

Part I

The GrameenPhone Story

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Connectivity Is Productivity

Travelers clearing customs at Dhaka International Airport in Bangladesh are greeted by three signs—one for Bangladeshi passport holders, one for foreign passport holders, and one for foreign investors. The first two lines are jammed. There is no third line. Foreign investors aren't exactly swarming one of the poorest and most corrupt countries in the world.

While I waited for my bags, I turned on my cell phone. In a few seconds it displayed the name of a local network operator, GrameenPhone. That was gratifying, because I had come to Bangladesh to visit Iqbal Quadir, who had spearheaded the design and development of GrameenPhone. I had heard so much about this company and its seemingly mystical success in a land that was once virtually phone free, it was reassuring to see how quickly the carrier popped up on my American phone. Reassuring and amazing—that you can travel from the richest country in the world to one of the poorest, from a country with one of the highest telephone penetration rates to one with one of the lowest, and use the same phone.

Arriving in the predawn hours after a long flight from London in January 2005, I made no immediate link between the foreign investors sign and the GrameenPhone network connection, but of course there's a clear one to be made: GrameenPhone would not have been possible without foreign investors.

In 1993, when Quadir first began thinking about the possibility of building a universal cellular network in Bangladesh, more than half of its 120 million people (now nearly 150 million) lived on less than \$1 a day. GDP per capita was \$220. The adult literacy rate was 37 percent. Foreign direct investment (FDI) totaled a mere \$3 million a year.¹ Eighty percent of the country had no electricity. There was no sign welcoming foreign investors at the airport.

With a mere two phones for every 1,000 people, Bangladesh's tele-poverty rivaled that of Nepal. Only Dhaka, the capital and largest city, and Chittagong, the second city, had widespread phone "service," to use the term loosely. But that's not to say people didn't want phones; in 1993, there were more than a million applications for phone service on file. If you knew the right people, you could get a phone in five years; if not, ten was the norm. The completion rate on calls was around 20 percent, about what you'd expect from an Army field telephone in World War I. Taking a rickshaw ride through crowded streets to talk to someone in person, breathing the noxious exhaust of outboard motors powering the three-wheeled *tuk-tuks* (they now run on natural gas), was a much more effective way to communicate. The saw in Dhaka was, "First you get phone service, then you build your house around it." In 2005, a Dhaka newspaper ran the story of a sixty-year-old man who just received a fixed phone line after a twenty-seven-year wait. "I'm not sure why it has taken so long to get my telephone connected," Mohammed Ismail told BBC News. "I suppose it's because I'm an ordinary customer who didn't pay bribes."² That is Bangladesh in a nutshell.

There were, and are, positives. Bangladesh is democratic, even though its government is consistently ranked as one of the most corrupt countries in the world by Transparency International. Women are more modern than in any other Muslim country, and the fertility rate dropped from 6.6 in 1975 to 3.1 in 2004. Many work (primarily in the garment industry) and rarely wear traditional burqas (opaque veils). Two women have alternated as prime minister since 1991. (They are mortal enemies and defy each other's efforts to lead, but

that is a different problem.) The country has been relatively peaceful, compared to, say, Indonesia or Pakistan, except for occasional political murders and incessant *hartals*, or political strikes. Synchronized bombings across Bangladesh in 2005 and 2006 were a disconcerting signal that Islamic fundamentalists—who want to install Islamic law over the current British common law system—are now operating on the fringes, but they appear to have little traction. The country is rich in natural gas, exports are up to 14 percent of GDP, and the economy has been growing at 5 percent or better for almost ten years.³ Bangladeshis are incredibly hard working. “How can people work so hard and be so poor?” one of my Bangladeshi guides said to me as we drove through the crowded streets of Dhaka and watched a whirlwind of commerce in wall-to-wall shops at 11 P.M. Good question; one that Quadir has been thinking about for years.

The Liberation War (1971)

Quadir, a Bangladeshi American with a friendly face and piercing eyes, left Bangladesh as a teenager in 1976 to study in the United States, after five years of hell.

When Quadir was a child, Bangladesh was East Pakistan, formerly part of India’s Bengal state, until Pakistan was partitioned off in 1947, the year of India’s independence from the United Kingdom. In 1971, when Quadir was thirteen, East Pakistan declared itself independent of West Pakistan (today’s Pakistan), and took the new name of Bangladesh (meaning “land of Bangla-speaking people”). West Pakistani soldiers invaded and went on a nine-month rampage of killing and rape, attacking especially the intellectual and professional classes. Joan Baez’s “Song of Bangladesh”⁴ refers to pools of blood, shrieks of terror, and horrific deaths at universities. In the end, somewhere between 1 and 3 million Bangladeshis were killed. “It was like living in Germany for Jews,” says Abdul-Muyeed Chowdhury, executive director of Bangladesh Rural Advancement Committee (BRAC), one of the world’s largest nongovernmental

organizations. BRAC was founded after the war by Fazle Hasan Abed, a Shell Oil executive, to help resettle refugee Bangladeshis who had fled to India. “You didn’t know if or when you’d be picked up; we were always living in the shadow of death.”

Millions of East Pakistani refugees left towns and cities to escape the butchery, while heavy monsoon rains threatened a humanitarian disaster (and inspired George Harrison’s Madison Square Garden concert). As Pakistani soldiers moved along roadways and waterways, Quadir’s father moved the family from the small city of Jessore to his own father’s house in a tranquil rural corner of the country.

The war ended when the Indian army moved in to stop the killing and drive out the West Pakistani army. Bangladesh was now independent. The next year Quadir’s father died in a ferry accident, while saving his daughter. In 1974, devastating floods put most of Bangladesh under water and killed 1.5 million people. The teenage Quadir saw dead bodies floating down the rivers. The resultant famine didn’t compare with that of 1943, when up to 9 million died as India’s British rulers focused on the Japanese occupation of Burma (now Myanmar), to Bengal’s east—but the mere memory of ’43 opened wounds in the new country’s psyche. In 1975, Sheikh Mujib, who had returned to govern after being released by his Pakistani jailers, was murdered along with his entire family (save his daughter Sheikh Hasina Wajed, who was in Germany at the time, and is now leader of the Awami League, a political party). (Sheikh Hasina was prime minister from 1996 to 2001.) After Mujib’s murder, the military took control of the government. Bangladesh was free, but it was also a cauldron of poverty and corruption, with no connection to export markets and no way to earn foreign exchange.

When the war ended, Quadir returned to boarding school in Jessore (where the students played baseball and read copies of *Time* magazine in the library) and finished in the top 10 of the 100,000 Bangladeshi students who had taken the tenth-grade certificate exams. He moved to Dhaka to live with an older sister and enrolled in another high school but found it rough going. “There were a lot

of rich kids there, who were a little snobbish toward kids from Jessore. It would be like going from Des Moines to New York,” says Quadir. “My grandfather had moved back to his rural roots after college and my father to a small town. In their eras, most people who had attended college in Bangladesh settled in Dhaka, or another urban area. So I had a chip on my shoulder to prove that I was as good as big-city kids.” Instead of studying, he mostly spent his time working the bureaucracy to figure out how to leave the country. Most people who left the country for education did so for graduate school; Quadir hadn’t even finished high school.

But he was attracted by the foreign mystique. His father had taken him on train trips and told him that the trains were manufactured abroad. His sister’s husband was manager of a paper plant, but the German manager who was his perceived equal earned ten times what he did. In Quadir’s neighborhood in Jessore, he had seen European managers barking out orders at Bangladeshis. It took weeks, but the seventeen-year-old persuaded the Central Bank to convert his Bangladesh *takas* into U.S. dollars—the country had so little trade there was virtually no foreign exchange in the country—and Quadir mailed in U.S. dollars with his request for an SAT exam.

“Everywhere I went hardened my desire to come abroad. When I went to get permission for fees or something, they always asked me, ‘Who is your dad? Why should we help you?’ Then I realized that with my dad dead, I could not do well there—everything was dependent on that connection. It made it seem to me that the government was functioning for the privileged and connected. If my father had lived, I might have just moved into Dhaka or Jessore society and taken advantage. I might not have been as driven.”

A Teenager Emigrates to the United States

Quadir did well enough on his SATs (including a 770 score in the Physics SAT II Achievement Test) to win a scholarship to Waldorf College, in Iowa, from which he transferred to Gustavus Adolphus,

in Minnesota, and then eventually to Swarthmore College, outside Philadelphia. The strong history of education in his family and goals his father had set out for him kept him pushing toward the top. Without the free ride he received at each school, his mother would never have been able to afford the tuition. A widow with ten children, she had packed him off with \$1,000.

Quadir chose Swarthmore because of its superior reputation and because it was one of the few liberal arts colleges that offered an engineering degree. He had originally wanted to pursue nuclear physics, until colleges told him that was a graduate course of study. His idealism and desire to do civic good, instilled in him by his father, along with his natural bent for physics, pushed him toward engineering. “I thought that the problem with Bangladesh was that we needed to make more things,” says Quadir, remembering the trains and experts that had to be imported. “I learned later that it was more complex than that.”

Ending up at a small, high-powered college such as Swarthmore, in such a beautiful setting—part of the campus is a 330-acre arboretum—two years after leaving the chaos and hurt of young Bangladesh, only added to his sense of obligation to give back. He was lucky and he knew it.

Graduating with a degree in engineering, Quadir went straight to the Wharton School of the University of Pennsylvania to get a PhD in decision science, an economics-based discipline focused on managing large, complex systems. In 1983, after finishing a Master’s degree, he went to work for the World Bank, having moved past engineering as a solution, now thinking that the massive development institution might be the way to help change the dynamic in a place like Bangladesh. He was somewhat disillusioned by the bank’s ineffectiveness, the way its lending seemed to perpetuate statist governments and did little to empower poor citizens, a theme he still happily warms to today when reacting to any sliver of news related to aid or trade. In 2004, for example, he suggested to the *Harvard Business Review* that instead of giving aid to poor countries, the

World Bank should give aid to rich countries like the United States in exchange for an agreement to end agricultural subsidies. The subsequent trade in agricultural goods would do more good for more people than the billions of dollars given to narrow ruling elites.⁵

One of Quadir's two years at the World Bank was spent working with the group that manages the bank's investment capital. Exposed to Wall Street trading practices, he formulated a new perspective on business, one that had been slowly emerging at Swarthmore and then Wharton. What had once seemed straightforward and simplistic, he began to see as a creative intellectual challenge. "I had thought that business and finance was boring and all about making money, probably an idea I got from my father, who was a lawyer," says Quadir. Now, he came to realize, business could provide economic solutions to problems that he had once considered political or technical.

This era was the heyday of junk bonds, corporate raiders, and leveraged buyouts on Wall Street—its greedy titans viciously portrayed as Masters of the Universe by Tom Wolfe in *Bonfire of the Vanities*.⁶ But Quadir, who has a gift for seeing white where others see black, learned that an unglamorous thing—a lousy business in distress—could actually be quite an attractive investment. The Wall Street raiders were actually pretty smart and might provide a model. "I came from a poor, unglamorous country in constant distress—so why couldn't it become an attractive investment?" Quadir asks. Buy very low, sell very high. Intellectually, he had moved beyond physics and engineering as the solution to problems, and saw the proper deployment of capital as a possible panacea. In 1985, he enrolled in Wharton again, this time to get an MBA degree.

By 1993, he was working as a venture capitalist in New York. One day when his computer network went down, he flashed back to his grandfather's home in rural Bangladesh, where he had sat out the war. Due to lack of phones, he had once spent a day walking ten kilometers to find medicine for his brother, only to find the pharmacist had left the village to get medicine. What a waste! Quadir

was frustrated because he couldn't function for a few hours in his Manhattan office; Bangladesh had been hamstrung by lack of telecommunications since the era of Alexander Graham Bell.

"I realized that connectivity is productivity, whether it's in a modern office or an underdeveloped village," says Quadir. He eschewed the common Western perception that the so-called digital divide was a lack of Internet access and pinpointed the real divide as a lack of basic phone service.

A Perfect Business Opportunity

Whatever social benefits might accrue from spreading telephony, Quadir saw first and foremost a good business opportunity—a low-lying, densely populated nation, perfect for cellular service, with 120 million people and virtually no competition. (Bangladesh has about half the number of people that the United States does, squeezed into an area about the size of Wisconsin.) In 1993, most saw cellular service as a luxury of the rich; Quadir saw it as a tool for the poor. Moore's law stated that data density on an integrated circuit doubles every eighteen months. Accepting Moore's law as a truth, it was reasonable to assume that the price of service would drop proportionately. Despite having no expertise in telecom, Quadir was convinced that a universal, private telecom business could succeed in a country where the government was the primary telecom operator and dominant economic force. In 1994, at age thirty-six, Quadir quit his job in New York and moved to Bangladesh. Many in his family (he has nine siblings) thought he had failed in America and was returning home to start over. Others thought worse.

"I thought, has this man gone crazy?" said Tawfiq-e-Elahi Chowdhury, an economist who was then Bangladesh's secretary of statistics (at other times in his career he served as secretary of food, energy, and planning) when Quadir approached him in 1994 for some background data on the country. "‘This is Bangladesh,’ I told

him. ‘People here don’t have enough to eat. What would they do with cell phones?’ ” Indeed, by the time import duties and taxes were levied, a handset cost about \$400 then, nearly twice the average annual income in Bangladesh. That’s comparable to a fancy car in the United States that costs \$80,000 (roughly twice the U.S. per capita GDP).

Quadir may have been utopian, but he was not crazy. He knew the West had developed organically by allowing businesses to grow and to spread wealth and power throughout society. He had seen more recently how technology had changed the social and economic fabric of the United States (see the box, “The Link Between Technology and Growth”), how nimble companies such as Apple, Microsoft, Dell, Amazon.com, and emerging cell phone companies were changing the rules of business. Finally, having worked a stint at the World Bank, Quadir saw aid as an albatross that Bangladesh needed to get off its neck if its people were ever to flourish economically.

The Link Between Technology and Growth

Take a country with vast labor resources, add capital (that is, machines), and watch production (GDP or output) grow. That was the basic theory (Harrod-Domar model) of economic growth in the 1940s. After the jobless Depression of the 1930s, excess labor was a given. The success of the Marshall Plan in rebuilding war-torn Europe and Japan seemed to confirm this theory.

But there was a key missing ingredient, uncovered by economist Robert Solow. *Solow’s surprise*, first published in two papers in 1956 and 1957⁷ (and still the dominant theory of economic growth taught in universities today), is that capital plays a relatively minor role in growth. True, a business or country with low levels of machines can grow fast in the short term by adding more machines to catch up with excess labor, but there comes a point of diminishing returns. Workers can operate only so many machines at once. At some point

therefore every economy should settle into a long-term steady-state equilibrium where further growth is impossible.

So why, Solow wondered, have countries like the United States continued to grow at a roughly 2 percent a year average decade after decade, long after they, theoretically, should have reached equilibrium? Solow concluded that technological improvement to machines boosted output per machine and thus per worker. The more technical improvement, the more growth you could squeeze out of the same workers and machines. New tractors, for example, clearly harrowed fields quicker. Multiplied a thousand times over, such technical improvements raised production and incomes. Accepting “Solow’s surprise” as a truth, it’s easy to understand the economic impact of phones in villages that never before had phones.

“It wasn’t enough to say that Bangladesh was poor, therefore it’s doomed to remain poor,” says Quadir. “There was a reason it was poor and the reason was the approach. The bottleneck was at the top of the bottle. Money was being given to the government, and they weren’t using it to drive the economy or help the people. If you study why countries have made economic progress, you’ll see that entrepreneurs have forced governments to create a climate conducive to business.”⁸

Quadir, a contrarian with an upside-down view of the world, points out that in the West companies solve problems. When they don’t, nonprofits attempt to fill the gaps. But in developing countries the same types of organizations are called NGOs (nongovernmental organizations). “Why is that?” Quadir asks. “Because in developing countries governments have all the power; they get to try their hands at problems first.”

“Nothing good in society ever started out big,” says Quadir:

Everything good, whether it’s a company or an institution, starts small and grows and spreads. If the idea is no

good, it doesn't spread, and no harm is done. Even Machiavelli made note of this. He noted that the population is reasonable, because when you have large numbers, the irrationality or arbitrariness of any individual is cancelled out. If an entrepreneur with few resources makes a mistake, it's likely to be small and easily correctable. If a government makes a mistake with its large resources, it's more likely to be a large mistake that is not easily correctable, and it will impact most citizens.

Connecting the Villages

A few days after my arrival Quadir and I were driven in a 4x4 out of Dhaka into the rice-paddy villages that cover the vast delta that is Bangladesh. Snow melt and mud from the Himalayas sluice down the mighty Ganges, Brahmaputra, and Meghna rivers—from India, Nepal, China, and Bhutan. The rivers meet in Bangladesh before spilling into the Bay of Bengal. The mangrove jungle just above the bay is the last wild refuge of the Bengal Tiger.

With more than 2,000 people per square mile, all of Bangladesh is technically urban, but the agrarian countryside has a truly rural feel. The landscape is a soft symphony of greens and yellows. Mustard, rice, wheat, jute, pineapples, and bananas (and in the north, tea and cotton) grow side by side. This country of mud has no rocks; throw almost any seed in the fertile soil and it will sprout within days. With planning, some think it could become the next New Zealand, a huge exporter of food products. As it is, Bangladesh produces a surplus of food, allowing excess labor to move into the cities and work in light industries such as apparel and jewelry.

The air is motionless, hazy and warm, moist and fragrant. At night, without interfering electric lights (and there are none in most places), water, earth, and sky blend into a 360-degree aqueous dome without horizon. In the distance, clumps of land raised above the paddies support small villages, often a family grouping with common

grandparents. During the double monsoon, when 120 to 140 inches of rain falls, these clumps are islands accessible only by boat.

On the road out of Dhaka, Quadir pointed to buildings where he had negotiated with landlords to lease space on rooftops for cell towers. Well outside the city, driving through villages with crowded markets, Quadir would excitedly point out bright red signs in Bengali (or Bangla, as the language is increasingly referred to) script heralding a GrameenPhone outlet, a place where you can go to make a call *a la carte*, even though you don't own a phone. We stopped at a few outlets and talked to the phone ladies, who sit at desks with their cell phones, awaiting customers. One had recorded thirty calls by 11:30 in the morning, including several to Saudi Arabia, an indication of why revenue from any one village phone is ten times that of an urban phone.

Another phone lady even complained about competition from a new phone lady entering her market. Quadir loved this! As he sees it, competition, not capital, is the name of the game. It drives prices into the ground; people make more phone calls; the company makes more money, which drives network expansion, which drives more calls. Most capitalists, as he points out, would prefer to be monopolists—like the phone lady, like the government.

Because the village phones are controlled by women—and women who were once poor—the social structure has evolved. Villagers with means, men and women, come as customers to the phone lady. People once cut off from relatives driving cabs in New York or working construction in Saudi Arabia are now connected. Women who previously had no income and lived at the behest of their husbands, now have independence. “When Grameen offered me a cellular phone, it seemed to me like Aladdin’s Lamp,” says Helena Begum, from the remote rural village of Moukhara in the northwest sector of Bangladesh.⁹ “I use income from the phone to buy land. My daughter is now in college and my son in class nine. I myself provided their expenses. The mobile phone of Grameen is a magic lamp.” Another phone lady, Delora Begum (no relation),

says: “My life is getting better; people consider me a person of honor.”¹⁰

In another village a young boy sits at a table with a cell phone in the middle, held by a plastic purple stand. About thirty business cards sit under glass. Most have a cell phone symbol in the corner, with the village phone number as contact. “None of this existed two years ago,” says Quadir. “No one had business cards. No one had a phone.” It is amazing—that one phone in a purple plastic holder could generate such enterprise, that a simple business card was a new paradigm in a village without electricity.

Quadir asks the boy how much it would cost to call his mother in the United States. The boy looks shocked at the unusual request, then pulls out a booklet with per minute pricing for overseas calls. (The phone itself records call duration.) Quadir and I help him locate the page and agree on a price. Quadir calls his mother in Boston, wakes up his brother (it’s 2 A.M.), and proudly announces that he’s calling from a village in Bangladesh. Wide-eyed children look on in amazement.

Bangladesh: Unleashing the Tiger

In 2003, Goldman Sachs researchers identified a group of looming economic powers they called the BRICs—Brazil, Russia, India, and China.¹¹ These geographically large and populous countries showed solid conditions for growth that would propel them into becoming economic powerhouses by 2025 and 2050.

Goldman Sachs researchers updated this report in December 2005 by examining eleven other countries (the *Next Eleven*) that might have the potential to compete with the BRICs (which to date are performing above original expectations). Of these eleven, they concluded that only South Korea and Mexico will converge to parity with developed countries by 2050. But another one of the eleven countries cited is Bangladesh, which is projected to grow annually by

5 percent or more through 2050 and increase per capita income from \$422 in 2005 to \$4,501, making Bangladesh the twenty-second largest economy in the world.¹²

I had come to Bangladesh to write about the creation of a successful business in a poor country, but after several harrowing Land Cruiser drives into the villages (trucks, buses, and cars play “chicken” on roads with no rules), I realized that GrameenPhone was more than a successful business. GrameenPhone was a potential countervailing force to the government, perhaps the camel’s nose in the tent for a people and a country that had long resisted outside forces. And GrameenPhone was not the second coming of the British East India Company; it was the positive face of globalization.

“The fact that we are where we are is truly amazing,” says Tawfique-Elahi Chowdhury, a Harvard-educated (PhD degree in population economics) civil servant and decorated hero of the Liberation War; as a member of the elite civil service of Pakistan, he took up arms on learning about the atrocities committed by the Pakistani Army on its own citizens, and later commanded a group of regulars and guerillas. “Our ruling class, our intellectuals were wiped out thirty-five years ago. We’ve had to rebuild from dust.”

“People used to ask me to compare Bangladesh to the tiger economies of Asia, like South Korea, Thailand, and Malaysia,” says Quadir. “‘Is Bangladesh the next tiger?’ they’d ask. I’d say, ‘Bangladesh is a tiger in a cage, and right now the zookeepers have demonstrated little intention of freeing her. But Bangladesh is the land of the tiger and not a zoo.’”