700,000. The company also reduced commissions settled in the form of discounts for load time from 10% for prepaid cards to 5% for e-loads (PDLT 2004, page 10).³ Retailers are now required to have their Smart Money card activated and restock their loads wirelessly, further reducing distribution costs for both dealers and Smart. Most retailers are micro-entrepreneurs: neighborhood stores that sell small amounts of various goods and who know their customers well and are therefore in a position to lend them credit as needed, as well as housewives and students working occasionally as retail agents.

To further service low income subscribers on December 2003 Smart launched **Pasa Load** enabling customers to transfer small amount of load credits (P2, P5, P10 and P15) from one Smart Buddy or Piltel's Talk 'N Text account to another. Given the widespread use of mobiles in the Philippines, using Smart's e-Load and Pasa Load air time is probably being treated and traded between customers and small retailers as a commodity, albeit wirelessly and at very low transaction cost.

Smart Padala was launched on August 2004, facilitating national and international transfers of money using the Smart Money platform. Customers wanting to send a remittance visit a Smart Padala Center fill out a form and present an ID and pay a fee which varies from country to country (P10 per remittance within the Philippines). Smart mobile customers receiving money get an sms indicating that her SmartMoney account has been credited. Encashment of the remittance follows usual SmartMoney procedures.

Outreach

Revenues from Smart Money transactions accounted for less than 0.1% of total service revenues posted by PDLT in 2006 (Table A3). Direct revenues, however, are a poor measure of the importance of the Smart Money platform to the company. With an estimated 10,000 encashment centers (PLDT 2005) and widespread outreach (Table A5), Smart Money is enabling the company to address the critical market challenges of tapping a huge low-income literate customer base, reducing churn and achieving low distribution costs.

By the end of 2006, 5 million or 20% of PLDT's total prepaid customers (25 million) were registered Smart Money users. The average value of daily transactions using Smart Money was US\$ 257,200/day. In 2006, the total value of remittances sent using Smart Money from abroad was about US\$ 28.9 million; the total value sent within the country through the system was US\$ 113.7 million.

Globe Telecom

Globe Telecom is the second largest mobile operator in the Philippines. Globe is predominantly a wireless operator with only 25% of service revenues derived from wire line services (Table A6). Globe was first to introduce Short Message Services in the Philippines in 1994. By end of 2006 the company had 15,659,742 subscribers, of which 95.9% were prepaid. Text messaging accounted for 36.2% of total wireless revenues in 2005 and since data revenues grew faster than voice messaging probably gained slightly in importance in 2006.

AutoLoadMax, ShareALoad and GCash

AutoLoadMax was launched by Globe Telecom in 2003 to enable electronic loading of air time. By December 2004, AutoLoadMax accounted for 90% of reload transactions and about 62% of total reload value. AutoMaxLoad presently supports an extensive network of **active** distributors which by the end of 2006 numbered more than 400,000 (Globe 2006, page 5).

ShareALoad, started in January 2004, enables Globe subscribers to top up the air time of other Globe users in increments of P1 up to P150.

GCash launched in October 2004 is the product of GXchange, a wholly owned subsidiary of Globe Telecom. The service is run with no direct ties to any banking institution. GCash enables the use of a mobile phone as a portable ATM. Globe subscribers register to GCash to extend the use of their mobile phones as electronic wallets. Once registered, subscribers can use their GCash wallet to send and receive funds and make cashless purchases at shops where the retailer originates the transaction using his or her own phone and buy prepaid airtime all via SMS.

Globe is expanding GCash's service network through select partnerships that include receiving direct payroll credit from their employer, making utility and university tuition bill payments, receiving remittances from abroad and making loan payments to participating microfinance institutions.

Unlike the service offered by Smart, GCash customers do not need to have a prepaid card or a Bank account in order to use the service. This is advantageous for rural people with no connection to banks or who live far from bank offices. GCash may be operated by users through text messages or through a menu that is either downloadable over the air or burned into the newer high capacity (64 k or above) SIM cards. Remembering text message protocols may be burdensome for customers except for those who make frequent transactions, but text messages may be sent from a lower cost SIM card.

A new customer first needs to become a Global Telecom subscriber and purchase a phone and a SIM card. She then needs to register as a GCash subscriber. Registration is done by phone over the air and this will suffice if the subscriber intends to only receive credit from another GCash customer. To send or spend money she must first have credits in her GCash "wallet". This may be done at no cost if someone else transfers money into an existing GCash account or by the customer herself by visiting a Global Communications branch and depositing cash to get credit in her GCash wallet.

GCash operates either through text messaging or by navigating a menu. Examples of text messages or menus that a customer would use to send instructions to the GCash service telephone number, 2882, to carry out GCash transactions are given in Annex C.

Start up costs for a new customer simultaneously enrolling as prepaid mobile and GCash using new equipment can be as low as US\$ 35.50. (Table A7). Purchase of a second-hand phone, for say P 500, would enable a customer to start up his mobile service and GCash account for only about US\$ 13.00. This is all that a user would need to start **receiving** money in her GCash account wallet.

Rural Microfinance: Text a Payment and Cash-In/Cash-Out

The high transaction costs of serving a large number of customers with limited assets or credit history each of which generates only a little revenue is a critical challenge of microfinance, worldwide. The challenge is greatest in rural areas because of the lower income and greater dispersion of the customer base. Microfinance institutions have achieved sustainability and earned a profit on commercial terms, but mostly at the expense of limited-value products such as small high interest short term loans.

Modern institutional approaches (village banking, group lending, credit rating) and modern technologies (computerized record keeping, PDAs) have helped lower costs; but the costs of service delivery remain high.⁴ M-banking can radically lower microfinance service delivery costs by, according to Owens 2006:

- i. reducing the direct costs that microfinance institutions incur to deliver both savings and credit products;
- ii. reducing errors and increasing transparency in the transfer and recording of loan disbursements and payments and savings deposits;
- iii. reducing opportunities for fraud, counterfeit and theft by providing a secure electronic mode for transferring funds (as opposed to, for example, travelling long distances to transfer cash);
- iv. facilitating record keeping on each client through the computerization of transactions made through mobile phones, thus making it easier for microfinance institutions to tailor products and services for segments within their large pool of small customers.

The potential use of m-banking to support microfinance in the Philippines is significant. A MABS survey conducted in 2004 in pilot test sites showing that 60% of micro-credit borrowers owned a mobile phone and that an additional 30% had access to a mobile phone belonging to a member of his or her household (RBAP-MABS).

In 2005 Rural and Cooperative Banks had 754 headquarter offices and 1,305 branches throughout the country, accounting for 27% of the total bank branches in the country. Nearly two thirds of these Rural and Cooperative Bank offices are located in small towns and rural municipalities. The outstanding gross loan portfolio and deposits of Rural and Cooperative Banks were US\$ 1.3 billion and US\$ 1.5 billion, respectively. About 189 Filipino rural banks were involved in microfinance in 2005 (Owens and Agabin 2006).

In November 2004 the USAID sponsored Micro-enterprise Access to Banking Services (MABS) Program (www2.rbapmabs.org) partnered with G-Xchange and the Rural Bank Association of the Philippines (www.rbap.org) to experiment with using GCash as a microfinance service delivery platform. (Owens 2006).

After approval from the *Bangko Sentral ng Pilipinas* was received 1 February 2005, testing and training began in 4 rural banks. Participating banks become retailers where GCash customers may cash-in or top up their electronic wallets. Bank loan customers may also pay back their loans electronically using Text-a-Payment, an application specifically developed under the program. A Text-a-Deposit application is also planned. A hypothetical example illustrating the potential savings for customers using Text-A-Payment is given in Table A8. Documentation developed for this initiative with detailed implementation agreements may be downloaded from www.rbap.org/filemanager/list/8/.

Outreach

At the end of 2006, out of a total base of 15 million Globe subscribers, an estimated 500,813 were registered users of GCash. The company estimates the average monthly value of transactions at P 5.67 billion or about US\$ 117 million (Globe 2006, page 19).

Use of GCash or of m-banking for microfinance remains underdeveloped because it is a new application and because the number of places where GCash may be used to make purchases or converted into cash are limited thus rendering potential benefits for customers difficult to realize.

Implications for the Demand for ICTs

Is there Widespread Demand for Wireless Financial Services in the Philippines?

As is common with a new innovative product, the private sector must first build up the demand for m-banking services, through marketing efforts and product design to meet specific customer needs at an affordable cost. The supply response from the Filipino private sector has been effective, demonstrating that there is widespread demand for m-banking, and showing how to nurture and develop this market and profit from it.

The demand for m-banking has to date come predominantly from high income urban dwellers because this group is easier to serve.

m-banking is subject to strong network effects. If only a few customers use the service its usefulness is limited. Developing a network of cash-in/cash out merchants is easier and more profitable in urban areas. The effort of an operator negotiating deals to accept electronic money as payment or to make cash available with a large urban enterprise with many outlets, will have greater financial yield at lower cost in terms of the number of customers that can be served, than, for example, trying to get many small rural merchants to provide the service.

M-banking also requires that the customer get adjusted to new uses of the mobile phone (new menu or sms commands) and new ways of doing things, and such adjustment comes easier to high income urban dwellers. High income urban dwellers are generally more comfortable with the use of alternative financial means of payment (e.g. credit cards, ATM machines). They also have greater need for repeat use of m-banking services and can therefore benefit more readily and more significantly from using the service.

The Rural Challenge and Supply Response to Expand Outreach

Tapping the potential market made up of low-income urban customers and rural residents is a greater challenge. There is considerable room for expanding the use of the service **among present customers** of GCash and SmartMoney, but in a cash-oriented society resistance from individual customer and vendors needs to be overcome.

Expanding m-banking outlets in urban areas can be problematic. For example, repeated attempts by Smart to convince taxi operators of the financial advantages of accepting SmartMoney as payment have been unsuccessful. Extending m-banking services to low-income people to rural communities is an even more formidable challenge. Rural areas concentrate the country's poorest people and customer ability to pay for services is therefore restricted. Rural areas also have the lowest mobile penetration. In February 2007 only one merchant in Tacloban City (178,679 people in 2000), a fast food chain restaurant, accepted GCash as means of payment.

Both Smart and Globe are trying to expand the m-banking "**ecology**" to increase the number of outlets where customers may purchase goods, send remittances or cash-in/cash-out their electronic money. This is much easier to achieve in urban areas than in remote rural communities, which not only tend to have fewer high income potential customers, but also many more and fewer outlets with whom operators could partner to cash in or cash out electronic currency.

G-Xchange, for example, is working together with bank regulators, the Micro-enterprise Access to Banking Services (MABS) project and the Rural Bankers Association of the Philippines (RBAP) to develop services suitable for small towns and Rural Bank customers (Text-a-Payment, Text-a-Deposit, Payroll services for small businesses) and help rural banks become Cash-in/Cash-out outlets.

Smart in turn is developing partnerships – starting with MTC Vodafone in Bahrain - to enable Filipino Overseas Workers to send their remittances from their own phones without having to go to a remittance shop or to a Bank and send it directly to the recipient's mobile (Paño 2007). Since a major cost element of remittances is door-to-outlet receipt of funds and outlet-to-door delivery (ADB 2004), there is considerable room for substituting the present expensive options for sending remittances with the instantaneous low-cost delivery enabled by m-banking.

Success Factors and Constraints

Success Factors

The basic conditions that facilitated the emergence of m-banking in the Philippines are:

- i. A **large population** constitutes a financially attractive potential market and gives entrepreneurs a significant incentive to innovate.
- ii. A concentrated **urbanized** population facilitates **mobile penetration** and the development of an m-banking ecology of parallel encashment facilities and vendors willing to accept electronic payments.
- iii. A **text messaging culture** is a distinctive feature of mobile use in the Philippines, and is closely linked to a **young literate and relatively low income** (but not extremely poor) **population**. Low income people recur to texting as a more affordable means of communication than voice calls. Youths are amenable to texting in part because of their greater dexterity and also because they generally have lower income than mature working adults.

There are possibilities for expanding m-banking in other countries in South East Asia and beyond. Applying these criteria to East Asia, Malaysia and Indonesia would appear poised to develop m-banking services rapidly in the near future (Table A1), with Malaysia already taking initial steps (Kingsley 2006). Vietnam also has significant potential,

although the present very low income levels will tend to hold back m-banking development in the short term.

ICT Infrastructure Requirements

m-banking requires a strong reliable mobile phone network with widespread coverage throughout the country, that is available at affordable prices. The availability of high capacity SIM cards (e.g. 64 Kbps) facilitates the implementation and use of m-banking, by providing enabling greater security of mobile transactions and the use of more user friendly menu driven transactions.

The Philippines meets all of these conditions, with sms prices lower than those prevalent in Singapore and Thailand (Table A1).

Overcoming the Financial Regulation Constraint

Mobile banking raise no special issues for telecommunications regulators but does present important challenges for financial regulators. The key regulatory issues are: i. how to protect the public from fraud and ensure a reliable, continuous and secure service, ii. how to prevent technology risks from severely affecting a bank's capital or earnings; iii. how to regulate financial service providers that are not banking institutions, and iv. how to prevent the use of the new electronic platform for illegal money laundering activities .

Lack of information and regulatory criteria and standards for m-banking is itself a challenge. The Filipino experience is important because it is mature - 7 years since the first product (SmartMoney) was introduced; it is varied - 2 different products provided under different operational schemes; and it appears to have achieved the right balance between enabling innovation and risk management.

The Bangko Sentral ng Pilipinas (BSP) has developed a framework for managing risks associated with service provision by a partnership between a mobile operator (Smart Communications) and an established banking institution in charge of financial accounts (Banco de Oro); as well as direct service provision by a mobile operator (or in the case of GCash, a subsidiary GXChange). This differs from other countries – e.g. South Africa – where only licensed financial institutions are allowed to provide branchless banking services, a stance that obliges mobile operators to partner with existing banks (Lyman, Ivatury and Staschen 2006, page 3).

Four Circulars issued by the BSD detail the procedures that institutions wanting to provide electronic banking services must follow.⁵ The first two, numbered 240 and 269, were issued in 2000 and envisioned a bank as the service operator. These circulars (esp. 269) describe the steps to be followed to approve an application to provide electronic banking services and lists the risk management measures that applicants must implement⁶. The other two circulars were issued in 2006. Number 511 gives detailed guidelines for Technology Risk Management and proposes that banks' follow an integrated risk management process that involves planning, implementing and measuring and monitoring performance. Circular number 542 specifies rules e-banking service providers must follow to protect consumers from fraud, robbery, money laundering and other crimes.

Operationally, the BSP built up its capacity to understand and regulate risks associated with the electronic banking services and created a Core Information Technology Supervisory Group (CITSG) within the Bank.

In the case of GCash, since the system works on a prepaid basis, at any one time GXchange is holding a considerable amount of funds from its customers. The BSP agreed to allow GExchange to provide m-banking services in recognition that: i. GXchange is a financially sound corporation; ii. the systems and network used by GXchange are secure, robust and reliable and procedures for addressing emergencies are in place; iii. the funds involved are relatively small in relation to the financial capacity of the firm; and iv. GXchange is capable of managing the risks associated with providing the service without posing a significant threat of abscondment or loss of customer funds.

The BSP has assumed “de facto” regulatory function over GXchange which in turn has accepted to give BSP regular oversight access to its systems, procedures and database. Before approving GCash products like “Text a Payment” or “Text a Deposit” in 2006, BSP staff worked closely with GXchange to ensure secure reliable procedures. Sample regulatory requirements adopted include:

Know Your Customer (KYC)	a key step for mobile banking is ensuring at the outset face to face interaction with the customer and that a photocopy of every customer’s picture is kept on file.
Anti-Money Laundering Requirements	in addition to KYC requirements, limits have been set on how much money can be transferred per day (P 40,000) or per month (P 100,000)
Text a deposit	to ensure confidentiality of deposits, a deposit using this service can only be made to a licensed bank.
Expeditious approval of participating banks	Rural banks wanting to provide the Text-a-Payment or Text-a-Deposit services will submit their application through the Rural Banker’s Association. The Association then trains applicant and certifies to BPS that the bank is qualified to provide the service.
Strong encryption and masking of password	To prevent e-banking identity theft (as money is transferred in cyberspace or as a result of mobile phone theft), strong encryption algorithms must be used and the password entry is masked; e.g. showing *** instead of the alphanumeric characters entered by the customer.
Consumer protection	Customers must be made aware of the risks involved in using the service and GXchange must have disclosed procedures for handling customer complaints.

III. Market Information Systems (MIS)

Farmer MIS Service Objectives

Agricultural and rural market information systems (MIS) have different target audiences and objectives. Government officials, for instance, need timely information to make their decisions and craft public interventions. Data requirements for this purpose are not overly demanding in respect of timeliness or even quality, except perhaps in the event of natural disasters and emergencies. The statistical methodologies involved are well known and Ministries of Agriculture supply the service within their budgetary constraints.

The focus here is on market information systems (MIS) that service farmers. Farmer needs tend to be diverse and systems developed generally have four main objectives:

- i. **Reduce price instability and intermediation costs** by disseminating timely information about prices and market conditions to improve farmers' bargaining power and farmers' ability to time and coordinate their supply response to better respond to market requirements. This objective is paramount in respect of fresh perishable produce markets.
- ii. **Expand market opportunities** for farmers and agro-processors by facilitating access to new marketing channels.
- iii. Produce and disseminate **market intelligence** information to help farmers and agro-entrepreneurs innovate, enter new markets, develop new products and new marketing and organizational techniques that add value to farm output.

MIS operated by Ministries of Agriculture have traditionally focused on the first objective. To empower farmers and mitigate price instability they collect and disseminate product and input price and market supply data. The information is gathered at wholesale market sites by support staff, sometimes with the assistance of traders and farmers, and subsequently disseminated using traditional broadcast media, radio, television, newspapers and fliers. These data collection efforts are costly. Price data is site specific which means that every major market needs to be covered; and, in order to be reliable, data should also be frequently updated (e.g. daily). The high cost of timely data gathering and dissemination challenge developing country governments. The resulting information systems are commonly deemed unreliable or too irregular to be useful.⁷ Farmers consult the information disseminated by government and even use it as baseline information (e.g. as a starting point when negotiating with buyers), but tend to rely more on price and market information obtained through their own network of traders, farmers, and friends (David-Benz, Wade and Egg 2005).

Producing and disseminating information products and market intelligence to expand marketing channels or add value (objectives ii and iii) have traditionally been costly (e.g. fairs, specialized analytical reports for niche products) and the target audience usually small. Justification for public sector involvement has been limited and private analysts and brokers have been the prime service providers.

The emergence of ICTs has stimulated innovative efforts by private enterprise, governments and donors to take advantage of lower data collection and information dissemination costs to produce more commercially valuable information services. Boxes Number 1 and 2 give examples for MIS initiatives addressing the first objective.

In Sri Lanka, a pilot project funded by the Information and Communications Technology Agency (ICTA) developed a Govi Gnana (Farmer Knowledge) System to increase the transparency, accuracy and timeliness of price information on

about 130 vegetable products traded in the spot markets at Dambulla Dedicated Economic Zone (DDEZ) and in the smaller the Meegoda Dedicated Economic Zone (MDEZ) [de Silva 2005]. Local traders fed the system to improve performance and compete with other wholesale markets. The system was also supported by 3 investigators with PDAs roaming around the market verifying the information provided. Centrally located gigantic screens broadcast the information and have become popular among farmers visiting the markets. Government recognizes the new approach as a public service but has yet to assume running costs and the system's sustainability remains uncertain.

In Senegal, a value added operator on GSM, Manobi, has since 2003 been providing price and weather information to fisherfolk and has since expanded to a broader range of farmers. Market data is gathered in three locations in Dakar by four collectors using PDAs, and retransmitted to farmers and fisherfolk via mobile phones. In the vicinity of Kayar, the system extends wireless coverage 14 km from the shore of allowing fisher-folk to access information while they are still at sea. The sms version of the Xam Marsé system launched in May 2005 reportedly serves 3,400 farmers who receive a free daily price update through their mobile phones. One clear advantage of Manobi has been its flexibility to tailor services to suit the specific needs of individual farmers – e.g. a farmer's sms may obtain information on a specific product, as opposed to a having to browse through a list of products most of little interest. (David-Benz, Wade and Egg, 2005). There is also the potential to use sms services to expand market outlets through systems that take remote purchase offers to buy or sell (objective ii above) and provide market intelligence over the mobile phone (objective iii). Donor funding supported the development of the Manobi application, initially IDRC and InfoDev (2003, page 34) and subsequently Swiss Cooperation (Manobi 2005), but Manobi hopes to operate the service at a profit. In August 2006 Manobi entered into partnership with IICD to realize pilot projects in Burkina Faso, Ghana, Mali, Uganda and Zambia (Manobi 2006).

It is still early to tell whether these promising experiences will be sustainable. Close monitoring and evaluation is warranted.

This report describes noteworthy MIS initiatives in the Philippines by: i. the Department of Agriculture (DA) and ii. b2bPriceNow.com. The Department of Agriculture initiatives described here focus primarily on addressing the first objective previously noted; i.e. reducing price variability and intermediation costs of fresh produce markets. The b2bPriceNow initiative is more ambitious, addressing the other two MIS objectives and simultaneously trying to increase farmer access to the Internet.

Department of Agriculture

AgMaris Pilot MIS in Bukidnon

The Bureau of Agricultural Statistics (BAS) of the Department of Agriculture (DA) produces and disseminates statistical and price information to serve a broad range of users: government decision-makers, farmers, entrepreneurs and researchers. The Bureau has an excellent system for monitoring and documenting the services it provides. Farmers are served by the Bureau directly or indirectly through government officials who use the Bureau's services. Farmers, however, do not appear to be the Bureau's most numerous immediate direct customers (Table A9).

AgMaris is the main farmer oriented service systems of the Bureau and involves the collection, processing and analysis of data and the dissemination of information. AgMaris was developed in 1993 with assistance from USAID when the Bureau carried out

Marketing and Information Needs Assessment (MINA) in many of the country's provinces to identify the main information requirements of farmers and used this information as an input to re-structure the Bureau's Agricultural Marketing Information System (AgMaris) on a demand driven basis.

FAO assistance in 2002-2004 helped the Department update the AgMaris serving producers in the land locked province of Bukidnon in Northern Mindanao. Bukidnon is one of the principal agricultural areas in the Philippines and a major producer of vegetables, fruits corn and livestock. The project tested pilot approaches which could be subsequently scaled up with World Bank assistance through the Diversified Farm Income and Market Development Project (World Bank 2004). The FAO project had three components: i) technology demonstrations; ii) design and testing of a pilot MIS; and iii) training and extension.

MIS activities were carried out in partnership by the Agribusiness and Marketing Assistance Division of Regional Field Unit 10 in Northern Mindanao (DA-RFU 10-AMAD), the Bureau of Agricultural Statistics and the Northern Mindanao Vegetable Producers' Association, Inc. (NMVPAI). The target clientele was vegetable farmers in two municipalities of Bukidnon: Impasugong and Lantapan. A Marketing and Information Needs Assessment (MINA) was conducted in these areas involving: i) consultation with stakeholders; ii) a survey of vegetable growers and iii) a survey of traders. Although the MIS was designed to provide price, supply and market demand information, the most immediate priority concern of farmers was for information on wholesale buying prices for high value vegetables. Essentially the MIS pilot aimed to empower farmers with price information and reduce price stability (objectives i and ii above).

According to the project's final report (FAO 2004, page 59) the pilot introduced several innovations to AgMaris in Bukidnon: i) increase in coverage from 5 to 11 types of vegetables in accordance with farmers commercial interests; ii) changed collection of wholesale buying prices in the Agora market from only three times a week to five times a week (Monday-Friday); iii) change in the time of price data gathering from 12:00-13:00, usually a slow trading period, to 15:00-16:00 when trading is at its peak; iv) inclusion of price data from other markets (e.g. Metro Manila); v) dissemination of prices through bulletin boards and additional radio stations; vi) immediate posting of prices in the DA-RFU 10 website; vii) participation of farmers and farmer groups (NMVPAI), Local Government Units and government (BAS, DA-AMAD) in the implementation of the Bukidnon MIS instead of having the Bureau of Agricultural Statistics bearing the sole responsibility; and viii) coordination with the Local Government Units to increase the reach of price information to farmers.

An impact survey of 85 farmers in the two target municipalities carried out at the end of the project showed that farmers derived clear benefits from the pilot. Most farmers interviewed (94%) were aware of the MIS. Eighty one percent claimed that the system had improved their knowledge of prevailing prices of the vegetables covered and that this improved knowledge had resulted in an increase in their income (Table A10). Radio programs were listened to by 39 of respondents, but the majority of farmers (84%) consulted and seemed to prefer price postings in bulletin boards in the project area.

Recent experience with the Bukidnon AgMaris illustrates some of the operational challenges that formal MIS initiatives have in providing the timely information that fresh vegetable market participants need. The collection schedule of wholesale prices in the Agora Market has been adjusted to 13:00-15:00 (instead of the peak market hours of 15:00-16:00) to allow time for data processing and dissemination and further adjustments are pending to address resource constraints. Right after collection price information is immediately sent via fax to Lantapan and Impasugong local government units, but the fax machine and telephone lines connecting the Bureau of Agricultural Statistics and Impasugong local government are not operational.

There is no evidence that farmers consult web page postings. During the pilot MIS test period in Bukidnon cellular phones were found to be more popular. The Provincial Agriculture Statistics Officer for Bukidnon received several sms requests for price information from farmers. Survey respondents also suggested giving cellular phones to the agricultural technicians so that the BAS officer working in the Agora market on market days could report of prevailing market conditions to these technicians and to the Municipal Agricultural Officers and they could in turn inform farmers (FAO 2004).

Dissemination of Price information via sms

The Bureau of Agricultural Statistics in partnership with the Agribusiness and Marketing Assistance Service (www.da.gov.ph/agribiz/programs.html) in partnership with an applications development company and Globe Communications established in 2005 a system for reporting prices in response to sms requests from farmers and consumers from Metro Manila.

A farmer or consumer wanting to learn of prices prevailing in the Manila wet market may send a simple sms and he will get in return price information gathered in Metro Manila retail markets. The cost of the service is P2.50 (about US\$ 0.05) for the service involving 2 messages (query and response), which implies a surcharge on the standard cost of P 0.90/sms of P 1.40. The service is a public private partnership through which the Bureau makes the data available for dissemination and the content manager and Globe split the profits.

The price service along with weather information generated considerable initial enthusiasm with about 200 sms queries a month, but interest has subsided to only about 20 sms a month presently.

B2BPriceNow.com

B2BPriceNow.com seeks to expand market opportunities for farmers and rural residents by increasing their access to ICTs and to new market channels (i.e. objective iii above).

B2BPriceNow.com started as an NGO initiative but subsequently became a for profit enterprise. UNISYS has been a major partner from the start, developing and powering the software application used to provide a free e-commerce entry to Filipino farmers.

Another key partner and investor has been the government owned Land Bank, the country's fourth largest universal bank according to capitalization (US\$ 6.0 billion) and market share (7.9%) (The Economist 2006). The Land Bank has 326 branches covering about 90% of the country's municipalities and accounts for 67% of lending to agriculture. One of the Land Bank's mandates is to serve an extensive network of 3,600 cooperatives and over 5,000 small and medium enterprises. The Bank has provided a powerful link to its cooperative network and further supported the program by providing interest free loans to cooperatives to help fund B2B center establishment (Barbosa and Paua 2003).

Other partners include an NGO, the Philippine Rural Reconstruction Movement (PRRM) which received a grant from Infodev to help train farmers in e-Commerce and The Polytechnic University of the Philippines (PUP) which help's by training trainers. In 2002 B2BPriceNow.com won an US\$ 118,000 award from the World Bank's Development Marketplace contest. (Barbosa and Paua 2003).

The company's strategy is to build up a loyal customer base of farmers by demonstrating the power of ICTs for e-commerce, training cooperative members in the use of ICTs and simultaneously providing services through its online market place and via sms.

By March 2007 twenty four B2B Centers had been established under the company's franchise. Target Center operators are primarily the 941 cooperatives classified by the Land Bank as A and B Cooperatives because of their financial strength. The average number of members in these cooperatives is about 3,000, in essence giving the centers an initial large potential pool of loyal local customers. Centers are sited near schools and in areas with good pedestrian traffic. They are located in small towns thus avoiding keen competition from cybercafes but not in remote rural communities. Table A11 lists the location and population (as an indirect measure of potential customer pool) of the 20 centers that appear in <http://b2bcenter.biz>.

Services offered in B2B Centers are Internet/Computer access, photocopying, fax, sale of cellular phones and mobile air loads (retail and wholesale), remittances, courier services and sundry goods. The main income generator in most places is Internet/computer access. Franchising fees amount to a one-time charge of US\$ 1,000. Connectivity costs paid by these centers are not much higher than those prevalent in urban areas. Of the 24 Centers already installed 18 connect to the Internet via DSL at US\$ 60/month, 5 do so at lower speeds using wireless at US\$ 35/month and one uses satellite at US\$ 150/month.

As the number of B2B centers have increased, so have the number of registered-user sessions in the B2BPriceNow.com e-commerce portal (Table A12).

Implications for the Demand for ICTs

Is there Widespread Demand for MIS Services in the Philippines?

There is plenty of evidence showing that farmers demand and recognize the value of market information. What is less clear is whether the public or private sectors can use the ICT applications developed in the Philippines to supply this demand in a sustainable way; i.e. whether the benefits of particular applications outweigh the costs of the service and whether the institutional models used to deliver the service are sustainable.

Farmer needs for information differ depending on the market. Public and private sector providers in the Philippines try to satisfy this demand using ICTs in innovative ways with varying degrees of success. To appreciate farmer demand for agricultural market information services and the adequacy of the supply response – the MIS applications used to meet that demand – it is useful to distinguish between different requirements according to the three MIS objectives identified.

Reducing Price Instability and Intermediation Costs

With respect to the demand for information that increase farmers bargaining power and help them program their production and sales, improvements in the timeliness of information provided by AgMaris in Bukidnon were appreciated by farmers and resulted increases in their income and had clear effects on their supply response (See Table A10 in the case of AgMaris Pilot). There are other potent examples showing that farmers value market information and are willing to pay for information that helps them coordinate their supply to meet the demand for fresh produce (e.g. See Text Box No. 1).

It is not known if the benefits observed in Bukidnon outweigh the extra cost involved in operating the enhanced MIS. Also, it is not clear whether the changes introduced by the pilot have become a permanent part of the Bukidnon AgMaris. The dissemination of information through the the DA-RFU 10 webpage (<http://agri10.norminet.org.ph/>) appears to have been discontinued and the data is also not posted in the Bureau's web page (www.bas.gov.ph). The only price information readily available in the Bureau's site is for Metro Manila. Implementation of the World Bank sponsored Diversified Farm

Income and Market Development Project has started, but up-scaling of the tested MIS approach has not begun.

The evidence, however, suggests farmers have greater use and greater demand for a different approach; one that does not involve centrally managed applications but that relies instead on each farmer's knowledge of their particular market information needs and focuses instead on increasing farmer access to mobile phones (Box No. 1).

Text Box No. 1: Effect of Mobile Phones on Market Prices and Fisherfolk Income in Kerala, India

Fish farming is important in Kerala, employing as many as a million people. Fish is sold every day along the beach in small markets that operate only for a few hours – typically 5 AM to 8 AM. Until 1997 fisher folk had no information on market conditions. Fuel costs and difficult road conditions limited fishermen to visiting and selling their product in only one market each day right. Data collected during this period shows wide price dispersion in markets that were not all that distant from each other. It was not uncommon to find several fishermen with their catch unsold while in nearby markets buyers left without fish.

Mobile phones were introduced in Kerala gradually starting in 1997. Towers were built to serve cities along the coast and in the process provided coverage 20-25 km out to the sea. By 2001 about 60% of all fishermen and retail and wholesale, traders were using mobile phones to coordinate sales. The standard deviation of fish prices expressed as a percent of the average price went from 50-60 percent before mobile phones to less than 15% after they were introduced. Waste which previously averaged 5-8 percent of the catch was eliminated entirely. Fisherfolk profits increased by 8 percent while and consumer prices were reduced by 4%. These effects are directly attributable to the introduction of mobile phones. These impacts were staggered, with price effects observed in the different coastal markets soon after mobile coverage was expanded to serve the corresponding sea area.

(Jensen 2007; The Economist 2007)

Expanding Market Channels

Compared to other e-commerce services in the Philippines, the B2BPriceNow portal is a fairly popular link for search engines, no doubt thanks in part to the favorable international publicity the initiative has received (Table A13).

The installation of 24 centers suggests there is interest on the part of farmers in using the Internet to open up new market channels. The number of sessions by registered users - 26,000 in all of 2006 - is still limited (Table A12) There is however no information on how much new business is being generated as a result of these e-commerce sessions.

With only 24 centers installed under its one-time low-fee franchise and still a limited number of registered sessions, the company's revenue sources appear to be low. Partnerships have enhanced outreach while a limited number of staff have kept operating costs low. If plans to expand services materialize company profits and sustainability will rise. Especially promising are the company's plans to broker, support and promote among cooperative members and B2B Centers the use of a Land Bank prepaid card expected to enable some m-banking services (See www.landbank.com/products_Ecard.asp and Gevera 2007).

Providing Market Intelligence

Market intelligence comprises strategic analysis of markets and marketing prospects. The demand for this kind of information largely comes from firms well endowed with human and physical capital that are in a position to seize new market opportunities and profit from them. Market intelligence information often involves a broad range of information fields, such as production practices, selection of variety, product quality control, processing methods, packaging, marketing channels, financing, etc.

In a developed country like the US Government MIS tend to be more useful for the better educated farmers and for analysts and consultants who use the information produced by government as raw data from which tailor-made information products are prepared – especially market intelligence – to address the specific needs of individual farm entrepreneurs (Just and Zilberman 2002; Wolf *et al.* 1998). The same probably happens with some of the information products provided by the Department of Agriculture in the Philippines, including for example, those of the Agribusiness and Marketing Assistance Service (www.da.gov.ph/agribiz/programs.html)

By lowering costs of interaction between civil servants and the public, ICTs are opening up opportunities to make available specialized expertise to individual micro-entrepreneurs and small farmers at relatively low cost. In particular, the provision of personalized **advice online**, where users determine the kind of information they need and interact directly with advisors, is a promising emergent application. Advice is available for a fee from Google Answers (<http://answers.google.com/answers/>), at US\$ 2.50/query. Agricultural extension advice online services are also being experimented with in India, by the International Institute of Information Technology, Hyderabad, (<http://agriculture.iiit.net/agrids/>); by IIT-Madras, and n-logue Communications (www.n-logue.com/services.htm); and by Chile's Technical Cooperation Service (www.redsercotec.cl; Box No. 2).

Text Box No. 2: Chile's Advice Online Service

The experience of Chile's Technical Cooperation Service, SERCOTEC, with advice online stands apart from other online business development service initiatives. First, Redsercotec is a public service provided at no charge to small and micro-entrepreneurs. Second, it is directed to serve not just a narrowly defined group (e.g. farmers) but all of Chile's small entrepreneurs with a broad range of interests and needs for information and services (e.g. legal advice, training, entrepreneurship, information on specific sectors like agriculture). Third, to be able to meet a broad range of interests, SERCOTEC has partnered with many other institutions to provide expert advice. Fourth, the system has been operational since March 2002 and was upgraded in 2004, and SERCOTEC thus has had time to garner experience. Through trial and error and careful monitoring, the agency has drawn on this experience to increase reach and effectiveness. Fifth and most importantly, the system is low cost, easy to implement and requires low maintenance. It has significant potential for replication elsewhere, to help public agencies increase their reach and become more citizen-oriented, transparent, and accountable at reasonably low cost, provided minimum conditions of literacy, a single language and access to ICTs apply.

Users registered in Chile's Redsercotec's website may send specific queries to any one of about 90 specialists (57 SERCOTEC staff members plus those of 29 partner public and private institutions) covering 45 thematic areas. An answer to each query is given within 48 hours. Upon receiving the advisor's reply, users are invited to rate the response on a 4-level scale from excellent to unsatisfactory.

To submit a query users first need to register in the system. Registration enables Redsercotec to better know its online clients. At end of May 2005, there were a total of 29,187 registered users. The face to face clientele of Sercotec numbers 10,000; the number of Redsercotec's registered users as of July 2005 is nearly 30,000.

(Proenza *et al* 2006)

An advice online system would be suitable for the Philippines given its high literacy rates. The advice categories could include, as the Chilean service does, a broad range of areas: Agriculture, Forestry, Fisheries, Quality Control, Training, Entrepreneurship, Financing, Legal Advice and Marketing. The system would enable farmers and rural producers and traders to assess their readiness to penetrate new markets, and to identify the commercial and legal requirements of tapping these markets.

Unlike other kinds of e-government services, no major re-engineering of procedures is needed; but success will require political determination to institute the system and to encourage staff participation. Chile's system is managed by a small office staffed by three people and costs of development and maintenance are low. In the Philippines, where mobile phone penetration of rural areas is expanding rapidly, the system's adaptation to mobile phone service through sms could be ground-breaking. To curtail any excessive demand, the sms service could be delivered for a fee.

Success Factors and Constraints

Success Factors

There are some promising initiatives but no clear cut examples of public service ICT applications that increase agricultural market service delivery and manage to keep the public sector engaged. There are also promising private sector initiatives, but it is still early to say whether they will enable entrepreneurs to earn a competitive return on investment and continue operating.

The most conclusive evidence available shows that mobile phones enable farmers to search for the market information they need at low cost, a feature that is particularly critical to reducing price variability and lowering the cost of market intermediation. A key success factor to increasing market information is developing the infrastructure and the competitive framework that encourages investment and a deepening in rural mobile phone penetration.

When it comes to packaged applications developed and managed by the public sector or by private firms, defining success factors is difficult because there are no clear sustainable successes to point to. In a general sense, ICT initiatives that encourage greater interaction between citizens and the public sector and that makes government and individual staff more transparent, responsive and innovative to citizen's needs (e.g. Box No. 3) is to be encouraged, as it is likely to help producers carry out their own search in order to service their individual requirements for market information.

Constraints

The principal obstacle in the way of effective MIS applications is in the very nature of farmers' market information requirements. Farmers demand for market information is very particular, especially with respect to fresh produce markets. It usually varies by product and depends on the individual farmer's location. Each producer is in the best position to identify the specific nature of the information they need which in practice means that there are almost as many information requirements as there are farmers. The quality of information is also highly dependent on the trust that farmers have on its source. Farmers trust neighbors, family and friends who familiar with conditions in a given market more than they are likely to trust a website or a system generated text message. Up until recently the costs of such exacting market information search have been prohibitive, but this is rapidly changing now that mobile phones are enabling immediate low-cost market search (Box No. 1).

Other constraints in the Philippines, particularly with respect to applications involving the use of the Internet, is the lack of digital literacy in rural areas and, to a lesser extent, limited mobile telephone penetration in rural areas. A generally weak public sector, limited in its ability to innovate and more importantly, sustain innovative effective services is another important limitation (Table A14).

IV. Land Information Systems

Two major Land Information System (LIS) initiatives are discussed in this report, each one promoted under two different agencies involved in land titling and land records management.: i. LIS efforts by the Land Administration and Management Project (LAMP) under the leadership of the Department of Environment and Natural Resources, DENR; and ii. the Land Titling Computerization Project (LTCP) of the Land Registration Authority (LRA), a dependency of the Ministry of Justice.

LAMP is a project managed by the Department of Environment and Natural Resources (DENR) supported by World Bank funding and AUSAID technical assistance. The LRA is an implementing partner of LAMP (World Bank 2005, 2005a). LAMP is a long term program expected to last 20 years. The first phase, LAMP I, was completed in 2004 and the second phase, LAMP II, started in 2005. The LTCP is a project of the LRA to improve customer service capability and increase the reliability of records handled by its Register of Deeds (RoD). It is partly funded by a US\$ 20 million loan from the International Finance Corporation (IFC) loan.

Institutions condition the development, functionality, cost and effectiveness of land information systems. Accordingly, an overview of land administration in the Philippines is first given and this is followed by a discussion of the two LIS initiatives.

Land Administration: Status and Reform Efforts

The cost of registering urban property in the Philippines compares poorly with the region's top performers, Thailand and Singapore (Table A15).

Urban registration costs tell only a part of the story. Coverage of land titling is very limited and the reliability of land records are notoriously poor in the Philippines. In 2004, there were an estimated 24.2 million parcels of alienable and disposable lands in the country, of which only 13.1 million (54%) were titled (Rebuelta-The 2005). Public confidence in land tenure security is low, eroded by a common perception of widespread corruption. Bribes to expedite processing of land registration are commonplace.⁸ Between 1997 and 2004 a total of 3,083 cases of faked or illegal titles were registered with the Agrarian Reform Adjudication Board (ARAB) and a total of 6,552 cases were being investigated. A survey of Regional Trial Courts showed that 15 percent of all cases handled by Regional Trial Courts were related to land registration problems (LAMP 2002a).

Land administration and land management in the Philippines may be characterized by the involvement of multiple agencies, numerous laws in conflict with each other, two ways of processing and awarding land titles (administrative and judicial), cumbersome decision making structures in part related to overlapping responsibilities of agencies and functions, and high overhead and personnel costs. Land titles over Alienable and Disposable lands may be issued by the DENR following an administrative process that leads to the issuance of various forms of patent or by the Regional Trial Courts supported by the Land Regularization Authority (LRA), a dependency of the Ministry of Justice. Both the DENR and the LRA maintain separate uncoordinated cadastral maps that often have conflicting records and lead to the duplication of titles and the appearance of fake titles.⁹ An institutional review "guesstimates" that a substantial reform of the land administration and management system could lead to annual savings of at "least P500 million" (Land Equity 2002, p. ii).¹⁰

Testing of different legal instruments during LAMP I demonstrated that the judicial titling process followed by the LRA and the Courts was unsuitable for a massive land titling program because of high costs and long processing time. The preferred legal instrument was found to be the free patent issued administratively by the DENR which ultimately must also be registered (often with delay) by the LRA/RoD. In principle, a free patent is as powerful instrument of title as one issued by the Courts, but it cannot be used in urban areas and has some constraints that limit its usefulness and make it less valuable to stakeholders and financial institutions.

The most urgent reforms advocated by LAMP (World Bank 2005 and LAMP 2002a, Figure 1 on p. iv) and a broad spectrum of national stakeholders¹¹ are:

- i. creation of a new agency, the Land Administration Authority (LAA), consolidating land administration and management functions presently under the LRA/RoD and DENR, and the transfer of the National Mapping and Resources Information Authority, NAMRIA to the new agency (Congress of the Philippines 2005);
- ii. extension of the validity of the free patent issued administratively - presently by the DENR - so that it may also serve as a legal instrument of title for urban land, and elimination of the restrictions that limit its value (e.g. change from the present requirement of 42-year period of occupation to 10 years, and removal of the 5-year restriction before a patent holder can transfer or mortgage the property).

Since 2003 considerable effort has been exerted by national authorities to enact the legislation required, in particular, the Land Administration Reform Act (LARA) creating the LAA and paving the way for further reform. Resistance from stakeholders whose interests would be affected have stalled approval¹², and the LARA bill is now expected to pass in late 2007.

LAMP LIS Initiatives

The Land Administration and Management Project (LAMP I) was the first phase of a long term initiative by the Government of the Philippines expected to last 15-20 years. LAMP I was implemented between 2001 and 2004 at a cost of US\$ 15.2 million, partly funded by a World Bank Learning and Innovation Loan of US\$ 4.8 million (World Bank 2005a). LAMP I sought to test alternative processes for implementing large scale land administration and to carry out policy studies to facilitate suitable institutional reforms. LAMP I had four components: i. land policy studies (4.9% of project costs); ii. testing of two prototypes, Land Titling and Land Administration in Leyte and Record Management in Quezon City (43.7%); iii. institution building (48.7); and iv. preparation of the second phase of the program, LAMP II (2.9%).¹³

LAMP II will build up and expand on the experience of the first phase of the program. Given persistent institutional constraints, LAMP II will be limited in scope to only 5 or 6 provinces. LAMP II's components and costs are shown in Table A16. LAMP LIS initiatives are linked to the two prototypes tested in Phase I and to the Land Valuation and Titling components of LAMP II.

Leyte Prototype: Cadastral Index Map and Database

LAMP established a One Stop Shop in Leyte where different agencies agreed to work together to test improved procedures and legal instruments. The main objective was the identification of the steps and pre-requisites needed for a massive land titling program that was low-cost and sustainable.

The **Cadastral Index Map (CIM)** is a tool developed by the Leyte OSS that puts together in one standard format all of the information available from different agencies involved, each of which has traditionally managed its own databases and land surveys. The CIM sets all title and land records (Assessor's Office, Department of Agrarian Reform, LRA/RoD, DENR and the Courts) within a jurisdiction in maps that adopt a single projection system (the Philippine Standard Reference System of 1992 (PRS 92)). A spatial reference control is thus established with parcels represented in a map, each with its boundary and identifying number. The CIM is a working tool that facilitates the identification of conflicts in existing records as well as the planning of the different steps and the coordination of titling activities. A database developed in parallel with the CIM also enables the LRA/RoD and the CENRO to answer queries from the public regarding properties in the prototype area. The CIM is updated as land parcel subdivision adjudication and consolidations proceeds.

LAMP tested various forms of developing the CIM, including hand drawn, digitized, scanning GIS/LIS and use of orthophotos, to identify the costs and quality implications of different methods. A CIM was developed for the entire prototype area (6 municipalities) and used in Leyte to aide land adjudication activities. CIM data disaggregated by sex of property owner enables the identification of gender gaps in land tenure. Procedural manuals were developed and staff was trained in the application and development of CIMs in preparation for extensive titling under LAMP II.

As of May 2005, the Leyte OSS had issued a total of 2,000 free patent titles. Thirty nine barangays in the OSS area were surveyed and made ready for titling. The CIM played a key role in the planning and implementing titling procedures (World Bank 2005a).

Quezon City Prototype: Land Records Management

The second prototype of LAMP I was implemented by the LRA in five barangays in Quezon City¹⁴ and focused on the verification of records, the creation of a cadastral map base in the Registry of Deeds, the detection and elimination of fake and duplicate titles in the prototype area and linkage to the Land Titling Computerization Project (LTCP).

The Quezon City Prototype was successful in designing and testing registration and record management procedures. A database and a Barangay Integrated Land Information System were developed for the project area. The validation and cross referencing of information was undertaken by applying similar Cadastral Index Mapping procedures as in Leyte. Field validation work in barangay Holy Spirit, led to the identification of 676 Transfer Certificates of title with no matching records in the Assessor's office, 134 titles with TCT numbers different from those held by the Assessor's office, 578 parcels with informal settlements, and about 1,000 parcels for which there were no records (World Bank 2005a page 7 and LAMP 2005, page 31).

Implementation of the Quezon City prototype, however, suffered from severe procurement delays, high turnover of personnel, difficult inter-agency relationships and by LRA staff hostility to the institutional reforms proposed by LAMP (2005, page 33). Continued application of the prototype barangay system developed is uncertain.

Land Valuation

Many agencies make use and are involved in property valuation in the Philippines (Table A17). There is little coordination between these agencies and valuation standards are inexistent, not used or used incorrectly. The multiple and inconsistent appraisal systems in use are frequently subject to political intervention in favor of special interests to the detriment of fairness, transparency and revenue collection. The result is very low

levels of taxation and limited revenues to support government services, a particularly acute problem at Local Government levels (LAMP 2002, 2005).

The valuation component of LAMP II will work with the Department of Finance to develop guidelines using international valuation standards, assist selected local government units in the application of these standards, and help develop a Government accredited recognized body of valuation professionals (World Bank 2005, pages 37-39).

The component is in the early stages of developing a prototype system that will build up and continuously update a national real property market database with information on sales and leases of property and buildings. The system will help the public and private sectors appraise land values through a systematic comparison of property transactions. Real property information will be sought from public agencies - local government assessors, the registrar of Deeds and the Bureau of Internal Revenue - as well as from private sources - banks, finance companies, developers, appraisers, notary publics, real estate brokers, etc. The system will in principle contain three modules: sales, leases and buildings. It will first be developed and tested in one city, and subsequently tested in other cities. Once its usefulness has been proven, it will be disseminated for use countrywide (LAMP 2006).

Land Titling Computerization Project (LTCP)

Description

The LTCP, also known as the LARES project,¹⁵ was conceived in 1996 by the Land Registration Authority. To implement the LTCP a Build-Own-Operate contracting approach was followed. Using this modality, in this and in other public infrastructure projects, government seeks to benefit from private sector's capacity to raise funds, efficiency and advanced technology. The contract with LARES was approved in 2000 and the notice to proceed was issued on 16 January 2001 (Commission on Audit 2005). On 26 May 2003 the International Finance Corporation agreed to help fund the project with an 8-year US\$ 22 million loan.

The LTCP is a 10 year project during which the firm selected (the project "proponent" or "concessionaire") is expected to undertake the following activities on its own expense¹⁶:

- i. computerize 158 Registers of Deeds, 16 Regional Registers and the RoD Central Office in Manila, including full automation of document imaging, improved workflows and minimized human handling of records;
- ii. increase security of records and LRA's record management system to enhance trustworthiness;
- iii. conversion of all existing LRA records into digital format for the creation of the LRA database; .
- iv. install local and wide ar-rea network (LAN's and WAN) infrastructure for all LRA offices, thus enabling on-line publication of information on land titles;
- v. provide all the required IT services needed to: design and construct the Land Registration and Titling System and all interfacing subsystems, re-engineer LRA business processes, manage the project, install and integrate all aspects of the system, prepare and plan the sites, provide telecommunication services, maintain the system, establish and follow security procedures, promote and inform the public, upgrade facilities and prepare all of the necessary documentation;

- vi. Pilot test the system in 3-5 priority Regional Registers and subsequently implement it nationwide;
- vii. prepare LRA sites by improving or expanding existing Regional Register offices and the Central Office computer center before proceeding to the installation of the system;
- viii. finance the entire project; and
- ix. upgrade the system on the 7th year of the completion and construction period; and
- x. operate and maintain the facilities during a concession period of 10 years.

Total investment is estimated at US\$ 90 million (www.ifc.org). Cost estimates by the 2005 Audit Commission are somewhat lower (US\$ 65 million)¹⁷ as given in Table A18.

The Government's Build Operate and Transfer Program provides for several alternative implementation schemes.¹⁸ Under the Build-Own-Operate (BOO) scheme chosen by the LRA, the database developed is to remain the property of the LRA throughout the 10-year concession period. All sensitive tasks such as the signing of documents, the resolution of doubtful records, data conversion and monitoring is to be handled by LRA staff. At the end of the concession period the concessionaire will give the LRA an exclusive non transferable license to use the systems developed. The buildings and improvements of facilities is to be turned over to the LRA upon the end of the project. All the hardware, cabling and network resources are to remain the property of the concessionaire. At the end of the 10-year concession the LRA and the Concessionaire may extend the concession contract upon mutual agreement.

The concessionaire is expected to recover and earn a return on investment through service fees agreed with and collected by the LRA. Present fees charged by LRA for its services would increase.¹⁹ In turn LRA customers would benefit from enhanced trustworthiness of the system and greater efficiency (Table A19).

Outsourcing Mode

Land registration is a natural monopoly: the State acts as impartial independent keeper and arbiter of property rights (Arruñada 2003). By mandate and to preserve impartiality and public trust the LRA Registrar must keep ownership and be responsible for the integrity of the property database and perform essential functions such as the qualification and signing of documents. In practically all countries the Registrar is an independent public agency subject to supervision by the executive branch of Government and, where well governed, with participation of civil society.²⁰

There are examples world wide of successful outsourcing of systems development for Land Administration.²¹ When private enterprise is involved, the service contracted is commonly a turn key operation with the private partner developing a system or part of a system that is subsequently turned over to be run by Registry authorities.

The LRA/RoD provides a time-sensitive public service that is valued by citizens and generates a considerable revenue.²² Nevertheless, the agreement signed to implement the LTCP would put the LRA in a precarious position at the end of the 10-year project, with the LRA locked into the technological platform developed and operated by LARES.²³ Since after the 10-year concession the software and hardware and network would remain the property of LARES any new functionalities and services could only be added by LRA by either developing a new system from scratch (e.g. starting a new project) or by paying whatever price was set by the company. System breakdowns can be very

disruptive for an agency providing a time-sensitive revenue-generating service requiring strong security of its database, yet in the event of a breakdown, which occasionally happens and often requires altering existing applications, apparently the LRA would need permission from LARES in order to make the necessary system adjustments.²⁴

The Build Operate and Transfer Program may be a suitable way to engage the private sector in some kinds of public service, but the mandate of the LRA as an independent arbiter and keeper of records of land rights imposes functional restrictions that are not easy to harmonize with the BOT Program. Out of the several options available within the Program, a Build-Own-Transfer (BOT) scheme might appear more appropriate than the Build-Own-Operate (BOO) option that was chosen because it would enable the LRA to take possession of the systems and equipment at the end of the project. Nevertheless, early in the LTCP project cycle the BOT was deemed unsuitable by NEDA's Investment Coordination Committee (ICC) because the LRA must continue to handle some key functions and this goes against the BOT model contract which presupposes that the concessionaire runs operations (Commission on Audit 2005, page 36).

Because the LRA/RoD is a public monopoly providing services that are valued and affect a broad range of stakeholders, decisions regarding fees resulting from negotiations between government and a private enterprise that could potentially generate monopoly rents and significantly affect affordability and rural outreach, should in principle be subject to open discussion and public scrutiny. There is no evidence that a public discussion on the fee increases expected from LTCP implementation is foreseen. Even if it were, it is difficult to envision that a dispassionate technical open discussion could take place and achieve an accord on fees satisfactory to both, the company and the public.

Status

The Commission on Audit found the LTCP significantly behind schedule. A building to house the Information Management Center for the Central Office was constructed by LARES and the development of the software had advanced, but the LARES failure to put forth the capital required by the original implementation schedule resulted in serious delays. By mid 2004 much of Phase I, including 3 pilot test areas which should have been implemented within the first 6 months, had not been completed.

In May 2004 the LRA sent LARES a formal notice of default. LARES responded with a request for arbitration. Negotiations between Government and LARES continue (February 2007) in search for a satisfactory agreement.

Impact

The LTCP will have a limited impact because it will fail to address some of the most important shortcomings of land administration in the Philippines.

An increase in public trust in land records and land record management by LRA/DoR could be a potential significant contribution of the LTCP. In practice, however, the land records to be digitized under the project are known to be of low quality and will not be subjected to field validation. The LTCP will therefore be unable to resolve the problems of duplicate and fake titles known to affect LRA records (LAMP 2005, page 34).

Any increase in efficiency obtained from LRA computerization is of minor importance in respect of the total cost of registering urban property. Deed Registration is one of eight steps and only adds 10 days to the total of 33 days required and only 0.3% of the property value of the total cash cost of 4.7% (Table A20). Saving a day or two as is expected of the LTCP (Table A19) is unlikely to make much of a difference in customer satisfaction.

Computerization of the LRA will not do much for the millions of Filipinos presently occupying 10 million parcels of alienable and disposable lands with little security of tenure. On the contrary, it could frustrate rural titling efforts and their sustainability. With 45% of the population earning less than P 100/day (Table A1), any significant increase in fees will reduce rural people's ability to afford a first title and subsequent transfers.²⁵

Implications for the Demand for ICTs

Is there Widespread Demand for LIS Services in the Philippines?

The long term potential demand in the Philippines for Land Information System (LIS) services is enormous. Two broad categories of users may be identified. Government officials, decision-makers and urban planners presently use a variety of ad hoc often non-standardized GIS and mapping applications. Their effectiveness could increase from more standard interoperable databases and systems that provided textual and mapping information founded on information on who is occupying or has rights over the country's lands patrimony. Demand from citizens is far more important in size and in respect of its potential impact on national growth and development. It is a demand that is derived from the demand for a trustworthy system of property registration and information on property rights records.

Presently, urban dwellers, enterprises, commercial banks that already have secure title on properties could significantly benefit from Internet access to their property records. Rural dwellers with no secure land tenure would not benefit much from improved LIS applications that failed to address the present high costs and obstacles preventing rural property registration.

LIS Supply Response

The LTCP will have little impact on rural public service delivery. Nevertheless, if implemented successfully, the LTCP could stimulate a significant increase in the use of the Internet, as citizens and enterprises download forms, check the legal status of their own property or of property they want to buy or lease, and check the status of their paper work.

LAMP is developing Land Information Systems that are useful as tools for land administration and property valuation. Over the short term (3-5 years), it is unlikely to result in major increases in ICT use. Over a longer planning horizon, LAMP's ICT work is of critical importance for the delivery of effective public services to rural communities and is laying the foundation for the computerization of land records.

Constraints and Success Factors

Constraints

Two different LIS development paths can be envisaged for the Philippines, each exemplified by the LTCP or by LAMP's LIS efforts. These two paths may begin separately, but will ultimately need to converge. Two separate land registration systems cannot cover the same territory and as the country's experience shows, significant difficulties arise when separate titling procedures are applied in rural and urban areas.

In order for the LTCP to succeed in computerizing land records it will need to overcome the complex negotiations with Government previously described.

In order for LAMP's LIS efforts to be successful, necessary reforms in land registration in the Philippines are indispensable; i.e. i. the creation of a new agency consolidating land registration functions that are presently under MONRE and LRA and mapping functions presently under NAMRIA; ii. the extension of the validity of the free patent so that it may serve as a legal instrument of title for urban land.

Success Factors

The need for reform required for the success of either of the LIS development paths just outlined is not uncommon. Land Information Systems can make an important contribution to land administration and land management in the Philippines. But LIS on their own, without major reforms to the present institutional setting will have a limited impact on land administration. Experience from Thailand (Box No. 3) and elsewhere (Proenza 2007) offers important lessons in this respect.

First, a single agency that unifies land registration with land valuation, tax collection and mapping, is in the best position to create a system of land administration that runs efficiently, even if it runs at a relatively low level of computerization.

Second, advanced land information systems that make enable citizen use of the Internet can help lower costs and increase rural services significantly; e.g. by providing seamless integration of data, reducing the distance that citizens must travel to register transactions and enabling e-conveyancing.

Third, land administration systems can also serve as a foundation from which to build land management systems (as in Suphan Buri province in Thailand) to help plan local government interventions with greater precision and in reference to specific persons or enterprises occupying the land.

Fourth, Governments do not always develop LIS even when if they can yield clear benefits to citizens and even when the land administration functions generate substantial amounts of revenue. Leadership from staff, decision-makers or even some prodding from donors may be necessary.

Text Box No. 3: Land Administration and LIS in Thailand

The Thai population is predominantly rural - 68% compared to 37% in the Philippines (Table A1). Registering urban property in Thailand takes less than two days (Table A14) and not much more in the countryside. Beyond those living in forest lands, the great majority of people enjoy secure land tenure. Efficient as it is, land administration in Thailand is carried out predominantly using manual procedures. The Department of Lands (DOL) has 880 offices distributed throughout the country, of which about 50 Provincial offices are fully computerized. The District offices perhaps use one computer in the front desk, but only to automate the more routine operations. The DOL however has no integrated database and its online services are limited (e.g. downloading of forms, respond to online queries from customers).

Efficient land administration in Thailand is the result of a sensible institutional setting for land administration and simple, secure, customer service oriented procedures. When the World Bank 20 year 3-loan program started in 1984 Thailand already had a sound institutional framework. Since 1901 the DOL has had responsibility for all aspects of land registration, including cadastral mapping and registration of land rights; in 1981 DOL was given responsibility for a Central Valuation Authority. Registration of land in Thailand requires no intermediation by notaries, lawyers or the court system. The World Bank supported program's achievements were to expand the cadastre, introduce customer service focus and invest in a huge expansion in rural land titling. The number of titles increased from about 6 million before the program, to over 30 million presently. Efficiency also increased: DOL staff numbered 15,000 before the project and only 11,000 presently. The total amount collected by DOL on government's behalf (registration fees & taxes) amounts to about US\$ 1.37 billion annually. The annual amount used by DOL to run operations is about US\$ 91 million.

The DOL system has limitations. Transactions must be registered by contracting parties in the province where the land is located. The DOL is now implementing a 3-5 year program to computerize all Provincial land offices (about 300 remaining), prepare digital cadastral maps, set up automatic data entry in 15 sites, expand Online services which are presently very limited. The estimated cost of the LIS project is US\$ 10 million. Another longer term project envisages a paperless land office in every province, for a total cost of US\$ 350 million.

A second notable LIS initiative by the Government of Suphan Buri Province (about 100 km from Bangkok) helps plan local and national government interventions. The system, for example, proved to be very valuable in programming post-Tsunami assistance by enabling the swift identification of property owners in the affected areas.

V. Emerging Policy Roadmap

Role of Private Sector, Government and Donors

The Philippines experience shows that ICT applications in the three areas considered can contribute to sustainable rural development. Furthermore, a view of the proper role of the public and private sectors and of donors begins to emerge (Table A21).

Wireless Financial Services

The private sector is the dynamic force driving wireless financial service development. Private provision of m-banking services is high impact, profitable and self-sustaining. Rural outreach may be slow in coming but is impending.

Government's role is important but indirect and involves the adoption of appropriate regulatory frameworks. Telecom regulation needs to foster competition and investment in telecommunications networks and value added services. Central Bank authorities need to develop a framework that protects consumers from undue risks, fraud or crime and ensures that service providers adopt adequate risk management measures; while at the same time facilitates and encourages innovation in financial service development, in particular to better serve rural communities.

Donors can support innovation and financial deepening by disseminating good practices, promoting the exchange of information between countries and by providing seed funding to encourage new product development (technical assistance, training, performance testing and monitoring) to expand rural service.

Market Information Systems (MIS) and Services

Lessons of experience with Agricultural and Rural Market Information Systems are tentative. Farmers can be empowered by increased information on prices, greater marketing channels, and more market intelligence information. The Internet and mobile telephony in particular are drastically reducing the costs of providing these services. What is not clear is whether the costs of providing these services can be sustained by public agencies or whether private enterprise can make a sustained profit without relying on government or donor support.

Ministries of agriculture have traditionally collected and disseminated wholesale market data at high cost and the resulting MIS are commonly unreliable or irregular. Farmers rely more on information from their own **trusted** network of family, traders, other farmers, and friends. The experience of the Bureau of Agricultural Statistics in Bukidnon shows that more relevant and timely systems can be set up, but whether these intensive data gathering efforts are scalable at a sustainable cost remains an open question.

Because of network effects online market participants cluster in a few online sites which are successful, profitable and prominent in the press (e.g. e-Bay). In practice, many online e-hubs provide information to identify other traders but few engage in the facilitation or actual completion of transactions (Paré 2001, 2002). The amount of new business being transacted through these sites is still limited (Humphreys *et al* [2003]) and their usefulness for farmers remains a promise.

B2BPriceNow.com appears to be making important inroads, in partnership with a large government owned commercial bank with a mandate to serve farmers (Landbank) and a major systems development company (Unisys). It is following a business model that combines an online electronic market that can be reached via mobile phone and the

Internet, with a concerted effort to increase access to the Internet by franchising the establishment of Business Centers in mid-size towns under the operation of large financially viable cooperatives (i.e. a loyal customer base) and training center operators in running operations and e-Commerce.

Promoting low cost access to mobile phones appear to be the best way to empower farmers with ability to gather market price information from trusted sources that are relevant to their particular needs and to reduce intermediation costs and price variability. A regulatory framework that fosters competition in telecommunications and infrastructure development is therefore a key public intervention in support of MIS development.

Further testing of initiatives that promise to be self-sustaining is also recommended. It is not that important whether a public agency or a private enterprise leads the effort; public-private partnerships may in fact be a way to increase efficiency, leverage resources and spread risks. Selective donor support of the more promising initiatives is advisable. Donors should also monitor and assess cost and benefits before planning any large up scaling of these efforts.

Land Information Systems (LIS) and Services

Government institutions have a more direct role to play as arbiter of property rights and keeper of land records, but to date this task has been carried out only partially (mainly in urban areas and with low degree of reliability) and at high cost in terms of both time and resources. Land Information Systems can significantly increase the effectiveness of land information and land management services and LAMP has begun to develop useful LIS tools. Nevertheless, continued co-existence of several institutions with similar mandates often working at cross purposes has resulted in separate uncoordinated LIS initiatives (e.g. LTCP and LAMP initiatives) that constrain their effectiveness and prevent the needed expansion in land administration services.

The private sector has a role supporting LIS development, but its involvement must be in harmony with the essential requirements of land administration as a public monopoly service. Direct for profit investment in the computerization of LRA record management functions by private enterprise under the Build-Own-Transfer program has proven difficult to implement and its future remains uncertain.

Donors have played a key role testing new ways to improve land administration service delivery, creating awareness of the need for institutional reform (e.g. establishment of a single agency responsible for land administration) and developing and applying useful LIS tools. Donors are likely to play an even greater role once land administration reforms have been instituted.

Promising Donor Interventions

The Philippines experience illustrates some donor approaches that have worked well and also suggests some promising new areas for donor intervention that could help expand information services to rural communities.

Wireless Financial Services

The USAID sponsored Micro-enterprise Access to Banking Services (MABS) Program (www2.rbapmabs.org) is a relatively low cost but high impact model intervention. MABS has shown how a program of **technical assistance, training, workshops and seed financing and the sponsorship of partnerships** between telecommunications operators (GXchange), rural banks and central bank officials, can help extend the

wireless financial services frontier to rural areas by encouraging an increase in the network of cash-in and cash-out m-banking outlets and by helping to develop new wireless financial products (e.g. text-a-deposit and text-a-payment) to lower the costs of rural microfinance.

Filipino operators have done well on their own without prodding from donors or Government developing wireless financial services. In other countries where m-banking is promising but not well known, the involvement of **equity investment** from the International Finance Corporation could help encourage operator and commercial bank involvement in the development of their own m-banking service platforms and at the same time help central bankers overcome any reticence there might be for lack of familiarity with regulatory requirements.

Notwithstanding the advances of MABS, it is important to monitor that project's progress through specialized independent **studies and surveys** that document teething problems and advances along the way to expanding rural service.

Market Information Systems (MIS) and Services

Interventions **that increase mobile phone penetration** are most likely to yield high impact meeting farmers' demand for market information. As the Philippines experience shows, increasing competitive pressure will encourage innovation and increase mobile penetration.

The experience of B2BpriceNow is promising and a useful novel pilot intervention suitable for **small grant** financing. A more thorough evaluation of this and similar experiences is warranted, particularly where, as is the case of B2BpriceNow, they combine increased access to the Internet (providing training and commercial assistance to cooperatives) through the establishment of commercial telecenters with an e-commerce portal.

There appear to be no major initiatives to expand market intelligence in a systematic and significant way in the Philippines. Indonesia's **Farmers' empowerment through agricultural technology and information project** combines support to the country's extension service with the delivery, via the Internet and mobile phones, of market intelligence and technical services, and is expected to foster greater interaction between extension agents, researchers, farmers and traders.

Land Information Systems (LIS) and Services

The Land Administration and Management Program, a long term series of adaptable program loans is an excellent example of the kinds of interventions that are needed in order to expand land administration services and a judicious gradual approach to developing land information systems in the Philippines. The more sophisticated online services may take long to attain. This is not the result of the project's approach which is sound, but of the institutional challenges that the Philippines is presently facing.

Computers enable the automation of simple routines, but for in order for information systems to have a significant impact, parallel changes in institutional procedures are usually required; i.e. a re-engineering of traditional ways of doing things is necessary (Brynjolfsson and Hitt 2003; Dedrick, Burbaxani and Kraemer 2002). Unfortunately, policy makers are often lured by sophisticated portals that provide online land administration services. What is not always appreciated is that most of these portals been set up only after a long institutional development struggle, the reengineering of procedures and significant legislative changes. To increase understanding among decision-makers and project planners, **studies, workshops and exchanges** regarding LIS approaches and requirements would be advisable.

Notes

1. Churn rate is the proportion of subscribers that cancel their subscription. Any time-frame may be used but churn rates are often quoted on a monthly basis. A 3% monthly churn consistently applied over a 12 month period would result in a loss of nearly 30% of the initial customer base.
2. In the last quarter of 2000 Smart Communications also launched a Mobile Banking service in partnership with other Filipino Banks enabling customers to exchange text messages and conduct transactions on their bank accounts using their mobile phones.
3. Reload discounts vary with market conditions. A re-seller's posting on the Internet dated 7 December 2006 suggests retailer commissions are presently 12% for over the air loading (Palma 2006).
4. "the edges of commercial microfinance are defined by cost structures of current delivery technologies" (Peck Christen 2006).
5. Central Bank circulars may be downloaded from www.bsp.gov.ph/.
6. The requirements that applicants must satisfy - stipulated in Circular No. 269 - may be summarized as follows
 - i. demonstrate that adequate risk management procedures and monitoring systems are in place;
 - ii. show that a manual describing corporate policy has been prepared addressing all security issues associated with the service (authentication of sender and receiver, non-repudiation of transactions effected, enforces access rights of parties involved, assures data transmitted wirelessly is not altered and that no one other than the transacting parties can understand the data);
 - iii. give evidence that the system has been tested and these tests have yielded satisfactory results;
 - iv. present a business plan detailing banking channels and systems and providing for continuity of the service has been adopted.
7. "...the track record of such services around the world has not, on the whole, been very satisfactory....FAO conducted a survey of all FAO member countries. This indicated that, while a large number of countries do operate some type of MIS, the vast majority of services cannot be considered to provide commercially useful information for farmers and traders. A large percentage of MIS are primarily data-gathering exercises, and even this is done inadequately. MIS suffer because they are frequently operated by government officials who lack a commercial approach. More importantly, the majority face significant resource constraints." Shepherd (1997, page 1.)
8. "A case study of six persons' experiences in registering a transfer of land title revealed that 'facilitation fees' (i.e. bribes) were sought in every case and paid in at least four cases. The minimum time required to register the title transfer was two weeks (with payment of a bribe). The maximum time required was over two years." (Land Equity 2002, page 7).
9. Other agencies involved in land titling and records management are the Department of Agrarian Reform and the National Commission on Indigenous People (Rebuelta-Teh 2005).

10. See also Llanto and Ballesteros 2003 and Rebuelta-Teh 2005.
11. Including a High Level Presidential Task Force established in 2002 by Executive Order 82 and headed by DENR with representatives from all of the agencies involved in land administration.
12. See, for example, the "Position paper by Gabay ng Land Registration Authority On the Proposed Abolition of the LRA" and the "Position Paper of the Association of Register of Deeds and Deputy Register of Deeds of the Philippines, Incorporated (ARDDRDPI) on the Proposed LARA Bill".
13. Component cost as a percent of total cost are projected figures taken from World Bank 2005a. The distribution of cost by component may have varied in practice.
14. Barangays Payatas, BAgong Silangan, Holy Spirit, Batasan Hills and Commonwealth.
15. LARES is the acronym used by Land Registration Systems, Inc. the name under which the 4-company consortium contracted to carry out the project is incorporated.
16. See LRA 1999 pages 1-2 and Audit Commission 2005, pages 24-29.
17. The US\$ 90 million figure project cost estimate given in the IFC website is the one commonly cited by LRA officials and in media reports (Rubio 2005, Estavillo 2005). The National Computer Center (NCC) gives a third figure, US\$ 82 million. Different exchange rates may in part account for the different estimates.
18. Namely: Build-and-Transfer (BT), Build-lease-and-transfer (BLT), Build-Operate-and-Transfer (BOT), Build-Own-and-Operate (BOO), Build-Transfer-and-Operate (BOT), Contract-add-and-operate (CAO), Develop-operate-and-transfer (DOT), Rehabilitate-operate-and-transfer (ROT), Rehabilitate-Own-and-Operate (ROO). (Commission on Audit 2005, pages 9 and 10)
19. There is no information available to the public on the expected new fee structure. Land Equity (2002, page 33) states that a 200-300 percent increase was being seriously considered. In February 2007 LRA officials suggested that the implementation of the LTPD could require a fee increase of perhaps 50%.
20. One example is Kadastre in The Netherlands which has a Supervisory Council and a User Council. The User Council meets 4 times a year to give advice on matters either in response to requests or by their own initiative. It pays special attention to service levels, product management and fees. The User Council of Kadastre has 16 representatives in total. The institutions represented in the Council are: two umbrella organizations of notaries, umbrella organization of Real Estate Brokers, umbrella organization of Municipalities, umbrella organization of Provinces, umbrella organization of Water boards, umbrella organization of Consumers and Real Estate Owners, umbrella organization of Banks, umbrella organization of Geo-information Industries, publishers of geographical books and atlases, and representatives from 6 Ministries (Defense, Housing, Environment and Spatial Planning, Transport and Water Management, Education, Culture and Science, Agriculture and Nature and Home Affairs) (Proenza 2007).
21. Some examples of satisfactory outsourcing (from Proenza 2007) include:

In Norway, until recently the data recorded by the country's 87 local registries (dependent on the judiciary) were updated daily and forwarded to the Registry's headquarters to make up a centralized database. This information was also transmitted to a state enterprise, Norsk Eindromsinformasjon Ltd., an agency

formed for the purpose of establishing, administering and publishing on the Internet a single database that integrated registry (from local registries) and cadastre information (from Mapping Authority).

The India's National Informatics Centre, a Government Agency, developed the Bhoomi system for Karnataka, India.

Panama's Registry outsourced to a private enterprise the development and installation over a 5 year period of a Digital Registry System (REDI) that was subsequently turned over for administration by Registry staff. The project included the successful installation of a network of 100 computer work stations, optical fibre infrastructure, database servers and Jukebox storage units, scanners, and the digitization of 19 million documents and software development including the establishment of a Web based consultation system.

22. In 2002, fees collected by the LRA for services rendered amounted to P1, 491,190 (about US\$ 30 million), three times as much as budgeted expenditures of P 455,887 (Land Equity 2002, Annex C, page 10). LRA annual contributions to the national treasury exceed US\$ 20 million. This figure does not include the property taxes collected largely as a result of LRA registration activities.

23. This point was first raised by the Commission on Audit which also recommended the resolution of negotiations with LARES and the realization of a more suitable contract. The principal findings of the Audit Report (2005, page 5) are:

"The LRA Land Titling Computerization Project (LTCP) was not efficiently and effectively implemented and both government and public interest are not adequately protected under the contract. As of December 2004, Phase I remained uncompleted when Phases 1-IV was supposed to be completed in January 2004.

The implementation of the project was adversely affected by the apparent failure of LRA to decide on the new features necessitating numerous revisions/data conversion issues and inability of the project proponent to provide adequate funds to complete the project. The absence of control mechanism to protect both government and public interest is evident in the following cases:

_ The project was undertaken under a BOO contract where only database will be owned by the LRA at the end of concession period. The IT facilities and application systems, the costs of which were recovered from the users, remained property of the proponent. Under this condition, the project continuity would be adversely affected unless the LRA would be able to renegotiate or be able to acquire the necessary systems and facilities at the end of the contract.

_ There was no rate of return prescribed for the project. The absence of a prescribed reasonable rate of return would in effect allow the proponent to earn unlimited rate of return at the expense of the public. Moreover, the contract provides for automatic fee adjustment without taking into account increase in volume of transactions.

_ The contract failed to include provisions for penalties in case of delay in project implementation schedules and revenue sharing in case of windfall increase in volume of transactions. Thus, while the project proponent was not able to deliver on time, no penalties could be imposed under the contract."

24. It is unclear whether the contract with LARES even provides for in-house capacity building to enable the LRA to eventually add functionalities or make emergency modifications to the system.

An example from Central America helps illustrate the risks of outsourcing time-sensitive mission-critical IT operations. The information system of Guatemala's Registry was developed in 1996 by GBM, a regional subsidiary of IBM. A few years later the GBM staff managing the system convinced RGP authorities to hire them directly to replace GBM as the contractor. The change proved disastrous. In May 2003 the RGP's information system collapsed and, for lack of backups, some 430,000 images of electronic and physical records were lost. With no in-house capability to repair the system, GBM was hired anew to help recover the records and refurbish the applications. Prior to the system's collapse, the cost of outsourcing the system's management amounted to US\$ 40,000 a month; under the new contract, outsourcing costs doubled to US\$ 80,000 a month. (Proenza 2007)

25. According to the LAMP II Project Design Document:

"The fee structure is not yet announced, except that LARES has indicated that the cost of information for LAMP II will be P150 per parcel. There are two concerns on the LARES fees:

- The fee structure for poorer rural areas would encourage people to not use the current system and their land tenure status would become informal, and secondly, it would be a hurdle for people wanting to register documents on land;
- The indicated fee of P150 per parcel would be prohibitive for LAMP."
(LAMP 2005, page 24).

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Annex A: Tables

Table A1. Selected Indicators, South East Asia

	Population			% Illiteracy > 15 yrs		% population earning less than US\$2/day	GNI per capita (2005)	Cellular subscribers per 100 people (2005)	% Prepaid (2005)	Mobile Cellular tariffs US\$ (August 2006)		
	Total (millions 2006)	% <= 19	% Rural	Male	Female					Per minute local call		SMS
										Peak	off-peak	
Cambodia	14.4	59.8	80	15	36	77.7	380	7.5	57.9	0.12	0.11	0.03
Indonesia	225.5	47.2	52	6	13	52.4	1,280	21.1	92.6	0.11	0.09	0.01
Lao P.D.R.	6.1	62.2	79	23	39	74.1	440	10.8	97.2	0.17	0.14	0.04
Malaysia	25.8	51.6	33	9	15	9.3	4,960	75.2	85.0	0.10	0.10	0.01
Myanmar	51.0	n.d.	69	6	14	n.d.	n.d.	0.3	n.d.	n.d.	n.d.	n.d.
Philippines	84.5	54.6	37	7	7	47.5	1,300	41.3	92.0	0.13	0.13	0.02
Singapore	4.4	28.9	0	3	11	n.d.	27,490	100.8	36.7	0.14	0.14	0.03
Thailand	64.8	37.8	68	5	9	25.1	2,750	43.0	51.8	0.05	0.05	0.08
Timor-Leste	1.0	n.d.	74	n.d.	n.d.	n.d.	750	n.d.	n.d.	n.d.	n.d.	n.d.
Viet Nam	85.3	48.3	74	6	13	n.d.	629	11.4	80.5	0.15	0.15	0.02

Sources:

State of World Population in 2006, UNFPA www.unfpa.org/swp/

US Census Bureau - International Data Base: Population Pyramids www.census.gov/ipc/www/idbpyr.html

World Bank - Key Development Data and Statistics

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Data on % of population earning less than US\$ 2/day is from various surveys taken between 1997 to 2002. See World Development Report 2007

ITU 2007: www.itu.int/ITU-D/ict/publications/ict-oi/2007/index.html

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Table A2. Number of Cellular Mobile Telephone Subscribers 2002-2005

	2000	2001	2002	2003	2004	2005	2006
Smart	2,858,479	2,858,479	6,825,686	10,080,112	14,595,782	15,424,196	
Piltel*	656,814	1,483,838	1,773,620	2,867,085	4,612,450	4,984,425	24,175,384
Globe	2,563,000	5,405,415	6,572,185	8,800,000	12,513,973	12,500,000	15,659,742
Extelcom	194,452	194,452	29,896	29,896	13,670	10,374	
Digitel	n.o.	n.o.	n.o.	732,467	1,200,000	1,860,000	
Bayantel	n.o.	n.o.	n.o.	n.o.	n.o.	n.o.	
Islacom	181,614	181,614	181,614	-	-	-	
	6,454,539	12,159,163	15,383,001	22,509,560	32,935,875	34,778,995	
% growth relative to previous year		88%	27%	46%	46%	6%	

n.o. Not operational

* Piltel is a subsidiary of PLDT; **Starting in 2003, Islacom was combined with Globe.

Source: 2000-2005 National Telecommunications Commission (www.ntc.gov.ph/); 2006 data is from PLDT 2006 and Globe 2006.

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Table A3. PLDT Service Revenues from Cellular Telephony and Land Lines

	2005	2006		
	-- P 000 000---	US\$ 000 000		%
PLDT Cellular Service Revenues				
Voice Services	35,444	35,221	728	46.6
Text Messaging				
Domestic	29,110	32,763	677	43.3
International	1,698	1,640	34	2.2
Sub-total	30,808	34,403	711	45.5
Smart Money	84	68	1.4	0.09
Mobile Banking	5	5	0.1	0.01
Other Value Added Data Services	4,165	4,181	87	5.5
Other services	1,902	1,712	35	2.3
Total Mobile Service Revenues	72,408	75,605	1,563	100.0%
PLDT Fixed Line Service Revenues	49,663	49,134	1,016	

Source: PLDT 2007; Exchange rate: P 48.36 = US\$ 1

Table A4. Smart Communications Prepaid Air Time Load Options

Distribution Mode	P	US\$	Calls	Text Messages	Validity
	30	0.62	3	30	3 days
Over the Air (OTA)	60	1.24	6	60	6 days
	115	2.38	13	115	12 days
	200	4.13	25	200	30 days
Scratch Cards	300	6.20	40	300	60 days
	500	10.34	67	500	60 days

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Table A5. Number of Transactions and Value of Money Transfers using Smart Money in 2006

Transaction Type	Value			No. of Transactions	
	Billion Pesos	US\$ 000 000	%	No.	%
1. Remittances from abroad sent via Smart Padala	1.4	28,9	100%	n.a.	
2. Remittances within the Philippines sent via SMART Padala					
National Capital Region	1.2	24.8	22	1,500	21
North & Central Luzon	1.5	31.0	27	1,800	26
South Luzon	1.1	22.7	20	1,400	20
Visayas	0.7	14.5	13	900	13
Mindanao	1.0	20.7	18	1,300	19
Total	5.5	113.7	100	7,000	100
3. Total money transferred using Smart Padala (1+2)	6.9	142.7	100	n.a.	
4. Remittances Cashed at SMART Padala Centers**					
National Capital Region	0.138	2.854	38	84	51
North & Central Luzon	0.089	1.840	24	24	15
South Luzon	0.039	0.806	11	17	10
Visayas	0.053	1.096	15	20	12
Mindanao	0.045	0.931	12	19	12
Total	0.364	7.527	100	164	100

* The term Padala is used as synonymous with the act of transferring money from one phone to another. The term Smart Money is synonymous with the value available on the Card.

The term "remittances" is synonymous with money transfers, some of which are made from abroad while others from within the Philippines.

** Remittances may be "encashed" at SMART Padala Centers, which includes Smart Communications Offices, Banco de Oro offices, and other partner agencies. These centers charge 1% fee for cashing Smart Money transfers. Smart Money transfers may also be used to make purchases at participating stores, to reload phone account or to make transactions using ATM machines.

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Table A6. Globe Telecom Service Revenues 2005

	P 000 000		US\$ 000 000	
	2005	2006	2006	%
Wireless				
Voice	28,945	28,982	599.3	57.2
Data				
SMS domestic	16,020			
SMS international	1,563			
Value added services	1,954			
Total Wireless Data	19,536	21,690	448.5	42.8
Total Wireless	48,481	50,672	880.1	100.0
Wireline Service Revenues	6,416		116.5	

Source: Globe Telecom (2005, 2006)

Note: The distribution of data services in 2005 is based on percentages given in Globe 2005: SMS domestic (82%), SMS international (8%) and Value added services (10%).

Exchange rate: P 48.36 = US\$ 1

Table A7. GCash: Services, Requirements and Service Charges
(Feb 2007)

	PHP	US\$ ^b
Start-up Requirements		
Subscription to Globe		
Basic phone – New ^a	1,590	32.88
Sim card (64 K with GCash Menu Burned into SIM)	60	1.24
Minimum Start Up Phone Load	65	1.34
GCash Registration (Enables Reception of GCash Credit)		
Registration text message ^c	0.90	0.02
GCash Load (Enables client to send or use GCash credits)		
Presentation of ID at Globe branch office or authorized outlet		
Cash deposit into GCash account	no min.	
	Start up Cost	1,716 35.48
Services		
Transfer of GCash credit to another GCash subscriber account	0.90 ^d	0.02
GCash purchase of Load (for self or for another Globe subscriber)	0.90 ^d	0.02
Conversion of GCash credits into cash	1%; 10 PHP min ^e	
Purchase of goods or services from participating merchants	0.90 ^d	0.02
Receipt of Salary via Phone – Payroll service		
Text a payment to Microfinance institution	0.90	0.02

^a Motorola C117-Globe

^b Exchange rate: 48.36 PHP = 1 US\$

^c A small phone load like this one has a 15 day expiration date. The expiration date will however be extended and reset by any new load.

^d Cost of text message requesting transfer

^e Service fee charged by participating merchants.

^f Service developed in collaboration with

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Table A8. Illustrative Implications for Customers of Using Text a Payment

Item	Text a Payment	Over the Counter	Savings/ Advantage
Direct costs associated with P 1,000 payment/deposit	P10 (GCash 1% service fee).	P16 roundtrip fare.	P6
Opportunity costs	None	P200 (Assumes 4 hours of travel plus time spent at branch, and a loss of unearned income of P50/hour)	P 200
Total monetary cost/savings	P10	P216	P206
Risks	None	Burglary or loss enroute	Lower risk of cash transfer.

Source: Owens 2006, page 6.

**Table A9. Number of Clients Attended by Bureau of Agricultural Statistics
by Service Window and Type of Customer
July-December 2006**

Service Window	Academia	Government	Private	Total
Walk in Researchers	1179	1026	512	2717
Requests/inquiries by				
Telephone	13	435	86	534
Cellphone	7	66	10	83
email	2	76	2	80
Formal letters	26	195	19	240
Fax/Other	13	1653	1080	2746
Total Clients Served	1240	3451	1709	6400

Source: Bureau of Agricultural Statistics 2007, Tables 28 and 31

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**Table A10. Impact of MIS Pilot on 85 Farmers Surveyed in
Impasugong and Lantapan Municipalities**

Impact	Number of Respondents	%
Increased knowledge of price information	69	81
Higher price received for the vegetable produce	68	80
Increase in area planted to existing vegetable crops with favorable prices or decrease in area planted to existing crop with low price	31	37
Planting of new vegetable crops with favorable prices	49	58
Production programming	6	7
Increase in farm income	69	81
Better decision on when and where to market their vegetable produce	20	24

Source: Aragon, C.T. 2004. Evaluation of the Farm Income Diversification and Market Development Project in the Framework of the Special Programme for Food Security (TCP/PHI/2901D). Reported by (FAO 2004)

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Table A11. Institutions where B2B Centers Have Been Installed

	Name of Institution and Location	Province	Population 2000		Urban/Rural Status*
			Municipality	Barangay	
1	SCI Development Cooperative, Capitol, Tandag	Surigao del Sur	44,327		PU
2	Magrow Multi-purpose Cooperative, Maragusan	Compostela Val.	45,937	10,827	PU
3	Agusan Sur Savers Multi-Purpose Coop. (ASSAMCO), San Francisco	Agusan del Sur	56,968		PU
4	Bislig Chamber of Cooperative (BICHAMCO), Managoy, Bislig City	Surigao del Sur	97,860	41,219	PU
5	Polo Samahang Nayon Multi-Purpose Cooperative, Polomolok	South Cotabato	110,709		
6	PCCCI Cooperative Development Center, Managoy, Bislig City	Surigao del Sur	97,860	41,219	PU
7	Gata Daku Multi-Purpose Cooperative, Poblacion 1, Clarin	Misamis Occidental	29,712	1,856	PU
8	Quezon Federation and Union Cooperatives, Lucena City	Quezon Province	196,075		HU
9	United Sugars Planters Development Coop(USPD), Digos City	Davao del Sur	125,171		PU
10	PAGLAUM Multi-Purpose Cooperative, Looc Proper, Plaridel	Misamis Occidental	29,279	1,510	PU/U
11	Fed. of Southern Agusan Coop. (FEDSACO), Poblacion, Trento	Agusan del Sur	41,696	14,910	PU
12	KAMAHARI Agri-Base Multi-Purpose Coop., Camp Abejar, Lumbangan, Nasugbu	Batangas	96,113	6,059	PU
13	Golden Field Multi-Purpose Coop., Brgy. 1, Maria Aurora	Aurora	33,551	990	PU
14	Aurora Multi-Purpose Coop., Inc. (AMCI), Baler	Aurora	29,923		PU
15	Sablayan Market Vendors Multi-Purpose Coop. (SAMVEMCO), Buenavista, Sblayan	Occidental Mindoro	63,685	8,513	PU
16	San Jose Water Services Dev. Coop. (SAJOWASEDECO), San Jose, Gen. Mariano Alvarez	Cavite	112,446	3,293	U
17	BIMEC, Binalbagan	Negros Occidental	58,280		PU
18	BSU Multi-Purpose Cooperative, La Trinidad	Benguet	67,963		PU
19	Land Bank employees SME, Alaminos City	Pangasinan	73,448		PU
20	FEDARCCO-AIMC, Butuan City	Agusan del Norte	267,279		HU

Sources: <http://b2bcenter.biz>; www.census.gov.ph; www.nscb.gov.ph/activestats/psgc/listprov.asp

* HU: Highly urbanized, U: Urban, PU: Partially urbanized, R: Rural;

**Philippines Country Report: Applications
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**Table A12. B2BPriceNow.com:
Number of Sessions by Registered Members**

Year	Sessions by Registered Members	% change
2000	119	
2001	1,014	752%
2002	1,533	51%
2003	1,387	-10%
2004	986	-29%
2005	2,052	108%
2006	25,930	1164%

**Philippines Country Report: Applications
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Table A13. Link Popularity: Number of Search Engine Web Pages Linking to Selected Sites

URL of Site	Type of Service – Business	Total	Google/ AOL HotBot	MSN	Yahoo/ FAST/ AltaVista
Public Service Portals					
www.da.gov.ph	Department of Agriculture	4366	109	0	4257
www.bas.gov.ph	Bureau of Ag. Statistics	988	19	0	969
http://agri10.norminet.org.ph/	Region 10	46	7	0	39
www.da.gov.ph/agribiz/programs.html	Agribusiness & Mkt. Assist. Div. of Reg. Field Unit 10 - Northern Mindanao	28	0	0	28
e-Commerce Portals					
www.e-Bay.com	Principal e-commerce portal in US	5967	0	0	5967
www.sme.com.ph	Joint venture of IFC and Planters Dev. Bank	2776	273	0	2503
www.papemelroti.com	Gift products.	956	56	0	900
www.b2bpricenow.com	agricultural products	195	31	0	164
www.bayantrade.com	Strategic Sourcing/Suply Mgmt. Owners: Ayala Corp., Benpres Holdings Corp.	168	7	0	161
www.b2bcenter.biz	Center portal of B2BPriceNow.com	0	0	0	0
www.kalakalan.com	Health, nutrition, weight management products	1	0	0	1
www.sourcepilipinas.com	e-marketplace; P5 billion initial capitalization	42	2	0	40

Test date: 18 April 2007; MarketLeap Search Engine Marketing Tools; <http://tools.marketleap.com/publinkpop/>
Source of information on type of service and business: PhilippineBusiness.com 2001

Table A14. South East Asia Country Rankings According to Competitiveness, Institutions and Corruption Perceptions

	World Economic Forum 2006		Transparency Int. Corruption Perceptions
	Global Competitiveness	Institutions	
Cambodia	103	95	151
Indonesia	50	52	130
Lao P.D.R.	n.d.	n.d.	111
Malaysia	26	18	44
Myanmar	n.d.	n.d.	160
Philippines	71	88	121
Singapore	5	4	5
Thailand	35	40	63
Timor-Leste	122	119	111
Vietnam	77	74	111

Sources:

www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm

www.transparency.org/policy_research/surveys_indices/cpi/2006

**Philippines Country Report: Applications
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Table A15. Cost of Registering Urban Property in East Asia

	Ease of Doing Business Rank	Registering Property Rank	Cost of Registering Urban Property		
			No. of procedures	Time (days)	Cost (% of property value)
Cambodia	143	100	7	56	4.6
Indonesia	135	120	7	42	10.5
Lao P.D.R.	159	148	9	135	4.2
Malaysia	25	66	5	144	2.4
Myanmar	n.d.	n.d.	n.d.	n.d.	n.d.
Philippines	26	98	8	33	5.7
Singapore	1	12	3	9	2.8
Thailand	18	18	2	2	6.3
Timor-Leste	174	172	n.d.	n.d.	n.d.
Vietnam	104	34	4	67	1.2

Source: World Bank, Doing Business in 2006 www.doingbusiness.org

Note: Poorest performers had a rank of 175 for Doing Business and 172 for Registering Property.

Table A16. LAMP II Components and Costs

	US\$ million	%
Development of Land Policy and Regulatory Framework	2.3	5.7
Institutional Development and Capacity Building	3.9	9.6
Security of Land Tenure - about 264,000 titles in 3-5 provinces	21.5	53.0
Property Valuation Appraisal	5.0	12.4
Project Management	5.8	14.4
Unallocated	1.9	4.8
Total Project Costs	40.6	100.0

Source: World Bank 2005

**Philippines Country Report: Applications
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**Table A17. Agencies of the Government of the Philippines that
Require the Use of Land Value Appraisals**

Department of Finance (DOF)	
1. Bureau of Internal Revenue (BIR)	Taxation
2. Bureau of Local Government Finance (BLGF)	Real Property Tax Administration
3. Local Government Units	Real Property Tax, Collection and Use
Department of Environment and Natural Resources (DENR)	
4. Land Management Board (LMB)	
5. Land Management Service (LMS)	Acquisition, disposal and rental of public lands.
6. Forest Management Bureau (FMB)	
Department of Agrarian Reform (DAR)	
7. Bureau of Land Acquisition & Distribution (BLAD)	Acquisition and distribution of land for agrarian reform.
8. Land Bank of the Philippines (LBP)	
9. Development Bank of the Philippines (DBP)	Mortgage lending
10. Department of Public Works and Highways (DPWH)	Acquisition of land for right-of-way and road expansion condemnation proceedings.
11. Department of Agriculture (DA)	Land conversion
12. Commission on Audit (CoA)	Government real property transactions
13. National Power Corporation (NPC)	Right of way acquisitions and rentals
Housing and Urban Development Coordinating Council (HUDCC)	
14. National Housing Authority (NHA)	Acquisition, disposition and mortgage lending
15. National Home Mortgage Finance Corporation (NHMFC)	
Department of Trade and Industry (DTI)	
16. Board of Investments	Project feasibility studies (Industrial Estates, Export Processing Zones)
17. Bureau of Trade Regulation and Consumer Protection (BTR)	Regulation and Licensing of Appraisers
18. Social Security System (SSS)	Mortgage lending
19. Government Service Insurance System (GSIS)	Mortgage lending
20. Philippines Estate Authority (PEA)	Property Development and Disposal
21. Department of Justice	Real property litigation and garnishment proceedings
22. Land Registration Authority (LRA)	Registration and collection of fees
23. Registrar of Deeds (RoD)	Chair of the Local Board of Assessment Appeals

Source: LAMP 2002, Annex D.

**Philippines Country Report: Applications
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Table A18. LTCP Project Cost Estimate – Commission on Audit

	P 000 000	US\$ 000 000	%
Hardware	1,408	26	39.3
Software	365	7	10.2
IT Services	445	8	12.4
Building	700	13	19.5
IT System Upgrading	665	12	18.6
Total	3,583	65	100.0

Source: Commission on Audit 2005, page 25
Exchange rate used (2005): US\$ 1 = P55

Table A19. Project Performance Indicators

Type of transaction	Present	Target
Issuance of certificate of title:	2 days	2 hours
Original title	3 days	2 hours
Subsequent title	2 days	2 hours
Reconstitution	2 days	1 hour
Subdivision/consolidation	1 day	1 hour
Registration Deeds/Instruments (without issuance of cert. of title)	1 day	2 hours
Certified True copies (subdivision plans, technical description, decrees of registration, certificates of title, etc.)	10 min to 1 day	10 min to 1 day
Approval of subdivision plans	2 weeks	2 days
Certification of status of plans/lots	-	15 minutes
Research	40 minutes within RD; not possible between RDs	15 min within RD; 1 day between remote RDs

Source: Commission on Audit (2005)

**Philippines Country Report: Applications
Annex A. Tables**

Table A20. Cost of Registering Urban Property in Manila

Procedure	Duration (days)	Cost
Preparation of the deed of sale and ratification by Notary Public	1	3% of property value
Obtain a certified true copy of latest tax declaration from the Assessor's Office of Manila	1	p 10/copy
Payment of Documentary Stamp Tax and Capital Gains Tax at an authorized bank	1	1.5% of property value (Documentary Stamp Tax) + 6.5% of capital gains (Capital Gains Tax)
Obtain tax clearance (or Certificate Authorizing Registration) from the Bureau of Internal Revenue	up to 14 days	No cost
Obtain a certificate of updated payments of Real Estate Taxes from the Treasurer's Office of Manila	1-3 days	P 50
Payment of transfer tax at the Treasurer's Office of Manila	1	0.75 of property value
Apply with the Assessor's Office of Manila for the issuance of a new tax declaration over the building in the name of buyer	3	P 100
Apply for registration with the Register of Deeds of Manila	10	0.3% of property value
Total	33	5.7% of property value

Source: World Bank, www.doingbusiness.org

The assumed value of the property is 50 times the national per capita income.

Philippines Country Report: Applications
Annex A. Tables

Table A21. Emerging Roadmap of Roles of Public and Private Sectors and Donors

	Regulatory and Legal Framework	Innovation, Service Development and Investment
Wireless Banking		
Government	protect m-banking clients from fraud, abscondment, loss of funds foster competition, telecom investment & rural service support m-banking innovation prevent illegal activities and money laundering.	
Private Sector		develop and invest in secure customer service application compliant with Central Bank regulations.
Donors	Technical assistance and training to improve telecom regulation	Provide seed money to encourage pilot testing of rural services. Dissemination of know how
Agricultural and Market Information Systems, MIS		
Government	promote competition and access development partner with private sector to disseminate public information products	experimentation with public service applications development, often in partnership with private sector.
Private Sector		develop and invest in applications to serve rural areas help develop sustainable (profitable) rural connectivity access points
Donors	Tech. assist. and training to improve telecom regulation	Seed funding for pilot testing and dev. of rural service.
Land Information Systems, LIS		
Government	land titling institutional reform	Develop applications (e.g. cadastre index map, valuation, sms) Encourage development of Internet access points
Private Sector	stakeholder participation in governance of land administration agency	help develop and install applications under contract to State Land Admin. Agencies.
Donors	Provide Technical assistance and training to improve land titling institutional and legal framework	Provide funding for pilot testing and subsequent development investment of titling in rural areas. Fund investment and tech. assist. to develop LIS services.


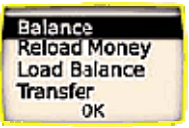
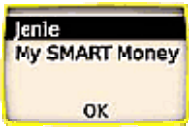

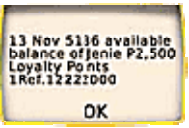
Annex B- Smart Money: Sample Mobile Phone Transactions

(taken verbatim from:

www.smart.com.ph/SMART/Value+Added+Services/Smart+Money/HowToActivate.htm

on 28 March 2007)

I. How do I check my SMART Money balance?

		
<p>1. Go to SMART Menu and Select SMART Money</p>	<p>2. Select Balance and press OK</p>	<p>3. Select from your list of your card names and press OK</p>
		<p>5. You will receive a text message containing the account balance and any loyalty points earned of your selected card</p>

II. Two Ways to load cash to your SMART Money

Over the counter

Visit any of the following:

- SMART Wireless Centers
- Banco de Oro branches
- SMART Padala participating outlets.

How do I load my SMART Money via SMART Wireless Centers, Banco de Oro Branches, and SMART Padala participating Outlets?

1. Go to any outlet and fill out a cash load slip.
2. Give the money to be loaded to your SMART Money account to the cashier.
3. You will receive a confirmation message when money has been loaded to your account.


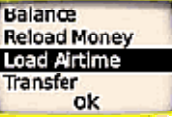
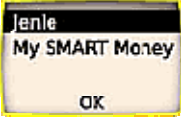
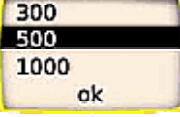

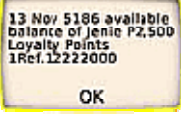
Via mobile banking

Using a SMART cellphone, Initialize your Mobile Banking Menu;

Go to SMART MENU, select MOBILE BANKING, click ACTIVATE and press OK.

Participating Banks: Megalink Banks, BancNet Banks, Asiatruster Bank, Allied Bank, Bank of Commerce, Citystate Bank, DBP, IBank, East West Bank, Insular Bank, Equitable PCI Bank, Keppel Bank, Metrobank, Maybank, Security Bank, Premiere Bank, Union Bank
Other Banks (Visit your branch of account for more details.)

III. How do I reload airtime to my SMART Buddy cellphone?

		
<p>1. Go to SMART Menu and select SMART Money</p>	<p>2. Select Load Airtime and press OK</p>	<p>3. "Pay from" will appear, press OK</p>
		
<p>4. Select a preset amount (300, 500, 1000), press OK</p>	<p>5. Enter your W-PIN press OK</p>	<p>6. You will receive a text message confirming the amount of airtime successfully reloaded.</p>

Annex C- GCash: Sample Mobile Phone Transactions

Sample Text Messages that Would be Sent by GCash User from GCash Registered Mobile Phone with PIN Number 1955 to Complete Selected Transactions

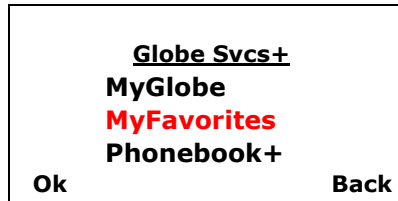
Type of transaction	Form of Text Message	Sample Text Message
Register new user	Reg 4 digit pin/mother's maiden name/client's first name/client's last name/address	Reg 1955/lalin/francisco/proenza/roma, italia
Use GCash to Purchase Mobile Phone Time (In predetermined amounts like: 65, 100, 300 or 500 PHP)	Load amount PIN	Load 100 1955
Check GCash Balance	Bal 4 digit pin	Bal 1955

Sample Menu Driven Transactions
(Courtesy of GXchange, 28 March 2007)

I. Downloading GCash Menu



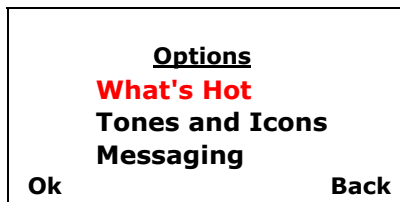
1. From the cellphone's Main Menu, go to [Globe Services](#) ([Globe Svcs+](#)) Menu and Click it.



2. Scroll down and look for [myFavorites](#) Menu and Click it.



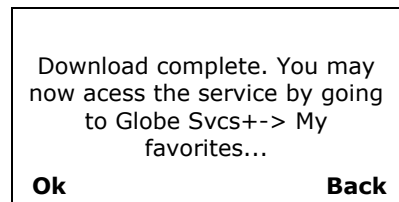
3. Click on [AddFavorites](#).



4. Click on [What's Hot](#) and wait for about 10 seconds as your cellphone starts to connect to Globe system.



5. Click on [GCash](#) to download Gcash menu into your cellphone's SIM

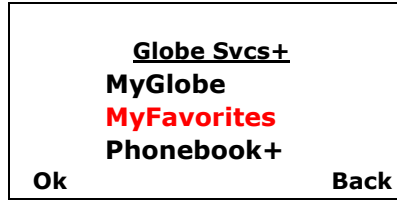


6. Once download is completed, you will receive this message.

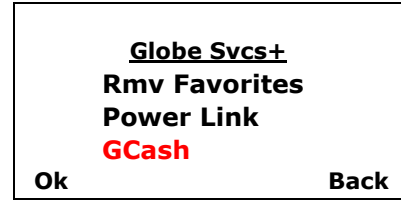
II. Accessing GCash Menu



1. From the cellphone's Main Menu, go to **Globe Services** (**Globe Svcs+**) Menu and Click it.

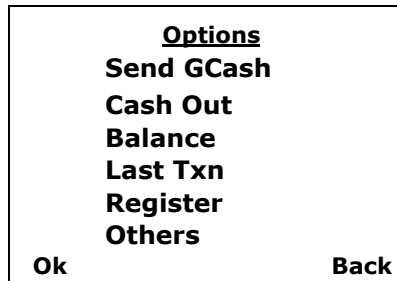


2. Scroll down and look for **myFavorites** Menu and Click it.



3. Scroll down and look for **GCash** Menu and Click it.

The GCash Menu



5. Scroll down and select the desired **Transaction** from the displayed options.

III. One-time Over the Air (OTA) Registration using GCash Menu



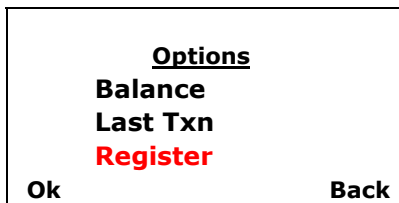
1. From the cellphone's Main Menu, go to **Globe Services** (**Globe Svcs+**) Menu and Click it.



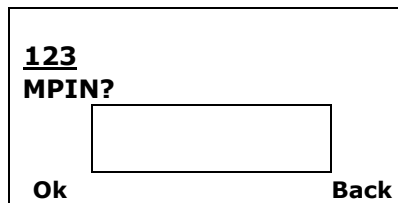
2. Scroll down and look for **myFavorites** Menu and Click it.



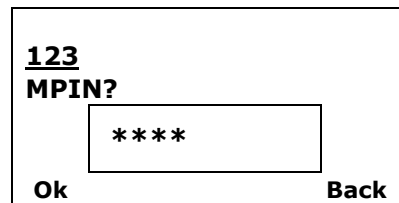
3. Scroll down and look for **GCash** Menu and Click it..



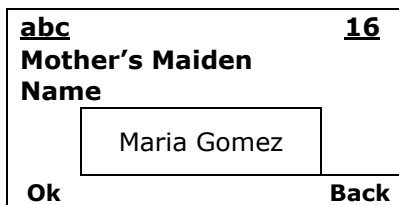
4. Scroll down and look for **Register** option and Click it.



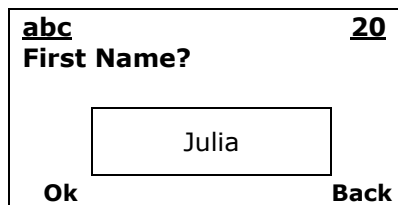
5. Nominate 4-digit MPIN to secure your GCash account and Click OK.



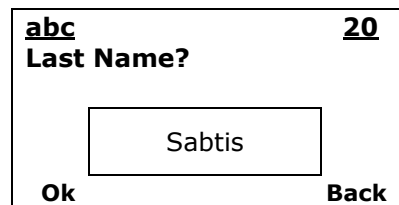
6. Enter your 4-digit MPIN and you will see masked characters represented by an asterisk.



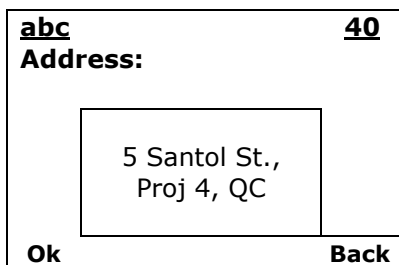
7. Enter the **Complete Maiden Name of your Mother** (up to 16 characters and Click OK.



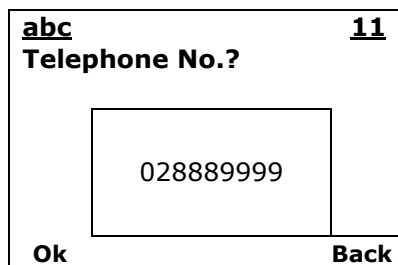
8. Enter your **First Name** (up to 20 characters) and Click OK.



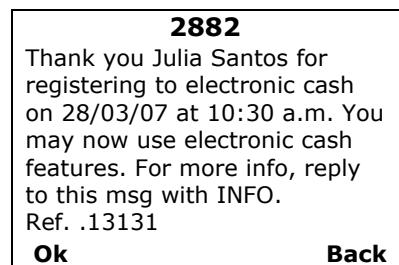
9. Enter your **Last Name** (up to 20 characters) and Click OK.



10. Enter your **complete Address** (up to 40 characters) and Click OK.



11. Enter your **Telephone No. with area code** (up to 11 characters) and Click OK.



12. You will receive a confirmation message after sending.

IV. Sending/Transferring GCash Value Using GCash Menu

Options
Send GCash
Cash Out
Balance

Ok Back

1. From the GCash Menu, scroll down and look for **Send GCash** option and Click it.

123

Ok Back

2. Enter **4-digit MPIN** and Click OK.

123

Ok Back

3. As you enter your **4-digit MPIN** you each number is **masked** by an asterisk.

123
Enter 11 digit Mobile #

0917333444

Ok Back

4. Enter 11-digit Mobile Number of the Recipient and Click OK.

abc
Amount?

1000

Ok Back

5. Enter the AMOUNT of GCash Value to transfer/send.

From: 2882

You have sent 1,000.00 of GCASH to Aurora dela Cruz on 28/03/07 09:21 PM. Ref. no. 4434334

Ok Back

6. You will receive a confirmation message. The recipient of your GCash value will also receive a confirmation message with the same Reference No.

V. Balance Inquiry Using GCash Menu

Options
Send GCash
Cash Out
Balance
Last Txn

Ok Back

1. From the GCash Menu, scroll down and look for **Balance**. Click it.

123
MPIN?

Ok Back

2. Enter **4-digit MPIN** and Click OK.

123
MPIN?

Ok Back

3. As you enter your **4-digit MPIN** each number is **masked** by an asterisk.

123

Sending a message..

Ok Back

4. Wait for your cellphone to connect to the GCash system. Your cellphone displays "Sending message" on the screen.

2882

Your GCash wallet balance is 3000.50 as of 28/03/07 05:28PM. Ref. no. 123456789

Ok Back

5. You will receive a confirmation message indicating your GCash Balance.

Annex C- GCash: Sample Mobile Phone Transactions
