ECONOMIC COMMISSION FOR AFRICA
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Item 7 of the provisional agenda

THE PROBLEMS OF TRANSPORT ACROSS THE SAHARA
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The fourth session of the ECA, in its resolution No. 61, adopted at its 78th plenary meeting on 2 March 1962, requested that the possibilities of improving trade across the Sahara should be studied, from a technical, economic and financial point of view.

The problems of this transportation can be stated in the following terms:

(1) Owing to the vast distances, the deficiency of the existing infrastructure on the ground, and the small amount of goods to be exchanged for the moment between North Africa and the countries south of the Sahara, almost all the non-traditional trade (i.e. with the exception of caravans) is carried on by air. Air transport across the Sahara presents no difficulty, the basic installations are adequate and the airlines are easily able to meet the demand.

The vast majority of the existing air links are links between Europe and Africa south of the Sahara, and the low demand means that aircraft only rarely land in North Africa on this route (the exception relating to the regular airlines are given in an annex).

(2) From a purely economic point of view, road transport does not yet justify the construction of an infrastructure of high standard (railway or asphalt road). The matter has seemed so obvious that up to now no government has seriously contemplated financing such an infrastructure itself.

(3) The general desire of the African States to promote the unity of the continent in all its aspects may raise the problem in fresh terms if foreign aid should become available.

If this kind of link were to be decided upon for human, social or political reasons, it would be desirable for it to be the best and most useful possible from the economic angle. Under the present conditions of traffic and those to be expected even in the long term (looking about 20 years ahead), it does not seem that the solution to be adopted should in any case be the railway. From the point of view of economic profitability, a railway would only
be justified, roughly speaking, for loads greater than 100,000 tons/year; for an asphalt road the loads would vary greatly according to technical conditions, but would be of the order of 20,000 tons/year. The volume of overland trade across the Sahara, including caravan traffic, is at present less than 5,000 tons/year for the whole of the routes between the Atlantic Ocean and the frontier of the UAR. It can thus be seen that the north-south traffic through the Sahara is absolutely negligible; the roads already constructed were made solely to meet very special needs (mainly for petroleum carriers) where transportation of some tens of thousands of tons/year was required. South of Tindouf, Reggan, In Amenas, and Sebha, the traffic, as is shown by the above-mentioned figure of 5,000 tons/year for all routes, cannot in any way justify the construction of an overland road of any great capacity. If, for reasons other than economic ones, it is really desired to build a road to facilitate crossing the Sahara overland, no solution other than an asphalt road can therefore be contemplated for the next few decades.

The cost of such a road, if the best possible use is made of one of the existing roads, would be of the order of $US 70 to 100 million between the southern extremity of the existing asphalt roads running southward from the Mediterranean coast and one of the first important towns to the south of the Sahara (for example Nouakchott, Niamey, Fort Lamy).\(^1\)

The cost of a railway across the Sahara would most probably be greater than that of a road, both for construction and for maintenance, but it would above all be ruinous as regards operation. Moreover, the length of the railways to be built in order to connect up the existing rail networks north and south of the Sahara would be much greater than the length of the roads, as these already penetrate a long way towards the south.

\(^{1}\) It is to be noted that none of these towns is as yet connected by a completely asphalted road or by a railway with the ports of the coast that provides their supplies. The transport of supplies is usually mixed: rail, asphalt road, improved road.
Let us consider them rapidly in turn:

(1) **Colomb Bechar-Niamey** via Gao is the most frequently used of the three as regards traffic right through the Sahara from end to end.

The road is now asphalted up to Kerzaz, over 300 km south of Colomb-Bechar.

The tonnage transported from Colomb-Bechar to Reggan during the last few years exceeded several tens of thousand tons/year, mainly intended for the French military base at Reggan. The incoming traffic for the needs of the whole area of the Gourara and Touat oases (population about 100,000) does not exceed 10,000 tons/year, the outward traffic being practically zero.

This road is the shortest link between Sub-Saharan Africa and Algeria. Its maintenance is satisfactory and a certain number of tourist vehicles use it every year.

It can be considered that this route carries a traffic of about 2,000 tons/year to the south of Reggan.

At the edge of the desert in the territory of the Republic of Mali, the Gao region is supplied mainly via Niamey, the Dahomey railway and the port of Cotonou.

The construction of an asphalted road of good quality between Kerzaz (the present southern extremity of the asphalt) and Niamey - 2,200 km - would cost about $US 30,000/km, or $US 66 million.

This is a very rough estimate; it obviously depends on how quickly the work is completed, which in turn depends on the use of large-scale mechanized facilities to ensure high productivity.

The maintenance of the above-mentioned road would require about $US 1 million/year under present traffic conditions, including the normal renewal of the surface.

(2) **Algiers-Kano via Tamanrasset and Zinder**

The traffic amounts to about 100,000 tons/year as far as Hassi bel Guebbour, where the asphalted road built for petroleum needs terminates;
We will therefore consider in turn, from the point of view of roads alone, the various possible solutions, studying, from west to east, the routes which might be selected. Lastly we will estimate their respective importance, staying on a purely economic plain.

A. Link between Morocco and Senegal through Mauritania

The road from Dakar to Nouakchott (600 km) is passable by all vehicles in all weathers. Half of its length, i.e. from Dakar to St. Louis, is asphalted and in excellent condition, and a further 100 km, up to the Rosso ferry on the river Senegal, will be asphalted shortly. Between Rosso and Nouakchott (200 km) the construction of a high-standard asphalt road is contemplated for the fairly near future. The estimated expenditure for this section is $US 5 million (financed by the European Development Fund).

The construction of an asphalt road linking Nouakchott with the existing network in Morocco (nearly 2000 km) would cost about $US 70 million. The annual maintenance of this new road would be of the order of $US 1 million for traffic conditions approximating to present conditions, including the normal renewal of the surface.

B. Links between Algeria and Sub-Saharan Africa

We would recall that there is a standard-gauge railway (called Mediterranee-Niger) running from Nemours to Colomb-Béchar, another one running from Oran to Abadla (80 km south of Colomb-Béchar) which is almost entirely narrow-gauge, and a third one, Bône-Philippeville-Touggourt.

There are 3 main road routes linking Algeria with Sub-Saharan Africa:

1. Colomb-Béchar-Niamey via Abadla, Reggan and Gao;
2. Algiers-Kano via Ghardaia and Ouargla, Bassi bel Guebbour, Tamanrasset and Zinder;
south of that the traffic is negligible. This road is of considerable interest for tourists as it crosses the Hoggar group of mountains (the volcanic Atakor group rising to 3,000 m.; pilgrimage to the hermitage of the Rev. Father de Foucauld etc.) and provides an access to the Aïr via Agadès. The road already constructed is itself also of exceptional tourist interest (Chiffa gorges near Algiers, the Mozabite pentapolis of Ghardaia, Ouargla, the crossing of the dunes of the great Eastern Erg via the gassi touil etc.)

On the other hand, from the technical point of view the road is a little more expensive to build in the mountainous areas.

For the 2,200 km still to be constructed between Hassi-bel Guebbour and Zinder, a good-quality asphalted road would cost about $US 85 million, and the annual maintenance would be, as for the preceding maintenance, of the order of $US 1 million/year.

(3) Algiers-Fort Lamy via Djanel

This route was the subject of a reconnaissance expedition in 1960 (Berliet Ténéré Mission); its excessive length (Algiers-Fort Lamy 4,900 km) of which about 1,200 km are asphalted makes it impossible for us to select it, as the link with Fort Lamy is much more direct via Tripoli (Tripoli-Fort Lamy via Faya Largeau: about 3,600 km, of which almost 1,000 are already asphalted). We therefore only mention it for the record, although it has a certain interest for tourists.

C. Link between Libya and Chad

The relatively southern position of Tripoli on the north coast of Africa makes the idea of a road link from Tripoli to central Africa through the Sahara an attractive one. Moreover, this link would roughly follow the meridian of 15° longitude East which is geographically the axis of the part of Africa north of the Equator.

Lastly the Government of Libya has already built a good-quality asphalted road from Tripoli to Sebha in the Fezzan, via Misurata and Gheddadia, the total length of which is approximately 1,000 km.
The Saharan section from Gheddahia to Sebha is 650 km long, and at the time when it was built it cost $US 17 million, or $US 26,000/km for fairly easy ground and in the area closest to the supply bases.

It has not been possible to obtain precise information on the traffic between Tripoli and Sebha, but it seems to be of the order of a few thousand tons/year (probably between 10,000 and 20,000 tons per year).

South of Sebha towards the Chad there is very little traffic; less than 100 trucks crossed the frontier last year, and half of them, sent for the purpose of repatriating to Libya some Libyan citizens resident in the Chad, returned empty.

The present traffic over the track from Libya to the Chad can be roughly estimated - since there has been no serious study of the question - at 500 tons/year.

Traffic between Libya and Niger is entirely negligible, if it exists at all. In any case, traffic in the direction of Niger, just as that in the direction of Chad, can only be surreptitious, as the statistical bulletin for the first six months of 1962 published by the Ministry of National Economy of the United Kingdom of Libya indicates that there is no trade with the Republics of Mali, Niger or Chad.

We recall that there is a certain amount of transit air traffic between Tripoli and French petroleum-prospecting teams in north Niger; the aircraft chartered for this traffic have a capacity of 2 tons/week.

If the construction of a road between Libya and Chad were to be of interest to the Government of Chad, it would have to serve the Tibesti oases, i.e. it would have to pass through Faya-Largeau. The length of such a road between Sebha and Fort Lamy would be 2,600 km. The technical conditions for road construction in the Chad basin in the vicinity of Fort Lamy are among the most difficult in Africa (floods for 5 months in the year, and no satisfactory road-building materials).
The cost of the road between Sebha and Port Lamy would be approximately:

- 2,000 km at $US 30,000 = $US 60 million
- 600 km at $US 70,000 = $US 42 million

i.e. approximately $US 100 million in all.

The maintenance of this road, owing to the greater length still to be constructed, would be slightly higher than that of the other routes; it would be of the order of $US 1.2 million.

The variant of the route, i.e. to the Niger, is practically of no interest owing to the existence of the Ténéré desert. It would be necessary to link up with the Niger network near Zinder via Bilma. Under the circumstances the Algiers-Zinder link described above under B (2) would be much shorter and of much greater interest from all points of view.

D. Link through the Nile valley

In the Republic of Sudan the railway system carries most of the traffic; it runs northwards from Khartoum to Wadi Halfa, whereas the road network is limited to a few kilometres of asphalted roads.

In the United Arab Republic the railway runs as far as Aswan. Thus there is only a gap of 300 to 400 km to be filled in order to connect the railway lines of these two countries and establish a trans-Saharan link Alexandria-Khartoum via the Nile valley. This solution would cost, for construction, a little over $US 30 million (on the basis of $US 80,000 per km of reliable railway track).

In this case the road solution is of no interest, in view of the length of the network to be built.

From the economic angle there would be no special advantage in joining Wadi Halfa to Aswan, as Sudan's traffic goes through Port Sudan.

(5) Economic discussion

It remains for us to compare the various possible routes from the economic angle, to give an opinion as to the importance of these links and as to the relative urgency of constructing any particular one of them.
First, since very little traffic is likely to use an overland route across the Sahara, it does not seem to be possible to find any source of financing - which would necessarily take the form of international aid - to equip, as a first stage, several trans-Saharan trunk roads.

Since, from the economic point of view, the construction of one of these roads could not be profitable for a fairly long time, it would seem that we should first improve the one which best serves the human or political objectives required for African unity, bearing in mind, however, the economic advantages that will accrue. Under the circumstances it may be thought that the Morocco-Senegal route and the United Arab Republic - Sudan route are too far from the centre to serve these aims, especially as, being closer to the sea, they cannot compete economically with sea traffic.

As the trunk road Algiers-Fort Lamy has been eliminated (see B (3) above), three competing routes remain:

I. Oran-Colomb-Béchar-Gao-Niamey
II. Algiers-Ghardaia-Hassi bel Guebbour-Tamanrasset-Agadès-Zinder-Kano
III. Tripoli-Sebha-Faya Largeau-Fort Lamy

The first is clearly the one which is at present of the greatest economic interest, since over half the overland traffic through the Sahara uses it (about 2,500 tons from end to end, without counting military or petroleum traffic). Moreover there are at Niamey good road and rail connections with the Gulf of Guinea - although not all the roads are as yet asphalted.

The second one is by far the most interesting for tourists; it also connects at Kano with a railway to the Gulf of Guinea and a good road network.

The third one, though more central within the region, has the defect of being, as we have seen, "a little more expensive than the two others, and of having been used only very rarely up to now.

The table below sums up the position:
<table>
<thead>
<tr>
<th></th>
<th>I: Oran-Niamey</th>
<th>II: Algiers-Zinder</th>
<th>III: Tripoli-Fort Lamy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalted length</td>
<td>1,000</td>
<td>1,200</td>
<td>1,000</td>
</tr>
<tr>
<td>Length of maintained track$^2/$</td>
<td>2,200</td>
<td>1,000</td>
<td>-</td>
</tr>
<tr>
<td>Length of other tracks$^2/$</td>
<td>-</td>
<td>1,200</td>
<td>2,600</td>
</tr>
<tr>
<td>Total length</td>
<td>3,200</td>
<td>3,400</td>
<td>3,600</td>
</tr>
<tr>
<td>Cost of section still to be constructed (asphalted road) (million US$)</td>
<td>66</td>
<td>85</td>
<td>100</td>
</tr>
<tr>
<td>Annual cost of maintenance of road still to be constructed$^3/$</td>
<td>1</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

1/ Zinder-Kano is already in a satisfactory condition although not asphalted.

2/ The distinction made between a maintained track and other tracks is only for the purpose of showing the economic importance so far attributed to the link. No investment carried out on these tracks is recoverable for the construction of a high-standard asphalted road.

3/ The annual maintenance is more or less the same for each route, for though it decreases with length, it increases as a function of the traffic, and these two factors roughly offset each other.
The last point we have to consider is the effect which the construction of these roads might have on African trade, particularly as regards the supplying of the countries south of the Sahara from North Africa or Europe.

As there are no very long-term economic studies of the various assumptions as to finance and customs tariffs, or of the various commodities which might be likely to cross the desert, we can obtain a preliminary idea of the zone of influence of the North African ports in relation to those of the Gulf of Guinea by proceeding as follows:

On the basis of the usual costs of freight from European ports to African ports, the costs of rail and road transport and of transhipment, we can obtain a rough idea, for the different classes of goods, of the total cost of transport from Europe and North Africa to various points on the African continent which might be interested in the establishment of one or other of the trans-Saharan roads.

This will make clear what are the zones of influence of the different African ports with regard to supplying the hinterland.

We give further on (see table 3) the cost of sea transport per ton of various goods from the port of Marseilles, as a guide.

For overland transport, if we give the coefficient 1 to the cost of a ton-kilometre over an asphalted road, we can obtain an idea of the equivalent costs with other means of transport by the following coefficients:

\[
\begin{align*}
\text{By water} & : 0.3 \\
\text{By rail} & : 0.5 \\
\text{Asphalted road} & : 1 \\
\text{Improved road} & : 1.5 \\
\text{Track} & : 2.5
\end{align*}
\]

We can thus determine the "equivalent distance" which, from the point of view of transport costs, separates the towns of the hinterland from the various African ports.

If we take as the cost of transport over an asphalted road:
The table below—Table 2—gives very approximately the real and equivalent distances (applying the above coefficients) for the main towns interested in a trans-Saharan road (on the assumption that it would be asphalted and that the rest of the infrastructure would remain the same as at present, only the work in progress being assumed to be completed).

### TABLE 2

(distances in kilometres)

<table>
<thead>
<tr>
<th>Routes</th>
<th>Railway</th>
<th>Asphalated road</th>
<th>Non-asphalted road or track</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>real</td>
<td>equivalent</td>
<td>real</td>
<td>equivalent</td>
</tr>
<tr>
<td>Fort Lamy - Douala</td>
<td>1000</td>
<td>500</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>900</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(via Maiduguri)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Tripoli</td>
<td>-</td>
<td>3600</td>
<td>3600</td>
</tr>
<tr>
<td>Abéché - Douala</td>
<td>1000</td>
<td>500</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>900</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(via Maiduguri)</td>
<td>-</td>
<td>2600</td>
<td>2600</td>
</tr>
<tr>
<td></td>
<td>Tripoli</td>
<td>-</td>
<td>2600</td>
<td>2600</td>
</tr>
<tr>
<td></td>
<td>Port Sudan</td>
<td>2200</td>
<td>1100</td>
<td>2900</td>
</tr>
<tr>
<td>Faya Largeau - Douala</td>
<td>1000</td>
<td>500</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>900</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>(via Maiduguri)</td>
<td>-</td>
<td>2600</td>
<td>2600</td>
</tr>
<tr>
<td></td>
<td>Tripoli</td>
<td>-</td>
<td>2600</td>
<td>2600</td>
</tr>
<tr>
<td>Niamey - Oran</td>
<td>800</td>
<td>400</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>Cotonou</td>
<td>400</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Niger</td>
<td>Algiers</td>
<td>-</td>
<td>3400</td>
<td>3400</td>
</tr>
<tr>
<td></td>
<td>Tripoli</td>
<td>-</td>
<td>3600</td>
<td>3600</td>
</tr>
<tr>
<td></td>
<td>Lagos (via Kano)</td>
<td>1200</td>
<td>600</td>
<td>-</td>
</tr>
<tr>
<td>Agadda - Algiers</td>
<td>-</td>
<td>-</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td>Lagos</td>
<td>1200</td>
<td>600</td>
<td>-</td>
</tr>
<tr>
<td>Mali</td>
<td>Gao - Oran</td>
<td>800</td>
<td>400</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>Cotonou</td>
<td>400</td>
<td>200</td>
<td>400</td>
</tr>
</tbody>
</table>
Table 3 below gives an idea of the transport costs of the following goods: Steel, Cotton, Textiles (in $/US/ton). **For various routes in the previous table, distinguishing between the cost of sea freight and that of overland freight.**

<table>
<thead>
<tr>
<th>Route</th>
<th>Sea Freight</th>
<th>Overland Transport</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
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<td></td>
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<tr>
<td>C</td>
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<td>D</td>
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</tbody>
</table>

**Table 3**
US$ 0.04 per ton x km (average of the usual costs over the Tripoli-Sebha road and in Senegal), we can thus obtain a rough approximation of the transport costs of different goods.

It can thus be seen that the trans-Saharan road is beaten by a wide margin by the classical maritime route using the ports of the Guinea Gulf. Except in a very few special cases - expensive and bulky goods such as textiles - a trans-Saharan road could be competitive for certain very limited sub-Saharan areas in some republics such as Chad or Niger.

It is true that the figures given above only give a very rough approximation and that the costs can vary to a large extent, depending on considerations which we cannot take into account: lowering of the costs of sea or rail freight to avoid competition, customs tariffs, economic unions etc. In our estimates we had always to keep the same cost per ton-kilometre for each type of overland transport, as it was impossible to differentiate between the costs of the different commodities since they depend in each particular case on trading conditions or other factors that are quite inextricable.

Despite all those reservations, it seems clear that no region of any importance in Africa south of the Sahara could fall into economic dependence on one of the North African ports as a result of the construction of an asphalted road through the Sahara.

Among the very exceptional special cases that we mentioned above, we would cite:

1. the supplying of the Faya-Largoau region in the north of the Chad (with a total population of scarcely 50,000) by a possible road between Tripoli and Fort Lamy; (cf C);
2. the supplying of the Abeche region (population about 200,000) by the Sudan railway;
3. the supplying of the Agades region in northern Niger (population about 100,000) by a possible road from Algiers to Kano (cf B(2));
(4) the supplying of the Gao region in the north-east of Mali, for certain special commodities by a possible road from Oran to Niamey (cf B (1)).

(6) Conclusions

In conclusion we can safely assert that there is no economic justification for the establishment in the foreseeable future of an overland link through the Sahara of any great capacity - asphalted road or railway -. The international aid funds are too scarce to be wasted on operations which would yield practically no profit.

Furthermore, even supposing that new factors emerged, providing a large amount of traffic to these trans-Saharan trunk routes, that could only be, except in very special cases, to the detriment of the major transport routes existing in sub-Saharan Africa, which, as it is, are not very profitable and whose capacity to absorb traffic is amply sufficient.

Lastly, we stress that we based our argument on the most favourable assumption regarding trans-Saharan roads, since in this too short study we did not take into account: on the one hand the depreciation, or even the maintenance of the contemplated road, or, on the other hand, the considerable improvements of the transport network in sub-Saharan Africa that are envisaged in the next few years (for example the extension of the north Cameroun railway from N'Gaoundere to Doba and of an asphalted road between Doba and Fort Lamy, or again the completion of the asphalting of the Cotonou-Niamey road).

Thus, on the purely economic plan which we are considering, we would advise the complete abandoning of the idea of a rapid overland link through the Sahara so long as no new factors have not radically changed the data on which we based our argument.

This does not mean that there might not be a very rapid development of some types of trade between North Africa and sub-Saharan Africa, the economies of which are frequently complementary. But this trade should be carried on by sea. (Examples: tropical products to North Africa or semi-industrial products to sub-Saharan Africa), or by air (example: meat from the Chad to Libya).
Nevertheless, in view of the importance that overland links through the Sahara may have from the human or political point of view, we feel that it is very important for the roads now being used to be maintained as well as possible and to be improved locally on a small scale; in this way we can hope to make it relatively easy for trucks and tourists to cross what will always remain the largest desert in the world.
ANNEXES

1. A map, on the scale 1/20,000,000, of Africa north of the 2nd parallel.

II. The list of regular air links between North Africa and Africa south of the Sahara.

III. List of the bodies and individuals consulted.
ANNEX II

Regular air links between North Africa and Africa south of the Sahara

<table>
<thead>
<tr>
<th>Cairo</th>
<th>Accra</th>
<th>Benghazi</th>
<th>Dar-es-Salaam</th>
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</thead>
<tbody>
<tr>
<td>&quot;</td>
<td>Addis Ababa and Asmara</td>
<td>&quot;</td>
<td>Entebbe</td>
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<td>&quot;</td>
<td>Dar-es-Salaam</td>
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<td>Johannesburg</td>
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<td>Entebbe</td>
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<td>Johannesburg</td>
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<td>Kano</td>
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<td>Khartoum and Port Sudan</td>
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<td>Lagos</td>
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<td>Casablanca</td>
<td>Conakry</td>
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ANNEX III

List of bodies and individuals consulted

1. The Republic of CHAD at Fort Lamy
   - Mr. ANTOINE BANGUI, Minister of Public Works
   - Mr. MISSALATI, Ambassador of the United Kingdom of Libya to the Chad
   - Mr. GIRAUD, Director of planning
   - Mr. GERARD, Head of the road department of Public Works
   - Mr. KHALIFA FARADJ, Libyan transport agent resident in Fort Lamy
   - Mr. JACQUET, meat exporter at Fort Lamy

2. United Kingdom of LIBYA at Tripoli
   - Dr. ALI ATTIGA, Director of economic research at the national bank and representative of Libya at the 4th session of the ECA
   - Mr. GIUMA A. LARADI, Director general of federal roads
   - Mr. HAROLD E. CAUSTIN, Permanent United Nations representative (TAB)
   - Mr. BLOCH, Assistant of Mr. Caustin
   - Mr. YOON YUL KIM, Head of United Nations administrative services
   - Mr. A. WEAR, Technical adviser to the development council
   - Mr. R. SIMONET, Dir. General of the Cie Nord Africa Aviazione

3. Islamic Republic of MAURITANIA
   - Mr. PAULIN, Director of Public Works