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STATE OF AND PLANS FOR TELECOMMUNICATIONS INDUSTRIES IN CEYLON a/

by

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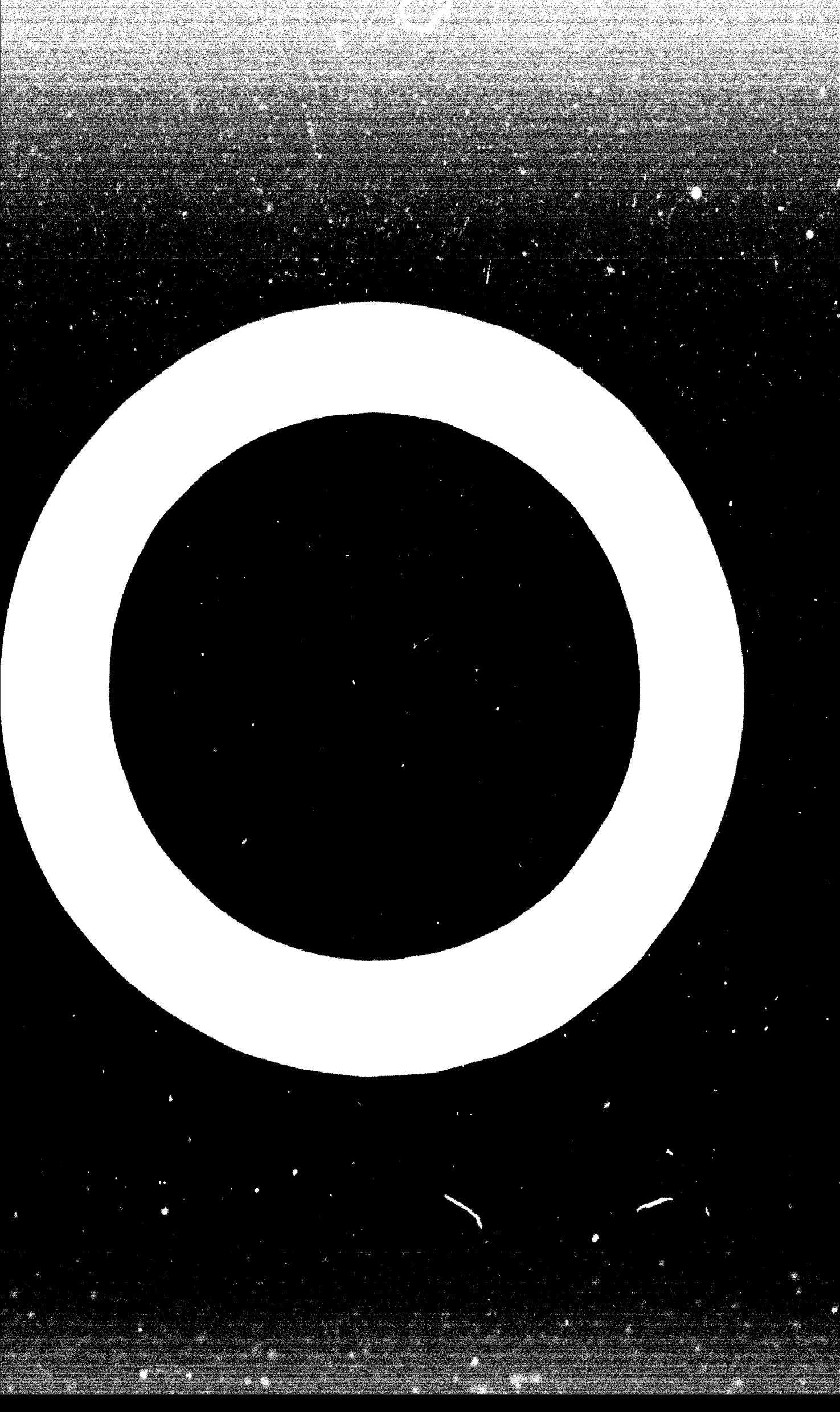

TELECOMMUNICATIONS INDUSTRIES IN CEYLON.

1. GENERAL.

(a) Physical and Political features:

Ceylon is an island in the Indian Ocean of area 25,300 square miles and a population of 11,964,000 (1968). The centre region is a hilly area rising to a height of 8282 ft., while round it are plains mostly flat. The population is predominantly on the West, round the capital city of Colombo, and in the South.

These factors help to determine some of the telecommunications features. The topography lends itself to using micro wave for providing the trunk circuits; and Colombo can be used as the only principal switching centre with all the trunk circuits passing through it. Two thirds of the country's telephones are in the Colombo area of 15 miles radius.

Ceylon is politically independent, but a member of the British Commonwealth. The form of government is also based on the British model with a cabinet and two Houses of Parliament, the first of which is elected on universal franchise (down to 18 years of age). Since the country gained independence in 1947 the parliamentary form of government has been maintained with regular elections.

(b) Economic Situation:

One of the effects of a general advance of telecommunications in the world is that people in any one part of the world get information about other parts in a quick, effective and attractive manner. They come to know of happenings, ideas and conditions of life; and in the case of less advanced communities, they take it all in, because they have not learnt to critically discriminate. As a result people in the so called developing countries have learnt about the modern material amenities of life that it is possible to have, and now wish to have them. The expanding population in these countries is vociferously asking for these amenities. The weapon of adult franchise that they now possess makes their request something that their governments have to find ways of satisfying. This means either importing or producing the articles turned out by modern industries. Ceylon is no exception and is faced with this problem.

Ceylon's economy leans very heavily on the export of three agricultural products namely tea, rubber and coconut. Over a decade ago it became evident that the income from these exports was not enough to pay for the imports needed. So the government stopped the import of luxury and non essential items. Even this would not answer the purpose. There was a very heavy bill arising from the import of rice, the staple article of diet. So about five years ago the government launched a very intensive food cultivation drive and gave various tax incentives for large scale agriculturalists and small scale farmers. This was successful in the sense that rice production increased, and the imports of rice were reduced. But as far as the reason that at the same time the prices of the export commodities fell, with the consequent drop in foreign exchange earnings. Some idea of this drop is given by the loss sustained by tea alone. The average loss on tea over the years 1960 to 68 taking the 1955 price of Rs.3.30 per pound as the reference, is Rs.363.3 million a year.

There was no method of overcoming this new situation except by external aid; and this is what Ceylon has done. This aid is composed of programme or commodity aid, project aid and technical assistance. In Ceylon's fourth programme of such aid, by seventeen countries and three international agencies, the total pledged amount is Rs.304.3 million. It is to be observed that this is very nearly the loss of foreign exchange earnings due to the average drop in tea prices in any one year.

Ceylon's total borrowings at end of September 1969 amount to Rs.1570 million. All this means that there is a debt servicing bill to be met. Fortunately the total exports still remain at a level that the debt servicing bill is under 10%. Ceylon's exports for 1969 were Rs.1975 million.

What is pertinent to observe, for the purpose of the subject of this report, is that since independence and democracy became effective, owing to some circumstance or other, there has been a erotic shortage of foreign exchange, which has restricted and in some cases constricted imports of manufactured articles. Since in Ceylon until recently telecommunication equipment had been wholly imported, and even now is mostly of foreign origin, the shortage of foreign exchange, is bound to have a profound effect on the course of development of telecommunications. This is evidenced by what will be seen in the latter parts of this report, as under-development by comparison of statistics with other countries, and as repeated tardiness in implementation of plans.

AGENCIES CONTROLLING OR REGULATING.

(a) Telecommunications:

Both internal and overseas telecommunications are under the Ministry of Public Works, Posts, and Telecommunications. One department of government under a head designated Postmaster General and Director of Telecommunications controls the two branches, one for internal and the other for overseas telecommunications.

Each of these controls the telephone, telegraph and radio services. The ship to shore service is under the internal branch.

(b) Broadcasting:

There is at present only sound broadcasting and this is under the Ceylon Broadcasting Corporation, a statutory body under the Ministry of Information and Broadcasting. This Corporation was set up about three years ago.

(c) Electronic Industries:

All industries come under the perview of the Ministry of Industries and Fisheries, and as such the electronic industries are also under the control of this ministry. There is no specific organisation formed by these manufacturers. But most of them are members of the Electronics Association of Ceylon and work through this Association.

(d) Statutory Authority:

The Statutory Authority for Telegraphic terms which includes telephone and radio communication is the Postmaster General and Director of Telecommunications. He deals with the I.T.U. and is in charge of the allocation of frequencies and licensing of radio stations.

(e) Press communication:

The Press is independent, but uses the National Telecommunication network for its collection and distribution of internal news. News from overseas is handled by the Press Trust of Ceylon, an independent body formed from representatives of different newspapers.

(f) Research:

The general control and regulation of research comes under the Ministry of Scientific Research and Training. But the actual establishments carrying out research are under different institutions, like Universities and the Ceylon Institute of Scientific and Industrial Research.

(g) Education and Training:

All education is under the purview of the Ministry of Education and Cultural Affairs. The higher education in the Universities is independent of the control of the Government Department of Education.

Training is generally undertaken by the establishment that employs the trained employee. But for the craftsmen grades, there are common training institutes, largely under the Ministry of Labour and Employment.

COMMUNICATIONS.

(a) Telephone:

The Government took over a private telephone system in 1896. This grew until 1935 when plans were prepared to replace the old exchanges. But work was commenced only in 1937 and completed in 1939.

About 1952 a World Bank Mission recommended among other things, improvement of the Telecommunications Services. No plans were prepared. In 1959 the Cabinet approved a scheme for the limited area of Colombo. But the contract for the work was signed only in 1961. The work was completed in 1968.

This gave an area of 15 miles radius round Colombo a fully automatic telephone system of 27 interdialling exchanges with a total capacity of 55,000 lines capable of going up to 80,000. Calls to and from outside this area are manual.

When cabinet approved the Colombo scheme in 1959 they also stipulated the formulation of definite proposals for the rest of the country. These were prepared in outline and estimated at s.159 million. These proposals were studied by a three man I.T.U. team in 196-- (Reports ITU/MAL/3 and ITU/CEY/2) who pruned the scheme to s.93 million and phased it. These were later whittled down to s.102 million and put to manufacturers in different countries for their interest. Later a part of this scheme (s.53 million) was put out to world wide tender. This ended in the signing of a contract with a group of Japanese firms on 20th September 1967.

The work involves the development in three out of the seven provinces, of both trunk and exchanges, and introduction subscriber trunk dialling within this area. The work is to be finished in 3 years.

At present there are 55,520 telephones (1968) on 35,270 exchange lines. This works to half a telephone per 100 of the population. Total number of calls is 61¼ million making it about 5 per person per annum. The existing network comprises 248 local automatic exchanges with 34.600 lines (99%) connected to them. There are also 116 small manual exchanges and 29 trunk manuals. There are 11 private exchanges mainly in the tea estate areas which are connected to the public system.

The number of private exchanges not connected and functioning as intercoms is about 50.

There are approximately 100 basic trunk circuits connecting the 31 provincial group centres. Most of these are open wire with 60% audio physical and the remainder by carrier.

(b) Telegraphs:

The telegraphs are in a difficult position in Ceylon. The three languages used in the country namely Singhala, Tamil and English have each a different script. At present only English language teleprinters are in use. Two sample Singhala teleprinters have been made and are working satisfactorily.

The circuits are all either open wire earth return or voice frequency telegraphs also on open wire. There are about 50 circuits terminating in Colombo of which 35 use teleprinter and the others employ morse outside Colombo. There are about 30 circuits all using morse.

The number of telegrams handled is 14 million. But circumstances so turn out that the working circuits cannot deal with this traffic and in many instances telegrams are sent by post from one office to another.

In seeking a solution to this problem through Colombo Plan, experts from Japan studied this and reported in 1964. They recommended a scheme of Singhala-English teleprinters, carrier telegraph sets and switching arrangements, the cost of which was estimated at Rs.5 million. So far nothing has been done on the matter.

(c) Overseas:

The overseas Telecommunication service handles the following traffic (1968).

Area	Telegraph (Million words per year)	Telephone (minutes per year)
United Kingdom	1.5	18977
Europe	1.20	4000
Middle East	0.394	204
Far East	1.033	10500
U.S.A. & Canada	.617	3750
Africa	.274	-
Australia	1.58	1000
South America) Central America) & West Indies)	.035	-
Pakistan	-	4300
Japan	-	1800

The Telegraph and Telephone traffic to India is handled by the Internal Telecommunication Service.

Colombo is connected by submarine telegraph cables and has circuits to Penang, Singapore, Aden and Seychelles.

Radio H.F. circuits connect Colombo to London, Karachi, Bombay, New Delhi, Osaka, Shanghai, Rangoon, Manilla, Singapore, Hongkong, Sydney, Nairobi and Berne. For this purpose the Overseas Service have 14 transmitters and 42 receivers.

The establishment of an Earth station for satellite communication was studied and was taken up, and formed the subject of a report of the I.T.U. in 1966 (Report No.ITU/CEX/4.) The implementation of it has been postponed owing to difficulty of funds.

(d) Telex:

There is no internal Telex service.

There are subscribers connected to the international telex service. Their number at present is 64. An automatic exchange for the telex service is due to be installed in 1970.

(a) Radio Communication:

For point to point communication within the country the Postmaster General's organization maintains transmitters and receivers at two stations in Colombo. These circuits are hired to the different authorities.

For mobile communication licences have been issued for about 5 parties.

Foreign news are received by the government, at its receiving station on behalf of the Press Trust of Ceylon. Newspaper publishers also receive some of the foreign services at their own offices.

4. BROADCASTING.

(a) Transmissions:

Regular sound broadcasting was started in Ceylon in 1925. This service was then run by the telecommunications branch of the Post Office. In 1949 a separate department of government took charge of broadcasting. Today the service is run by a Corporation.

There are two services, National and Commercial and both run programmes in the three languages of Singhala, Tamil and English for a total of over 500 hours a week.

For the Commercial Service 100 K.W.transmitters are used. For the National Service medium wave transmitters of lower power are situated in Colombo and cover the densely populated area near the capital city. To cover the rest of the country short wave transmitters using vertical incidence dipole arrays are employed. But the reception is subject to fading. To cover the densely populated area of Kandy and its surroundings a small repeater station was placed there and relayed the Colombo programmes.

A commission appointed by the government recommended in May 1966 (Ceylon Sessional Paper XII of 1966) that additional transmitters be installed so as to give a satisfactory cover of the National Programme for the whole country. In implementing this, the Corporation is installing new transmitters in about 10 locations throughout the country. The first part of this work is nearly complete. The Maho transmitter of 50 K.W. and Kandy of 10 K.W. will be opened in November this year. The repeating station at Ensalwatte to serve the South will be ready in December. The transmitters at Weeraketiya 50 K.W. and Galle 5 K.W. are scheduled to be opened in January and March of 1970. The next stage of five other tranamitters is due to be taken up next.

(b) Listeners:

The number of radio licences issued for receiving sets is a little over 500,000. The import of radio sets was banned in 1960. The manufacture of local sets has commenced only during the last year or two, so that there is yet a dearth for receivers. The unsatisfied demand was estimated by the Broadcasting Commission at 300,000 sets.

The price of the receivers available on the market vary from Rs.700 to Rs.1000. But the low priced sets are available only in limited numbers.

(c) Television:

There is no television yet. The recommendation of the Broadcasting Commission that "a limited television service be started as soon as possible" has not been taken up for implementation. The main drawback is the difficulty in procuring receivers.

2. SUPPLY OF EQUIPMENT.

(a) Import:

Most of the equipment that this report is concerned with has to be imported. The restriction on imports was introduced beginning from 1960 owing to the scarcity of foreign exchange. In November 1965 the government increased the ripee. Again in May 1966 it introduced the Foreign Exchange Entitlement Certificate Scheme. Both these measures have the effect of increasing the price of imported goods. Having done these a certain degree of relaxation of imports was announced. But the net result is the same as imports of telephones, exchanges and radio equipments by the private sector do not come close. Only government departments can get some imports now.

(b) Local manufacturing:

When government banned imports, it also encouraged the growth of industries that effected import substitution. It is evident from this report most of the telecommunication equipment in use is government. What was available to the public were radio receivers, electric wires and cables.

At first about 15 firms were recognised for assembling radios with imported components. They were also encouraged to be progressively substitute locally made components and thus reduce the foreign exchange consumption. This was done to some extent. When government subsequently revised allocations of licence to import, during later

years, some of the firms that had started assembly found themselves in difficulties. The net result is that only about a handful are now left in the business of [illegible] radio sets. This is perhaps a good thing as the [illegible] is not large [illegible] support more than about [illegible] radio sets [illegible] are not [illegible] that they can penetrate [illegible] foreign markets effectively.

[illegible] assembling radio [illegible] drawing wires. No reliable [illegible]. The official estimates of half a million rupees [illegible] figures.

[illegible] firms [illegible] industry than [illegible] entered into [illegible] Japanese manufacturers and proposes [illegible], mostly the low priced models.

Outside government circles the only other body concerned with [illegible] of electronic equipment is the Electronics Association of Ceylon. It has brought together into one organization all those engaged in the industry, engineers in the public and private sectors, amateurs, and members of the public interested in furthering the use of electronics. In [illegible] held the first National Electronics Exhibition, which was very successful. The government showed its interest by three of its Ministers namely Scientific Research, Industries, and [illegible] opening the Exhibition on three of the four days it was held. On the fourth day it was opened by Mr. Arthur [illegible].

Several makes of radio receivers and other devices produced by local firms were on display. So were also sophisticated equipment from foreign manufacturers. The public showed its interest and appreciation by attending in very large numbers; so much so, that at times the entry queue was so long, that many went away disappointed because they could not gain entrance.

The Association has announced its next National Exhibition towards the end of 1970. This long date has been asked for in order to arrange for the participation of foreign manufacturers, as well as give time for local firms to get out their new products.

6. EDUCATION AND TRAINING

(a) [illegible]

There are [illegible] Universities and one Institute of Technology granting degrees in Light Electrical Engineering. The number of graduates [illegible] branches of Engineering is [illegible] a year. The demand is for [illegible] numbers.

(b) Technicians

Technicians are [illegible] turned out at about five Institutes. Those specifically [illegible] for Telecommunications are only from one of these. [illegible] the building up of five senior technical institutes to make up for the shortage of personnel of this category. The total number turned out now is [illegible] a year. The requirements are [illegible].

(c) Craftsmen:

The need for training this grade is recognised only now. The Ministry of Labour have started a few centres. So have some Corporations engaged in engineering activity. The Ministry of Education is building up an additional number of Junior Technical Institutes in order to bring the total number up to [illegible]. The number of men required is [illegible] a year.

(d) New educational and training methods:

In all existing as well as new institutes, there is scope to introduce new methods. But if such introduction involves importing equipment and using up scarce foreign exchange, then the chances are, that new methods will not come in. But countries like Ceylon, lagging in skills and personnel, are in need of the most efficient methods of training. This is a sphere in which advanced countries and international corporations can very usefully help.

7. TECHNICAL INFORMATION.

In the way of live technical information there is hardly anything about. There have been atempts to bring out technical periodicals. But they have not survived long. There are few advertisers and material for publication is not forthcoming. At the present time one Corporation comes out with a semi annual publication. Then there are the transactions of the Institution of Engineers which are published

every year, and the popular publications of the Ceylon Association for the Advancement of Science.

Fortunately many of the professional men are also members of the British Institutions of Engineers and their publications, serve to keep their knowledge alive.

There is also [illegible] is becoming available in Sinhala and Tamil [illegible] newly created Ministry of Scientific Research and Housing is prepared to assist by subsidising translations.

But among [illegible] at school and those who have left school [illegible] a great thirst for technical information. Particularly in [illegible] Telecommunications and [illegible] sphere, [illegible] have [illegible] their imagination [illegible] excited their interest.

8. **HOPE FROM THE [illegible]**

From the foregoing, it can be inferred that the development of Telecommunications, Broadcasting and the Associated Services has not kept pace with the demand. Some of the reasons behind it are readily evident from the facts. The inference is also clear that the industry is in its infancy.

Attention can be drawn to certain general features which would also exist in other developing countries.

An easy answer to import difficulties caused by shortage of foreign currency, is to manufacture the equipment in Ceylon. But this too has its problems. The know-how is of a very specialised order and it is not available in the country. The size of the country and the quantum of present requirements are too small for establishing an economic unit of production and one cannot expect to export in this very competitive field, at least until very much experience has been gained.

Even if foreign currency was freely available to import the development of the Telecommunications services offers certain other problems. The expansion of these services has to be taken up continuously in a number of stages. At each stage something more has to be connected to the existing network, to interwork with it. This

seems that the new equipment must fit in with the old. Its technology with which the staff have to be familiar, should not be different so [illegible] it [illegible] [illegible] technologi- [illegible] [illegible] purchases from the equipment [illegible] is to have [illegible] difficulties [illegible]

Yet another feature [illegible] development of Telecommuni- cations in [illegible] even development schemes are [illegible] highlighting more essential steps [illegible] food production, [illegible]. The [illegible] governments [illegible]. The associated [illegible] itself later [illegible]. This is perhaps a matter that [illegible] [illegible] aspect becomes difficult.

One recent example [illegible]. In September this year the government [illegible] designed to benefit [illegible] agriculture, generate [illegible] of electric energy from an installed generating capacity of [illegible] million expense. [illegible] square miles of what is now jungle [illegible]. About a million people are [illegible] cultivation of paddy and [illegible] develop a complex of agriculturally based industries.

All these people will want to communicate with their kinsmen in their former homes. They will want to talk to each other in neighbouring areas. They will have to get in touch with officials dealing with the distribution of water, fertilizers and numerous other services. And they will have to arrange the disposal of their crops. These require telecommunications, yet there is no provision in the scheme for a single telephone, or in fact of any other telecommunication facility.

This scheme has been prepared by Engineering Consultants of very high standing and has been scrutinized by top monetary agencies and at political levels. No doubt the intention is that the Telecommunication Authority will have to prepare its own scheme to serve this area, submit it to government, and have it approved. Yet this will take place at a time when the debt servicing of this long-term loan and at what cost of this 6,700 million rupee loan is growing up to be a burden on the country's finances. And what chances will it have of being accepted then? It would appear to be such an easy, reasonable thing to have it included in the original scheme, and it would improve the scheme as such. If it were so done, it will ease the problem of many Telecommunications Authorities.


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