

# UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA

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TECHNICAL PROBLEMS  
OF INTERNATIONAL  
HIGHWAYS IN AFRICA  
BY  
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ABSTRACT

Most African road networks were developed to open the individual territories to the outside world; they still show poor internal road-links. The E C A is engaged in studies to further the development of international highways and to help remove some of the obstacles to economic progress. These include:

- natural obstacles
- financial difficulties
- Customs formalities
- technical problems (standards, regulations  
manpower, licencing, etc.)

A programme of activities is suggested to achieve a better expansion of international road transportation in Africa.

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## Technical Problems of International Highways in Africa

### A. Introduction

1. The ECA secretariat's programme of work and priorities is designed to promote the development of international roads and road transport and to improve the techniques of road planning, design, construction and maintenance. Although, strictly speaking, the secretariat is not engaged in carrying out the different technical studies required for the realization of a road project. this paper will attempt to point out some of the main technical problems encountered in connexion with the development of international highways in Africa.

### B. Road development in Africa

2. African countries attach so much importance to the development of an effective transport system in general, and an improved road system in particular, that in most African countries transport accounts for about 25 per cent of total expenditure under national development plans. More than 60 per cent of this amount (or 15 per cent of total plan expenditure) is allocated to the construction, improvement and maintenance of roads. Furthermore, the estimated 1971 highway expenditures for 22 independent African States was about US\$ 298 million while that for France was US\$ 2,223 million and for Great Britain US\$ 1,843 million. 1/

3. It should come as no surprise that African countries allocate a substantial portion of their meagre resources to the development of their road networks. After all, road transport, which offers greater elasticity and flexibility than any other mode of transport, plays an important role in the economic development of African countries by providing feeder services for rail, inland waterway, pipeline and air transport trunk services; exerting a spatial influence on the opening up of undeveloped remote areas, and affording substantial employment opportunities, not only in the construction and maintenance of roads, but also in the servicing and operation of road transport vehicles.

4. However, the existing road network in Africa is still inadequate and, for the most part, of too low a standard for the resources of the continent to be fully exploited. The situation is best illustrated by the fact that in 1971, the density of all-weather roads per 100 km<sup>2</sup> was 1.2 km for developing Africa in contrast to 142 km in France, 138 km in Great Britain and 8.4 km world average. Nevertheless, roads carry more than 70 per cent of the total volume of land-borne transport in many African countries.

5. The secretariat of the Economic Commission for Africa has for some time been studying a number of closely connected problems relating to national transport systems in general and to roads in particular. In this connexion, attention is drawn to the work programme approved by the Commission which includes the following items:

- (a) Studies to facilitate the linking up of African road systems and the adoption of a unified system of road signs, traffic regulations, etc.
- (b) Studies of the problems of uniform standards of design, construction and maintenance of international roads.
- (c) Studies of the adequacy of existing facilities for road research in the region, and of the extent and problems of the application of research results to road design and construction. The object of these studies being to devise proposals and projects, where necessary, for strengthening road research and its utilisation.

C. International road links

6. A very noticeable feature of the African road system is that it consists of a large number of unintegrated national road systems, many African countries having no road links with neighbouring States.

7. This kind of situation has to be remedied in order to expand intra-African trade and develop better relations and economic co-operation among the African countries.

8. The secretariat believes that, as an initial stage, efforts should be concentrated on the improvement of the following highways.

- (a) Trans-African Highway (Mombasa-Lagos);
- (b) Trans-West African Highway Network
  - (i) Dakar-Ndjamena
  - (ii) Dakar-Lagos
- (c) Trans-Saharan Road
- (d) Trans-East African Highway

9. These highways would serve as arteries of the pan-African road system and either concurrently or subsequently, as the need may be, they would be connected by feeder roads to complete, stage by stage, the arterial highway system in the continent.

10. In connexion with the development of international road links in Africa, the ECA secretariat is studying the possibility of establishing a Trans-African Highway Authority and a Trans-African Road Fund. Although the present proposal is initially for the Trans-African Highway (Mombasa-Lagos), the same principles could be applied to other similar projects. The proposed Authority would be a legal entity empowered to raise loans, enter into contracts, appear in court on behalf of Governments so as to make it possible to conduct operations in a more integrated manner.

D. Non-technical problems

(a) Physical features

11. The difficult geographical features of Africa, which in several respects differ from those met in other continents, have an adverse effect on the development of transport in general and roads in particular. Africa is an exceptionally massive continent having, as compared with other continents of the world, the shortest coastline in relation to the area, resulting in a large share of the world's land-locked regions which have no direct access to the sea. This implies that if the continent is to be opened up, an exceptionally high proportion of inland transport, where roads play a major role, would be required.

12. Certain natural conditions often met in Africa tend to make the costs of road construction maintenance and vehicle operation higher than in many other areas of the world. These conditions include

- difficult landforms. A typical form in the coastal areas is a narrow coastal strip followed by a steep scarp zone forming the edge of plateau. In the interior, natural formations like the Great Rift Valley form most difficult barriers inhibiting penetration by any mode of surface transport.
- vast areas of dense rainforests in tropical Africa are a remarkable obstacle to road penetration.
- climatic conditions with heavy seasonal rainfall impose excessive requirements on road construction, particularly drainage, if the roads are to be practicable throughout the year.
- scarcity of water in desert areas is another climatic factor impeding the development of transport. A particular African feature is the vast desert area of the Sahara providing a formidable natural barrier between North Africa and Sub-Saharan Africa.
- absence of appropriate materials for road construction and maintenance, especially in the humid areas where they are most needed.

13. The average population density is relatively low, varying from one area to another. Consequently, the cost per head of providing the population with an adequate transport network tends to be high. Another feature is that the basic structure of the existing transport network dates from the colonial era with unintegrated national networks that are more adapted to overseas than intra-African contacts. The result is that Africa is politically an exceptionally fragmented continent as far as the number of countries is concerned. This makes the co-ordination of transport policies for larger regions difficult.

(b) Finance

14. The preponderance of this problem is related to the following

- (i) Owing the difficult topography and climate, the cost of road construction and maintenance in Africa is rather high

- (ii) About two thirds of the total cost of road projects relates to the foreign exchange component, resulting in an outflow of foreign exchange since highway construction is almost exclusively carried out by foreign contractors.
- (iii) African countries depend heavily on foreign sources of capital, and the development of transport in general and roads in particular on the scale required in Africa is unlikely to take place without considerable technical and financial assistance from the industrialized countries and international financing institutions.
- (c) Customs and frontiers formalities

15. There are legal and administrative constraints on travel and trade along international highways, and such constraints at border crossings include:

- (i) Vehicle transit formalities
- (ii) Immigration formalities (visas, health checks, etc.)
- (iii) Currency exchange regulations
- (iv) Tariffs, quotas and restrictions on trade flows

16. It should be noted here that the secretariat is of the opinion that measures for the regulation of passenger and goods traffic should be studied now with a view to establishing standard regulations for international highways. In line with this and with the assistance of the Governments of France and the United Kingdom, a study of the administrative and legal factors impeding the international movement of persons and goods on the Trans-African Highway is well under way.

#### E. Technical Problems

17. Some of the technical problems for which appropriate solutions must be found in order to accelerate the development of international highways in Africa include the following

- (i) Design standards. The adoption of minimum design standards for international roads and bridges;
- (ii) Rules of the road. Standardization of the rule of the road, including right hand driving;
- (iii) Vehicle specifications. Technical requirements of vehicles, including weights and loadings, dimensions and lighting and markings.
- (iv) Licensing. Standardization of national driving licenses, vehicle licensing and insurance requirements with a view to making their validity acceptable to other countries through which travel is necessary;
- (v) Research. Expenditure on road construction, improvement and maintenance could be reduced if, through intensified research and the effective application of research findings, the costs of surfacings, foundations, etc., were to decrease;

- (vi) Statistics. Standardization of road and road transport statistics;
- (vii) Manpower. Training of highway personnel, and encouraging local contractors to participate in highway construction.

**F. Programme of activities**

18. To achieve the chief objectives of industrialization, the expansion of intra-African trade and the acceleration of the economic and social progress in the continent, the international road links in Africa should be determined.

19. Once the pan-African road network has been defined, a stock-taking of the present state of the highways should begin. This should be followed by a study of action required to open them to international traffic, and in particular the simplification and unification of frontier formalities, driving licenses, ancillary services, etc.

20. The technical and financial resources required should be computed and ways and means to meet these requirements should be agreed upon.

21. There might be cases where the building of the road projects are so costly that certain countries cannot afford them, or these projects may be justified by the needs of international rather than national trade. Solutions for these and similar problems can only be found by the joint effort of the countries concerned.

22. In addition to the aforementioned points, efforts should be made to single out specific problems to which attention should be drawn, and a programme of work and priorities should be outlined.

23. To achieve the above objectives, inter-governmental working parties, similar to the Trans-African Highway Co-ordinating Committee, would have to be established, and their task would be to promote and co-ordinate the planning and implementation of the international highways affecting their countries.