Chapter VII

THE PORT OF COCHIN - IN RELATION WITH OTHER SOUTH-INDIAN PORTS.

Against the background of the traffic-flow data relating to Cochin presented earlier in this Thesis, we shall consider in this small concluding chapter some aspects of Cochin's relations with a few of its neighbouring ports--relations both complementary and competitive--and also some aspects, which are connected to the above, of the existing patterns of traffic division between Cochin and the other South Indian Ports.

The extent of a port's service-area and the patterns of its traffic-flows, it may be mentioned, are, to a great extent, determined by the nature and extent of competition from other ports. Such competition from other ports, we may say, may be either 'partial' or 'full'. The competition with Cochin, for example, of ports like Badagara, Calicut, Alleppy and Quilon (- all Minor Ports on the coast of Kerala), is only partial, because they cannot compete with Cochin for the full year since, during the monsoon, all these ports have to be closed and their traffic diverted to Cochin. Moreover, these ports cannot compete with Cochin in all items, since certain items such as bulk oils, heavy machinery, etc. need special facilities for handling, which these ports do not possess. In this sense, the ports which
can compete with Cochin on equal terms in providing port-
services are only the other nearest Major Ports of South
India, viz. Madras and Bombay.

In what follows, we shall study Cochin's relations
with three different pairs of ports, lying more or less
in its neighbourhood. We shall first study the position
of traffic division and competition between Cochin and
its closest small neighbours - Alleppy and Calicut. This
study shall also be illustrative of the position of Cochin
in relation to a number of other small ports along the
Coast of Kerala. Secondly, we shall study the traffic
division and competition between Cochin and the other two
nearest Major Ports - Madras and Bombay. Thirdly, we shall
study the existing traffic division between Cochin and the
two Intermediate Ports - Mangalore and Tuticorin. In this
case, we shall also try to forecast the pattern of traffic
division that is likely to prevail between Cochin and these
two Ports, when the projected development of the latter
turns them into two Major Ports, in about 5-6 years from now.

These three pairs of ports, it may be added, repre-
sent three different layers in port-competition, since
they fall within different hinterland-layers of Cochin,
and are located at progressively increasing distances
from it. To illustrate, Calicut and Alleppy, lying within
an inland distance (by road) of 100 miles from Cochin,
fall within the Cochin's 'primary hinterland'; Tuticorin

1This excludes the Port of Marmugao which came into
Indian territory only from December, 1961.
and Mangalore, lying within a road distance of over 200 miles from Cochin, fall within its 'secondary hinterland'; and the other two ports, Madras and Bombay, lie more than 400 miles from Cochin (by road or rail), and both of them fall outside the hinterland of Cochin.

1. **Cochin, Calicut and Alleppy: Traffic Division and Competition**

Both Calicut and Alleppy are open road-steads lying on the coast of Kerala—Calicut about 100 miles to the north of Cochin, and Alleppy about 30 miles to its south. Both these are seasonal ports, in the sense that during the months of the South West Monsoon (June, July, August) these ports are practically closed to steamers. Both of them, as already noted, fall within the primary hinterland of Cochin, in the region where Cochin's influence as a port is firmly and deeply established. The total traffic handled at Calicut during 1960-61 was a little more than 3.1 lakh tonnes, while the traffic handled at Alleppy during the same year was 35,683 tonnes.

The fact that Cochin's primary hinterland extends to the immediate areas of these ports indicates that there is much traffic competition between Cochin and these ports.

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2 Calicut here includes the port-facility at the mouth of the Beypore river, where sailing vessels (not steamers) can come near the shore and handle cargo directly from the shore.
We shall try to estimate here roughly the extent of traffic that is diverted from these ports to Cochin, as a result of such competition. It may be recalled here that according to the "Traffic Survey of Beypore Port" (conducted by the National Council of Applied Economic Research), the existing hinterland of the Calicut Port is co-terminous with the District of Calicut. If the same could be taken as the natural hinterland of Calicut, it is easy from this to calculate the traffic which the Port of Cochin absorbs from, and despatches to, this area, with the help of the traffic-spread data of Cochin, presented in Chapter IV. It could be stated in the light of this, that Cochin handled in 1960-61 a little over one lakh tonnes of traffic (consisting of 75,380 tonnes of imports and 25,195 tonnes of exports), which, but for the competition from Cochin, should have passed through the Calicut Port. Table 7.1 gives some of the important commodities involved in this diverted traffic.

It is possible to classify this total diversion of traffic under two heads: Complementary and Competitive; for one part of it represents the diversion during the monsoon months when Cochin acts as a complementary port to Calicut, and the remaining portion results from Cochin's

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Scale:
1 cm = 25 Kilometres

References:
The line of internal transport, partly at the hand of ideal traffic division between Cochin Port and Madras Port, Cochin Port and Tuticorin Port, Cochin Port and Mangalore Port.

Figures within each District indicate the percentage of the District's actual traffic with Cochin to the total traffic tonnage of Cochin in 1960-61.
Table 7.1: Traffic diversion through Cochin from the hinterland of Calicut (i.e. the Calicut District): 1960-61.

<table>
<thead>
<tr>
<th>Export items</th>
<th>Quantity (in tonnes)</th>
<th>Import items</th>
<th>Quantity (in tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coir Products</td>
<td>6,000</td>
<td>Mineral oils</td>
<td>30,857</td>
</tr>
<tr>
<td>Coconuts</td>
<td>5,000</td>
<td>Coal</td>
<td>20,448</td>
</tr>
<tr>
<td>Betelnuts</td>
<td>2,395</td>
<td>Foodgrains</td>
<td>14,852</td>
</tr>
<tr>
<td>Pepper</td>
<td>1,992</td>
<td>Fertilizers</td>
<td>2,243</td>
</tr>
<tr>
<td>Tea</td>
<td>1,925</td>
<td>Copra</td>
<td>1,440</td>
</tr>
<tr>
<td>Timber</td>
<td>1,500</td>
<td>Other items</td>
<td>5,540</td>
</tr>
<tr>
<td>Other items</td>
<td>6,383</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total export-items</td>
<td>25,195</td>
<td>Total import-items</td>
<td>75,380</td>
</tr>
</tbody>
</table>

Source: Data from the author's traffic surveys, presented in Tables 4.3 and 4.6 in Chapter IV.
competition with it in the fair seasons. One experienced import-export firm at Calicut suggested on the basis of their records that the monthly average of the traffic only diversion during monsoon from Calicut to Cochin is/about half the monthly average of Calicut's traffic during the nine non-monsoon months. The economic basis of this position seems to be the general slackening, during the monsoon months, of the trade-offerings in items like coir-products, bricks and tiles, etc., which dominate Calicut's total annual traffic. On the basis of the above rate, it could be estimated that the 'complementary diversion' from Calicut to Cochin during the three monsoon months amounted to about 52,000 tonnes during 1960-61. The remaining share of over 48,000 tonnes of traffic, it may be said, represents the diversion due to competition.

The competitive capacity of Cochin in drawing traffic from Calicut's natural hinterland, even during the fair seasons, obviously lies in its superior physical advantages, which attract to it both steamers and cargo. The rate of cargo-offering at Calicut is much less than at Cochin, and therefore, most steamers which readily visit Cochin would consider it not worthwhile to visit Calicut. The

\[5\] The total traffic at Calicut in 1960-61, practically spread out over the nine non-monsoon months, was 3,14,526 tonnes.
traders at Calicut are, as a result, obliged to bring their cargo to Cochin, seeking steamers going in particular directions. The better handling facilities at Cochin, especially for bulk coal and bulk oils, form another reason for Cochin serving the Calicut areas. Both coal and mineral oils, needed even within the Port-limits of Calicut, are at present routed through Cochin.

If Cochin possesses such competitive power, one might ask, why there is no greater diversion of traffic to Cochin than at present, and why should there be any traffic at all through Calicut? The traditional position of Calicut as a centre for the cheap sailing vessel traffic, and the predominance of sailing vessels in the carriage of Calicut's total traffic, seem to provide one answer to this question. Sixty-two per cent of Calicut's total traffic in 1960-61 was carried in sailing vessels, whose freight rates are far lower than the steamer rates. One might list three factors to explain this domination of sailing vessels in the traffic through Calicut: (1) That sailing vessels can come inside the port (at the mouth of the Beypore river) and work alongside shore-jetties, which steamers cannot do because of the shallow waters at the Port, (2) that the cargo traded through Calicut (mainly coconuts, bricks and tiles, timber etc.) are quite suited to transport by sailing vessels, and (3) that the traffic of Calicut is mostly with other Indian ports, over short distances, which also favours the use of sailing vessels.
in its traffic. The amenability of Calicut's existing traffic to the use of such a cheap means of transport seems to have set a limit to the competitive gains of Cochin over Calicut.

It has to be added here that, in general, the handling charges and port-dues at Calicut are higher than at Cochin;\(^6\) however, the total cost of diversion through Cochin, which would include the cost of transport from Calicut to Cochin, is higher than the cost of routing the cargo through Calicut.\(^7\) Therefore, unless the cargo concerned requires other compensating advantages, like better steamer contacts or special handling facilities, it would not be worthwhile to divert the same to Cochin; and the existing traffic of Calicut needs neither better steamer contacts nor special handling facilities, since it is mostly coastal, and does not consist of any bulk items. In this sense, the present traffic of Calicut is beyond further competition from Cochin.

\(^6\) The following comparative costs could be estimated:

<table>
<thead>
<tr>
<th>Charges (including incidentals) for</th>
<th>At Calicut</th>
<th>At Cochin</th>
</tr>
</thead>
<tbody>
<tr>
<td>shipping 100 full chests (12.5 tons) of tea</td>
<td>63.65</td>
<td>53.50</td>
</tr>
<tr>
<td>- do - for 100 bales (15.9 tons) of coir yarn</td>
<td>110.04</td>
<td>92.47</td>
</tr>
<tr>
<td>Charges for landing 100 bags of rice</td>
<td>83.06</td>
<td>40.00</td>
</tr>
</tbody>
</table>

It may be added that the ocean freight rates for Calicut and Cochin are the same; however the marine insurance rates at Calicut are double the rates at Cochin.

Continued on next page.
Aspects of traffic division between Cochin and Alleppy also could be studied on the same lines. If the District of Alleppy could be considered the natural hinterland of Alleppy Port (which is indeed an arbitrary, though not quite incorrect, assumption), the total diversion of traffic from this region to Cochin Port is found to be 1.2 lakh tonnes during 1960-61, which was the quantity of traffic which Cochin handled for this region during the year (see Tables 4.3 and 4.6 in Chapter IV). Assuming, again, on the basis of Calicut's performance, that the extent of diversion to Cochin during the monsoon would be at half the monthly rate of Alleppy's normal traffic during the fair season, the total amount of such diversion during the monsoon may amount to about 6000 tonnes, since Alleppy's total traffic during the nine fair weather months was 35,683 tonnes. This may be considered the diversion due to Cochin's 'complementarity' with Alleppy, while the remaining large volume of diversion (of about 1.14 lakh tonnes) represents the results of Cochin's competition with Alleppy.

Footnote continued from previous page.

7 The difference in handling charges in favour of Cochin is only Rs. 10.15 in shipping 12.5 tons of tea, while the transport cost of sending so much tea from Calicut to Cochin would be more than Rs. 250.00.
The reason for the above scale of diversion from Alleppy's natural hinterland, even during the fair season, lies, as it was the case with the diversion from Calicut, mainly in the better port-facilities at Cochin. However, there is also an additional factor which does not apply to Calicut - viz., the tacit understanding by the steamer agents at Alleppy not to arrange the visit of any coastal vessel to Alleppy, and to divert their entire cargo-receipts at Alleppy to Cochin, the steamer agents' offices at Alleppy working, as a result, as the out-agency departments of the steamer-offices at Cochin. Therefore, whatever traffic Alleppy has at present is only with foreign steamers which might consider a call at Alleppy quite worthwhile, notwithstanding its nearness to Cochin. The longer distances and the higher freight rates involved in foreign trade, in comparison with coastal trade, possibly explains the former's willingness to visit Alleppy. Moreover, the multiplicity of the foreign-steamer interests involved makes impossible any effective self-imposed ban on a visit to Alleppy, as in the case of the coastal traffic. In fact, it is the continued patronage by the foreign steamers that keeps Alleppy as a working port at present, without being completely over-shadowed by Cochin.

2. Cochin, Bombay and Madras: Traffic Division and Competition

These three ports could be considered equals in traffic
competition, since the facilities provided by them for both steamers and cargo are of the same order. The lines of 'the most economic traffic division' between them could therefore be considered to follow the relative differences in transport-costs between them and the service-areas concerned. Therefore, lines of equal-internal-transport-cost have been drawn, as in map No. 7.1, between Cochin and Bombay, and Cochin and Madras, to mark out the respective natural hinterlands (or "Service-zones") of these two Ports vis-a-vis Cochin. The lines in the map are actually the lines of equal route-distance by road between the pairs of ports considered. On a very reasonable assumption that the transport-costs on the same commodity would generally remain the same for equal distances, the above lines of equal distance could be rightly treated as the equi-cost lines as well, from the ports concerned. The areas enclosed by these lines therefore could be considered the ideal hinterlands, hereafter referred to as the 'service-zone', of the respective ports. (The term 'service-area' used in this discussion refers to the actual hinterland of the ports concerned).

Two limitations in the above method of delineating the service-zones between ports must be stated here. Firstly the measurement of rail distance (and rail transport costs), instead of road distance (and road transport costs), would have been more relevant and appropriate in
this context, since long-distance traffic is usually carried by railways and not by roads. There was, however, no way to get round this limitation since all the regions (of South India), considered in the study are not accessible by rail from the different ports under study. The second limitation is that the above lines of traffic division refer only to the internal transport costs in moving cargo within the hinterlands, and do not include the differences in ocean-freights between the ports. If the latter cost-element also is included and the resulting total costs in the choice of different ports are compared - which would indeed have been the right procedure to adopt - the result is likely to be - slightly different lines of traffic division from those shown in the map. For instance, if the cargo is coming from the west (say Aden), the ocean-freight upto Cochin would be much less than that upto Madras, since Madras is about 800 miles farther east from Cochin, on a voyage from the west. In this sense, Cochin even can serve more economically than Madras/areas lying a little beyond the line of internal freight parity, shown in the map. Similarly, for voyages from the east, Madras could economically trespass the line of internal cost parity, and serve areas on the side of Cochin, upto a point. Ocean freight-rates, and therefore the ocean-freight-differences between the ports, however, vary from item to item, and further, the direction of voyage, to east
or west, also differs from trade to trade. As a result, it is not possible to mark out a common margin of variation from the line of internal cost parity, or to conceive of an exact linear division of the ports' traffic, on the basis of such total costs. Therefore, the linear representation, in the above map, of the boundaries of the ports' normal service-zones is subject to the condition that, in practice, the ports concerned could, to some extent, trespass these linear limits of traffic divisions in either direction, resulting in a 'twilight zone' of port-competition, all along the line.

In addition to the lines of traffic-division mentioned above, it may be noted that the map also presents the actual traffic-spread position of the Port of Cochin, over the various regions in South India, which we have studied earlier in Chapters III and IV.

As between Cochin Port and Bombay Port, the first conclusion that emerges from the study of the map is that the existing actual service-area of Cochin does not encroach upon the service-zone of the Bombay Port. Though some traffic does move to the Bombay-zone from Cochin, its total volume is quite insignificant, being in 1960-61 only about 3400 tonnes, spread over some eight different Districts in the Bombay-zone. Secondly, Cochin does not significantly serve many of the Districts in its own service-zone bordering on the service-zone of Bombay. The
reason for this seems difficult to ascertain. It could be either because these areas do not have much traffic to offer to any port, or because the Bombay Port trespasses into this area and successfully competes with Cochin for traffic, or because the Port of Madras, from the East Coast, serves these areas in competition with Cochin. All these possibilities seem equally plausible; the exact reasons, however, can be ascertained only by conducting traffic surveys of the Ports of Bombay and Madras, as well.

As regards the traffic division between Cochin and Madras, mainly the following two points could be made, with reference to the map: (1) That Cochin does not have much traffic relation with many of the Districts (especially the Northern Districts) which fall within its service-zone bordering the service-zone of Madras, and (2) that, at the same time, Cochin encroaches into the service-zone of the Madras Port, as demarcated in the map, mainly on the Southern side.

The Districts in the first category are Mandya, Hassan, Chickmagalur, and Shimoga, which fall within the 'tertiary hinterland' of Cochin and which, together, account for only 0.2 per cent of the total traffic of Cochin (see Tables 4.3 and 4.6, in Chapter IV). It is most likely that these Districts, at least the southern ones among them, are served by the Port of Madras, but, as mentioned before, only a traffic survey based on the Port of Madras can firmly establish this point. The better rail-alignments to Madras than
to Cochin of some of these Districts might explain such encroachment, if it exists, from the Port of Madras into these areas.

The Districts where Cochin Port crosses into the service-zone of Madras are Trichinopally and Salem in the South, and Chitaldurg in the north, if one leaves out the Districts in the tertiary hinterland of Cochin. Cochin's capacity in extending its service-area into the service-zone of Madras in the southern Districts, seems to lie in the ocean-freight advantage in favour of Cochin, mentioned earlier. Almost the entire traffic which Cochin handles for these two Districts, it may be noted, consists of mineral oils which are brought to Cochin either from the Persian Gulf or from Bombay, both of which are nearer Cochin than Madras. As regards Chitaldurg, Cochin's traffic with the District is due to some exceptional reasons. Iron ore for export is the main traffic between Cochin and this District, and this, it has been stated, is sent through Cochin only because the nearer ports, including Madras, do not have sufficient port-capacity to load the entire quantities of ore required to be exported to other countries, as per the contracts entered into by the Government of India.

In summary, we might state that, while Cochin offers no competition to the Port of Bombay, it effectively competes, to some extent, with the Port of Madras. Further, Cochin's traffic links with the southern Districts in its own service-zone are found to be strong, while its links with the northern Districts in the service-zone are found to be weak. It is possible that the Port's weak links with the northern Districts is due to active competition from Bombay or Madras in these areas. (It may be recalled that 'port-competition', here, refers to the trespassing of the ports' service-zones, as fixed in our study by the lines of equal internal transport-costs between the ports concerned.)

3. Cochin, Mangalore and Tuticorin: Traffic Division and Competition

A study of the traffic division between Cochin and these two ports (Mangalore and Tuticorin) is important for two reasons: (1) because these are two important 'Intermediate Ports' lying within the service-area of Cochin; and (2) because both these ports are soon to be developed into two major ports, the preliminary work for which has already been started. Both these ports would, therefore, very shortly emerge as full-fledged competitors of Cochin, with possible impact on the shape and lay-out of the latter's existing hinterland. While studying the present traffic distribution between Cochin and these ports, we
shall, therefore, also try to project, on the basis of 
eexisting conditions, as to how far the future expansion 
of these ports would affect the position of Cochin's traffic.

Regarding the existing patterns of traffic division, 
the main finding emerging from the map presented above 
is that Cochin's service-area extends even to the immediate 
areas around these ports, implying thereby a high level of 
effective competition which Cochin offers to these ports. 
Further, the Districts containing these ports both fall in 
the 'secondary hinterland' of Cochin which indicates that 
these areas have a significant level of traffic relation 
with Cochin. The traffic between Cochin and Mangalore 
(South Kanara District) amounted to over 51,000 tonnes 
during 1960-61, while that between Cochin and Tubicorin 
(- Tirunelveli District) amounted to about 41,000 tonnes 
during the same year, the most important traffic-item, in 
both cases, being mineral oils imported through Cochin 
(see Tables 4.3 and 4.6 in Chapter IV). It is interesting 
to note that even the oil requirements for operating the 
tugs and launches within these ports are met through Cochin, 
which is indeed a significant indication of Cochin's 
existing competitive power over them.

Another interesting fact relating to the existing traf-
fic division between these ports, revealed during the field-
enquiries, is that there is no special traffic diversion 
from these ports to Cochin during the monsoon, unlike in the
case of Alleppy and Calicut. While the explanation for
this in regard to Tuticorin is that it is itself an all-
weather port, the explanation in regard to Mangalore, which
is a seasonal port, could not be readily found. Whatever
the reason, the absence of such 'complementarity' between
Cochin and these ports suggests that Cochin's relations
with them are mostly competitive.

What could be the impact of the imminent modernisation
of the Mangalore and Tuticorin Ports on the traffic posi-
tion of Cochin? This question is sought to be answered
with the help of the internal transport-cost parity lines
between Cochin and each of these ports, drawn in map No.
7.1, above. These transport-cost lines are drawn in the
same way as the corresponding lines between Cochin and
Madras, and are subjected to the same limitations. These
lines also could be considered the lines of 'most economic
traffic division' between Cochin and these two ports, when
the latter develop into Major Ports and emerge as equal
competitors of Cochin. It is likely that Cochin might
then lose to these ports much of the traffic which it pre-
sently handles for the areas falling beyond the respective
equi-cost lines between Cochin and these ports. A rough
estimate of such likely loss of Cochin's traffic is
attempted below, on the basis of its existing traffic.
It may be added that the estimates made are based mainly
on the factor of transport-costs between the ports and the
service-areas. The final extent of traffic division would,
however, depend upon several unpredictable factors - like the continued pull of the commodity markets at Cochin, the degree of stickiness of existing trade to its existing routes, etc. The estimates made below are subject to these limitations.

Turning to the estimates, the map indicates that, between Cochin and Mangalore, the Districts of Chitaldurg, South Kanara, Cannanore and Mysore (to consider only the Districts in Cochin’s primary and secondary hinterlands) would come under the service-zone of Mangalore Port vis-a-vis Cochin. The total quantity of traffic which Cochin presently handles for these areas amounts to about 1.6 lakh tonnes (see Tables 4.3 and 4.6 in Chapter IV). If the Districts within Cochin’s tertiary hinterland (falling on the side of Mangalore) are also included, the total traffic that Cochin is likely to lose to the Mangalore Port when it is fully developed would be about 1.9 lakh tonnes.

Table 7.2 presents the quantities and composition of Cochin’s existing traffic with the above Districts. The main items of Cochin’s existing traffic with these areas are - as can be seen from the Table - mineral oils, coal and fertilizers under imports, and iron-ore, pepper, etc. under exports. Of these, the ore-traffic is certain to be lost to Mangalore, since the present despatch of iron ore through Cochin is quite uneconomic, and since Mangalore is being developed mainly to handle the iron-ore
Table 7.2: Details of the existing traffic between Cochin and the areas falling under the future service zone of Mangalore Port after the latter's expansion into a Major Port.

<table>
<thead>
<tr>
<th>Name of District</th>
<th>Existing traffic through Cochin (tonnes)</th>
<th>Important commodities involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannanore</td>
<td>54,036</td>
<td>Mineral oils, coal, foodgrains, pepper.</td>
</tr>
<tr>
<td>South Kanara</td>
<td>51,034</td>
<td>Mineral oils, coal, fertilizers.</td>
</tr>
<tr>
<td>Chitaldurg</td>
<td>38,743</td>
<td>Fertilizers, iron ore.</td>
</tr>
<tr>
<td>Coorg</td>
<td>8,747</td>
<td>Mineral oils.</td>
</tr>
<tr>
<td>Mandyra</td>
<td>880</td>
<td>Fertilizers.</td>
</tr>
<tr>
<td>Hassan</td>
<td>582</td>
<td>Fertilizers, coffee.</td>
</tr>
<tr>
<td>Chickmagalur</td>
<td>1,116</td>
<td>Fertilizers.</td>
</tr>
<tr>
<td>Other Districts</td>
<td>5,570</td>
<td>Fertilizers</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,86,565</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data from the traffic surveys presented in Tables 4.3 and 4.6 in Chapter IV.
traffic. The same certainty cannot be attached to the possibility of the diversion of mineral oil traffic from Cochin, since the construction of oil storage tanks would need much investment, and the oil-distributing companies are likely to decide against the duplication of such investment, since they are already have enough storage capacity at Cochin to serve these areas. However, the reported decision of the Government of India to include the construction of an oil-berth in the very first phase of the Mangalore Port Project might as well tilt the decision in favour of the diversion of this traffic, too, to Mangalore. On the other hand, the small quantities of pepper and tea, which at present move to Cochin from these areas (mainly from Cannanore) almost certainly would continue to move to Cochin even after Mangalore's development, since Cochin possesses very highly developed markets for these items, which are unlikely to develop at Mangalore. The estimated likely loss/1.9 lakh tonnes of traffic, therefore, seems to represent the maximum limit of the possible total diversion of traffic.

As regards the potential traffic division between Cochin and Tuticorin, it would be noted from the map that, at present, Cochin serves mainly five Districts, viz., Trichinopally, Madurai, Ramanad, Tirunelveli and Trivandrum—which fall within the projected service-zone of Tuticorin when it becomes an equal competitor to Cochin. The total
traffic of these areas which Cochin handles at present amounts to about 2.4 lakh tonnes. If the Districts of Kanya-Kumari and Tanjore—with which Cochin has only a small amount of traffic at present, but which would nevertheless fall under Tuticorin's service-zone—are also included, the total likely traffic diversion from Cochin to Tuticorin would be about 2.5 lakh tonnes. It may be mentioned here that traffic of part of the Quilon District which would fall under the future service-zone of Tuticorin is not included in these estimates. This is because: firstly, it was difficult to find Cochin's traffic with this particular part of the District (since figures were collected for the whole of the District); and secondly, it is doubtful if any diversion would at all occur from Quilon to Tuticorin, since Quilon is connected to Cochin by a very cheap and efficient water-transport system. No such cheap transport facility exists between Tuticorin and Quilon.

Table 7.3 indicates the quantity and composition of the traffic which Cochin presently handles for the Districts mentioned above. It would be seen that mineral oils form the predominant item in this traffic. There is reason to believe that the traffic in this item might, to a great extent, stick to Cochin, since as between Cochin and Tuticorin also, the ocean freight rates on this item would work in favour of Cochin. In this sense, the
Table 7.3: Details of the existing traffic between Cochin and the areas falling under the future service zone of Tuticorin Port after the latter's expansion into a Major Port.

<table>
<thead>
<tr>
<th>Name of District</th>
<th>Existing traffic through Cochin (tonnes)</th>
<th>Important commodities involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tirunelveli</td>
<td>40,604</td>
<td>Mineral oils, coal, fertilizers.</td>
</tr>
<tr>
<td>Trichinopally</td>
<td>61,958</td>
<td>&quot;</td>
</tr>
<tr>
<td>Trivandrum</td>
<td>60,154</td>
<td>Mineral oils, foodgrains, pepper.</td>
</tr>
<tr>
<td>Madurai</td>
<td>40,639</td>
<td>Mineral oils, fertilizers, coal, raw cotton, cotton waste.</td>
</tr>
<tr>
<td>Ramanad</td>
<td>32,150</td>
<td>&quot;</td>
</tr>
<tr>
<td>Kanyakumari</td>
<td>12,930</td>
<td>Mineral oils, fertilizers, rubber.</td>
</tr>
<tr>
<td>Tanjore</td>
<td>1,282</td>
<td>Fertilizers</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,49,717</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data from the traffic survey, presented in Tables 4.3 and 4.6 in Chapter IV.
amount of possible traffic diversion from Cochin to Tuticorin, arrived at earlier, may be taken to represent its maximum limit.

The maximum limit of potential traffic diversion, from Cochin to the Ports of Mangalore and Tuticorin together, after their development, would therefore be about 4 lakh tonnes. This amounts to about 20 per cent of Cochin's total traffic during 1960-61. The above estimate, it would be remembered, is based on the position of traffic division between Cochin and these Ports during 1960-61. After five or six years, Cochin's traffic with the above areas might further expand, and the total loss of Cochin's traffic at that time might, in fact, be much more.

It is interesting to note the possible future shape of the service-zone of Cochin Port, after full competition from the Ports of Mangalore and Tuticorin becomes effective. A consideration of the transport-costs indicates that the present service-zone of Cochin is likely to shrink from the area marked by ABCD in the map to the area marked as GEFD, after the expansion of these ports. This projection is, indeed, subject to the limitations mentioned earlier in treating the lines of equal road-transport-costs between ports as lines of the most economic traffic division between them.

Finally, it has to be added that neither the loss of about 20 per cent of its existing traffic, mentioned above,
nor the considerable curtailment of its existing service-
area, necessarily means that the future prospects of
Cochin are in any way bleak. On the contrary, there is
every reason to believe that, by the time the above two
Ports are developed, which might take about 5-6 years
from now, the traffic of Cochin Port would have undergone
an unprecedented expansion, based on traffic generated
from within the areas immediately around Cochin. This
forecast has its basis in a sudden wave of industrial
expansion that seems to have started around Cochin quite
recently. It may be mentioned that preliminary work
for erecting a number of large-scale industrial units has
already been started recently in this region. These
industrial units include, among others, a 2 1/2-million-
ton oil-refinery, a huge ship-building yard, a big machine-
tool factory, a heavy-transformer factory, a zinc smelter
and a precision instruments factory. There are a number
of other medium-sized plants, also, being initiated in the
area at the moment. All these together could be legiti-
mately expected to produce a good volume of fresh demand
for the port-services of Cochin, in the years immediately
ahead.