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6 December 1985

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH, AND DEVELOPMENT

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WORLDWIDE REPORT

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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HONG KONG

CABLE AND WIRELESS-MCI PACT TO BOOST U.S. PHONE CALLS

Hong Kong HONGKONG STANDARD (Supplement) in English 9 Oct 85 p 1

/Article: "Agreement Will Boost US-HK Calls"/

/Text/

CABLE and Wireless has signed an agreement with MCI Communications Corp of the US to provide telephone services between the US and Hongkong beginning in early 1986.

MCI said about 50 million minutes of telephone connections a year currently take place between the US and the territory.

The US end is now being serviced only by American Telegraph and Telephone Co, which has been forced by the US courts to give up its monopoly over long-distance telephone services.

MCI, which is one of the competing long-distance telephone companies in the US, currently serves 33 other countries.

A Cable and Wireless spokeswoman said the accord would have no impact at all on Hongkong subscribers.

The ones who will benefit most are the American subscribers since it would mean having another company servicing their needs.

Cable and Wireless (HK) operates all of Hongkong's international telecommunications services.

It provides overseas telephone service with access available through the local telephone network of the Hongkong Telephone Co.

Overall, Hongkong Telephone handled 5.4 million manually-assisted international calls and 20.9 million IDD (International Direct Dialling) voice calls during the 15 months to March 31, 1985.

Cable and Wireless also offers international channels and telephone calls are switched by stored programme control exchanges in the international telephone switching centres in New Mercury House and Hermes House.

The first international digital telephone exchange for Hongkong was installed in Hermes House in 1983 and went into operation in April 1984.

/12851
CSO: 5550/0025

HONG KONG

JOINT COMPANY FOR SICHUAN TELEPHONE NETWORK

Hong Kong HONGKONG STANDARD in English 18 Sep 85 Supplement p 1

/Article: Sichuan To Get Phone Network"/

/Text/

ONE of the largest and most diversified manufacturing corporations in China, the Xinguang Industrial Products Import and Export Corporation, plans to launch a US$10 - 20 million project to set up a telephone network in Sichuan through a joint venture company to be formed in Hongkong.

The first telephone system to use microwave technology will be set up in Sichuan under the project in a rural district by the end of this year employing the Philips TRT system IRT 1500 now in use in France.

A company will be formed in Hongkong and named Helios Industrial Limited, with 50 - 50 equity holding by Xinguang and its Hongkong partner, Howeton International Limited, which has various business interests in China including hotel projects and manufacturing besides general trading.

The Hongkong company will have an assembling and manufacturing plant set up in Sichuan and another one in Hongkong to test the equipment and components when imported from France in either semi - knocked down (SKD) or completely - knocked down (CKD) condition before shipment to China.

The joint venture contract was signed on Monday by Howeton's chairman, Mr Henry Hung, and Xinguang's deputy chairman and general manager, Mr Zheng Hengkang, who headed a delegation to Hongkong under the direction of the Sichuan provincial govefnor, Mr Jian Minkuan.

Howeton's general manager, Mr Li Sze-lim, told *Business Standard* that the project involves technological transfer to China requiring the approval of COCOM, the body set up by technologically advanced countries in the West to screen exports of high technology to communist countries.

Having the joint venture company in Hongkong offers the flexibility needed to speed up procedures, he added.

Mr Li said that official approval has been obtained for the first set of four microwave stations to be imported to China. It will be installed in Sichuan as a test model.

If found to be satisfactory, full sets of 10 microwave stations will be added, with each set serving 128 subscribers in the rural areas and within a 30 km radius.

The joint venture was advised on technical matters by prof Gan Benfu, general manager of China International Information Corporation in Beijing, and will be assisted in project management by GCC Ltd, Hongkong, a professional services firm headed by Mr Terrence Kwai, who is also a guest lecturer on management at Tsinghua University and Hongkong University.

Mr Kwai said that the microwave system was chosen after careful study because it offered the most economical and efficient service in rural areas

/12851
CSO: 5550/0022

HONG KONG

BRIEFS

INTELPOST PRC LINK--INTELPOST, which offers international facsimile services between Hongkong and 33 other countries, now plans to provide service to China. The product manager of the Government Post Office, Mr Albert Leung, said yesterday Intelpost would connect with Guangzhou later this month. This new service will be competing with Cable and Wirless's bureaufax system which is already operating into China. According to Mr Leung, a document taken to the post office before 2 pm would be delivered in Guangzhou during office hours that same day. The price is expected to be around $35 for a transmission of a sheet of A4 size paper. /Text/ /Hong Kong HONGKONG STANDARD in English 2 Oct 85 p 3/ /12851

CSO: 5550/0023

MICROWAVE TELECOMMUNICATIONS PROGRAM ADVANCES

Kuala Lumpur BUSINESS TIMES 17 Oct 85 p 19

[Article by Vong Nyam Ming]

[Text] TELECOMS is installing a $460 million microwave network which will soon be the new backbone of Malaysian long-link telecommunications.

The five-year turnkey package, in its final major phase, forms part of Telecom's master plan to extend and upgrade domestic and overseas telephone services, to put them on par with the highest standards in international telecommunications.

A telecommunications system is only as strong as its weakest link. And because telecommunications has been a technology-led industry over the past 10 years, the rush of events has pushed much of the old telecommunications equipment into obsolesence.

With the new microwave transmission project, consisting of a mixture of analogue and digital techniques, Telecoms will be overhauling its long-link transmission facilities and installing state-of-the-art transmission equipment to help it meet the explosion in demand.

The main importance of using digital transmission is its compatibility with the philosophy and technology of the Integrated Services Digital Network (ISDN). ISDN is no longer pie-in-the-sky talk. Old World countries like West Germany, the UK and Italy have ordered and installed pilot projects to get ready for ISDN. Malaysia and Singapore both have ISDN pilot schemes under way with Malaysia's scheduled for complete handover by 1987.

The project undertaken by Standard Elektrik Lorenz (SEL) will put in the final link that Malaysia needs for a nationwide reach of ISDN capabilities.

ISDN is based on digital techniques and digital computers and its advantage is that it handles information in binary digits or bits whether the bit stream is converted from voice, computer data, telex or encoded visual information.

Fibre optics

It is also possible to use analogue transmission systems like in Malaysia's present backbone network which connects all the telephone exchanges in the country via microwave transmitters, submarine cables and land coaxial cables but it will require costly analogue/digital conversion and other interface devices. And it will lose the advantages offered by digital transmission: better transmission quality, higher transmission rates with lower error content, reliability, lower cost, compatibility with new opto-electronic techniques made possible by fibre optics.

The most important factor in the new digital transmission system is not that digital microwave will in-

crease capacity *per se* but that it is designed for the new age of ISDN.

ISDN is the future and it is just around the corner, says Mr Wilhelm Mallin, project manager for the SEL contract in Malaysia.

In three years' time, when Malaysia has completed most of its major projects, it will have a telecommunications capability equal to that of any advanced country.

ISDN is a concept that all developed countries have accepted in principle. The question now is how to standardise technical protocols so that one country's system is 100 per cent compatible with another country's.

Standardisation of these technical protocols is scheduled for international ratification by 1987 under the wings of the Consultative Committee of Telephone and Telegraph. (CCITT) in Geneva.

The Malaysian contract is SEL's biggest for a digital microwave transmission and is the most challenging in terms of terrain and geographical conditions.

The contract demands the highest in telecommunication technology, Mr Mallin said.

Problems

Under the terms of the contract, SEL is to install a nationwide network — comprising analogue and digital radio relay stations in Peninsular Malaysia, Sabah and Sarawak.

The new network will add on and replace the old backbone network linking Kuala Lumpur with Singapore, Ipoh, Penang and Kuantan installed by SEL about 20 years ago.

The contract is primarily for the supply, installation and commissioning of the transmission equipment as well as for civil works. In fact, with many of the new radio stations sited in inaccessible jungle civil works take a major slice of the budget.

"We're going through wild territory and conditions that many of our survey engineers have never experienced before.

"In August, one team of our surveyors was lost for four nights in the jungles near Terengganu. Luckily, they found a river which passed by a kampung.

"Also, tropical conditions like the heavy rains and swamps pose problems which require well-engineered solutions. Raindrops can block microwave transmissions if this factor is not taken into consideration in the planning of the transmission path and length of the hop," Mr Mallin said.

SEL will install radio relay transmitters/receivers, optical fibre systems, towers, power stations and build 236 km (146.5 miles) of station access roads and station buildings.

The new backbone network will be managed by a nationwide supervisory control system. Ten to 20 stations will be supervised by an area control and each area control by a regional control. Altogether six regional controls will be connected to the national control centre at Telecoms headquarters.

Installation of the new backbone network started with mapwork eight months ago. Poring over large-scale topographical maps, the microwave survey teams — eight in all — plotted existing transmission routes and worked out the new microwave paths that looked good on paper.

Even though there was a computer, mapwork was tedious — the microwave path engineers sat over a large topo map and ticked off the contours on to a long strip of paper tape. This was fed into a HP processor which ran a computer-aided design (CAD) pack customised by SEL in Germany.

Pioneers

The computer processed the data and sent it to a HP plotter which spat out a graphical representation of the elevations like tall trees and low hills that the microwave path would overpass.

Like other over-the-horizon transmission systems, microwaves suffer from interference by weather effects and are reflected by hills, large buildings and reflective surfaces like swamps and bodies of water.

Survey teams have to check that what is shown on maps corresponds to reality and to do this the SEL microwave path survey teams walk and travel by helicoptor to the elevations they

have tentatively selected for the placement of transmission towers.

"We have to determine that the mapwork in the office corresponds to reality. If you don't doublecheck, and if you trust the map completely, you may find that you have set up a very expensive tower in the wrong place," Mr Klaus Selle, SEL engineer, told *Business Times*.

Then there's the overshoot problem, when a signal from one transmitter interferes with a signal from another transmitter in the distance.

With over 100 antennae just for the backbone network between Kuching and Kota Kinabalu, the survey team that *Business Times* followed to Bintulu was very careful to prevent such eventualities, trekking deep into the jungles when the 4WD could not go or when the helicoptor could not land.

But whatever our discomfort when we trekked into the jungle, we could not help but admire the Survey Department pioneers who had planted the early trigonometrical points on the marked elevations on the topo map. We had helicoptor, 4WD and satelllite receivers. They only had mules and compasses.

/12828
CSO: 5500/4311

PEOPLE'S REPUBLIC OF CHINA

SYSTEM PROBLEMS OF LARGE AREA, MULTILEVEL RADIODISPATCHING NETWORK

Beijing DIANZI JISHU YINGYONG [APPLICATION OF ELECTRONIC TECHNIQUE] in Chinese No 8, 25 Aug 85 pp 22-24

[Article by Sun Zhanfu [1327 0594 1381], Sixth Bureau, Ministry of Electronics Industry: "System Problems of a Large Area, Multilevel, Radiodispatching Network"]

[Text] I. Statement of the Problem

In addition to speed, accuracy and flexibility, dedication is also a special demand of a dispatching network. Although municipal telephone circuits can be used for fixed use dispatching communications system, frequently they cannot satisfy the needs of dispatching, and the user would like to set up a radio-dispatching communications network. If the object of the dispatch is a moving vehicle or ship, it is necessary to use radio. The radio communications networks currently established in China are mostly 1 to N radial or chain networks and the area covered may be large, but the networks are not multilevel and frequently they cannot form lateral communications links. How to set up a large area, multilevel radiodispatching network is a new topic. In such a network, not only can there be vertical dispatch communications, but a communications link can be completed to any address.

In late 1979, to meet the ever increasing demands of truck dispatching, the Beijing Municipal Communications and Transportation Bureau proposed the establishment of a radiodispatching communications network.

The technical demands were:

1. The network should provide for dispatching and business communications between units at three levels.

Level one units are the municipal transport companies, large-scale materials transport companies, business dispatch offices and highway offices; level two units are the motor pools, large scale fleets, business bureau and highway management bureau; level three units are the truck fleets, large shipping points (large consignors, freight yards), highway maintenance teams and key point crews. The level one units are in a dispatch relationship with the level two and three units subordinate to them and the level two units are in a dispatch relationship with the level three units subordinate to them. In

addition to the dispatch relationship, business links can be made between any two users in the network.

Level one units also include bureau agencies which require a total of 20 telephones; the 43 level two units must have radiotelephones installed; there are approximately 150 level three units which may also have radiotelephones installed depending on their communications needs.

2. The network can accommodate some mobile stations for emergencies.

3. The central station is to be placed in a 13-story building in the city and branch stations are to be distributed in 8 near suburban areas and 10 far suburban counties.

It can be seen that what the users want established is a large area, multilevel dispatch communications network and demand that it have random addressability function.

In cooperation with the user, we put a network into operation in 1980. In July 1981 it passed technical appraisal and won scientific and technical achievement awards from the city of Beijing and the Ministry of Electronics. Since going into operation, it has functioned normally, the equipment has been stable, and it has become an important means for dispatch and business links. Some units have also used the technical achievements of this network to set up dispatch communications networks.

This article deals mainly with the system problems of this type of large area, multilevel radiodispatching communications network which has a random addressability function.

II. Network Topology

Network topology is determined by the communications links required by the user. For simplicity, the users in the network are divided into three unit levels each of which has two users and, for dispatching and random addressability communications, the network should have the topology illustrated in Figure 1. Thus, this network has a net structure.

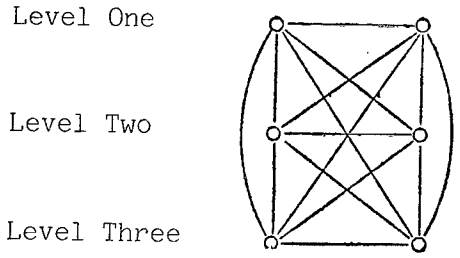

Figure 1. Topological Shape

III. Multichannel Sharing

Since such a communications network has many users, one channel cannot meet the needs and it is necessary to use many channels. For random addressability, it is necessary to adopt a multichannel shared form. Otherwise, in addition to wasting channel resources, there is no way for communications between subsystem users on the subsystem channels.

IV. Duplex Communications

Since the network is used for dispatching, and the central radio station should be linked with a switchboard, it is necessary for a duplex communications format to be adopted. That is, the station should be a duplex station.

V. Network Switching (Control and Continuity) Equipment

The control and continuity equipment commonly used in radio communications networks has single channel selector, multiple channel selector and multichannel automatic switching equipment with switchboards. In this equipment, the multichannel selector and the multichannel automatic switching equipment with switchboards can carry out the random addressing functions demanded by the user. However, dispatching communications networks require protecting the priority rights of the dispatching telephone and other voice communications should yield. Furthermore, multitask dispatch telephone itself is also divided into priority levels which also demand flexibility and cannot be viewed only as telephone numbers, ignoring the importance of the content of the communications and the seriousness and urgency required. Multichannel selectors and multichannel automatic switching equipment with switchboards cannot be divided into these priority levels and when the number of telephones at the main station number is equal to the number of channels, frequently they are not enough, thus the situation is not ideal. We feel that using a manual switchboard and multichannel manual switching of dispatch type selectors is more suitable. Because the telephone operator operating the switchboard and the dispatch type selector for switching continuity, at the same time the operator can assign priority rights on a rational basis to the dispatch telephone and the emergency telephone. The equipment for this method is simple and reliable, the users need not memorize telephone numbers, but need only give the operator the name of the party being called and on the basis of the user's channel sub-station number or line telephone number, the operator can complete the circuit link with a three-step operation. The number of switchboard telephones can be based on the several tens of upper echelon user telephones that will have to be connected for ease of use.

So that each channel can share a selector for the needs of the telephone operator and the signal switching control, a communications controller has also been added.

VI. Network Configuration

Based on the above described principles, we can diagram the central station and branch station configuration illustrated in Figure 2 and 3.

Key:

a. Antenna splitter
b. Station
c. Communications controller
d. Selector (caller)
e. User telephones

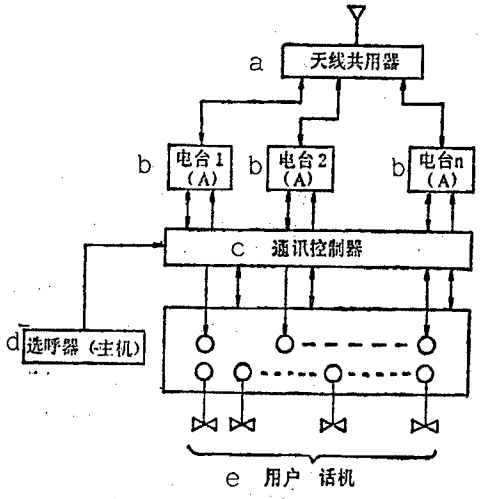

Figure 2. Diagram of Central Station System

Key:

a. Station
b. Sending control
c. Voice
d. Caller (extension)

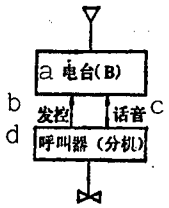

Figure 3. Diagram of Substation System

We should explain the communications controller in Figure 2. Its functions are:

1. 2-4 line conversion: The station is a 4-line system, the switchboard is a 2-line system. When the central station is using several stations, there should be several 2-4 line converters. The 2-line terminal of each 2-4 line converter is connected to the switchboard's relay (or voice circuit) jack. This jack immediately becomes a radio channel jack and the 4-line terminal is connected to a station's YC-14 socket.

2. Transmitter control: When the operator plugs the cord into the channel jack, the communications controller transmits a transmitter control signal at 0 level to the station and also leads to the YC-14 socket which makes the transmitter work.

3. Shared channel turnover and selection control: Several toggle keys corresponding to the several channels are installed. When the toggle key is pushed up, the station's output and input are connected and two substations on the same channel can communicate and carry out shared channel turnover. When the toggle key is pushed down, the selector can connect with the channel to transmit the substation number and proceed with calling.

4. Bell control: When a radio substation calling signal is received, it should be connected through the switchboard bell circuit to notify the telephone operator.

5. Radio call display: When a radio substation calling signal is received, it also should make the radio incoming call lamp light up so that the telephone operator can determine the channel in use.

6. Substation calling signal demodulation: To carry out the two functions described in 4 and 5 above, each channel should have a substation calling sound modem. Because the dispatch communications network substation calling signals are identical (a single tone sounded continuously for several hundred milliseconds), the channel modems are identical.

7. After the telephone operator plugs the cord circuit into the channel jack, that channel's radio call lamp goes out, and the bell circuit is disconnected.

The substations in the system can install fixed stations or mobile stations for use on trucks.

VII. Central Station Antenna System

The central antenna system can take two forms.

1. Multichannel shared antenna

This requires an antenna splitting device and an omnidirectional antenna or an omnidirectional high gain antenna, determined by communication results. For a large area communications network, it is more appropriate to use an omnidirectional high gain antenna.

2. A separate antenna for each channel

The cost of setting up a separate antenna for each channel is low, but separation between channels is low. Tests show that when station selectivity is good, as long as there is a certain space between antennas, mutual interference between channels can be eliminated. The separately installed antennas can be omnidirectional or omnidirectional high gain antennas and they can also be fixed direction antennas. In systems which have several channels, each directional antenna should be able to cover a fan-shaped radio zone of 360°/n.

VIII. Channel Allocation

First of all, when allocating channels, the working channels of each station of the central station is determined, then the channels to be used by each user substation are determined. When the average volume of telephone business of each substation is basically equivalent, the number of substations which each channel can handle is m/n, where m is the total number of substations. When the central station uses a directional antenna (such as a Yagi antenna), in principle, the substations within each fan-shaped radio zone use the same channel.

IX. Brief Description of System Operating Principles

1. Wired user as caller

The calling user tells the operator the name of the user being called. If the user being called is a radio substation, the operator pushes the corresponding channel conversion control toggle key down, connecting the selector to that channel and calling the substation being called, connects the cord to the caller's telephone jack and the corresponding station channel jack on the switchboard, and they can communicate.

If the user being called is another wired user, then the operator calls the user being called with the bell operator, the cord links the jacks of the two user telephones, and they can communicate.

2. Radio substation as caller

The substation user uses a caller to send a calling signal, in the central station communications control equipment, the corresponding channel's substation calling signal modem demodulates the calling signal, the incoming radio call lamp on the appropriate channel lights up, the switchboard rings, the telephone operator determines the channel by the incoming radio call lamp, plugs one end of the cord into that channel's jack and asks for the name of the person being called. If a wired extension is being called, then after the extension is called, the other end of the cord is plugged into the jack of the wired extension being called and they can communicate.

If the user being called is another channel substation, then the caller is operated, and the substation being called is called up, the cord circuit is linked to the two channels' jacks, and different frequency turnover communications can proceed.

If the called substation and the calling substation are on the same channel, after the substation being called is called up, the turnover toggle key is pushed up and shared frequency turnover communication can proceed. In shared frequency turnover, it is best if both parties work in half duplex, otherwise, there are some inconveniences (there is feedback). If there are idle channels, after the substation called is called up, the idle channel can be used temporarily for different frequency turnover communication. After the circuit is broken, the called substation waits for the original channel.

3. Forced interruption

When the operator learns that the dispatcher must carry out dispatch communications or the user has important business and must be connected immediately, if all the channels are busy, depending on the situation, the operator can disconnect the telephone link cord of a non-dispatch communication or non-important communication, tell both parties to stop communications and yield the channel to a user with a higher priority.

X. Combined Long-Distance Data Communication and Telephone Network

This network not only can carry voice, but also can transmit data. With a rationally configured modem and computer, it can become a combined data communication and telephone network, as illustrated in Figure 4. The actual conditions are:

1. When the receiving field intensity has a definite overmeasure, ultrashort wave channels can be processed approximately as constant channel and can transmit data very well.

2. The switching continuity modes of data transmission are extremely simple. First a telephone is used to make connection, then the operator connects the cord circuit to the computer jack or the radio channel jack on the switchboard and the central station computer and substation computer are connected. The cord circuit can also be connected to two radio channel jacks to connect two substation computers. It can be seen that data communication is randomly addressable.

3. The required ultrashort wave channel modem has already been started. Since it is transmission on a radio telephone circuit, it is low speed, generally below 600 baud is suitable.

4. The substation adds a YC-14 socket to the caller to connect with another YC-14 socket so that transmitter and receiver and the modem can be connected at the same time.

Key:

a. Antenna splitter
b. Station
c. Communications control
d. Selector (caller)
e. Manual shared switchboard
f. Computer system

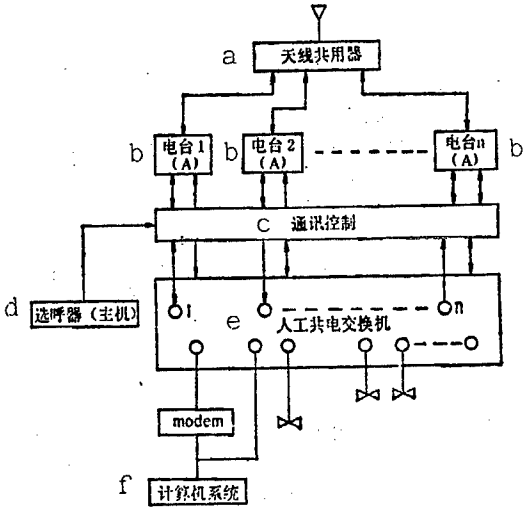

Figure 4. Diagram of Combined Radiotelephone and Data Transmission Network

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CSO: 5500/4131

PEOPLE'S REPUBLIC OF CHINA

SHANDONG MEETING MARKS RADIO STATION'S ANNIVERSARY

SK270446 Jinan Shandong Provincial Service in Mandarin 2300 GMT 26 Oct 85

[Excerpts] On the morning of 26 October, the Shandong People's Radio Station held a meeting at the auditorium of the Shandong Namjiao Guesthouse to warmly celebrate its 35th founding anniversary.

Attending the celebration meeting were Jiang Chunyun, deputy secretary of the Shandong Provincial CPC Committee; Yang Xingfu, Standing Committee member of the provincial CPC Committee; Li Zhen, chairman of the provincial People's Congress Standing Committee; Ma Shizhong, Lu Hong, and Ma Lianli, vice governors; Li Zichao, chairman of the provincial CPPCC Committee; Zhai Yongbo, deputy secretary of the Jinan City CPC Committee; (Zhu Youjing) and (Ji Xuemeng), deputy directors of the Propaganda Department of the provincial CPC Committee; and responsible comrades of the relevant provincial-level departments.

Some leading comrades wrote inscriptions for the Shandong People's Radio Station to mark its 35th founding anniversary.

The inscription of Liang Buting, secretary of the Shandong Provincial CPC Committee, reads: The whole party pays attention to running the radio station well.

The celebration meeting was presided over by Jin Zhao, director of the Shandong Provincial Radio and Television Department. (Chen Yuchun), director of the Shandong People's Radio Station, introduced the situation the past 35 years since the founding of the radio station.

/9274
CSO: 5500/4134

PEOPLE'S REPUBLIC OF CHINA

NEW DEVICE TAKES CHINESE INTO COMPUTER AGE

Hong Kong HONGKONG STANDARD in English 10 Oct 85 p 2

/Article: "Device Takes Chinese Into Computer Age"/

/Text/

AN INNOVATIVE input device by a Shenzhen University researcher may dismiss popular belief that Chinese characters are inferior to the alphabet in terms of computer applications.

With the "numeric stroke encoding method," a Chinese character can be input with an average of two strokes on the keyboard. The 1,000-plus characters which appear the most often can be input with only one stroke. Spacing is not needed.

The idea of inventing a simple Chinese character input system first came to the mind of Professor Li Jinkai 25 years ago, when he was asked to devise a system to help foreigners, mostly Russians, to use Chinese dictionaries.

The system uses both phonetic and graphic aspects of Chinese characters.

Based on Mandarin, all the characters are made up of 59 sound segments, of which 21 are consonants and 38 vowels. These sound segments are represented on the keyboard by 30 buttons, with the help of the "shift" switch for changing to the normal English keyboard.

According to the graphic strokes of the characters, Prof Li has reduced the characters into eight basic elements, which are encoded as 0 to 7 on the keyboard.

By combining phonetic and graphic codes, two strokes are normally enough to encode a character.

Simple guidance also appears on the screen to help the typist. Unlike traditional Chinese typewriters, the operator can manage the system without intensive training.

"The system has been tried out in the Xinhua News Agency. It is expected that an average operator can reach 60 characters a minute, while more skilled operators can type over 100," said Prof Li, who also serves as the fellow chairman of the China Information Research Institute.

The input device is good for all languages. Russian, Arabic, Japanese as well as Greek have already been adapted into the system.

The software of the programme is compatible with normal IBM personal computers, but there are plans to get it adopted for other computer systems also.

Prof Li earlier this year received a patent for the programme from the London Patent Office which he on Monday transferred to a Hongkong-based computer company, the Broadmind Ltd.

"We need the back-up of software and communication technology from Hongkong," he said.

Broadmind's technical manager, Mr Vicent Cheung, put the future market price

of the programme at "a few hundred US dollars."

The potential markets for the programme, he said, are the Mainland, Southeast Asia, Taiwan and Hongkong. Both the soft and hardware of the programme are made locally.

The next plan for Professor Li is to modify the system for other Chinese dialects, such as Cantonese.

/12851
CSO: 5550/0026

PEOPLE'S REPUBLIC OF CHINA

GUANGZHOU-SHANTOU MICROWAVE PROJECT EXPANDED

HK181106 Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 17 Sep 85

[Text] According to a report of the Shantou City Television Station and a reporter of the Shantou People's Broadcasting Station, the Guangdong Provincial Broadcasting and Television Department held a meeting today in Shantou City on the completion, checking, and acceptance of the expanded Guangzhou-Shantou microwave project. At the meeting, the check on and acceptance of the project was adopted.

The Guangzhou-Shantou microwave line was put into operation in October 1982. As the capacity was small at that time, only one television program and two broadcasting programs could be transmitted from Guangzhou to Shantou. The completion of the expanded Guangzhou-Shantou microwave project will allow two television programs and six broadcasting programs to be transmitted from Guangzhou to eastern Guangdong and one television program and three broadcasting programs to be transmitted from Shantou to Guangzhou. With the completion of this expanded microwave project, favorable conditions will be provided for the development of the broadcasting and television cause in eastern Guangdong.

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CSO: 5500/4134

PEOPLE'S REPUBLIC OF CHINA

GUIZHOU INSTALLS NEW GROUND SATELLITE STATIONS

HK021343 Guiyang Guizhou Provincial Service in Mandarin 2300 GMT 29 Sep 85

[Text] In this province, four ground satellite television receiving stations have been installed and put into operation. The equipment of three of these four stations was given by the State Council as a gift to this province; and the equipment of the other station was given as a gift by the China Zhenhua Electronics Industrial Corporation. The three sets of equipment given by the State Council were produced by the 23d Institute of the Second Bureau of the Ministry of Aeronautics Industry and were installed respectively in transmission station No 794 in Liuzhi, the television transmission station in Qianxinan Buyi and Miao Nationality Autonomous Prefecture, and the television transmission station in Weining Yi-Hui-Miao Nationality Autonomous County. They were put into operation respectively on 25 and 30 August and 10 September.

These satellite television receiving stations have greatly improved the television reception results in the western and southwest parts of this province. The people of all nationalities in these areas can thus clearly receive central television station programs about the CPC national delegate conference and other television programs. The equipment given by the China Zhenhua Electronics Industrial Corporation was installed in transmission station No 751 run by the provincial broadcast and television department. The installation project was completed on 25 September. Provincial Vice Governor Xu Caidong and responsible people of the provincial scientific and technological commission, the provincial office for national defense industry, and the provincial broadcast and television department came to station No 751 to see the reception of television programs via the ground satellite station.

Provincial Vice Governor Xu Caidong praised the product of Zhenhua Corporation--a 6-meter-antenna ground satellite station for receiving television programs--as a major technological breakthrough. The comrades from Zhenhua Corporation said that they will make further efforts to develop new products with the support of the provincial government and other units concerned so as to make more contributions to the four modernizations.

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CSO: 5500/4134

PEOPLE'S REPUBLIC OF CHINA

PRC BEAMS CENTRAL TV TELECAST VIA SATELLITE

OW030419 Beijing XINHUA Domestic Service in Chinese 1428 GMT 1 Nov 85

[By Reporter Ma Ting]

[Text] Beijing, 1 Nov (XINHUA)--As of 1 November, China has started to use PRC-made TV transmission equipment to directly transmit telecasts to all parts of the country from Beijing via the international communications satellite.

At 0800 hours Beijing time on 1 November, the Central Domestic Satellite Communication Station in the suburbs of Beijing began to directly transmit the telecast of the Central TV Station's program No 1 to the international communication satellite over the Indian Ocean so that the corresponding TV ground stations in all localities could receive it. Prior to this, the telecast of the Central TV Station had to be first transmitted to Shanghai via microwave link, and then the ground station at Hongqiao would relay the telecast to the satellite. Directly beaming the telecast to the satellite can remarkably imrpove the visual reception of the telecast by ground stations.

It is also reported by the Central Domestic Satellite Communication Station in Beijing will open domestic telegraph, telephone, and meteorological broadcasting services in some places in the country via satellite before the end of this year.

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PEOPLE'S REPUBLIC OF CHINA

MORE SATELLITE GROUND STATIONS PLANNED

OW091904 Beijing XINHUA in English 1533 GMT 9 Oct 85

[Text] Beijing, 9 Oct (XINHUA)--China is to build some 1,000 satellite ground stations next year in a bid to enlarge its television range, electronics industry official Li Xianglin disclosed here today.

Speaking at a national conference on boosting China's television broadcasting, Li said that participants from all over the country had signed contracts with the astronautics and electronics ministries on the purchase of 207 ground stations. Negotiations were under way on the purchase of 994 such stations next year.

From May to September this year, China built 53 receiving stations in 16 provinces and autonomous regions including Tibet, Xinjiang, Ningxia, Qinghai, Gansu, Quizhou and Shaanxi.

Li said that the successful building of these stations in such a short time proved that China had made enormous progress in advanced technology over the past few years. At the same time, it proved the correctness of the central government's decision to rent a transmitter satellite from the international telecommunications satellite organization (INTELSAT) as a temporary measure to expand China's TV broadcasting range before its own communications satellite system becomes operational.

The manufacture of the equipment for these stations was funded by the central government, Li said. From now on, all provinces, municipalities and autonomous regions should raise their own funds to buy such stations, he added.

He urged that more ground stations be set up in remote and poor regions, especially places where people cannot receive television. TV transmission reaches 62 percent of China's territory at present, but signals are badly received in many parts.

While building more stations, Li went on, great efforts should be made in the maintenance of the existing ones. The 53 ground stations were manufactured by the Ministries of Astronautics, Electronics, and Posts and Telecommunications.

China launched its first communications satellite in April 1984. It is being used for communications experiments at present, although experimental transmissions of TV programs have also been carried out.

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CSO: 5500/4133

PEOPLE'S REPUBLIC OF CHINA

MORE ON IMPROVING BEIJING TELEPHONE SERVICES

HK160756 Beijing CHINA DAILY in English 16 Oct 85 p 3

[By staff reporter Wu Jingshu]

[Text] Beijing callers can look forward to a marked improvement in the city's "exasperating" telephone service as 44,000 new phone lines go into service by the end of the year.

Director of the capital's Telecommunications Administration, Yang Baokun, told reporters on Monday that it was speeding up the installation of French and Belgian digital exchanges, which can handle a total of 120,000 lines. More than one-third of these exchanges are expected to go into service this year.

By 1987 when all their new exchanges are installed, Beijing's telephone facilities will be increased to more than twice the 1949 capacity. This three-year expansion programme involves an investment of 330 million yuan--one and a half times the 220 million yuan the country invested in the city's telephone service in the previous 35 years.

While this expansion is under way, the city has embarked on another ambitious programme to introduce a further 300,000 telephones lines and accompanying exchanges by 1990, the capital is expected to have more than half a million telephones serving urban and suburban residents, compared with the present 130,000.

"This, however, still lags far behind other modern cities in the world," Yang said. "Beijing has a long way to go to catch up with the 7 million phones in Tokyo, 3 million in Moscow and more than 1 million in Hong Kong.

Faced with increasing demands for more lines and a better telephone service. Beijing is trying to develop its telephone network rapidly. However, this task is hampered by a marked shortage of funds, Yang said.

The city's Telecommunications Administration has a long waiting list of applicants for new phones. Some people have been waiting for 16 years. Despite the pace of expansion, the number of new applicants continues to soar. Last year the total was 38,000, but by this month it had increased to 55,000 and

is expected to exceed 60,000 next year, even after taking the new installations into account, Yang said.

In order to tackle the problem, the State has authorized the administration to seek financial assistance from local communities who are able to invest in the city's telephone development, Yang told reporters.

Contributions can be made by paying installation fees for normal dial phones, ranging from 400 yuan for personal to 1,500 yuan for business telephones, or 500 yuan for personal to 2,500 yuan for business phones of the digital types, he said. By making a down payment customers are guaranteed a telephone within a year.

The administration is also raising funds in the [word indistinct] of co-investment in developing new exchanges, such as the Nm. 50 Exchange in east Beijing's Hujialou Street. Built with an investment of 27 million yuan, mainly contributed by the city's tourist department, the new exchange caters chiefly to the new hotels in the area.

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CSO: 5500/4133

PEOPLE'S REPUBLIC OF CHINA

STEPS TAKEN TO IMPROVE BEIJING TELEPHONE SERVICES

OW161800 Beijing XINHUA in English 1515 GMT 16 Oct 85

[Text] Beijing, 16 Oct (XINHUA)--Beijing's telephone lines will reach 260,000 in three years, double the figure in 1984, according to the city's Telecommunications Management Bureau today.

Yang Baokun, director of the bureau, told XINHUA that 120,000 telephone lines will be added to the existing 140,000 by the end of 1987, and 15 new telephone exchanges will go into operation by the end of next year.

There is now an average of five telephones for every 100 Beijing urban residents.

To tackle the telephone scarcity, the city has recently decided to import computercontrolled switchboards with handling capacity of 100,000 telephones, from a French company, he added.

The official also noted that his bureau will raise funds to improve telephone systems by way of joint investment with subscribers and charging for installation fees.

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CSO: 5500/4133

PEOPLE'S REPUBLIC OF CHINA

SHENZHEN JOINT VENTURE TELEPHONE AGREEMENT HITS SNAGS

HK300601 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS SUPPLEMENT) in English 30 Oct 85 p 5

[By Paul Baran]

[Text] China Telecom Systems [CTS] (HK) Ltd's joint venture agreement with the Shenzhen authorities to develop a cellular telephone network in the zone has run into snags.

CTS General Manager Peter Hutton said yesterday the deal has been put on hold until Beijing decides which frequency to use for the system. "We use one (frequency) in Hong Kong, and they might want to use another," Mr Hutton said. "Using a third remains a possibility."

Until the frequency problem is solved, Mr Hutton said CTS's year-old plan to set up a similar service along the Hong Kong to Guangzhou highway and in the provincial capital itself is also on ice.

Cellular radio provides uncrowded radio channels for the portable telephone user through computerised frequency switching.

CTS had been negotiating with the Guangdong Posts and Telecommunications Bureau over the highway radio proposal.

The company had hoped by now to have completed a feasibility study on the proposal, with an aim to install the Guangzhou system by the end of this year.

Mr Hutton said Beijing--which after years of neglect has made the upgrading of telecommunications a high priority--is now facing tough decisions on frequencies.

Now that the officials have decided the radio spectrum "is part of the national resources," he said, they have had to come up with regulations governing the bands available.

CTS is a joint venture among Beijing-backed China Resources Ltd, Onwel Electronics, U.S.-based Millicom and Comvik, a Swedish communications company.

Other locally-based communications companies aiming at the potentially lucrative China Market are Hutchison Radio Telephone and Communications Services Ltd, a subsidiary of Hong Kong Telephone Co Ltd.

These firms are also facing competition from American and Canadian telecommunications firms, many of which have set up regional sales offices here.

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PEOPLE'S REPUBLIC OF CHINA

BRIEFS

NEW COMMUNICATIONS SYSTEM INSTALLED IN SHANGHAI--Beijing, 14 Oct (XINHUA)--A 30-kilometer optical fiber communications system developed by the Chinese has been installed in Shanghai, China's leading industrial city. This is the longest fiber link in China and can transmit not only multiple color television pictures but also digital data and voice signals, stereo radio programs, and freeze-frame pictures. Developed by the No 23 Research Institute under the Ministry of Electronics Industry, the optical fiber communications system has met the designed technical requirements under a three-month trial. [Text] [Beijing XINHUA in English 0702 GMT 14 Oct 85 OW] /9274

SATELLITE TV RECEIVING STATIONS BEGIN OPERATION--Beijing, 2 Nov (XINHUA)--A total of 53 satellite television receiving stations officially went into operation last Friday, according to the Ministry of Radio and Television. The stations were installed in remote areas in 16 provinces and autonomous regions. Through relay by an international telecommunications satellite, the new stations enable people in Inner Mongolia, Xinjiang, Heilongjiang, Yunnan and Quizhou to receive the programs of the China Central Television Station. [Text] [Beijing XINHUA in English 1537 GMT 2 Nov 85 OW] /9274

COMPUTER CONTROLLED TELEPHONE NETWORK OPERATING--Changsha, 3 Oct (XINHUA)--China's first microcomputer controlled subscriber loop switching system has been put into trial operation in the telephone network in Hengyang, an industrial city in central China. The system has worked well since 28 May and improved communications between the east and west parts of the city on the Xiangjiang River. The system includes a central office terminal and a remote terminal, which links the users. With this system 96 users may share 28 user lines as trunk lines. The system is jointly developed by the Hunan Provincial Research Institute of Posts and Telecommunications and the provincial computer center. Telephone shortage is keenly felt throughout China. The Ministry of Posts and Telecommunications has decided to introduce loop switching systems and other new equipment to enlarge China's telephone networks. [Text] [Beijing XINHUA in English 1535 GMT 3 Oct 85 OW] /9274

SICHUAN TELEVISION RECEIVING STATION--The installation and testing of the Kangding satellite television receiving station in Garze Autonomous Prefecture began on 6 September. After 5 days' hard work, it could receive at 2104 on 10 September, a color television program of the Central Television Station, relayed by a satellite over the Indian Ocean. [Summary] [Chengdu Sichuan Provincial Service in Mandarin 0030 GMT 14 Sep 85 HK] /9274

XINJIANG LEADERS INSPECT RADIO, TV RELAY STATION--This morning, Comrade Wang Enmao, Wlvail Amat, Tomur Dawamat, Qi Guo, Li Jiayu, Janabil, Wang Zhenwen, Fu Wen, and other regional party and government leaders inspected the Urumqi mountain top radio and television relay station affiliated with the Xinjiang Regional Radio and Television Department. This relay station, built on the top of (Diaomo Shan) with an elevation of 1,255 meters, serves as the region's radio and television transmission center. At present, the television broadcasting section of the first phase of this relay station project has been basically completed. Linked to the ground satellite receiving station, the relay station is now engaging in a test transmission, relaying program No 1 of the Central Television Station on 12 frequency channels. [Excerpt] [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 28 Sep 85 HK] /9274

SHAANXI CLAIMS PROGRESS IN POSTS, TELECOMMUNICATIONS--In the 36 years since the founding of the country, postal services and telecommunications in the province have developed very significantly. A telecommunications network with Xian as its center, covering the whole province and connected with the rest of the country, is now in existence. The total number of post offices, telecommunications offices, postal stations, and telecommunications stations in the province is more than 1,590 and there are more than 156 postal agencies in the rural areas. There are 2.78 million telephones in the rural areas. Urban telephone service is also developing rapidly. At present, direct long distance calls are possible between 10 of the province's cities and prefectures and the country's major cities and between these cities and prefectures and 46 countries and regions. [Text] [Xian Shaanxi Provincial Service in Mandarin 1130 GMT 1 Oct 85 HK] /9274

GROUND SATELLITE RECEIVING STATION COMPLETED IN XIZANG--The Nyingchi ground satellite receiving station was completed and put into operation on 28 September in (Baiyi) town, Nyingchi County. It has now officially relayed television programs broadcast by the central television station. The equipment of the ground satellite station was presented by the State Council and the Ministry of Space Industry and installed with the assistance of the Shanghai Postal and Telecommunications Research Institute No 1 under the Ministry of Posts and Telecommunications and Xian's Plant No 503. [Excerpt] [Lhasa Xizang Regional Service in Mandarin 1130 GMT 3 Oct 85 HK] /9274

LANZHOU MUSEUM EXHIBITS SATELLITES--The opening ceremony of the exhibition of China's artificial earth satellites was held in the provincial museum yesterday afternoon [8 October]. Huang Luobin, chairman of the Advisory Commission of the provincial CPC Committee cut the ribbon at the opening ceremony. Pictures and films of the artificial satellites were shown at the exhibition. The Dongfanghong No 1 satellite, launched in 1970 as China's

first satellite, was on exhibit. Also on exhibit were experimental satellite No 1, a scientific experiment satellite, the model of an experimental communications satellite, and China's other artificial satellites. [Text] [Lanzhou Gansu Provincial Service in Mandarin 2300 GMT 8 Oct 85 HK] /9274

CSO: 5500/4134

VIETNAM RECEIVES RUSSIAN CHANNEL VIA SATELLITE FROM USSR

HK081010 Hong Kong AFP in English 0946 GMT 8 Nov 85

[Article by Laurent Maillard]

[Text] Hanoi, 8 Nov (AFP)--A new color television channel carrying only Russian-language programs beamed via satellite from Moscow is proving a big hit with Vietnamese hungry for sports and foreign films.

The channel, which for the moment can reach only viewers in the capital, was created "in response to the demand expressed by the Soviet community in Vietnam and at the wish of the youth and the people," a Vietnamese official said.

The official of the National Radio and Television Committee said the channel, formally inaugurated on Monday, was started up six months ago on an experimental basis.

"Channel 9" carries news, variety shows, Soviet films or foreign movies dubbed in Russian, and a lot of sports.

Hanoi football fans can tune in to most major European matches, including the European Cup. Sighs of relief were heard when the Soviet Union qualified for the World Cup finals, assuring broadcast of the matches here.

Foreign and particularly French films, even dubbed in Russian, are a favorite here, with works ranging from "The Lady of the Camelias" to the "Three Musketeers" or a biography of Mozart.

Viewers here are virtually unanimous in judging Channel 9's programs more interesting and more varied than their Vietnamese counterparts.

The Russian fare also lasts a lot longer: Seven hours from 4 p.m. to 11 p.m. and all day on weekends as compared with a maximum of three hours of broadcasts on the Vietnamese channel from 7 p.m. to 9:30 or 10 p.m.

The black-and-white programs on the Vietnamese side also are no match for Channel 9's color which can be received by specially equipped sets. The number of such sets is still somewhat low, but appears to be increasing rapidly in recent months.

The language is no barrier to viewing enjoyment, Hanoi residents say. "There are no problems for the sports and for the rest we can always understand the basics," said one fan.

"Above all, we rarely have trouble finding someone who understands Russian and can describe what's going on to the others," he said.

The small number of sets and crowded housing conditions mean that viewing is usually a family affair with a couple of neighbors also hanging around the set.

The programming for Channel 9 is done in Moscow and beamed by satellite to Vientiane, Kabul and Mongolia as well as Hanoi, a Vietnamese official here said.

The satellite link has for years allowed around-the-clock reception of Soviet television within a short radius around Moscow's Embassy here which has an earth receiving station and a small retransmitter.

Channel 9 has a more powerful transmitter which allows for good reception within a radius of about 20 kilometers (12.5 miles) around the capital. Moscow has paid for it as well as all the other material used by the channel, reliable sources said.

Vietnamese officials hope to expand reception of Channel 9 to all the plains regions in the north thanks to an even more powerful Czechoslovak transmitter.

The eventual goal is to reach from China in the north to Ho Chi Minh City in the south, where there is an earth receiving station but no transmitter.

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CSO: 5500/4310

MITEL LOSSES, TALKS WITH WANG, CHAIRMAN'S VENTURES REPORTED

Second Quarter Loss

Toronto THE SATURDAY STAR in English 28 Sep 85 p D3

[Article by George Brett, Toronto STAR]

[Text] Mitel Corp., whose proposed takeover by British Telecom PLC awaits a decision by a British regulatory body, has turned in another disappointing financial report.

The Kanata-based company, which makes automatic switches for controlling voice and data lines within companies and government organizations, yesterday reported a loss in the second quarter ended Aug. 23 of $16.4 million, or 47 cents a share (including an extraordinary loss of $5.1 million, or 14 cents, related to plant consolidations), compared with a loss of $10 million, or 28 cents a share, a year earlier.

Revenue rose to $104.1 million from $93.5 million.

The loss for the first half of Mitel's fiscal year, including the extraordinary item, totaled $31.7 million, or 90 cents a share, compared with a year-earlier loss of $27.8 million, or 79 cents.

"Results for the second quarter were clearly disappointing," said president Terry Matthews in a statement.

"The semiconductor industry continues to falter under its worst recession in history, with a resulting downturn in Mitel semiconductor sales.

"In addition, reduced product profit margins were caused by the introduction to volume production of the SX-200 generic 1000 and the SX-2000 MS-2001 (automatic switches). Product profit margins were further reduced by increased price competition in the United States."

High-tech analyst Graeme Kirkland said of yesterday's results: "Poor Mitel has been promising to improve its earnings for some time, but has yet to deliver the goods."

He said the company will be in difficulty "if it doesn't consummate its deal with British Telecom," which would add $320 million to company coffers.

Kirkland, editor of the Canadian Technology Investment Letter, said Mitel "doesn't have the financial resources to stand this sort of drain for long."

The deal, which has been approved by Mitel shareholders, hinges on a ruling by Britain's Monopolies and Mergers Commission, expected next March.

"So spring becomes critical," Kirkland said. "Either the deal is done, or I think Mitel is in serious trouble."

Possible Venture With Wang

Windsor THE WINDSOR STAR in English 15 Oct 85 p D16

[Text] KANATA, Ont. (CP) — Mitel Corp. of Kanata is negotiating with Wang Canada Inc. for a joint venture that could finally lead to the opening of Mitel's mothballed electronics plant at Buctouche, N.B., company officials confirmed at the weekend.

If they are successful, the talks would lead to creation of a new company to own and operate the Buctouche facility. Total investment could be $25 million, with Mitel's $10-million share being in the unfinished plant itself, a Mitel spokesman said.

The facility in southeastern New Brunswick has never operated despite much hype over its construction when it was announced in 1981. Hundreds of jobs were to be created in an area of high unemployment.

BUT SHORTLY after making the announcement, which committed Mitel and the federal and provincial governments to spend more than $14 million building two plants, Mitel got into financial trouble and everything was put on hold.

Construction was halted in 1983 with about 85 per cent of the work completed and the plant never operated.

The proposed Mitel-Wang deal would have the Buctouche plant produce printed circuit boards, the building blocks of computers and telecommunications equipment.

THE PROJECT, to be financed with help from outside investors, could be in operation in 1986 and would initially employ at least 75 workers, a Mitel spokesman said.

The deal with Wang was reached as final arrangements for sale of the majority of Mitel stock to the giant British Telecom await approval by the British Mergers and Monopolies Board and by Investment Canada. Mitel chairman Michael Cowpland said he has consulted BT about the Wang agreement, and the British firm expressed approval in principle.

THE MITEL spokesman said it could be until March 1986 before the British review of the Mitel takeover is completed, and that final approval by BT of the Buctouche deal would have to awat final agreement between Mitel, Wang and whatever outside investor is found.

Cowpland said meetings to work out details of the deal have been held with Wang Canada president Ray Harrison and with Wang Laboratories chairman An Wang.

Chairman Cowpland's New Ventures

Ottawa THE CITIZEN in English 2 Oct 85 p F11

[Article by Greg Barr]

[Text] Ever the entrepreneur, Michael Cowpland is dabbling again.

The Citizen has learned that Cowpland, chairman of Mitel Corp. of Kanata, is the prime financial backer of a new private Ottawa company that hopes to have production models of its laser printer on the market in November.

In addition, Cowpland is still proceeding with the creation of a Mitel spin-off subsidiary that would market a version of the company's SX-2000 telephone switching system for markets in non-urban areas and lesser-developed countries, though one of its proposed financing options was turned down by the federal government last week.

Cowpland's private venture, dubbed Corel Systems, will officially open for business Nov. 1 when the company moves into leased office space in the Churchill Office Park on Carling Avenue near the Queensway.

In an interview Tuesday, Cowpland said Corel will attempt to replace existing printers used by North American customers of leading word processing firms AES Data Inc. and Micom Co. of Montreal, with its high-quality laser printer.

Although laser printers are more expensive than other printers used in office automation systems, they offer vastly superior quality, can produce graphics and spreadsheets, and are quieter than daisy-wheel or ribbon printers.

Several companies, including Apple Canada Inc. and Hewlett-Packard (Canada) Ltd., both of Toronto, have recently introduced laser printers into a market some estimate will be worth $100 million in Canada by 1990.

Cowpland has been involved in a number of start-up enterprises with mixed results, initially through Bytec Management Corp. Among his earlier ventures were the Hyperion microcomputer, plus investments in companies such as Data Images Inc., Kombi Corp. and Nabu Manufacturing Corp.

Still, Cowpland is confident that Corel will be successful because it intends to beat the existing competitors on performance and price. While the Apple Laserwriter costs about $11,000 and the H-P Laserjet $5,000, Cowpland says Corel has set an inital price of under $5,000.

Next year, Corel intends to package its laser printer, to be assembled at JPS Engineering Ltd. of Toronto, with an IBM PC-XT or PC-AT for under $10,000.

"This takes the productivity of the personal computer into the next phase," said Cowpland. "It would have a tremendous effect on in-house publishing."

Cowpland's partners in the Corel project are Peter Wrage, vice-president of marketing, and Les Horn, vice-president of research. Financing details were not revealed.

Horn was previously involved with Advanced Circuit Systems Ltd. of Kanata and is a former vice-president with Targa Electronic Systems Corp. of Ottawa.

Wrage said Corel will source the laser printer's "engine" from Ricoh, a Japanese electronics firm, and will make the associated equipment for the machine at JPS of Toronto.

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CSO: 5520/55

DY-4 DYNASTY LAN TECHNOLOGY UP FOR SALE

Ottawa THE CITIZEN in English 27 Sep 85 p B11

[Article by Greg Barr]

[Text] Dy-4 Systems Inc. of Ottawa has hung a "for sale" sign on its Dynasty local area network technology.

Although company officials say they will maintain their existing base of about 150 customer installations, Dy-4 has gradually stopped marketing the Dynasty LAN since the beginning of this year and has decided to sell the technology at "a price to be negotiated."

Local area networks, or LANs, tie clusters of computer terminals and related office automation equipment together using telephone or coaxial cable wiring.

The LAN allows those computers to share information within a specific geographic area, such as an office or an entire building.

However, because many companies are still grappling with the concept of LANs and office automation, the market has not materialized as industry pundits had projected.

Canadian LAN shipments totalled only $6.9 million in 1984, according to estimates provided by International Data Corp. (Canada) Ltd. of Toronto. IDC forecasts sales of about $9 million this year.

"We had some success with the product, but LANs are at least another year away from gaining mass market acceptance," said Terry Black, Dy-4 vice-president of marketing and sales.

"When IBM swept in (with its own PC Network) the market changed."

Black would not reveal the total investment made by Dy-4 to bring the two-year-old Dynasty LAN to market, saying only that it was "substantial."

He emphasized that the company was not being forced out of the market. Rather, Black said, demand for the company's microprocessor board products has increased to a point where the company could not concentrate on both areas.

"It's not too surprising to see (Dy-4) move out of local area networks when they have their heart in something else," said IDC research analyst Robert Payne.

"A lot of customers are curious about LANs but aren't really at the stage where they're ready to make a financial commitment. It's difficult to say when it will take off."

Dy-4, which expects sales of about $7 million for the fiscal year ending Sept. 29, has recently signed a $10.5-million contract with Raytheon Canada Ltd.

During the next three years, Dy-4 will supply its processor boards to Raytheon, which will incorporate them into its computer hardware systems that the federal government is buying as part of a radar modernization program.

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CSO: 5520/55

CANADA

BRIEFS

TELEPHONE EQUIPMENT TO TURKEY--A financing agreement to help Northern Telecom International Ltd. of Mississauga, Ont., sell $320 million worth of telephone equipment to Turkey has been signed, the Export Development Corp. said Tuesday. The corporation issued a news release saying the $204-million financing deal follows an earlier financing agreement worth $68 million for the first phase of a five-year project. Some 6,000 person-years of employment are likely to be created in the contract, in which Northern Telecom and its suppliers will provide digital switching equipment, telephone sets and related technical services to the state-run Turkish telephone company. [Text] [Ottawa THE CITIZEN in English 25 Sep 85 p D7]

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CSO: 5520/55

VANCHEV ON ROLE OF COMMUNICATIONS IN CIVIL DEFENSE

Sofia GRAZHDANSKA OTBRANA in Bulgarian No 7, 1985 pp 20-21

[Interview with Pando Vanchev, minister of communications and head of National Communications and Warning Service, by Evstati Tsolov; date and place not specified]

[Text] Comrade Pando Vanchev was born on 6 October 1919 in the village of Uzundzovo, Khaskovski District. As a gymnasium student he was a member of the Agrarian Youth Union, and later as a student in Bratislava he took active part in the struggles by progressive students and in the Slovak national uprising against the National Socialist occupiers. He is an active fighter against fascism and capitalism.

In 1946 Pando Vanchev completed his studies in electrical engineering in Prague and worked in Czechoslovakia for 2 years.

In 1948 he went to work in the Ministry of Electrification, making his contribution as a specialist to construction of a number of major national power engineering projects. Until 1956 he was regional electrification director and participated very actively in the construction of Dimitrovgrad. In the same year he was elected deputy chairman of the district people's council in Khaskovo, and chairman of this council in 1967, which position he held until his appointment as minister of communications.

In 1962 Pando Panchev became a member of the board of directors of the Bulgarian National Agrarian Union, and in 1971 a member of the standing committee of the Union.

As people's representative from Khaskovski District, he participated in the proceedings of the 5th National Assembly. In the 6th Assembly he was elected a member of the Council of State, and 7th and 8th National Assemblies displayed great trust in him, appointing him to serve as minister of communications of the Bulgarian People's Republic. He has been awarded high government distinctions.

[Question] Comrade Vanchev, in what areas of communications is the fullest use currently made of the achievements of scientific and technical progress?

[Answer] Communications, a vigorously developing system, has always reflected the latest achievements of scientific and technical progress in the area of electrical engineering and electronics. They have been made predominantly in this sector. The vigorous development of our economy has unquestionably determined the cardinal role of communications in management of the national economy. This in turn obliges us to introduce all the achievements of technical progress in the area of telecommunications. Consequently, the development of analog systems is now paralleled by the beginning of introduction of digital systems, which ensure much higher quality and speed of information transfer. New kinds of electronic and microprocessor systems are being introducedto monitor the technical condition of communications. Digital central offices are making their appearance in communications engineering, for both telephone and telegraph applications.

As is known, satellite communications are successfully maintained with many countries throughout the world by way of ground and space stations.

[Question] What still remains to be done to ensure dependable and stable telephone, telegraph, and other forms of communication from the viewpoint of civil defense interests?

[Answer] The dependability of the communications system depends on the level of the equipment adopted, which, as you know, still does not measure up to world standards. In order for our system not to be vulnerable to natural and other disasters, we are stepping up the pace of cable installation in our transmission network, and many trunk lines are backed up by radio relay lines. The system itself is being built with lateral bypass routes ensuring higher dependability in any situations which may arise. We are now testing optical cable systems, which will be placed in service in the next few years. These systems will increase the reliability and safeguarding of information transmitted, since optoelectronics is not affected by external electromagnetic influences.

[Question] Would you give us an idea of how the training of civil defense communications units is carried out? What are the problems, trends, and prospects?

[Answer] During the 1984 training year, units of the National Communications and Warning Service did their work with a high sense of responsibility for successful implementation of the historic resolutions of the 12th Bulgarian Communist Party Congress and the National Party Congress relating to further intensification of training in certain activities. Much effort was exerted over this period to increase the supply of training materials by addition of training aids to existing classrooms and construction of new ones, in Plovdiv, Tolbukhin, and elsewhere. It should be stressed that training of the units is proceeding according to schedule. Our efforts this year are aimed at further improvement in training equipment resources, bringing the units up to the prescribed strength, and heightening the visual impact of instruction.

A matter to which I think we ought to pay greater attention in the training of units to ensure efficient use of these units in a critical situation is achievement of the closest possible cooperation with forces and means in

action under complex conditions at epicenters of destruction, in natural disasters, and in major industrial catastrophes.

Problems are still encountered in the area of technical equipment and adequate provision of resources for prompt repair of damage to cable structures and timely establishment of local communications in the situations indicated.

[Question] The experience gained in the Vrancea earthquake shows that there are also cases of insufficient psychological stability of employees working in the communications system. What measures are being taken and what is being done in this direction?

[Answer] The recent destructive earthquake of 4 March 1977 with epicenter in the area of Vrancea, Romania, was felt in Bulgaria and caused a number of difficulties and damage to the communications system. Three telephone offices were disabled, in the village of Maslarevo, Velikoturnovski District, Novo Selo, and the town of Dve Mogili in Rusenski District. The technical parameters of international and domestic communications were impaired, and the quality of communications deteriorated, in Veliko Turnovo, Ruse, Sofia, Varna, and Svishtov. There were also abnormal delays in communications with the afflicted areas.

What were the basic causes of these phenomena? Interruption of electric power supply, lack of training in prompt restoration of communications, and an inadequate mobile reserve of communications equipment. The morale and psychological stability of some of the persons operating the communications system in the afflicted areas proved to be inadequate.

An earthquake, which is one of the most dangerous natural disasters, naturally has a negative effect on the stability of the communications and warning system and on civil defense. Following the incident in question, the management of the Ministry of Communications and the National Communications and Warning Service conducted a thorough study, both at the national level and locally, and organized a number of measures to improve the stability of the national communications system. Much attention was devoted to inculcation and development in personnel of high morale and psychological stability for work under conditions generated by natural disasters and major industrial catastrophes, so that there will be no abandonment of work stations in a complex situation such as occurred in Romania, at Svishtov, and elsewhere.

[Question] There are a number of instances of decisive, even heroic, action by civil defense military and civilian personnel in remedying the consequences of natural diasters. Some of them surely occurred last winter in restoration of individual sections of the communications system in Bulgaria. Could you tell us about some of them?

[Answer] The interurban overhead wire lines were iced over on 12 and 13 February 1985 as a result of the unusually low temperatures, icing, and heavy snowfall in Burgaski District. A layer of ice 4 to 5 centimeters thick formed on the wires. The heavy load on the wires and posts and the

strong northeasterly wind caused extensive damage to the communications system. Telephone service was interrupted in 124 populated areas in the district. Damage was done to 576 overhead interurban communication lines, 1756 kilometers of telephone lines were disconnected, 202 posts were disconnected and 572 broken, and 181 lines in the radiotelephone network were damaged over a total length of 546 kilometers. A total of 33 urban telephone networks were damaged over a total length of 120 kilometers.

An emergency headquarters was immediately set up to direct operations for repair of the damage. A detailed schedule was drawn up for each installation. Deputy minister Ivan Marinov went to the district to direct the restoration operations locally.

The civil defense units of the repair and rescue teams (VSK) in Burgas and of the emergency repair groups (AVG) in Aytos, Karnobat, Grudovo, and Pomorie began to organize restoration work at the very outset. The units operated under the direct control of their commanders at some installations. Nine cable line units were dispatched to assist them from the district communications administrations in Shumen, Veliko Turnovo, Smolyan, Plovdiv, Sliven, Stara Zagora, Varna, Tolbukhin, and Turgovishte.

All the groups displayed high labor heroism. They worked under extremely difficult conditions, a temperature of minus 15-20 degrees, snowfall, and strong wind, but they did not give up. In particular, members of many years standing of the Burgas repair and rescue team formations--Radko Arsenov, Kalcho Dimov, Georgi Dobrev, Nikola Nikolov, Todor Yanakiev, Georgi Cholakov, Atanas Lechev, Gocho Gospodinov, Stoyan Petrov, and many others--distinguished themselves during those difficult days. Prominent positions in the Aytos emergency repair groups were held by Todor Boshev, Petko Dulbokov, Stoyan Krumov, Stefan Apostolov, and Nikolay Shestakov, in the Grudovo emergency repair group by Stoyko Kalpachkiev, Georgi Terziev, Georgi Basnarov, and Ivan Stoychev, in the Karnobat emergency repair group by Georgi Radev, Petur Popov, and Georgi Nalbantov, and in the Pomorie emergency repair group by Kiril Kostadinov, Petur Todorov, Kosta Tomov, Zlatko Kolev, Atanas Laskarov, and others.

Outstanding service was rendered by specialists dispatched to render assistance from the line cable sections in Veliko Turnovo, Plovdiv, Shumen, and Smolyan. Not a single group can be pushed into the background. All of them worked unselfishly and with a sense of responsibility. To restore communications service to the last settlement in the Karnobat area, the Plovdiv group on its own initiative remained 2 days longer than the others.

The struggle by man and equipment against snow, ice, and wind went on for 10 days, and communications service was restored throughout Burgas District despite the great difficulties. This demonstrated that the headquarters of the national and district Communications and Warning Services and the civil defense formations under them are capable of coping with even more complex situations.

[Question] What are your recommendations and wishes for personnel of the communications system in connection with civil defense warning matters?

[Answer] I believe that building of a continuously operating and stable communications and warning system is a duty of primary importance for the basic supervisory and service personnel of the communications system. This duty is assigned by the requirements of the 12th Bulgarian Communist Party Congress and the National Party Congress and has been incorporated in our regulatory documents. It must be emphasized that the latest technical developments will continue to provide the basis for construction and improvement of the civil defense communications and warning system. This is also a requirement set by the February plenary meeting of the party central committee.

I should like to express my sincere wishes for health, success, and personal happiness to the personnel responsible for keeping this important system at a high level of readiness.

6115
CSO: 2200/98

BARBADOS

BRIEFS

CBC-TV CUTBACK--The Caribbean Broadcasting Corporation (CBC) is cutting out and changing some of its television programmes because of high operating costs. This follows a reduction last month of its broadcasting day from a 24-hour service to one that now ends at 1 a.m. Shorter television nights two nights each week and cancellation of some weekend programmes to include more live Cable News Network (CNN) reports are planned. Programmes like Julia and Bewitched, are to be discontinued in favour of more direct CNN relays. And while cuts and changes will take place in programming, efforts to collect outstanding licence fees will be intensified with one last appeal before taking legal action against defaulters who now number thousands of owners of television sets. Chairman of CBC, Mr Ronnie Hughes, said yesterday that with an annual wages and salaries bill of $4 million for its 200 employees, plus high costs for acquisition of programmes, the corporation has had to make cuts. Mr Hughes said CBC did not receive an annual Government subvention and now that there was a reduction in advertising revenue, the logical step was to look at costs and to collect outstanding money owing to CBC. He said however that these cuts would not affect CBC's FM station, Radio Liberty. He said: "It is not a burden on the corporation. It generates its own day-to-day revenue to meet operating expenses." [Excerpts] [Bridgetown DAILY NATION in English 9 Oct 85 p 1]

/9365
CSO: 5540/009

BRAZIL

SARNEY REFUSES TO LIFT INFORMATICS RESTRICTIONS

PY071312 Sao Paulo Radio Bandeirantes Network in Portuguese 0130 GMT 7 Nov 85

[Text] President Jose Sarney revealed today that he is being pressured to cancel restrictions on the informatics market; but he said he will not be intimidated by such pressures because he considers this a matter of national sovereignty. This was his reply to the concern expressed by the Brazilian Informatics Commission about attacks against the informatics law approved by Congress last year.

Sao Paulo Senator Severo Gomes of the Brazilian Democratic Movement Party [PMDB] said the main spokesman of the groups that are exerting pressure on this issue from inside the country and abroad is Mato Grosso Senator Roberto Campos of the Social Democratic Party [PDS] who recently intensified his criticism of restrictions on the informatics market.

/12858
CSO: 5500/2005

BRAZIL

SARNEY APPROVES 7 RADIO, TV CONCESSIONS

PY301352 Sao Paulo Radio Bandeirantes Network in Portuguese 1000 GMT 30 Oct 85

[Text] The new regulations on radio and television service have been enforced through a presidential decree. President Sarney has approved 7 of the 138 concessions granted at the end of the Figueiredo government.

The Bandeirantes Network and the Silvio Santos group were granted the concessions of Channel 2 and Channel 7, both of which operate in Brasilia.

In addition to approving the television channel concessions granted to the Bandeirantes Network and to the Silvio Santos group, Sarney said that he favors the opening of an educational television channel in Brasilia.

In keeping with a decision issued by Communications Minister Antonio Carlos Magalhaes, the government of the new republic suspended the approval of radio and television concessions when it assumed power. Yesterday, it was Magalhaes himself who reported the approval of the radio and television concessions following a meeting he held with President Sarney, in which they examined the concessions that were granted during the past administration.

It is expected that this week the government will approve concessions of television channels in Paraiba, Piaui and Bahia.

/9599
CSO: 5500/2004

TRINIDAD AND TOBAGO

GOVERNMENT NAMES TEAM TO PLAN TELECOMMUNICATIONS FUTURE

Port-of-Spain TRINIDAD GUARDIAN in English 23 Oct 85 p 4

[Text]

IN ORDER to facilitate the growth of all aspects of telecommunications, Government has appointed a committee to formulate a national policy for telecommunications development.

This was announced by Parliamentary Secretary in the Ministry of Public Utilities and National Transportation, Mr Ashton Ford, yesterday.

Mr Forde was speaking at the opening of a seminar on telecommunications which was held at the Hilton.

It was presented by the Association of Professional Engineers of Trinidad and Tobago (APETT).

Government has always been conscious of the role which telecommunications can play in the development of social and economic life here, Mr Forde said.

He drew attention to the recent World Conference on Telecommunications Development which was held in Arusha, Tanzania, and which was attended by the Minister of Public Utilities and National Transportation Dr Cuthbert Joseph.

At the conference Mr Ford added, Governments of developing countries were urged to give priority to telecommunications in the national development plan, and expand, upgrade and modernise the equipment needed. They were further exhorted to improve the maintenance and operating efficiency of available facilities and place emphasis on the training of telecommunications personnel.

Taking note of these suggestions made at the international conference, it was decided that a special committee would be appointed to formulate a clear national policy for telecommunications development.

That committee, Mr Ford added, would include members of the Association of Professional Engineers. He said:

"When the time comes, I will expect your Association to make its contribution to this committee."

Recommendations made at yesterday's seminar should reflect the concern of APETT for the development of telecommunications in this country, especially, Mr Forde said, with the economic downturn at home and abroad.

"With this in mind, I hope this seminar will address itself to possible solutions of how we can continue the development of our local telecommunication industry."

Yesterday's seminars also included the delivery of papers on certain subjects such as television in Telecommunication (Mr Deighton Parris), Telecommunications locally (Mr Edward Beckles) and others from Mr Deoraj's Ramnarine, Mr Alvin Lutchman and Mr Stephan Gift.

/9317
CSO: 5540/011

PARLIAMENT PANEL URGES NATIONAL BROADCASTING POLICY

Calcutta THE SUNDAY STATESMAN in English 15 Sep 85 p 9

[Text] New Delhi, Sept. 14--The Estimates Committee of Parliament has, in a report presented at the recent monsoon session, reiterated its earlier demand that the Government enunciate as early as possible a national policy on broadcasting.

That demand was originally made in its report presented to the Lok Sabha in April last year. The committee had then said: "Mass media serve the purpose of informing, educating and entertaining people. In a developing situation the media ought to lay more emphasis on informing the people in a balanced manner and educating them. The committee notes that the Government has issued detailed, if not comprehensive, guidelines to the official media units. Nevertheless, the committee feels that a time has come to evolve a national policy on broadcasting. Accordingly, they suggest that the Government should come up before Parliament with such a policy as early as possible".

Replying to that recommendation, the Government told the committee last November that detailed policy guidelines issued to official media for creating awareness among the people for economic development and social change and mobilizing them for building an egalitarian society are considered an adequate policy framework for broadcasting media.

The committee, which considered that reply in July this year, stated flatly that it did not agree with the Government's view that the "detailed policy guidelines" were adequate and therefore no national policy in broadcasting was necessary.

As far as can be verified, the Government issued specific policy guidelines for the official media on two occasions: in the form of a letter from the Ministry of I and B in July 1980, and in the form of a nate in May 1982.

Directive

The first was an explicit directive to official media units that their programmes had "to be tuned" to the "overall development strategies and programmes of the Government". The I and B Ministry also said in that letter "people have to be mobilized towards the goals set by the Government and

public support mustered for the programmes" and that the official media "have, therefore, an obligation to provide information and build up motivation in support of such programmes and policies". Ten guidelines then followed spelling out a broad directive.

That July 1980 letter was addressed incidentally, to Films Division also, in addition to AIR and Doordarshan.

/9274
CSO: 5550/0012

TELECOMMUNICATIONS LINK WITH PAKISTAN UPGRADED

Bombay THE TIMES OF INDIA in English 24 Sep 85 p 1

[Text]

NEW DELHI, September 23 (PTI): The telecommunications link between India and Pakistan was upgraded today with the commissioning of a coaxial cable system between Amritsar and Lahore.

The link was inaugurated by Mr. Ram Niwas Mirdha, minister for communications, when he answered a telephone call from his Pakistani counterpart, Mr. Mohyuddin Baluch.

The Amritsar-Lahore coaxial cable system was conceived as part of the Asia telecom network in 1978 and the scheme covers a total route length of 55.2 km. Of this, 30.5 km are on the Indian side from Amritsar to the Wagha border and 24.7 km on the Pakistan side from the Wagha border to Lahore. The system has a capacity for 2,700 channels.

The system will boost the telecom services between the two countries which have up to now been operating on an open wire line and associated carrier systems between Lahore and Amritsar.

The availability of capacity will enable addition of circuits and provide for upgraded trunk services which would be carried out starting with introduction of semi-automatic trunk services, an official press release said.

The telex services between the two countries could also be augmented, it said.

The entire equipment and cables for the Indian side were indigenously manufactured. The project cost Rs. 81 lakhs.

30 M. Phone Lines: The telephone lines in the country will be increased from the present three million to 30 million by the end of the century, Mr. Ram Niwas Mirdha said in Delhi today.

Inaugurating a seminar on digital transmission system organised by a French firm, Mr. Mirdha said that the government proposed to spend Rs. 900 crores out of the allocation of Rs. 400 crores for telecommunications in the seventh plan, for the development of the transmission system.

He said the country had decided to adopt the latest digital and fibre optic technology in telecommunications. As part of this the department had planned to set up digital networks in 15 selected secondary areas which were co-terminus with the boundaries of one or more revenue districts in the near future.

/9274
CSO: 5550/0221

PLANS FOR STD LINKS WITH BANGLADESH, PAKISTAN TOLD

Calcutta THE STATESMAN in English 28 Sep 85 p 16

[Text]

THE Indian Telecommunications Department will shortly introduce international Subscribers' Trunk Dialling system with neighbouring countries, like Pakistan, Sri Lanka, Bangladesh, Nepal and Bhutan ,according to Mr Jyotirmoy Basu, General Manager, Calcutta Telephones. At present, there are micro-wave and co-axial telecommunication links between India and these countries.

Mr Basu said in Calcutta on Friday that the Calcutta Telephones would be the focal point for routing the STD calls to Bangladesh, Nepal and Bhutan. Since the basic infra-structure was already there, some modifications and extension of the existing equipment would be sufficient to introduce the international STD links early next year.

Four electronic trunk exchanges, with 10,000 lines each, were now being set up in Calcutta. Two of these were likely to start functioning before the next monsoon and the other two would follow soon. The electronic exchanges would eliminate the exchange faults now prevalent in the city telephone system. The Calcutta Telephones needs another 90,000 electronic trunk lines to cope with the problem.

Referring to the recent statement by the Telephone Consumers' Guidance Society of India that 72,000 telephones in the city were out of order and 25,000 were "dead" for more than six months, Mr Basu said that the statement was not correct. At present, about 26,000 telephones in the city were out of order and 12,000 were "dead" for more than a week to a month or two, he added. A special drive had been undertaken in Central Calcutta, where there had recently been too many faults, to repair the lines before the Pujas. The situation worsened after Tuesday's rain.

He said that two underground cables of the 25, 26 and 27 exchanges had been damaged on Eden Hospital Road following digging by the gas division of the CMDA. As a result, telephone lines of 600 subscribers on Sashibhusan Dey Street, B.B. Ganguly Street and College Street had been affected. At the same place, a major junction cable had been damaged dislocating telex services to a large number of subscribers as well as inter-exchange traffic of several exchanges. Telephone lines of another 500 subscribers of the 43 and 44 exchanges had been affected following damage to underground cables by "unknown agencies" near the crossing of Sarat Bose Road and Acharya Jagadish Bose Road, he added.

/12828
CSO: 5550/0023

INDIA

TELEVISION DIRECTOR GENERAL DISCUSSES FUTURE PLANS

Bombay THE TIMES OF INDIA in English 14 Sep 85 p 7

[Text] Bombay, September 13. Beginning next month, Doordarshan will feature a new programme on its network high-lighting the social and technological changes in 2001 A.D.

The 13-part programme will be a fortnightly feature and will prepare the country to enter the new, bright era, Mr. Harish Khanna, director-general of Doordarshan, told this paper here today. "We want the people to actively participate in building a strong nation and not just supinely accept things as they come", Mr. Khanna said.

The serial featuring some of the country's experts in different fields is aimed at ushering in a strong and vibrant country, socially rich and economically sound, he said.

Some literary masterpieces are being taken up for screenplay adaptations to suit the television media, Mr. Khanna said. He added that proposals to serialise the Jnanpith award winner, Masti venkatesha Iyengar's novel and Sharat Chandra's "Shrikant" have been finalised.

Instructional sports programmes involving some outstanding Indian sportsmen of yesteryears are also on the anvil, he said.

Later addressing a meeting of the seminar of All India Radio and Electronics Association on electronics in the seventh plan, Mr. Khanna said government would permit private agencies and co-operative societies in moffusil areas to instal low-power transmitters in a bid to expand the broadcast base. Permission for installing private transmitters comes in the wake of the government decision not to add to the 174 transmitters it has already set up.

Government role in broadcasting will be limited in future to modernizing equipment. Over the last 26 years, since television came to India, two-thirds of the equipment have become obsolete and need to be replaced, he stated.

Studios Inadequate

Another area in which the government will now concentrate will be in the fixing of transponders to eliminate shadows obstructing picture resolution in hilly

areas. A scheme is being evolved to encourage state governments to promote patronage for community sets in village panchayats. Although two models of indigenous projection devices are currently available to magnify pictures they are expensive. He asked manufacturers to reduce prices and thus make it acceptable to village audiences.

Mr. Khanna also pointed out that the 17 studios were inadequate to feed the 174 transmitters with relevant programmes. The production base will have to be enlarged. There was also a proposal to establish 16 uplinks with the Insat satellite so that viewers could have a choice of regional programmes. All Maharashira stations could, for instance, be hooked to the satellite so that they savoured Marathi programmes rather than the Delhi programmes as is the case now.

The strenth of TV media could only be augmented by the lowering of monitor sets. For the large number of transmitters, the country had just five million sets, most of them in the urban areas. The uplink will popularise television set sales in rural areas and hinterland territories, Mr. Khanna said.

He said a boost to television sets was necessary to enable Doordarshan to go ahead with its programme of open universities. Another promising area for Doordarshan was the teletext services which will be availed of by commercial establishments and banks and financial institutions. Doordarshan was working in close co-ordination with telecommunications, Mr. Khanna said.

/9274
CSO: 5550/0014

DOORDDARSHAN PLANS TELETEXT, OTHER PROGRAMS

Madras THE HINDU in English 15 Sep 85 p 12

[Text]

RAIPUR, Sept. 14.

Doordarshan will introduce new programmes from November this year to make television more lively, the Information and Broadcasting Minister, Mr. V. N. Gadgil has said.

Doordarshan will launch a 'tele text' programme from January next year starting with Delhi, Mr. Gadgil told newsmen here on Friday. It will own its own data bank to feed information to the people.

Among the programmes for children are cartoon films and hobbies programmes. Twentysix cartoon films have been purchased and would be telecast after dubbing in all the 14 languages.

Mr. Gadgil said a 'very good' science programme would also be telecast from November. The first programme would be on Halley's comet with the help of Dr. Jayant Naralikar, with interviews of five people who had seen it in 1910.

The Government would soon undertake a survey of its own on the effect of television on society. A survey conducted by a business concern showed that 81 per cent of television-owners viewed TV daily. There had been a sharp increase in television-viewing after the serials—Humlog, Ye Jo Hai Jindagi and Khandan—were introduced. Sixty four per cent of television-owners did not miss a single 'Janwani' programme and 61 per cent also watched programmes on the second channel.

On increasing television time, Mr. Gadgil said there were suggestions for 'Breakfast TV' programmes.

If the time was increased, Doordarshan would have to include programmes for housewives in the afternoon and children in the evening, besides the "Breakfast TV" programmes. The television staff would also have to be doubled, he said.

Newsprint policy: The Union Government, Mr. Gadgil said, was considering amending the newsprint policy to eliminate blackmarketing. Among the proposals being considered were equal rates for the small newspapers, compelling them to lift a percentage of Indian newsprint along with foreign newsprint, or to demand a chartered accountant's certificate from newspapers whose circulation was less than 2,000.—UNI.

New serial: A new TV serial 'Ek Kahani' is to be telecast every Thursday at 9 p.m. from September 19, in the Doordarshan national network. The stories include works by nationally recognised authors from all over the country. At the end of each programme the author will also be interviewed. The first in the series will be "Junglee Booti' (Wild Herbs) written by Jnanpeeth award winning Punjabi writer Amrita Pritam. This will be followed by the Sahitya Akademi Award winning Kannada author Yashwant Chittal's story 'Apaghata' (Accident). 'Concert' by T. Jankiraman and 'I don't understand' by Sundara Ramaswamy, two Tamil stories have also been included in the series. The serial is being shot by Network-7.

/9274
CSO: 5550/0013

TELETEXT EQUIPMENT INSTALLED IN DELHI TV STATION

Bombay THE TIMES OF INDIA in English 16 Sep 85 p 14

[Text]

NEW DELHI, September 15.

THE tele-text age is round the corner. The equipment has been installed in the Delhi Doordarshan organisation by Electronics Corporation of India Limited (ECIL), a public sector undertaking.

ECIL will soon install 100 TV receiver sets with built-in facility to receive tele-text transmissions at Delhi.

The coming of tele-text signifies the development of indigenous capability in the sophisticated field of computerised communication.

A typical tele-text magazine will have pages carrying updated news, sports, travel information, weather reports and other general interest items. The possessor of a tele-text receiver can select and view them on the same channel as the regular TV transmissions. It is the most modern way of providing constantly updated information at home.

In this electronic information system, text and graphic information are telecast in an integrated format. A page of information is displayed on the screen as 25 lines of text with 40 characters, including blank spaces in each line.

DATA IN PACKETS

The programme is created in the transmitting centre on an editing console composed of a typewriter-like keyboard, peripherals for graphic creation with a monitor and floppy disc unit to store the coded pages. The diffuser can store a number of pages of text information. It is indispensable to supply the tele-text data at the rate required for the broadcast television signal.

The data for tele-text transmissions are delivered in packets and mixed with the signals of the TV programme by the Didon multiplexer, which can receive data from as many as 20 diffusers. The video signal and tele-text data are then mixed and transmitted.

ECIL has specially designed and built TV receivers equipped with a decoder to receive tele-text transmissions. The viewer selects the number of the magazine, then the pages on his hand-held key-pad. The decoder waits to receive the codes to the page selected, stores them and displays the information on the screen.

It is learnt that Doordarshan has been testing tele-text equipment for some time. The coming of tele-text receivers into the market will be the beginning of an audio-visual journalism revolution as it would bring instant visual transmission of the programmed news and magazines texts and illustrations.

/9274
CSO: 5550/0015

ELECTRONIC PABX ENTERS INDIAN COMMUNICATIONS MARKET

Madras THE HINDU in English 21 Sep 85 p 24

[Article by N. N. Sachitanand]

[Text] TELEPHONE operators in India, rejoice! Your travails will soon be at an end. Now entering the Indian telecommunications market with a bang is the electronic private automatic branch exchange (EPABX) which promises you relief from all those wearisome tasks associated with the obsolete electromechanical PABX which you are currently operating.

No more finger-tiring dialling on a mechanical dialler, bid goodbye to the exhausting plugging in and out of connectors. Forget about the frustrating task of re-dialling all the digits of a number when it is engaged. No need anymore to get all tangled up in cords trying to transfer a call.

The electronic PABX makes your job a pleasant one. With it, all you have to do is to relax in your chair and just press a switch to establish a connection, transfer a call, re-dial the last called number, set up a network for two or more speakers to confer (conference call), keep a party on hold while you check up whether the boss wants to speak to him and perform a host of other tasks which would not have been possible with the electromechanical PABX. Like using a 3-digit code to dial frequently called numbers, or getting automatic logging of the details of outside calls made or networking with the exchanges of the other offices of the company in the same town or in other towns.

For managements the EPABX, with its stored programme control, is a wonder gadget which will make company telecommunications much more reliable, speedy, cost effective, closely supervised (as for example the feature of barring selected internal numbers from making STD calls) and efficient. Most important of all, with its ability to receive and transmit data, either through a modem or directly (depending on whether message processing is analogue or digital) the EPABX will be the cornerstone of the office of the future facilitating such services as electronic mail, facsimile transmission/receive and computer data exchange.

Lifting of P & T monopoly

The electronic PABX has taken a long time coming to India, not because there was no need felt for it or no indigenous talent to develop it but because of the inertia caused by the monopoly grip on telecommunication services in the country by the P & T Department. With the relaxation of this grip following the liberalisation of industrial policy at the Centre, the P & T has withdrawn from the PABX field (previously it was the sole leaser of PABX equipment). Both the public and the private sector are now free to make and supply PABX equipment of their design, even on an outright sale basis to users with the Telecommunications Department only levying a rental of Rs. 200 per annum per internal line (charges on external lines being governed by the usual tariff).

With the country's main telephone network switching over to digital electronic exchanges and the firming up of a plan to introduce in the future integrated services digital network (ISDN) which provides for transmission of voice, data, facsimile, teletext and perhaps even video through the telephone system, the introduction of the electronic PABX has become overdue and the market is enormous. Some estimate that the initial market may be as high as 200,000 lines per annum.

One would have expected a number of private manufacturers to have grabbed at this opportunity. But the private sector had been shut out of the communications market for so long that it has not cared to develop the expertise and infrastructure in this line. The sudden decision to withdraw from the PABX field by the Telecommunications Department has caught the private sector flat-footed, with a sole exception.

Early entrant

This exception is the British Physical Laboratories India Ltd. — a misleading name since it is very much an Indian company with its head office in Bangalore and manufacturing plants located in Bangalore and Palghat. BPL has been the first off the mark in the EPABX sweepstakes and has come on the market with an in-house designed system in three models—29lines/10 trunks, 58 lines/10 trunks and 237 lines/64 trunks (a trunk is an external line).

"We could come out so soon", explains Mr. K. S. Jayanth Kumar, director–sales, "because

of our previous experience in making communication equipment for power networks and electronic private automatic exchanges (EPAX) for the police and ONGC. The harsh environment which communication equipment has to function under in power networks and oil platforms has given us tremendous experience and confidence about the ruggedness and reliability of our EPABX system".

The BPL system is architectured around the Zilog 80 microprocessor and uses a space division switch based on CMOS matrix. The system is not fully digital in that there is no conversion of the analogue voice signal to a digital bit stream for processing. In this respect, perhaps it falls short of a state-of-the-art system which can be a part of the ISDN. But then, as Mr. Kumar points out, the market in India is mostly for voice switching and ISDN is still a decade away.

BPL's EPABX has already been approved by the P & T at Bombay, Delhi and Bangalore as being compatible with the existing trunk lines based on field testing. The company has already established a production line for the system at its Palghat factory with a capacity of 50,000 lines per annum. Production commenced in December last and a number of installations are already in operation in Bombay. The price comes to around Rs. 5,000 per line with push-button telephone sets at around Rs. 850 a piece. The company is also offering add-in facilities of specialised software tailored to the needs of different big users like hotels and banks.

ITI joins the fray

Hot on the heels of BPL in the EPABX race is the State-owned Indian Telephone Industries from where, in fact, BPL has obtained many of its R & D personnel. ITI's research on electronic switching stretches back to the late Seventies. By all rights, ITI should have been in the lead in exploiting the EPABX market in India but, since its R & D efforts were very much tied up to the demands of the P & T Department and since that organisation was not all that keen about introducing the electronic PABX. the development efforts of ITI in productionising an EPABX system remained pallid. However, the recent developments have galvanised ITI into a frenzy of development activity in the EPABX field.

Back in 1978, ITI had developed a 25-line EPAX which was logic based and used SCR (silicon control rectifier) cross points. ITI is now planning to produce an updated version of this as an EPABX in two models: 50 lines/10 trunks and 100 lines/20 trunks. The switching mode will be space division using CMOS cross point and instead of being hard-wire logic based, the system will be microprocessor based with stored programme control. It will not be suited for data switching except through modems. It is quite obvious that this will be a close rival to the BPL system.

For larger users like hotels and industries, ITI is offering an EPABX of 200 lines/32 junctions which is also microprocessor based but which uses pulse amplitude modulation and time division multiplexing as the switching mode. This technology was developed back in 1980-81 but did not see the light of the day in the market since the P & T was not enthusiastic about introducing EPABXs at that time. According to ITI sources, this system will be highly price competitive.

For the really small office, ITI has just developed a microprocessor based space-switch electronic PABX which is operator-less. It has a capacity of four junction lines all of which are accessible by 12 extensions. There are also two internal links and a busy link. The basic equipment is housed in a central control unit. Each extension has a keyset telephone consisting of 20 non-locking push-button keys, a key pad, transmission bridges and ringing circuit. Four LEDs are provided to indicate the status of the four junctions and another LED is provided to indicate an incoming call or operation of an intercom key or conference or call transfer.

In this system, each keyset telephone becomes an operator's console and any person can receive an incoming call on any of the extensions and himself transfer it to the desired extension by pressing a button. Roughly speaking, this system is a sort of combination intercom — telephone receiver with extensions and a PABX. The system is modular in construction and allows expansion from two to four junction lines and from four to 12 extensions.

ITI is thus ready with an EPABX for each segment of the market. While production of the multiline keyset telephone system is being taken up in the Bangalore factory, the other two systems are slated to be made in the Palghat factory.

Work on digital version

Meanwhile, development work on the truly digital EPABX with high speed (64 kilobits/sec), digital signal processing is being accelerated. This system will utilise a switching mode similar to the ILT (integrated local and transit) switch developed by ITI. The ILT switch was developed for small town electronic exchanges. It employs a number of microprocessors. The speech signal is first digitised, then sent through an international standard 32-channel pulse code multiplexer and then through a time slot cum space which is non-blocking. The later feature permits high traffic density without call bunching.

The first ILT town exchange of 128 lines was installed towards the end of 1984 at Udayamperoor near Ernakulam. ITI plans to start production of its digital EPABX at Palghat by the end of 1986 and the capacity will range from 100 to 1000 lines. This system will carry ISDN features. It will be capable of continuous, on-line diagnostics so that faults can be detected and indicated immediately, thereby minimising downtime. It will also be amenable to remote monitoring which is very useful in maintenance supervision of far-flung private networks.

The latest entrant in the EPABX race is the Centre for Development of Telematics, better known as C-DOT. It is a scientific society registered in August, 1984 and founded by the Department of Electronics and the Ministry of Communications to develop a family of digital electronic switching systems to suit Indian conditions. The family will include PABX, rural exchange, (RAX), main exchange (MAX) and trunk exchange (TAX) for a variety of configurations ranging from 128 to 40,000 ports (lines).

Only last month, C-DOT had an exposition at Bangalore of the first product from its stable —

a 128-line digital EPABX which can be expanded to 512 lines. The analogue speech signal is received at a terminal interface where it is converted to a 64 kbps stream. By pulse code modulation (PCM), a primary time division, multiplexing (TDM) is performed over 32 PCM channels from four terminal interfaces to generate the international standard PCM-32 link (which has a data rate of 2048 kbps). Four PCM 32 links (from 128 ports) are connected to the switching network. The switching network consists of a secondary multiplexing of the four PCM 32 links to form a 128-channel link, a non-blocking time slot interchanger and the demultiplexing of the resultant PCM 128 channel link to four PCM 32 links which carry switched information back to the four terminal interface groups.

The non-blocking nature of the switching network allows for high traffic capacity since every terminal is guaranteed an interconnection path to a free destination terminal. This is important for India where the call density rate is very high. According to Mr. T. Chandrasekhar, who is heading the hardware development group at C-DOT in Bangalore, the system is designed keeping in mind a high rate of indigenisation in quick time.

Thus, out of the 200 odd types of components used, only 16 types account for over 80 per cent of the total number of components used. All these 16 types will be available in India. For example, the main microprocessor chip is the Rockwell 6502, which will be made by Semiconductors Complex Ltd., Chandigarh. It was originally a slow N-MOS chip but SCL will be giving a faster C—MOS variety. The import content is slated to go down from 60 per cent in the beginning to less than 10 per cent (by value) within three years.

Fail-safe systems

The use of modern, high reliability components has reduced the power consumption and convection cooling makes air conditioning unnecessary. There are only seven card types. All critical electronics is duplicated. There is always a standby copy of each subsystem ready to take over from the active copy in case of failure. Faults do not affect system functioning. If a card goes faulty only eight ports are put off service and not the whole system. Built-in diagnostic and routine maintenance programmes keep an eye on the system health and all faults are quickly localised and indicated to the operator.

The whole system is packaged into just one single card cage. A novel (for India) feature of this packaging is a backplace mother board PCB through which the cards are interconnected.

C-DOT is not a manufacturing organisation. It has got four engineering prototypes prepared with the help of ITI and hopes to get ten field trial models ready by November. It has offered the knowhow to interested Indian manufacturers. ITI is definitely going to be one of them. Since it has already got the infrastructure, it might come out first with the production model, towards the beginning of next year. The cost of the C-DOT model is around Rs. 3,000 per port, which appears to be cheaper than the other indigenous systems. But then, the basic size is quite large in capacity and may not interest the below 100-line users, who form the bulk of the market. However, the data handling capability of the system (1,200 bauds per port) should be an attraction for medium and large organisations.

Foreign knowhow

While all this indigenous effort is going on, as usual there is also a flurry by private parties to import EPABX technology. The three technologies which have been approved are from Oki of Japan, GTE of the U.S. and Jeumont Scherpt Schneider of France. So far there is a state of flux in this area with no definite collaborations and projects surfacing. Even the two collaborations with Jeumont Schneider one hears about (with Escorts and Blue Star) are tentative yet. The French company has many types of EPABX. Which particular system the Indian partners will opt for is not yet known.

In the final analysis, since indigenous R & D efforts have come up with technology of international standards and the production stage has been reached, there does not seem to be much point in going in for foreign collaborations in this field. For users, the indigenous technologies will be advantageous since they can be assured of prompt aftersales service and availability of spare parts.

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CSO: 5550/0019

BOMBAY TELEPHONE MANAGER HOLDS PRESS CONFERENCE

Bombay THE TIMES OF INDIA in English 25 Sep 85 p 5

[Text]

BOMBAY, September 24.

THE general manager of Bombay Telephones, Mr. S. G. Watwe, today said that efforts to root out corruption in the telephones department were hampered by the refusal of most subscribers to give evidence in writing against the corrupt staff.

Addressing his first press conference since he took charge of his post, Mr. Watwe said that a few subscribers, who had come forward with evidence, had helped the department to initiate proceedings against 71 errant employees, including 14 gazetted officers.

Mr. Watwe said that BT intended to take strict action in co-ordination with the police against some unscrupulous subscribers who motivated the department's employees or outsiders to make unauthorised use of lines.

Asked why he had consistently refused to meet the Bombay Telephone Users' Association which had exposed some glaring irregularities in the functioning of the telephone department, the general manager said that the body was "not recognised by the government." Mr. Watwe said he met the recognised telephone advisory committees regularly.

The general manager, however, emphasised that he would look into the complaints of the members of subscribers' associations if they approached him in their individual capacities. He expressed his inability to deal with them officially.

On improving telephone services in the city, he said attempts were being made to streamline the activities of the department in every section. He said that ways were being devised to tackle the major problem of delays—in rectifying faults, in providing and shifting telephones, in settling excess billing cases, in putting through trunk calls in answering on special services like 197, 199 and 173.

NEW EXCHANGES

According to Mr. Watwe, three exchanges with a capacity of 10,000 lines each have been commissioned since April. Five more exchanges with a total capacity of 37,000 lines, including Bandra II (10,000 lines), Prabhadevi II (10,000), Powai extension (2,000), Wadala II (10,000) and Ghatkopar II (5,000) would be commissioned in this financial year, he said.

A 2,000-line exchange would be commissioned at Turbhe in New Bombay by December, he added.

Mr. Watwe said that Bombay Telephones had obtained the approval of the telecom directorate to replace the old Byculla (37), Naigaum (44), Central (26) and the Vashi (New Bombay) exchanges.

He said a digital coaxial system with about 1,920 channels linking the Fountain, Prabhadevi, Ghatkopar and Marol exchanges would soon be set up. A number of projects had also been sanctioned to link most of the exchanges by digital microwave which would ensure lesser outages of circuits interconnecting the exchanges even if underground cables broke down during rains.

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CSO: 5550/0020

MADRAS TELEPHONES PLANS NEW CONNECTIONS

Madras THE HINDU in English 9 Oct 85 p 12

[Text] MADRAS, Oct. 8.

By 1990, the Madras Telephones would be able to grant new connections to only those on the waiting list as on March 31, 1984, Mr. R. Rangarajan, General Manager, said here today.

Addressing members of the Rotary Club of Madras, he pointed out that this was the revised plan for the city following the Planning Commission's decision to allot just Rs. 4,100 crores for communications during the Seventh Plan as against Rs. 13,000 crores sought by the Ministry.

About 33,000 people were on the waiting list in March 1984, he said. (Since then, more than 10,000 lines have been added to the city network, but the waiting list has continued to grow and is currently over 37,000).

Bid for larger allocation: The General Manager, however, said the Madras Telephones was attempting to secure a larger allocation so that more new subscribers would be accommodated. He explained that as funds were allocated to various cities in proportion to the size of the waiting list Madras was at a disadvantage, for Bombay had at least four times as many people waiting for telephones.

Detailing the various measures being taken this year to expand and improve the telephone service, Mr. Rangarajan said 20,000 new lines would be installed, the major additions being the 5,000-line expansion at the Harbour Exchange due next week, and the 10,000 line digital electronic exchange at Flower Bazaar, due in March 1986.

He noted that the Madras Telephones had requested the Ministry to clear the proposal for another 10,000 lines at the Nungambakkam Exchange so that the old Anna Road Exchange could be closed down. "The bulk of complaints of poor service will then vanish," he predicted.

Likely benefits of electronic tandem exchange: The commissioning of an electronic tandem exchange, to handle calls from one crossbar or electronic exchange to another was likely to considerably improve the service. Transit call failures were likely to be reduced, and the success rate for trunk calls were expected to go up by five per cent to 75 per cent. Early next year, a computer would be commissioned to aid various internal management tasks such as fault analysis and cable laying and for the directory enquiry service.

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CSO: 5550/0027

BRIEFS

ADDITIONAL SATELLITE LAUNCH--Houston, Sept. 17--India is planning to launch an additional satellite in 1987, to meet the increasing demand for satellite services in the country. Earlier expectations were that the INSAT-1B and the INSAT-1C would meet the country's needs till the INSAT-II was launched in 1989. Indian space authorities have approached the National Aeronautics and Space Administration (NASA) to find out whether the American space agency could accommodate it for launch in any of the 1987 space shuttle flights, Mr. Mark Keiffer of the NASA space transportation system told UNI. NASA will launch the INSAT-1C satellite next year. An Indian payload specialist will participate in the launch. India is also likely to join the SARSAT (search and rescue satellite-aided tracking system), operated jointly by the U.S., Soviet Union, Canada and France, following the recent crash of Air-India Boeing Kanishka into the Irish Sea. Three Soviet and two U.S. satellites are participating in the programme while the other two countries provide instruments and ground support. The SARSAT picks up the bleep signals from ships and aeroplanes in distress in less than an hour of the tragedy, and since its inception three years ago, it was instrumental in rescuing 420 sailors and aviators. [Text] [Madras THE HINDU in English 18 Sep 85 p 7]

TELEVISION IN NORTHEAST--Shillong, Sept. 20--The Centre has allotted 5,000 community installed in remote corners inhabited by tribals and weaker A recent conference of the secretaries and directors of information and public relations of the North-Eastern region held here decided to apportion the TV sets as follows: Assam 1,500; Mizoram 150; Tripura 1,030; Meghalaya 606; Nagaland 650; Arunachal Pradesh 460; and Manipur 570. Explaining the purpose of allotting the TV sets, the NEC secretary, Mr P. H. Trivedi, said that weightage was being given to areas situated near the international border pockets. The conference recommended the installation of a few more TV stations in the region. It also suggested providing direct reception TV sets for areas which have remained uncovered by the existing relay stations, Mr Trivedi stated that the existing 11 TV transmitters covered an area of some 25,000 sq. km. in the region. [Text] [Calcutta THE STATEMAN in English 21 Sep 85 p 13]

DELHI TELEPHONE SERVICES--New Delhi, Sept. 20--The Union Communications Minister, Mr. Ram Niwas Mirdha, said here today that the Government would introduce three new services in Delhi from next month as part of its programme to modernise the telecommunication system in the country. The new services to be introduced are mobile telephone, paging service and packet switched network.

Mr. Mirdha, who was inaugurating a national seminar on "Development of telecommunications and information techology," said if the response from the public to these new technology services was found encouraging, the Government would consider introducing many new types of services, so that within the next five to ten years a high degree of excellence was built up in the telecommunications network. Under the mobile telephone scheme, subscribers would be provided telephones in their cars. It could be used for local as well as STD calls. To begin with, the service would be provided to 70 subscribers. The people subscribing to the paging service will be given a pocket receiver and any subscriber in Delhi can dial a pre-assigned number for each paging receiver. When such a call is made by any subscriber, a beep-beep tone will be heard in the paging receiver indicating that the subscriber carrying the receiver is wanted on the telephone. He can then ring back from the nearest telephone a preassigned number and establish contact. The department has equipped itself to provide 400 such paging subscribers within Delhi for the experiment. The Minister said the Department had installed three packet switching nodes under packet switched network, one each in Bombay, Delhi and Madras. Subscriber lines as well as computer lines would be connected to this network. A subscriber in one centre would have access to computer information from another centre. The subscriber could also use the network for message transfer. [Text] [Madras THE HINDU in English 21 Sep 85 p 7]

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CSO: 5550/0018

EGYPT

EFFECT OF POLITICAL QUARRELS ON ARAB SATELLITE PROJECT REVIEWED

Cairo AL-AHRAM in Arabic 26 Sep 85 p 13

[Article by Hamdi Qandil: "Getting out of the Current Arab Predicament: The Tragedy of Arabsat and the Need To Isolate Major Projects from Political Conflict"]

[Text] On 1 October a number of Arab countries will start the first attempt of its kind to exchange television news and programs by use of the Arab space system Arabsat, which launched its first two satellites at the beginning of this year.

In this article, Hamdi Qandil discusses his view of the Arab predicament through his intimate experience with the experiment of a great national project.

The National Dialogue section has acted beneficially by inviting politicians and political experts to inaugurate the dialogue on "getting out of the current Arab predicament." Perhaps Arab policies may basically have been the cause and plague of this predicament, and its most striking manifestation, but the situation, as some of the people involved in the discussion have pointed out, is not restricted to politics alone. The Arab predicament impinges on all aspects of society in every country, and its pitfalls almost intrude on every citizen in the activities of his daily life. Ultimately it is a political, economic, cultural, moral and technological predicament at the same time.

Perhaps what the people engaged in the discussion so far have told us about political affairs would have been enough for us, had politics no longer had ramifications or puzzles and enigmas which are absent from the mind of the average citizen faced with the ins and outs of the Arab street and standing naked without even a figleaf to hide its nakedness. It might be obligatory for us now, before the patience of the people waiting to launch an attack on the dialogue and the people who have been driven along with it alike is exhausted, to ask for answers to Mr Lutfi al-Khuli's appeal for the dialogue to approach a practical situation and address itself to the specific problems of the hour.

I find no area in which these problems as a whole are embodied as fully as they are in the realm of space, where technology is joined together with the media, education, communications, culture and so forth. 1985 has been the year in which the Arab nation, as it is said, entered the space age and carried out the most massive joint technological projects in its modern history. Last month viewing from the Arab satellite Arabsat took place after its first consort had been launched a few months before it.

The fact is that no uproar has been raised in recent years over a national project like that raised over Arabsat. Many people sang its praises at the beginning and many also belittled it, while some people saw a complementary crescent in the satellite and some people thought that it had got lost in the course of the other Arab projects which time and oblivion had swallowed up. The satellite actually did lose its way in the halls of the Arab League, after the ministers of information had presented the conception of it following the military defeat in 1967: the Arab Space Communications Organization was only established after about 10 years had elapsed since the idea of the satellite took form and the satellite itself was launched only after another 10 years had passed since the establishment of the organization. During these 20 years, the loudest sound was that of the empty drums beaten in analyzing the anticipated satellite. Their sound would rise up whenever an announcer declared that viewing from it would take place the next day.

The victim of all this was the ordinary citizen, who would read about the project in the papers or hear about it over Arab radio stations. Most news reports went overboard in their discussion, to the point where a citizen would imagine, for example, that it was a telephone situated in his home in which current would flow as soon as the satellite was launched, forgetting that the flaw might lie in the equipment itself, in the cables carrying its wires, in the workers laying and repairing these cables, in the switchboard connecting it up, or, first or last, in the people who drew up the plans for these systems and supervised their operation.

Perhaps also hope transported us to the point where we made the ordinary television viewer imagine that when the satellite was completed the screen would become different from the way it was and the programs would become different from what they were familiar with and what we were familiar with. It was as if the people making the satellite would put an amazing instrument in it which would totally eliminate the chaff from the programs, just like instruments which can sort out counterfeit money, forgetting that the satellite is no more than a transmission and booster station broadcasting what is transmitted to it, or a reverse mirror in which we see only our own images.

After 20 Years

There is no doubt that when Arabsat looked out from its loftiness at an altitude of 36,000 kilometers above the earth, pointing its antenna toward the Arab nation, it found the state of the nation as remote as could be from the way it was when the thought of the satellite project originated 20 years ago, and that most circumstances had changed during these years to a point which had made some Arab ministers of communication boast that if the project had been submitted to them today, they would not have given agreement to it.

Circumstances, undisputably, are now different in the mid-eighties from what they were in the mid-sixties. In the past, we found those people who were enthusiastic about establishing an Arab space system considering that such a system would realize strategic objectives for the Arab nation in the area of communications and contact, other cultural, development, industrial and political areas in general, and indeed military ones as well (linking up commanders of Arab armies), and that it was one of the basic structures for building Arab unity in the future.

Where do we stand now in this national orientation, while political disputes are fragmenting the bonds of the Arab nation and its people are fighting one another on the battlefield one day and over the airwaves on other days? What does it mean for radio signals to leap from country to country in space while the borders between them are closed on the ground? How can the satellite broadcast a unified television broadcast program to Arab countries at a time when their statements are rarely unified over anything of value or significance? Where therefore is this unity? Where specifically is it while Egypt is outside it, isolated, cut off by its will and the wishes of others?

When the Baghdad summit adopted a resolution suspending Egypt's membership in Arab organizations, many Arab communications ministers considered that the resolution also had to be applied to the Arab Space Communications Organization. However, another group of ministers considered the total opposite of that, because the Baghdad summit, in their opinion, made the appeal that the Egyptian people, the true beneficiary of the Arab satellite, not be boycotted. When the matter was submitted to the council of the League of Arab States for a ruling, the council ruled that Egypt's membership should be suspended, while another ruling was issued exempting the American firm Ford Aerospace and others from the boycott for dealing with Israel, so that these companies would be able to take part in manufacturing the satellite.

The logic in the league's ruling was that the satellite could not come into being without the Ford company. However, many people considered that the satellite would not prosper without Egypt, and Egypt, with its great population density and its great number of people working in Arab countries, especially in the Gulf countries, which owned the greatest amount of Arabsat shares, was considered one of the vital communications centers, if not the vital communications center, in the Arab world. In the last 3 months of 1984, for example, 25 million telephone conversations took place between Egypt and Saudi Arabia, and the movement of communications to and from Egypt is estimated at about 22 percent of the total movement among Arab countries. It is expected that this ratio will jump to about 40 percent when the life of the first generation of Arab satellites ends in 1992 -- that is, as we launch the satellite today, it is as if we were operating buses knowing in advance by our own will and choice that a quarter of their seats, and perhaps half of them, would be vacant.

Problems of Money

While some people considered that it was necessary to sacrifice money in order to realize national goals, others considered that it was necessary that the project be operated on economic foundations, that is, that it

ultimately had to realize a profit so that it would be possible to launch another generation of satellites when the first generation satellites stopped functioning in 7 years. However, these people nonetheless contradicted themselves, wanting the system to be profitable without putting money into it, wanting the organization to work while its coffers were empty, wanting the satellite to be launched without insuring it and wanting the Arab countries to be converted to using it rather than the international space system Intelsat, although they specified a use tariff which was no less than the tariff for that solidly-established system.

Up to the day the first Arabsat was launched, 135 shares of the organization's capital (that is, $13.5 million) were still being offered for sale, while buyers for them from the member countries of the project did not come forward. Many shares were bought although their price was not paid, and there was a deficit in the organization's budget which came to $50 million of the capital, which amounted to to 200 million. The project's expenditures had increased by about 70 million over what had been anticipated, and thus the Saudi government was compelled to intervene with the banks to lend the organization $13 million so that it would be able to insure the satellite just a few weeks before it was launched.

Saudi Arabia made every possible effort to save the project. It even increased its participation, which totalled 30 percent of the capital. That was not enough for some people. Nonetheless, they stayed quiet so that others bore the burden in the end, and some of them ventured to present a recommendation for emerging from the predicament which would permit private capital to be given participation in the organization, as well as offering participation to the governments themselves. Indeed, a recommendation was submitted to let foreign capital in. However, a dispute quickly arose, as was expected, between the proponents and opponents of liberalism. In any event, the private sector did not embark on any initiative when it noticed the indifference of the governments themselves. One of the reasons for this indifference was that many of these governments recently felt that they had been drained by their contributions to joint Arab projects in various fields whose revenues are hardly worth mentioning. When the Arab communications ministers held their recent meeting, an official informed them that the number of Arab organizations and institutions which were active in the area of communications and transportation alone came to 17 and that they spent $150 million a year.

However, the real cause of the exacerbation of the financial crisis of the project, and others, are Arab economic circumstances, which have changed from what they were before, especially in the oil countries, as a result of the drop in the prices of oil on the one hand and the decline in oil production as well, and also because of the burdens of the Iraqi-Iranian war. It is no secret that these circumstances have prompted some of these countries to review the feasibility of their participation in some international and Arab organizations and projects.

The Other Goals

Would that the change in conditions from the way they were when thought of the Arab satellite first arose had been restricted to political and economic

circumstances alone. Since the communications ministers agreed to the establishment of the Arabsat organization in 1976, means of communication in the Arab nation have developed in a manner that had not previously been anticipated, and this might cause many Arab countries to cease needing the additional circuits the satellite would provide them. At the same time, a tremendous ground communications system has come into being in the Arab nation, the system known as Mid Arab Tel, which cost about $2 billion and has increased the number of ground stations connected to the international Intelsat system. A number of countries have joined the socialist satellite system Intersputnik and other countries such as Egypt and the Sudan, which have discussed the possibility of launching a separate satellite, Nilesat, and Saudi Arabia as well, have thought of launching joint satellites.

All these means at our disposal have succeeded in facilitating telephone and cable communications among Arab countries, but they have failed to achieve anything beyond this in any other areas in which space systems are used. If we take the exchange of television, for example, we will find that on most occasions that has been dormant the past 20 years, except of course for the miscellaneous programs; on rare occasions it would be seized by a feverish convulsion, after which it would calm down and become stagnant again, as it had been originally. Here the television sets are informing us that Western production is leaning on Arab television stations to the point where an American researcher said recently "There is only a very little genuine Arab material in the world of Arab television."

Today, after the launching of Arabsat, people in charge of the media tell us, in a serious document issued by the Federation of Broadcasting of Arab States, that they are afraid that explosive political canisters will be slipped into the programs exchanged. Indeed, some people are afraid of broadcasting soccer live on the air because some commentators depart from athletic commentary to prohibited political matters and the banners draped in stadiums speak not only about wonderful delicious beverages but sometimes carry explosive slogans. What makes matters worse is that no one has yet come forward to use the direct television transmission channel in the satellite, which one can pick up with small, low-cost antennas and itself has cost much more than other channels, because no country has agreed with any other country on what it can broadcast. Agreement has not even been made over religious programs. Would that the French newspaper LIBERATION had been truthful when it sneered at us in describing the satellite as "the highest minaret in history" as it was to broadcast consolidated religious programs.

People in charge of education tell us (in the same document) how they expect us to use Arabsat for education. Show us where educational television exists, essentially, in how many Arab countries, who the curricula have been consolidated among, where these educational programs that can be used are, even if in a limited group of countries, why we pay thousands of dollars for the use of a satellite, and what the rush to compel us to use it is.

As for the people in charge of communications, it seems that the policy which has started to circulate among them is one of dawdling about the platforms of the international space system Intelsat until Arab satellite viewing takes place, or more precisely until the viewing of Arab solidarity

takes place. Therefore, many people were not amazed that just a very few have declared their commitment to shift their communications activity from Intelstat to Arabsat, and many people are not happy when the day the satellite is launched everyone discovers that there are just two ground stations with which to have contact, the ones in Bahran and Jordan, and that some countries will finish establishing their station only after a whole year.

All these facts in reality have been well known for some time, but everyone clung to the last possible hope of saving the dream which was circulating in space, and the statement that Arabsat is one of the most important joint Arab projects to have been completed recently might not contain an exaggeration. Indeed, some people claim that it is the most important without exception. The satellite may succeed after a while in realizing many of its goals in the area of communications, but that, as we pointed out above, was not the only purpose in launching it.

Toward an Arab Technology

The greatest tragedy may have been that the satellite has not achieved one of its vital objectives, which was to start establishing Arab space technology. What we have done is buy the Arab satellite; we have bought its design, have bought its manufacture and have bought its launching. Some people have even said that it bears nothing that is Arab except its name. Although the Saudi Prince Sultan went up on the space shuttle that launched the second satellite, this is not everything. In 20 years we have not been able to train an adequate number of engineers and technicians to operate the space system. Thought has even been given to the possibility of turning to foreign companies to do this job. Of course we have not acquired expertise in manufacturing ground stations or launching, as developing countries such as India have done before us; indeed, we have not acquired any expertise even in the area of ground station manufacture. None of this may have entailed any suprise to anyone who has tried over many years in the past to establish a joint Arab electronics industry in such areas as the manufacture (and not assembly) of television sets or other communications equipment but has failed to achieve results.

It is strange that we are facing the issue of the Arab space industry in this way at a time when there are news reports that Israel has started a wide-range space program. Much is not yet known about this program, but the REUTERS agency disclosed at the beginning of this year that Israel has established a small space agency in complete secrecy and aspires to put its own communications satellite in fixed orbit around the earth, and that the Israeli space program will constitute a challenge to the developed electronic industries and will strengthen Israel's scientific progress and support its national security.

After all this, there is no argument over the Arabsat tragedy, which is nothing but an ugly side of the current Arab predicament. This tragedy reveals to us great deficiency in various areas, foremost among them, one, sound planning, two, coordination among various sectors and various countries, three, the operating procedures of Arab organizations, four, control of foreign technology, five, media exchange in the Arab nation, six, the use

of means of communications in education and seven, a deficiency as well in the use of the resources available in general. The Arabsat tragedy also shows us that although the Arab satellite represents an advanced form of space technology it will be Egyptian only when it is on the ground and will remain dependent in space on what we do on the ground, its problems will be solved only on the ground and its success or failure will depend on what happens on the ground.

We must acknowledge that Arab political disputes have killed on the ground all the sincere efforts made to have the satellite launched in space, which have been many. There is no way out of this sort of predicament except for politicians to keep their hands off Arabsat; no success will be the fate of the satellite if it is used to propagate policies or propaganda for a regime or to praise a ruler; the satellite will not be socialist, republican capitalist, revolutionary monarchical or reactionary. When the project is presented to it at its next meeting it would bc appropriate for the Arab summit conference to declare the neutralization of the issue of communications in the Arab nation. This is a demand that a substantial number of officials have voiced, forcmost among them the former communications minister in Syria; if this happens it will be nccessary that Egypt, the Sudan and Saudi Arabia drop their local projects to launch satellites, so that Arabsat may be used, if it is able to meet their requirements.

However, the summit -- if it is held -- is must not only neutralize the issue of communications; rather, it must isolate all major joint Arab projects from the political struggle, in spite of the difficulty of this matter. In the past, politicians have delivered the coup de grace to every great dream directing us in the future to Arab unity, and here we are, after experiences have burnt us, aspiring only to realize integration in a few limited areas, whether related to economics, industry, culture or other areas. If the "national dialogue" were interested in what can be done in this direction, it will have bestowed a noble service on our nation.

11887
CSO: 5500/4602

BRIEFS

FINLAND BUILDING TELECOMMUNICATIONS NETWORK--On Thursday the Foreign Ministry granted 4 million markkaa as Finland's development aid gift for the construction of a telecommunications network in Nepal. Finland is funding the communication links for Nepal's telecommunications network, for which Nokia Engineering Company has tendered a bid. In addition to the 4 million markkaa now being granted, 15 million markkaa in development aid funds for the same purpose are being reserved for next year and 20 million markkaa for 1987. Nepal's telecommunications network construction project includes the expansion of the telephone network for Katmandu and other urban areas, the connecting of 90 rural communities to the telephone network, the improvement of phone connections with foreign countries, and the expansion of telex connections. The largest funder of the project is the World Bank. [Text] [Helsinki HELSINGIN SANOMAT in Finnish 27 Sep 85 p 12] 10576

SAUDI ARABIA

DEVELOPMENT OF TELEPHONE SYSTEM

Beirut MONDAY MORNING in English 7-13 Oct 85 pp 42-44, 47

[Text] The process of covering the Kingdom of Saudi Arabia with a network of advanced communications systems, in particular, telephone communications, has reached an advanced stage. The telephone network includes all the Kingdom's cities and middle-rank towns and is rapidly being extended to cover rural areas as well. In addition, it is now possible to dial direct from Saudi Arabia to 154 foreign countries.

In this interview, Fuad Abu-Mansour, a senior official of the Saudi Post and Communications Ministry's Maintenance Department, replies to questions on the development of the Saudi telephone system and discusses some of the problems it faces.

Why has the publication of the new telephone directory been delayed? When it finally appears, will it have a special section devoted exclusively to commercial firms, in which the entries are classified according to the type of business engaged in?

There are several reasons for the delay. The first is the problem of keeping track of the new telephone lines which have been installed since the publication of the last directory.

Then there is the problem of ensuring the comprehensiveness of the special commercial section, which will indeed form part of the new directory. We have sent out a short questionnaire to every commercial enterprise of which we have a record, asking for certain items of information, including of course address and telephone number(s) and whether or not they would like to place a special advertisement in the directory in addition to having their name listed. Some firms have not yet returned the questionnaire, and we have delayed publication of the directory until we get these in, or as many of them as possible.

In addition, there are technical problems involved in the format — layout, type-face, and so on — and in the printing process, which are still being ironed out, the sort of thing one has in any big publishing operation and which I need not go into.

There is one number — 905 — which a subscriber may dial for information, and in the absence of a reliable telephone directory this number is besieged with calls from people wanting information. Unfortunately not all the information they get is accurate. How do you see the matter?

The heavy pressure 905 is under does not affect the accuracy of the information it provides, because its service is totally computerized.

Any incorrect information which may be given by No. 905 is due rather to carelessness on the part of subscribers who, for example, change addresses without notifying the telephone department that they have done so, or by the illegal use by someone of a telephone to which he is not entitled.

The same thing, I might add, is often the cause of incorrect bills which are issued to subscribers. The incorrectness is due to the subscriber himself having failed to fulfill some formality he should have carried out, or to his having failed to give the telephone department some information it should have.

We strongly urge citizens to inform the Maintenance Department of the ministry of any change which should be made in the statements they receive concerning their telephones, both to avoid trouble for themselves and to enable the ministry to keep its records accurate. A committee has been formed of representatives of the various ministry departments concerned to look into this problem of incorrect statements and to see what solutions might be arrived at. This matter is especially serious insofar as it touches the accuracy of the new telephone directory.

Has anything been done to increase the proportion of Saudis employed in the ministry's labor force?

The ratio of Saudis to non-Saudi workers in the ministry, which was once as low as 37 percent, has now reached 75 percent out of a total work force of 160,000. This increased percentage is due to greatly increased training of Saudis in all fields and on all levels, both at home and abroad. About one and a quarter million man-hours are spent annually in training, and it is hoped the proportion of Saudis working for the ministry will reach 80 percent within two years.

What about the number of telephone calls made within Saudi Arabia and from Saudi Arabia to foreign countries?

Calls dialed from one Saudi telephone to another increased last year by 21 percent, while calls dialed from Saudi telephones to foreign destinations increased by 15.7 percent. It is now possible to dial directly from Saudi Arabia to 154 foreign countries.

The most important additions made last year were the installation of 60 international circuits between Saudi Arabia and Egypt, and of 150 circuits between the Kingdom and North Yemen..

In the current year there are plans to add 3,300

international circuits to improve service to France, Germany, the United States, Japan, Lebanon, Egypt, Yemen, Sudan, Korea and the Philippines.

It is also planned to set up a new communication station at Jeddah to increase communications via satellites, in particular, via Arabsat, which was launched with the specific purpose of improving telephonic and other communications among the Arab states. Other stations are also envisaged which will facilitate the process of communicating with ships at sea.

What is the total number of telephones now working in the Kingdom?

The number of functioning telephones in the Kingdom reached 927, 803 last year, an increase of some 53,402 over the previous year. The number of mobile telephones, too, increased, by 42.5 percent, and it is expected that the total number of telephone links will reach 1,012,870 next year, an increase of 9.1 percent. In addition, the number of call-boxes is expected to increase this year from 6,607 to 6,850.

Much has been said about making arrangements for paying bills through banks. What has been done so far to bring this about?

The Ministry of Posts and Communications is always on the lookout for ways of improving the services it offers to the public. In regard to making provision for the payment of bills through banks, we must bear in mind that there are technical as well as administrative details that must be worked out, particularly in regard to the drawing up of bills and their distribution, as well as the process of payment as such. These details are still being sorted out, but the Ministry of Finance has given its consent and I am able to say that subscribers will soon be able to pay all their bills through banks, something they will no doubt welcome, since banking facilities are readily available in most regions of the Kingdom.

How do you explain the fact that subscribers are so often billed for telephone calls they haven't made?

The nub of this problem lies in the fact that some telephone subscribers change their addresses or leave the country entirely without informing the telephone department that they have done so. When they move from one residence to another, they should notify the ministry of the fact, and that consequently they no longer have the phone for which they were formerly subscribed.

There is a regular procedure for such notification, which is carried out by filling in documents issued by the Ministry of Public Works, which must be signed by the new owner of the phone and by the local authorities involved. While these formalities are being carried out, the original subscriber continues to be responsible, naturally, for any calls made on the phone registered in his name.

In some cases, believe it or not, a telephone has been known to change hands, so to speak, two or three times without the ministry authorities ever being notified that there has been any change at all. It is this sort of negligence that is at the root of most of the faulty billing.

It has been said that a special study is being made with a view to changing the wave-lengths by which wireless phone calls are transmitted. Is this true?

No such changes are likely to occur, since the wave-lengths used for this purpose are assigned to Saudi Arabia by international agreement. Any changes that are made are only done so in very unusual cases.

I should note here that measures are in hand to standardize the systems of radio waves, frequency bands and so on which are now in use in the Gulf states. This is in line with other measures of standardization now going on among the countries of the Gulf Cooperation Council. ●

/13104
CSO: 4400/43

NIGER

PROGRESS IN 6 YEARS OF PUBLIC TELEVISION REVIEWED

Niamey LE SAHEL in French 20 Oct 85 pp 8-9

[Article by Hama A. Askofare: "Six Years Later"]

[Text] In a country such as Niger, the performance of a mass television should not be regarded as inconsequential. Its virtue has without doubt been to serve as a link between the peoples of a single nation separated by all kinds of communication problems.

Started 6 years ago, the performance of TV has further cemented the national cohesion, as planned in its objectives. Now the people in the four corners of the country, although the signal only reaches 80 percent of the inhabited area, experience the same problems and think together about adequate solutions.

Mass television is not just the images that one receives on the small screen. These images are the product of a whole process extending from the program center to the transmission of the signal through infrastructure as sophisticated as microwave or ground stations linked to international satellites. All this requires a great deal of money. However, this is the price for the objectives assigned to TV.

The cart before the oxen! That is how one could describe--while keeping things in proportion--the way television for the broad public got underway in Niger.

Indeed, when it was started in 1979-1980 all it had was one 10-kilowatt transmitter at Niamey, and another of the same power at Dosso. Leaving aside this inadequacy. One has what is possible.

However, the basic problem, and not the least, was the crucial shortage of personnel: there were only a small handful of trained technicians on the job for the educational TV. And to ease the shortage, a group of 84 technical advisers--of all specialties--landed in Niger to provide maintenance, broadcasting and production. In sum, it was a titan task to launch the mass

television effectively and at any cost. This was promoted by the desire of the leaders to reach a large portion of the population, to produce 80 percent of the programs in Niger, to achieve color transmission, and to train Nigerien technicians to replace the technical assistance staff.

On the technical level, in the center operation, the existing facilities were expanded into a single production center with an AB section for black and white, a C section, and a broadcasting section. For transmission of the signal wave the Niamey-Zinder line was completed in less than a year. And the big event in achieving this mass television was the direct rebroadcast of the national youth festival held in Dosso in April 1979.

From that time on, the operation went on to strengthen the existing installations with very significant additions, in particular a nodal center, that is, a geometric point handling all the arrival and departure contacts and the mobile production equipment. In 1981, the whole network was strengthened by the joint TV-PTT project establishing four transmission centers at Agadez, Diffa, Arlit and In-Gall, supplemented by four transmitters operated by solar energy at Tillabery, Bouza, Dakoro and Tanout. However, the most important part of this phase I was transmission of the television signal by satellite through a domestic satellite network installed at Niamey, Agadez, and Diffa. The advantage lies in the fact that the signal can go in both directions, that is, Niamey-Diffa, Niamey-Agadez, and vice versa, using three ground stations, norm B. In regard to production, the central operation was strengthened by a television news studio, mobile equipment (recorders, video vans), an increase in the number of community receiving centers, and planning of the Gaya program center.

In sum, toward the end of 1982 more than 80 percent of the inhabited area was served. Certainly, the project was ambitious; however, the means that were applied were able to overcome any obstacle; a reflection of the statement by the former director general of the Niger Radio and Television Broadcasting Office (ORTN): "The government has spared no expense to get mass television underway, spending some 25 billion CFA francs."

In fact, this was really a Pyrrhic victory that had to be indefinitely sustained. The gains were consolidated in 1982 and 1983 and toward the end of 1984 by coverage of the regions of Dogondoutchi and Tessaoua, previously poorly "covered" by the Doddo, Konno and Maradi transmitters.

TV a Huge Expense

Unlike the situation for technical equipment at the time mass television was launched, the personnel situation was almost zero, aside from a few trained on the job to operate the system. Also, "crash" training was arranged for 19 people for 9 months at Bordeaux, after which three courses for technicians, newsmen and producers at the National Audiovisual Institute (INA) in Paris. The establishment of the CFTI [expansion unknown], to face overall personnel needs for national television, rounded out these measures.

Considering everything, the result is satisfactory overall. While in 1979 there were only two transmitters, it must be recognized that today the development of the production, program and broadcast equipment has shown a

praiseworthy exponential increase. Personnel training has followed the same ascending curve, such that the number of foreign technical advisers has declined from 84 in 1979 to two in 1985!

Considerable financial means were thus necessary to maintain the planned policy of mass television. It is expensive, and the huge efforts required to satisfy the viewer in front of his little screen are difficult to put in figures.

Just for the TV signal to appear on the screen, it passes through three successive phases, program center, signal transmission network, and broadcast. As you can guess, each phase involves costs in personnel and money. For example, the maintenance contract for the transmission network for the TV signal between ORTN and the Postal and Telecommunications Office (OPT) costs about 220 million per year. The cost of location of the transponder (Intelsat transmitter) as agreed between the two offices is 240 million CFA francs per year. In other words, just the cost of sending the TV signal between the program center and the point of broadcast costs ORTN some 460 million CFA francs per year. Since the OPT treats the installations as being in operation around the clock, the cost of transmitting the signal comes to 42,566 francs per day, or about 1,800 francs per hour. We should explain that this cost is aside from the expense for production--which can be local or foreign--or of broadcasting. The television personnel, aside from those working simultaneously for the two offices, total 130, for an annual cost (1986) of 130 million.

What Future?

While the completion of the Niamey-Zinder line took only a year, and the Niamey-Agadez-Diffa line 7 months, including the Karma ground station, it can be noted currently that the pace has slowed down. However, that in no way means a halt to expansion of the television flow. Far from it! At least that is what ORTN Technical Director Zoudi Youssouf believes. Since the installations have already been acquired, all that is needed is to expand them with links in order to be able to reach the rest of the country. Also, as part of the Liptako-Gourma project, the Niamey-Tera line will opened up for telecommunications, and the installations between Konni and Tahoua will be strengthened. Further, studies have been made at Kandadji, Filingue, and Tahoua, and will soon be made at Tchintabaraden, Goure, N'Guigmi, Iferouane, and Aderbissinat. Mr Zoudi emphasized with conviction: "All the populated areas of the country will be covered, according to priorities to be established."

As we can see, the ORTN has ambitions and, to a degree, the resources for its policy. It remains to be seen if the offerings satisfy everyone!

[Boxed Section by Tchirgni Maimouna]

"When in 1979 the Nigerien leaders replaced educational TV with public television, they were thinking especially of strengthening and maintaining national unity, a national unity whose priority precluded skimping on resources. Thus, despite the inadequacy of both material and human resources inherited from the educational television, the public television was able to get underway after a fashion, with a government investment along with investment by the OPT and French aid.

Subsequently, the purchase of transmitters, construction of ground stations and a microwave center, and, of course, training of personnel, have enabled 70 percent of the populated areas to currently watch TV broadcasts four times a week.

"Four times a week, the Nigerien of Tillabery, at the same minute as the Nigeri n in Agadez or Diffa, witnesses the same national events, thanks to the magic of the broadcast image. This enables them--and this is no small thing--to follow the same problems, have the same concerns, and if possible reflect on possible solutions. The production level certainly has the concern for unification and creating awareness and responsibility on the part of the masses; it tries its best to respond to the general desire to imbue the Nigeri n with the daily reality, in order to persuade him to constantly work to improve his living condition. And this production, while aiming to become more and more national, does not exclude use of foreign productions.

"For the contribution of abroad, if selective, can be very enriching for a country. Thus, spreading of the technology or certain aspects of the culture of other countries can only be beneficial. That is why the target for national production is 80 percent of broadcasts, with the remainder being reserved for exposure to abroad.

"However, the minister of culture and communication told us that currently: "We only produce 70 percent of our programs." Yet this is still considerable for a television service as young as ours, and in relation to other stations in the region.

"Indeed, a great deal remains to be done, and obstacles to overcome. The national territory is still not fully covered. Minister Daouda Diallo told us that this is only a matter of time and also resources. Already, steps have been taken to cover areas like Dogondoutchi, Tessaoua or Tchintabaraden.

"According to the minister, there is also the problem of "technical qualification and organization of the production service." Thus, even though the production may be satisfactory in respect to volume, the fact remains that the quality of some programs does not meet the desires of the public. However, this same public, Daouda Diallo said, should give its support by critical comments, by proposing solutions, and also offering itself with good will and good faith for production of certain programs.

"That said, the lack of resources has something to with production quality. Perhaps when the programs tax goes into effect, it will make it possible to smooth out some rough edges. Now under study, this tax is not a novelty in organization of television stations, and it falls under article 4 of the ORTN statute dating from 1967. It is being envisaged with the purpose of having the people participate materially in the production of the programs that they receive.

"Asked how much we may have to pay, Daouda Diallo promised that the purchasing ability of Nigeri ns will be taken into account.

"On the subject of the cancellation of the Friday evening program that raised so many questions, he said that that also was a matter of resources. However,

it is not ruled out that another day may be added to program time. For, the minister explained, the ultimate goal of the television is to broadcast around the clock. However, 57 percent of ORTN's budget--924 million--is already devoted to television expenses.

"Perhaps when the regional television project has been completed, the television viewers will benefit. Each region will be able to develop and carry out its programs, which will thus directly involve more closely the people concerned. Even now, the news is given in each national language at least once a week."

9920
CSO: 5500/13

NIGERIA

STORM DISRUPTS BROADCASTING

Kaduna NEW NIGERIAN in English 8 Oct 85 p 16

[Article by Daniel Tifato]

[Text]

BROADCASTS at the Kaduna State Broadcasting Corporation (KSBC) have almost been paralysed following a storm that destroyed the transformer that supplies the station with electricity.

The storm which also uprooted several electric poles linking the station, forced the station to fall back on its two generators and its Outside Broadcast (OB) van to run skeletal services pending the repair of replacement of the transformer by the National Electric Power Authority (NEPA), Kaduna.

The OB van, the *New Nigerian* gathered, also broke down two days ago leaving the radio station with the only alternative of having to relay its programmes direct from its Katabu feeder station, some 25 kilometres away on the Kaduna–Jos Road.

Sources at the KSBC said that the station was now relying on one of its two generators to provide it with electricity for transmissions. The other generator has long broken down.

Alhaji Mu'awiyya Idris, the General Manager of the corporation described the situation as unfortunate.

He said that because of the destruction, the station was now faced with the problem of producing programmes in Kaduna and taking them to Katabu for transmission.

Although he could not say how soon NEPA would rectify the situation, he said that NEPA has promised "to look around the country to see if they can find a similar transformer for us."

He expressed the fear that if the problem persisted for long, the few old vehicles they now rely on will break down completely and disrupt services. "We can not afford to go to Katabu eight to ten times a day for too long," he lamented.

Yesterday, the state Commissioner for Information and Internal Affairs, and a one-time member of the board of KSBC, Alhaji Ibrahim Mohammed visited the premises of the station.

The commissioner promised to take up the matter of financial problems facing the station with the appropriate authority.

When the *New Nigerian* contacted NEPA, its Public Relations Officer, Mr. Sylvanus Omoguwe said that the authority was aware of the destruction of the transformer.

He said that work would start on the transformer by weekend but could not say how soon it would be completed.

/8309
CSO: 5500/14

SOUTH AFRICA

PRIVATE FIRMS URGED TO LAUNCH SA SATELLITE

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 3

[Text]

Private enterprise should become involved in the launch of a communications satellite over South Africa.

This is the view of Doug Mills, deputy technical director-general of the SABC, who told EngineeringWeek: "As we are one of the more advanced nations of the world, we should become involved in satellite technology and, as part of the move towards privatisation, the private sector should be given the opportunity to own and operate the satellite."

Contrary to recent reports, this proposed development is totally diverse from the fibre-optics system operated by the Department of Posts and Telecommunications.

Mills recently addressed a conference organised by Syncom, and stressed that a suitable satellite was available for modification in the USA and an early decision on whether or not to buy was vital.

This was so because President Reagan's successor may not be so well disposed towards South Africa, and may enforce more sanctions.

The satellite will be capable of providing a variety of services such as telephone, telex, data, teleconferencing, facsimile, electronic mail, radio and television programme distribution, health services, vehicle tracking and air traffic control.

When asked by EngineeringWeek to disclose the manufacturers of the satellite, Mills declined to do so, but added:

"The satellite will cost approximately $100-million and the master station will be located in the Johannesburg/Pretoria area."

Mills also said: "We must get on top of our problems, including our political ones."

He outlined a timetable for the launch, culminating in the satellite coming into service in November, 1987.

CSO: 5500/6

TV VIEWED AS COMMUNIST DISINFORMATION MEDIUM

MB070805 Johannesburg International Service in English 2100 GMT 6 Nov 85

[Station commentary: "South Africa in Perspective"]

[Text] There is little doubt that the outside world believes South Africa to be going up in flames. There is only one way in which this impression could have been created, and that is through the media, specifically the medium of television.

For months now, a perspective of the unrest situation in South Africa has dominated television news bulletins in the United States and Europe. All one sees is masses of blacks throwing stones and burning vehicles, police wading into them with quirts, armored vehicles scurrying about, and political priests and other activists pouring forth venomous rhetoric against the government and law enforcement agencies.

South Africans traveling abroad have telephoned home in panic, only to be reassured that things are much the same as when they left home. That is to say that incidents of violence are being perpetrated by radical elements in a number of black townships in certain parts of the country.

Television treatment of these events, which has prompted *THE NEW YORK TIMES* to say that South Africa's agony has become American's living-room theater, is obviously now starting to pall, particularly as far as the printed media is concerned.

The in-depth look at the South African situation in the French daily newspaper, *LE FIGARO*, is a case in point. The publication, which can hardly be described as pro-South African, makes it clear that things are not as simple as television viewers are led to believe.

The writer, (Robert Le Crent), explodes the myth that poor, helpless, oppressed blacks are being beaten and butchered by white racists, akin to the treatment of Jews in Nazi Germany. He points out, instead, that South African blacks enjoy the highest standard of living among blacks on the entire continent. This is not a lie. It is not the figment of a fevered imagination. It is an undeniable fact. Once that fact is grasped, the charges of oppression and the whole Nazi Germany comparison obviously simply does not make sense. What does make sense — and (Le Crent) confirms this view — is that South Africa is the target of several forces, including a Communist-inspired and Western liberal supported disinformation campaign. It is part of the strategy Communists are employing to prevent the final stages in the process of political reform in South Africa, which will eventually lead to some form of power-sharing between all 30 minority groups in the country.

Moscow knows that, if this is resolved peacefully, it will lose all chance of gaining control of South Africa, and ultimately of bringing about a Communist world. This is what the struggle in and over South Africa is all about.

Apartheid policy — now substantially abandoned — is a convenient smokescreen the Communists are exploiting to the hilt.

/9274
CSO: 5500/15

DECISION ON NORDIC COUNTRIES TELE-X PROJECT SEEN IN MARCH

Helsinki HELSINGIN SANOMAT in Finnish 16 Oct 85 p 10

[Article: "Nordic Cultural Ministers: Decision on Tele-X Next March"]

[Text] The joint ministers of the Nordic countries will make a positive decision on the Tele-X communications satellite project in the middle of March in Mariehamn. This was the assurance given by the Nordic cultural ministers at a press conference in Mariehamn on Tuesday.

The ministers held a joint meeting with the Education Committee of the Council of Nordic Countries.

Finland's Culture and Science Minister Gustav Bjorkstrand (Swedish People's Party member) mentioned that, for example, there are still some unresolved problems in questions of copyright. However, they will in his opinion be resolved.

Bjorkstrand said that the technical questions have been resolved in principle and unanimous agreement has been reached on the expenditure level of the project. The Nordic Working Committee, which is analyzing individual points, is expected to complete its work in the near future.

Denmark's Education Minister Bertel Haarder mentioned that Denmark is also following Tele-X with interest. Denmark, which is now outside of the project, will join it later according to him to ensure that Danish programs will be included in joint Nordic television broadcasts.

10576
CSO: 5500/2516

NORDIC COUNTRIES AGREE ON TELE-X PROJECT AFTER 30 YEARS OF TALKS

Stockholm DAGENS NYHETER in Swedish 11 Nov 85 p 6

[Text] The governments of Finland, Iceland, Norway and Sweden agreed on Sunday to exchange Nordic television programs via the Tele-X satellite.

This concluded the more than 30-year-old discussions about satellite cooperation in the Nordic countries.

During a meeting at Arlanda Airport, Ministers of Culture Gustav Bjorkstrand, Finland, Lars Roar Langslet, Norway, and Bengt Goransson from Sweden, as well as State Secretary Knutur Hallsson from Iceland, were able to agree on a 3-year trial of increased radio and television cooperation via satellite.

The agreement involves television broadcasts on two of the satellite's channels. The channels are to have different programs, one aimed toward news and current events programs, the other toward cultural and entertainment programs. The costs for the 3 years will be 334 million Swedish kronor, which will be divided between the countries. Sweden will pay most of the cost, more than 47 percent.

Denmark Is Invited

The four countries have also invited Denmark to participate in the cooperation.

All were very anxious that Denmark should be included. A letter with an invitation for negotiations will be sent to the Danish government in the next few days.

The purpose of broadcasting on the two channels is to form an attractive and competitive alternative to other satellite-transmitted television channels, it says in the agreement. At the same time they are to promote Nordic solidarity and give various groups access to programs in their own language.

Just how this program cooperation is to take place in practice is now going to be studied by the television and radio companies of the respective countries. The format for radio cooperation will be determined later.

The experimental activity will be evaluated after 2 years.

Translations

Tele-X cooperation has been under discussion for several years and the problems were numerous, something which the ministers did not deny during Sunday's press conference. A last bone of contention is the costs for translating the television programs, which is now set at a total of 84 million kronor for the 3 years.

The Tele-X satellite will be launched in 1987 and is expected to become operational during the latter half of 1987. It will have several channels. Two will be used to send television programs and one for telecommunication and data transmissions.

The television programs are received with the help of a parabolic antenna. Each country decides on its own how to finance the programs. The development of the Tele-X satellite costs a total of 1.2 billion kronor.

Swedish Minister of Culture Bengt Goransson also reported at the press conference that the Swedish Parliament will receive a proposal next week regarding transmission of Finnish television programs to Sweden via the Nacka transmitter. The copyright question remains to be solved, but Goransson did not regard this as a major problem. He hopes that program transmission will start in February next year.

11949
CSO: 5500/2529

FEDERAL REPUBLIC OF GERMANY

COMMISSION TO INVESTIGATE HOW TO IMPROVE DOMESTIC TECHNOLOGY

Duesseldorf VDI NACHRICHTEN in German 3 May 85 p 2

[Article by R. Schulze: "Communications. Telecommunications Commission Begins Work: Results Expected in Two Years--Cost, DM 2.7 Million"]

[Text] A lively difference of opinion developed recently between the federal postal minister and the federal economics minister concerning participation by the German Federal Postal Service in the terminal equipment market. Now a twelve-person "government commission on telecommunications" is to investigate, within a two year period, how the telecommunications system can be improved.

The optimum formation of telecommunications systems within a highly industrialized, market-based and export-oriented national economy is also an extremely interesting problem in terms of economic theory. For a modern industrialized nation, the management of this task is above all an existential question in view of the fact that information today is increasingly assuming a position of importance equated with that of raw materials. So stated Dr Christian Schwarz-Schilling, the federal postal minister, on April 22 in Bonn at the initial meeting of the government commission on telecommunications. This commission was formed in March of 1984 in accordance with the "FRG government concept regarding the promotion of development in the areas of microelectronics, information technology and communications." Within two years, the commission, consisting of a dozen representatives of the sciences and politics, is to investigate improvements in telecommunications--particularly with regard to terminal equipment.

Thus, technical innovation, development and adherence to international communications standards are to be promoted; competition on the telecommunications market is also to be assured. The study will deal with questions in the area of telecommunications from both national and international points of view. Other central questions concern the organizational, economic and legal requirements involved in tasks performed by the state via the German Federal Postal System, as well as the establishment of the state's boundaries with regard to tasks assigned to the private sector. The commission is being advised by the Federal Ministry for Post and Telecommunications which has established an office for this purpose manned by members of the German Federal Postal System. Costs for the two-year study by the commission are estimated at about DM 2.7 million.

Regarding the work of this commission, Minister Schwarz-Schilling said, "The quality of the solutions found will not be measured by national or European yardsticks; they will have to prove themselves above all in the international market. Those countries which have the better information links will be the most successful in the international market. I hope that the commission allows itself to be guided by the conviction that in case of any doubt healthy competition should always be given preference over state or even private monopolies, but that corresponding changes are only justified when they benefit the broad masses of consumers and not just a few. The members of the commission were selected as a certain reflection of our pluralistic society. I hope that they nevertheless find common ground in providing their suggested solutions."

12552
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FINLAND

COUNTRY'S NEW COLOR VIDEO PHONE MOST ADVANCED IN WORLD

Helsinki HELSINGIN SANOMAT in Finnish 10 Oct 85 p 16

[Article by Risto Varteva: "Finland First in Europe: Color Video Phone"]

[Text] The video phone is coming in spite of the skeptics: The State Technical Research Center, VTT, has developed equipment for transmitting a moving color picture, which is the first in Europe and the first of this type in the whole world.

A full year ago VTT publicly announced a procedure for transmitting a similar black and white picture. The color picture does not differ from the black and white picture in principle except that it is necessary to transmit three times as much data than in a black and white picture because of the colors.

The whole problem lies in the fact that a normal telephone line is capable of accommodating only approximately one-thousandth of the amount of data needed for the transmission of a television picture familiar to us from before. Thus thousands of telephone lines would be needed simultaneously for the transmission of a live picture by the old procedures.

"The solution lies in the fact that the transmission of unnecessary data is avoided," says Engineering Licentiate Pentti O. A. Haikonen, the developer of the procedure, in providing a simple explanation of the matter.

On a normal television screen the picture changes 25 times a second, but the majority of the data remains the same for at least an instant. The background behind a television announcer, for example, remains the same (if the camera does not move) and in principle the only changing are then the expressions and other movements of the announcer. Unnecessary information according to Haikonen is thus comprised of all that which is the same as in the previous picture.

"Initially, we thought about video phone consultations," states Haikonen in describing the basic idea of the research project, which began in the beginning of 1982. "There is not a lot of movement in telephone consultations, but pointing can be transmitted even by this means on a picture tube since hand movements introduce relatively little new information into a picture."

In VTT's presentation of the color video phone on Wednesday there was also a demonstration of what happens when a person travels across the picture and causes a large flow of data. The picture turned into a blurred mosaic, but since a motionless background remains, the picture renewed itself in a couple of seconds like a rapidly executed jigsaw puzzle.

It is futile to expect that the color video phone will replace cable televisions, but a use will be found for it: for example, no one is seriously demanding that a voice transmitted by telephone should be of hifi quality and in stereo. This data is transmitted with even less brilliance.

No Need To Developed New Telephone Network

One of the merits of the new method is that normal telephone connections are suitable. There is no longer any need to be concerned about how much a new cable network would cost in talking about a video phone; billions would be a small amount of money.

According to division chief Harry Santamaki, who directed the research group, several contacts, some of them with foreign firms, are already in progress for initiating the industrial production of this procedure. "VTT's task, however, is to assist domestic industry," points out Santamaki. "However, something definite will come of this in the fall since competition is stiff."

Even though Finland is number one in this field in Europe, it is known that the United States and Japan are also advanced in this area. For example, in the United States equipment intended for the same type of telephone consultations is being sold at a cost of a half million markkaa; it is estimated that the future price of VTT's equipment will be only 100,000 markkaa.

The Helsinki Telephone Company and the Postal and Telecommunications Administration are already testing this equipment. In addition to Santamaki and Haikonen, graduate engineers Ilkka Korhonen and Juha Leppanen have belonged to the research group.

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FINLAND

BRIEFS

SWEDISH PHONE EQUIPMENT MARKETED--Wulff is importing a telephone memory storage unit developed by Swedish Teleindustrier. The electronic device that can be attached to a telephone can store 400--500 telephone numbers in its memory bank. The numbers can be programmed by name or some other designator. The data is displayed on a screen, which also serves as a desk calendar. Wulff expects that the first year's demand will be 600--800 units. [Text] [Helsinki HELSINGIN SANOMAT in Finnish 22 Sep 85 p 24] 10576

AGENCY ORDERS DIGITAL EQUIPMENT--The Postal and Telecommunications Administration is ordering digital telephone exchange equipment from Telenokia. According to the agreement, it will procure equipment worth approximately 50 million markkaa in the years 1986--1988. These exchanges will be installed in network groups serving Imatra, Lappeenranta, Ylivieska, and Hyvinkaa. The first deliveries will occur in the first part of next year. The agreements between the Postal Administration and Telenokia includes time-division exchange equipment along with their programs, which are part of the DX 200-system manufactured and developed by Telenokia. The digital technology offers the consumer better connections with less interference and makes it possible to offer to new services to the subscriber. [Text] [Helsinki HELSINGIN SANOMAT in Finnish 13 Oct 85 p 40] 10576

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ITALY

STET OFFICIAL VIEWS EVOLUTION OF EUROPEAN TELECOMMUNICATIONS

Milan INFORMATICA 70 in Italian May 1985 pp 24-27

/Report presented by Eng Luigi Montella, deputy general director of STET, to the Meeting on "Telecommunications: American Scenario and Italian Scenario," held in Milan 13-14 March 1985 at the American Trade Center: "The European Policy on Telecommunications and the Italian Situation"/

/Text/ The "divestiture" policy in the United States set in motion a process that seems largely irreversible today despite the uncertainties, which seemed to be actually growing at times, concerning some critical points in its architecture. The system of telecommunications services operated as a strictly national monopoly for half a century. Aside from the differences in political systems and ideologies that affected the particular local situations in some way, the technology, the necessity of guaranteeing a homogeneous and ramified network, and the simplicity and uniformity of the service provided actually made this system appear as a natural monopoly area.

During the 1970's this situation was changing under the powerful pressure of the new possibilities offered by technological change, by the many new services and by a very dynamic market demand. This pressure gave rise to a process which I think will be long and difficult in maturing. Such a process, started in the United States and then in Japan, is also reaching Europe and presenting a number of problems, and I accordingly think that the main lines along which the next evolutionary cycle of the telecommunications system will develop are characterized by one view on liberalization and another one on the broad confrontation on the international level.

The challenge facing Europe is that of adjusting its own actions on the telecommunications system as regards arrangements, possible degrees of liberalization, and internationalization on the world level. Clearly the answers to these questions must allow for the diversified European situation, which calls for specific directives according to an overall plan that will take many years to complete. The important thing today is to determine the overall plan on which to concentrate political authority and the industrial forces in order to mount the necessary actions in a coordinated and effective way.

Before going into an analysis of the problem, I think one thing is certain in any case: Europe must determine to build a homogeneous telecommunications system on the continental level. Opinions may differ as to the ways and times for attaining this objective, which must be a firm one on the political, economic and cultural levels.

"Gallia est omnis divisa in partes tres" is the opening of De Bello Gallico, whereby Caesar intended to convey a scenario of weakness and to indicate an easily conquered land. From this sentence we can still gather what the present state of Europe is, aggravated by the fact that there are more than three parts today.

This proposal was born of the necessity of starting and managing the process of building a homogeneous system of telecommunications services in the European community. Technical-economic evolution on the one hand and the prediction of a commercial challenge on the world level on the other hand certainly make it obsolete to consider these problems on the national scale, and now it is necessary to form a basis of reference on the European level.

It should be noted that such a proposal does not concern industrial and commercial problems in connection with installations but solely the problem of the legal and organizational arrangement of the services. In this connection we can only emphasize here the necessity of a sectorial industrial policy on the European level. As a matter of fact the competitiveness of the telecommunications services, in view of their strategic value, requires of Europe a technological and productive autonomy in keeping with the more advanced positions on the international level. This industrial policy, which must aim primarily at a better return from the investments in research and development, which are excessively fragmented and widely duplicated today, can find a valid internal aid in a broader viewpoint favoring the formation of a homogeneous European market for telecommunications services through proper efforts toward standardization, ratification and coordinated development.

As regards the market, there has been an extensive discussion in the last few years on the subject of monopoly and liberalization, which has been most heavily emphasized in connection with American and Japanese deregulation and which is also receiving political attention in Europe. Technological evolution and the prospective requirements of the consumers cause the area of the consumer terminals and the services to be rated at an added value as a free market, except for the necessity of conforming to the specifications for their interconnection with the public network.

On the other hand, however, a more articulated situation is encountered today in the area of management of the telecommunications networks and the basic services, where there are various forms of management. In the majority of cases in Europe there is a monopolistic management, on the national level, of the basic telecommunications services and related structures, an arrangement that tends to minimize the investments, formerly very considerable by themselves, in research on the best price-services ratio allowing for the characteristic of predominant public interest associated with the service. But in some cases, as in England for example, a competitive management is also preferred in this area which, when properly guided, seems able to provide a better quality of services efficiently. Clearly the distinction between products and services managed under a monopoly

and those left to free competition is to be considered a variable, and therefore the determination of the two together could vary in time primarily with technological progress and the surrounding conditions.

To return to the proposal, one of our first objectives in connection with it is to determine suitable geographic areas, comparable in extent and number of consumers, that will result in optimal efficiency of the services in the future. On the analogy of the regional system adopted in the United States, a subdivision into six or seven regional areas, depending on the sizes of the particular national states, is also considered serviceable for the countries of the European Community. The final arrangement, which is correlated with the existence of an actual European political unity, will be reached via a transitional stage wherein the particular local situations will have to be allowed for.

Today especially the situations in the various nations determine various arrangements in regard to the service administrators. There are cases where the public administration manages the service directly through its own structures, and there are cases where the service is assigned by the government authority on concession to firms which in turn may be entirely state owned or joint stock companies with joint public and private ownership of the registered capital. Similarly the choice of the kind of management of the basic services on the regional level (under a monopoly system, according to the trends prevalent today, or with controlled competition in any case) is left to the respective national governments, since the diverse political and economic characteristics of each individual country must be allowed for.

An oligopoly situation, or one with controlled competition and a limited number of administrators, might be more desirable for the European interregional services and those outside Europe, insofar as it is possible to foresee the medium-long term evolution. It is a matter of an architecture which, under pressure of technology and the market and with the appropriate adjustments to Europe, tends to emphasize the reasons that led to the formation of regional companies in the United States separate from the long-distance ones.

The attempts of some U.S. "carriers" to gain access to the European market in order to sell their basic and data transmission services at a markup are already numerous and furthermore they will increase in time. Clearly a Europe divided among single national states and lacking any basis for uniform coordination and consequently any common policy would risk presenting a fragmented and accordingly easily captured market. On the other hand it would be more advantageous to negotiate and carry out a policy of access, based on reciprocity, that would take account of a comprehensive European view to contrast with the American and Japanese aspects.

From this standpoint it is also necessary to allow for the huge organizational and investment effort that the sector will require in the future in order to cope with the pressure from the carriers outside Europe, who are provided with a great reserve of means and a notable abundance of organizational structures. Therefore it may be advantageous to promote a policy of collaboration in Europe among the European long-distance administrators (namely those managing the traffic among the individual regions just as they have been defined, besides the intercontinental traffic) so as to enhance their competitiveness on the world scale.

In its broad outlines this is the scenario toward which the European telecommunications system could evolve from its present state of heavy dependence upon the histories of the individual countries. To be sure there are many variables subject to evolutions that are not easily predictable today, but it is still necessary to work in the next few years for construction of a European telecommunications system which, by allowing for technology and the market, will be able to make effective progress if it takes up the challenge of the confrontation forced upon us by world competition.

The possibility of pursuing and conducting this process of change depends both upon the political will to do it, which is expressed in the Council of Ministers' own office, and upon an operational body able to serve as the technical instrument for implementing regulations, standards and policies in the community telecommunications sector. In particular this body, which can be organized as the European Agency or otherwise within the orbit of the Community Administration and which for convenience will be called ETA (European Telecommunications Agency) below, should perform the following delicate and basic functions:

1. Coordinating communications policy outside Europe: In this capacity the ETA would be assigned the task at the Council's direction of determining the general terms for passage of traffic to and from Europe with criteria for reciprocity. The individual administrators are free to operate within these rules for the best attainment of their traffic and efficiency objectives.

2. Coordinating interregional communications: It would be the ETA's main mission to guarantee a harmonized development of the services for the benefit of the consumers and favoring possible forms of collaboration among the carriers themselves. The ETA would also have to outline a rate policy for such services so as to permit a controlled competition.

3. Administering the policies on standards: The ETA is to favor the adoption of common and uniform standards for both products and services, as well as the application of ratification procedures applying to all the countries. This will make it possible to stimulate an effective homogeneous market in Europe which, if it is preceded by activation of an appropriate industrial policy on a community basis, will be able to make a valid contribution to the reinforcement of manufacturing activity in this sector.

4. Harmonizing regional levels of development: While still observing the particular prerogatives of the individual local authorities, we must be able to find priority directions of common development with an eye to the natural trend toward constantly increasing interconnection of the regional systems for the various kinds of services.

The plan generally outlined here for a future arrangement of telecommunications services in Europe will be implemented according as the political and economic situations develop. In its main expectations at any rate it seems quite compatible with the program introduced by the Comrission for the European Community in this sector (harmonizing the developmental programs, the standards policy, and building transnational structures) aiming at an organizational and political arrangement transcending the present limitations of the national situations.

This will be one of the more significant tests and one of the more valid criteria for the united will of the EEC countries in a field where, unlike many others, the political will can overcome the existing difficulties by introducing with the proposed body, the ETA, a first point of reference and coordination for the telecommunications services on the community level.

Evolution of the Italian System

The developmental process of the Italian situation logically follows in connection with the described plan for a comprehensive view of the European telecommunications system. In practice, Italy is one of the six or seven European regions wherein the domestic services should be assigned to an administrative center, the SIP, in accordance with the following main criteria:

- Confirmation of the monopoly on the exchange and transmission network and on the services of predominant public interest such as basic telephone service, data transmission, videotex, video-conference, portable radios, teletex and other services;

- Complete liberalization of the terminals and other apparatus and systems that are connected to the network;

- Open competition between SIP and other private firms in the area of services at a markup.

Clearly in any federalist conception of the European community every state in every region remains sovereign in adapting these aspects of liberalization to its own traditions, experience and interests. Therefore we can have positions on these points that are not entirely identical in England, for example, and in Italy. Moreover the latest reports from the United States make it appear that different approaches to the method of deregulation are emerging in some states such as Virginia, South Carolina, Mississippi, Alabama et al.

But in regard to the international services, namely the European long-distance ones and international traffic, the described plan tends to form an administrative center in Italy that will be able to compete on the international level.

It is clear, however, that we shall be unable to share the idea of a "wild competition" but consider it essential to have some precise regulations that will secure the effective development of the services and their simpler and more natural use by the consumers. This, like what happened in the air traffic sector, means that the most advantageous terms will have to be negotiated for reciprocity in view of the above-mentioned necessity for Europe not to be divided into individual national choices but to form a coordinated whole. Accordingly the Italian situation, in reference to the analyses made of the developmental trends of the telecommunications system in Europe, should be organized in two directions, the first for administration of domestic services and the second with responsibility for the international services.

As for the problems of privatization, which have come to be widely debated in Europe since British Telecom's recent experiences, it will be remembered that from their very beginning both SIP and ITALCABLE have been joint stock companies

controlled by the STET financing company, which in its turn is a joint stock company controlled,as a majority partner, by IRI, which is a public agency for administration of state investments in the economy. On the basis of this organizational system, STET, SIP and ITALCABLE are all companies quoted on the stock exchange and accordingly open by definition to investment of private capital.

As regards the particular characteristics of a public utility that distinguish this sector and the considerations that necessarily follow from them concerning its relative adjustment, it is considered suitable to form an an appropriate body directly under the Ministry of PT /Posts and Telecommunications/ to be assigned the planning and control functions in accordance with the most suitable methods of attaining maximum efficiency. In fact it is clear that both for securing a harmonious and steady development of the basic services throughout the national territory and for promoting the expansion of the new services,in view of the strategic importance of the telecommunications sector within the national economy, the political authority should be able to express its main objectives through this body in a view that in its entirety will guarantee the community's interests.

This general formulation of the evolution of the Italian system includes some aspects that must be pursued with determination and on very urgent terms. First of all there is the one pertaining to a policy of service and product standardization developed in correlation with the other European countries. In digital switching, videotex, portable radios and teletex, to name just a few examples, the diversities in placing and the already noted incompatibilities among the various European countries must be overcome in order to arrive at concerted programs sooner that will unify the standards. This is the essential contribution that must be made in order to achieve a homogeneous telecommunications system in Europe and a uniform market at the same time.

Another aspect to be faced sooner is that of procedures for approving products that differ considerably from country to country today. In fact formation of a uniform European market necessitates adoption of approval procedures valid in all community countries and permitting mutual recognition of the conformity tests. In fact failure to adopt uniform policies on standards and approval procedures has brought on a number of fragmentations and duplications in industry that have made research and development work ineffective and thereby compromised the economic effectiveness of the outputs.

The success of an industrial policy that will permit Europe to fulfill the best of its potentials by involving the human, technological and financial resources of its own firms actually depends heavily upon implementation of a comprehensive plan for the European telecommunications system such as the foregoing one, which can mature in a medium or long period. But it would sooner prove essential to start arrangements for uniform standards in the sector and common approval procedures.

In effect, while the discussion of general subjects is going on in many quarters I think it is important to carry out the initiatives possible today, which are actually those pertaining to the two aspects of standardization and ratification. Through such initiatives Italy can make a great contribution of experience and a market in view of the size of the national telecommunications network, which is among the greatest in the European community.

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