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TRANSPORT STATISTICS

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Part 2. The Problems of Achieving Comparability.¹/
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¹/ To be submitted to the fourth session of the Transport and Communications Commission and to the fifth session of the Statistical Commission.
INTRODUCTION

1. The Origin and Purposes of the Study

1. The Transport and Communications Commission at its second session considered the problem of the establishment of internationally comparable statistics in the transport field, which had been referred to it at the request of ILO. The question was also considered by the Statistical Commission at its third session. Having considered parallel recommendations from the two commissions (Annex I) the Council adopted a resolution instructing the Secretary-General, in consultation with the specialized agencies and regional commissions concerned and assisted by such independent experts as he might consider desirable, to make a study of the following problems:

(a) The establishment of economic and technical statistical requirements in the transport field (giving priority to the statistical requirements of an economic nature);
(b) The achievement of comparability in the information to be collected;
(c) Standardization of forms for the collection of this information.

The study was to be transmitted to the two commissions for their consideration (Annex II).

2. The present paper contains a preliminary study of the first main question (a). It is proposed to study later remaining questions: (b) and (c).

3. It is the study of the first question (a) which is here submitted. To a discussion of the uses of transport statistics and of the statistical series which are or may be collected to serve those uses, is appended a list of the statistical series which it is suggested are required to supply the economic and technical information needed. The series have been tentatively graded on the basis of a preliminary survey as to their present availability in national transport statistics and, on the basis of considerations suggested in the discussion, have also been tentatively graded as to their importance for the various means of transport.

4. The study of the two remaining parts, (b) and (c), is in progress. The problem of achieving comparability in respect of the information collected is being attacked by describing for each of the more important series the various components which may enter into the figure which is finally shown. On the basis of this analysis a standard definition will be suggested for each series. In making this definition two things will be kept in mind:

(i) the economic
(1) the economic and technical purposes to be served by the series;
(ii) the availability in national statistics of series satisfying the proposed definition.

5. Finally the problem will be treated of standardizing the forms for the collection of the data discussed above.

6. This study, when complete, will treat the subjects of transport statistics beginning with the economic and technical purposes to be served and, by means of a study of the problems of comparability and availability, culminating in a list of the series for each form of transport which, it is suggested, will best serve these purposes. The precise definition of each such series and suggestions as to the forms by means of which it is to be collected will be included. It is hoped that the study will provide a foundation on which can be based recommendations as to the transport statistical series which should be collected on a comparable basis.

7. The treatment here submitted of the first part of this subject was prepared by the Secretariat at United Nations headquarters. It is presented to the Transport and Communications Commission and to the Statistical Commission for their comments and recommendations in advance of consultation with the specialized agencies and regional commissions concerned. A report entitled "Air Transport Statistics for International Purposes" prepared by the secretariat of the International Civil Aviation Organization is attached (Annex III). The specialized agencies and regional commissions as well as other international bodies in the transport field will be consulted in the preparation of the full report. The Secretary-General will also determine whether the services of independent experts will be required in preparing the report and its recommendations in final form for submission to the fourth session of the Transport and Communications Commission and to the fifth session of the Statistical Commission.

2. The Scope of the Study

8. Transport statistics are collected on several levels. The primary collection is usually in the hands of the transport enterprises themselves or of agencies immediately supervising groups of them. The purpose of the primary collection is both to provide the detailed information required in the day-to-day operation of the transport enterprise itself and to contribute relevant facts to national statistics. National statistics are collected and published to help official and private bodies to understand the interrelation of the parts of the
national economy and to assist in planning and co-ordinating transport services. Of the national statistics certain series are useful for making international comparisons and for the study of the economy of a region or of the whole world.

9. This paper will confine itself to a study of those series which are of international interest and its recommendations will refer to series which it would be useful to have available on an internationally comparable basis.
PART I

THE PROBLEMS OF ESTABLISHING ECONOMIC AND TECHNICAL
STATISTICAL REQUIREMENTS IN THE TRANSPORT FIELD

CHAPTER I. PRELIMINARY DEFINITIONS

10. For the purposes of this paper the following distinction between "economic" and "technical" statistical requirements will be made:

(i) A statistical fact about transport will be said to be "economic" if it directly gives information about the economy in general, including information as to the service rendered to the economy and the public by transport media as well as data on the financial aspects of the operation of transport.

(ii) A statistical fact will be said to be "technical" if the information it gives primarily concerns the technical characteristics and functioning of transport undertakings or media.

11. These definitions are made because they are thought to embody the distinction the Council and Commissions had in mind. They do not correspond with the distinction made by the League of Nations' Advisory Technical Committee for Communications and Transit (Sub-Committee on Specification of Transport Statistics: Report CL98, 1932 VIII Annex) which divides the statistics into:

(i) statistics from the commercial standpoint;

(ii) technical and administrative statistics.

The first of these are "statistics which deal with the exchange of goods according to the nature of the goods - that is directly commercial statistics allowing of the comparison of trade movements." All the remaining transport statistics are in the second class. So the definitions proposed for this paper do not agree with those in the League Report.

12. Nor do they agree, as far as they concern the word "economic", with the definition of that word commonly used by economists. Under that definition all the usual transport statistics would be "economic."

13. In conclusion it may be pointed out that the differences which may exist in definitions of economic and technical facts are less important for the purposes of this paper than the listing of the requirements for transport statistics and the series to be collected.

CHAPTER II. ECONOMIC
CHAPTER II. ECONOMIC TRANSPORT STATISTICS

1. Economic Questions

14. Transport is not an end in itself but is a service to make possible the achievement of other economic and social ends, namely the transfer of goods and persons from one place to another.

15. Knowledge of the volume and nature of the services performed by transport gives information both about transport and about the economy as a whole. The volume of traffic is an index both of the level of general economic activity and of the activity of transport itself. These indications usually are obtained by the comparison over a period of time of overall volume data (or of volume data by categories of routes and of goods and persons carried).

16. The cost of transport must be determined from financial data. They will be discussed below. The cost will to a considerable extent depend on the efficiency of each particular branch of transport and on the efficient co-ordination of the various means of transport. The statistical aspects of the question of efficiency involve comparison of many types of statistical data, both economic and technical in nature. They will therefore be discussed at the end of Chapter III.

17. The future needs of an economy impinge on transport as a volume of goods and persons to be carried. This volume must frequently include the goods and persons required to extend the transport facilities themselves.

18. The economic requirements of transport statistics break down into volume data, financial data and the comparison of statistical items of a varied nature. It is predominantly the volume and financial data which directly give information about the economy, so these will first be discussed. The remainder, being the result of the combination of technical facts, will be discussed in Chapter III. For convenience of presentation volume data will be studied under two heads, overall traffic and detailed traffic. By the latter is meant data by type of goods and passengers and by points of origin and destination.

2. Overall Traffic Data

19. Goods traffic. The volume of traffic can be looked at from two points of view:

(a) either the tonnage of goods can be considered alone, or
(b) the tonnage can be related to the distance it is carried

thus giving an index of the amount of goods transport service performed.

/20. Because
20. Because commercial traffic rather than service traffic is of direct economic importance, it appears best to concentrate primarily on figures for revenue traffic. Especially in the case of railways, the nature of the free-hauled traffic varies considerably from country to country. Sometimes, for instance, it includes and sometimes excludes the coal used for locomotives as well as ballast and construction materials for the use of the railway itself. It is therefore advisable to know also the amount of free-hauled traffic for comparison with the revenue traffic. Thus service traffic, though a datum primarily of technical importance, must be considered here together with revenue traffic. This distinction is therefore intended to apply to the figures discussed below.

21. The tonnage figures (see 19 (a) above) most commonly published for railways are "tons carried" per month, quarter or year. Unless special precautions are taken, this leads to double counting when the same ton of goods is carried on more than one line or by more than one form of transport. For this reason, tons carried as shown in national statistics cannot be added from country to country to obtain regional totals. Therefore in Table I the "tons carried" figure for railways though it has maximum availability in national statistics is not marked with a "1" to indicate that it is of first importance. In the case of the other forms of transport, "tons carried" is, as the table indicates, not the most commonly collected datum.

22. Tons loaded (or unloaded) within a national boundary on a given form of transport can be added to form totals if care is taken not to count transloading from one wagon to another, one ship to another etc. But since there will be duplication when goods are transshipped from one form of transport to another, totals over the various means of transport must be avoided. Nonetheless these series have been given first importance in the table because they give the most flexible measure of tonnage per se. For inland waterways these series are the m. commonly shown in national statistics though upstream and downstream traffic are not always distinguished as would be desirable. For ocean shipping, tonnages loaded and unloaded can often be deduced from port figures.

23. In the case of ocean shipping, the net registered tonnages of vessels entered and cleared at ports are the figures most universally collected. They give no proper indication of tonnage loaded or unloaded, but do give indication of shipping and commercial activity. For shipping, too, the figures of tons loaded (or unloaded) broken
down between international and coastwise trade would be helpful. Passenger traffic may be treated similarly.

24. For railways, the number of vehicles (wagons) loaded in a given time is frequently shown and is a valuable indication of tonnage loaded. In addition, the number of wagons entering a country already loaded is sometimes available.

25. The figure which combines both tonnage and distance (see 19 (b)) and thus provides an index of goods transport service performed is the well-known net ton-kilometre figure. By their nature, ton-kilometre figures can be added for different systems, countries, regions and forms of transport without risk of double counting. This advantage is shared by no other goods traffic figure. In addition, ton-kilometres gives a measure of the distance traversed as well as of the tonnage. Dividing the ton-kilometre figure by tonnage carried, if available on a comparable basis, gives average length of haul. Ton-kilometres are therefore the most important freight traffic figures. For railways, as is shown in Table I, the availability of ton-kilometres figures is second only to that of tons carried figures. For inland waterways the availability of ton-kilometres is second only to that of tons loaded and unloaded and, where road transport figures for certain classes of traffic are available at all, ton-kilometres are likely to be among them. Ton-kilometres performed are largely available for civil aviation, particularly for scheduled flights. Information about non-scheduled operations and eventually about contract and private operations should also be useful. It is only in the case of ocean shipping that there is a lack of ton-kilometre figures. If such figures were available for ocean shipping a full and flexible index of goods transport services would be at hand.

26. Passenger traffic. As in the case of goods traffic, the volume of passenger traffic can be looked at from two points of view:

(a) the number of passengers can be considered alone;

(b) the number of passengers can be related to the distance each passenger is carried thus giving an index of passenger transport service performed.

27. Passenger Journeys, in category (a) is the figure of passenger traffic most usually collected. It suffers from all the disadvantages of tons carried and is therefore similarly annotated in the table. In the case of shipping, passenger journeys are not always given directly, but information about them may often be obtained from the numbers of passengers embarking or disembarking, by port.
28. The figure for passenger-kilometres, in category (b), is analogous to that of ton-kilometres and provides the best index of passenger traffic service. Its availability however is less in national statistics than that of ton-kilometres.

3. Detailed Traffic Data

29. It is of economic interest to study the flows of traffic in various commodities by:

(a) points of origin and destination,
(b) type of goods or passengers carried.

Statistics in this domain will make it possible to identify the principal trade routes, to trace the flow of raw materials from their sources to the factory, and of finished products from the factory to the consumer. They will assist in planning the location or relocation of industry.

30. In the case of international traffic such analysis, if carried far, impinges on the domain of trade statistics. Except where commodities are rigidly controlled by the Government, there exist no corresponding figures for the flow of commodities inside national units and the question therefore arises whether such information is important and if so whether it is best to obtain the data via transport statistics. A knowledge of the internal flow of traffic is clearly much more important for a large country whose economy is regionally diversified than for a small and homogeneous one. Nonetheless, facts about national traffic of this degree of detail are not, in general, of international concern.

31. The proposal for the unification of transport statistics put forward by the League of Nations is based on a division of each country into regions and envisages elaborate measures to give a picture, for every pair of regions, of the traffic in commodities between them by each means of transport. When the two regions of a pair are in different countries, the proposal would result in duplication of trade statistics. Applied to regions in the same country, it would lead to the supply of the information just discussed about internal commerce. Since its inception, the League proposal has had a little acceptance, probably because of the cost required to put it into effect.

32. The quarterly questionnaire on transport statistics of the Economic Commission for Europe, asks, in the case of import, export and transit traffic, the total tonnage consigned from or to each neighbouring country for each form of transport. This information is, for some countries, too detailed to be supplied by the Central Statistical Office and so, if available at all, might have to be assembled from various national sources /at the expense
at the expense of considerable inter-agency correspondence. The systematic collection of this type of data might therefore, sometimes prove difficult.

33. Published statistics generally separate domestic, import, export and transit traffic. These four categories seem to provide an adequate analysis except where a special study has to be made for a particular purpose. In the case of ocean shipping this entails separation of coastwise from international traffic. Traffic with dependencies having a radically different economic structure from its mother country should either be shown separately or included in international traffic. Where information on origin and destination and commodities carried is wanted for general purposes, this can perhaps best be obtained by a systematic sampling of the relevant freight documents or tickets. In the case of civil aviation, because the number of internationally important airports is still small, it would be possible to collect figures to show the flow of goods and passengers between each pair of them. It is already possible for many countries to separate figures for traffic carried on international flights from figures for that carried on domestic flights.

34. It is usual in goods transport statistics to state separately those for luggage, small packages, livestock, coal, solid and liquid cargo and goods carried as rafts. This is adequate for ordinary international study and comparison. Beyond this, classification like that in trade statistics is sometimes available in national figures.

35. The breakdowns of overall traffic figures that are here advocated should apply to all the goods traffic figures mentioned in sub-heading 2 above ("Overall traffic data") except entrances and clearances of ships. A breakdown of the latter figures useful in work on the international balance of payments is described in paragraph 46 below. In the case of passenger traffic, an analysis into domestic, outward, inward and transit travel appears of very much less interest than for goods.

4. **Financial Data**

36. The services performed by transport are paid for by money. The transport enterprises themselves must pay out money for the goods and services which they require in order to perform their service. Hence financial data show how transportation fits into the economic exchange of goods and services. They can provide a uniform scale which, in a given country, can be applied to all forms of transport and are therefore valuable for the study of the co-ordination of the various means of transport. In making such comparison, all sources of income, including subsidies, must be taken into account. A comparison, to be fair, must also note the fact when a transport undertaking uses capital facilities
whose cost is borne by others. Where the type of ownership and therefore
of financial responsibility varies widely for different parts of the
transport system, as for instance between publicly and privately owned
railways, the traffic and financial statistics by type of ownership must
for some purposes be shown separately. It is important to know whether
transport undertakings are running at a profit or at a loss.
37. Financial data may roughly be divided into:
   (a) sums invested in capital equipment;
   (b) financial results of operation.
38. Though in modern transport undertakings there is a large investment
in capital equipment, the amount of that investment is difficult to define
on a comparable basis in different countries. In any case it appears
to be a less important figure than its concomitants that affect current
operations: interest payments, if any, amortization and depreciation.
These form part of the current data discussed below.
39. Information on financial results of operation (b) are important:
   (i) as an indication of whether or not the users of transport are
       paying what the service costs or whether a part of the cost is
       being borne, in one form or another, by the rest of the
       community;
   (ii) because transport services make an important contribution to the
        national income of most countries;
   (iii) because transport is in some countries an important factor
        in the balance of foreign exchange payments.
40. The further question as to whether the service is efficient or
whether it is costing more than it should, will be discussed in Chapter III,
on the technical side of the question.
41. As shown in the table, the figures on financial condition which bear on
point (i) are: gross expenditures, gross receipts, operating expenditures
and operating receipts, the latter sometimes broken down into the
categories: goods, passenger and others. This sort of datum is most
generally available for railways. Similar figures, complete or partial,
are sometimes available for other forms of transport in official
statistics, where the law or government control requires that they be
reported, or in annual reports of limited companies and other financial
sources.
42. The "operating ratio", that is the operating receipts divided by
the operating expenses, is considered an important index of the
financial condition of a railway.
43. Because the degrees of taxation of the various means of transport
affect their competitive position, taxes are an item in gross expenditure that play a role in the co-ordination of transport.

44. Indexes of international ocean shipping rates, based on averages obtained by an appropriate weighting by volume of various routes and goods, have been published (see League of Nations Statistical Year-Book), and are being published (see Norwegian Shipping News and the Svena Handelsbanken Index). To show comparative costs of various means of international transport, similar weighted averages would also be useful for the other forms of transport.

45. To calculate the part contributed by transport services to national income (see (ii) above) one must know either:
   (a) the wages, interest, rent and royalties paid by the transport industry plus the profits (or minus the deficit) either before or after depreciation; or
   (b) the gross operating receipts of transport less the part of operating expenses paid to other industry, excluding or including in amounts paid, allowance for depreciation.

46. A transport undertaking which operates internationally may contribute to the foreign exchange resources of the country of ownership (see (iii) above). The present importance of balance of payments questions makes it worth while to consider whether transport statistics can give any information about the part of net expenditures or receipts of foreign currency attributable to the transport of goods and passengers for foreign account. Estimates of gross foreign exchange receipts can be made from detailed statistics by multiplying by the rate the quantity of goods or persons carried for foreign account. For ocean shipping the companies can provide the required data. Where the data are not available and where figures are broken down both by the flag of the vessel concerned and the country of origin of the principal part of the cargo (compare 23 and 35), rough estimates of the distribution of shipping earnings by paying country can be made.

47. Figures on the foreign exchange expenditures of transport undertakings to subtract from gross foreign exchange receipts can be estimated from the books of these undertakings particularly where a strict system for reporting of such expenditures is in force.

48. Despite the importance of transport figures on balance of payments matters, the data that give rise to them are not of primary interest purely as transport statistics.

/CHAPTER III.
CHAPTER III. TECHNICAL TRANSPORT STATISTICS

1. Classification of Technical Transport Series

49. According to the definition suggested in the introduction, transport statistics which do not give direct information about the economy outside the field of transport are here to be called technical. They concern the technical means which make possible the traffic discussed in the second chapter. These statistical series may be conveniently classified according to the following subjects:

(a) Fixed equipment
(b) Mobile equipment
(c) Labour
(d) Safety

Table II provides a tabular analysis of technical data comparable to that provided by Table I for the economic data.

2. Fixed Equipment

50. The fixed equipment comprises port (including airport) facilities, fixed navigation aids, waterways, railway permanent way and structures, roads and repairs facilities. Where possible, each of these should be classified according to the amount of service it is designed to perform and statistics given under those heads. The particular series required have been listed in the footnotes to Table II.

3. Mobile Equipment

51. Because the function of mobile equipment is to carry traffic, not only the number of vehicles (including ships, barges and aircraft in this term) but also their capacity, appear to be of importance. The number of units, being the easier to collect, is the one most usually given except for shipping.

52. The condition of the mobile equipment is an important factor, so that numbers under or awaiting repair, as well as average age, should also be noted. It is likewise of value to know the rate at which new equipment is being produced.

4. Labour

53. Transport labour statistics are of importance from two points of view:
   (a) because they reflect labour's technical role in producing transport services;
   (b) as part of the general statistical basis for an analysis of labour's economic role and social condition.

54. The importance of the technical aspects of labour statistics is to measure the wages paid to labour and to help estimate labour output.
The total number of employees should be known, divided if possible into the categories: administrative, maintenance and operating personnel. These should be further classified by type of employer: for instance, for shipping, employees of shipping companies should be distinguished from employees working for port authorities, stevedores etc.

55. The question of the part transport statistics should play in the analysis of labour's economic role and social condition bears vitally on the work of the International Labour Office and so will be discussed only after consultation with that agency.

5. Safety

56. By "safety" is here meant security of life and limb of passengers, employees and third parties and, in the case of goods, freedom from loss, breakage, damage and theft. It is usual for countries to publish statistics of transport accidents involving death or injury to persons. Certain aspects of this question, like that discussed in paragraph 55, is of interest to the International Labour Office. Losses sustained by goods are of economic interest in so far as they effect insurance rates, but, so long as these are low, losses present mainly a technical problem. Probably the best estimate of the relative prevalence of loss can be obtained by a comparison of insurance rates as between forms of transport or, for a single form of transport, at intervals of time.

6. Efficiency

57. In paragraphs 16 and 40 the question of efficiency was raised. Figures indicating whether or not efficient use is being made of transport means can often be obtained by combining figures already described. Statistics may be used to examine the efficiency of a given transport undertaking.

58. Figures such as those briefly described below indicate the efficiency of a given means of transport.

(i) Turn-around time. This is the daily average (over the period considered) of the total number of serviceable vehicles divided by the sum of the average number loaded on the system and the average number entering the system loaded per day;

(ii) Ratio of freight capacity ton-kilometres run to net ton-kilometres performed and similarly for passenger services;

(iii) For railways: gross ton-kilometres per day per locomotive horsepower;

(iv) Ratio of operating revenue to operating expenses.

(v) Ratio of number of net ton (or passenger) kilometres to operating expenses (or to number of employees)

(vi) Ratio of number of administrative to operating and maintenance employees.
CHAPTER IV. CONCLUSION TO PART I

59. On the basis of the detailed analysis just made it appears that the series listed below are the most important for economic and technical use. Their comparability either has been or is being studied with the object of proposing an internationally useful definition. These studies, and eventually studies of series of lesser importance, will, as described in the Introduction to this paper, later be submitted. It will be noted that, in general, priority has been given to statistical information of an economic nature.

For Civil Aviation

- Kilometres flown
- Passenger kilometres performed
- Cargo tons loaded or unloaded
- Cargo net ton-kilometres
- Mail net ton-kilometres
- Number of aircraft
- Operating revenues and expenses

For Ocean Shipping

- Tons loaded and unloaded at ports
- Gross registered tonnage of fleets and number of vessels
- Entrances and clearances of vessels with cargo in foreign trade

For Inland Navigation

- Tons loaded and unloaded
- Net ton-kilometres performed
- Vessel fleets and capacities

For Railways

- Net ton-kilometres performed
- Freight tons carried
- Passenger-kilometres performed
- Tons loaded or unloaded
- Vehicle stocks and capacities
- Operating revenues and expenses

For Road Transport

- Net ton-kilometres performed
- Passenger kilometres performed
- Vehicle stocks and capacities

\[\text{TABLE I}\]
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<th>Ocean Shipping</th>
<th>Inland Waterway</th>
<th>Railways</th>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Gross foreign exchange earned</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Gross foreign exchange spent</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Index of freight rates</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Notes to Table I

1/ CODE. The notations in the table have the following meanings.

Importance
1 - first importance: should, if available, appear in every international compilation that wishes to give adequate general coverage;
2 - second importance: desirable for completeness;
3 - third importance: figures provide added detail for special purposes.
x - category not applicable.
m - monthly compilation. Otherwise annual is deemed sufficient.

Availability. Availabilities shown are for overall figures
0 - not available.
1 - almost universally available.
2 - generally available.
3 - available in countries whose statistical development is advanced.
4 - seldom available even in advanced countries.
x - category not applicable.

Availability for state owned or controlled services only.

2/ Revenue traffic only. Non-revenue should if possible be shown for comparison. In the case of civil aviation distinction should be made between scheduled flights, and non-scheduled flights; eventually the traffic due to contract carriers, private firms with their own air transport fleets should be added.

Break down by principal ports.

Distinction should be made between "with cargo" and "in ballast". Figures for entrances and clearances in foreign trade are the most usually available.

Break down by cars loaded on system and cars entering the system loaded.

Deducible from axle-kms. run.

For purposes of computing "national income" the part of operating expenditure paid to other industries should be shown separately.

2/ Taxes on capital, on earnings, on sale of tickets, and payments to workmen's compensation, unemployment, pension and health funds may be shown separately.
### TABLE II - TECHNICAL TRANSPORT STATISTICS1/

<table>
<thead>
<tr>
<th>XED EQUIPMENT</th>
<th>Civil Aviation</th>
<th>Ocean Shipping</th>
<th>Inland Waterway Transport</th>
<th>Railways</th>
<th>Road Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of lines</td>
<td>12/1</td>
<td>12/1</td>
<td>12/1</td>
<td>14/1</td>
<td>12/1</td>
</tr>
<tr>
<td>Capacity of loading facilities5/</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Irrigational aids</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Air facilities3/</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

| BALE EQUIPMENT                                                                |                |                |                           |          |                |
| Vehicular (number)                                                            |                |                |                           |          |                |
| Height                                                                        | 2              | 2              | 2                         | 2        | 2              |
| Passenger                                                                     | 2              | 2              | 2                         | 2        | 1              |
| Steer                                                                         | 2              | 2              | 2                         | 2        | 1              |
| Live power units                                                              | x              | x              | x                         | 10/      | 11/            |
| Number of vehicles idle10/                                                    | 3              | 4              | 3                         | 4        | 4              |
| Storage age of vehicles                                                       | 3              | 3              | 3                         | 3        | 3              |

| Cargoship capacity                                                             | 1              | 1              | 1                         | 1        | 4              |
| Height (in tons)                                                               | 1              | 2              | 1                         | 4        | 3              |
| Passenger (in passengers)                                                     | 1              | 2              | 1                         | 4        | 3              |
| Live power14/                                                                 | x              | x              | x                         | 10/      | 15/            |
| Cargo capacity idle12/                                                        | 2              | 4              | 2                         | 4        | 2              |
| Cargo capacity of new vehicles produced                                       | 3              | 2              | 13/                        | 3        | 3              |
| LABOUR                                                                        |                |                |                           |          |                |
| Number of employees16/                                                        | 2              | 2              | 2                         | 2        | 2              |

| SAFETY                                                                         |                |                |                           |          |                |
| Number of persons killed                                                      | 2              | 1              | 2                         | 2        | 2              |
| Number of persons injured                                                     | 2              | 2              | 2                         | 2        | 2              |
| Odds insurance rate                                                           | 3              | 2              | 2                         | 3        | 3              |

### EFFICIENCY
(figures obtainable by combination of those already listed)
CODE. The notations in the table have the following meanings.

**Importance**

1 - first importance: should, if available, appear in every international compilation that wishes to give adequate general coverage;

2 - second importance: desirable for completeness;

3 - third importance: figures provide added detail for special purposes.

x - category not applicable.

m - monthly compilation. Otherwise annual is deemed sufficient.

**Availability**

0 - not available.

1 - almost universally available.

2 - generally available.

3 - available in countries whose statistical development is advanced.

4 - seldom available even in advanced countries.

x - category not applicable.

Give length of scheduled routes. Provide map.

Classify by width, depth, number of days navigable per year. Provide map.

Classify by gauge, by single and multiple tracks, and by electrified and non-electrified. Length of tracks in yards and sidings of importance 3. Provide map.

Classify into 3 categories at least depending on width, surface, number of days open in year. Provide map.

Give each major port or station separately.

Signals and automatic safety devices by category.

Classify by category and capacity.

Classify into covered, open (high and low sided), flat, tank, or special cars.

Distinguish tugs and self-propelled barges.

Classify by main-line and shunting and by type of power. Show self-propelled cars separately.

Show number under or awaiting repair separately.

Gross registered tons.

Power in kilogram metres per second or tractive effort in kilograms.

Categories as in footnote 9. Show also gross ton-kilometres performed on main lines.

By categories as shown in text. See also "wages", item 12, table I.
Annex I

EXTRACT FROM

ECONOMIC AND SOCIAL COUNCIL RESOLUTION 147 (VII)

(Document E/1053)

THE ECONOMIC AND SOCIAL COUNCIL

INSTRUCTS the Secretary-General:

1. In consultation with the specialized agencies and regional commissions concerned, to make a study of the problems of establishing the economic and technical statistical requirements in the transport field (giving priority to the statistical requirements of an economic nature), of achieving comparability in respect of the information to be collected and of standardizing forms for the collection of this information. In this work the Secretary-General, in addition to utilizing the resources of the Secretariat, may call upon the services of such independent experts as he may consider advisable;

2. To transmit this study to the Transport and Communications and Statistical Commissions for their consideration.
Annex II

REPORT ON SECOND SESSION OF
TRANSPORT AND COMMUNICATIONS COMMISSION
TO THE
ECONOMIC AND SOCIAL COUNCIL

Resolution II - Transport Statistics

(Document E/789)

THE TRANSPORT AND COMMUNICATIONS COMMISSION,
CONSIDERING
1. that on the basis of agreements concluded between the United Nations and the specialized agencies in the field of transport and communications, the collection of statistics in the various world-wide branches of transport and communications is primarily the concern of the respective specialized agencies, in collaboration with the United Nations Statistical Office;
2. that the collection of statistics on inland transport, except those concerning questions of labour, which are dealt with by the ILO, should be entrusted to the regional economic commissions of the United Nations in areas where they exist, in conjunction with the United Nations Statistical Office; in areas where such commissions do not exist, to the Statistical Office;
3. that it is necessary to establish the economic and technical statistical requirements in the transport field, (giving priority to the statistical requirements of an economic nature); to achieve comparability in respect of the information to be collected, and to standardize forms for the collection of this information;

RECOMMENDS TO THE ECONOMIC AND SOCIAL COUNCIL that it instruct the Secretary-General to set up a working group of experts in the field of transport and communications statistics, designated in consultation with the Chairmen of the Statistical and Transport and Communications Commissions. This working group should, in consultation with the specialized agencies and regional commissions concerned, make a study of the problems referred to in 3 above. In its work it should be assisted by the Statistical Office, the Transport and Communications Division, and the Economic Stability and Development Division of the United Nations. This study should be submitted to the Transport and Communications and Statistical Commissions for their consideration.

/REPORT
85. The Statistical Commission endorses the recommendation of the Transport and Communications Commission requesting the creation of a working group, and, in addition, recommends that:

The Secretary-General be requested to undertake a preliminary survey of the scope of the work to be done in the field of transport and communications statistics; and,

That the working group begin its work by a study of inland transport statistics for which the need is most urgent.
Annex III

AIR TRANSPORT STATISTICS FOR INTERNATIONAL PURPOSES

The Air Transport statistics required for international purposes can be divided into statistics to be obtained in three stages. In the first stage, statistics would be collected relating to the main development trends in air transport activity. In the second stage, statistics would be collected relating to the actual shape and pattern of world air transport, routes and services. In the third stage, statistics would be collected relating to the economic development of air transport. These stages will be described, one by one, in the following sections, followed by some notes on statistics associated with air transport.

FIRST STAGE - STATISTICS OF MAIN DEVELOPMENT TRENDS IN AIR TRANSPORT ACTIVITY

Statistical Items to be Reported
- Kilometres flown
- Passenger-kilometres
- Cargo ton-kilometres
- Mail ton-kilometres

(As the reporting machinery improves, these basic traffic statistics should be supplemented by adding "hours flown"; "passengers carried", "cargo carried", "mail carried"; "number of flights").

Reporting Basis
National totals for the whole air transport industry.

Reporting Periods
Annual figures retrospectively to give a long period trend, together with current monthly totals.

Types Air Transport to be Covered
(a) Scheduled operations, international and domestic;
(b) (as a second step) Non-scheduled operations, international and domestic, other than contract and private operations;
(c) (as a third step) Contract carriers, private firms with their own air transport fleets etc.

1/ Prepared by the secretariat of the International Civil Aviation Organization.
Current reporting.

Figures such as these are now being reported to ICAO, and are being sent on to the United Nations for publication in their Monthly Bulletin of Statistics, by thirteen States out of a total of fifty-eight States known to have air transport enterprises. For these thirteen States the monthly returns average about four months out of date, the figures filed being to some extent provisional and subject to alteration within plus or minus about five per cent at a later date.

The figures now being reported relate in general to scheduled air services. Most countries do not at present collect statistics relating to the activities of non-scheduled air services, either common carrier or otherwise. Non-scheduled air transport activity is, however, steadily increasing both in absolute and relative importance and it is hoped that within two years statistics will be obtained covering most of this field.

The comparability of the statistics at present being reported appears to be fairly good although there are a number of points that require clearing up, as for example the inclusion of non-scheduled activities (particularly those carried out by scheduled airlines); the definition of distances from airport to airport; the method of recording non-revenue flights, passengers and cargo; and the definition of a scheduled air service.

Most countries not at present reporting satisfactory statistics of this basic sort are probably in possession of records that would serve the purpose. In a number of instances ICAO is already discussing the availability and suitability of such records. In others, the governmental agencies concerned with air transport activities are not yet sufficiently well organized to be able to produce comprehensive statistics for external publication. A number of countries in Eastern Europe may not be prepared to publish information concerning their air transport statistics.

SECOND STAGE - STATISTICS OF THE WORLD AIR TRANSPORT PATTERN

Statistical Items to be Reported

Route patterns
- Flow along each route from airport to airport
- Origin and destination of passengers, freight, mail
- Airports and airway facilities on each route
- Accidents, including their causes and results

Reporting Basis
- International air services; international air transport enterprises;
- Important domestic air services and enterprises.
Reporting Periods

About twice yearly either for:
(a) chosen months, e.g., March and September each year, or -
(b) position at two chosen dates each year.

Types of Air Transport to be Covered

(a) Scheduled operations; international and domestic;
(b) (as a second step) Non-scheduled operations, international and
domestic, other than contract and private operations;
(c) (as a third step) Contract carriers, private firms with
their own air transport fleets; etc.

Current Reporting

Statistics such as are described immediately above are being received
from eighteen countries with varying degrees of completeness. These
statistics cover about ninety per cent of international air transport
activity.

The data on the route pattern are fairly good. The data on traffic
flow, origin and destination, airports and facilities, and accidents,
are at present open to many qualifications. It will probably be five
years before statistics of this nature are available in comparable form
for a substantial proportion of world air transport.

THIRD STAGE - STATISTICS OF THE ECONOMIC DEVELOPMENT OF
AIR TRANSPORT

Statistical Items

Economic operating data, including capacity provided and utilized,
costs, revenues, capital position, for each enterprise;
Data by aircraft type showing utilization, costs of operation, earnings;
Employees, showing grades, wages and salaries.

Reporting Basis

Air Transport enterprises:
(a) international
(b) important domestic

Reporting Periods

(a) Years
(b) Months for selected data.

Types of Air Transport to be Covered

(a) Scheduled operations, international and domestic;
(b) (as a second step) Non-scheduled operations, international
and domestic, other than contract and private operations;
(c) (as a third step) Contract carriers, private firms with their
own air transport fleets etc.
Current Reporting

Some information relating to these economic aspects is already being reported to ICAO by seventeen countries. These data are extremely complex owing to the many different accounting procedures followed in different countries. The available material has not yet been thoroughly studied. It is already of interest, and a report on it will be published in the course of the next year. It will probably be many years before the difficulties of reaching useful conclusions concerning the economic development of international air transport are fully appreciated. It will be a still longer time before these difficulties are overcome.

STATISTICS ASSOCIATED WITH AIR TRANSPORT

(a) Aircraft production; import, export.
(b) Emigration and Immigration, by air.
(c) Non-air-transport aviation, including commercial activities; such as survey, crop spraying; private, club, and training aviation.
(d) Military air transport including the semi-military activities where military formations carry out work of a civilian nature.
(e) Air mail statistics, including the origin and destination of air mail letters, parcels etc. Air mail delivery times, air mail ground handling costs.