

DRAFT

Republic of Yemen

Comprehensive Development Review

Telecommunications

I. Basic Data and Trends

A. Coverage

This note is based on a desk review of information available to the Bank from the ITU and other public sources, as well as two interviews with the Ministry of Communications and TeleYemen during a recent power sector supervision mission to Yemen. There is no active dialogue between the Bank and the GOY on the telecommunications sector and our sector knowledge is very limited and anecdotal. However, at the request of the GOY, US\$0.5 million has been allocated in MNSPF's privatization support project for pre-privatization activities for the Public Telephone Corporation (PTC).

B. Statistical Background

The number of fixed line subscribers in Yemen was 250,000 at the end of 1998¹, equivalent to a teledensity of 1.45 telephones per 100 inhabitants. In terms of households, the Ministry of Communications estimates that about 9% of the households have telephone access. Disparities among regions and between main cities and remote areas are particularly relevant, given that teledensity in Sana'a is about 7.5%, while in the Governorate of Hajja is just 0.30%. The Ministry of Communications estimates that the incumbent operator, PTC, is currently undertaking an expansion plan to increase available capacity from 250,000 lines at the beginning of 1998 to 350,000 lines in about 2002 [the extent of PTC's expansion plans needs to be confirmed.]² Not only is teledensity low but there is also an unquantified amount of unsatisfied demand - even in the supposedly well served area of Sana'a.

Digital switches account for about 90% of the lines currently. While the new equipment is modern, overall system quality may be less satisfactory. On the basis of anecdotal evidence, there are outside plant problems (system bottlenecks, signal attenuation and cabling problems) which negatively affect line quality. [the physical condition of the network needs to be assessed].

The number of network subscribers of PTC has grown at rates between 5% and 10% per year in the last 10 years, increasing from 103,000 subscribers in 1987 to about 250,000 subscribers in 1997. Not all subscribers have access to direct dial international services

¹ Ministry of Communications.

² The Economist, "Telecom and Wireless Africa/ Middle East," January 22, 1999.

(provided by TeleYemen³, a joint venture between the incumbent PTC and Cable and Wireless (51%)). The Ministry of Communication estimates that International Direct Dialing has grown from about 11,420 subscribers to 38,214 subscribers in 1998.

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998
Subscribers (k)	124	131	143	161	173	187	196	220	250
IDD	11	14	16	20	24	28	31	36	na

Source: Ministry of Communications.

In terms of fixed line tariffs, a local phone call ranges from YR0.5 to YR1 per minute (about 0.3-0.7 US cents a minute). National long distance call prices range from YR2 to YR15 per minute (from 1.3 to 10 US cents a minute), depending on distance, on peak-off peak rates, and whether the call requires satellite connection. International calls are divided into five destination areas and tariffs range from YR162 to YR252 per minute (US\$1.10 to US\$1.67 per minute). For example, a three-minute phone call to the United States would cost about US\$5.10, while a call to France would cost US\$5.30.

Because of the relatively high international tariffs, international bypass (call back) seems to be a revenue issue. With the advent of increased access to global satellite systems more private sector consumers may be expected to bypass the system under the current tariff regime. This should encourage the telecommunications service providers and the Government to rebalance international charges and promote better regulation. The loss of revenue from high volume commercial users could have important adverse development consequences.

TeleYemen offers mobile services through the analogue technology ETACS. It reaches about 20,000 subscribers⁴ [12,245 in 1998 according to the MOC]. Service is offered in the major cities: Sana'a, Hodeidah, Taiz, Mukalla, Dhamar and Ibb. In the area of mobile services, it is worth remarking the efforts of PTC in providing fixed wireless solutions. In 1996, PTC ordered 5,000 CDMA-based WLL lines from Motorola; in 1998, Siemens shipped about 7,000 DECT WLL lines to PTC. Both contracts are intended to expand service coverage in rural areas. In the area of mobile satellite communications, Iridium Middle East Corporation (IMEC), has signed an agreement with the Government for mobile satellite services.

The Government issued a tender for two GSM licenses in early 1999. Eight offers were received; apparently five from technically qualified firms. While there has been considerable investor interest from abroad, no major operators bid directly, indicative perhaps of investor concern about the general business and investment environment. This sector can attract direct foreign investment and can generate jobs, although the Government sought offers on the basis of a modest license fee and a tariff structure.

The connection fee to the TeleYemen mobile network is about US\$100; the monthly subscription fee is US\$6.70; airtime costs between US \$0.08 and US \$0.10 per minute.

³ TeleYemen also offers Internet, leased line, cellular and Internet services (though the subsidiary Y.Tel).

⁴ The Economist.

Internet services are offered by TeleYemen. It is estimated that presently there between 40 and 50 Internet hosts in Yemen.⁵ The number of Internet subscribers is about 3,000.⁶ The installation fee for Internet services is YR5,750 (about US\$38). There are different use-based tariff options, ranging from low-use (no monthly fee, YR9/minute) to high-use (YR64,800/month, 360 free hours and YR7/minute).

C. Role in Yemeni Development

The telecommunications sector appears to be financially self-sufficient and provides 100% of its capital requirements. However, Yemen has the lowest penetration of telephone and Internet services in the Middle East and minimal rural access to telecommunications services so there is considerable scope for additional investment. Local tariffs are low by regional standards but there is a high disparity between local and international tariffs. PTC receives an estimated 25% of gross revenues on outgoing calls; 20% of gross incoming revenues and 49% of all profits for its investment in TeleYemen which suggests that there could be scope for some possible tariff rebalancing in favor of reduced international charges which would help Internet growth and encourage export-oriented firms. However, more information is required about tariffs, including leased lines and revenues as a percentage of GDP, in order to assess whether the sector optimizes revenues to the GOY and benefits to the economy. The private sector already participates actively in the sector through its management and operational control of TeleYemen. This participation will increase with the issuance of two GSM licenses to new private operators. The Government has also apparently offered three payphone contracts to the private sector but their status is unknown. The opportunity for the private sector to offer value added services in competition with PTC and TeleYemen is also not known.

D. Main Issues

The main sector issues are the following:

a) *the lack of clarity in the sector policy and the regulatory framework*: the Ministry's role, the nature and type of regulation, the scope and extent of competition in the various market segments, the strategy for restructuring/privatization of PTC, the future relationship between PTC and TeleYemen, the future of the Cable and Wireless (C&W) agreement/license (which will end at the end of 2003), universal service, interconnection between operators, etc..

b) *the importance of independent regulation in the sector*: there is ambiguity about the Government's role with PTC as both operator and regulator. This ambiguity will become more acute with the entry of two GSM operators. The GOY has taken a first step to separate operational and regulatory responsibilities. Republican Resolution Number 8 of 1999 transfers responsibility for regulatory issues on interconnection, numbering and standards to the MOC from the PTC. However, since the Minister is also Chairman of

⁵ Network Wizards.

⁶ Ministry of Communications.

the PTC, the MOC will not be perceived as an independent regulator and a truly independent body needs to be established. Recent developments (primarily on the cellular side) and their implications (conflicts of interest, universal service, interconnection, frequency management), as well as future plans (privatization, relationships with C&W, introducing and managing further competition) requires the creation of a strong, credible and independent regulator. The experience in other countries in the region (and of course outside the region) supports that view (regulators exist in Jordan, Morocco, Sudan and are planned in Lebanon, Saudi Arabia, Egypt).

c) *addressing the needs of people in rural areas and the poor*: there is low teledensity throughout Yemen and high disparities between the main cities and the rural areas of the country. Of the 250,000 subscriber lines, 90% is in the major 4 cities (Sana'a @50%; Taiz @ 20%; Aden and Hodeidah @ 10% each; the remaining 10% is divided between the Wadi Hadramawt and Mukalla. The majority of the population lives in rural areas. An assessment of rural telecommunications would complement Bank work on rural access to infrastructure (energy, water, and transport). The focus should be on the nature of services which could be provided, policy options, alternative technologies and their costs, and international practice in this area which might be relevant to Yemen.

d) *Internet usage is very undeveloped*: rebalancing tariffs to promote greater international usage and possibly a reduction of leased line charges to promote the Internet would assist in connecting Yemen to the web.

e) *the role of the postal service*: the post is established as an independent public corporation and requires continuing GOY financial support. It currently provides postal financial services, postal savings (which are deposited in the Central Bank of Yemen), but no lending. Pensions are paid through the post. Consideration of the potential for greater financial self-sufficiency and the development of postal and telecommunications services, given the large number of isolated communities, would be worthwhile as part of the rural infrastructure assessment.

II. International and Regional Comparisons

A. Fixed Line Services

Compared with regional benchmarks, teledensity in Yemen (1.45%) is low: in 1998 Iraq had 3.1%, Egypt 6.02%, Jordan 6.74%, Syria 9.54%. The quality of PTC network is reported to be high (100% digitalization). Indicators on labor productivity show that PTC has room for improvement (only 52 lines per employee in 1998, against 73.5 in Egypt, 104 in Oman, 124 in Lebanon, over 250 in Europe).⁷

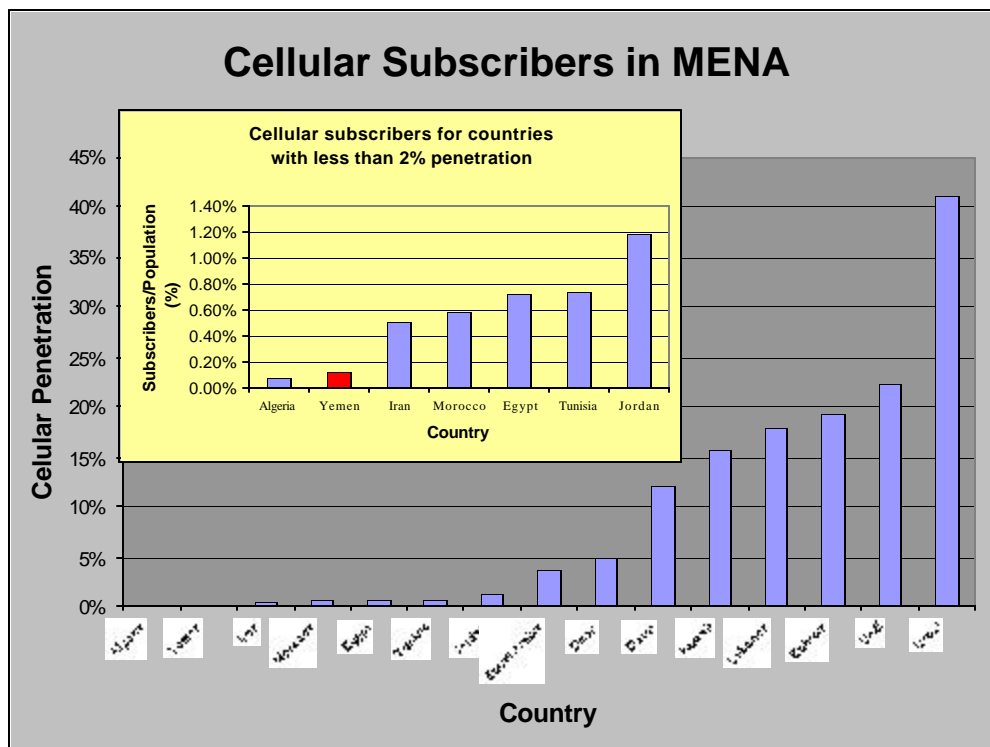
⁷ ITU, 1998.

Country	Teledensity
Yemen	1.97
Jordan	6.74
Iran	11.18
Iraq	3.1
Syria	9.54
Oman	9.24
Egypt	6.02

Source: ITU, 1998

B. Mobile Telephony

Compared to regional benchmarks, Yemen has the lowest number of mobile subscribers with respect to population size (cellular penetration is just 0.12%, against 0.72% in Egypt, 5% in Oman, 17.9% in Lebanon).

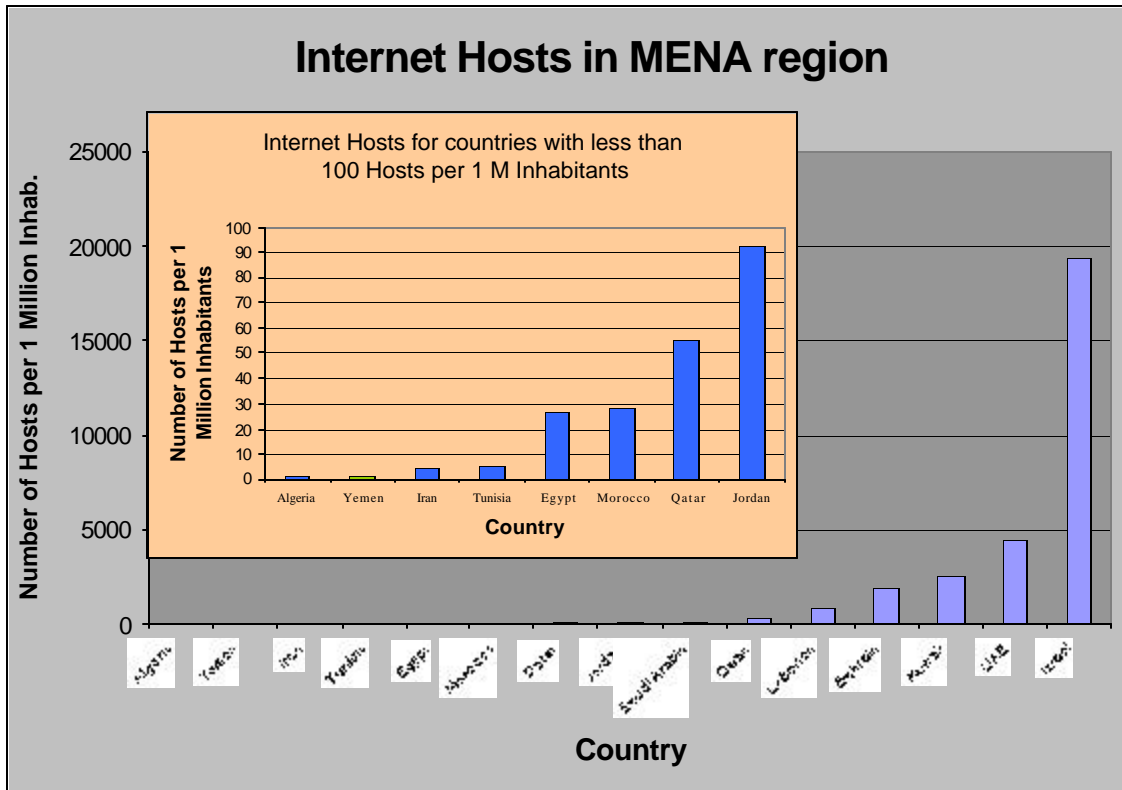


Source: Global Mobile, Subscribers count at June 30, 1999.

C. Internet

Internet in Yemen is undersized, even with respect to the indicators of the MENA region, which lags behind other regions of the world for Internet penetration. Internet services are [mainly] offered by TeleYemen, through a service called Y.net (The Economist). In

Yemen, there are only 1.56 hosts per 1 million inhabitants, against 4 in Iran, 28 in Morocco, and 938 in Lebanon.



Source: Network Wizards. Data as of June 1999.

III. Development Goals

According to the Ministry of Communications, the major sector objectives are the following:

a) expanding and improving the physical network by:

- increasing the number of subscriber lines from 250,000 in 1997 to 350,000 in the next few years;
- by converting all switches to digital (currently about 90% digital) and adding digital microwave links to upgrade inter-city access; and
- by converting the Aden-Sana'a transmission link to all fiberoptic cable

b) improving rural access to reduce rural isolation. According to the MOC, Yemen has some 70,000 communities (this includes neighborhoods in cities), of which some 10,000 have less than 1,000 people. They would do this by:

- doubling the number of lines in rural areas (currently no more than 25,000 including Hadramawt and Mukalla) and by introducing satellite connections, WLL and other facilities for rural areas.

c) linking all GOY headquarters offices through an advanced WAN.

In addition to these objectives, TeleYemen states that the following objectives are necessary to prepare the national network for the future:

- an increase in the number of subscriber lines to two million by 2005-2010;
- building a robust national network with sufficient redundancy; and
- preparing for the future by linking all national exchanges with fibreoptic cable.

IV. Specifics to Focus On

The introduction of the two GSM licenses will expand the physical network by increasing the number of lines by 60% from the current level of 250,000 (GSM tender offer guidelines are a minimum of 18,000 lines from each operator within the first 18 months and 75,000 each within the first four years). It also increases the flexibility for commercial and other users but does not appear to significantly expand the scope of coverage since the tender document appears to focus on the same urban areas and the same heavily populated areas between cities as the current analog cellular license. There is no differentiation between the geographic scope of the two licensees or a requirement to commit to rural coverage.

Given the extremely low penetration of telecommunications in the rural areas (only about 25,000 lines or 10% of total) and the emphasis on improving rural access to basic infrastructure services, there is a need to include an assessment of practical, low-cost means to improve rural availability of telecommunications services. This would benefit the growth of rural incomes, reduce poverty, and help stem urbanization and facilitate the use of internet-based services to improve education in the rural areas. The Bank does not know the cost of new telecommunications infrastructure in Yemen at present. TeleYemen states that the cost of their analog cellular service (which is concentrated in the main cities and roads in between) cost \$2,000 per mobile line and that the cost of a wireless local loop would be at least \$200 per subscriber. Capital costs for cellular service have declined substantially since that network was built (early 1990s). Given Yemen's large number of rural population centers and their remoteness, detailed analysis should be made of the cost-effectiveness of various technological alternatives of providing rural access, including satellites, WLL and payphones, as well as funding options, before any capital investment decision is made. The GOY is determined to have the sector remain financially self-sufficient.

The PTC owns and operates the national fixed wire network, yet it is also the joint venture partner of Cable and Wireless in TeleYemen, and the regulator. In the context of the Privatization Support Project, the Government has made a commitment to the World Bank that it will merge the current international operations of TeleYemen with the domestic operations of PTC and then privatize, by a combination of strategic investor and IPO. Tentatively the target date for this is December 31, 2003, the date when the current Cable and Wireless license expires. Given such changes and the forthcoming issuance of two GSM licenses, the GOY plans to change the role of PTC, transferring some of its

regulatory responsibilities for interconnection, numbering and equipment standards to the MOC. As the Minister of Communications is also the chairman of the PTC, the ambiguity of PTC's role is likely to remain. Accordingly, the GOY should consider the establishment of a regulatory body that is politically and financially independent from the Ministry and the PTC. This would also be necessary to support the full privatization of the sector at the end of 2003.⁸ The legal framework covering the telecommunications sector should be reviewed to ensure the independence of the regulatory agency and the broadest possible scope for private sector participation and competition within the sector.

The role and structure of the regulatory agency should be developed in the context of the evolving competitive structure of the sector and the role of the PTC after its planned privatization at the end of the TeleYemen concession on December 31, 2003. Consideration should also be given to increasing the number of companies active in providing services within the sector, including ISPs, data operators, other value-added services, etc. Consideration should also be given

The GOY may wish to consider integrating the role of the postal service into the evolving telecommunications and banking sectors in Yemen. The postal services currently provides postal service, as well as postal financial services (postal savings which are deposited in the YCB and payment of pensions through post), but no lending. Postal services are covered by the postal law.

V. Next Steps

The preceding text seeks to describe the status of the sector as we know it, point out the areas where our knowledge is deficient and focuses on the priority issues that appear to require further analysis and perhaps future involvement by the World Bank Group. The priorities are to support the GOY in clarifying its sector policy, strengthening sector regulation, reforming the sector and privatizing the PTC, and addressing the needs of the urban poor and people in rural areas. Since there is considerable change taking place in the sector with the issuance of two GSM licenses, and given the emphasis on improving rural access to basic infrastructure, in-depth work on the sector, perhaps in the form of a sector note, would need to precede any decision to make a serious commitment of Bank group resources, whether in the form of lending or technical assistance. Such a note should be seen as a tool to seek agreement with the GOY on a statement of sector policy, consistent with the evolving sector structure and the growing role of the private sector, and the design of an appropriate legal and regulatory framework. Given the continuing role of the GOY as an operator (PTC) and regulator, and the high level commitment in the GOY to privatize telecom, a detailed sector note focusing on the institutional underpinnings for reform should be a very positive contribution to moving forward the privatization process in the sector.⁹ Given the scarcity of sector data at the Bank, the

⁸ This analysis should take into account the support being given by Canada on spectrum management through the ITU.

⁹ During negotiations for that project, it was noted that a lot more work would be required to carry out the privatization of the PTC and that funding from either a follow-on project or some other source would be required.

study would be carried out initially as a desk review of the data available from third party sources, followed by a visit to Yemen to confirm the data used and the preliminary findings and conclusions of that desk review, and to seek agreement with the GOY on any further support which might be forthcoming from the World Bank Group.

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