

Telecommunication in Egypt

Gehan Rachty

Telecommunication in Egypt

Gehan Rachty

TELECOMMUNICATION IN EGYPT

Introduction:

As the world witnesses an enormous revolution in communication, Egypt while building her present and future on strong bases, has proceeded with the development of its telecommunication systems and has not isolated herself from international development trends.

The civilized move that characterized the achievements in the field of telecommunications (during the last ten years) participated in the social and economic development and in the building of modern Egypt. The fact that the state gives great concern to this public utility stems from keenness to provide a good and ideal service to citizens.

I. HISTORY OF TELECOMMUNICATION IN EGYPT

Perhaps largely on account of its geographical position, Egypt has maintained in the past a long lead over all the Near and Middle East in its wired and wireless communications with the rest of the world . The benefits to Egypt were immense. Telegraph traffic between Europe and the Far East, although of no concern to Egypt at all, had to pass through the Eastern telegraph system via Red Sea cables. Therefore it is not surprising to find out that Egypt's involvement in telecommunication was long before the British occupation in 1882 or the foreign intervention in the Egyptian administration in 1876 (an intervention aiming to secure the payment of the debts that Khedive Ismail (1863-1879) had drowned his country in).

In spite of lack of proper documents and accurate statistics on the period before 1889, we know that telegraphic communication between Cairo, Alexandria and Suez was present as early as 1856. Egypt was ruled at that time by Mohammed Ali's second successor Said Pasha who, like his successors, had inherited from Mohammed Ali the aim of modernizing Egypt along western lines. Two Englishmen obtained permission from the Sublime Porte to lay a cable from Constantinople to Alexandria. From there the link that was already present from Alexandria to Suez going through Cairo would make sure that all parts of the country had links to the outside. From Suez the link was later continued to India (the exact date is not known), though not without many reverses both technical and financial. Egypt was thus linked first to Europe and Constantinople and then to Aden and India via the Red Sea.

By 1870 there were 66 internal telegraph lines, 16 of which were in Sudan. Telephone was introduced 11 years later when on 1881 the American company "Eddison Bell" made the first telephone line between Cairo and Alexandria. The period that followed was one of rapid cable expansions, and England's entry into Egypt in 1882 provided settled conditions which greatly facilitated the development of Egyptian telecommunication -- a development that had already started years before but was given greater impetus by British administration since it was in the British self interest to link Egypt to the UK and the world. Some of the major developments included:

In 1883 a telegraph company started using LeKlanche battery instead of the Minotto. "Duplex System" was to be used on the telegraphic lines with Syria.

In 1884 Both Reuters and the French news agency Havass were allowed to send their telegrams from Alexandria to Cairo free of charge.

In 1885 the British military authority took over the telegraph lines south of the country (upper Egypt) but returned it to the Telegraph and Telephone Authority in 1887.

In the years that followed, more telegraphic lines were established, telegraph services were increased and rules guiding the service were made.

The first telegraph and telephone lines were owned by the Railway Authority which is part of the government. Trunk lines were government owned and leased to the telephone company in return for a 70 per cent of the company's income. In 1918 the

government bought all telephone and telegraph -- except for a few small offices -- and a separate and independent department for telegraph and telephone was established. Investment in telephone rose from 780 000 pounds in 1920 to 2 million in 1930. This was accompanied by an increase in profit from 220 000 to 700 000 in the same period.

Automatic exchanges were installed in Cairo in 1926 and later in Alexandria in 1935. This benefitted not only the two cities but also the smaller governorates as the replaced telephone equipment that were no longer needed in Cairo and Alexandria were installed in the governorates.

In 1932 an underground telephone cable linked Cairo to Alexandria. This project improved communication between the two cities so that telephone communication could be delayed only five minutes at the most.

Although the advent of the telephone created a competition for the telegraph, internally telegraph was preferred to the telephone for business transactions because it provided written documents. Internal telegrams were handled by telegraph offices either owned by government and operated by railway workers or by the Delta, Fayoum or Bahreya railway stations licensed by the Egyptian government. Telegraph was also used externally between Egypt and other countries such as Saudi Arabia, Yemen, Ethiopia and Sudan and earlier with Palestine, Eastern Jordan and Syria before these countries made direct communication with Europe through the Haifa-Cyprus cable owned by the Eastern Telegraph Company or through Beirut Wireless Station that belonged to Radbo France.

International telegrams were handled by Marconi, or either of the afore mentioned companies: Eastern Company or Radbo France.

With the telephone and telegraph facilities, commerce, industry and business of government and private intercourse were encouraged and on top of these advantages, the state was able, year by year to make an easy profit of many thousands of pounds in royalties. By far the larger part of the money recieved in this way by the state was delivered by the telegraph traffic between Europe and the Far East. A glance at any cable map will show that the main cord of the system passed via Egypt. This traffic did not concern Egypt at all except that it passes through the Eastern Telegraph system via the Red Sea cables. Radio services, however, differ fundamentally from cable services with regard to transit traffic. Radio traffic usually goes from the country of origin to the country of destination with perhaps short extensions at either end of the route. The countries through which it passes naturally receive no payment and only the terminal countries are able to demand royalties. Cables, however, pass through countries and each one is able to charge the operating company for permission to work. This is one of the reasons why radio was such a serious competition to cables; Where cable messages from London to India and China pay royalty for passing through Egypt radio services started passing free of royalty. But the development of radio was inevitable.

In Egypt Wireless came to be owned by three organizations.

The first is the Egyptian government which had stations run by the Telegraph and Telephone Authority. These stations in

Alexandria, al Kaser, al Tour and al Arish ~~and~~, those of the coastal guards and the Docks and Phares Authority exchanged messages with commercial ships in the Red Sea and the Mediteranean, ^{and} with airplanes coming and leaving Egypt and with other parts of the country. The second organization that had radio stations was the Suez Canal Company which guided the passage of ships going through the Suez Canal and it provided its services for free. The third organization with wireless stations in Egypt was the Marconi Company which sent commercial messages to Europe and ~~paid~~ ^{paid} the Egyptian government some money for every word sent. When the service between Egypt and London was fully developed in 1932, London had links with India, Canada, Japan, South Africa, South America, Australia and New Zealand. There were also excellent trunk facilities between London and most countries in Europe so that it was possible for a subscriber in Cairo to speak to over 90 per cent of the telephone users of the world.

The original England-America radio telephone service was a long wave. A long wave service to Egypt was out of the question because of weather conditions. The new service was short wave with a choice of two waves to be used according to time of day and the season of the year. Two transmitters were installed in Abou Zaabal while two receivers were installed at Maadi so that they would not interfere with one another. The two parts of the service -- receivers and transmitters -- were linked by telephone lines to terminal equipment situated in a room near a trunk exchange. Here they were combined so that they could be connected to the main ordinary telephone system.

In addition to the Cairo-London channel direct radio links between Cairo-Paris, Cairo-Berlin and Cairo-Rome were later opened. Having two complete transmitting and receiving installations, it was possible to keep one circuit open constantly to London during the hours of service and the other can be used to arrange any calls required over the other circuit. The rate was 150 piasters for one minute and was not supposed to exceed 3 minutes. However prices were not fixed and could be changed any time.

II. THE POST COLONIAL PERIOD

The British occupation ended two years after the overthrow of the monarchy and the subsequent taking over of the military. During the time of the new president, Nasser (1952-1970), there was a potential military danger from Israel and because of Nasser's political ideas, [relationship] with the West was not harmonious. In spite of the socialist tendency of the new regime, impressive industrial gains were registered during the period. The electronics industry started as a group of nine private shareholding companies providing service and maintenance for electrical appliances. There were also eight cable manufacturing companies. Three assembling companies were later created. The first Phillips, established in 1956, assembled on a large scale radio receivers so did the Arabic Transistor Radio Company. El Nasr Television Company, established in 1961, assembled television sets.

To provide the electrical and electronic components required by these three assembling companies, Katron Company was created in 1969. Two research centers were also established around the same period to help in the design and development of new

equipment and to solve problems arising in the field of electronics.

Some other important dates of the period are:

- 1957 Establishment of the Wired and Wireless Telecommunication Authority.
- 1961 Establishment of the first Coaxial cable to link governorates.
- 1962 The operation of the first automatic (crossbar) exchange.
- 1963 Operation of the first telex exchange.

When Sadat became president after Nasser he liberalized the Egyptian economy with his "Open Door" policy encouraging the inflow of Western and Arab capital and many aid programs. Some of the achievements of the period in the field of telecommunication are:

- 1972 Operation of the first marine cable linking Egypt and Italy (with the capacity of 480 circuits).
- 1974 Construction of the mobile earth station at Kobba for communication via satellites.
- 1975 Operation of a microwave network between governorates. Wireless telephone in automobiles used in Cairo.
- 1978 Construction of earth station in Maadi for satellite communication.
- 1979 Operation of an international exchange with an initial capacity of 160 circuits.

III. THE PRESENT

1. The current institutional structure of telecommunication operations and regulations:

The "National Association for Cable and Wireless Communications" was established according to legislation no. 153 of 1980 is affiliated to the Ministry of Communication (it replaced the Telecommunication Authority established in 1957). It is the central body with branches all over Egypt. The organization is the only body responsible, on a national level, for the establishment and operation of all cable and wireless communication networks. It is also responsible for the connection of local networks with the international ones. The

organization performs the following jobs:

- The establishment of cable and wireless networks all over Egypt.
- The supply of cable and wireless telephone services.
- Administration and maintenance of all establishments and equipments needed for the telephone services.
- Carrying out all projects related to the plan.
- Development of its services to keep up with the international levels in the communication era.
- Cooperation with different countries and international organizations to link Egypt to the outside world.

To achieve its objectives, the organization had to carry out all the necessary actions and lay down suitable plans and

programs. It is thus free to follow the administration system suitable for its activities, free of all bureaucratic restrictions.

To achieve its goals, the organization can, after the approval of the minister of Communication and Transportation establish joint stock corporations either alone or with other partners. Shares can be bought and sold as soon as the corporation is established. The employees of the organization have priority in buying the shares. According to this legislation, the organization replaces the "Cable and Wireless Communication/General Organization" that was established according to the legislation no. 709 in 1957.

5. FINANCIAL HEALTH AND INDEPENDENCE OF THE TELECOMMUNICATION ADMINISTRATION (Relationship to the central government).

The capital of the organization is derived from:

1. The funds of the General organization Of Cable and Wireless Communication established in 1957 by a decree from the President of the Republic to administer telecommunication affairs.
2. Funds allocated by the government.

The organization's income comes from:

1. Funds allocated in the general budget.
2. Income derived from the activities and services offered by the organization either nationally or internationally.
3. Price differences of services due to the organization.
4. Loans

5. Gifts and subsidies.

6. Income from fines for violation of laws and regulations of the organization.

The organization's funds are public and its budget is made according to internal regulations and does not adhere to the laws and regulations stipulated in the governmental budget. The organization has its own independent bank accounts to which its profits are channeled. The organization's fiscal year starts and ends with the government's fiscal year.

Development of the organization's financial activities:

The government has allocated the necessary investments for the organization in order to achieve its ambitious plans. Such allocation amounted to L.E. 546 million in 1988/1989. The funds came from gifts, loans and self finance. Income from local and international services was the main source that covered most of the expenses. Service charge is still cheap and is less than its actual cost. The following table shows the size of the investment and self finance and real income until 1988/1989.

| YEAR | INVESTMENTS | INCOME | SELF FINANCE |
|---------|-------------|-------------|--------------|
| 1969/70 | 3,668,087 | 24,500,937 | 3,635,950 |
| 1970/71 | 5,799,441 | 21,151,949 | 4,797,780 |
| 1971/72 | 9,325,779 | 23,027,523 | 3,769,541 |
| 1973 | 7,011,356 | 24,142,487 | 3,363,211 |
| 1974 | 7,347,372 | 25,306,503 | 3,585,098 |
| 1975 | 17,905,607 | 27,959,509 | 3,384,781 |
| 1976 | 25,409,700 | 33,360,419 | 4,800,000 |
| 1977 | 50,449,865 | 38,991,347 | 5,138,020 |
| 1978 | 79,139,530 | 55,235,707 | 6,074,795 |
| 1979/80 | 101,856,048 | 60,836,868 | 19,063,612 |
| 1980/81 | 101,539,500 | 76,679,000 | 19,069,000 |
| 1981/82 | 167,837,000 | 125,678,000 | 41,150,000 |
| 1982/83 | 223,373,000 | 179,296,000 | 56,553,000 |
| 1983/84 | 283,864,000 | 236,848,000 | 85,557,000 |
| 1984/85 | 228,223,000 | 287,386,000 | 128,207,000 |
| 1985/86 | 180,443,000 | | 189,827,000 |
| 1986/87 | 358,071,000 | | 323,271,000 |
| 1987/88 | 529,611,000 | | 369,758,000 |
| 1988/89 | 546,485,000 | | 459,098,000 |

COMMUNICATION SECTOR ACHEIVEMENTS
(1981-1990)

A. TELECOMMUNICATION

- Telephone lines have been increased from 510 000 lines in 1981 to 2 100 000 lines in 1990, more than a fourfold increase.
- National automatic dialing facility has been introduced, covering 187 cities and towns in 1990 compared to 7 cities only in 1981.
- Transmission Networks have been expanded to all governorates through microwave, coaxial cables and fibre optic cables allowing an increase in the number of channels from 8900 in 1981 to 54 520 channels in 1990.
- Telex lines have been increased from 3 520 to 9 340 lines.
- In 1988 the telecommunication network in Egypt was successfully linked with the Jordanian network through the implementation of the Suez-Aquaba microwave project. Moreover, in 1989, the telecommunications network in Egypt was linked with the Libyan network after the completion of the microwave link between al Saloom and Mosaid.
- The capacity of Cairo International Exchange has been increased to 3 680 international circuits compared to 160 circuits in 1980. A second international gateway in Alexandria was put to service in 1990 having a capacity of 1 000 circuits, bringing the total of international circuits to 4 680.
- International telephone traffic volume has increased to 270 million minutes in 1990 compared to 29 million minutes in

1981. This came as a result of extensions and higher efficiency of the switching and transmission facilities for both local and international networks.

- Execution of the National Packet-Switched Data Network with the capacity of 3 5000 ports.

- Mobile service telephone coverage has been extended to all cities and roads in the delta region as well as the Suez Canal Zone, with a capacity of 5 6000 mobile sets in contrast to 400 in 1981 covering greater Cairo only.

- Facsimile service has increased to 7 620 sets in 1990 compared to 347 sets in 1986.

- Paging service has been introduced to cover greater Cairo with an initial capacity of 7 000 sets.

- Rural telecommunication service has been introduced to the remote areas along Cairo\Alexandria desert road in addition to provision of emergency telephone service operating by solar energy.

- An ARABSAT earth station was put in service in 1990 with a capacity of 348 circuits plus two television channels allowing for better communication facilities and exchange of broadcast and television programs with the Arab countries.

- The total cost of the afore mentioned projects amounted to 4 700 million Egyptian pounds being allocated in the previous five-year plan (1982-1987) and the current one (1987-1992).

Table 2 Rates of installing the service

| | Egyptian pounds (L.E.) | US Dollars |
|------------------------------|---------------------------|------------|
| Price of the telephone set | 100 | 30 |
| private subscription (homes) | 300 | 90 |
| commercial firms | 750 | 287 |
| governmental offices | 325 | 98 |

Cost of installing the service immediately

| | | |
|------------------------------|------|-----|
| private subscription (homes) | 1500 | 435 |
| commercial firms | 2500 | 758 |

Annual subscription

| | | |
|------------------|----|----|
| Private homes | 45 | 14 |
| Commercial firms | 75 | 23 |

Local calls last six minutes.

Private subscribers are entitled to 1500 calls with no extra charge.

Commercial subscribers are entitled to 300 calls with no extra charge.

Any extra call costs five piasters for both private and commercial subscribers (in Cairo and Alexandria only).

Table 3 Rates of calls within Egypt between governorates

The rate is determined according to distance, for each three minutes.

| Distance | Price in Egyptian pounds (L.E.) | price in US dollars |
|------------------|---------------------------------------|------------------------|
| 1-50 km | 0.15 | 0.04 |
| 51-200 km | 0.30 | 0.09 |
| 201-300 km | 0.45 | 0.13 |
| 301-700 km | 0.60 | 0.18 |
| more than 700 km | 0.75 | 0.22 |

Rates of operator dialed calls (from homes or public telephone offices) for three minutes

| | Morning 8:00-23:00 | | Night 23:00-8:00 | |
|------------------|-----------------------|------|---------------------|------|
| | L.E. | \$US | L.E. | \$US |
| 1 -50 km | 0.15 | 0.04 | 0.10 | 0.03 |
| 51 -100 km | 0.20 | 0.06 | 0.15 | 0.04 |
| 101-150 km | 0.25 | 0.07 | 0.20 | 0.06 |
| 151-200 km | 0.35 | 0.10 | 0.25 | 0.07 |
| 201-300 km | 0.45 | 0.13 | 0.35 | 0.10 |
| 301-500 km | 0.55 | 0.16 | 0.40 | 0.12 |
| 501-700 km | 0.60 | 0.18 | 0.45 | 0.13 |
| 701-900 km | 0.65 | 0.19 | 0.50 | 0.15 |
| more than 900 km | 0.70 | 0.21 | 0.55 | 0.16 |

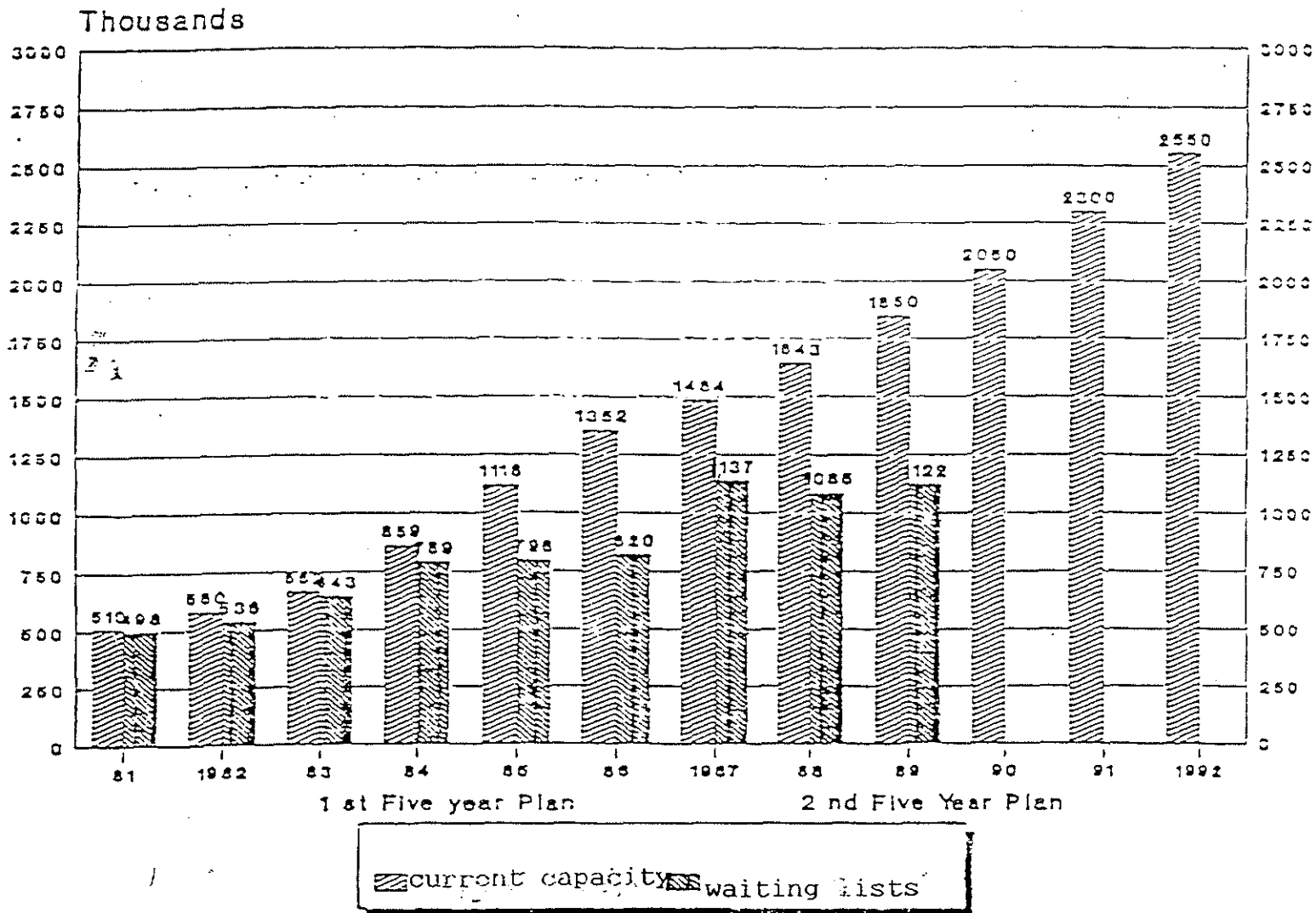
table 4

Rates of International calls

| Country | Time 8:00-23:00 | | Time 23:00-8:00 | |
|------------------------------|--------------------|------|--------------------|------|
| | L.E. | \$US | L.E. | \$US |
| EUROPE (rate per minute) | | | | |
| England and Germany | 6.10 | 1.80 | 4.60 | 1.30 |
| Austria-Belgium-Norway- | 7.00 | 2.10 | 5.30 | 1.60 |
| Finland-France-Spain- | | | | |
| Italy-Holland-Switzerland- | | | | |
| USSR-Yugoslavia | | | | |
| AFRICA | | | | |
| Kenya-Mali-Uganda | 5.80 | 1.80 | 4.40 | 1.20 |
| Cameroon-Ethiopia-Congo | 7.00 | 2.10 | 5.30 | 1.60 |
| Angola-Chad-Ivory Cost- | 9.00 | 2.70 | 6.80 | 2.00 |
| Niger-Senegal- | | | | |
| Somalia-Zaire | | | | |
| Giboti | 5.00 | 1.50 | 3.80 | 1.10 |
| ASIA | | | | |
| India-Pakistan-Sri Lanka | 7.00 | 2.10 | 5.30 | 1.60 |
| Afghanistan-Bangladesh-Iran | 7.50 | 2.30 | 5.70 | 1.70 |
| China-Indonesia- | 10.00 | 3.00 | 7.50 | 2.30 |
| Japan-Taiwan-Finland | | | | |
| NORTH AMERICA | | | | |
| USA and Canada | 7.00 | 2.10 | 5.30 | 1.60 |
| Alaska | 7.50 | 2.30 | 5.70 | 1.70 |
| CENTRAL AMERICA | | | | |
| Costa Rica-Cuba- | 10.00 | 3.00 | 7.50 | 2.30 |
| Honduras-Mexico | | | | |
| SOUTH AMERICA | | | | |
| Argentine-Brazil- | 10.00 | 3.00 | 7.50 | 2.30 |
| Venezuala-Chile | | | | |
| ARAB STATES | | | | |
| Jordan-Libya | 2.70 | 0.80 | 2.00 | 0.60 |
| Sudan-Syria | | | | |
| Tunis | 3.10 | 0.90 | 2.30 | 0.70 |
| Iraq-Lebanon | 3.30 | 1.00 | 2.50 | 0.80 |
| Algeria-Bahrain- | 4.50 | 1.40 | 3.40 | 1.00 |
| Saudi Arabia-Kuwait- | | | | |
| Yemen-Oman- | | | | |
| Morocco-United Arab Emirates | | | | |

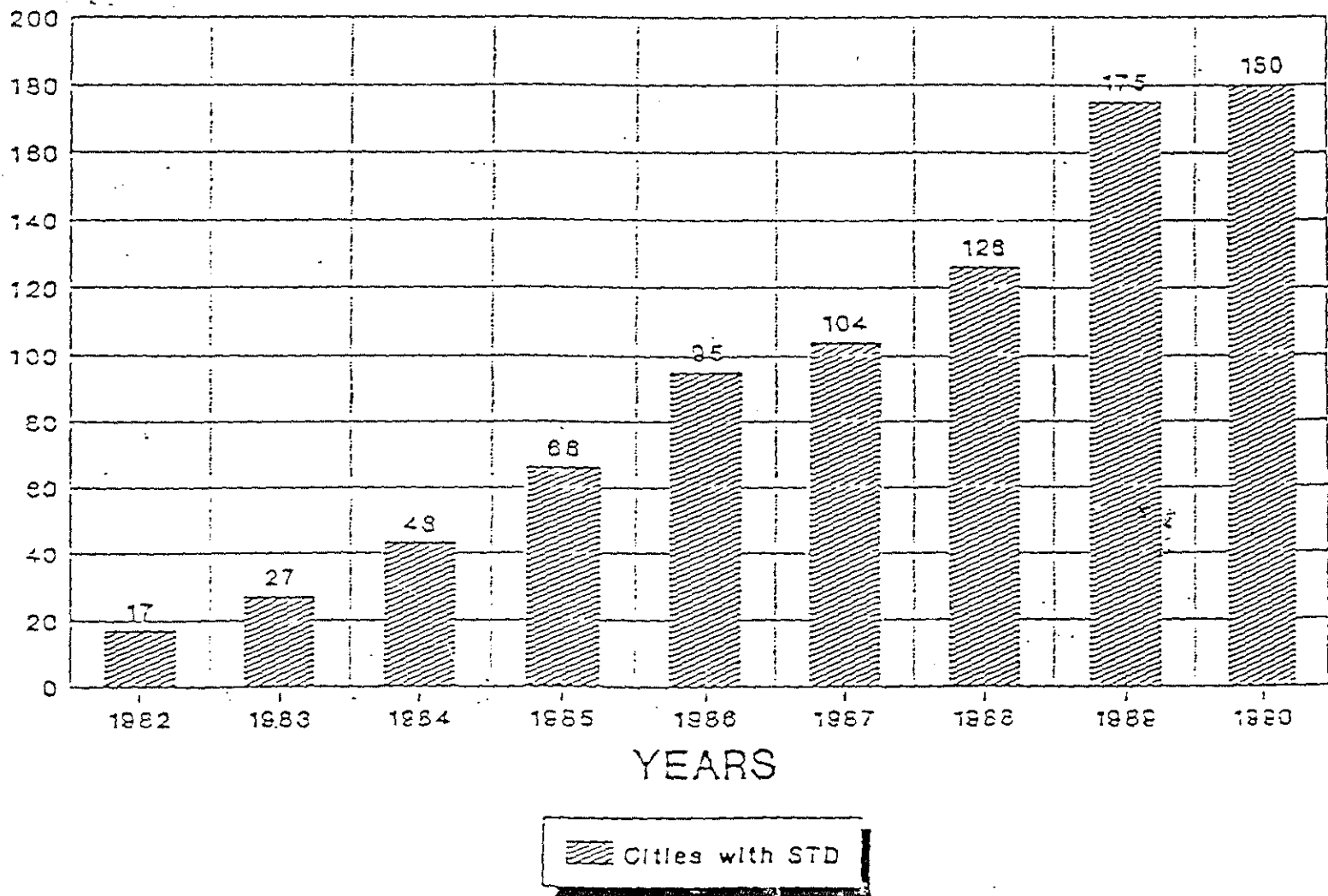
**Note Tarriff is calculated on technical basis according to available connecting channels.

TOTAL CAPACITY OF TELEPHONE SERVICES AND WAITING LISTS



8

THE DEVELOPMENT OF LONG DISTANCE DIRECT DIALING SYSTEMS



F.A.

FIG (2)

b1

LU's In Thousands

TYPES OF AUTOMATIC EXCHANGES

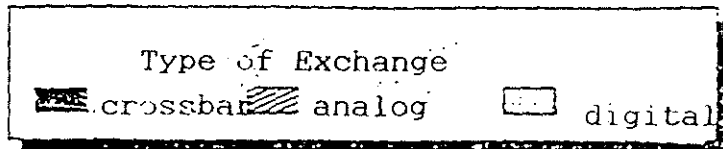
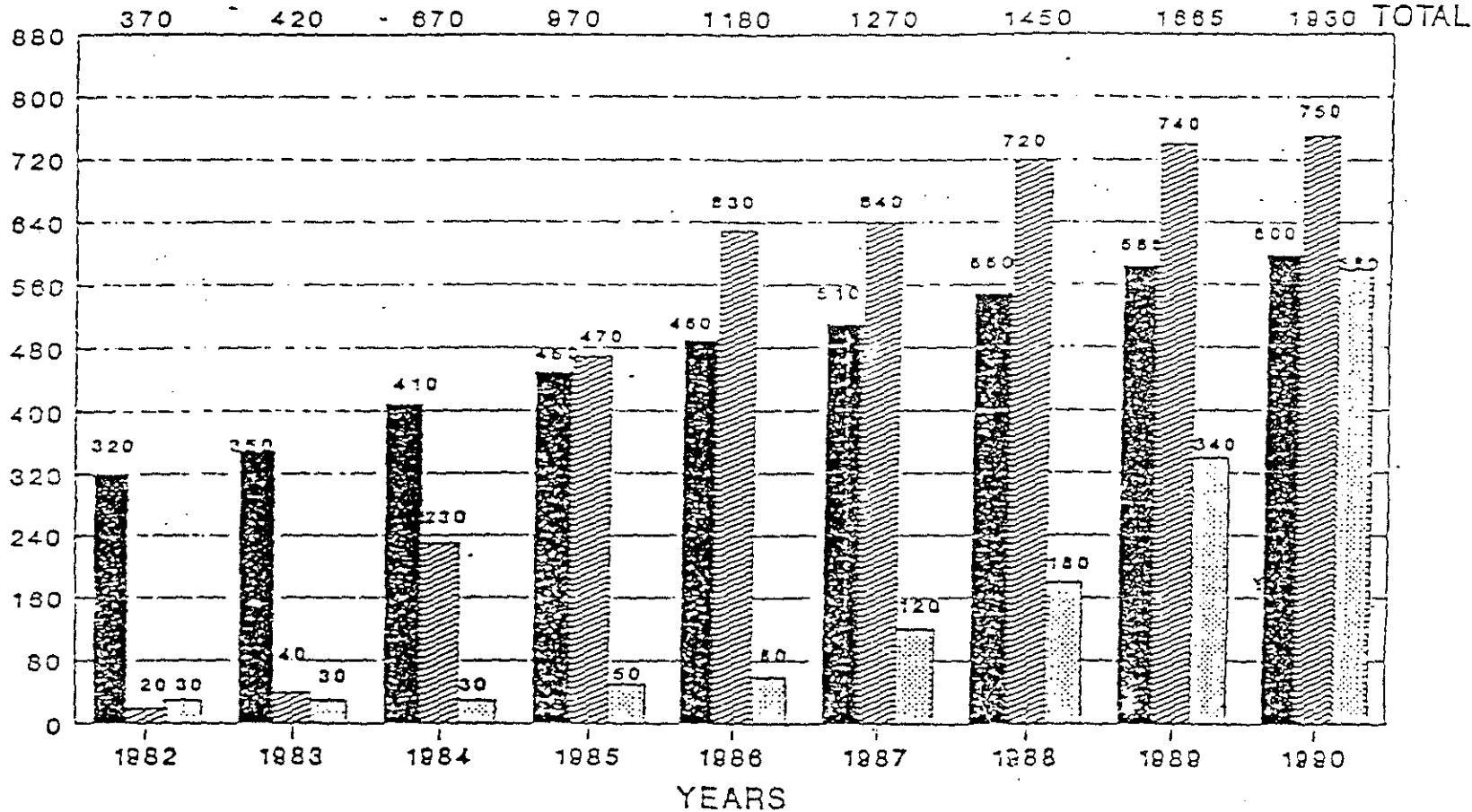
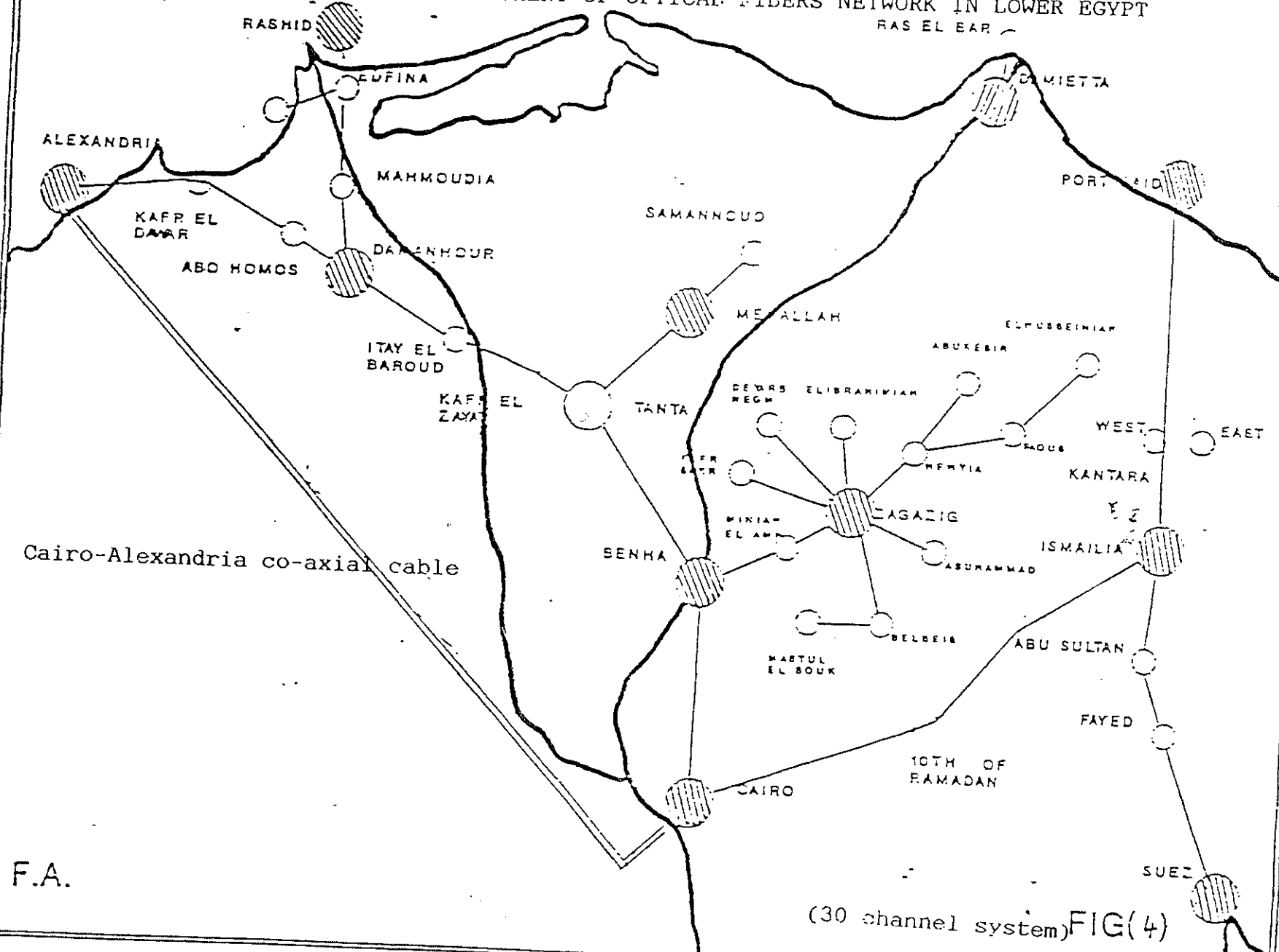


FIG (3)

F.A.

20

DEVELOPMENT OF OPTICAL FIBERS NETWORK IN LOWER EGYPT
RAS EL BAR

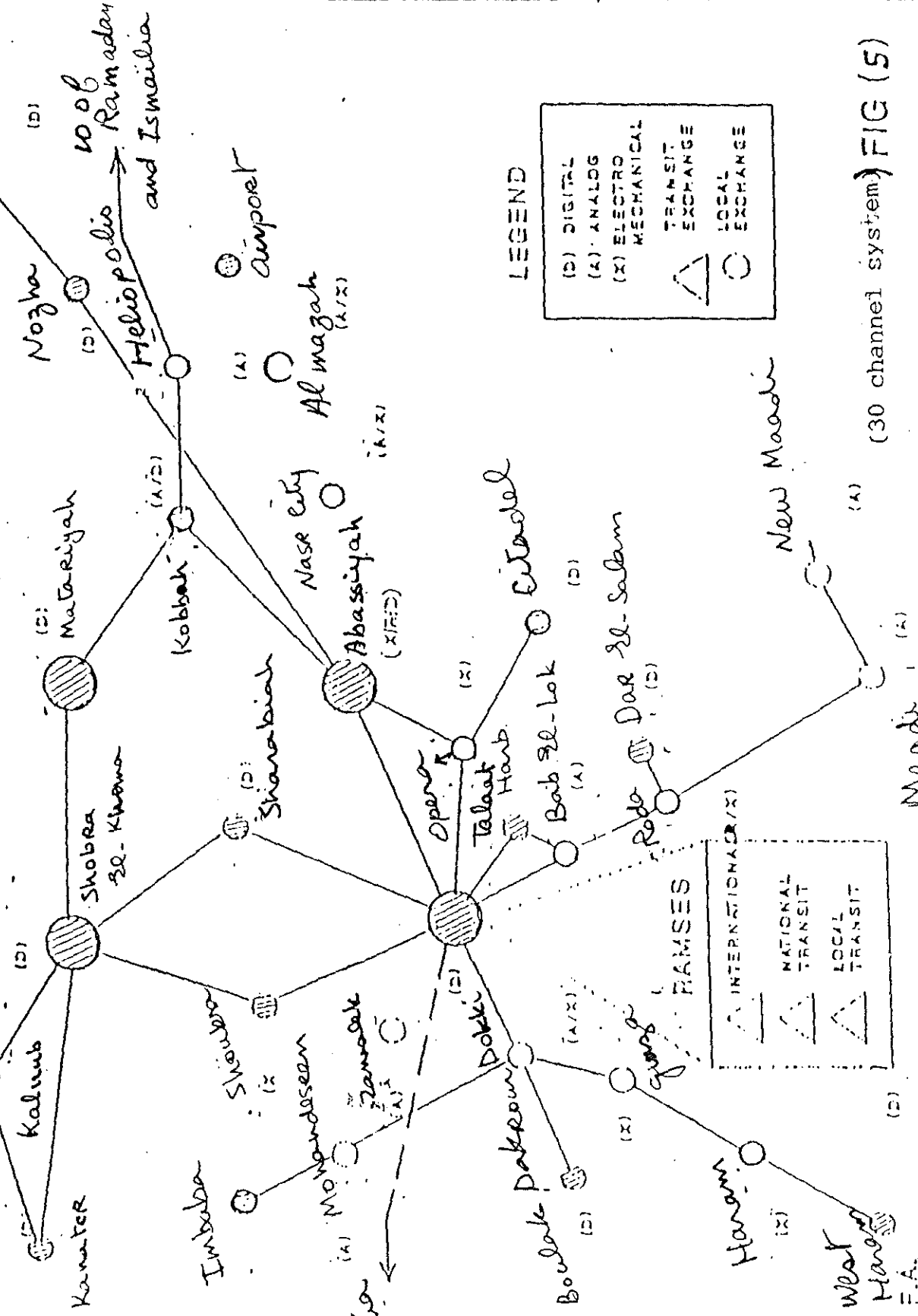


Cairo-Alexandria co-axial cable

F.A.

(30 channel system) FIG(4)

DEVELOPMENT OF OPTICAL FIBER NETWORKS CONNECTING DIGITAL EXCHANGES IN GREATER CAIRO AREA



LEGEND

- (D) DIGITAL
- (A) ANALOG
- (X) ELECTRO MECHANICAL
- △ TRANSIT EXCHANGE
- LOCAL EXCHANGE

(30 channel system) FIG (5)

B. POSTAL SERVICE

- Six automated traffic mail centers have been established in Cairo, Alexandria, Asyut, Ismailia, Tanta and Hurghada with a total investment of 35 million Egyptian pounds.

- Government and private postal offices and postal agencies have been increased from 6 790 offices in 1981 to 9 000 in 1990.

⊗ - Electronic and express mail services have been introduced.

⊗ - Post office saving accounts were computerized.

- Mail sorting with a capacity of 108 000 message/hour was automated with a total investment of 13 million Egyptian pounds.

- Establishment of 2 000 post offices all over the different governorates.

- Introduction of electronic mail boxes to facilitate exchange of messages via computers.

- Introduction of mail codes and adoption of automatic sorting equipment to accelerate the mailing traffic.

- Mail printing presses were provided with new printing machines according to the latest technology with an investment of 7 million Egyptian pounds.

- Improving the mail service by using 8 900 postal units to reach a rate of 6 000 inhabitant per postal unit

(international rate is 5 000 inhabitant per postal unit).

- Provision of pension pay service for about 20 million citizens with a total of 1 190 million Egyptian pounds per year.

- The amount of ^{total} cash exchange reached L.E. 9 000 million.

- Regional postal training center was established for both African and Arab students.

C. EGYPTNET (THE INFORMATION NETWORK): ² THE COMMUNICATION

Authority established an information network in 1989 to connect 18 Egyptian cities in its first phase and which took two years to finish and cost 18 million Egyptian pounds. The network's capacity started with 2,300 users and is expected to increase to 7,500 users in the near future. The x-25 protocol approved by CCITT -- instead of the x-75 used in the international networks -- was preferred for its worldwide use and for easiness of connection. Several stations have already been established in Cairo to convert data, in addition to one station in Alexandria. The stations are connected together through microwave, coaxial cable and optical fibres which transfer data at a speed of 4,600 bit/second. The network contains two concentrators in Cairo to concentrate the messages from data of 32 lines to arrange them in a single line reaching the nearest converting unit.

Through Egyptnet users in Egypt can send or receive data through specially leased lines at 4,600 bit/second or through general telephone lines at 1,200 bit/second. Data can also be transferred through telex lines via the network both throughout Egypt and abroad. The network is already connected with TRT American gateway which gives the users direct access to all data networks in America, Germany and Spain. The network is also connected to the TRANSPAC French network and the universal transit station ITL in Paris.

EGYPINET tariff from september 1989

ACCESS to the NETWORK

DIRECT ACCESS

| Speed (bit/s) | Annual charge in EP |
|---------------|------------------------|
| 1200 | 400 |
| 2400 | 500 |
| 4800 | 600 |
| 9600 | 1000 |
| 19200 | 4000 |
| 64000 | 10000 |

Through PSTN or TELEX

| Speed (bit/s) | Network | Annual charge in EP |
|---------------|---------|------------------------|
| 50 | Telex | 0 |
| 1200 | PSTN | 120 |
| 2400 | PSTN | 120 |

Installation COST (Paid once)

| Type of access | Cost in EP |
|----------------|------------|
| Direct | 600 |
| Through PSTN | 300 |
| Through TELEX | 300 |

Relation between users

| Period of time | Cost in EP for each 3 mn |
|----------------|-----------------------------|
| 6 AM to 6 PM | 200 |
| 6 PM to 6 AM | 100 |

Data Transmission

| Period of time | Cost in EP for each ksegment* |
|----------------|----------------------------------|
| 6 AM to 6 PM | 0 |
| 6 PM to 6 AM | 0.5 |

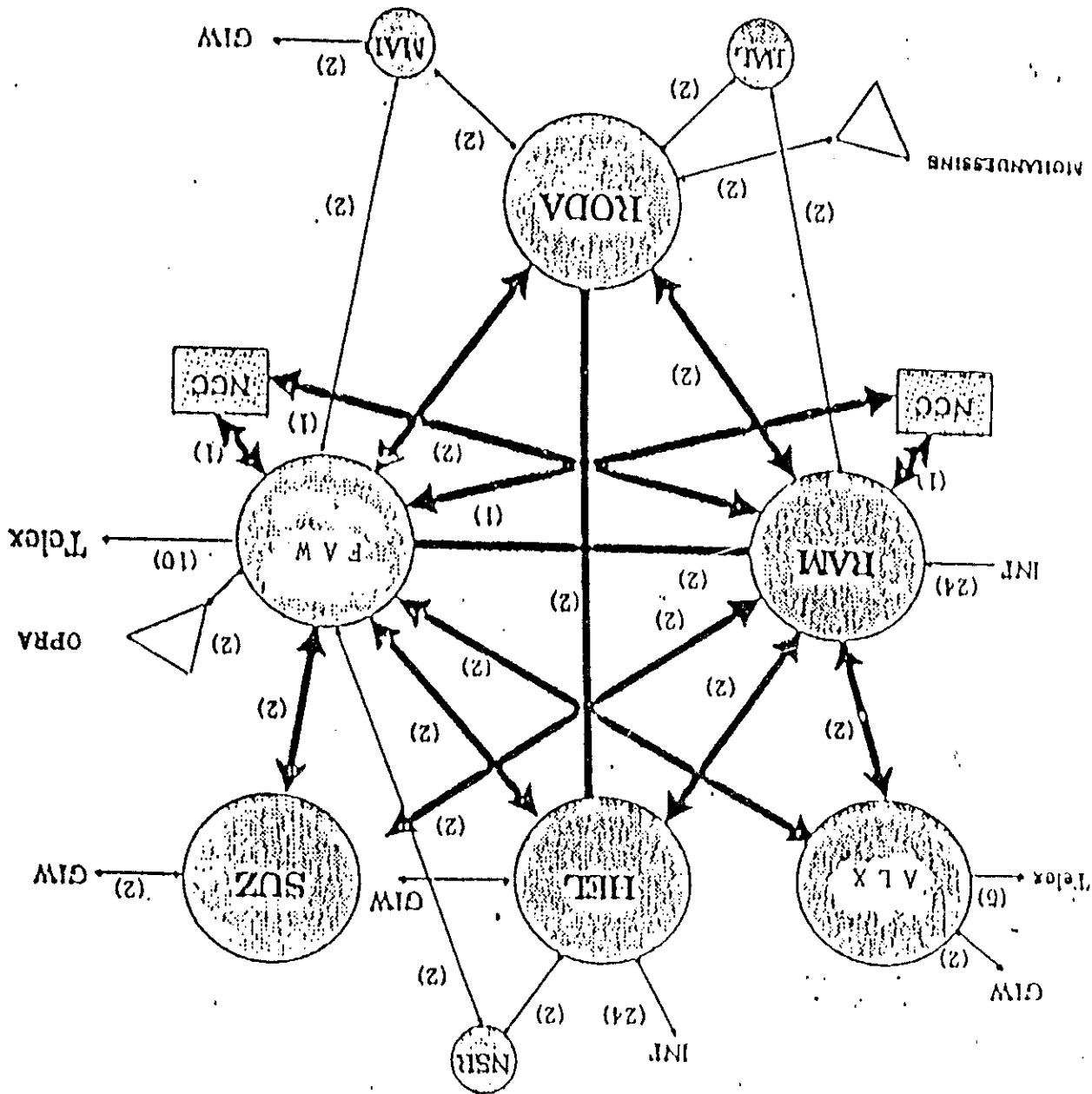
Discount on the volume of traffic for CUG
(in Ksegments per year)

| | |
|----------------------|----------|
| from 48000 to 108000 | = - 25 % |
| more than 108000 | = - 40 % |

* 1 Ksegment = 64000 octets

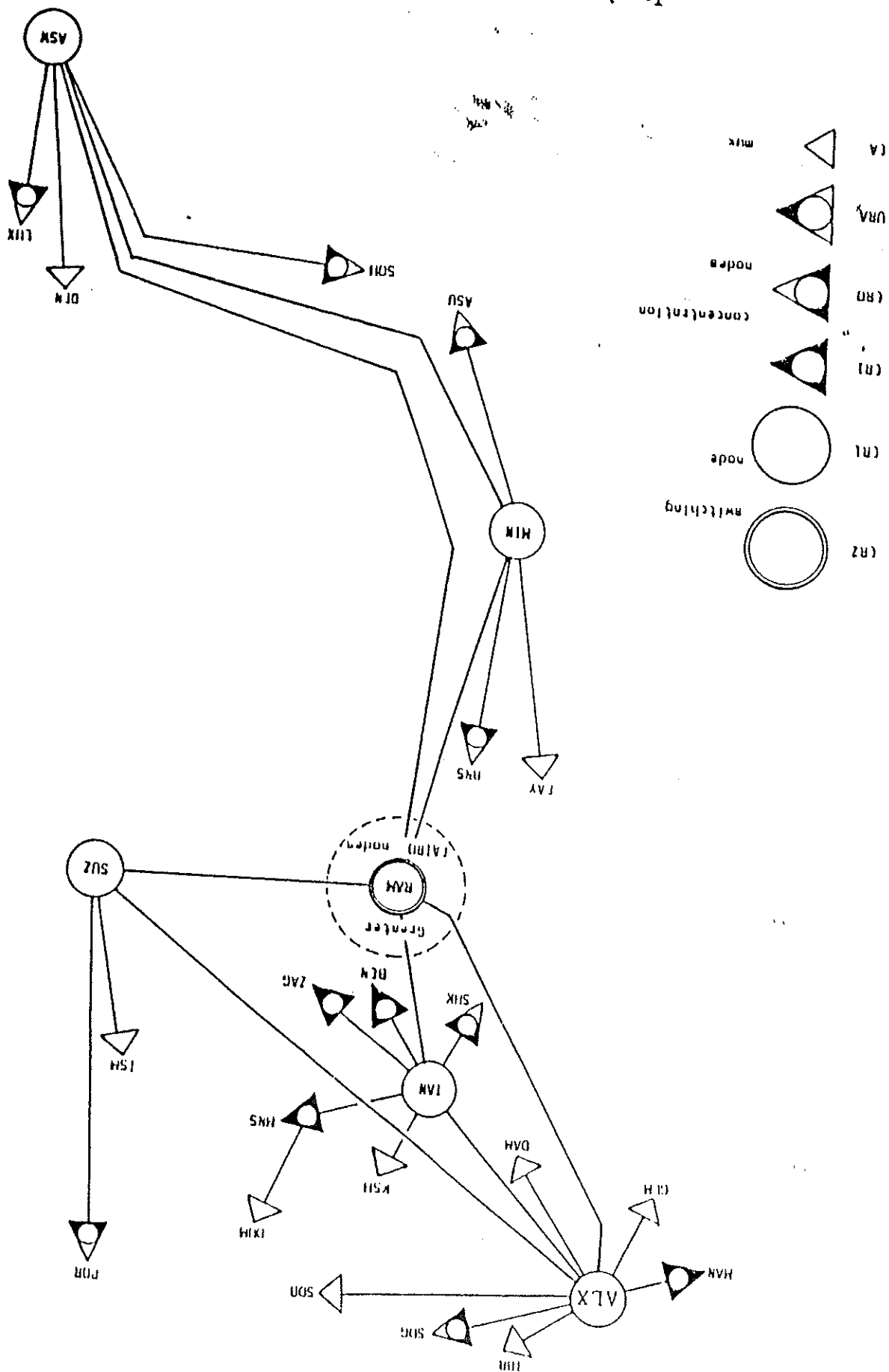
64 Kbps

 19.2 Kbps



PHASE 1 EGYPTIAN TOPOLOGY

Topology of the network for the second phase.



EGYPTNET SUBSCRIPTION FEES

Methods of connection to the EGYPTNET and cost of each method could be classified as follows:

| Type of Fees | * Phone * | * Direct Async. * | * Direct (X-25) * |
|--|-----------|--------------------------------------|---------------------------------------|
| 1- Installation fees located at EGYPTNET | * 300 * | * 600 * | * 600 * |
| 2- Annual subscription | * 120 * | * at 1200 = 400 * at 2400 = 500 * | * at 4800 = 600 * at 9600 = 1000 * |
| 3- ID fees | * 50 * | * ----- * | * ----- * |
| 4- Logical channel | * ----- * | * ----- * | * 12 / channel * |
| 5- International service | * 1000 * | * 1000 * | * 1000 * |
| 6- National insurance | * 200 * | * 200 * | * 200 * |
| 7- International insurance | * 300 * | * 300 * | * 300 * |

Note: All Currency Values are in Egyptian Pounds. The first logical channel of the X-25 is free of charge.

Other fees are:

| Type of charging | * National * | * International * |
|------------------|--------------------|-------------------------|
| Duration | * 5p / 3 Minutes * | * 55p / 1 Minute * |
| Volume | * 50p / 64 Kbyte * | * 135p-170p / 1 Kbyte * |

For National calls ONLY from 6 pm. to 6 am. there is a 50 % discount.

A FUTURE OUTLOOK

During the last decade the recent technological development in communication has led to the massive advancement in the utilization of space stations, optical fibre cables, electronic computers and transformation to digital systems. Yet the next decade will bring with it some very important developments. New services will be available, the system will be completely transformed into digital. Integrated service networks can thus be constructed. As a result information can be exchanged at extremely high speed relative to the speeds that have been achieved .

The organization has carried out all the studies required for the development plans of the nineties on the basis of the complete transformation of the digital systems. Electronic digital exchange equipment started to be manufactured in Egypt by the end of the year 1990. The optical fibre networks between governorates and extensions of the new services are also in the program for the nin^eties.

THE NINTIES' CHALLENGE

The organization is faced with the following challenges in the ninties:

- Maintaining the system's efficiency and excellent performance of the equipment installed during the last few years.

- Keeping the same high rate of increase of the members of digital telephone lines to cover the demand and reduce the back