

Somalia: Amidst the Rubble, a Vibrant Telecommunications Infrastructure

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Thirteen attempts to form a central government in Mogadishu since 1991 have been thwarted by the parochial interests of feuding warlords. Finally, in 2004, through a reconciliation project, the Transitional Federal Government (TFG) was created, though it remains weak and unable to exert control in most of the country.¹

Complicating matters for the new government was the takeover of Mogadishu, the nation's de facto capital, in mid-2006 by the Islamic Courts Union, essentially a fundamentalist group attempting to establish *sharia*, Islamic law, in the country. Much of the land's infrastructure lies in ruins, serving as sources of scrap metal to be bartered for basic necessities. The people are impoverished, the economy shattered. And, amidst the rubble and the juxtaposition of modern antenna it has one of the most vibrant and least expensive telecommunications sectors in the world.

The description of Somalia in this briefing does not include Somaliland, a breakaway republic in the northwest which did maintain a government, and which wants to be recognised as an independent country. This will be discussed in further detail when comparing telecommunications in Somalia to those present in Somaliland. The word Somalia will also not be used to include Puntland, an area in the northeastern region of the country, which has declared itself to be an autonomous state of Somalia.

VSAT: First to Fill the Gap

Somalia had only 8,500 fixed lines in 1990 to serve a countrywide population of nearly 10 million.² Even worse for the rural population, most of these lines were in the capital, Mogadishu. With the overthrow of the Siad Barre regime the following year the country devolved into anarchy. Much of the infrastructure, including the Public Switch Transmission Network, was destroyed. A large portion of Somalia was literally cut off from the outside world, the people unable to communicate with their friends and relatives in the United States, Kenya, and other countries with large Somali expatriate communities.

Eventually satellite communication devices with very small aperture terminals (VSAT) were installed by private operators to meet the demand. These devices often have antennas less than two meters in diameter, though some are considerably larger.³ They are a mature technology introduced in the 1980s, and now comprise hundreds of thousands of units installed worldwide.⁴ A typical VSAT star network configuration includes several components. Each user has a box that interfaces between their computer and an outdoor antenna. The antenna serves as a transceiver, capable of sending signals to

a satellite as well as receiving them. When the first user sends a message to the second, the information goes from user one's terminal antenna to the satellite and then down to an Earth station hub. There it is sorted and sent back to the satellite where it will be relayed to the terminal antenna of the second user. Companies such as AT&T and Tella were contracted by private operators to provide the transit facilities (earth station hubs) for incoming and outgoing messages.

There are several possible reasons VSAT's were the first units to be utilized to provide telecommunications capabilities in war torn Somalia. These include:

- They are relatively inexpensive, with some units available for approximately \$3,500.00;⁵ Units that can handle larger bandwidths, and thus exchange more data, are more expensive;
- They do not require a significant amount of additional infrastructure;
- Their power requirements can be met by small generators;
- They are readily available on the open market;
- They are fairly durable, an important quality in a high heat, high humidity environment such as Somalia. Failure to properly seal the cables, leading to loss of the signal when it rains, appears to be the main preventable problem afflicting them;⁶
- They are capable of handling data, voice over internet protocol or VOIP (allows for voice conversations if additional components are installed), and video;
- VSAT is particularly well suited for cybercafes, an increasingly popular telecom venue, where a small number of computers, and perhaps some voice lines, are required; Cybercafes have the user come to the private operator's site, as opposed to trying to provide the infrastructure necessary to bring telecommunications capabilities to the user's home;
- They are expandable to meet increasing needs. Additional remote terminals can be added on an essentially plug and play basis; These can readily be interconnected with existing PBX, LAN servers, and WAN telecommunications in-frastructure;⁷
- It offers the private operator near total independence from other companies. Thus, companies, at least initially, are free to develop without being dependent on the good will, or lack thereof, of other telecom operators;
- VSAT lends itself to being shared. Thus, the VSAT of one operator can interact with the VSAT of another;
- They are relatively small, making them easily transportable to sites where larger items, due to the lack of roads, could not be brought;
- They are relatively simple to set-up and operate. No extensive engineering knowledge, nearly impossible to find since the outbreak of hostilities, is required. Those that use geosynchronous satellites require an initial precise aiming of the antenna. Once the antenna is aimed, it generally does not require further adjustment.⁸

The installation of additional telecommunications infrastructure followed the success of the early VSAT entrepreneurs.

Today, including Somaliland and Puntland, there are nine telecom companies, over 105,000 fixed lines and nearly 39,000 mobile lines.⁹ Telephone coverage now extends to 87% of the country.

Cooperation Without Regulation

The lack of regulation following the collapse of the central government meant anyone with a VSAT system could enter the telecommunications market. There were no filings, public hearings, zoning notices, or other governmental impediments. Those who could fill the infrastructure vacuum were allowed to do so. However, without a government to provide regulations, users of one company's phones often could not connect with users of a different company's phones. For growth to be sustained cooperation would have to occur.

The United Nations Development Program, which was encouraging private enterprise in the region, recognised the chaotic situation. In cooperation with the International Telecommunications Union, it invited the heads of some of the private companies to a series of meetings in Dubai. There, in November 1998, the companies formed the Somali Telecom Association. Being based in Dubai helps mitigate fears of favouritism to any region or operators. Also, since most of the Somali telecom companies already had their offices in Dubai, it made for a convenient location conducive to interaction among them.

The Association is financed by its members and associates, with a mandate to develop the telecommunications industry in Somalia. It has provided training both overseas and in-house, to engineers and managers. Additionally, the association represents Somalia at international telecommunications conferences.

According to Abdilghani Jama, Secretary of the Association, the lack of connectivity among the various companies was due to a lack of trust. In a pilot project, the Association brought the local operators together with international experts on the economic benefits and costs of having interconnectivity. This led to the companies purchasing new equipment and actually forming a jointly owned entity. Now the residents of Mogadishu who have phone service can talk with each other, no longer hindered by a lack of connectivity among different operators.

Comparison to Somaliland

Somalia was formed in 1960 by the union of the northern Somaliland Protectorate, formerly ruled by Britain, and the southern portion, known as Italian Somalia, named for its ties to its colonial ruler. As the southern section delved into anarchy in 1991, following the overthrow of the repressive Siad Barre dictatorship, the northern section declared the union over, claiming itself to be a sovereign entity and adopting the name of Republic of Somaliland. Unlike the southern part of the country, the north retained a government. Its requests to be recognized as a separate sovereign country, however, have so far fallen on deaf ears. Not a single foreign country recognizes it as such.

Somaliland, like its southern counterpart, has also enjoyed a rapid development in the telecommunications sector. In 1993 the country had a single phone company that only provided fixed phone lines. A decade later there were four private telecommunication companies offering fixed, mobile, and internet services. However, those four companies in Somaliland, unlike the ones in Somalia, were unable or unwilling to invest the time, effort, and money to provide interconnectivity among themselves.

While Somalia, a country with no central government, driven by the profit motives of its telecom operators developed interconnectivity, Somaliland, with a central government, did not. It is difficult to say whether the Somaliland government was the reason for this lack of cooperation, or if there were other factors. Still, it is an interesting demonstration that the presence of a government does not necessarily lead to optimal economic benefits for its citizens. Furthermore, in an unregulated society, such as exists in Somalia, a form of self-government, essentially self-regulation, for an individual sector can arise to provide optimal benefits.

Telecom Not a Terrorist Target

First and foremost are the overwhelming wishes of the everyday people to be able to communicate via telecommunications with one another. As Abdi Karim Mohamed Eid, manager of Telesom, a private telecommunications company in Somaliland said, but with relevance to the rest of Somalia, 'In traditional African societies, it's sometimes difficult for government officials to embrace technology, but here, it is the people who decide.'¹⁰ A particularly strong incentive in this is the dependency of many Somalis on remittances from their relatives and friends abroad. Much of this money is transferred via *hawala*, an informal honour-based system. As an example, a person could approach a *hawala* broker in Minneapolis to transfer funds to someone in Mogadishu. The first broker would then contact a second broker in Somalia to deliver funds to the intended recipient. The first broker promises to settle the debt at a later time.¹¹ Since there is no legal enforceability of claims, the system can function where there is no government. Maintaining a telecommunications infrastructure facilitates the transfer of such funds.

Certainly a significant share of these monies also makes their way to the hands of warlords, militias and terrorists, helping to finance activities such as the tremendous amount of arms trafficking in the country. An added benefit for such groups is that in some instances *hawala* does not use any promissory instruments, making it difficult for outside intelligence and police agencies to trace money transfers.

Thus, a large reason the telecom sector is not just left alone but actually encouraged by 'terrorist' organisations is that it can serve as a major source of their funds, especially through money transfers. On 7 November 2001 the United States government designated al Barakaat, a bank based in Dubai that was also financially involved in the telecommunications sector of Somalia, as a 'terrorist' entity.¹² At one point, al Barakaat was the major money transfer organisation in Somalia. Paul O'Neill, then Secretary of the Treasury, described the company and its branches as such:

The al Barakaat companies are the money movers, the quartermasters of terror. At core, it is a hawala conglomerate operating in 40 countries around the world with business ventures in telecommunications, construction, and currency exchange. They are a principal source of funding, intelligence, and money transfers for bin Laden. [13](#)

Since that statement some new developments have occurred, including the removal from the 'terrorist' list of three individuals who had been accused of channeling funds through al Barakaat to al-Qaeda. [14](#) This and other information (some of it questionable), has called into question the exact degree the telecom sector facilitates funding of 'terrorist' groups. However, while the specific amount may be contested, it does appear that a portion of the money remitted to Somalia finds its way to terrorist groups.

There are additional reasons for terrorists to be supportive of the telecommunications infrastructure, particularly the high tech one that has grown in Somalia. Unlike the older fixed line telephones which were relatively easy to tap, disrupt, and trace, the newer technologies offer the potential for more anonymity. The mobile phone is rented, sometimes to several different users for short periods, in a cash only transaction, making it difficult to determine which wireless unit to place under surveillance. This multi-user arrangement also makes it difficult to know who made a particular call of interest.

With no police or legal system, the use of the telecom system to coordinate 'terrorist' activities can occur without fear of arrest in Somalia. Additionally, the provision of internet access by at least three of the telecom companies can allow Somalia-based terrorists to communicate via the web to collaborators in other countries. This means of sending messages, sometimes subtly hidden in websites, has proven difficult at times to uncover.

The use of telecommunications by 'terrorists', militias and warlords is so prevalent in Somalia that these individuals can possibly be considered the de facto governing body of that sector. Without at least their tacit approval, the hardware associated with sending and receiving messages would quickly be confiscated. Thus, while the warlords and terrorists may not form an official sanctioning body, their unwritten requirements, such as making the internet available for fund transfers, must be met. It's quite possible that interconnectivity among the different systems is yet another directive dictated by warlords and terrorists. Since such rules imposed upon the telecom sector are not readily apparent to the outside observer, the appearance of a free market that is totally absent any regulation is probably an illusion since some regulation exists in the form of pressure from these organisations; it's just not formally structured in a codified series of laws, and appears not to cover such areas as pricing and entry into the market.

No Government, No Taxes, No-Man's Land

Because there is no strong central government, Somali telecoms do not have to pay taxes. This, along with intense competition among the providers, has resulted in some of the

cheapest call rates in the world. Another result of not having a strong central government is the ability of nearly any willing provider to establish a telecom company in the country. As Abdigani Jama, Secretary General of the Somali Telecom Association, says, 'It's a no-man's land. Anyone can bring in equipment and no licenses are required.'¹⁵

Despite such advantages, the telecom companies are generally anxious to see a central government once again in Somalia. There are several reasons for this. A central government could reestablish a formal banking system, allowing both companies and customers alike to borrow in order to finance their telecom needs. Also, regulations do not necessarily have to impede development, especially if a significant portion of their thrust is standardisation and compatibility. The private telecom operators themselves chose to self-regulate so they could have the benefit, and the increased revenue associated with it, of phones from one system being capable of interacting with the phones from another.

Finally, there is the uncertainty that accompanies a country without a government. Today the warlords opt for telecom, but who knows what seemingly capricious reason might cause one or all of them to change their mind. The possible reasons for intentional or unintentional disruption of telecommunications in Somalia are endless.

The Reestablishment of Government: Future Unknown

Clues as to the possible shape of the telecom sector in Somalia should a strong central government be established can be gleaned by examining other African countries. Additional information can be obtained from the overall telephony strategies for the continent, as provided by the Panos Report, 'Completing the Revolution: the Challenge of Rural Telephony in Africa.'¹⁶ Following are some possible changes that might be implemented:

1) An increased emphasis on providing telecom services to the remaining rural areas that do not presently have them. Because rural areas tend to have a low population density as well as a generally poorer population than the cities, the private telecom sector sees few economic incentives to service them. It would fall on the government to provide such incentives, perhaps through tax breaks (once the government starts taxing telecom) or direct subsidies. Though the establishment of telecom services in rural areas may offer significant benefits, such as increased development, it is not always an easy task to accomplish. Witness Senegal which signed a contract with France Telecom in 1997 to help provide rural telephony to 1,000 villages per year. Seven years later and they still had not connected even their one-year goal.¹⁷

2) A greater emphasis on mobile phone growth compared to fixed-line telephony. Mobile phone subscription in Africa within the past five years has grown more than any other region in the world.¹⁸ Indeed, throughout most of Africa the installation of mobile phone infrastructure has taken a priority over the more expensive fixed-line infrastructure. As an example, in Uganda the number of mobile phone users multiplied 131 times in a span of six years, becoming seven times the users of fixed-lines.¹⁹ Similar growth will probably

occur in Somalia. It is possible the government there will assist the expansion of mobile phone usage by providing incentives, such as property rights or reduced taxes, to install relay towers and other necessary infrastructure in geographic areas deemed less profitable by telecom operators.

3) Taxation of telecom. It would be difficult for the fledgling government not to look at one of the few successful enterprises in the country as a source of revenue. However, rate increases due to the imposition of taxes might eventually be offset by increased competition and savings through economies of scale. Also, as previously mentioned, the government could structure the taxation in such a way as to provide incentives for necessary infrastructure.

4) Continued growth. Establishment of a stable government will encourage new businesses, many of which will require phone and/or internet service. The government itself will also have needs in this area and, like many other countries, could become one of the major users of telecommunications.

5) Expansion and enhancement of VSAT. Satellite technology will surely continue to play a role, perhaps the *dominant* one, in meeting the continued growth of the telecom sector. Newer VSAT units will possibly provide larger bandwidths, especially if a power grid offering dedicated electrical service is created. The larger VSAT units require more electricity to operate.

6) Relocation of at least part of the Somali Telecom Association from Dubai to Somalia itself. However, it would be likely that the Association would retain a presence in the UAE. The fact that Dubai is a hub for both telecom and hawala is probably not a coincidence, with one business feeding the other.

7) A possible decrease and/or shift in the way warlords and terrorists use telecommunications. The new government will be under pressure on the domestic front to decrease the power and capabilities of the warlords and on the international front to do the same with terrorists. Both groups will probably find ways to adapt to technical or legal obstacles placed in their way. This could involve applying either a high tech or a low tech approach, with the use of more sophisticated equipment being an example of the former and the reliance on people as messengers an example of the latter.

It is uncertain at this time whether or not fiberoptic cable will play a role in the immediate future of telecom in Somalia even if a government is established. Fiberoptic offers two general advantages over VSAT: it readily carries a large bandwidth and it does not have the signal delay inherent in VSAT (this occurs from the signal having to travel from the ground station to the satellite and back). However, it can be expensive to lay cable, and few telecom providers are going to be willing to risk a large infrastructure investment in a country that has not shown stability for over a decade.

Conclusion

A large portion of Somalia was essentially a blank slate after 1991, but instead of a gradual evolution (or re-evolution) of telecommunications occurring, as had happened in the developed world, the country leapfrogged to wireless and other advanced technologies. Since successive generations of technology tend to be both more efficient and cost-effective than previous ones, it made perfect sense for the country to reestablish its telecommunications network with flexible and relatively inexpensive VSAT as opposed to fixed phone lines. Thus, what appears ironic at first, high tech satellite links arising in an impoverished country, is actually the most appropriate telecommunications development path the country could take.

As two simultaneous attempts are made, one by the Somalia Transitional Federal Institutions and the other by the Islamic Courts Union, to once again to establish a central government in Somalia, it will be interesting to observe the impact of a new government, or governments, on telecommunications. Will they view it as one of the few viable sectors of the economy and excessively tax it, raising rates to the point demand is significantly dampened? Will they try to control it with well-intentioned regulations that have the unfortunate consequence of stifling the innovative and entrepreneurial spirit it has exhibited? Whatever the government does, they should not do it in haste. Instead, they should take the time to study the telecom sector as a unique entity that has filled an important niche, and then look for ways to replicate that success with other aspects of the country's infrastructure.