

21462 Viewpoint

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Bringing Cellular Phone Service to Rural Areas

Grameen Telecom and village pay phones in Bangladesh

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One of the world's ten poorest and most densely populated countries, Bangladesh has one of the least developed telecommunications systems, with a penetration rate of less than four lines per 1,000 people. To extend telecommunications to rural villages, Grameen Telecom provides cellular pay phone service at an affordable price. This is made possible by reselling airtime from GrameenPhone, a cellular operator with a national license that is building and operating a rural phone network. GrameenPhone is a joint venture of Grameen Telecom (35 percent) and Telenor (51 percent), Norway's telephone company.¹

Grameen Telecom is a not-for-profit company. Its efforts to extend telecommunications services in rural Bangladesh are supported by its parent, Grameen Bank, a highly successful, for-profit microcredit bank with an extensive presence throughout rural Bangladesh.² Grameen Bank's primary line of business is to make microloans, typically under US\$200, to women entrepreneurs in villages, financing installation and working capital for their stores, cottage industries, and other businesses. It also provides these women with credit to buy cell phones from Grameen Telecom. The women then provide mobile pay phone service in their shops, the local market, and elsewhere, charging a markup agreed on with Grameen Telecom.

Advances in telecommunications are reducing costs and creating possibilities for bringing access to services to previously isolated communities. Grameen Telecom entered rural telecommunications in the belief that these advances should be accessible to all—and that even if rural villagers

in Bangladesh could not afford a phone individually, they could afford one collectively.

Rolling out the phones

In the "Grameen villages" the Grameen Bank supports business opportunities for entrepreneurial women who can become the village pay phone operators. The bank also provides services to Grameen Telecom, collecting bills and handling day-to-day problems relating to the operation of the phones and bill collection. For these services the bank receives 65 percent of the service fee charged by Grameen Telecom. Because of Grameen Bank's institutional infrastructure, Grameen Telecom needs very few employees in rural areas.

Grameen Telecom's program targets women entrepreneurs who are literate, have a sound credit history, and have a viable business close to the village center. These factors have combined to ensure an excellent repayment record (98 percent).

Once it has been confirmed that a phone signal reaches a village, Grameen Telecom buys a subscription from GrameenPhone. As there are no retailers in the villages, Grameen Telecom also supplies the phone operators with the handsets, a price list for calling different locations, and training to operate the phone.

The village pay phone entrepreneurs provide service to customers for both incoming and outgoing calls. Their income consists of the difference between the charges paid by customers and the billed amount the operators must pay.





TABLE 1 VILLAGE PAY PHONE BILLING STRUCTURE FOR ONE-MINUTE LOCAL CALL, JANUARY 2000
U.S. cents

Item	Call from GrameenPhone network to BTTB	Mobile call within GrameenPhone's network
BTTB rate per call	3.54	n.a.
GrameenPhone rate per minute	4.17	4.17
Value added tax (15 percent)	1.15	0.62
Service fee (15 percent)	1.33	0.73
Total paid by retailer to Grameen Telecom	10.19	5.52
Retailer charges to client	12.50	10.42
Margin made by retailer	2.31	4.90
Service fee allocation		
65 percent to Grameen Bank	0.85	0.48
35 percent to Grameen Telecom	0.48	0.25

n.a. Not applicable.

Source: Grameen Telecom data.

On average, each village pay phone covers about 2,500 people. When people want to make a phone call, they go to the home or business of the village pay phone operator (thus the requirement that operators be centrally located). When a person receives a call, the pay phone operator tells the caller to hang up while she gets the person called. Then the caller either calls again or is called by the person he or she was trying to reach.

Financing and billing

Telephone handsets are provided to operators under a lease financing program of Grameen Bank. The local branch of Grameen Bank pays the price of the phone and the connection fee—US\$312.50—to Grameen Telecom. The pay phone operator commits to reimbursing Grameen Bank in weekly installments of US\$4.58 over two or three years. The pay phone operators also pay a minimum monthly usage charge of US\$3.20 that includes the monthly line rent, a value added tax, service charges, and an annual government license and royalty fee of US\$2.08. Airtime charges are added to the monthly bill. Revenue from the telephone services enables the women entrepreneurs to both

pay off their debt and make a living. Operators' net income averages about US\$52 a month after covering all their costs, good earnings in a country in which per capita GDP in 1997 was US\$262.³

GrameenPhone produces a monthly bill at the bulk village phone rate for the total airtime used by all the village pay phones. The bill is sent to Grameen Telecom's head office for payment by the end of the month. Grameen Telecom makes out the individual bills and sends them to the corresponding branch of Grameen Bank along with a summary bill, which the branch pays within six weeks. The branches then collect the bills from the village pay phone operators.

GrameenPhone charges US\$0.04 a minute for local calls during peak hours, half the US\$0.08 that urban subscribers have to pay. For long-distance and international calls, GrameenPhone charges the rate set by the state-owned monopoly operator—the Bangladesh Telegraph and Telephone Board (BTTB)—plus the village pay phone airtime charges. Because BTTB charges local calls per call, not by the minute, people calling from standard, fixed line phones can and do stay on the line longer without incurring additional costs. To address this problem, GrameenPhone charges a flat per-minute rate for incoming calls originating from BTTB's public switched telephone network. It adds a 15 percent value added tax to call charges. To cover Grameen Telecom's administrative costs and those of Grameen Bank, it also adds a 15 percent service charge to the total bill (table 1).

Network access

Grameen Telecom was established for the sole purpose of developing the village pay phone program and encouraging entrepreneurship and development in rural areas. To ensure that GrameenPhone rolls out the network in rural areas, Grameen Telecom invested in a 35 percent equity stake in GrameenPhone, financed from Grameen Telecom borrowings, including a concessional loan from a Soros Foundation. In

exchange for this funding, GrameenPhone has committed to developing the network in rural areas.

Although GrameenPhone is developing a nationwide network, its expansion efforts so far have focused on cities and high-income areas. It was awarded a license to operate a GSM cellular network in the 900-megahertz band in November 1996 and began operations in March 1997. It also has exclusive rights to lease and operate the nationwide optical fiber backbone that belongs to Bangladesh Railways, which would give it a seamless nationwide network.

Early results and sustainability

The village pay phone program is having a positive impact in villages. Since the program began operation in March 1997, Grameen Telecom has provided telephone access to nearly 2.8 million poor villagers (in 1,100 villages) out of reach of the main phone network. Early findings suggest that the program has had considerable development benefits. It has reduced the cost of communications relative to other services such as transportation. It has boosted producers' returns by enabling village pay phone users to compare rural prices with city market prices, increasing their bargaining power with the middlemen. Finally, 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.

Still, Grameen Telecom's rural development program lags far behind the targets. Its initial target was 40,000 village pay phones installed by 2002, an average of 8,000 a year. But by the end of January 2000 it had installed only about 1,700. The rollout has been slowed by several factors:

- GrameenPhone's expansion has focused on the main cities and the railway network, limiting Grameen Telecom's ability to access rural villages. As a for-profit company, GrameenPhone wants to concentrate on securing its position in the more profitable urban markets—where there is still much unmet demand—before mov-

ing further into rural areas, which account for only a small share of its revenues. This strategy has meant slow expansion into rural areas by Grameen Telecom.

- Interconnection problems between BTTB and GrameenPhone have made investment and expansion decisions difficult for GrameenPhone. To try to address the problems, in April 1998 GrameenPhone entered into an operational agreement with BTTB relating to physical interconnection between the two networks. According to the agreement's revenue sharing terms for local, long-distance, and international calls generated from GrameenPhone's network and terminated in BTTB's, GrameenPhone has to pay BTTB access charges based on BTTB's prevailing retail tariff rates. But BTTB retains charges for all calls originated from BTTB's network and terminated in GrameenPhone's. The agreement also stipulates that for outgoing international calls generated from GrameenPhone, on an experimental basis for up to six months GrameenPhone would be entitled to 10 percent of the accrued revenue after settlement with the foreign operator. The deal appears lopsided. It was supposed to result in expansion of the circuits connecting BTTB and GrameenPhone. While there has been some improvement, it has not been enough to cause GrameenPhone to boost its expansion plans.
- GrameenPhone must charge a relatively high price on long-distance and international calls. Under the terms of the revenue sharing agreement, GrameenPhone must charge its customers the full BTTB retail rates for long-distance and international calls on top of its own rates in order to recoup its costs, further increasing already high long-distance and international tariffs. BTTB charges some of the highest connection fees and long-distance and international rates in South Asia. The connection fee for a telephone line is US\$375, and the monthly subscription rate is US\$3.12. Local call charges are US\$0.035, within the norm for international competitive markets, but long-distance calls cost at least US\$0.31 a minute and



international calls up to US\$2.08 a minute—three to five times current rates in competitive markets. Despite the high tariff, the demand in rural areas for the mobile services is high. The revenue trends indicate that demand remains strong and is growing: GrameenPhone's current revenue per village phone at the end of January 2000 was US\$148, up from only US\$65 in January 1999.

- GrameenPhone may be facing a problem in financing its rural expansion. In 1997, in addition to its equity stake, Grameen Telecom loaned GrameenPhone US\$1.6 million for installing GSM networks. GrameenPhone may have already used part of its allocation for building rural networks. To address that risk, Grameen Telecom is looking for grant funding for GrameenPhone to set up some new base stations in rural areas.
- Finally, GrameenPhone has had difficulty obtaining sufficient radio spectrum from the regulatory agency. That has raised its network costs, slowing its expansion plans.

The limited penetration of village pay phones is unlikely to improve in the short term without some solution to the constraints on GrameenPhone's expansion.

Conclusion

The village pay phone initiative has benefited from a combination of factors: the demand for communications in rural areas; the use of the Grameen brand name, facilities, and financial and in-kind support; the large number of Bangladeshi working abroad and wanting to call home; and the country's very high population density.

Grameen Telecom has provided telephone access to nearly 3 million poor villagers beyond the reach of the main phone network. The village pay phones have brought many benefits for users, and most entrepreneurs are making a healthy profit. But at the current expansion rate and under current regulatory conditions, Grameen Telecom is unlikely to break even in

the short to medium term. Expansion of GrameenPhone's network into rural areas remains key and needs to accelerate if Grameen Telecom is to meet its targets.

Notes

¹ The other shareholders are Marubeni Corporation of Japan (9.5 percent) and Gonophone, a New York-based company (4.5 percent). In addition, the Asian Development Bank, Commonwealth Development Corporation, and International Finance Corporation each hold 3 percent of the preferred shares of GrameenPhone.

² Established in 1979, Grameen Bank has more than 2.3 million borrowers, 94 percent of whom are women. With 1,128 branches, it provides services in 38,951 villages, more than half of all villages in Bangladesh. The bank has branched out into more than a dozen other spheres, including risky technology ventures (Grameen Fund), weaving (Grameen Uddog), rural products (Grameen Shamogree), fisheries (Grameen Motsho), and Internet service provision (Grameen Cybernet).

³ The GDP data are from World Bank, *World Development Indicators 1999* (Washington, D.C., 1999).

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