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**Grameen Village Phone
Its Current Status and Future Prospects**

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A Report to the Donor Committee on Small Enterprise Development
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In 1999, the Soros Economic Development Fund (co-financing with the IFC) made a \$10.6 million dollar long-term loan to Grameen Telecom-- a large-scale market-based development to build rural telecommunications infrastructure-- to extend its system into the villages of Bangladesh. This paper will reflect on market development outcomes due to the ICT services provided by Grameen Telecom. We will look at the reality of Bangladeshi village economy as the context for which this market intervention has been designed and implemented. In particular, we will look at 1) the demand for telecom services and 2) the willingness and ability to pay for such services. Next we will look at 3) the ultimate providers of services (Grameen Bank borrowers operating mobile phone services) to better understand how they operate their businesses, and 4) to what extent these new entrepreneurs could benefit from additional business development services (if such were available) to improve efficiency and profitability. Then, 5) we will analyze the business clients of the mobile phone providers to understand how they use the phones for operating their businesses, and to assess what value added the phones bring to their businesses. Finally, 6) we will study the village development in general to capture the changes that the phone brings to the village market place, in particular whether new businesses are created as a result of mobile phones availability. Grameen Telecom occupies a unique position as, effectively, the "only game in town" in the rural ICT market of Bangladesh. It is, however, facing significant challenges, both from competitors and, most significantly, from political forces, and therefore is developing more slowly than expecting.

Rationale and Background

Information and telecommunications both comprises a business opportunity for those in underdeveloped rural, isolated areas and, equally, is essential for business development in such areas, but it is still inadequate or non-existent in many developing countries. Two major reasons for this are the perceived lack of profitability of rural telecommunications and the lack of appropriate policies and strategies to provide universal access to them.

People in rural areas are generally poor, and few can afford traditional telecommunication services. This is a classic vicious circle in business development: Few potential customers means high prices, which further reduces the number of potential customers, and so on. The minimum annual revenue per land line required by an ICT Provider to be profitable in low income countries is about \$300-400, assuming a capital cost of \$1,000 per line. This is more than the average annual per capita GDP in many low-income countries. Worse, in most developing countries the capital cost per line in rural areas is significantly higher and the average annual income even lower than the national average.

Many developing countries are now in the process of creating policies to improve telecom penetration in rural areas. Such policies includes license obligations to serve rural communities (e.g. Mexico, the Philippines), subsidies by means of rural telecom development funds (e.g. Peru and Chile), variations of Build Operate and Transfer arrangements (e.g. Thailand), low-interest loans, and so on.

However in many countries one or several essential elements of such policies are still missing. In the absence of supporting policies, the increase of penetration in rural areas remains difficult. Consequently, in low-income countries, the goal of universal service, i.e. a telephone line to each household, appears to be unrealistic in the foreseeable future.

Grameen Telecom seeks to solve this situation in Bangladesh in two fundamental ways: 1) by introducing through the private sector modern technology (wireless phones) that overcomes the lack of appropriate public policy and the prohibitively high cost of traditional telecommunications infrastructure in Bangladesh, and 2) by making funds available through a Grameen Bank loan, to make it possible for the service provider to underwrite the initial costs of the investment. In this way, Grameen overcomes the two major obstacles mentioned above and breaks the vicious circle.

Grameen Telecom is, however, facing serious obstacles, obstacles common to many poor countries. Almost none of these are economic nor technological. They are, rather, political. Grameen Telecom's strategy for surmounting these obstacles suggest similar strategies for other under-developed countries and lend support to the belief that telecommunications can be effectively extended even in hostile and/or problematic political environments.

The ICT Market In Bangladesh

Two models: Fixed Location PCOs vs. Mobile Phone Systems

There are two basic business models for providing universal access to telecom services in rural areas: a) fixed-location facilities and b) mobile phone systems.

Fixed location facilities: Served by (often government-controlled) traditional fixed telecom lines, the growth of tele-shops, tele-kiosks, or multipurpose tele-centers-- often called public call offices (PCOs)-- run by private entrepreneurs has usually been driven by initiatives of shop keepers and local entrepreneurs who have discovered that there is a market for such services (and who sometimes start their operations illegally). Some studies indicate that such telecenters (PCOs) are commercially attractive both for the franchisee and the telecom Provider and that they generate a considerable number of jobs (at least in densely populated areas).

Mobile Phone Systems: This alternative model is typified by the Village Phone system (see below), essentially establishing a (in this case privately-controlled) mobile phone system. Each phone is, here, also operated by a private entrepreneur tapping a demand for ICT services.

The Reality of the ICT market in Bangladesh: A Lack of Options

While there are many "commercial fixed location ICT centers" in Bangladesh, there are three things to be said about them: 1) the vast majority are located in Dhaka, with very few in the rural areas, and 2) the vast majority are also illegal, simply private lines that are being used by private individuals for commercial purposes, and 3) Village Phones have thus far been intentionally installed in the same rural areas where these few centers were located.

Thus, Bangladesh represents a starkly skewed rural ICT market: It allows us a close look at the impact of Village Phone's mobile phone system on a *tabula rasa* ICT market landscape, but it disallows a direct comparison of such a system with fixed-line commercial calling stations.

Village Phone: Origins, Structure, Strategy, Comparative Advantages

Origins

Village Phone is a relatively new idea, but it operates as an offshoot of an idea with a 23-year track record, which is Grameen Bank's microcredit program. From 1976 to 1996, Grameen Bank made \$2 billion in loans. These loans were for traditional rural economic activities: rice husking, raising goats, vegetable cultivation, irrigation, safe and familiar and low risk-- and in most cases low value added and with a low impact on stimulation of other entrepreneurial activity or the development of non-traditional small or medium businesses. Thus by 1996, there was a desire at Grameen Bank to look at riskier activity. Grameen was eager for its future loans to further more value added, diverse activities, perhaps biotech or the Internet. The people at Grameen recognized that there many possible opportunities. Wealthy developed-world companies had made tremendous investments in particular in technology and communications technology research in development, and prices were falling.

Structure

The opportunity turned up in ICT. In 1996, Bangladesh was preparing to auction off private cell phone licenses to four companies. So at the behest of Dr. Muhammad Yunus (Grameen Bank's founder) but completely independent of Grameen Bank, a *not-for-profit* private company called Grameen Telecom was created. Grameen Telecom, in turn, created a *for-profit* company called Grameen Phone, found a foreign partner, and put in a bid; Grameen Phone received one of the four licenses. Grameen Phone's total capitalization was US\$120,000,000, including around US\$50 million from IFC/CDC, and the Asian Development Bank (ADB). It also received US\$60 million in equity from the four Grameen Phone private partners. These were the Norwegian Telenor with a 51% share, Marubeni of Japan with a 9.5% share, and the American Gonophone at 4.5%. Grameen Phone's fourth partner is Grameen Telecom (with 35%), and Grameen Telecom borrowed US\$10.6 million from the Open Society Institute to set up Village Phone.

Grameen Phone launched service in urban Dhaka on March 26, 1997. It makes its profits by serving wealthier urban customers. But from the point of view of the Grameen family and its strong anti-poverty mission, the for-profit, urban-only Grameen Phone exists for only one reason: To fund, with its profits, the extension of cell phones into rural Bangladesh in order to provide entrepreneurial opportunity to Grameen Bank members through Village Phone. As Dr. Yunus puts it, "Grameen Phone is merely what we need to do Grameen Telecom's Village Phone."

Three important and interesting structural aspects of operation on the largest scale are: First, that the not-for-profit Grameen Telecom actually owns the for-profit Grameen Phone. The reason for this structure is that Grameen wants Grameen bank members-- impoverished women who borrow from Grameen Bank-- to become owners of the profit-making Grameen Phone. Second, once GP becomes profitable, GT will sell its GP shares to GB members.

Third is an understanding-- not made explicit in any legally binding contract but arrived at in the shareholders' agreement-- that after 6 years of GP operation, Telenor and GT will actually *switch ownership positions: Grameen Telecom will sell its 35% share to

Telenor and Telenor will sell its 51% share to Grameen Telecom, which will thus become the dominant partner and true manager of the system. Grameen Phone is thus an unofficial, non-traditional form of Build, Operate, and Transfer.

Strategy

Village Phone uses Grameen Phone's technology, phone lines, and administration, and it buys bulk airtime from Grameen Phone. Village Phone is essentially a way of 1) creating ICT centers in rural areas-- mostly areas unserved currently by an ICT providers-- 2) creating employment for the ICT provider, and 3) stimulating entrepreneurialism and business development in poor rural areas, although from its grandparent organization's (Grameen Bank's) perspective, the second of these is the truly important one; this paper is equally interested in the first and third.

At the moment only Grameen Bank members-- some 95% of whom are women-- are eligible for a GT Village Phone, and qualifications are according to strict criteria: at least 2 years as a Grameen Bank member, a record of on-time payments, knowledge of English digits, a centrally located house or place of business, 1 or 2 other sources of income, and access to electricity (to charge the phone). If qualified, the woman is lent the necessary capital (the phone and accessories cost an estimated \$420) at 22% interest to purchase a Grameen mobile phone on the assumption that she will repay the amount within three years. Grameen Telecom markets Village Phone only in rural areas and uses the conveniently existing network of Grameen Bank branches as its administrative quarters. There are currently around 1000 phones with about 60,000 users. Grameen Telecom's target is to install 40,000 Village Phones by that December 2002. The average income of villagers with such phone businesses is estimated to be more than \$700 per year.

Market niche: Village Phone Advantages and Disadvantages

(A) Minimal Competition. In 1997 when Grameen Telecom launched its rural service, the rural ICT market in Bangladesh could be said to be almost non-existent; Bangladesh had the lowest telephone density in the region and one of the lowest in the world with only .26 lines per 100 people (India: 1.0; Nepal: 0.5; Pakistan: 2.1; Sri Lanka: 1.0; Thailand: 2.5). The waiting time for a connection was and is more than 10 years, and the installation charge of US\$450 for a new line is one of the highest in the world (Pakistan US\$90, India US\$60). The 120 million Bangladeshis had only 400,000 telephone sets, of which most were in the cities and of which 100,000 were not functioning at any given moment. Penetration of a fixed-line system--and thus of fixed location facilities-- was minimal. In other words, Village Phone had little competition, and it could barely be said that "an ICT market" existed in the sense of a fixed line system.

What competition Village Phone faces comes from two other rural private telecom companies operating in rural Bangladesh, one in the north-- the Bangladesh Rural Telephone Authority (BRTA)--and one in the south-- Sheba. An interesting fact is that BRTA and Sheba should actually enjoy a cost advantage: While Village Phone uses a GSM system (the cell standard in most of Europe and Asia), BRTA and Sheba use "fixed wireless loop" systems, which are less expensive to construct. GSM towers only reach 5 kms, but wireless loop users can travel 50 kms from their towers, meaning many fewer wireless loop towers are needed to cover a country and the system is less expensive to build. Thus technologically Grameen Telecom's GSM system is in fact probably not the most cost effective way of getting universal telecommunications into these villages. But in fact Grameen Telecom currently has the business edge in rural Bangladesh and will probably keep it because these disadvantages are more than compensated for by the following two factors, neither economic.

(B) Getting There First and (C) Political Advantages. First, Grameen Telecom was the first to arrive and is already well-advanced in setting up a national system and, like Microsoft's Windows versus Apple's Mac operating system, the key factor in technology is often merely being first and biggest. This is often called "technology lock-in." The cost advantages of wireless loop are thus moot, since those systems are too far behind to catch up.

The second reason is political: BRTA and Sheba are unable to expand their systems simply because they can't get "interconnections" to BTTP (Bangladesh Telegraph and Telecom Board). BTTP's refusal is purely political (see **Obstacles Faced by Grameen Telecom In the Market** below). This means BRTA can't get connections to the fixed phone lines-- "the grid"-- mostly importantly in Dhaka, meaning that BRTA and Sheba users can only call other BRTA and Sheba phones, whereas rural users actually want to call Dhaka and overseas. In fact, BRTA has purchased several million dollars of wireless loop which they have not yet deployed simply because they can't get the interconnection. If BTTP weren't obfuscating, BRTA and Sheba might have caught up with Village Phone to fill rural telecommunications demand using fixed wireless loop technology. It is important to note that if Bangladesh were to have a good regulator, fair tariff agreements, and fair interconnection agreements between Providers, Grameen Telecom's GSM phones would probably not be the solution to rural telephony. But it is vanishingly unlikely that current Bangladeshi political forces-- corruption and inefficiency-- and the reality they create will change. So it does not matter that Grameen Telecom's position is based on a mere political reality; that reality will remain determinative.

(D) Mobility As a Possible Future Advantage. GSM does have one marked advantage over wireless loop: It is a true mobile cell phone system-- its towers simply pass a travelling caller on, one tower to the next-- while wireless loop towers are not "cells" and do not pass on signals, so the system is not truly mobile (or at least it is only mobile in the 50 km around the phone's tower). But most rural telecommunications users' primary interest is not mobility; it is price. In other countries, people in rural areas using wireless loop because they don't care about mobility but about price. Oddly, Village Phone does not currently take advantage of this advantage. The ability to travel significant distances with the phone is neither used by Village Phone Providers in running their ICT businesses-- currently, VP Operators tend to operate as if they were fixed-line providers, staying in one spot and asking customers to come to them-- nor is it a product heavily marketed by these Providers to their customers.

Mobility may *become* a significant advantage in the future. If rural Consumers do not currently take advantage of this capacity, one can imagine the creation of market demand for it-- and only Village Phone is in a position to exploit it. It is to be seen what sort of expansion and new ICT products Providers can create through exploitation of this aspect of their technology.

(E) Profit transfers and rate-subsidization. Village Phone has an advantage over BRTA and Sheba in the profits Grameen Telecom transfers from its urban (Grameen Phone) to its rural (Village Phone) systems. Also, while the Village Phone Provider charges her callers the market retail rate-- say, 6 taka per minute-- she herself only pays GT a rate discounted by 50%, thus keeping 3 taka per minute for herself (NB: she pays 4.6 taka for the first minute). Neither of these are government subsidies. They are the choices of a private financial system, the former a transfer among profits from more profitable sectors of the company to less profitable sectors, the latter a means of bolstering the Operators to ensure both that she stays afloat and that she can repay the Village Phone "financing company" (Grameen Bank)-- which is to say:

(F) Grameen Bank's Collection Channels and Financing. One of the biggest financial difficulties a developing-world rural ICT company faces is simply the collection of

fees. Village Phone, by using Grameen Bank's trusted and efficient 20-year-old collection system, obtains an immense advantage over BRTA and Sheba. And it is also obviously an immense advantage to have financing for your potential customers provided by Grameen Bank, which is both efficient and not corrupt. To create the equivalent advantage, Sheba (for example) would have to create its own bank or financing company, which General Motors, for example, did to increase sales of GM cars.

Last, Grameen Telecom people simply have an excellent reputation for business aggressiveness, inventiveness, and a habit of constantly looking for new solutions.

Mobile Phone Service Providers as Agents of Rural Business Development

Provision of information and communications technologies (ICT) facilities is both a goal in itself-- the generation of economic activity by the phone Providers, many of whom earn more than double the national per capita income-- and a means to local economic development of rural communities by helping entrepreneurs to establish businesses, service clients, and receive business services. In this way, it doubly serves Grameen's purpose of creating value-added economic activity. Due to the importance of telecommunication services in today's world, ICT is very likely to have a real and wide impact on social and economic development in rural and remote areas. Anecdotal evidence already shows changes in attitudes and behaviors of rural entrepreneurs, changes in social relations between men and women, and changes in ways people do business.

Financing Constraints on Establishing ICT Service

Village Phone Operators receive loans which allow them to purchase their phones and launch their businesses, enabling them to enter a profitable market niche that would otherwise be closed to them. Is there a financing constraint on the establishment of ICT businesses that are then used for BDS? Village Phone Providers have relied virtually universally on these loans, and thus the financing constraint at the supplier level seems indeed to be significant, making a financing component-- here provided by Grameen Bank-- crucial. A question for any organization interested in replicating this model would be the possibility of creating a financing system to enable potential Providers to enter the ICT market.

New Rural Entrepreneurs: Telecom Service Providers

There is no typical Village Phone Provider. Each Provider enters her Village Phone business with a different level of education, a different standing in her community, a different entrepreneurial temperament, a different previous level of access to business services and information, and a different family structure-- husband, children, and close relatives-- all of which have a significant impact on how she will conduct her business.

Fees are ultimately decided by the Providers and the market; Grameen Telecom gives Providers a price list, but they are free to charge what they like. If GT finds that a phone Provider is charging higher than market rates, they might put another phone Provider in this area and allow them to compete. Quality of service and fairness of fees is reinforced by cultural norms and the fact that the Provider forms an intimate part of the village community. As Dr. Yunus describes it: "The telephone Provider is a member of the community, so the fees she charges will be fine-tuned to the situation of the caller and the context of the village. She receives a call from a son in New York to his mother in the village, and it is good news, so she charges more than usual. Or perhaps she gets a tip. She receives a message of bad news from a father in Saudi Arabia, so she charges less than normal. For a death, she will frequently not charge the recipient anything and she'll cry along with everyone else."

Case studies from the field (see Appendix #1) evidence the facilitation and support that ICT lends to rural economic activity and business development.

In addition, the Grameen Telecom/Grameen Bank case provides evidence that ICT run by individual rural Providers and furnished through microlending is viable and successful. The burden imposed on Providers by the need to pay back ICT-initiating and developing loans appears easily supportable. Providers #1 and #4 paid off their loans with evident ease and Providers #2 and #5 merely voiced a desire for another loan so as to expand their commercial ICT capabilities.

Demand for ICT in Rural Areas

Is there a demand for ICT in rural and remote areas?

Grameen Phone is an example of developing a new service for a practically non-existent market in which demand and willingness to pay arise with the users learning about the new service. Demand is an iterative process where the various user groups, as they learn how to use the tool (mobile phone) and about existing relevant information, gradually discover what they can do with this tool and how they can benefit from the service. This process also creates content that meets the needs of the various user groups and the adaptation of relevant existing information and learning resources to the conditions of people in rural and remote areas.

Initial concerns over the economic viability of the Village Phone project were many. They ranged from fears of too few customers (the inability or unwillingness to pay for ICT services, coupled with a near-total lack of knowledge of the personal or professional benefits of ICT-obtained information, and the lack of business demand) to fears of too many (the introduction of ICT services would spark levels of demand that would outstrip the ability of the fragile ICT system to accommodate). In fact, demand has outstripped projections in the villages, but at the same time this demand has overwhelmed neither the technical capabilities of the system nor the service capabilities of the phone Providers. As GP was adding upper-class users in the capitol, GT was able to add phones in villages.

ICT Consumers

Likewise, there is no typical consumer of ICT services; rural residents gradually discover business uses for ICT and become users due to any number of entrepreneurial needs. Several special-use increases in usage have also been observed, such as during the extreme floods of 1998, when Village Phone usage in the flood-affected areas doubled due to coordination of flood relief efforts. (Consumer case studies are found in Appendix 2.)

In a June 1999 study funded by Bonn University's Center for Development Research entitled "Village Pay Phones and Poverty Reduction," the author, Abdul Bayes, and his team questioned 50 phone Providers in 50 villages and over 350 phone users and reach two basic conclusions: "First, pursuance of pragmatic policies can turn telephones into production goods, especially through lowering transaction costs, and second, the services originating from telephones in villages are likely to deliver significant benefits to the poor."

The study demonstrates that ICT is crucial to the development of economic activity. In particular the telephone, notes Bayes, "is often considered a consumer item for the relatively wealthy, rather than a production input of the poor." In fact, the German-sponsored study found the opposite:

- 1) About 25% of the total calls were made by “poor” people (poor was defined as someone who consumes less than the norm of 2120 calories/day). 75% of the calls were by the non-poor.
- 2) The purpose of the calls: 40%-- the largest number-- were for economic reasons. Interestingly, the poor made *more economic calls than the non-poor.
- 3) The fact that villagers can now speak directly with Abu Dhabi and Riyadh means that relatives working abroad are now more likely to send currency home because they are more certain that it will arrive.
- 4) The study also calculated the increase in consumer surplus brought by ICT. The consumer surplus is simply the difference between what the cost of communication used to be and what it is now with ICT. That difference is enormous. And for the poor, the consumer surplus is even greater than for the non-poor. When villages with phones were compared to villages without, eggs sold for higher prices, the cost of information was much lower (17 taka versus 72 taka), the prices for chickens and ducks was higher while poultry feed was lower, diesel prices were more stable and there was less spoilage of perishable products due to more precise shipment arrivals.

Maybe one of the most telling questions the study asked was: “How would you meet the purposes of the current calls had there been no Village Phone in your village?” It turns out that the most frequently cited alternative was personally going-- or hiring someone to go-- to the place concerned. The cost of this was almost inevitably higher. And the *distribution of this cost is significant: the poor would have incurred a greater cost for completing this communication than the non-poor. In other words, wrote Bayes, “the absence of the Village Phones would inflict relatively more transaction costs for communications on the poor.”

Product Development and Commercialization

How does the ICT provider introduce their product to rural inhabitants? While the urban Grameen Phone relies on traditional methods of marketing to and educating the consumer-- the traditional media plus aggressive street advertising-- Grameen Telecom adapts itself to a media-poor, literacy-poor rural setting and relies primarily on social transmission of information through traditional channels. Provider #3 “My husband has a chicken farm, so people come to buy chickens, and my husband tells them all about it.” Some use the new channels of economic activity that the phones carve into rural life; some Consumers tell those with whom they do business the source of their business information.

Phone Providers do engage in some traditional product development and commercialization, from business cards to printed ads handed out to customers or put on walls and trees. Says Provider #1 “I learned about the phone because my husband saw a Bangla-language ad in the local paper about it, and so I went to Grameen Bank and asked about it.” Provider #3 says “I’ve put up signs in the village.” And virtually every Grameen Phone house has a sign outside with the Grameen logo (a small green and red house) and an explanation of the phone services.

There is, equally, little evidence of mobile-phone providers becoming more competitive/ profitable through offering value-added services or complementary activities such as selling sodas or food to customers awaiting use of the phone. And it should be noted that value-added ICT products-- such as the fax and cable services which Providers are increasingly interested in offering (see Appendix #1)-- as well as the antennae which many Providers are installing in order to better their reception may further reduce mobility of the

phone unit itself unless a technological solution can be found, i.e., a line that can be directed to the handset at one moment and the fax machine at another, as necessary.

Economic Impact: ICT as Business Development Facilitator

There is clear evidence that ICT-- specifically, the Grameen Telecom system-- facilitates increased economic activity that can be assigned to neither Provider nor Consumer specifically but rather to the rural economy overall. A recent study funded by CIDA (Canadian International Development Agency), which was interested in seeing if there were elements of the Village Phone program that could be replicated in other countries with a view toward poverty reduction, asked what people were using the phone for. (When the German study was done, merely two years ago, the only Village Phones that existed were in the peri-urban areas around Dhaka, whereas they had greatly expanded geographically during the Canadian study; therefore, uses for the phones might be assumed to be different.)

The methodology was to ask customers the use of the last call they had made. The Canadian study categorized the uses of the Village Phone differently from the German study, but it may simply be a different way of saying the same thing. It became clear in the Canadian study that particularly in villages where family members are working outside the village-- either elsewhere in Bangladesh or in another country-- one of the primary uses was for remittance payments from relatives working overseas or in Dhaka; about 40% of calls from the phones are used to facilitate remittance payments. The kind of direct economic uses that the German study noticed the Canadian study only found in approximately 5% of calls. But there are three points here:

First, the Canadian study categorized the remaining as “social calls,” “business calls,” and arranging for visas, and business calls includes arranging for trade and transport for products and getting information on market prices, which certainly incorporates economic and business development activity.

Second-- and interestingly-- one has to look at the economic role of these remittances. “The primary activity of the phones is around remittances, and remittances are the primary means of alleviating poverty,” says Dr. Don Richardson of the Canadian study, which means buying food, fixing houses, and so on. But in fact, he says, there is pretty good evidence that remittances are being *invested in productive economic activity, such as the purchasing of livestock or agricultural production resources. The people called are family members, which can lead a researcher to categorize the call as “social,” but the nature of the activity generated can be-- and evidence says that it is-- purely economic/business.

Third, the Canadian study found that calls concerning remittance payments constituted, in a sense, a banking system: They help substantively both in facilitating the safe transfer of the remittance money (in what is, generally, a very untrustworthy and difficult process) and in ensuring they transmit a higher final value to the recipient. Remittances are typically sent as cash with friends. Typically the phone call is made from the Gulf States to the village telling when the payment will arrive, with whom, and in what amount. When the cash arrives, the phones are then used to call Dhaka for information on currency exchange so that the money can be converted at an accurate and profitable exchange rate. The phone is thus not an emotional “social” panacea; it is a substantive facilitator of the money remittance and exchange process crucial to the rural economy. Villagers are thus willing to pay significant amounts of money for this service.

Impact: Village Life and Society

Any large scale program like Grameen Telecom's Village Phones will bring changes to the village economy and village life in general. The boundaries of the local village market expand, access to ICT reduces isolation and fragmentation of local village economies, and new businesses are started as a result of this. Abdul Bayes found that Village Phones "have perceptible and positive effects on the empowerment and social status of phone-leasing women and their households. For villagers in general, phones offer additional non-economic benefits such as improved law enforcement, more rapid and effective communications during disasters, stronger kinship bonding, etc. GB's style of managing communications can help significantly to expand access to this vital information input for all segments of the population, reduce inequality, and thus enhance the broad-based, pro-poor orientation of rural development activities."

Impact on Women: Raising Women's Status

Possession of a phone by an impoverished, low-status female often confers strong higher-status on her and reverses her standing in the social hierarchy.

It should be added that telephone Providers are a self-selected group; the former poorest of the poor, most demonstrate a marked degree of intelligence, tenacity, diligence, and risk acceptance, and many have, in one decade, raised themselves from poverty and illiteracy (many have learned to read and write).

The phones also have an impact on raising the status of women in general. The Grameen Bank groups often function as a context in which women discuss aspects of their society. Provider #2's group meets for one hour each week to discuss loan issues and business ideas. One of the factors they discuss-- because it has great economic importance-- is the question of dowry, whereby when a girl or woman is married, her family is expected to supply a dowry to her husband. "We don't like it," she says. I hate dowry. I have one daughter, Samoon. I am not going to have more children. When she gets married, if I give her something for the wedding it will be because I want to make her happy; it will not be a pre-condition to the marriage negotiation."

Provider #1's and Provider #3's husbands sat next to them as they were interviewed for this paper and expressed enthusiastic support for their wives' participation in the Village Phone program. In some more conservative parts of Bangladesh such as Bramun Baria, fundamentalists have created problems for phone Providers, and generally when there is opposition it comes from the husband and the husband's family. The income from the phone meant that frequently the woman was helping her husband rather than the reverse, which was felt by some to be odd. But this is changing.

The German study made several findings regarding the impact of the phone as a specific business and the presence of ICT in general. Although they were expressed in terms of the social status of women, almost all of these bore an economic dimension.

1) 60% of users were male, 40% female, which was surprising to the authors who had thought that women would constitute many fewer users.

2) Women can now know about markets in Dhaka because they are there, next to the phone user, listening to the conversation or receiving information that they must then transmit to a recipient. The study found that many women came to have a sophisticated functional knowledge of currency markets-- what the dollar is trading for, or the Saudi real, or the Japanese yen-- and also medical knowledge, since they often transmitted information to and

from hospitals. They were, in other words, no longer cut off from the rest of the world and are now more empowered.

3) Women were, also, freer physically. Mobile phones made them mobile. Women who used to stay at home were obligated by their business to travel to deliver messages, take transport, deal with money.

4) The net income from the phones, the study found, was on average 300 taka/week. In fact, they found that the average income of a certain number of women before having the phones was generally the same, but even these women preferred the mobile phones because there were fewer economic risks and less tiresome activity than other activities, such as agriculture and livestock, the women received more information, and they had more social power: houses in Bangladesh are often identified by an image-- a mosque, a palm tree-- and these women's houses were now identified with a phone, or even by the name of the woman who operated it, which has great implications for lifting her social status. "The elites," notes Bayes, "to whom she used to be a servant now come to her house to make phone calls." But the study found little or no jealousy or resentment based on this social shift. Generally people were happy to have access. Part of this is because the women's rise in social status is not sudden; she was introduced to Grameen several years ago, got her first loans from Grameen Bank, rose gradually by earning larger amounts of money and paying back loans, and finally was eligible to take out a loan for a phone. "She used to cook for the elites; now, she is invited by them."

Impact on Men

But the phone's impact on changing the social structure is not limited to women. Provider #6 (see Appendix #1), a man, notes "My social status has changed. It's gone up. The villagers feel more confidence in me and respect me now." And Provider #8 (Appendix #1), also a man, comments "People are a bit more respectful to me because they're getting a service from me."

Problems in Changing the Social Structure: Strains and Future Expectations

The Village Phone program is not without problems. Provider #8 reported that his possession of the phone has sparked a certain amount of resentment: "A few people have been jealous. They've said 'We will not use your phone, we will buy our own.'" However, other Providers report the opposite; Provider # 5, a woman, reports "Nobody in my village is jealous of my phone. Everyone is happy that I have the phone because they're getting service from it."

Nor does the phone by itself eliminate gender discrimination. One of the major findings of the Canadian study concerned gender: It found that where the phone is operated by a woman-- typically in her home-- generally approximately 50% of the users are women. However, where it is operated by a man-- typically in a village market or a shop-- the number of women users drops to near 0%. "For us," says the study's Don Richardson, "what this means in terms of universal access to telecommunications is that you have to look at who owns the phone and where they operate it from. We need to ask how can we make sure the phone is accessible to all members of the village."

And the positive social effects may not last-- or at least, in a changing market, they may not last for current Providers. One central concern to Grameen Telecom is the future use of the phones and the future income to each phone Provider. Masud Isa, acting Director of Grameen Telecom: "We are closely monitoring the trends of income, given the rise in the number of mobile phones in rural areas. We believe there are two balancing aspects to this trend. The first is that the income of our Providers will necessarily decline as more Providers, both Grameen Telecom and others, enter markets. Competition will force down the prices that

phone Providers are able to charge, and the growing number of phones will lower the number of potential clients for each phone Provider.

“On the other hand, we believe the longer mobile phones are available in rural areas, the more they will become part of life, and so people will use them with increasing frequency, counterbalancing the downward trend. There is second factor relevant to the future health of Grameen Telecom as a whole, and that is the fact that there are still large areas of rural Bangladesh where there are neither fixed line phones nor mobile phones. Thus, the market potential for growth is still high. And a third factor militating toward increased use of Grameen Telecom phones is that they increase economic activity, which in turn feeds back by increasing further demand for the phones. We have seen in India that the presence of mobile phones in rural areas has raised business activity by 30%. We expect to experience similar effects in Bangladesh. The increase in business creates an increase in demand for the phones.”

In one village, the phone Provider was asked by a Grameen Telecom official what he would do when other villagers obtained mobile phones and the demand for his service dipped. “Oh,” he replied, “that will not happen.” The Grameen official turned away smiling: “He simply won’t think about that right now,” he commented quietly.

Obstacles Faced by Grameen Telecom In the Market

Grameen Telecom is absolutely clear that it-- like its two rural Provider competitors, BRTA and Sheba-- faces three technical barriers to expansion. It needs 1) interconnection with the fixed line grid, 2) the legal right to use its fiber optic system to transmit voice as well as fax data, and 3) greater access to the international gateway for international calls.

But these technical barriers are, in fact, purely political in nature. Technologically, interconnection can be achieved if only BTTP would agree. The government’s claim is that technological problems prohibit them from allowing interconnection. This is apparently merely obfuscation. In fact, the government was operating the fixed-line system so inefficiently and the system was so outmoded that Grameen Phone offered to buy them an entire new switching system. The government declined.

Why? Corruption. On the surface, BTTP appears to be a government entity, but the likelihood is that the fixed-line system it controls is being run by a group of BTTP officials as a source of private revenue. From a pure economics point, BTTP’s opening the system to cell phone systems would be good for the government. True, fewer calls would be made from fixed lines and the VAT on those calls would thus fall, shrinking the government’s revenue from monopoly power would shrink. But there would be an even greater rise in taxes flowing to the government from increased usage.

What is the problem? Most probably it is that these taxes would flow to other government entities, not to BTTP and the officials who control it. Grameen Phone’s annual report details this quite frankly. Alex Counts, the head of the Grameen Foundation, notes: “The government is throwing up obstacles because its sources of income, both legal and illegal, are threatened: To get a working fixed line phone in Bangladesh, a process that requires a lengthy period of time, potential users must pay at least \$500 officially to the government and at least as much again unofficially to the controlling officials. Often, personal contacts within the government are necessary as well. Naturally, this constitutes an important income source for those officials in charge of governing the telecommunications of the country. Grameen Phone threatens that income source; a potential user can simply walk into a Grameen Phone office and walk out in half an hour with a phone that functions.”

The solution may be ingenious-- and all but self-fulfilling. There is now a race for territory between Grameen Telecom and its two wireless loop competitors, and so Grameen Telecom is filling in the areas of Bangladesh that it does not yet serve, just as are BRTA and Sheba. (The Canadian study's Richardson predicts GT may form an alliance with other cell companies, or at least with BRTA.) It is this race, and the expansion of the other mobile systems, that promises to solve the political BTTP interconnection problem, and it will solve the problem by obviating it: What appears to be happening now is that the cell phone Providers are actually becoming the de facto grid, because they will soon have more phones than the fixed line system. In other words, the cell phone providers are using BTTP's own recalcitrance-- its attempt to guard its monopoly power-- against it. BTTP only has 400,000 lines, and it is uncertain how many of those work; the cell phone Providers, by contrast, are establishing a network whose wireless lines will exceed BTTP's fixed lines probably sometime during 2000. This will reverse the current balance of political power: Soon, if a user wants to phone someone and she is on a BTTP line and not connected to the cell phones, she will be more disadvantaged-- and more frustrated-- than the cell user.

This could finally force BTTP to come to the cell phone Providers and accede on the interconnection issue. The private Providers are well-capitalized; they can afford to wait. So the cell phone Providers are both competing *and cooperating because a caller can interconnect between any two cell phones on any system without BTTP's blessing; Grameen Telecom can connect to Sheba, and Sheba to City Cell (an urban provider like Grameen Phone), and City Cell to Aktel and so on. The strategy they have now is collectively to force BTTP to the table.

Conclusions: New Questions and Implications for Donors

Access to ICT is having a revolutionizing effect on business development and entrepreneurial activity in rural Bangladesh. In other countries as well, such as the Philippines, the same results are reported; in her paper using case studies from there, Alexandra Overy Miehlebradt reports "MSEs report that cellphone ownership has increased their profits. Fifty seven percent of said that cellphone use has definitely increased their profits. Another 28% think it has probably increased their profits. Only 3% think that cellphone use has not increased their profits."

Muhammad Yunus has observed of the idea of providing telecommunications to the rural poor: "Cynics and critics of our ambitious project claim that high-tech will be wasted on the stone-age existence of most of our borrowers. The truth is, we are finding out quite the opposite. Without the benefit of a telephone, our villagers were wasting a lot of time, money, and effort getting messages to dispersed family members. If they needed to tell a brother or daughter living in Dhaka to come home, that their mother was gravely ill, or that there was to be a birth of a wedding in the family, they needed to send a messenger in person! That messenger had to stop working or studying and take a bus, rickshaw, or train, and the message might literally take days to reach its destination. So the cost of not having access to a phone was obviously quite high."

Demand is present and growing, as is social acceptance of the change in social norms-- particularly the place of women-- created by the spread of ICT, particularly as implemented by Grameen.

The question, thus, is which model of spreading ICT to rural areas should be used and which way to best provide it. The expansion of the traditional fixed line into as-yet "unwired" rural areas of developing countries such as Bangladesh has been clearly obviated by technology; often plagued by inefficient public ownership and corruption, the experience of Grameen Telecom in Bangladesh indicates that privately owned wireless communication

systems can deliver telecommunications to impoverished rural areas efficiently and profitably. Although for reasons explained above a direct comparison of fixed location facilities using traditional fixed lines with mobile phone ICT services in the telecommunications market is not possible in this context, mobile systems currently appear to be cost effective and to provide political practicality.

Implications for Donors

Several lessons seem clear in seeking to replicate Village Phone:

1) Unless mobility proves to be of greater importance to Village Phone Operators in the future, less expensive wireless loop systems should be favored over GSM in other countries.

2) Donors should not be providing subsidies or grants to private concerns; the appropriate role would be as investors, providing seed and/or major capital to create private market-driven systems.

3) Grameen Telecom is an excellent illustration of the fact that all nations do not have to go through all of the same technological “phases.” Rural Bangladesh and other such countries can simply skip old 19th and 20th century fixed line technology that the developed world went through and jump directly into the 21st century, sparking commensurately fast development of economic activity. This should be encouraged.

4) The most important factor to assess is the political situation, specifically the willingness of the governmental organizations that control the fixed line grid to allow access to private mobile phone systems/operators. And the most important role donors can conceivably play, aside from investor, is political advocate, lobbying the relevant government regulators to ensure as fair, free, and pro-private ICT industry policy as possible.

Appendix #1: Case Studies of Grameen Telecom Providers

Here are several cases of Village Phone Providers, the details of how they operate their phones, and the sort of business facilitation and business development their ICT product provides:

Provider #1 lives in a village one hour away from Dhaka. Her phone store is located in a small (5' x 10') concrete stall in a busy market. There are seven phone Providers in this market alone, three of them with Grameen phones. She charges 110 taka/minute for international calls to the US: “I usually earn 300 to 600 taka per day. I have been a member of Grameen Bank for 7 years, and my first loans from the Bank were for rice husking. I learned about the phone because my husband saw a Bangla-language ad in the local paper about it, and so I went to Grameen Bank and asked about it. I have operated this phone for 1 year and 11 months. My loan from Grameen Bank for the phone-- which was 21,000 taka (\$400 US)-- is already paid off. When I was making payments, they were 280 taka per week, and I found it easy to make my payments.

“My husband sells clothes and spends his extra time helping me. We have one daughter and one son in school. I work 7-9 and leave at 1 to go home and make lunch for my children and my husband takes over the phone. My mother in law is at my house and helps with the housework.

“On my desk I keep a traditional telephone, clearly visible to passers-by, so that they can understand that here is a real phone. It is not connected to anything and does not work,

but many of them have never seen a mobile phone before and do not recognize it as a telephone so they say to me 'But you don't have a phone.' When they see the desk phone, they are reassured and enter. I am planning on adding a fax, Internet, and PABX system to my phone business.

"My customers call both inside and outside Bangladesh. Most of my customers call for business news or to ask about job opportunities. Some call to transmit personal news. One of my callers is a chicken seller; he calls Kulna, a southern district, to inquire about small broilers, their price, and when they can be shipped to him in this village. Another caller calls Chilanpur to ask about textile shipments he has coming to him; he is the owner of a garment factory here."

Provider #2 operates her phone from her home in her village ten minutes from the market: "I was married at a very early age, at 14, but although my father was selective, my husband went to Italy and was deceived by the employment agency, and so he came back broke. The next year I borrowed from Grameen Bank, and we started a clothing store, then used those profits to start a spare parts business, then used those profits to start a video business. From those profits I built another house, which I rent out for 2,200 taka/month. My phone loan was for two years and I'm going to pay it off, but I will ask for another loan to add a cable and dish for receiving satellite TV. My monthly income from the phone is only 1,000 taka per month. It used to be higher but I am concentrating on other businesses. The reason is that when I started my phone business, many people came to use my phone, but now many other people have Grameen phones and so they compete with me and several people have purchased their own phones, so I have had to focus on other opportunities. But we are not trying to install a solar panel to charge the phone.

"My customers call for all sorts of reasons: Mostly they call for business. Sometimes they call for personal reasons, to get family news, and so on. The majority of business calls are in search of work. I make many calls to Saudi Arabia, Korea, and Singapore."

Provider #3 lives in a village remote from the market: "My phone was gotten with a 24,000 taka loan. I've had it four months, and I've been a Grameen Bank member for two years. I heard about the phone from friends, and I went to Grameen Bank to find out more. My husband supports my phone business. I made a 1,900 taka profit last month."

[How does she advertise her phone business?] "My husband has a chicken farm, so people come to buy chickens, and my husband tells them all about it. And I've put up signs in the village. My customers are not surprised by the phone because they've seen ads on television for mobile phones. It took me an hour to learn the basics of how to operate the phone and less than a month to learn the extra features."

Provider #4 lives in a peri-urban village near Dhaka International Airport. Calls to Dhaka from here are local, so the phone Providers make less money on each call, but people are more affluent than those in the rural areas and there is more business here, so there is a larger total volume of calls. She charges 110 taka/minute for international calls to the US, 5 taka/minute for incoming international calls (Grameen Telecom charges the Provider 1.3 taka/minute for incoming calls): "I got my phone in April 1997. Almost all my customers make local calls for business and overseas calls for personal reasons, usually involving the collection of money. My income from the phone is decreasing. At first I earned 8,000 taka per week, but now that there are other phones in the area-- at first there were 5, now there are 19-- that amount is falling. I now earn about 5,000 taka per week. But the total income from all the phones in this area is rising because more and more people are using them.

“My number is now well-known by many people all over the world, so they use it regularly, and that is my regular business. I have made all the payments on this phone and it is mine and I have no intention of giving it up.

“My son uses the phone in his electronics shop, where he repairs TVs and radios and sells cable services and antennas. Before, when he had to purchase parts, he would have to go to Dhaka, and they might not have the parts and would say to him ‘Come again in two days.’ Going to Dhaka cost him at least 100 taka. Now he calls with the phone to confirm availability and price, and he can take the right amount of money with him. It has saved him a lot of money. He also has a video business that he runs from his electronics store, and before, he never knew when new videos would be coming in to Dhaka. Now he can call and reserve them. And now he is able to increase the number of movies he rents to between 10 and 20 per day, 40 on holidays or weekends.”

Provider #4 has found the phone to be of help in obtaining business help and advice: “We often used to call other phone Providers to get advice and help in how to conduct our business, how much to charge, how to get customers who were not paying us to pay us, and how to advertise our services. When he had no work, my son often asks other electronics repairers if they have work, and then he can participate in that work.”

Provider #5: “Before getting it, I had never seen a phone before. It was not difficult to learn how to use it. This phone is a good business for me. I have a boy and a girl, and all of us can operate the phone. My clients are my neighbors, and the calls they make are mostly business.” Some of the phone Providers, like Provider #5, are illiterate. In those cases, their children or husbands keep records of calls made, messages, and fees collected. “I do not keep records; my children do. My service is open 24 hours because it is in my home. Yesterday I received a call from Saudia Arabia at 3 AM. I kept the message, which was an emergency, and then at 6 AM I sent my boy. It was for recruiting someone from here, and it was good news.

“My first 2-3 months in business, my income was low. Then it went up to as high as 15,000 taka/month. Then it fell, and for the past year the average is 3,000 taka/month. Many people nearby have bought phones. My phone accounts for about 40% of my income; we also have several seasonal fruits, so we have a continuous source of income from them. Nobody in my village is jealous of my phone. Everyone is happy that I have the phone because they’re getting service from it. I have heard of the Internet and of email, and I think they might become popular here, so I want to offer them to my clients through my phone; in the future I plan to buy a computer with the profits. Then my daughter can make money teaching computer.

Providers #6 and #7 are both men; one is a rare male Grameen Bank member and the other the son of a member. Their phones are 20 feet from each other in the village market (one in a concrete stall, one in the corner of his hardware store, in which he has built a small plywood and plexiglass booth for privacy. Grameen Telecom has set them in direct competition because they are in a market.

Provider #6: “The competition is a good thing. I don’t want a monopoly. Too much competition is bad, but a little competition assures customers that our prices are fair. If there are too many competitors, then our incomes fall too much. I’ve had my mother’s phone for one year. At first I earned 500 taka/week, but now I am earning 750/week.”

Provider #7: “I got my phone 11 months ago, and at first my income was 450 taka/week. Presently it is 350-400 taka/ week. That’s because he is better at business strategy. He has a business card, and he puts up advertisements and posters around the village, and he’s very aggressive. Also, I have many incoming calls, and I can’t collect fees for them because

they're for close friends and relatives, and so I can't pressure them. He's had his phone for 4 years, so he's very good at this business.

Provider #6: "Well, I too have problems collecting fees for incoming calls. I just have fewer of them. My social status has changed, and his too. It's gone up. The villagers feel more confidence in me and respect me now. Him too. And my mother too.

"Most of my calls are for business. The cow sellers and chicken feed sellers now negotiate their prices by phone. People buying those things also negotiate over the phone for the cheapest price. They call one seller, and if he is too expensive they say 'I just called another village, and they're selling their chicken feed for much less there. If you don't give me the price I want, I'll go to them.' There are people who get a very good price and buy 5 tons. People are also stockpiling rice and wheat, calling around to get the very cheapest prices and then buying very large amounts to sell later in a time of scarcity at very high prices to Dakha. At the beginning of the season the rice will cost 230 taka for 40 kilograms, and then they will sell the same rice months later for 310 taka. These are village businessmen. There've been people doing this for a long time, but now more are doing it, and they're making much more money.

"Now I want to put in a fax service so that we can sell a new product."

Provider #8's father is a Grameen Bank member. "I've had the phone for a year. I'm not aware that most Grameen Bank members are women.

"For local calls, 60% are business, 40% are personal.

"Yes, people treat me differently now that I have the phone. It's given me about 2,000 taka/ month net income. And people are a bit more respectful to me because they're getting a service from me. A few people have been jealous. They've said 'We will not use your phone, we will buy our own.' There are about 2,000 people in the village. Most people in the village know each other's names. In this village there are many cow traders. Some people call about our supply of cows from India through the border districts: 'Has my shipment of cows arrived?' And then after they send them to Dhaka markets they call again: 'What price did I get? What was my profit?' The benefit of the phone to them is time savings and travel expenses because a two minute call to Dhaka is 12 taka, but to go to Dhaka can be a full day and 70 taka: 15 taka each way, 5 taka for a rickshaw, and tea and food.

"The adombausha-- 'manpower business,' recruiters to send workers abroad-- use the phone. Sometimes there are people working Saudi, and they will call here to recruit someone, or the local recruiters will call them to see what their manpower needs are.

"Another kind of business that uses the phone is crop and vegetable exporters. They ship from our village via the airport, so they call often to arrange shipments. Whoever has the agreement with the exporter in Dhaka gets a call as to what to pack and send, and then he will call after it's been packed and sent to make sure that it has arrived.

Appendix #2: Case Studies of Grameen Telecom Consumers

User #1-- Nurul Amin-- is making a business call from a Grameen Telecom phone in Dhakinkhan Uttora, a Dhaka peri-urban area: "My profession is to write land deeds. I have an office in Dhaka, where my partner is. I have had some problems here, so I could not go to the office today, so I am calling my partner to have him meet my appointments. I almost always use the Grameen phone for business, and I am a regular customer, usually once a day."

User #2-- Halima Khatun, cited by Bayes-- is a poor, illiterate woman who owns 15 hens and sells their eggs. But Halima has a strategy: She accumulates 50-60 eggs at a time and sells them together, and she uses the Village Phone to get a better price: "I always sell eggs to middlemen. In the past, whatever prices they offered, I accepted because I had no idea about going prices of eggs. Now that there is a Village Phone, I get the price the middlemen are willing to pay me and then ring up nearby wholesale markets to compare prices. Last week, the middleman came... and desired to pay me 12 taka per hali (hali means four units)... Keeping him waiting, I rushed to check the prices through Village Phone. The price was 14 taka per hali of eggs in nearby markets. I came back and refused to sell to him at the lower price... After a brief haggling, we agreed to buy and sell at 13 taka per hali."

User #3-- Aminul Hoque, also cited by Bayes-- lives 40 km from Dhaka and has a small poultry firm. Hoque says the phone helps him three ways: 1) Instead of going himself to Dhaka, which costs time and money, for chicken feed and other supplies-- when, often, the supplies are not available-- he phones orders in advance. 2) The phone lowers business risks-- Hoque uses it to call experts for business advice and for consulting when problems such as disease. He has now lowered the mortality among his stock. 3) He now calls buyers to get market prices, which means he gets a better price from the middlemen, increasing his return from sales.