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An Investigation of the Replicability of a Microfinance Approach to Extending Telecommunications Access to Marginal Customers

Version 3.1, December 2005

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An Investigation of the Replicability of a Microfinance Approach to Extending Telecommunications Access to Marginal Customers[1]

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An Investigation of the Replicability of a Microfinance Approach to Extending Telecommunications Access to Marginal Customers

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Acronyms:

BDT	Bangladesh Taka
BR	Bangladesh Railways
BTTB	Bangladesh Telegraph and Telephone Board
EBITDA	Earnings before Interest, Taxes, Depreciation, and Amortization
FON	Fiber Optic Network
GB	Grameen Bank
GP	Grameen Phone
GTC	Grameen Telecom
LKR	Sri Lankan Rupee
MFI	Micro Finance Institution
MVNO	Mobile Virtual Network Operator
VNO	Virtual Network Operator
VP	Village Phone
VPO	Village Phone Operator
WDR	World Dialogue on Regulation for Network Economies

Executive Summary

This study is an attempt to examine and document particular sets of solutions that have emerged for the extension of telecommunications access to marginal customers in Bangladesh, under the Grameen Village Phone (VP) program. The VP program has been successful in providing access to telecommunications to over 45 percent of the villages in Bangladesh through providing microfinance to villagers to purchase a mobile phone and a GrameenPhone connection, which is then operated as a payphone, providing access to fellow villagers for a charge. This is particularly impressive in a country that had 3.44 telecom (fixed plus mobile) subscribers per one hundred inhabitants in 2004. The VP program has been hailed as a unique case in the development of rural telecom infrastructure.

The study looks at the fundamental problem of *access* to telecommunications, and focuses on one of the 'solutions' that have emerged in response to this problem, in specific that adopted by Grameen of Bangladesh. The solution adopted by Grameen, which has also proven to be an extremely successful business model, stems from the organization's desires to (a) promote development and poverty alleviation through the use of ICTs and (b) increase telecom access to the rural poor. It is examined closely to establish the factors that have contributed to its success, including the roles of microfinance and infrastructure sharing in the approach. The replicability of the Grameen 'model' is then discussed, attempting to answer questions such as *how replicable is this model*? and *if so which parts?*

The conclusion reached, is that whilst the Grameen approach has undoubtedly been successful in terms of delivering results in a particular regulatory and market environment at a particular point in time, changes in telecommunications technology and markets have spurred different solutions to the access problem; such solutions do not necessarily stem from the desire to ensure access to telecom for all, but are apparently successful business models, where sellers of telecom services (including resellers as well as network operators) are able to run a sustainable business. This is not to say however, that certain elements of this approach may still be useful, for example, replication of the Village Phone program in Uganda has drawn from several key design elements of the original Bangladeshi model, with modifications according to the country

setting. The key to the sustainability and success of the model is that all the stakeholders benefit from the program. The usefulness of the different elements of the Grameen model, as with many models, depends on the context in which an access solution is being designed for, and should be adapted accordingly.

Section 1: Introduction

Research questions in context

As set out in the WDR Theme for 2004/2005 – *"Diversifying Participation in Network Development"* (see www.regulateonline.org) – institutional rigidities and policy and regulatory failures associated with the traditional modes of network investment and expansion have resulted in the emergence of innovative solutions to network development. However, there is little comprehensive or systematic documentation of these new solutions, the factors that drive their success or conditions that allow for their broader replicability available, to achieve universal access goals.

This research is an attempt to "un-bundle" the particular set of solutions that has emerged for the extension of telecommunications access to marginal customers in Bangladesh under the Grameen Village Phone (VP) program, in order to examine the potential for broader replicability of a microfinance approach to the problem of access. The VP program, which has been widely hailed as a "unique case in the development of rural telecom infrastructure" (*Bayes et al, 1999, p. 4)*, is the outcome of the Grameen Bank's (GB) aim to (a) promote development and poverty alleviation through the use of information and communication technology (ICT); and, (b) increase telecom access to the rural poor, whilst maintaining a sustainable business model.

As at June 2005, the VP program covered more than 64 million Bangladeshis or 45 percent of the country's population[2], in approximately 50 per cent of the villages in Bangladesh. This is particularly impressive in a country that had a total tele-density of 3.44 in 2004 (*ITU, 2004*). The VP program supplies microfinance to entrepreneurial women in villages to purchase a mobile phone, which is then operated as a payphone, providing shared access to fellow villagers for a fee.

Our analysis of the Grameen solution includes an examination of the specific incentives that led this entity to innovate in the manner that it did as well as the organizational aspects of extending telecommunications access to marginal customers – drawing from

[2] Data provided by GTC on field visit, 21 June 2005. Bangladesh population data from World Bank data, *Bangladesh at a Glance* at http://www.worldbank.org/cgi-bin/sendoff.cgi?page=%2Fdata%2Fcountrydata%2Faag%2Fbgd_aag.pdf

the literature on transaction costs coming out of New Institutionalism and attributed more specifically to *Williamson (1985).* An interesting insight coming out of this investigation of the VP program is that developmental and business goals need not be incompatible and that a carefully crafted, prudent mix of the two can result in a "win-win" situation for all parties concerned, enhancing the sustainability of the model. Citing from *Keogh and Wood, 2005, p. 2:*

> *"Village Phone is a methodology that creates a profitable partnership and a channel to market to bring telecommunications services to the rural areas of a developing nation."*

We further conclude that whilst the Grameen approach has undoubtedly been successful in terms of delivering results in a particular regulatory and market environment at a specific point in time, it is by no means a "cookie cutter" template; changes in telecommunications technology and markets can and have advanced different solutions to the access problem as will be expanded on later in this paper. The key therefore, is to identify elements of the package that are contextually useful – as in the case of Uganda for instance (see Annex 3) – and replicate those elements that will deliver the desired results, which in this instance is promoting greater participation in telecommunications/ICT networks.

The remainder of this section details the methodology employed in the study and limitations faced, and then goes on to sketch a brief overview of the VP program. Section two looks at the issue of access with regard to the marginal customer and ''unpacks'" the various elements of the Grameen approach to the problem. The concluding section considers the feasibility of other solutions to the access problem – including variants of the Grameen approach – in the context of current and future changes in telecommunications markets and technology.

Methodology and limitations

The methodology employed in this study is qualitative in nature, consisting of an extensive literature review and in-country interviews with key stakeholders in the VP program.[3]

[3] Details of the interviews conducted, as well as the questionnaires used are contained in Annex 1.

The main limitations faced in this research were two-fold: one, the lack of credible data to ascertain the existence and extent of any internal transfers that may be flowing within the Grameen operation – i.e. GB, Grameen Telecom (GTC), and Grameen Phone (GP); and two, the inability to conduct face-to-face interviews with some key stakeholders such as the regulator and the Village Phone Operators (VPOs).

A brief introduction to the Village Phone Program

The VP program, an initiative of GB and Iqbal Quadir, a US-based Bangladeshi, was set up through the establishment of two companies -GTC and GP - and has been in operation since 1997. Table 1.0 provides information on the two companies, including their role in the VP program while Figure 1.0 illustrates how the VP program works, setting out the relationships between the key actors.

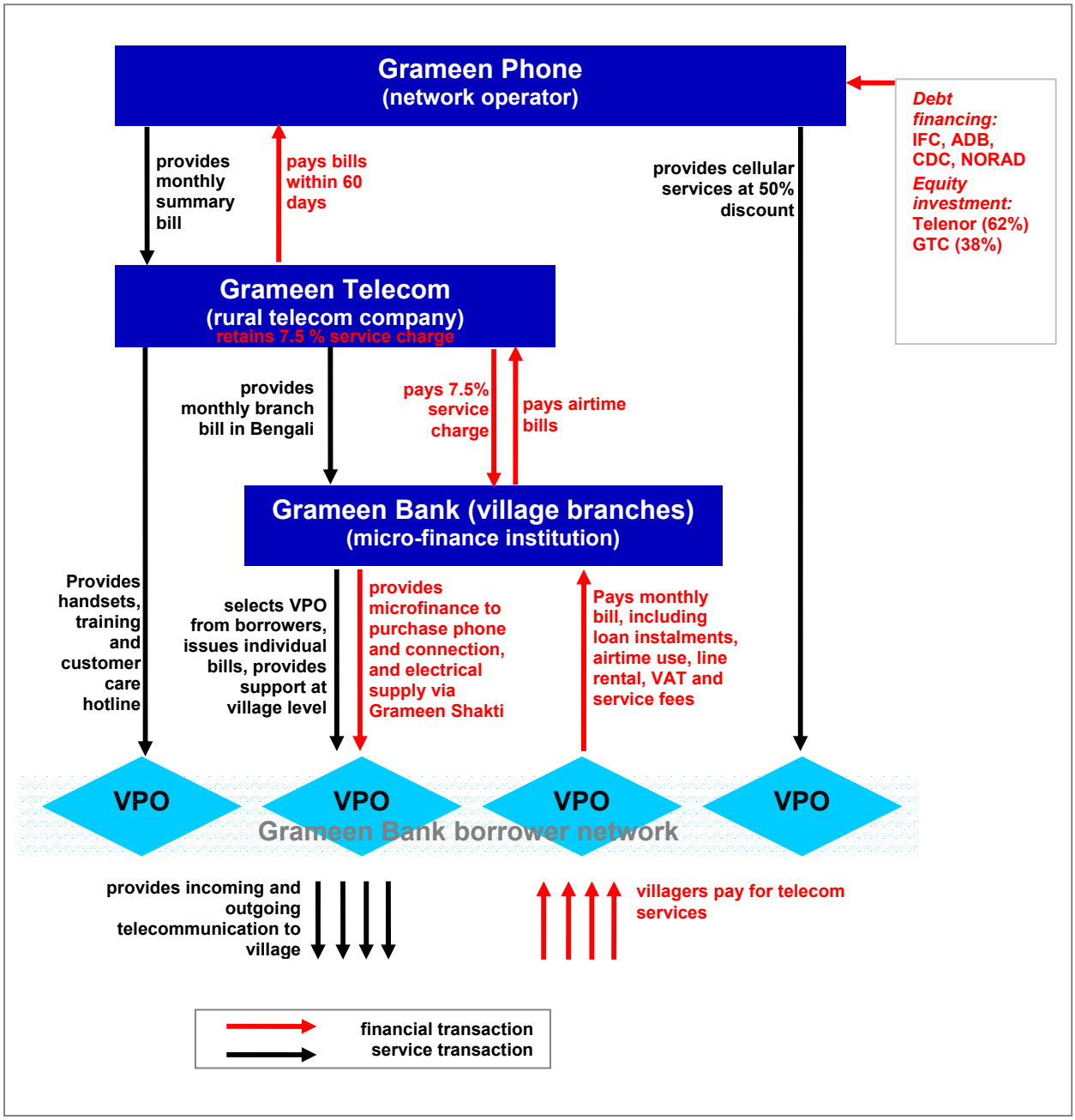
Table 1.0: Grameen Telecom and Grameen Phone

	Grameen Telecom (GTC)	Grameen Phone (GP)
Established	1995	1997
Type of company	not-for-profit; private limited	for-profit; Shareholders: Telenor, Norway (62 %); GTC (38 %)
Objective	*' to establish universal telephone access all over rural Bangladesh and to become a model for utilizing telecom and information technology to empower the rural poor[4]'*	*'to receive an economic return on its investments and to contribute to the economic development of Bangladesh where telecommunications can play a critical role[5].'*
Role in VP program	▪ village phone network management, VPO monitoring ▪ system design for specific installations ▪ importation, distribution and aftercare of handsets ▪ provision of support and training of VPOs ▪ bulk airtime purchase ▪ provision of bill to GB branches (not individual bills)	▪ ownership, maintenance and expansion of communication infrastructure ▪ provision of technical support ▪ provision of airtime (at 50 per cent discount) ▪ provision of summary bill to GTC ▪ securing government license, compliance with regulations, liaison with government ▪ government financial and taxation liaison

[4] Grameen Telecom, www.grameentelecom.net, accessed August 2005.

[5] Grameen Phone, www.grameenphone.com, accessed August 2005.

Figure 1.0: Relationships between Grameen Phone, Grameen Telecom, Grameen Bank and Village Phone Operators in the context of the VP program

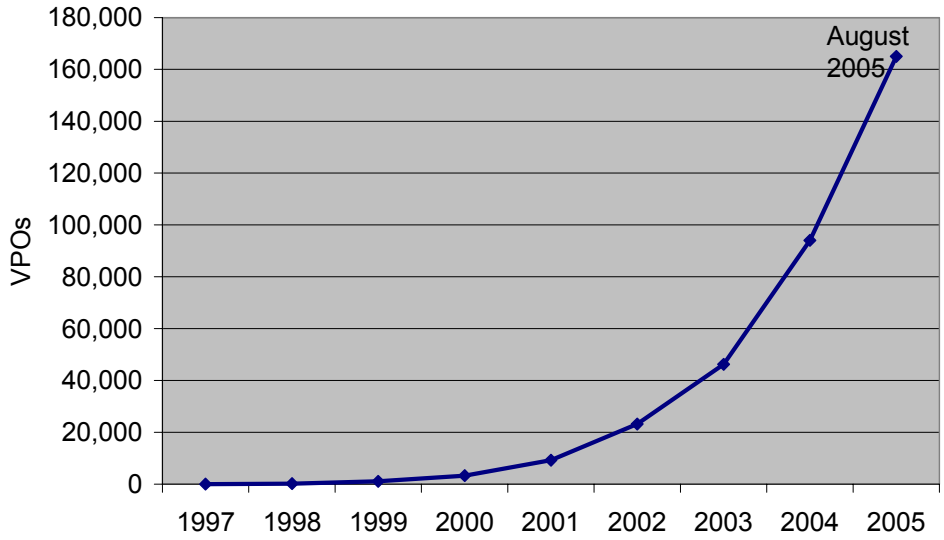


Grameen Bank provides the equivalent of USD133 in loans to each VPO – selected from GB's borrower network – to obtain connections to GP's cellular service and to resell telecommunications facilities to people in and around their villages. As seen in Figure1.1, the VP program has expanded significantly since its inception, with more than 165,000 VPOs as at August 2005.[6]

Figure 1.1

Growth in Village Phone Operators (1997-2005)

Source: Grameen Telecom (2005,b), www.grameenphone.com



[6] www.grameenphone.com

Section 2: The fundamental problem of access: the Grameen solution

Telecommunications access: dispelling the myths

This section discusses some key issues – including common misperceptions – with regard to the under-provision of telecommunications services to marginal customers in countries that have low tele-densities, and analyses the Grameen solution to the problem, identifying the incentives that drove the organization to innovate in the access network as well as the factors that contributed to the success and sustainability of this particular approach.

In this paper, we define the "marginal customer" as one that gets excluded from market transactions under a given market setting (or a particular configuration of demand and supply conditions); by definition, if the supplier increases supply by a single unit, then the marginal customer would be included in the market transaction. The question then is, what would it take for the supplier to increase supply by one more unit – or in this case, provide one more telephone connection; why is it that an operator does not supply the "next" customer; why are telecommunications services under-provided? In Bangladesh for instance, a country with a population of over 100 million, there were less than two telephone subscribers per one hundred inhabitants in 2003; and, there is no shortage of countries whose tele-density is similarly low (*ITU, 2004).*

One fundamental cause of the under-provision of telecommunications services[7] to potential customers in low tele-density countries is the misperception that it is not economical to do so. First of all, it is commonly perceived by operators that the costs associated with providing telecommunications access to marginal customers are too high, particularly given the fact that marginal customers are often located in rural areas where the cost of installing infrastructure is usually higher than in urban locations. In addition, operators tend to believe that the transaction costs of providing services to marginal customers includes a significant payment collection component, which is perceived as too high to justify serving them. Second, the demand for

[7] Not discounting any regulatory or policy barriers that operators may face in attempting to expand their networks; however, these barriers will not be discussed in this paper. For a discussion of regulatory and policy prerequisites for extending access to ICTs, see *Samarajiva (2004).*

telecommunications services amongst marginal customers has traditionally been perceived as too low to make serving them a viable commercial operation. Operators believe that the revenue generated from these customers would not be sufficient to cover the high costs associated with installing infrastructure and collecting payments. The common perception is that marginal customers are unable to afford the services that are provided, if they need them at all.

New research however, is shedding light on the accuracy of this received wisdom; there is growing evidence that investing in marginal customers might be good for business after all. A recent survey[8] of the use of telecommunications services by financially constrained communities in India and Sri Lanka, has shown that 64 percent of the respondents spent more than USD 4 per month on mobile communications;[9] given that the sample constituted of those with monthly incomes of less than USD 100, a conservative estimate of the percentage of monthly income spent on mobile communications[10] would be 4 per cent.

Bangladesh is a country that has also, through the VP program, demonstrated that there is a large untapped demand for telecommunications services amongst marginal consumers (in the Bangladeshi case, the rural poor). Providing access to a telephone to communities in areas where hitherto there has been none, even if it means having to walk a mile or two to use it, provides people with opportunities to improve their lives in many ways. For instance, a factory worker located 4-5 hours away from her home can talk to her family in her village everyday, and work an extra few hours on the weekend, rather than spending almost ten hours traveling to see them for just a few hours and returning to the town for work the next morning exhausted. This is possible if both she and her family have access to a phone. The many uses of telephones and socio-economic benefits that accrue to VPOs have been well documented by *Bayes et al (1999)* as well as by *Richardson et al (2000)*, including the ability to arrange financial

[8] Research currently being undertaken by LIRNE*asia.*

[9] Of this group, almost half of them spent more than USD8 per month on mobile telecommunications, or 8 percent of their monthly household income.

[10] Assuming that the respondent receives the maximum possible household income of USD100.

transfers from relatives living in the city and abroad.[11] Consumer surplus yielded by a phone call has also been estimated:

"The consumer surplus for a single phone call from a village to Dhaka, a call that replaces a physical trip to the city, ranges from 2.64% to 9.8% of mean monthly household income. The cost of a trip to the city ranges from 2 to 8 times the cost of a single phone call, meaning real savings for poor rural people of between 132 to 492 Taka ($2.70 to $10 USD) for individual calls." (*Richardson et al, 2000, p.2)*

Quoting from *Keogh and Wood, 2005, p. 6,* which cites *World Resources Institute (2002)* and *Lawson and Meyenn (2000), respectively*:

"Phones have helped elevate the status of the female phone operators in the village. Surveys have found that the Village Phone Operators become socially empowered as they earn an income, gaining participation in family decisions in which, in rural Bangladeshi society, women usually have no say."

"…[Grameen Village Phone] has had considerable development benefits. It has reduced the cost of communications relative to other services such as transportation….the program has enabled the village pay phone entrepreneurs, poor by most standards but among the better-off in their villages, to turn a profit".

Clearly there is a business case for the provision of telecommunications services to marginal consumers, with a potential win-win situation for all parties concerned. However, the way in which these services are packaged, marketed and delivered has to be appropriately designed for private operators to be able to profitably exploit the demand for telecommunications access – as demonstrated by the VP program.

Unbundling the Grameen solution

The fundamental questions being explored here are: what were the initial conditions/ "triggers" that drove GP to innovate in the access network, what are the design/organizational components that ensured success; and, why has the Grameen approach not been replicated by other mobile operators in Bangladesh, given the apparent business case to invest in marginal customers?

[11] Bangladesh is a country with a high migrant population, with many Bangladeshis traveling to urban centers as well as overseas for employment.

a) Incentives to innovate

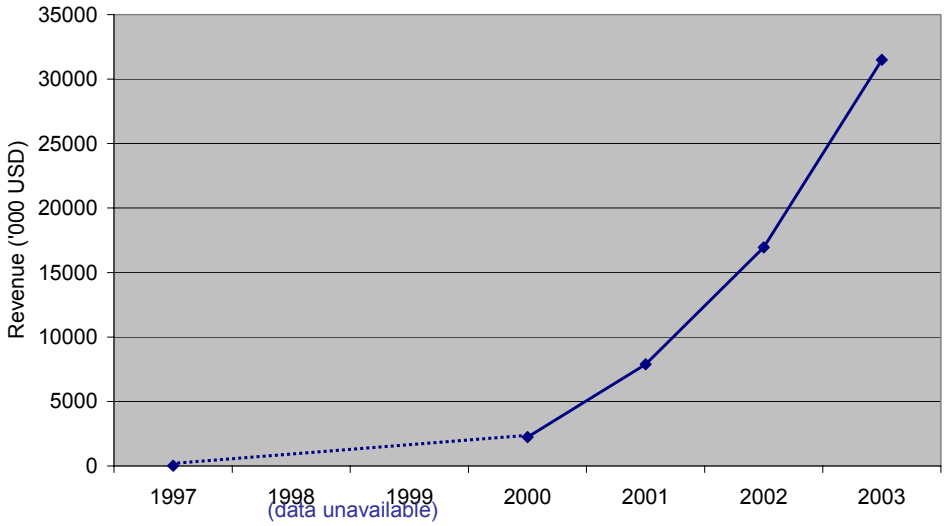
An informed perception of marginal customers as a potential profit base

As discussed in earlier in this paper, a key factor impeding the supply of telecommunications services to marginal customers by the private sector is the widely held misperception that cost recovery is undermined by these users' inability to pay. However, as set out at the beginning of this section, there is concrete empirical evidence to suggest that affordability is not a significant barrier to the access of telephony. What becomes apparent when reflecting on the move by Grameen to initiate the VP program, is that GB's years of interaction with its clients[12] as a microfinance institution (MFI) with deep roots into rural communities, contributed to a more informed perception of these clients as a valuable source of revenue and even profit base. The positive return on the decision to set up the VP program in terms of growth and revenue is illustrated in Figure 2.0 below.

Figure 2.0

Revenue from Village Phones (USD)

Source: www.grameenphone.com, GP Annual Report 2003
Exchange rate of BTK66 to USD1 used, from www.xe.com, September 07, 2005



[12] Who would most likely also be considered 'marginal' customers in terms of telecommunications and perhaps other services also.

Extensive network access

A significant part of the analysis of the incentives for Grameen to innovate in the way in did is the hostile conditions – in this instance, limited interconnection facilities- fostered by the incumbent fixed operator, Bangladesh Telegraph and Telephone Board (BTTB). These initial unfavorable conditions gave Grameen the "push" to seek other means of penetrating the countryside, resulting in GP entering into a network sharing agreement with Bangladesh Railway (BR), with the acquisition of a 1800 km long fiber optic network (FON). This arrangement gave GP access to a nation-wide network parallel to that of the incumbent.[13]

This resonates with Milton Muller's thesis based on the US experience that non-interconnection of competing networks creates three incentives to enlarge the scope of the network (*Muller, 1997)*:

1. Incentive to be the first mover to attract new user groups in un-served markets;
2. Incentive to lower the price of access to entice new users, even if temporarily; and,
3. Incentive to interconnect users in non-competing networks and increase network footprint

These incentives, driven by access competition have promoted universal service in the US, and can also be applied to the case of GP's network expansion strategy of leasing BR's fiber optic network, GP being a non-interconnecting network facing competition from several other GSM and WLL operators. With the FON under its belt, GP has been able to roll out rapidly, gaining a critical mass of subscribers to create a market for mobile-mobile only communication packages.

Other operators, constrained by insufficient interconnection with BTTB have been unable to expand their networks, given the financial resources at their disposal. Most cellular operators have had to build their own microwave backbone (and in fact lease out spare capacity from GP), but coverage has been limited in comparison to GP, as reflected in the market shares shown in Table 2.0 below.

[13] GP acquired exclusive access to BR's FON through a competitive bidding process; private operators participated in this bid. As Grameen offered the highest price, it succeeded in clinching the deal.

Table 2.0: The mobile sector in Bangladesh, August 2005[14]
Source:http://financialexpressbd.com/index3.asp?cnd=11/21/2005&section_id=7&newsid=7392

Operator	No. of lines
GrameenPhone	> 5 million
Aktel	2.2 million
Banglalink (Previously Sheba Telecom)	0.4 million
Citycell (Pacific Bangladesh Telecom Limited)	0.3 million
Teletalk	0.18 million

Furthermore, it is assumed that in the mobile business, there is a "tipping point" of subscribers, after which the profitability of an operator grows significantly. This hypothesis is underscored by the comparison of subscribers versus indicators of profitability for GP as well as for Dialog Telekom in Figure 2.1 below.[15] In the case of Dialog Telekom, this point appears to be close to 500,000 subscribers, whereas in the case of GP, the corresponding point appears to be around 750,000. What is apparent is that GP has surpassed this "tipping point" after which its profitability (indicated by EBIDTA) has soared. It is very likely that this may not have happened if not for the first-mover advantage that GP gained with its access to an extensive, nation-wide FON.

[14] In December 2005, the Bangladesh Telecommunications Regulatory Commission (BTRC) awarded the country's sixth mobile phone license to the United Arab Emirates-based Warid Telecom International. (from www.newkerala.com/news.php?action=fullnews&id=62321)

[15] Sri Lanka's largest GSM operator, with a market share of more than 50 percent at the end of 2004 (*Asia Securities, 2005*).

Figure 2.1
Subscriber base growth and profitability: Dialog Telekom (Sri Lanka)

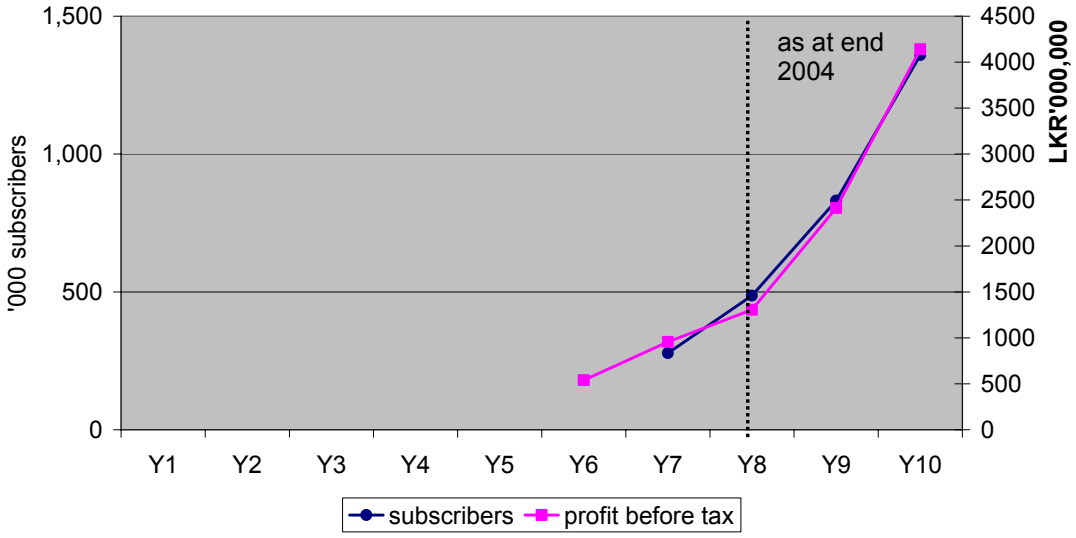
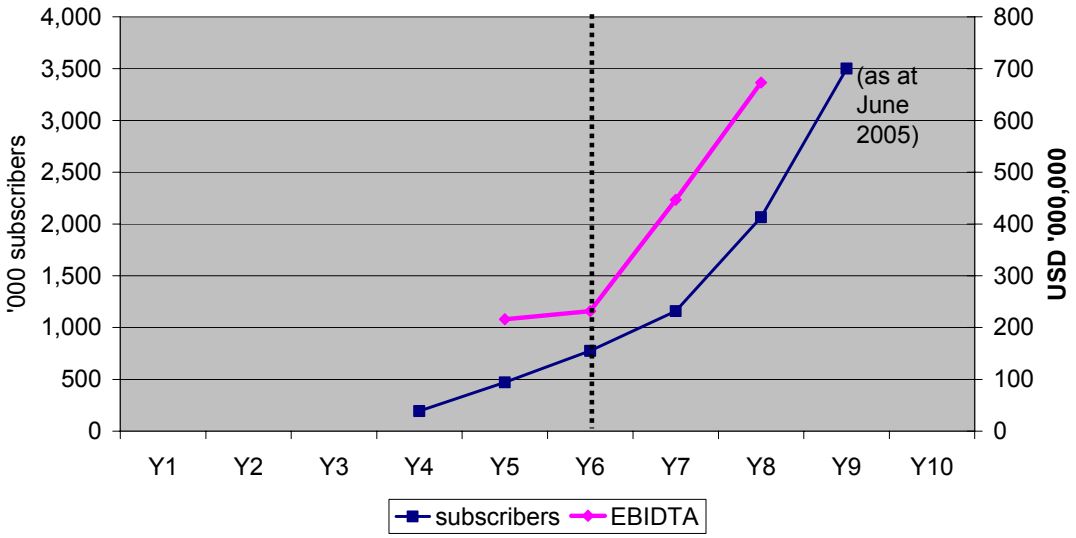
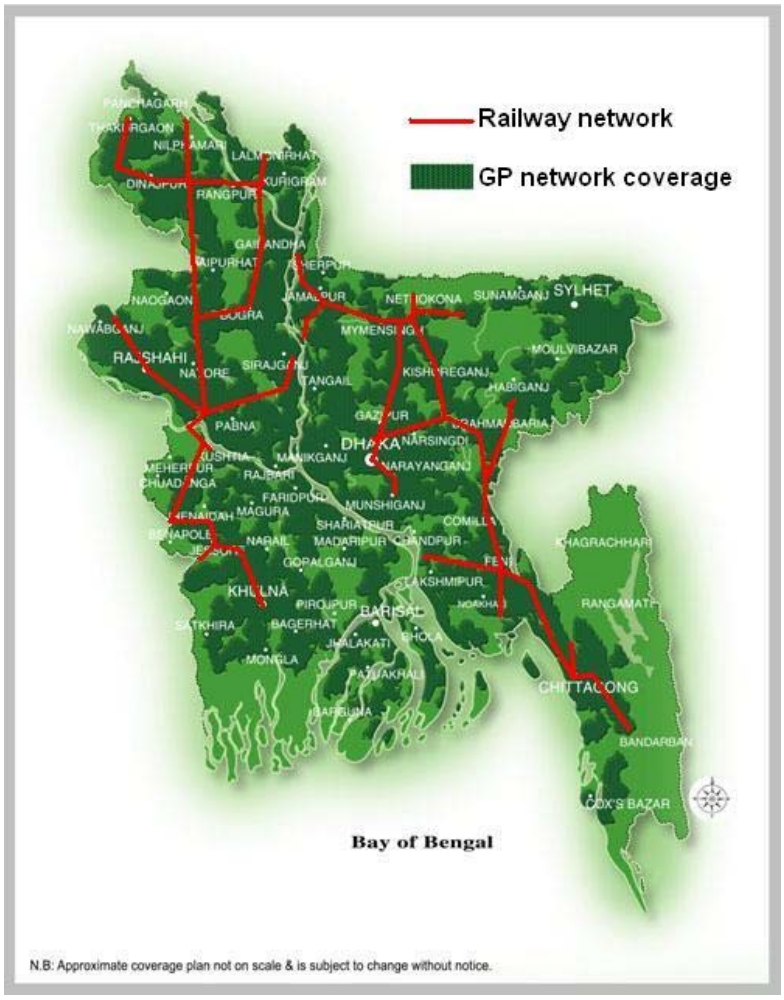


Figure 2.2
Subscriber base growth and profitability: GrameenPhone (Bangladesh)



GP's coverage (as at June 2005) is depicted in Figure 2.2 below, with Bangladesh's railway network mapped on the same diagram. Access to BR's FON has facilitated extensive, and importantly, rapid growth of GP's coverage. (The rapid expansion of GP's network coverage can be seen in the series of coverage maps in Annex 2). Although GP's network has not been extended specifically to reach rural subscribers, service is extended from the FON along the railway to selected villages through microwave links[16].

Figure 2.3: GP network coverage and Bangladesh Railway network
Source: GP coverage map: www.grameenphone.com; Railway network adapted from www.mapsofworld.com
NOTE: this map is not drawn to scale and is only indicative.



[16] Although in areas without fiber optic infrastructure GP has constructed and operates by microwave links, like in the south of the country, for example *(Cohen 2001)*.

GP has therefore been at a significant advantage in comparison to other operators allowing it to penetrate throughout the country at prolific rates, as indicated in Table 2.0 as well as Figure 2.1 above. The profits that it has consequently been able to generate are perhaps what allow GP to be able to provide airtime discounts. According to Telenor (GP's 62 per cent shareholder), the number of subscriptions in GP increased by 776,000 in the second quarter of 2005 and this contributed to GP's revenue growing by 53 percent compared with the second quarter of 2004 (*Telenor, 2005*).

However, with the large amounts of investment coming in from global telecom companies since late 2004 (for example Orascom and SingTel into Sheba Telecom and Pacific Bangladesh Telecom, respectively) and new interconnection deals being signed with BTTB, the sector is set to grow immensely with the likelihood of greater competition in and for the market hitherto dominated by GP. Moreover, there is a strong possibility that these other operators with new interconnection facilities and increased financial resources at their disposal may very well target un-served markets, given the business case for investing in marginal customers as demonstrated by Grameen[17].

b) Design/organizational factors contributing to Grameen's success

Grameen: the brand and the network

Whilst the initial advantage that Grameen had over competitors – both other private telecommunications operators as well as other MFIs - with the adoption of a network sharing solution answers one piece of the puzzle on the lack of replication of this business model in Bangladesh, our in-country interviews drew attention to other critical factors relating to the wider "Grameen family" such as the Grameen brand image and the ability to piggy-back on GB's established microfinance infrastructure and networks – particularly in the context of determining and ensuring the creditworthiness of clients.

[17] These developments could however be stymied by the recent imposition of a BDT900, or approximately USD14 tax on new SIM cards – which is roughly equivalent to 40 percent of the average monthly income (USD33.33) of a Bangladeshi (*World Bank, 2004*).

The inheritance of the "Grameen" brand image appears to have had a significant impact on the sustainability of the VP program, ensuring the buy-in of the VPOs, whilst reducing the chances of competitors making inroads into its territory.

The citation below, taken from the *Telenor Annual Report 2004, p.37* is an illustration of this point:

"……Additionally, Grameen Phone is the only operator in Bangladesh to offer nationwide coverage. We believe that the "Grameen Phone" brand has been established as a best quality brand."

What is important to note in this context – and also a useful point for issues of replicability – is that brand image and credibility play a pivotal role in leveraging support particularly in countries that have a reputation of "bad governance" with weak legal systems[18] and no or inadequately defined property rights.

Scale and scope economies stemming from the "Grameen family" infrastructure and network – as will be discussed later in this section - have played an extremely significant role in the success of Grameen's approach, whilst again making it harder for competitors that do not have such opportunities for piggy-backing to enter the arena.

An important point relating to the discussion of why other players in Bangladesh have not replicated the Grameen approach is the particular manner in which GB ensures high repayment levels. The literature on compliance points to various interpretations of this phenomenon, ranging from *Fukuyama's (2001a and 2001b)* moralistic explanation based on concepts of social capital and trust to *Harriss' (2003)* more comprehensive and inclusive explanation that combines elements of power and hierarchy. Citing from *Harriss, 2003, p. 5:*

"…'character assessment' (A trusts B because of who he or she is) and 'incentive assessment' (A trusts B because of her assessment of the incentives acting upon the other……..character assessment (may rely) on characteristics shared by A and B (for example, they are of the same ethnicity). Incentive assessment may take account of institutionalized sanctions acting upon B; of the reputational jeopardy to which she may be subject in the event of her failing to behave appropriately; of the possibilities of *direct retaliation* against her….."

[18] According to *World Bank* (*2005a)* measures of the ease or difficulty in enforcing contracts, it takes 29 steps and 365 days to enforce contracts in Bangladesh; this compares to OECD averages of 19 steps and 232 days to enforce a contract. The cost of enforcing contracts is 21.3% of debt in Bangladesh, while the average for OECD countries is 10.9%.

Clearly, social capital, trust and power are all elements of relationships and as in any phenomenon dealing with human behavior cannot be boxed into neat categories – there are bound to be overlaps and mixes of the different elements in any organizational structure that involves human interaction. However, in the specific instance of GB it appears that power – what *Harriss (2003)* terms "incentive assessment" is of greater significance in explaining the high rates of debt repayment.

The "power relationship'" between GB and its borrowers is illustrated by the *sixteen decisions* that borrowers must commit to when becoming a member of the Bank – for example, the borrower will outlaw dowry practices; the borrower will use pit latrines; the borrower will drink only from tube wells where available, if not boil their water or use alum; the borrower will educate their children, etc. These decisions are implemented to fulfill a social development agenda whilst addressing basic needs of the clientele[19] Moreover, GB staff are embedded in the village community and regularly interact with borrowers through weekly meetings. As such, if a borrower defaults on loans, she not only runs the risk of jeopardizing her reputation within her community, but also may lose her chance of obtaining loans in the future. There is therefore a great incentive for the borrower to pay back loans.

Structuring of costs

From the perspective of GP, the company that owns and operates the cellular network, the VP program is *one* customer. GP treats the entire program as a bulk buyer of airtime, issuing a single summary bill at the end of the month to GTC for the aggregated airtime of all the VPOs. GTC then makes out airtime bills in Bengali for each GB branch office, with a summary for that branch. The GB branch makes out individual bills for each VPO, and the actual collection of monies from VPOs is carried out by the GB branch at the village level; monthly bill collection is tied together with that of loan repayments (including that for the initial package). The branch pays the bill to GTC within the last date of payment. GTC bears marketing and advertising costs of the VP program, supplies handsets, provides support, training, service and repair of handsets, and overall

[19] www.grameen-info.org/bank/the16.html

management of the VPO network.[20] GP therefore avoids several costs, as in the case of VNO, than if it were to provide individual connections to VPOs without the involvement of GTC and GB. GP only incurs costs related to:

- communication infrastructure
- technical support
- provision of airtime (which is provided at a 50 per cent discount)
- provision of summary bill to GTC
- government licensing and regulation compliance and liaison
- government financial and taxation liaison

The result is a situation where in 2004, the 3.85 per cent of GP's subscribers that constituted the total number of VPOs, accounted for 15.5 per cent of all GP airtime revenues (*Alauddin, 2005*), while incurring less costs than associated with a regular subscriber. As at June 2005, the average revenue per user generated by VPO connections was twice that of GP's regular subscribers. Although each of these connections may serve an entire village and thus cannot be compared with a regular single-user subscriber, the point to note here is that from the perspective of GP, if *twice* the amount of revenue is generated from a smaller base of costs, this is surely enough to convince another operator to do the same.

Reducing the risk of service provision: screening creditworthy customers and ensuring repayment

The VPOs are selected from the larger pool of GB borrowers. These borrowers should have been members of the Bank for a certain period of time, and must have a good repayment record in order to be eligible to become a VPO (see Box 1.0 below). The selection process is run by GB at the village level, and ensures that reliable borrowers are selected to operate the village phone.

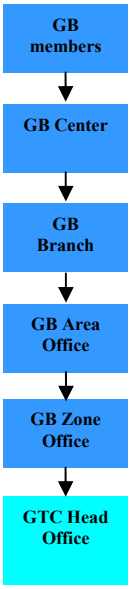
[20] *Grameen Telecom (2005)*: presentation slides provided by GTC

The selection process

Although the members decide amongst themselves who gets the phone and becomes the VPO, the borrower must also:

- have been a member of the Bank for a minimum period
- have a good track record of repayment
- have a good business in operation, and have time to operate the VP
- have at least one literate member in her household, if she isn't
- have access to electricity
- live in a central location within the village

Other factors are also considered, such as whether the lady's husband is a criminal or not. This process is to ensure to the greatest extent possible that the lady and the community benefit from the VP.



- Members nominate a borrower to become VPO
- Center manager checks out borrower to ensure she fulfils criteria and submits information for approval up GB hierarchy
- Approves (or disapproves) nominee; GTC staff (at GB Zonal Office) make request to issue phone to approved VPO candidate
- Issues phone to VPO

Box 1.0: The selection of a VPO from Grameen Bank's borrower pool

GTC only comes into the picture for the final approval and subsequent issue of the phone to the selected VPO. The detailed information required for selection (for e.g. whether the borrower's husband is a criminal) would be near impossible to ascertain by GP or GTC at the level that they work at.[21] As such, through its relationship with GB, GP is able to tap into a reliable pool of borrowers, and moreover, the selection process ensures that only borrowers with good repayment records become VPOs.

[21] The lowest level of GTC's administrative structure is the 'unit office,' which GTC has 14 of, while GB has over 1,500 branch offices spread across the country.

Overall, Grameen's level of repayment is 98.95 per cent; [22] high levels of non-payment of bills can make operators reluctant to provide services to rural areas. Administration of the entire VP program is carried out by GB at the village level, with its network and infrastructure covering close to two-thirds of the villages in Bangladesh. GB is the first point of contact for VPOs, with GB staff permanently located in the village and regularly meeting with borrowers; GTC staff visit the GB centers in the villages less regularly. This model that includes regular meetings with VPOs, works well to avoid problems of moral hazard (unwillingness to pay back) and adverse selection (carrying a larger percentage of bad payers) associated with informational asymmetries between lenders and borrowers.

An additional factor that enhances the prospects of repayment and sustainability is the different approach to microfinance that characterizes the VP program. In contrast to the conventional approach and analogous to the ancient Chinese proverb of giving a poor man a fishing rod versus a fish, the VPO is provided with a livelihood- a means of generating a steady income by reselling telecommunications services – rather than just a meal. [23]

Quoting Muhammad Yunus, the founder of GB:

> *The quickest way to get out of poverty right now is to have one mobile telephone, and you will see how quickly she is changing her life. Come back in two years and you will not recognize what she was before.*[24]

By giving a poor villager micro-credit to buy a phone under the VP program, the income that is generated by the villager cum VPO puts her in a better position to make loan payments as well as pay monthly usage bills (as opposed to providing micro credit to a villager to buy a phone for her personal use). The greater certainty of payment that results from the design of this program is an encouraging factor for operators to provide rural telecom services.

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[22] www.grameen-info.org/ , accessed August 2005.

[23] The average net income earned by a VPO operating a village phone was approximately the equivalent of USD68 per month in 2004 (*Alauddin, 2005, p4*), which is more than double the per capita income for Bangladesh.

[24] Muhammad Yunus, at *A Dialogue on ICTs and Poverty: The Harvard Forum*, International Development Research Centre (IDRC), September 2003, Cambridge Massachusetts; taken from Spence (2005)

Increasing affordability of mobile communication

There are several factors that have increased the affordability of mobile telecommunication for rural Bangladeshis as discussed below.

Aggregated demand: The basic concept of a village phone, where one phone provides access to multiple users, sometimes even an entire village, means that the usage per connection provided by GP is higher than for normal GP customers, as evidenced by the revenue generated by each VP compared to that of a regular subscriber, mentioned earlier. Villagers do not have to invest in a phone to be able to avail of its services. From the perspective of the VPO who invests in the phone, the cost can be offset by the revenue that the VPO generates from selling telecom services to her clientele, over a period of about 2 years albeit.

Discounted airtime: GP provides airtime for VPO customers at a discounted rate of approximately 50 per cent. This was initially part of GP's business strategy (embodied in the principle, 'good development is good business'), as the VP program started the day that commercial services of GP were launched in 1997. However, it is now one of GP's biggest Corporate Social Responsibility programs. The discount is an exclusive privilege offered by GP to GTC, and applies to all rates that are normally charged to GP customers. The tariffs charged to the VPO are hence less than what regular GP customers pay. Generally tariff reductions (regular customer tariffs) are passed on to GTC. The discounted rate allows GTC to cover its costs, and the VPOs to make a profit. The VPO charges a rate higher than the cost that she incurs[25] and the difference is her profit. According to *Alauddin, 2005, pp 3-4,*

"VP operators charge around BDT 4-6 to the customer, depending on the availability of phones in the locality."[26]

Undoubtedly, this airtime discount has contributed to the success of the VP program. If this discount were removed for instance, the rates that the VPOs would have to charge users to cover the cost of airtime would have to be much higher; in turn, demand for

[25] Which includes airtime charges, value added taxes and service charges.

[26] Call charges as at June 2005: mobile-mobile: BDT 2.24/minute (peak) and BDT1.12/minute (off-peak)

telecom services would be much lower, and hence the profitability of each VP would be less, and the sustainability of the program would be negatively affected.

Micro-loans to start a VP business: The selected VPOs are provided a loan package from GB to purchase a handset and start their VP business. This basic package consists of one activated Grameen Phone SIM card, one handset[27], a battery, a fast charger, a user guide in Bengali and a price list for different destinations (national and international calls). The cost of the handset is also subsidized by GTC. As mentioned earlier in this paper, the total package typically costs USD 133.[28] The VPO pays back this loan in installments usually over a period of two years;[29] the loan repayments are added to a monthly bill which includes airtime charges, line rental, etc. issued to the VPO by her GB Center.

Grameen also provides loans to selected VPOs to purchase solar panel cells and DC batteries if the VPO does not have access to electricity to charge the handset battery. In areas where there is network coverage, but no electricity, GB approaches Grameen Shakti, one of the 26 Grameen sister concerns that markets solar panel cells and DC batteries. GB gives the VPO a loan to purchase the solar panel or DC battery from Grameen Shakti, which is repayable to GB through monthly installments. The total cost of the solar panel cells and DC batteries are approximately USD111-127 (or, BDT 7000-8000) and USD190 (BDT1200), respectively. This means that the VP program is feasible even in areas where there is no electricity available. The fact that VPOs can obtain the loan as well as the device all from one organization also lowers her overall transaction costs.

[27] Models: NOKIA 1100 & 1108; GTC is a NOKIA agent in Bangladesh.

[28] *Grameen Telecom – Unleashing Entrepreneur*, March 2005, provided by Grameen Telecom, June 2005.

[29] Although the VPOs may pay the loan back in larger amounts over a shorter period if they wish to, they usually do not.

Section 3: Replication of a microfinance approach to telecommunications access: the future

The analysis in section two of this paper focused on unpacking the set of ingredients that contributed to the success of the Grameen approach to the problem of extending telecommunications access to marginal users. What is important to reiterate, is that the Grameen solution was formulated to handle the access problem under particular market, regulatory and technological conditions. In other words, the Grameen approach is by no means a universal remedy that would guarantee success under changing market and technological conditions or with different regulatory policies. As such, the value of unbundling the Grameen experience is to distill replicable factors, if any, as well as the conditions necessary for replication, if at all.

Access to infrastructure

A key factor for replication is access to network infrastructure. In the Grameen case, the network sharing agreement with BR was fundamental to GP's first-mover advantage in un-served and under-served markets. As mentioned earlier in this paper however, the signing of new interconnection deals between BTTB and other mobile operators combined with the inflow of large amounts of investment into Bangladesh's mobile sector may well lead to a gradual decline in GP's dominance of this sector, with increased competition in and for the market. An additional point that needs to be emphasized here is that although the original Grameen model focused on telecommunications access alone, there is a business case for exploring the potential to extend the approach to ICTs in general.

Tailoring the model to tackle transaction costs

Another factor that needs to be taken into consideration in the discussion on replicability is the importance of a design/organizational structure that is capable of overcoming the higher transaction costs generally associated with serving marginal customers. The key issue therefore, is to identify and develop a cost-effective business model that would ensure access to telecommunications for marginal consumers, whilst ensuring sustainability. Drawing from *Williamson (1986)*, the organizational structure that will evolve is determined largely by the transaction costs involved in providing the service. In the Bangladeshi case, the high transaction costs associated with the provision of rural

telecommunications services, lowered by the extensive infrastructure that Grameen has on the ground, led to an ‘’internalized’’ model, where all parts of the process remained within the Grameen framework/”family”. The Ugandan example (see Annex 3) testifies to the fact however, that success is possible even with multiple, unrelated partners, as long as the model is designed to ensure a “win-win” outcome for all. Moreover, as set out in the discussion on a reseller solution to the access problem, below, an operator with a slightly lower or different set of transaction costs might well opt to outsource the operation of the VP program to another (unrelated) commercial entity, provided that this approach ensures profitable results.

The pre-paid option

This approach, also adopted in the Ugandan case, provides a workable alternative to the Grameen approach to the problem of ensuring repayment. In the pre-paid model, users (who have already obtained a handset and connection to a network operator) purchase airtime (or credit) in advance, either in the form of a standard value (e.g. Rupees 500), or in some countries through an automated system, where users can credit their account at retail outlets, such as grocery stores, book shops, etc. As they make use of the services of the network operator that they are connected to, their available credit balance is depleted; once a user’s credit runs out, she cannot access services, until the balance is ‘’topped up’’ by obtaining more credit.

The users of this service have largely been in developing countries[30], where first of all, fixed telephony is either unavailable or very limited or secondly, in instances where mobile service exists and users at the margin are unable to obtain ‘’post-paid’’ connections (or monthly subscriptions, where the user pays a bill at the end of the month for her usage) due to not having a permanent billing address, or not being able to furnish the required deposit, etc. In general, these requirements are aimed at establishing that the potential customer is ‘’creditworthy.’’; in developing countries, credit histories are not well documented to distinguish between customers who are likely to pay their monthly bill and those that are not, and authentication mechanisms such as social security numbers are not available to assist in identifying customers who default. Thus, a lack of

[30] For example, in the aforementioned study being carried out by LIRNEasia, of a sample of 3199 respondents with monthly household incomes below USD 100 in 11 locations spread across India and Sri Lanka, 83 per cent of mobile users were pre-paid customers.

information on these customers drives up risk and therefore the transaction costs of doing business (that is through monthly subscriptions) with these customers. The pre-paid approach therefore offers a solution where customers pay up-front for their usage, thus eliminating risk of default. According to one Sri Lankan wireless local loop operator[31], the company's non-payment rate was more than halved (from 14 to 5 percent over a period of a few years), through relationship building with its defaulting customers, personally discussing with them their particular problems with payments, and designing payment plans to suit such needs. This can however be a costly exercise.

Although there are several costs that an operator can avoid and/or reduce through a pre-paid approach, there are still significant costs involved in a pre-paid system. Pre-paid operations require highly sophisticated software systems that keep track of account balances and deduct the correct amount of credit for each and every call, SMS and whatever other services that are used. Costs are also incurred in printing and distributing charge cards (or top-up cards) to retailers. If an automated crediting system is in place (as earlier described) then this also requires sophisticated software as well as a small piece of equipment for the retailer to credit customers' pre-paid accounts from.

The reseller approach

A solution that has evolved from entrepreneurial roots is the reseller model. The basic model involves a network operator that owns and maintains the network infrastructure and provides the ''service'' (that is airtime) to a buyer, who then resells this airtime usually for a profit. There are two versions of this model, each defined by nature of the relationship between the reseller and the network operator. The first is that of the local reseller. An entrepreneur obtains a telephone line(s) from a network operator, paying a connection fee, and paying a monthly bill, which includes line rental and airtime charges. The local reseller provides telecom services to people in the vicinity commercially, and most likely making a profit. In this case, the reseller is almost like a regular customer. These resellers may or may not be required to obtain a license, or register with the regulator. In Sri Lanka, regulation of these local resellers (know as 'communication bureaus') is minimal. In fact, the network operator is required to obtain approval of the

[31] Commenting on the interim draft of this paper, 26 August 2005, Colombo.

regulator for any resellers of its services[32]. The resellers are only required to display their registration document, display their tariffs for customers to clearly see and provide a receipt for services.

In theory, the risk from the network operator's perspective should be greatly reduced, as the local reseller collects usage charges from the end users, whom the network operators perceive to be ''risky.'' However, this solution has problems in practice. According to one wireless local loop provider in Sri Lanka, these customers (i.e. the local resellers) are in fact riskier than regular (individual) subscribers, running up bills in the equivalent of thousands of dollars, leading to line disconnection upon non-payment. There is nothing to stop these resellers for instance, from obtaining a new line at a slightly different address (for example, street number '59/1' as opposed to the earlier '59'), under a different household member's name, and starting a fresh business.[33] In countries where legal systems do not function properly, it is sometimes more costly to take legal action than simply write off bad debts. Thus the problem of risk cannot be fully dealt with through this approach.

The second kind of reseller is the 'VNO,' or ''virtual network operator", companies that lease network capacity from operators and resell services to subscribers under their own brand name, utilizing their own assets such as content and distribution.[34] Here the relationship of the VNO with the network operator is one where the former purchases bulk airtime from the latter, paying by the minute. The network operator may or may not provide airtime at rates below regular subscriber rates, although it seems logical, as costs such as billing, collection, distribution, etc. are avoided by the network operator. The network operator thus incurs lower operation/variable costs and can afford to sell airtime to the reseller at a discounted or bulk rate. In the VNO approach, the risk of providing service to the customer at the margin is transferred from the network operator to the reseller (assuming the reseller does not default on payment to the network operator).

[32] *Act No 25 of 1991, as amended by the Sri Lanka Telecommunications (Amendment) Act No 27 of 1996*, Section 18 a. At http://www.trc.gov.lk/act_part_ii.htm

[33] Commenting on the interim draft of this paper, 26 August 2005, Colombo.

[34] Adapted from the definition of 'mobile virtual network operators' or MVNOs given by *Sekino et al (2005), p.3.*

Replication in the current context

A key question that arises is what would prevent a private individual from purchasing a wireless handset and connection and operating a pay-phone service in his village (given that service is available in that particular village)? Perhaps back in 1997 when the VP program was launched this was not feasible, given handset costs, mobile tariffs, pricing plans, etc. However, today the costs of handsets as well as tariffs have come down significantly, thus bringing down the cost of starting a VP business.

Table 3.0 below identifies potential barriers that a private individual may have faced in 1997, if he were attempting to launch his own mobile payphone business, vis-à-vis Grameen's answer to these problems, and looks at the relevance of these measures in today's context.

Table 3.0: The Grameen microfinance approach: then and now

Potential barrier in 1997	Solution adopted in 1997	Is this still applicable?
High cost of handset	Obtain micro-credit from GB and purchase handset (within a larger package that includes a connection)	Handset prices have fallen dramatically.[35] The Ultra-low-cost Handset Initiative of the GSM Association intends to bring the cost of a basic handset below USD30, aimed specifically at emerging markets.[36] Where micro-credit is still required, it is not absolute that it be obtained from GB in the Bangladeshi case.
No electrical supply available to recharge handset / cost of power supply (DC battery for example) is too high	Obtain micro-credit from GB to purchase power supply	If the cost of obtaining a power supply is too high, there may still be a role for micro-finance. However, there is nothing to prevent a person from obtaining micro-credit from a micro-finance institution other than Grameen.

[35] This can be illustrated by the fall in the amount of the initial loan package for VP business start up from USD312.50 in 2000 to USD133 in 2005; see also Annex 5.

[36] http://www.gsmworld.com/emh/news/emh_press_gsma150205.html

Cannot obtain a connection because operator cannot distinguish customer's creditworthiness	Established credit-history with GB signals creditworthiness	Individual can obtain a pre-paid connection, overcoming creditworthiness problems.
High cost of bill collection for operator	Use of GB village-level infrastructure to collect monthly bills	Pre-paid connections can also circumvent this problem. However, if a post-paid approach is taken and a bill-collection agent is required, it is not absolute that this entity be a micro-finance institution. The network operator can outsource this function to another company for example.
Airtime charges are too high for individual to maintain a profitable business (end users cannot afford rates that the reseller would like to charge)	50% airtime discount provided by GP	Given the fact that the network operator avoids several costs, and faces lower transaction costs, a discount may still be required, so that costs can be recovered down the line, where ''non-core'' functions (i.e., those other than which GP currently provides) are carried out, as in the case of the VNO.

What becomes evident from this analysis is that microfinance is not a *necessary* element for the success of a village phone-type program. Furthermore, while it is perfectly conceivable that an operator may outsource various elements (e.g. distribution, billing, etc) of the system to other organizations, it is not necessary that all aspects of the operation be outsourced to the same entities. However, obviously the less number of organizations involved, the lower the transaction costs involved and thus the lower the cost of using the telecom services to the end users. In the final instance, if any initiative to extend access to marginal customers and increase participation in networks is to be sustainable and replicable, it has to rely on a fundamentally sound business case.

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Annex 1: Interview details

A: GrameenPhone
21 June 2005, GrameenPhone Head Office, Dhaka
Syed Yamin Bahkt, General Manager, Information Department
Khalid Hasan, Director, Corporate Affairs Division

1. What are the critical factors in the success of the Village Phone Program?
2. Is the VP program a part of GP's corporate social responsibility?
3. Would the kind of partnership that GP has with GTC been possible with a non-Grameen organization?
4. Has the recent reduction in tariffs (of approx. 30 per cent) been passed on to GTC?
5. What makes it cost-effective to provide rural service?
6. Are the frequencies allocated sufficient to carry traffic?
7. What is GP's per line cost? How is it comparable to that of other operators?
8. Is the fiber optic network of Bangladesh Railways that GP uses being used to full capacity?
9. Are VPOs charged standard tariffs?
10. What impact will the growing competition in the market have on GP and the VP scheme specifically?
11. What impact will the lease of PGCB's capacity to another telecom operator have on GP's business?

B: Grameen Telecom
22 June 2005, Grameen Telecom head office, Dhaka
Faridul Haq, General Manager, Grameen Telecom
Mir Md. Shawkat Ali, Deputy Manager, Village Phone

1. What are the factors that have been critical to the success of the VPO program?
2. What is the geographical spread of the VPs? Is there any link between the growth of the VP ladies and the BR FON?
3. What is the growth projection for the VP?
4. What factors are holding back growth?
5. What is the role of GB in the VP program?
6. Is it possible for GB and GP work directly, so that the 7.5% service charge can be eliminated and passed onto the borrowers?
7. Although airtime is 50% subsidized, is the tariff charged to the VP lady more than what regular GP customers pay?
8. When does the VPO become the owner of the subscription?
9. What are the average amounts that the VPOs earn from the VP? What does the bill contain?
10. How does the VP program overcome the problem of access to electricity to charge the unit?
11. How are VPOs selected?
12. If a handset doesn't work, what happens? Does her business stop?

13. Does the language of the software on the handset create a barrier to the use of the phone by the VPO?
14. What is the impact of the new SIM tax?
15. Is there a process of cross-subsidization operating in Grameen?
16. Why do you think that other operators have not attempted to replicate the VP program within Bangladesh?

C: Banglalink (Subsidiary of Orascom Telecom)
23 June 2005, Lakeshore Hotel
Lars Reichelt, CEO

1. What is the extent of Banglalink's rural coverage?
2. Is Banglalink's expansion strategy to focus toward high growth urban areas, rather than sparsely populated rural areas?
3. In Banglalink's view, what makes the Grameen model in extending rural telecom services successful?
4. Is it possible to operate the VP program without the micro credit element?
5. How will Orascom bring the benefits of the ultra-low-cost handset initiative into countries like Bangladesh?
6. What will be the impact of the new SIM tax on rural expansion, and the Bangladeshi mobile market in general?

Annex 2: Expansion of network coverage of GrameenPhone Limited (1998-2004)

1998:[37]

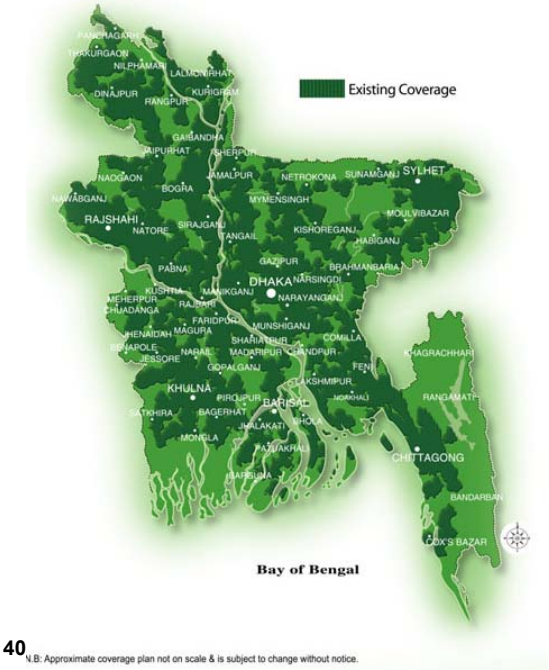
2001:[38]

[37] Original source: GrameenPhone, taken from *Richardson, D., Ramirez, R., & Haq, M. (2000)* Grameen Telecom's Village Phone Program in Rural Bangladesh: a Multi-Media Case Study, Telecommons Development Group

[38] Original source: GrameenPhone, taken from *Chowdhury (2002)* Attaining Universal Access: Public Private Partnership and Business NGO Partnership, discussion paper, ZEF Bonn

2004 December:[39]

2005 August:



40 N.B: Approximate coverage plan not on scale & is subject to change without notice.

[39] http://www.grameenphone.com, accessed December 2004.

[40] http://www.grameenphone.com, accessed August 2005.

Annex 3: Comparison of Grameen VP program to Uganda and Rwanda Replications

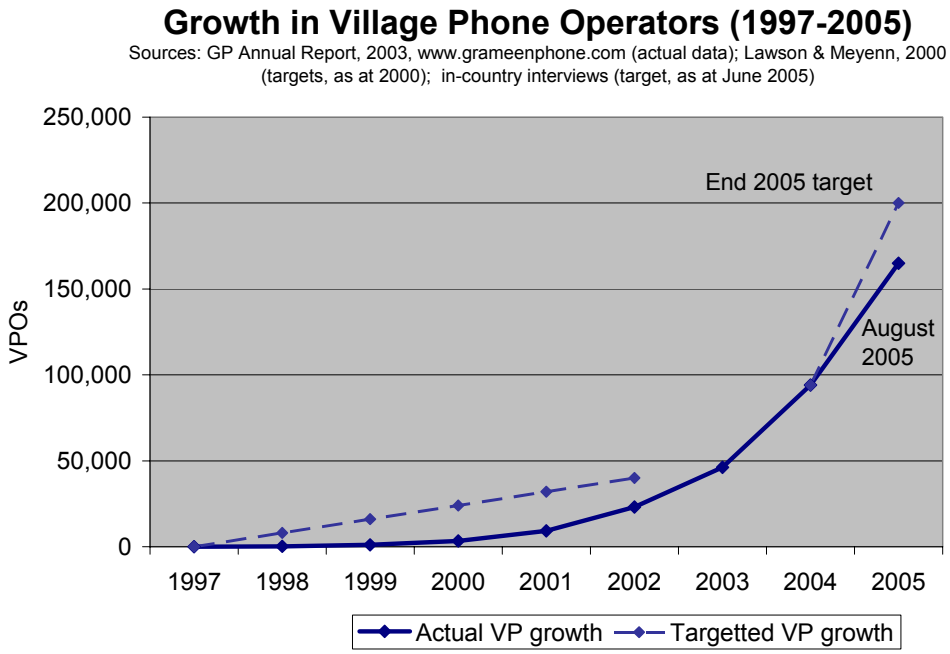
Note: Given that the Rwanda operation is still in a pilot phase, there is little information available on it at present.

	Grameen Village Phone (Bangladesh)	**MTN Village Phone (Uganda)**	**Rwanda Pilot project (Rwanda)**
Established	1997	Nov 17 2003 (officially launched; operation commenced March 2003)	2004
Number of VPOs	139,977 (June 2005)	2,000 (Aug 2005)	
Implementing organization	Grameen Telecom (GTC), established by Grameen Bank in 1997 for VP program	MTN Village Phone, established in 2004 for village phone program; shareholders: Grameen Foundation USA, MTN Uganda	
Grameen involvement	Grameen Bank, Bangladesh	Grameen Technology Center, Grameen Foundation, USA	
Network operator **Subscribers** **Coverage**	GrameenPhone Founded in 1997, for the purpose of serving the VP's as well as providing commercial services. Largest cellular network operator GTC is a 38% shareholder 3.5 million subscribers, June 2005 61 out of 64 districts	MTN Uganda Launched commercial services in 1998. The dominant telecommunications company in Uganda Over 700,000 subscribers More than 90% of the urban population. Border-to-border coverage. 52 district capitals and over 150 towns	MTN RwandaCell Founded in 1998. In six years MTN RwandaCell has become the leading telecommunications company in the nation. 75% of the population;
Discounted airtime	Yes; 50 per cent discount	Yes	
Post-paid/pre-paid	Post-paid	Pre-paid	
Loans provided to purchase phones	Yes; USD 133	Yes; USD 230	
Loan payback period	22-36 month	Up to 12 months	
Package	• activated GrameenPhone SIM card • handset with battery • fast charger • user guide in Bengali	• mobile phone • SIM card • booster antenna • solar panel/battery	

	• price list for different destinations	• cables • airtime cards • signage & business cards • manuals & training	
Microfinance institutions	*Grameen Bank* Clients: over 4.76 million Operational since 1976.	UWFT *Uganda Women's Finance Trust Limited (UWFT)* Operational since 1987; network of nine urban and rural-based branches. *Foundation for International Community Assistance (FINCA) Uganda* Established in 1992. Estimated 36,000 low-income borrowers (2003), 1457 Village Banking groups across Uganda. *Foundation for Credit and Community Assistance (FOCCAS) Uganda* Began operation in 1996. Over 16,000 women clients in six districts of Eastern Uganda. *Uganda Microfinance Union (UMU)* One of the leading microfinance institutions in Uganda and in all of Africa. 60,000 members from its 18 branch network *Feed the Children Uganda* Commenced operation in 1991, as a relief organization Involved in initiatives covering 12 districts across the country, over 402 groups of women borrowers spread across 11 districts *MEDNET (World Vision)*(Joined July'04) over 13,000 borrowers *HOFOKAM* (*Catholic Dioceses of Fort Portal, Hoima and Kasese*) (Joined Nov '04) Established in 2003.	*Urwego (World Relief)* [Clients: more than 18000 families in 10 of Rwanda's 12 prefectures One of the predominant MFIs in the region of East Africa. A World Relief initiative. Established in 1997. The institution has grown almost 150% in the last year and recently reached a level of self-sustainability.] *The Vision Finance Company (World Vision)* *CARE Rwanda* Presence in Rwanda for over 20 yrs.

		Now the largest rural MFI in Uganda Over 15,000 clients and a loan portfolio in excess of US$ 450,000. *POST BANK* (joined Jan '05) Incorporated in 1998 to take over the operations of the former Post Office Savings Bank. wholly government owned. With its presence in the Arua, Gulu and Lira districts in the northern part of Uganda, Post Bank significantly strengthens the geographic coverage of MTN Village Phone.	
Role of MFI	Selection, financing initial purchase, billing, collection, support	Selection of VPOs, financing initial purchase	
Call charges	Incoming and outgoing	Outgoing only	
Country tele-density	2005: 4 per 100 inhabitants	2003: 0.27 per 100 inhabitants 2004: >4.2 per 100 inhabitants	

Annex 4: Growth in Village Phone Operators, actual vs targets.



Annex 5: The falling cost of mobile handsets

Handset cost evolution: Cost of lowest priced handset to end-user.

Source: NOKIA (2005) *Towards a more affordable mobile experience*, lead story, New Horizons, Q3 2005. Available at http://www.nokia.com/nokia/0,,56489,00.html