

Telephone Communication and Urban Development In India

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**"Free Enterprise was born with man and
shall survive as long as man survives."**

—A. D. Shroff

1899-1965

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Introduction

Rapid and large-scale economic development envisaged in our country cannot take place unless the infrastructure of communications is developed properly and operates efficiently. Telephone services occupy a key place in the communications system. The pace of development and operational efficiency of the telephones in the country, particularly in important financial and industrial centres like Bombay, have been subject of considerable adverse public opinion. This publication analyses the telephone system, with particular reference to Bombay, and offers several constructive suggestions.

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In addition to operational matters discussed, the telephone system which is a public utility also raises many issues which need to be carefully discussed and settled in favour of the public once and for all at this early stage of development. Pricing of telephone services is one such issue. Should prices be unilaterally increased, or should they be subject to scrutiny and approval by an independent pricing commission which will give an opportunity to the public to air its views? Once again, what is the remedy to subscribers in case of overbilling and other faults of the Telephone Department whose burden has to be borne by the subscriber? Other issues of public importance are the allocation priority of telephones in crowded exchanges, as also the quantum of deposit claimed from applicants.

There is also the crucial issue of the form the entire system should take: a government department or a public corporation subject to directives of Government or Parliament?

It is hoped that this publication with its many constructive suggestions will stimulate public discussion, and eventually lead to a telephone system which effectively contributes to economic development of India while satisfying public needs.

Telephone Communication and Urban Development In India

by
Dr. Rashmi Mayur

A Parisian passing through Bombay recently described Bombay Telephone as "telefrustration". After two days of gruelling efforts to call from Colaba area an industrialist in the suburb of Bombay, Malad, he finally resigned and left the city in disappointment. The experience of the gentleman from Paris can be multiplied several hundred times by thousands of telephone users around the country, but particularly by those in Calcutta and Bombay. It is a paradox of the technological era that in an age of instant communication, when it is easy to talk with a person on the moon about 238,000 miles away, it should be agonizing to call from Colaba to a suburb only 25 miles away. More than 101 years have passed since Alexander Graham Bell, a professor of the deaf, invented a miracle box called the telephone, which broke all the sound barriers and brought humanity near by seconds and minutes. Since the early days of rudimentary transmission of sound, the telephone progressed rapidly. With the establishment of the commercial telephone exchange in 1878, overseas telephone in 1927 was narrowed by the global telephone system. When Bell uttered his last word in 1922 there were already 25 million telephones in the world, which doubled by the time the Second World War was over in 1945. Increasingly, it was recognized that for the conduct of affairs of the modern world, one of the most essential technologies was the telephone, which was proven by this phenomenal growth. The number of telephones reached 336 million in 1973, is 400 million today and will be 1.5 billion by the end of the century. Whereas 280 billion calls are

made per year, they will reach one trillion a year by the end of the century.

Such is the course of the Tele-communication Revolution under way because of two major developments — electronics and automation — as if a new universe has been discovered by penetrating the environment through a set of novel and increasingly powerful refined instrument. If we recognize that a human being is a system of information, then input of necessary, selective and patterned information from the environment is a necessary condition for survival, growth and progress. The telephone provides a most significant auditory apparatus for transmission of oral messages. As long as human beings speak and hear, the telephone will remain an important feature of modern civilization for exchange of messages among people divided by space.

The present telephone technology is not the last word in the communication system. Already video-telephones are available by which one can see the person one is talking to. The transmission of computer data through the telephone has already become common practice in many advanced countries. Telephone xeroxing services, by which a copy of a document can be transmitted through dialling a number is already invented. Having a mini-telephone of the size of a match-box in the pocket by which anyone can reach someone, whom he desires to speak to, is not inconceivable by the end of the century. An array of immense possibilities concerning development are already in the experimental stage.

COMMUNICATION IN URBAN SOCIETY

The intricate functioning of the urban society depends greatly on an effective communication system, that is, meaningful and purposive interactions. Among the various media of communication such as radio, television, newspapers, postal services and telephones, the potentiality and the capacity of the telephone medium remains immense and

because of the accelerated technological advances the marginal cost of telephones is declining. It is almost impossible to imagine the functioning of modern society without telephones, whether it is business or government, or industry or even day-to-day life. The telephone provides an effective tool in the functioning of the urban machinery. Imagine the delay and the cost in terms of time and money if a top business executive or a minister or a commissioner has to substitute any other media for telecommunication! It would be prohibitive. Also, think of a medical emergency or fire hazard or need to make a quick decision or police eventuality or any other socio-economic crisis — all these to be handled without a telephone! Life without telephone in urban societies is just not conceivable.

If one can get an immediate phone connection, a person anywhere in the city is auditorily with you in the average of seven seconds (four seconds on a push button telephone) and within 17 seconds in any part of the country if connected by the STD. Thus, compressing thousands of miles of distance in a few seconds is a miracle indeed, which can be taken for granted until one is deprived of it. This is evident from the example of a fire in the telephone exchange in downtown New York during the early 1975, which put approximately 250,000 telephones out of order for a month, leading to a total chaos and a great financial loss.

Even in economically less advanced countries, the telephone is a vital force for modernization and development. This is proven by the fact that more than 50 per cent of the telephones in India are in the main urban centres, where only 20 per cent of the population resides. In some countries like Argentina, almost 85 per cent of the telephones are in the main cities. In these countries, despite inefficient management and defective equipment and poor maintenance, the telephone plays a pivotal role for economic development. Hence, it is necessary to examine the working of the telephone system in a major city like Bombay in terms of the service availability, the price paid by the public, problems and difficulties as well as the methods of improving the

services. Such an investigation would have relevance to other cities of India.

Out of 400 million telephones in the world today, just one country, that is, the United States, has 145 million. It means one telephone for every 1.5 persons; whereas, India with a population of 605 million people, has 1.8 million telephone, that is, approximately one telephone for every 333 persons. Such a vast gap is understandable considering the level of technological development. In countries like Bangladesh and Burma the situation is even worse, where the telephone-population ratio is 1:1000. Considering that India is by and large a rural country such a situation is understandable. What one is concerned with is the functioning of the telephones and their utilization for national development.

TELEPHONE SYSTEM IN BOMBAY

Bombay has 179,000 direct exchange lines and there are 300,000 telephones with a population of seven million people. That is, there is one telephone for every 23 citizens. Besides this, there are 3,000 public telephones. According to the available data, 15 calls per telephone are made daily. The budget of the Bombay Telephone Company is as follows: Revenue expenditure, Rs. 12 crores; Development expenditure, Rs. 18 crores; and Anticipated income, Rs. 72 crores. The Bombay Telephone Company has a total staff of 13,200 with the following breakdown: Officers, 300; Technical staff, 5,900; Administrative staff, 3,600; and Telephone operators 3,400.

As on October 1976, the waiting list was as follows :

1. Own Your Telephone	...	41,952
2. Special Category	...	3,930
3. General Category	...	21,442
		<hr/>
Total	...	67,324
		<hr/>

Since the introduction of the deposit of Rs. 5,000/- for the Own Your Own Telephone Scheme and Rs. 1,000/- for special and general categories, a year ago, the number of people on the waiting list as reflected above is reduced to half. It would take approximately five years to clear the present backlog. The expansion capacities as planned by the Bombay Telephone Company would add 140,000 new lines during the next five years. Moreover, there are plans to double the trunk and demand services and offer the STD service to several other cities besides the 18 cities covered at present. By 1984 the plan is to have half-a-million telephone connections in the city. The present charges per call on private telephones are 30 paise and on public telephones 50 paise.

It is obvious from the above facts that Bombay like other major urban centres suffers from a severe shortage of telephones, even though it is more fortunate than most of the other cities. Approximately two million people have direct access to the telephone and two million more have indirect access by paying anywhere from 40 paise to one Rupee per call. The rest of the three million people have no other access to telephones except public telephones. Thus, it is clear that approximately 43 per cent of the citizens are deprived of an essential service like the telephone.

TELEPHONE USERS' PROBLEMS AND DIFFICULTIES

Even for those who have telephones, its utilization has become an ordeal. The telephone service has been described by many people as "a nuisance" or "a nightmare". For some people it is a harrowing experience to use the phone. Many others have resigned themselves to this fate out of sheer disgust.

It is in order to understand these difficulties that a study of a sample survey of 3,000 telephone subscribers in different

parts of Bombay was carried out. The results are as follows:

Types of defects	Percentage
1. Difficulty in getting assistance from Nos. 173, 176, 185, 197, 198 and 199.	61
2. Defect in hearing.	58
3. Cross-connections.	54
4. Improper treatment by the telephone operators.	51
5. Wrong numbers	43
6. Held-up lines	38
7. No-dial tone	36
8. Dead line	34
9. No connection after dialling	28
10. Continuous dial tone	23
11. Engaged signal before completing dialling the number	20
12. Falling numbers	18
13. Wrong bills	16
14. Radio sound on the line	14
15. Fault with instruments	12
16. Others	11

(The total is not 100 per cent because people were free to answer more than one question.)

The Bombay Telephones receives approximately 75,000 complaints in a year. We have estimated that on a particular day about 14 per cent of the telephones remain out of order and the number reaches 25 per cent during the monsoon period. Some telephones are repaired within an hour, while there are others who seem to have waited for more than four months. Generally, 65 per cent of the telephones are repaired within four days, even though they may go out of order again soon after the repair. Most people have negative opinion about the operation of the Bombay Telephone and they express their despair in terms of "mismanagement", "corruption", "inefficiency" and "neglect".

Frayed tempers and improper language seem to be the common features during cross-connections and wrong numbers. It is not easy to calculate the number of wrong calls before getting the right number. We, however, have estimated approximately three wrong calls for every 10 numbers dialled. It is also computed that 42 years a day are wasted by the people of Bombay just for dialling calls. In the light of this information, it is easy to understand why the general public is unhappy with telephone services.

PUBLIC TELEPHONES

Considering the number of people in the city, particularly without telephones, it is pathetic that there are so few public telephones, but the more serious difficulty lies in the working of these telephones. According to our survey, on any given day, almost 70 per cent of the public telephones remain out of order. Difficulties concerning the public telephones are many and it seems that even the public is equally responsible for their failure. However, there is a general feeling that there has been some improvement in the public telephone system during the last one year.

TELEPHONE PERSONNEL MANAGEMENT AND PRODUCTIVITY

After interviewing several people in the maintenance staff, the following difficulties have been identified:

1. Productivity per worker in the repair department is far below normal. It may be due to low morale, lack of facilities (travel, etc.), non-availability of material at times, lack of co-operation and insufficient practical training.
2. Improper organizational structure leading to inefficiency and confusion, such as the co-ordination among the line-men, mechanics, jointers and wiremen.
3. Considering the total number of operators it seems that work allocation and performance are not effectively handled.

This is not because the Bombay Telephone company does not have adequate staff; even the present staff can increase its productivity at least by 40 per cent through certain reorganization.

From the above analysis, it is clear that there are several difficulties ailing the Bombay Telephones. Considering the total telephone system, with several difficulties, rooted partly in technology, partly in management and partly in human factors, there is a great deal of scope for its improvement and modernization for the benefit of the public. As far as technology is concerned, Bombay decided to go in for the Cross-bar system in 1967 rather than the Strowger (step by step) system. The Cross-bar system does have an advantage in terms of long distance dialling, but its efficiency is inversely proportional to the load on the system. Since the Bombay Telephone system is overloaded, the disadvantages of the Cross-bar are acutely felt in the form of poor services. It is very difficult to determine the quality of the equipment. Considering the Indian climate and frequent breakdowns, it is important to examine the quality of the equipment before manufacturing it.

Of course, it is not easy to compare the performance of the Bombay Telephones with that of other countries, but telephone is an international commodity and service and there is no reason why there cannot be international standards for their functioning. It is worth noting that less than one per cent of the telephones remain out of order in New York city.

SUGGESTIONS AND RECOMMENDATIONS

The Bombay Telephones should have a complete overall examination in order to improve its service to the citizens of Bombay. In this respect even the people themselves should co-operate fully in bringing effective results for its operation. Hence, the recommendations are divided as follows:

1. Improvement of the Bombay Telephone System.
2. Public Co-operation.
3. Public Telephone System.

1. Improvement of Bombay Telephone System: (a)

Since 198 handles such a large number of complaints, it may be advisable to have a special number at the local telephone exchange for complaints for the area. This would simplify the process of attending to the complaints. (b) Since the overhead wires break down easily, they should be immediately laid underground. (c) As everywhere in the world and particularly in a city where the rainfall is so heavy, it is absolutely essential to cover the cables with a duct in order to protect them. (d) Since there are general complaints by workers concerning spare parts, the Company should keep sufficient number of spare parts for repairs. (e) There should be an efficient system of attending to complaints in terms of co-ordination among various types of workers, testing and providing them with sufficient vehicles to attend to complaints. (f) The internal wiring in the houses should be fixed properly and it should be changed every few years to avoid difficulties. (g) If a telephone remains out of order (for any reason) for at least a month, the subscriber should not be made to pay the rent for it since he could not use the service. (h) It is understood that the Telephone Company has been examining its billing system very carefully, yet, it should make utmost efforts to ensure that people do not receive inflated bills. (i) All the exchanges should have working air-conditioning systems in order to protect the system; for example, the air-conditioner at the Powai Telephone Exchange has been out of order for the last six months. (j) There should be a regular programme of replacing faulty and worn-out parts such as "selectors". (k) It is unfortunate that the telephone instruments are also defective because of their poor quality. It is well-recognised that by and large people seldom have any difficulty with their equipment in many countries. (l) The multiple telephone system to a single subscriber should be eliminated immediately in order that a larger number of people can have the availability of this essential service. There are cases of people having more than half-a-dozen telephones with hardly a few people at home. At the most, in a difficult and special situation two telephones may be granted but beyond that it is a waste, which deprives

thousands of people of the telephone they need. (m) Another important method of increasing productivity in the telephone department would be to introduce radical management reforms and regular training in communication management. Such reforms should streamline the telephone department in order to bring about better and efficient system, but more than that it should introduce strong management controls in order to eliminate alleged corrupt practices at different levels. (n) Surely the problem of telephones in Bombay will not be eliminated purely by increasing the number of phones. Even with the present number of telephones, with proper management and equitable distribution, the city can get a better telephone service. At the same time, the company should move towards the development of a more modernized and high quality telephone technology. (o) There should be an expert public grievances committee which can examine difficulties faced by people and assist the management in applying rational and permanent solutions. (p) The telephone department should give assurance to the public that under the normal circumstances it would correct the major problems within a certain time, say, two or three days. (q) It is not necessary for the Telephone Department to provide the alarm services since most of the people who can afford to have a telephone can have their own alarm clock: instead, that line and manpower can be used for complaints. (r) It is not necessary for operators even to waste two seconds on each call by saying "Namaskar". What people want is a service and not unnecessary courtesy. The operators should be so well-trained in their jobs that they should attend to the problems of the public efficiently and systematically. (s) The Telephone Department should make a motto of service with courtesy in order to build up its positive image with the public.

PUBLIC COOPERATION

No public service as large and complex as the Telephone System can work successfully without the co-operation of people. People can co-operate with the Company in several ways: (a) First of all, they should handle the

instruments properly. The telephone is only a mechanical gadget and its rough use would affect its functioning. (b) Because one can afford to use a telephone, it does not mean that it should be wasted. As far as possible unnecessary calls should be avoided. (c) Since the telephone system in Bombay is overloaded, it should be used for meaningful purposes. One should be brief and precise. (d) At the same time, for the sake of saving time, people should always keep a small pad with pencil near the phone in order that they do not have to search for it while speaking. (e) It is equally important to realise that if one gets a cross-connection, it is not the fault of other people on the line but it is due to certain technical difficulties. There is no sense in arguing and fighting with other people on the line. One should simply hang up. (f) If the people need to have long discourses or settle disputes, etc., probably it would be worthwhile for them to meet each other personally than to use the public services for a prolonged period of time. (g) The lucky subscribers should not exploit those who do not have telephones by overcharging and making money out of their telephones, particularly by charging Re. 1/- a call and thereby making a profit of 70 paise, as it is done in some places.

PUBLIC TELEPHONES

Ultimately the problem of telephone shortage in Bombay can be met head-on by providing sufficient number of public telephones in every area of the city in order that such a service is available to the public at least from 8.00 a.m. to 11.00 p.m. Of course, ideally such a service should be available 24 hours a day. Even in countries where the private telephones are sufficiently available (as in Western Europe, U.S.A. and Canada), the public telephone remains an essential feature of the communication network. The shortage of private telephones can be met effectively by providing a sufficient number of public telephones at critical points in the city. Several types of plans are possible for the purpose. We have designed one that we think would alleviate immediate difficulties by providing essential communication services. Our plan is, by no means, final and perfect.

It is subject to modifications and adaptation. It is based on the following criteria : (1) Economy, (2) Comfort, and (3) Variability.

Our main focus is to bring telephone to the largest number of people at the lowest possible cost. The scheme can be economically self-sufficient and provide efficient service to the public. A variety of telephone systems are provided according to the need of each area. Naturally, where the demand is great, it would be economical to have six telephones in a booth. In the medium demand area, four telephones in a booth will meet the requirement. In other areas, two telephones or one telephone in a booth would be sufficient. Of course, ultimately our goal is to see that a telephone system is available to every person in the city at a distance. That is the distant goal. Immediately we recommend that 20 booths of Type I (two telephones), 20 booths of Type II (four telephones) and 10 booths of Type III (six telephones) are set up in selected areas. If the experiment is successful, with modification, similar booths could be set up gradually in different areas.

The city should be divided into high-demand, medium-demand and low-demand areas. Accordingly, different types of booths should be selected and a plan of action in several stages should be prepared. We have estimated that 70 per cent of the telephone problems in Bombay can be alleviated by providing about 1,500 booths in critical areas, initially. Eventually, however, most of the areas of the city can be covered on the same line.

It is important to bear in mind that each booth is a self-contained enclosed system which must be protected. Hence, there should be an attendant, who also has knowledge of carrying out minor repairs of telephones in case they go out of order, which is to be expected. Details concerning management of all the booths in terms of number of people, their hours, responsibilities, supervision, etc., have yet to be worked out. It would be ideal to have two shifts of seven hours each for the attendants to have the necessary

facilities available to the public. Initially, however, an experiment of short duration would be sufficient.

Also detailed arrangements concerning availability of the space as well as public telephones and the maintenance could be worked out with the Bombay Municipal Corporation and the Bombay Telephone Company. Since similar experiments have been done in several other countries successfully, we do not see any difficulty in arriving at suitable arrangements.

The cost of three types of telephone booths will be as follows: Type I Rs. 7,557.00; Type II Rs. 11,271.00; and Type III Rs. 15,770.00.

Considering the requirement and durability, these costs are quite reasonable. The project could be self-financing. Any private or public institution or even individuals can build the booth and in return they should be allowed to use the sides of the booths for advertisements for a certain period of time.

Similarly, the salary of the attendant can be assumed to be between Rs. 500 to Rs. 700 a month and could be paid from the same advertisement income. Possibly, other methods of financing the project can be discovered or the project can be financed by the joint ventures of the BMC, the Telephone Company and even the State Government. Considering the importance of providing public telephones in order to reduce the burden of heavy demands on telephones, it should not be difficult to find the sources of funding such a project. There should be enlightened industrialists and businessmen to undertake the project.

We think that the demand of telephones in Bombay is going to increase tremendously during the coming decade. Considering the limited resources, it is not possible to meet the increasing demand of providing a telephone to everyone who wants it. The answer is to go in for public telephones.

which would reduce the heavy burden on demands for private telephones. For an emergency, for urgent requirements and even for carrying out routine work, a telephone is an essential item in an urban society. For any basic service, which is scarce, the answer is to make it a well managed and efficient public service. We think that the plan suggested here can make the beginning in alleviating the severe problem of shortages of telephones available to the public. The people need it and they should get it.

CONCLUSION

The telephone system in Bombay can meet the fundamental needs of most of the people within a year if the recommendations given above and some more can be implemented. Bombay cannot afford to have the best service or the worst service because both of them would be very expensive. It has to find the best out of the worst. What is true of Bombay is true of rest of the country. (Based on a presentation at a Bombay Civic Trust meeting held on 6th November, 1976.)

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—Eugene Black

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