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SECRET

No 53

ECONOMIC INTELLIGENCE REPORT

POST AND TELECOMMUNICATIONS SERVICES IN ALBANIA 1950-58

CIA/RR 59-36
August 1959

CENTRAL INTELLIGENCE AGENCY

OFFICE OF RESEARCH AND REPORTS

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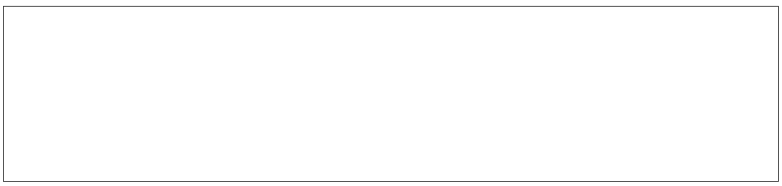

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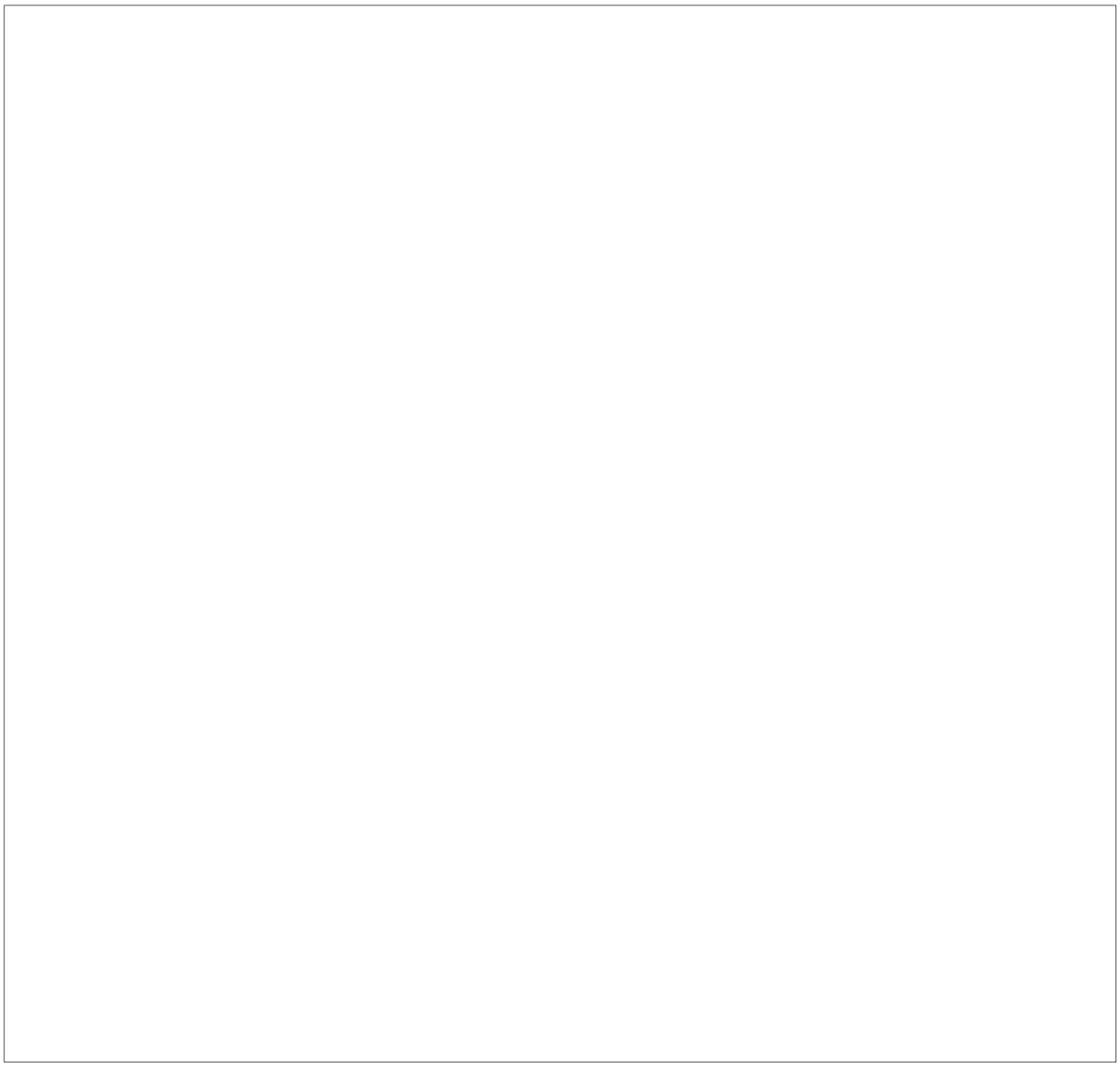
FOREWORD

This report is concerned with those post and telecommunications facilities and services in Albania operated and controlled by the Directorate of Post, Telegraph, and Telephone of the Ministry of Communications. These facilities and services are used by the armed forces, other ministries, and other directorates of the Ministry of Communications as well as by the public. Excluded from this report, however, are functional telecommunications systems operated independently by other segments of the government, such as the armed forces and service industries.



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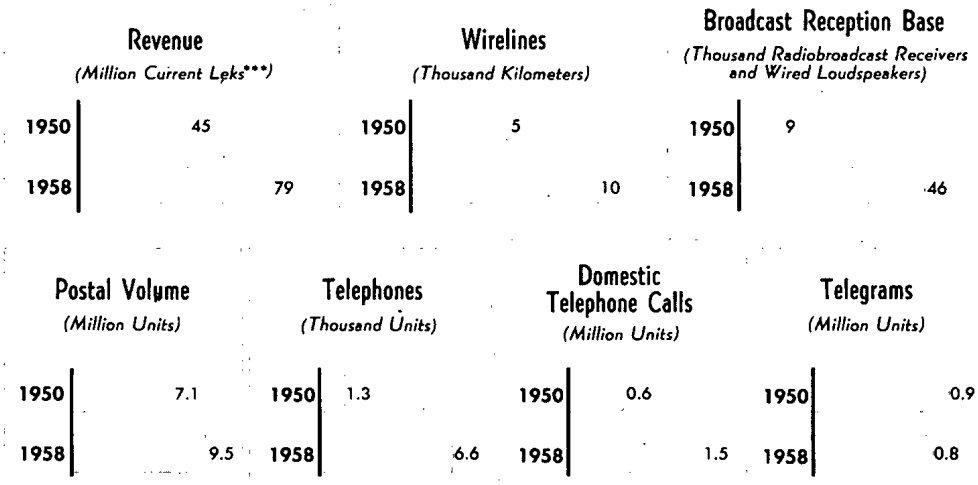
POST AND TELECOMMUNICATIONS SERVICES IN ALBANIA* 1950-58

Summary and Conclusions

The public** post and telecommunications system of Albania is meager at best. It lacks much of the elementary equipment required for an efficient communications program, and the existing facilities are largely obsolescent. Services provided by the system are limited and inefficient, meeting only the basic needs of the government. Private communication is confined almost wholly to the postal system.

Although the post and telecommunications system of Albania remains at a rudimentary stage of development, facilities and services increased substantially from 1950 through 1958, as shown below.



* The estimates and conclusions in this report represent the best judgment of this Office as of 1 July 1959. Technical terms are defined in Appendix A, Glossary of Technical Terms.

** The term public in this report refers to the facilities and services controlled, operated, and maintained by the Directorate of Post, Telegraph, and Telephone (Drejtoria Pergjithshme Poste, Telegraf, e Telefon) of the Ministry of Communications (Ministria e Komunikacioneve). It does not refer to functional systems such as those serving the armed forces, the state security police, other ministries, and other directorates of the Ministry of Communications.

*** Except where otherwise indicated, lek values in this report are expressed in terms of current leks and may be converted to US dollars at the official rate of exchange of 50 leks to US $1. This rate of exchange, however, does not necessarily reflect the true dollar value.

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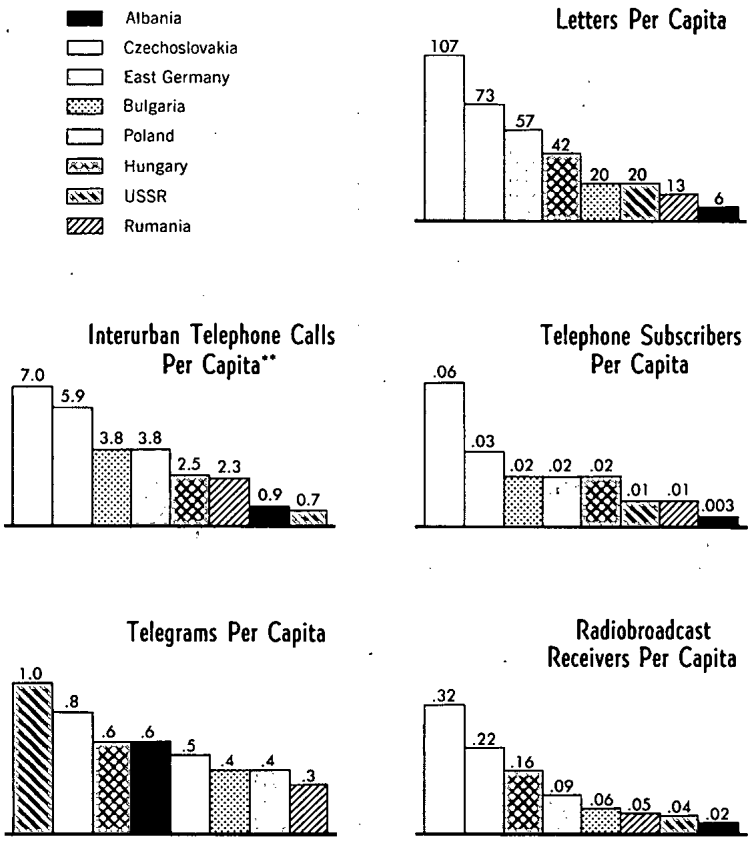
The total revenue from post and telecommunications services, computed in current leks, increased at an average annual rate of about 7.3 percent* from 1950 through 1958. This figure is the best indication of the rate of growth in the total volume of services provided by the post and telecommunications system during the period. The telephone and broadcasting services experienced higher rates of increase than any other services in the system, primarily because of their extraordinarily low bases at the beginning of the period. The number of domestic telephone calls (including both local and interurban calls) increased at an average annual rate of about 11.2 percent, and there was an average annual increase in the number of telephone subscribers of about 22.5 percent. The broadcast reception base expanded rapidly at an average annual rate of about 22.8 percent. Postal volume increased at a lower rate, about 3.7 percent, and the number of telegrams sent decreased slightly during the period.



* Average annual rates of change expressed in this report are computed at the compound interest rate between the two stated terminal years.

** Including both local and interurban calls for Albania but only interurban calls for the other countries.

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The volume of post and telecommunications services per capita in Albania is smaller than in other Soviet Bloc countries -- a situation which is to be expected from the undeveloped state of the Albanian economy. A comparison of the volume of services per capita in Albania with that in other Bloc countries in 1957 indicates the real poverty of the Albanian post and telecommunications system.

Because of the relatively high rate of calls per telephone subscriber, the figure given for the number of telephone calls per capita in Albania is believed to include both local and interurban calls. This figure is therefore higher than the corresponding figure for the USSR, which includes only interurban calls. The number of interurban telephone calls per capita in Albania was probably low compared with all the other Soviet Bloc countries. The relatively high number of telegrams per capita shows the dependence on the telegraph system for telecommunications rather than a high state of development of the telegraph system. The degree of automation and the extensiveness of post and telecommunications facilities throughout Albania as well as the efficiency and reliability of telecommunications service compare unfavorably with those of other Bloc countries.

A rapid rate of development of the Albanian post and telecommunications system will be required to match the present high rate of growth of the Albanian economy. An even greater rate of increase in the future for the public post and telecommunications system will probably result from the influence of the Organization for Cooperation Among the Socialist Countries in the Fields of Post and Telecommunications (OSS). OSS was created at the initiative of the USSR in 1958 for the unification and improvement of post and telecommunications facilities and services within and among all Sino-Soviet Bloc countries. The fulfillment of OSS plans in Albania for the expansion of telegraph traffic between Bloc countries, the establishment of a Bloc television network by 1965, and the automation of Bloc telecommunications facilities by 1975 will probably require financial and technical aid from the USSR. Although increased expansion and development of the post and telecommunications system of Albania will result in the future from the influence of OSS, Albania is expected to be the last of the European Satellites to fulfill OSS plans.

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I. Introduction

The purpose of this report is to describe and evaluate the public post and telecommunications facilities and services provided by the Directorate of Post, Telegraph, and Telephone of the Ministry of Communications of Albania. The report covers the status of public post and telecommunications facilities and services in 1950, the expansion and development of the post and telecommunications system from 1950 through 1958, and the estimated expansion and development of the system in the future.

Although the economy of Albania is still underdeveloped, it has experienced rapid growth since 1950, as indicated by the increase in the national income. From 1950 through 1958 the national income is estimated to have increased at an average annual rate of about 11.4 percent, and from 1958 through 1960 it is expected to increase at a rate of about 11.8 percent. These calculations of national income are based on Marxist concepts, which exclude the slower growing so-called "unproductive" sectors included in Western calculations of national income, but even by Western calculations the Albanian economy has been one of the most rapidly growing economies in Europe. The continued growth that is expected of this economy will make it necessary to expand rapidly the post and telecommunications system of Albania, not only to meet the increasing needs of the government but also to meet commercial and some private needs. 1/*

Albania is geographically isolated from the rest of the Soviet Bloc, and the establishment of wireline facilities between it and other Bloc countries is infeasible. The rugged terrain and heavy snows in Albania restrict the construction and maintenance of wireline facilities and postal routes throughout most of the country. The population is less dense in Albania than in any other European Satellite and is distributed largely through rural areas and small villages. This sparsity of population hinders the expansion of telephone, telegraph, and wire-diffusion services, and a low literacy rate restricts the users of the postal system to a small part of the population. Radiobroadcasting, when adequately developed, will be an important medium of communications in Albania. In addition, because of its geographic location and predominantly Moslem culture, Albania is uniquely qualified for radiobroadcasting to countries of the Middle East. 2/

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II. Unification of the Post and Telecommunications Systems of the Sino-Soviet Bloc

The expansion and development of the public post and telecommunications system of Albania is influenced not only by domestic but also by international considerations. Foremost among the international considerations is the influence on the system exercised by the Organization for Cooperation among the Socialist Countries in the Fields of Post and Communications (OSS), of which Albania is an active member. This organization was initiated in 1958 by the USSR as a means of overcoming the lack of a unified post and telecommunications system throughout the Sino-Soviet Bloc. Plans for the expansion of telegraph traffic among Bloc countries, the establishment of a Bloc television network by 1965, and the automation of Bloc telecommunications facilities by 1975 have been prepared and are to be coordinated and supervised by OSS.

No information is available as to the extent to which OSS plans have been reflected in domestic plans for the expansion and development of the post and telecommunications system of Albania. The emphasis being given to OSS plans by the USSR is expected to cause an increase in the rate of expansion and development of the system. In spite of the increase, Albania will probably be the last of the European Satellites to fulfill OSS plans because of the underdeveloped state of its post and telecommunications system, the lack of investment funds and skilled personnel, and the isolated position of the country with respect to other Soviet Bloc countries.

The eventual fulfillment of OSS plans, however, will result in a large increase in the efficiency and capacity of the public post and telecommunications facilities and services of Albania, both domestic and international. It will also greatly increase the potential of military telecommunications within Albania and between Albania and other Sino-Soviet Bloc countries because public facilities are partly used by the military at all times and would be wholly commandeered in time of emergency if necessary.

Another international organization which has had much influence over the post and telecommunications systems of Soviet Bloc countries is the Council for Mutual Economic Assistance (CEMA). This organization exercises its influence primarily through the determination of assignments for research, development, and production of telecommunications equipment among the various member countries. Because Albania has a low potential for the production of telecommunications equipment and an insignificant level of technological development in the field of telecommunications, however, CEMA is not expected to exercise much influence over the post and telecommunications system in that country in the near future. 3/

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III. Ministry of Communications

A. Organization

All public post and telecommunications facilities in Albania are owned and operated by the national government. The Ministry of Communications is responsible for the organization, administration, and control of these facilities. The Ministry is also responsible for the fulfillment of plans approved by the Council of Ministers for the expansion and development of the post and telecommunications system as well as for the training of personnel employed in the system. These responsiblities are exercised through the Directorate of Post, Telegraph, and Telephone, which operates and maintains all public post and telecommunications facilities in Albania, as shown in Figure 1.* The programing and monitoring of radiobroadcast and wire-diffusion programs, however, are the responsibility of the Directorate of Radiobroadcasting, which is directly subordinate to the Council of Ministers. 4/

There have been several changes since 1950 in the organizational structure for the control and operation of post and telecommunications facilities in Albania. In 1950 these facilities, with the exception of facilities for radiobroadcasting, were operated, maintained, and controlled by the Ministry of Communications, Post, Telegraph, and Telephone. By 1952 this Ministry was superseded by the Ministry of Communications, which also was responsible for the operation and maintenance of postal, telegraph, and telephone facilities but not for radiobroadcasting facilities. In 1953 the Ministries of Communications, Domestic Trade, and Foreign Trade were combined under a newly created Ministry of Trade and Communications. This Ministry, like the previous ministries, did not have the responsibility for the operation and maintenance of radiobroadcasting facilities. Finally, in November 1955 the Council of Ministers adopted a resolution reestablishing the Ministry of Communications. At this time the Ministry of Communications was given the responsibility for the operation and maintenance of all public post and telecommunications facilities, including facilities for radiobroadcasting. 5/

Radiobroadcasting facilities in Albania in 1950 were probably owned, operated, and maintained by the State Radiobroadcasting and Wire-Diffusion Enterprise. At the end of 1950, however, a Committee on Radiobroadcasting, directly subordinate to the Council of Ministers, was created and given the responsibility for the operation and maintenance of facilities for radiobroadcasting and wire diffusion. In 1955, when the Ministry of Communications was reestablished and given

* Following p. 6.

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Figure 1

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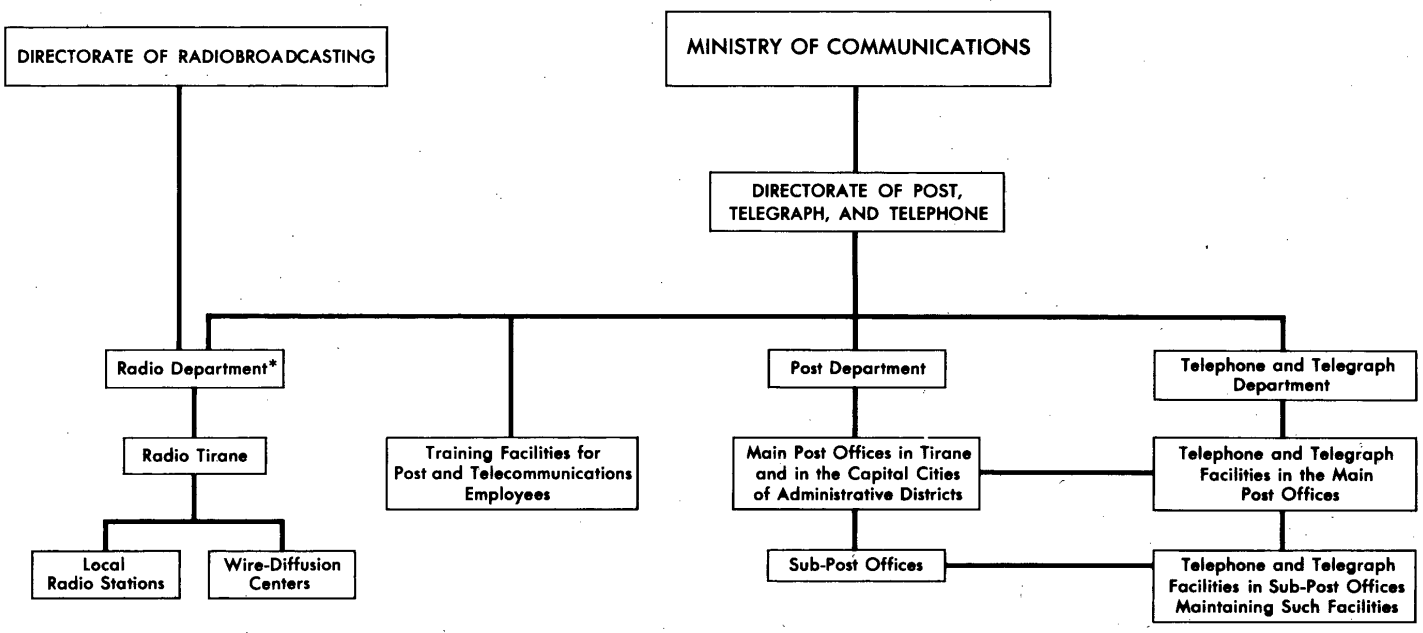
ALBANIA

ORGANIZATION OF THE DIRECTORATE OF POST, TELEGRAPH, AND TELEPHONE OF THE MINISTRY OF COMMUNICATIONS, 1958



*The Directorate of Radiobroadcasting, which is directly subordinate to the Council of Ministers, is responsible for the programming and monitoring of radiobroadcasts and wire-diffusion programs. The Directorate of Post, Telegraph and Telephone is responsible for the operation and maintenance of radiobroadcasting facilities.

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the responsibility for the operation and maintenance of radiobroadcasting facilities, the Committee on Radiobroadcasting was abolished. At this time a Directorate of Radiobroadcasting was formed for the preparation and monitoring of radiobroadcast and wire diffusion programs. 6/

There has been no indication since 1955 of any significant changes in the organizational structure for the operation, maintenance, and control of the post and telecommunications system of Albania, and it is believed that the same organizational structure exists at present. The reorganizations which have occurred in the post and telecommunications system since 1950 probably resulted in a more coordinated and efficient system, and little reorganization of significance is expected in the future.

B. Revenue and Investment

Total revenue from post and telecommunications services in Albania is estimated to have increased from about 44.6 million leks in 1950 to 78.6 million leks in 1958, an average annual increase of about 7.3 percent (see Table 1*). Although the rate of growth in total revenue was steady in general, revenue increased at a higher rate, about 11.3 percent, from 1956 through 1958. This increase resulted mainly from an increase in telephone revenue.

In 1950, revenue from telegraph service made up the largest share of total revenue, as shown in Figure 2,** but after 1953, telegraph revenue began to decrease. Total revenue continued to increase, however, because the increase in telephone revenue more than compensated for the decrease in telegraph revenue. Since 1954, telephone revenue has consistently made up the largest share of total revenue from post and telecommunications services.

Revenue from broadcasting service showed an average annual increase of about 20 percent from 1950 through 1958, and the proportion of broadcasting revenue to total revenue almost tripled from 1950 through 1958. Even with the high rate of increase, revenue from broadcasting service still makes up a relatively small part of total revenue, about 11 percent in 1958. Of this figure, about 7.9 percent was revenue from radiobroadcasting service and about 3.1 percent was revenue from wire-diffusion service. Revenue from postal service has increased steadily with the increase in total revenue from post and telecommunications services.

* Table 1 follows on p. 8.
** Following p. 8.

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Table 1

Estimated Total Revenue from Public Post and Telecommunications Services in Albania a/ 1950-58

Million Current Leks

	1950	1951	1952	1953	1954	1955	1956	1957	1958
Postal revenue b/	13.4	13.9	16.1	16.9	17.6	18.5	19.0	21.2	23.6
Telecommunications revenue c/	31.2	32.5	37.7	39.3	41.0	43.2	44.4	49.5	55.0
Telephone d/	11.1	12.6	15.1	15.5	17.5	20.9	22.8	26.3	30.3
Telegraph e/	18.2	17.6	19.2	20.2	19.5	17.0	16.2	16.1	16.0
Broadcasting	2.0	2.3	3.4	3.7	4.0	5.2	5.4	7.0	8.6
Radiobroadcasting	2.0	2.3	2.7	2.9	3.2	4.3	4.3	5.3	6.2
Wire diffusion f/	0	0	0.7	0.8	0.8	0.9	1.1	1.7	2.4
Total post and telecommunications revenue	44.6	46.4	53.8	56.2	58.6	61.6	63.4	70.7	78.6

a. The term public in this table refers to the facilities and services controlled, operated, and maintained by the Directorate of Post, Telegraph, and Telephone of the Ministry of Communications. All data are rounded to the nearest hundred thousand leks.

b. Postal revenue was estimated to include 30 percent of total revenue. This estimate was based on analogy with postal revenue in Poland, Rumania, and Bulgaria. 7/

c. Revenue from the various telecommunications services was derived by applying known and estimated price data 8/ to known and estimated service volumes in Tables 3, 4, 5, and 6, (pp. 15, 17, 17, and 23, respectively, below) unless otherwise indicated.

d. Telephone revenue includes revenue from local and interurban calls, installation of telephones, and the annual tax on telephones. Telephone revenue does not include charges in excess of the base rate for telephone services or miscellaneous charges for specialized telephone service.

e. Including only revenue from regular telegrams sent.

f. Revenue from the annual tax on wired loudspeakers was estimated to be 60 percent of revenue from the annual tax on radiobroadcast receivers. This estimate was based on analogy with wired loudspeaker taxes and radiobroadcast receiver taxes in Rumania and Bulgaria. 9/

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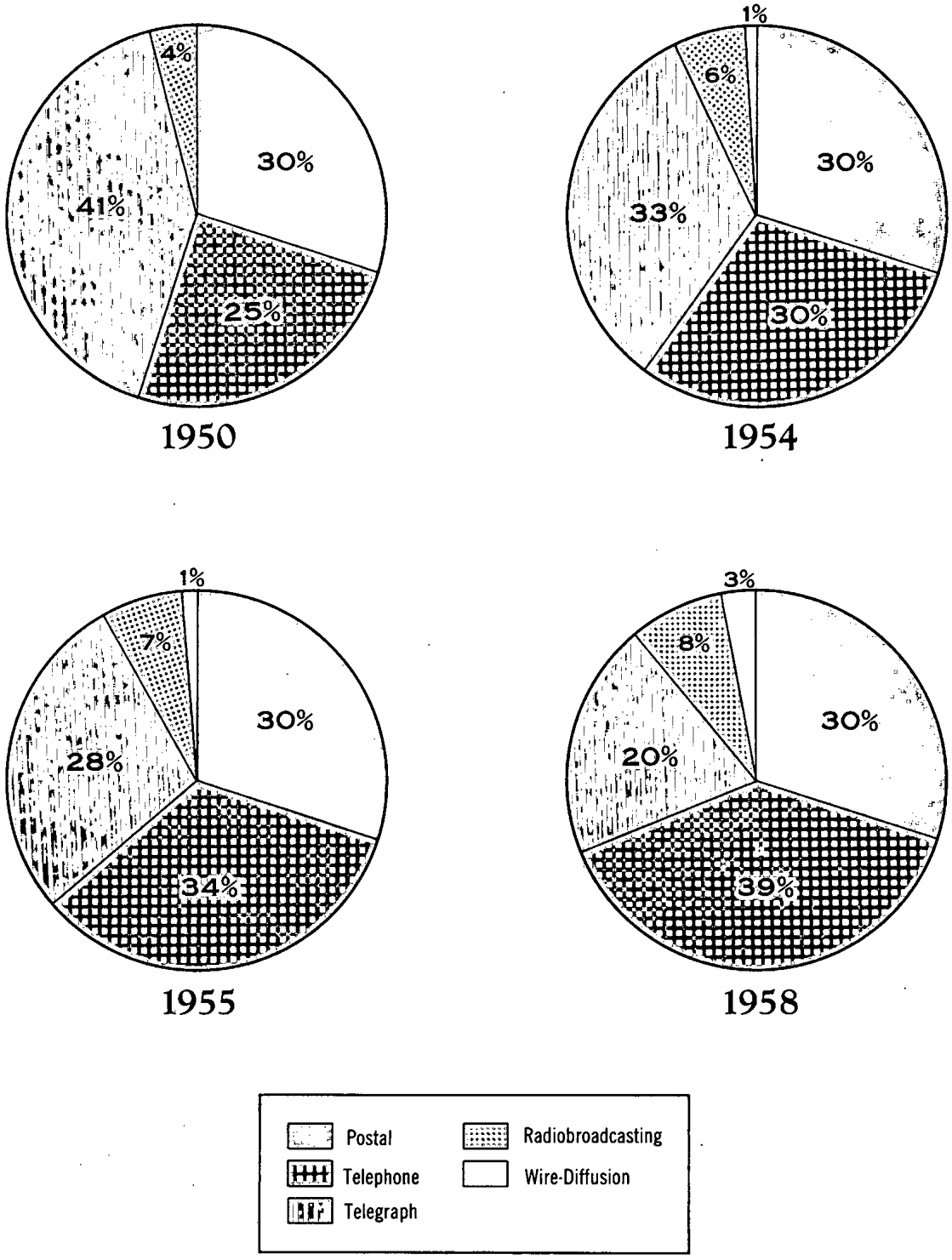
ALBANIA

Distribution of Post and Telecommunications Revenue by Type of Service 1950, 1954, 1955, and 1958



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The annual amount of revenue from telegraph service appears to be leveling off and during the next few years will probably remain about the same as in 1958. With the expected increase in telephone and broadcasting facilities, revenue from telephone, radiobroadcasting, and wire-diffusion services will probably continue to increase at a high rate in the future. As a consequence of this increase, the average annual increase in total revenue is expected to be equal to or higher than the average annual rate of about 11.3 percent that occurred from 1956 through 1958. 10/

Little information is available on investment in the public post and telecommunications system of Albania, but such investment is believed to be small. Although revenue from post and telecommunications services has probably been sufficient to meet the maintenance and operating expenses of the system, it has not been sufficient to provide the funds needed for investment. Some of the deficiency in investment funds has been made up in the past by gifts from the USSR, especially in the form of radiobroadcasting facilities. There are indications that such aid will be continued in the future. Furthermore, a larger amount of domestic funds is expected to be made available through the influence of OSS. Even with the expected increase in future investment, the expansion and development of the post and telecommunications system of Albania will probably be hindered by a lack of investment for many years. 11/

C. Manpower

No information is available on the number of workers employed in the labor force of the public post and telecommunications system of Albania. The labor force is believed to be large enough, although it is low in the number of technically trained workers. The labor productivity of post and telecommunications workers is probably low, as indicated by the inadequate number of skilled workers and the insufficient amount of automatic and semiautomatic telecommunications equipment used in the system. The average wage level of post and telecommunications workers is probably low as a consequence of the low labor productivity.

Training opportunities for these workers have increased substantially since 1950. At that time, training was limited almost exclusively to that received at the Military Signal School operated by the Engineer Directorate of Army Headquarters. This school provided 6-month courses in telecommunications and allowed about 15 civilians to enroll. Technical training in radiobroadcasting was negligible until 1952, when a radiobroadcasting laboratory was established in conjunction with a 50-kilowatt (kw) radiobroadcasting station. Radiobroadcasting laboratories have been established since

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1952 at several other radiobroadcasting stations. Further training opportunities in telecommunications were provided in 1955, when the Polytechnical Institute in Tirane established an electronics laboratory which offered courses in industrial electronics. In addition, special courses in post, telegraph, and telephone services have been established at other institutes of higher learning by the Ministry of Education. 12/

In spite of the increase in training opportunities for post and telecommunications workers since 1950, domestic training is still largely uncoordinated and insufficient in quantity, and high-level telecommunications courses are not offered. Greater coordination and expansion of training facilities in Albania are expected in the future in order to keep pace with the expansion and development of the post and telecommunications system.

Domestic training facilities in Albania have been supplemented by the use of training facilities in other Soviet Bloc countries, especially the USSR, Czechoslovakia, and Poland. The first group of Albanian students in telecommunications to use these facilities completed its studies in 1952. There are indications that Albania has used training facilities in other Bloc countries to a large extent since that time. Because domestic training is not expected to be adequate to provide the necessary number of skilled workers in the post and telecommunications system in the near future, Albania will probably continue to supplement its domestic training program by training in other Bloc countries. 13/

D. Equipment

Albania produces no telecommunications equipment. Almost all telecommunications equipment imported by Albania since 1948 has come from other Soviet Bloc countries, especially from the USSR, Czechoslovakia, and Hungary. Although much of the equipment in use in Albania was produced in Italy, being imported before 1948, imports from non-Bloc countries since that time have been restricted almost exclusively to a small amount of Italian telegraph equipment and spare parts for radiobroadcast receivers.

Telecommunications equipment imported from the Soviet Bloc includes telephone equipment, automatic switchboards, aluminum wire, cable, insulating tape, telephones, radiobroadcast receivers, and radiobroadcasting transmitters and associated equipment. The USSR supplied several of the radiobroadcasting transmitters in use in Albania in 1958 and is to supply transmitters and all associated equipment for a large radiobroadcasting station in 1959. Most radiobroadcast receivers and telephone equipment imported since 1958 have come from Czechoslovakia and Hungary. 14/

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Three establishments in Albania have the potential for producing some telecommunications equipment -- the Enver Hoxha Works, a government radio repair shop in Tirane, and the Central Military Repair Workshops. These as well as more newly established plants may eventually produce telecommunications equipment to meet some of the requirements of the post and telecommunications system. It is expected, however, that most of the equipment installed in the system in the future will be imported from other Soviet Bloc countries. It is unlikely that telecommunications equipment will be produced in Albania for export for many years. 15/

IV. Postal Service

The postal system of Albania is controlled, operated, and maintained by the Directorate of Post, Telegraph, and Telephone. The system not only provides services for the government but also provides the major medium of communications available to the general public. Postal service is provided by a nationwide network of main post offices and sub-post offices, with main post offices being maintained in Tirane and in the capitals of each of the 26 administrative districts of the country. Each administrative district also has at least one sub-post office, which is under the jurisdiction of the main post office. Tirane has at least three sub-post offices.

Service provided by the postal system includes the collection of annual taxes on radiobroadcast receivers and wired loudspeakers as well as the sale of stamps and money orders. In addition, public telephone and telegraph offices are maintained by all main post offices and many sub-post offices. Many post offices also maintain savings offices, but the latter are controlled and staffed by the Peoples Bank of Albania, under the jurisdiction of the Ministry of Finance. 16/

The postal service of Albania is slow and unreliable. Most mail between the larger cities goes by train because of poor road conditions. Service to villages and farms is usually provided by postmen on bicycles or on foot. During the winter the delivery of mail in mountainous regions sometimes takes more than a month.

The total volume of letters, money orders, and parcels sent in Albania is shown in Table 2.* The average annual increase in the volume of letters was about 4.3 percent from 1950 through 1958. This increase has been erratic, with the highest absolute volume occurring during 1952-53. The annual volume of letters sent will probably continue to be erratic but will increase as the postal system is expanded to meet more adequately the needs of the rural areas. No data are available

* Table 2 follows on p. 12.

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Table 2

Estimated Volume of Letters, Money Orders, and Parcels Sent in Albania a/
1950-58

Thousand Units

Year	Letters	Money Orders	Parcels	Total Volume
1950	6,579	447	52	7,078
1951	8,363	257	24	8,644
1952	10,274	248	19	10,541
1953	9,896	245	20	10,161
1954	7,654	217	27	7,898
1955	8,593	222	27	8,842
1956	8,024	224	17	8,265
1957	8,794	231	17	9,042
1958	9,207 b/	236 b/	17 c/	9,460

a. All data are rounded to the nearest thousand. [redacted] 50X1 50X1

b. Extrapolated by applying to the data for 1958 the average annual rate of growth from 1954 through 1957.

c. Assumed to be the same as in 1957.

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on the volume of newspapers and periodicals sent, but the emphasis given by the government to the circulation of newspapers and periodicals for propaganda purposes has probably caused this volume to increase at a higher rate than the volume of letters.

Another indication of the underdeveloped status of the postal system of Albania is the lack of automatic and semiautomatic equipment used in the system and the small number of postal facilities in the country. In 1957 the total number of main post offices and sub-post offices was only 90, an increase of 15 above the level of 1950. 18/ Since 1957, however, much greater emphasis has been given to the expansion and development of the postal system. One main post office was completed in 1958, probably in Tirane, and at least five sub-post offices were under construction. Plans for the expansion of the postal system include the establishment of a sub-post office in each of the 217 administrative localities.* Although no date is available for the completion of this project, the number of sub-post offices will probably increase rapidly during the next few years. The establishment of these sub-post offices will greatly increase the capacity, reliability, and efficiency of postal service to small villages and to the rural areas of Albania. 19/

V. Telephone and Telegraph Services

The public telephone and telegraph system of Albania is operated, maintained, and controlled by the Directorate of Post, Telegraph, and Telephone. Domestic telephone and telegraph services are provided by a low-capacity, overhead wireline network, whereas international services in general are provided by point-to-point radio facilities. There are no known microwave radio relay facilities in use in the system. Of the services provided, telephone service is the most extensive. The use of telegraph service reached a peak in 1953 and has gradually declined since that time.

Both wireline and point-to-point radio facilities have increased substantially since 1950. Nevertheless, these facilities are still adequate to meet only the basic requirements of the government, and little service is available for private use. Plans for the improvement of the telephone and telegraph system include greater automation of the telephone network in the major cities and the expansion of the wireline network in rural areas.

* An administrative locality is a subdivision of an administrative district.

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A. Telephone

The telephone system of Albania has expanded considerably since 1950, but this expansion has occurred primarily in urban areas. In expanding the system, the government appears to have relied more heavily on telephone service at the expense of telegraph service, as indicated by the steady growth in the number of telephone calls in comparison with the gradual decline in the number of telegrams since 1953. The estimated number of domestic telephone calls increased from about 620,000 in 1950 to about 1,450,000 in 1958, as shown in Table 3,* an average annual increase of about 11.2 percent. The high ratio of domestic telephone calls to telephone subscribers indicates that the number of domestic calls includes both local and interurban calls. Although the greater proportion of domestic calls is believed to consist of local calls in the major centers of population, the number of interurban calls between major centers of population probably grew significantly while the number of telegrams declined. The number of international telephone calls is known to have increased at a high rate since 1953.

The availability of telephone service has increased, especially since 1956. From 1956 through 1958 there was an average annual increase in the estimated number of telephone subscribers of about 35.4 percent (see Table 4**). Telephone facilities were installed in sub-post offices at an increased rate during the period. Furthermore, greater emphasis has been given to the installation of automatic telephone exchanges in the larger centers of population, and by 1960 all major centers of population in Albania are to have automatic exchanges. 20/

The expansion of the telephone system in the past has benefited the government primarily. The large increase in the number of telephone subscribers has consisted almost entirely of government officials, and the availability of telephone service for private use has been restricted to a small number of public telephones located in main post offices and some sub-post offices. By the end of 1958 the telephone system probably reached a point of development in which facilities were sufficient to meet the basic requirements of the government. A greater number of facilities will become available in the larger centers of population for private use in the future, not only in post offices but also in homes. In 1958 a plan for the expansion of telephone facilities in Tirane provided for the installation of telephones in from 8 to 10 percent of the homes in that city. Similar plans have been made for the installation of private telephones in other major centers of population. Although these telephones

* Table 3 follows on p. 15.
** Table 4 follows on p. 17.

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Table 3

Estimated Number of Domestic and International Telephone Calls over Public Facilities in Albania a/
1950-58

Thousand Telephone Calls

Year	Domestic b/	International	Total	Index of Total (1950 = 100)
1950	620.3	0.1	620.4	100
1951	724.2	0.1	724.3	117
1952	831.4	0.2	831.6	134
1953	883.9	0.3	884.2	143
1954	973.6	1.4	975.0	157
1955	1,125.0	4.2	1,129.2	182
1956	1,182.5	6.5	1,189.0	192
1957	1,312.0	11.0	1,323.0	213
1958	1,448.4 c/	15.5 d/	1,463.9	236

a. All data are rounded to the nearest hundred

50X1
50X1

b. Domestic calls are assumed to include both local and interurban calls because of the relatively high volume compared with the number of telephone subscribers.
c. Extrapolated by applying the average annual rate of growth from 1954 through 1957.
d. Assuming the same absolute increase in 1958 as in 1957.

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will probably be installed in the homes of government officials, it is significant that this is the first time that facilities have been available to any extent for home use. 22/

Telephone facilities in villages and rural areas, however, are still extremely limited. Plans for the future include the extension of the telephone network to these areas as well as the installation of automatic equipment and the expansion of service in the urban areas. Although telephone service will probably continue to increase rapidly in the future, the amount of service available for private use and for rural areas will probably remain small for many years. 23/

B. Telegraph

The telegraph system of Albania provides service for ordinary telegrams only. There are no known facilities for facsimile telegraph or subscriber telegraph (TELEX) services in operation and no indications that plans for the expansion and development of the system provide for the establishment of such facilities in the near future.

In 1950 the telegraph network in Albania connected all centers of population. Manual morse facilities rather than modern teletype facilities were used, and the service provided was inefficient. Service to towns and villages was extremely limited except to those situated along the routes of telegraph lines between centers of population. During 1951-55, little emphasis was given to the expansion of the system, and the number of telegraph offices increased only from about 50 to about 60 during the period. Since 1955, however, there are indications that a greater number of telegraph offices have been established in sub-post offices throughout the country. 24/

The telegraph system is still the primary means for international telecommunications service in Albania. All international telegraph service is now provided by automatic morse or radioteletype facilities. The telegraph system is expected to continue to provide the major means of international telecommunications service in Albania in the future. 25/

In spite of the recent expansion of the telegraph system in Albania, the number of telegrams has continued to decrease steadily since 1953, as shown in Table 5.* This decrease has probably resulted from the greater use of the telephone system for domestic telecommunications service, once that system had developed to the point of

* Table 5 follows on p. 17.

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Table 4

Estimated Number of Telephone Subscribers in Albania a/
1950-58

Year	Subscribers (Thousand Units)	Index (1950 = 100)
1950	1.3	100
1951	1.3	100
1952	1.7	131
1953	1.7	131
1954	2.0	154
1955	2.7 b/	208
1956	3.6 b/	277
1957	4.9 b/	377
1958	6.6 c/	508

a. All data are rounded to the nearest hundred [redacted] 50X1
[redacted] 50X1

b. Interpolated by applying to the data for 1955-57 the average annual rate of growth from 1954 through 1958.

c. 27/

Table 5

Estimated Number of Telegrams Sent over Public Facilities in Albania a/
1950-58

Year	Telegrams (Thousand Units)	Index (1950 = 100)
1950	909	100
1951	878	97
1952	961	106
1953	1,008	111
1954	976	107
1955	852	94
1956	812	89
1957	807	89
1958	802 b/	88

a. All data are rounded to the nearest thousand [redacted] 50X1
[redacted] 50X1

b. Assuming the same absolute decrease in 1958 as in 1957.

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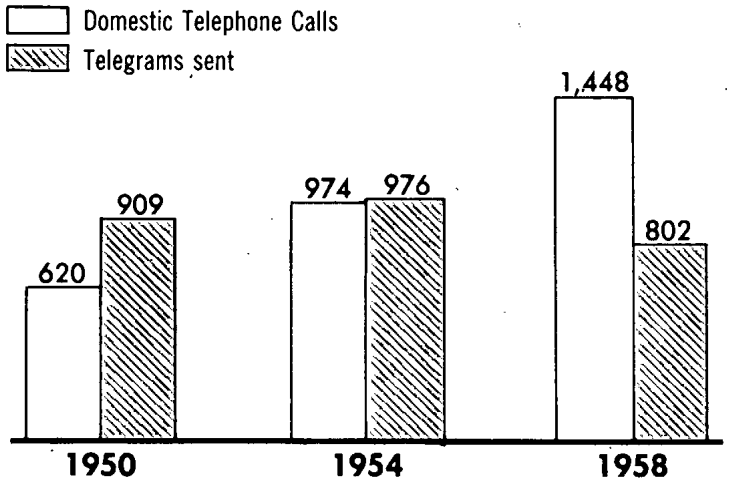
providing good coverage. This conclusion is indicated by the following comparison (in thousand units) of the number of domestic telephone calls and the number of telegrams sent in 1950, 1954, and 1958:



Although the number of telephone calls is assumed to include both local and interurban calls, the increase in the number of interurban calls has probably more than compensated for the decrease in the number of telegrams.

C. Common Telecommunications Facilities

The common telecommunications facilities in the public telecommunications system of Albania consist of wireline and point-to-point radio facilities only. The wireline network is used mainly to provide domestic telecommunications service. Point-to-point radio facilities are used as the primary medium for international telecommunications service. As microwave radio relay and tropospheric scatter facilities provide an efficient means for telecommunications in mountainous regions, one or both of these facilities will probably be used in Albania some time in the future. As yet, however, the installation of these facilities is not included in available plans for the expansion of common telecommunications facilities.

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1. Wirelines

The wireline network of Albania is small in capacity and in total length of wirelines. Almost all of the network consists of overhead wires strung on wooden poles along roads and railroads between the more important centers of population. Except for two lines between Tirane and Durres, which are used exclusively for telephone traffic, all wirelines are used for both telegraph and telephone traffic. The only cable lines in Albania are two submarine cables between the mainland and Sazan Island and also probably short multiconductor cable lines in Tirane and a few of the other major centers of population. 29/

The total length of wirelines in Albania during 1950-58 was as follows*:

Kilometers

1950	1951	1952	1953	1954	1955	1956	1957	1958
5,040	8,250	8,800	8,930	9,340	9,680	9,720	9,790	9,950**

The average annual rate of growth in the total length of wirelines from 1950 through 1958 was 8.9 percent. Most of this increase occurred in 1951, however, and the average annual rate of growth from 1954 through 1958 was about 1.6 percent. These wirelines are concentrated along the coast of Albania between Shkoder and Vlone and between Tirane and Elbasan, as shown in Figure 3.*** The rugged terrain in the rest of the country hinders the construction and maintenance of wireline facilities. Therefore only the more important centers of population are connected to the wireline network.

The only international wireline facilities believed to be in operation in 1958 were three overhead wirelines connecting Albania and Yugoslavia. Before 1950, international wireline facilities also included six submarine cable lines -- four connecting Albania and Italy and two connecting Albania and Greece -- and two overhead wirelines connecting Albania and Greece. Operation of these facilities was discontinued when the Communists took control of the Albanian government. There have been negotiations for the reestablishment of the submarine cable lines between Albania and

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** Extrapolated by applying the average annual rate of growth from 1954 through 1957.
*** Following p. 20.

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Italy, but there is no indication that operation of these facilities has actually been reestablished. 31/

According to recent plans, the wireline network in Albania is to be extended in the future to include not only the more important centers of population but also villages and towns in outlying areas. Irrespective of these plans, future expansion of the wireline network will probably continue to be slow at the rate of investment which is expected. Because of the isolated geographical position of Albania with relation to other Soviet Bloc countries, the emphasis on common telecommunications facilities for international service will likely remain on point-to-point radio rather than on wireline facilities. 32/

2. Point-to-Point Radio

Point-to-point radio facilities are the basis for Albania's international telecommunications service. International point-to-point radio communications are maintained with all of the other Soviet Bloc countries and with Yugoslavia, Italy, and Communist China, as shown in Figure 4.* Point-to-point radio communications with other countries are relayed through some of these countries, especially Czechoslovakia.

Most point-to-point radio connections between Albania and other countries are radiotelegraph, with automatic morse facilities used predominantly. In addition to automatic morse, radiotelegraph connections include radioteletype from Albania to the USSR and to Hungary, and radiotelephone connections have recently been established from Albania to the USSR, to Communist China, and to Italy. As Albania has made little effort to establish direct point-to-point radio service with non-Sino-Soviet Bloc countries, no significant changes in service are expected in the near future. The number and power of point-to-point radio facilities will probably be increased, however, to provide better service with other Bloc countries. 33/

Albania has no domestic point-to-point radio network. Reliance for domestic telecommunications service will probably continue to be placed on the wireline network.

VI. Broadcasting Services

Broadcasting services of Albania are restricted to domestic and international amplitude-modulation (AM) radiobroadcasting and wire-diffusion services. No television or frequency-modulation (FM) radiobroadcasting facilities are in operation in the broadcasting system, and there is no indication of plans for the establishment of them in the near future.

* Following p. 20.

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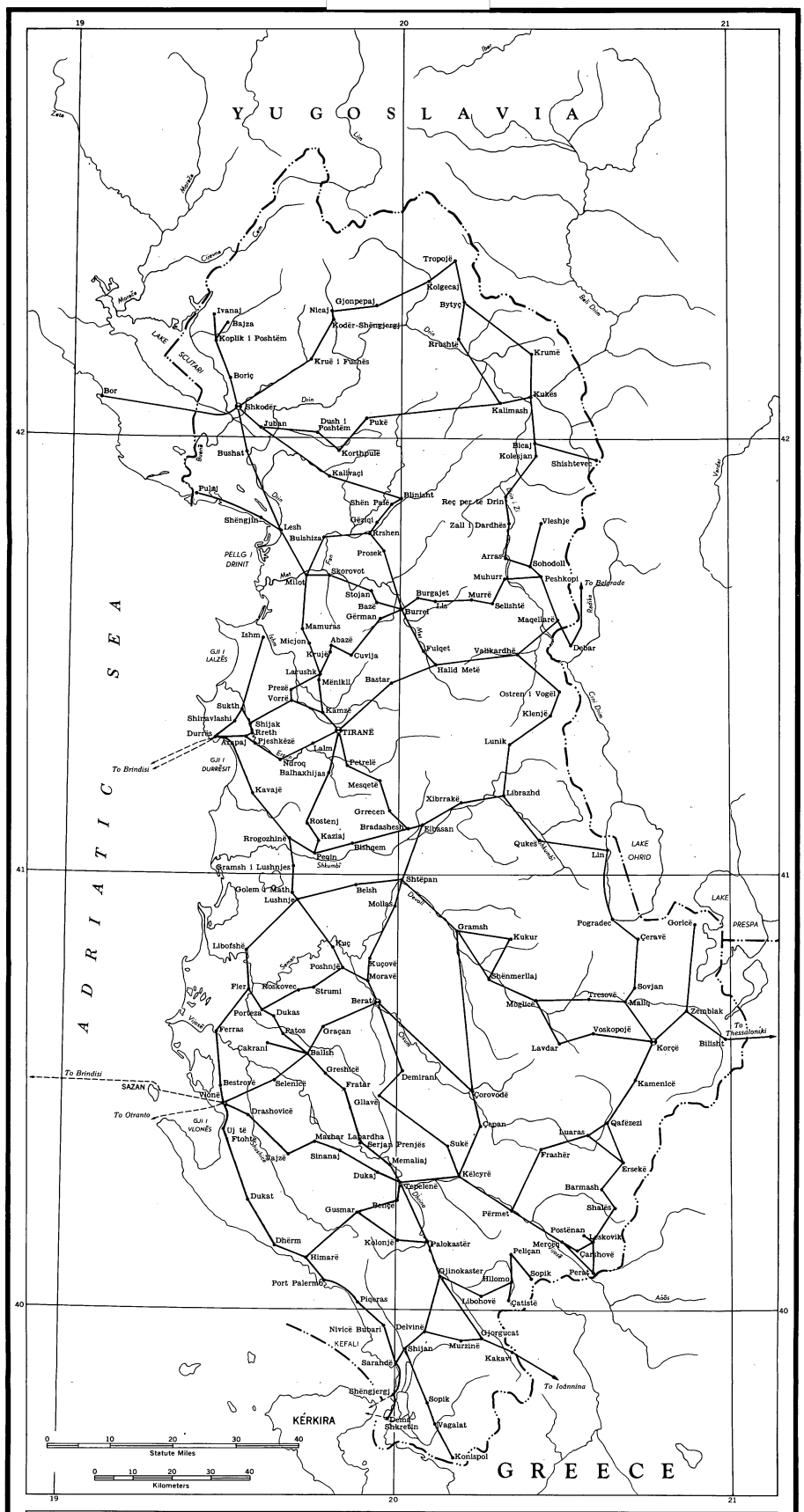

ALBANIA
MAIN TELECOMMUNICATIONS WIRELINES, JUNE 1959

Directorate of Post, Telegraph and Telephone
of the
Ministry of Communications

——— Open Wireline

– – – – – Submarine cable

⊖ Repeater station

Exact routing of wireline facilities is not known.

50X1

Figure 3

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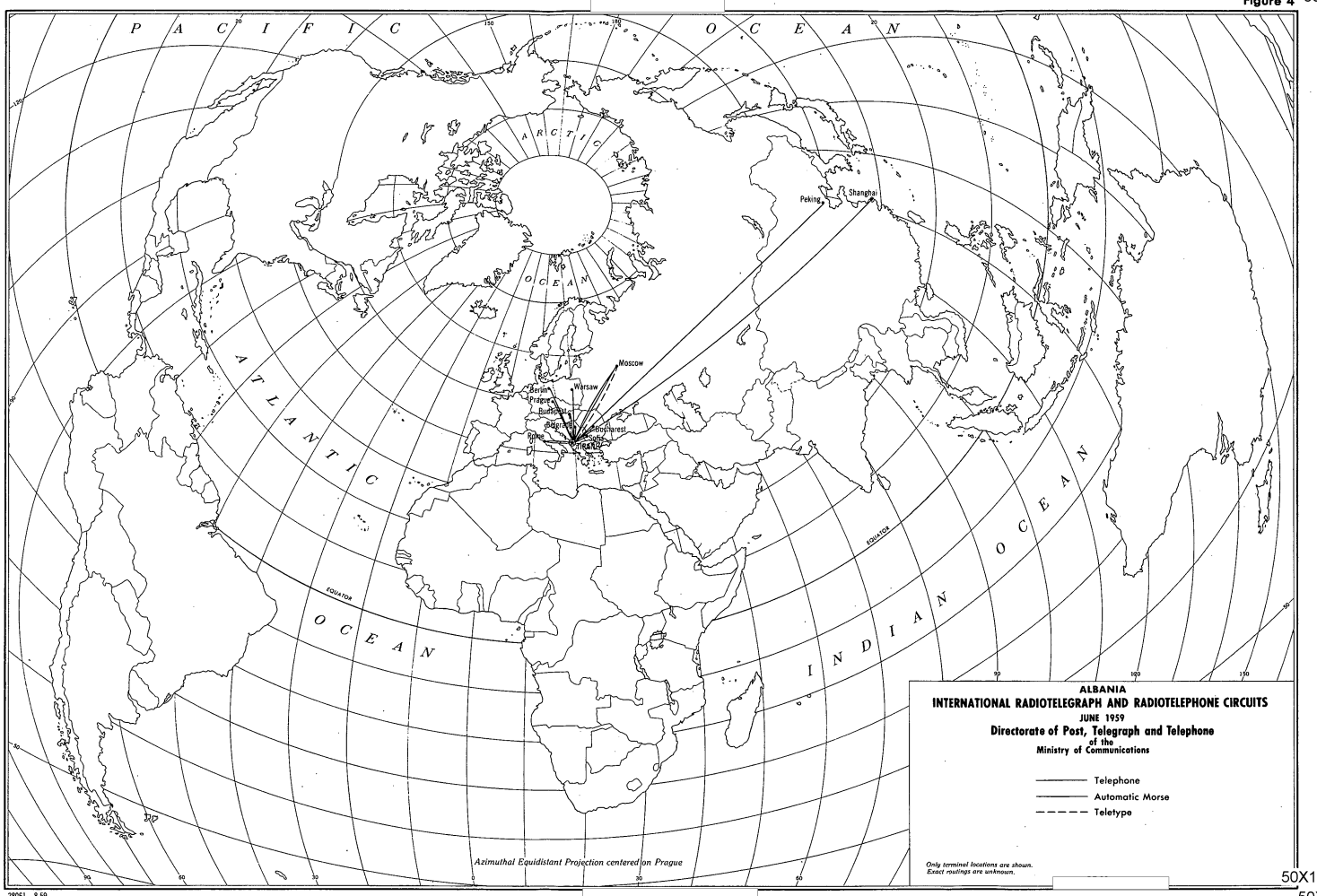
Figure 4 50X1



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Both the AM radiobroadcasting and the wire-diffusion systems of Albania have expanded at a rapid rate since 1950. Irrespective of this expansion, wire-diffusion and radiobroadcasting services are still not extensive, and the broadcast reception base is small. Further expansion of the system is planned for the near future to provide more adequate service not only throughout Albania but also to Central and Southern Europe and to the Middle East. Although the number of radiobroadcast receivers and wired loudspeakers is expected to continue to increase at a high rate, the broadcast reception base will remain low until at least 1965, except in the larger centers of population.

A. Radiobroadcasting

Control of the radiobroadcasting service of Albania is shared by the Directorate of Radiobroadcasting of the Council of Ministers and the Directorate of Post, Telegraph, and Telephone of the Ministry of Communications. The preparation and monitoring of radiobroadcast programs, both domestic and international, are controlled by the Directorate of Radiobroadcasting. The control of the operation and maintenance of radiobroadcasting facilities is the responsibility of the Directorate of Post, Telegraph, and Telephone.

In 1950 the program output of the international and domestic radiobroadcasting services in Albania was extremely small. There were only four radiobroadcasting transmitters, all of which were of low power and were used primarily to provide domestic service. The radiobroadcast reception base was also very small. There are estimated to have been only about 9,000 radiobroadcast receivers in use in Albania at that time. With the exception of a small number of receivers using batteries, almost all of these were located in the major cities. 34/

Radiobroadcasting facilities have increased substantially in number and power since 1950, largely through aid furnished by the USSR. In 1952 the first radiobroadcasting transmitter of relatively high power, 50 kilowatts (kw), was installed. The operation of this medium-frequency transmitter extended considerably the range of the radiobroadcasting service of Albania. By 1958 the estimated number of radiobroadcasting transmitters had increased to 10, including a relatively high-powered, high-frequency transmitter of probably 60 kw. The remaining eight transmitters are all of low power. 35/

The number of radiobroadcast receivers in Albania is still inadequate to provide radiobroadcast reception for most of the population. For example, in 1958 there were only about 19 receivers per thousand persons. The estimated volume of radiobroadcast receivers has increased rapidly since 1950, however, as shown in

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Table 6.* The highest rate of expansion occurred from 1954 through 1958. During this period, there was an average annual increase in the estimated number of receivers of about 18.3 percent. Although expansion will probably continue at this rate or an even higher rate in the near future, the radiobroadcast reception base will continue to be small until after 1965, especially in the rural areas. 36/

Radio Tirane provides most of the radiobroadcasting service of Albania. Regional radiobroadcasting stations originate programs of a local nature, but most of their broadcast time is devoted to the relay of Radio Tirane programs. Some broadcast time is devoted to newspaper articles from the USSR and to the rebroadcast of Radio Moscow programs. In the last few years, emphasis has been given to programs for children as a means of indoctrinating them in Communist beliefs. 37/

The international radiobroadcasting service of Albania is also centered in Tirane. International service was negligible until the installation of the 50-kw transmitter in 1952. This transmitter provided a more adequate base for transmission to the Balkan Peninsula, Italy, Central Europe, and most of the Middle East. In June 1959, Radio Tirane broadcasted international programs in English, French, Italian, Serbo-Croat, Greek, and Arabic (see Figure 5**). It also broadcasted programs in Albanian by means of a transmitter located in Bulgaria for Albanians living in North America. 38/

It is expected that the AM radiobroadcasting system will continue to expand in the future at a rate of increase as high as or higher than that experienced since 1950. No FM facilities are expected to be installed in the near future. The USSR has offered to give Albania the required equipment and technical help to establish a new AM radiobroadcasting station, including high-frequency and medium-frequency transmitters, a building, and a studio. Construction of this station is to begin in 1959. The station is to begin operating by the end of 1962. The transmitters will probably be used for both domestic and international radiobroadcasting. The installation of these transmitters will provide Albania with an improved transmission base for domestic radiobroadcasting service. The use of the transmitters for international radiobroadcasting service will also provide Albania, which has a large Moslem population, with an effective weapon for Soviet Bloc propaganda to the Arab world. 39/

* Table 6 follows on p. 23.
** Following p. 24.

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Table 6

Estimated Broadcast Reception Base in Albania a/
1950-58

Thousand Units

Year	Radiobroadcast Receivers b/	Wired Loudspeakers	Total
1950	9	0	9
1951	11	0	11
1952	12	5 c/	17
1953	13	6 c/	19
1954	14	6 c/	20
1955	20	7 d/	27
1956	20	8 d/	28
1957	24	13 e/	37
1958	28 f/	18 g/	46

a. All data are rounded to the nearest thousand.

50X1

c. 41/
d. 42/
e. Interpolated, using arithmetic progression, for 1956-58.
f. Extrapolated by applying to the data for 1958 the average annual rate of growth from 1954 through 1957.
g. 43/

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B. Wire Diffusion

The wire-diffusion system of Albania is operated, maintained, and controlled in the same way as the radiobroadcasting system. The Directorate of Post, Telegraph, and Telephone is responsible for the operation and maintenance of wire-diffusion facilities, and the Directorate of Radiobroadcasting is responsible for the preparation and monitoring of programs. The system is patterned after the wire-diffusion system of the USSR. Wire-diffusion centers throughout the country receive Radio Tirane broadcasts and rebroadcast these programs by means of wirelines to individual wired loudspeakers. In addition, wire-diffusion centers originate their own programs, such as local news and propaganda talks. Besides being installed in private homes, wired loudspeakers are installed in public squares, factories, offices, and other public gathering places. 44/

The reception of broadcasts on wired loudspeakers is restricted to those broadcasts from wire-diffusion centers. The inherent advantage of wire diffusion, its "captive" audience, has been one of the more important reasons for the development of wire diffusion in many of the other Soviet Bloc countries. In Albania, however, only a small segment of the population, mainly trusted Communists or Communist supporters, is in possession of radiobroadcast receivers. Therefore the major problem in Albania is not one of restricting the reception of radiobroadcasts to those sponsored by the government but of increasing the broadcast reception base of the country as quickly and efficiently as possible.

The wire-diffusion system of Albania was initiated in 1952. The system expanded gradually until the end of 1956 and then expanded at a much higher rate of increase (see Table 6*). This expansion is shown by the average annual increase of wired loudspeakers of about 50 percent from 1956 through 1958 compared with the average annual increase of about 12 percent from 1952 through 1956. Recent expansion has occurred not only in the major centers of population but also in villages and collective farms. For example, in 1956 an investment fund of 1 million leks was set aside for the installation of wire-diffusion facilities in 12 villages in the region of Dropul e Poshte. The government will probably continue to expand the wire-diffusion system at a high rate as the chief means of broadening the broadcast reception base as quickly as possible. 45/

* P. 23, above.

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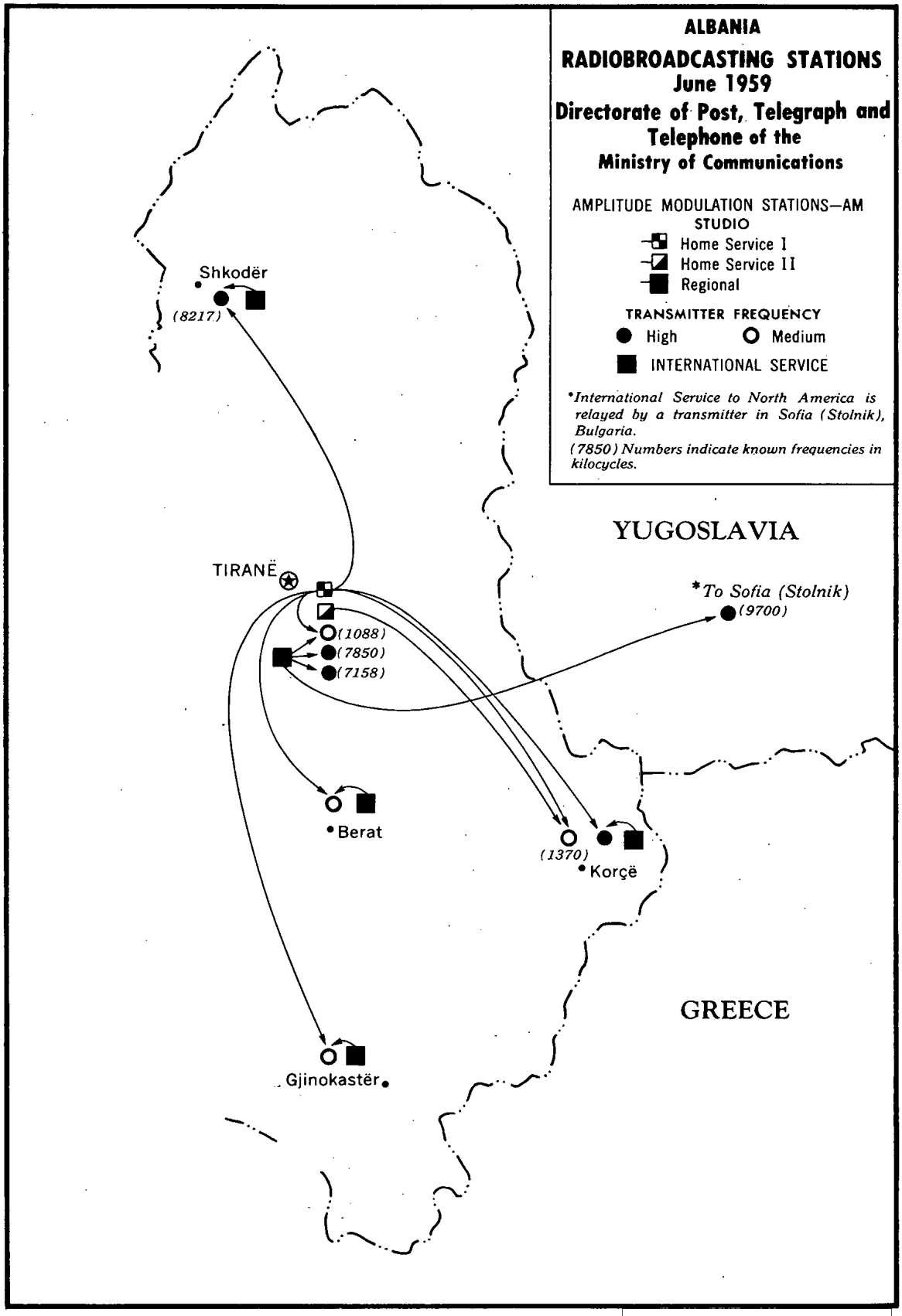
Figure 5



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VII. Future Trends

In general, there has been a substantial increase in facilities and services in the public post and telecommunications system in Albania since 1950, especially after 1955. Future plans indicate that these facilities and services will be increased at an even higher rate than in the past. In spite of this planned increase, the amount of telecommunications services available for the rural areas and for private use will be small in the near future.

Primary emphasis in the improvement of the system will be given to the expansion and development of the telephone and broadcasting systems. Major courses of action expected to be pursued by the Directorate of Post, Telegraph, and Telephone include the following:

1. To install automatic telephone exchanges in all centers of population and increase the number and capacity of exchanges in areas already having such facilities.

2. To increase the availability of rural telephone service by extending the wireline network into more villages and rural areas and by establishing telephone offices in a greater number of sub-post offices.

3. To increase the number and power of radiobroadcasting transmitters for the expansion of international radiobroadcasting service.

4. To expand the domestic broadcast reception base by increasing the number and power of domestic radiobroadcasting transmitters and by expanding the wire-diffusion network.

5. To increase the number of sub-post offices in outlying areas of the country.

6. To increase the number of technical training facilities and opportunities for post and telecommunications workers.

7. To continue active participation in OSS and to attempt to fulfill OSS plans in Albania for the improvement and unification of post and telecommunications systems in the Sino-Soviet Bloc.

A larger amount of investment in the post and telecommunications system of Albania is expected in the future. This investment will probably be provided both by an increase in domestic funds for

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investment and by an increase in financial and technical aid from the USSR. Even with the increase in investment, however, the system will continue to remain the most underdeveloped in the Soviet Bloc for the foreseeable future.

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APPENDIX A

GLOSSARY OF TECHNICAL TERMS

Amplitude modulation (AM): The process by which a selected carrier frequency is varied in magnitude (amplitude) by other frequencies that contain the information to be transmitted in telecommunications. (See Frequency modulation.)

Apparatus: Instruments, machines, appliances, and other assemblies used in providing a telecommunications facility.

Automatic (as an adjective): Of or pertaining to any process involved in producing telecommunications service which does not require direct, immediate human assistance.

Band (of frequencies): The entire range of frequencies between two numerically specified frequency limits. The magnitude of this range is a limiting factor on the amount of information that can be transmitted in telecommunications. With respect to frequencies of the radio spectrum as a whole, the International Telecommunication Union has for convenience divided the whole radio spectrum into eight major bands, as follows:

Frequency Bands		Corresponding Wave*
Range	Type	
30 kc** and below	Very low frequencies (VLF)	Myriametric waves
30 to 300 kc	Low frequencies (LF)	Kilometric waves
300 to 3,000 kc	Medium frequencies (MF)	Hectometric waves
3,000 to 30,000 kc	High frequencies (HF)	Decametric waves
30,000 kc to 300 mc***	Very high frequencies (VHF)	Metric waves
300 to 3,000 mc	Ultra high frequencies (UHF)	Decimetric waves****
3,000 to 30,000 mc	Super high frequencies (SHF)	Centimetric waves****
30,000 to 300,000 mc	Extremely high frequencies (EHF)	Millimetric waves****

* Waves are undulating disturbances: a sound wave is a disturbance in the air, which is an elastic medium, and an electric wave is a disturbance in any medium whatever. The number of waves per second is the frequency of a given wave. Because the speed of wave propagation is considered to be constant, the length of a given wave is in inverse relation to its frequency: the longer the wave length, the lower the frequency, and the shorter the wave length, /footnotes continued on p. 36/

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Cable: A bundle of sheathed, insulated wires and/or coaxial tubes, used as a telecommunications medium. It is sometimes referred to as "multiconductor cable."

Carrier (as an adjective): Of or pertaining to a technique for dividing a circuit, lane, supergroup, group, or channel into portions which can be used independently of and simultaneously with all other portions. Different frequencies or different pulses are selected for each portion to "carry" the information to be transmitted, after alternation by the information frequencies. The carrier itself need not be transmitted.

Channel: A portion, electrical or physical, of a telecommunications circuit, lane, supergroup, or group which can be used to transmit information independently of and simultaneously with all other portions. A channel may be used to provide two or more subchannels.

Circuit: A telecommunications connection between two or more distant points by a wire, cable, or radio medium facility used to carry information. The circuit is the fundamental telecommunications connection between distant points. By the application of appropriate techniques, a circuit may be arranged in many different combinations to meet the need for various kinds and quantities of telecommunications service. In its simplest form a circuit may carry only single telecommunications units in sequence. In its most complex form it may by apportionment carry sinultaneously thousands of telephone channels and telegraph subchannels; a number of television programs; and other specialized kinds of service, such as high-fidelity broadcast programs, radar signals, and data-processing signals.

For the most complex application, a circuit is often arranged into lanes, each of which can carry, in 1 direction, 1 television program or 600 telephone channels. In turn, these 600 telephone channels are subdivided into 10 supergroups of 60 telephone channels each. Each supergroup is subdivided into 5 groups of 12 telephone channels each. One or more telephone channels may be further subdivided into three to twenty 60-word-per-minute teletype subchannels. Other specialized kinds of service may be accommodated by combining two or more telephone channels.

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the higher the frequency. Wave length is usually measured in linear units of the metric system.

** Kilocycles per second, or 1,000 cycles per second.

*** Megacycles per second, or 1 million cycles per second.

**** It is becoming common usage to refer to waves (frequencies) in these three bands as "microwaves."

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Coaxial (as an adjective): Of or pertaining to a modern telecommunications cable medium technique using one or more tubes (sometimes called "pipes"). Each metal tube surrounds a conducting wire supported concentrically by insulators. The space in the tube usually contains nitrogen gas under pressure. Generally, coaxial cable is used for the transmission of information in complex form, such as radar, computer data, or television signals, and/or for the transmission of telephone channels and telegraph subchannels. A single tube usually carries information in only one direction at a time. The capacity of a tube depends in part upon the distance between repeater stations. In the standard facility, which may have from 2 to 8 tubes in the cable, a single tube carries a lane of 600 telephone channels or 1 television lane, for which the repeater station spacing is about 7 statute miles. In a new developmental coaxial cable facility, a single tube may carry 3 lanes of a total of 1,800 telephone channels or 3 television lanes, for which the repeater station spacing is expected to be about 3 statute miles.

Electronics: A general term used to identify that branch of electrical science and technology that treats of the behavior of electrons in vacuums, gases, or solids. Today, telecommunications makes extensive use of electronic technology.

Facility: An association of apparatus, material, and electrical energy required to furnish telecommunications service.

Facsimile (as an adjective): Of or pertaining to a telecommunications (telegraph) service in which photographs, drawings, handwriting, and printed matter are transmitted for graphically recorded reception. In one method (Type A), images are built up of lines or dots of constant intensity. In another method (Type B), images are built up of lines or dots of varying intensity, sometimes referred to as "telephoto" and "photoradio."

Feeder (as an adjective): Of or pertaining to telecommunications facilities of relatively low capacity which join facilities of relatively high capacity. (See Main.)

Frequency: The rate in cycles per second at which an electric current, voltage, wave, or field alternates in amplitude and/or direction. (See Band.)

Frequency modulation (FM): The process by which a selected carrier frequency is varied in frequency by other frequencies that contain the information to be transmitted in telecommunications. (See Amplitude modulation.)

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Functional (as an adjective): Of, pertaining to, or connected with special, unique, or particular telecommunications facilities managed and operated by a single agency, organization, company, department, committee, ministry, or other entity, in contrast to the facilities of a basic system.

Group: A number of channels (usually 12) or subchannels combined (multiplexed) electrically in building up the total capacity of a telecommunications circuit, lane, or supergroup.

Ionosphere: Those layers of the earth's atmosphere occupying the space about 210 statute miles in thickness extending from about 30 statute miles above the earth's surface to the outer reaches (exosphere) of the atmosphere. Reflection from these layers makes possible long-distance transmission of radio signals. The layers, however, are responsible for fading of signals, skip distance, and differences between daytime and nighttime radio reception. They are also used as a scattering reflector for ionosphere scatter-transmission techniques to transmit to distances of about 1,000 to 1,500 statute miles.

Joint facility: A telecommunications facility owned, controlled, or operated by two or more agencies, organizations, companies, departments, committees, ministries, or other entities.

Lane: A 1-way portion, electrical or physical, of a 2-way telecommunications circuit which can be used independently of and simultaneously with all other portions. The largest lane today can handle 600 telephone channels or 1 television program. In some applications the direction of a lane may be reversed.

Leased (as an adjective): Of or pertaining to the direct operation by a user of a telecommunications facility owned by another agency.

Line: A general term used to delineate a telecommunications circuit facility (wire, cable, or radio).

Main (as an adjective): Of or pertaining to telecommunications facilities at and between principal cities and centers which have relatively high capacity compared with feeder facilities. (See Feeder.)

Medium: Any substance or space that can be used practically to transmit a form of electrical energy for the purpose of providing telecommunications service.

Microwave radio relay (as an adjective): Of or pertaining to a radio medium technique in modern telecommunications employing radio

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frequencies higher than 300 mc. These frequencies do not normally afford practical direct transmission to great distances, principally because they do not bend well around the earth's surface and because they do not reflect well from the ionosphere. They are, however, capable of reliable transmission from horizon to horizon (line-of-sight) by the use of special antennas which concentrate the radio energy and give it desired direction. Great distances can, in consequence, be reached by this technique by the interposition of relay stations along the route of the line with a spacing interval of from 25 to 40 statute miles, depending upon terrain conditions. This technique can be employed practically to carry from a small number of telephone channels and telegraph subchannels to thousands of such channels and subchannels through 2 or more lanes and to carry 1 or more television and other specialized lanes and channels. (See Band.)

Mobile (as an adjective): Of or pertaining to a telecommunications facility which is intended to be operational while in motion or during halts at unspecified points. (See Portable.)

Modulation: The process of altering a carrier frequency or carrier pulses by other frequencies or pulses representing the information being transmitted.

Multiplex (as an adjective): Of or pertaining to the combining of information signals, modulated or unmodulated, of two or more lanes, supergroups, groups, channels, or subchannels for transmission over the same circuit.

Network: An interconnection, electrical or physical, of two or more circuits or portions thereof for the purpose of facilitating telecommunications service.

Point-to-point (as an adjective): Generally, of or pertaining to telecommunications service between fixed points, using the radio medium.

Portable (as an adjective): Of or pertaining to a telecommunications facility which can be readily moved from place to place but is not normally operational while in motion. (See Mobile.)

Private (as an adjective): Belonging to or concerning an individual person, organization, institution, or activity; not public or common.

Pulse: A spurt of electrical energy of extremely short duration (usually measured in millionths of a second), yet capable of being used in telecommunications to transmit information.

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Quad: In a multiconductor telecommunications cable, the physical association of a group of 4 conductors in any one of various arrangements for the purpose of providing 2-way multichannel operation.

Reception base: The aggregate telecommunications receiving facilities employed in providing a broadcast service.

Route: The geographical path followed by a wire, cable, or radio line.

Scatter (as an adjective): Of or pertaining to a radio medium technique in modern telecommunications by which energy in radio frequencies above 30 mc is deliberately scattered into one or the other of two reflecting portions of the atmosphere (troposphere and ionosphere) at a predetermined angle such that a usable portion of the energy arrives at the desired receiving location. This technique is especially applicable to regions in high latitudes (Arctic and Antarctic) where facilities of other media suffer from the rigors of weather and terrain and where the conventional long-distance radio media of the lower frequency bands (200 kc to 30 mc) are subject to serious disruptive propagational anomalies. (See Band.)

Subchannel: A portion, electrical or physical, of a telecommunications channel which can be used independently of and simultaneously with all other portions. An appreciable number of telephone channels can usually be subchanneled to carry from three to twenty 60-word-per-minute teletype subchannels on each telephone channel so employed.

Subscriber: Any customer who directly operates telecommunications apparatus in obtaining telecommunications service.

Supergroup: A number of groups (often five) combined (multiplexed) electrically in building up the total capacity of a telecommunications circuit or lane.

System: All of the facilities and networks managed by a single agency, organization, company, department, committee, ministry, or other entity in rendering either functional or basic telecommunications service.

Telecommunications: Transmission, reception, or exchange of information between distant points by electrical energy over a wire, cable, or radio medium facility to produce telephone, telegraph, facsimile, broadcast (aural and visual), and other similar services.

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Teletype (as an adjective): Of or pertaining to a technique for effecting telegraph service by the use of an apparatus similar to a typewriter in which information is transmitted by keyboard and received by type printer on a roll of paper or a roll of tape, or by perforations on a roll of tape, or by both. (Sometimes called a "teleprinter" or "teletypewriter.")

Transmission base: The aggregate telecommunications transmitting facilities employed in providing broadcast service.

Transistor: A modern device which is capable of performing in a solid (germanium or silicon) many of the functions performed by the conventional electronic tube in a gas or vacuum.

Troposphere: The layer of the earth's atmosphere occupying the space from the earth's surface to a height of about 6 statute miles. This layer is used as a scattering reflector for tropospheric scatter transmission techniques to distances of about 200 to 500 statute miles.

Wave guide (as an adjective): Of or pertaining to a telecommunications medium, now under development in several countries, which may be capable of transmitting extremely large amounts of conventional and complex information. It consists of a circular or rectangular hollow metallic tube in which electrical energy travels in the form of waves, much as do sound waves in a speaking tube.

Wire diffusion: Distribution of broadcast programs by a wire or cable medium to wired loudspeakers.

Wired Loudspeaker: A telecommunications loudspeaker which receives from a distribution point one or more broadcast programs by a wire or cable medium.

Wireline: A general term used to identify a line consisting of either an aerial cable (and/or separate wires) or an underground cable, used as a telecommunications medium.

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APPENDIX B

METHODOLOGY

The statistical data in this report were developed in large part from information contained in the Albanian statistical yearbook for 1958. [redacted] 50X1

[redacted] The validity of the data presented was checked by information from other sources, by analysis of the interrelationships that are known to exist among various statistical data, and by analogy with other Soviet Bloc countries. 50X1

The specific methodology used in the determination of each statistical series, [redacted] is contained in the footnotes to each of the tables. 50X1

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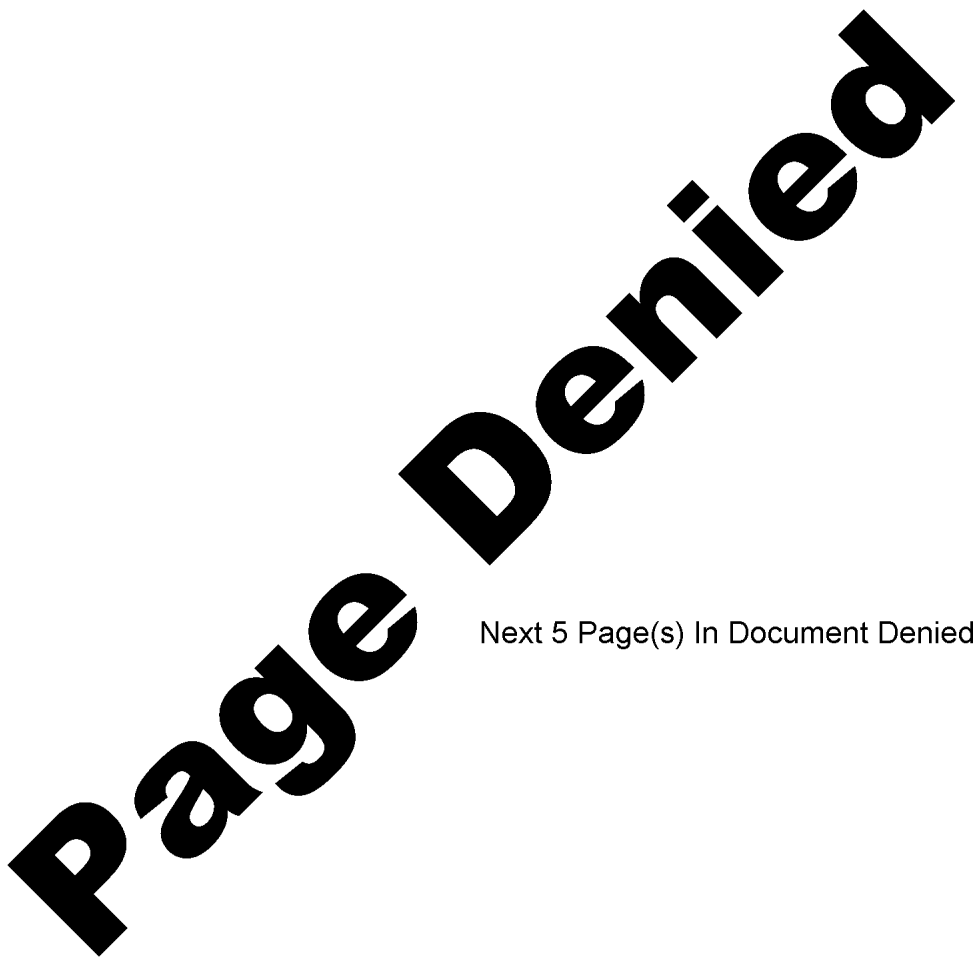

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