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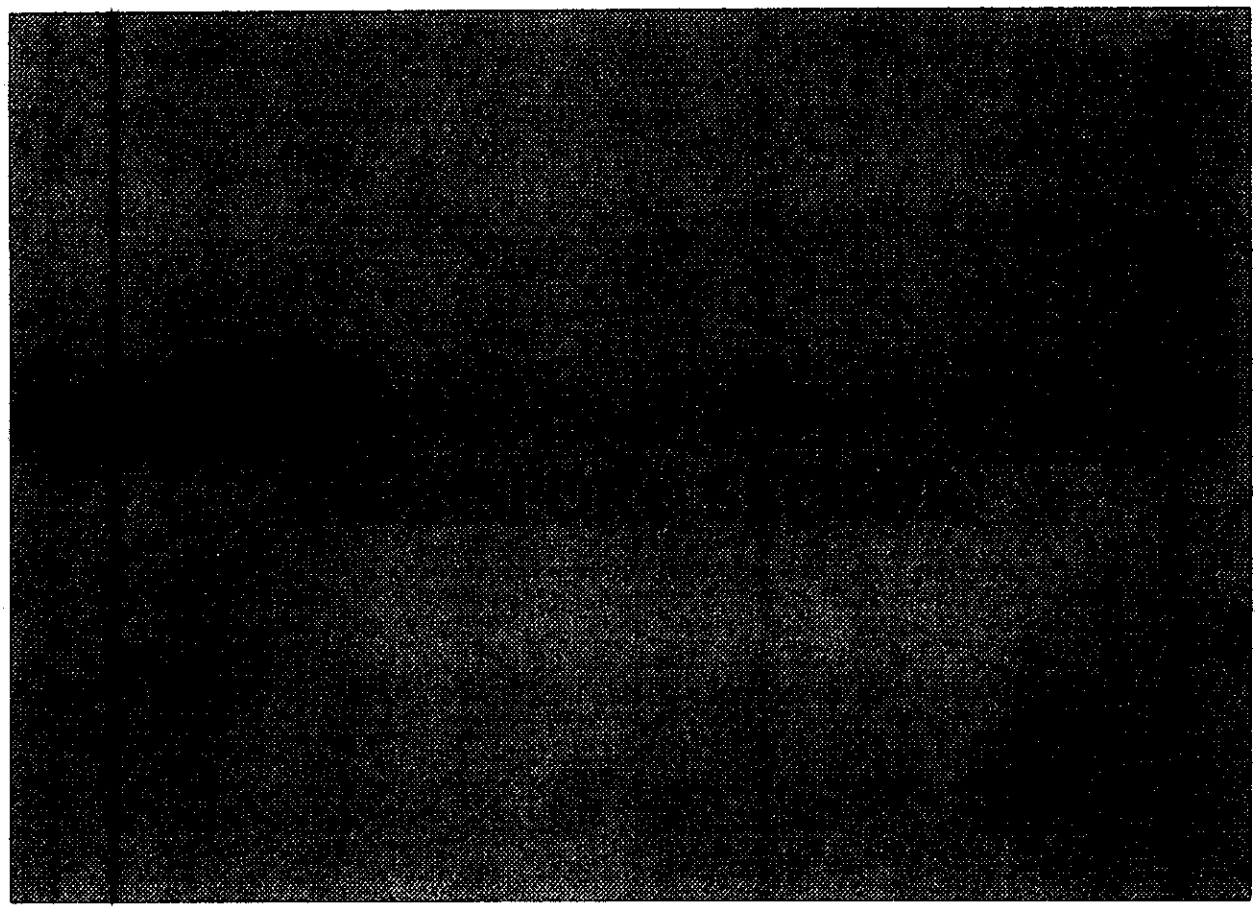

Regional Cooperation and Integration Division
P.O.Boox 3001, Fax 251 1 513038, Addis Ababa
Ethiopia

TRANSCOM/1022

COOPERATION IN AFRICA'S RAILWAY TRANSPORT SECTOR

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I. INTRODUCTION

1. A broad range of initiatives have been taken at various levels towards developing and expanding railway systems and railway transport in Africa.

2. In the search for ways and means of improving the management of railway transport and enhancing its competitiveness vis-à-vis other transport modes, which are becoming more and more competitive, it has become necessary, in parallel with various railway infrastructure rehabilitation and modernization programmes, to address the area of inter-network cooperation in Africa -- a weak point in railway operations across the continent.

3. As is emphasized throughout this report, cooperation in this sector is, in most of the railway networks, still at an embryonic stage, particularly in the context of "south-south" cooperation. Where a modicum of cooperation exists in one form or another, it is usually one-sided, essentially in a "north-to-south" direction.

II. OBJECTIVES OF THE STUDY

4. This report sets out to examine the present nature of cooperation between railway networks in Africa, assess its scope and extent, highlight the infrastructural, structural and institutional obstacles affecting it and identify new avenues for strengthening and expanding cooperation.

5. To that end, and with the object of coming up with concrete proposals based on the study, the Economic Commission for Africa has opted for a methodology centred on associating managers of railway transport systems in the search for ways and means of strengthening and expanding cooperation where it exists, and of establishing it where it is absent.

6. Accordingly, this study was conducted with high-level managers of railways in the countries visited, namely Burkina Faso, Côte d'Ivoire, Mali, Morocco and Senegal, with the objective of benefiting from the experience of countries where international cooperation in this sector has already made some headway, and in the perspective of seeking ways and means of strengthening that cooperation, particularly in the horizontal sense, amongst developing countries (south-south cooperation); the necessary data for the preparation of this report were gathered in the course of that mission. The data, covering various aspects of railway operations, are contained in the annex.

7. The experience, in that context, of other countries which, though not visited in the course of the aforementioned mission, have, within the framework of individual restructuring programmes, set in motion actions towards strengthening cooperation -- for the proposes of operations in shared networks or in the context of promoting international traffic -- was also noted.

III. METHODOLOGY

8. The study was focused on those African countries which, within the framework of sectoral restructuring, have made some headway in the context of bilateral cooperation.

9. The countries covered are in effect a representative sample others could be covered in the future. The common denominator is that the railway systems in question either form part of a network or line linking two countries, or are interconnected. That fact necessitates some measure of cooperation among the railways. How the countries concerned have fared with that cooperation

is a pertinent area for study, because its development from the current embryonic state is of interest.

10. This study therefore examines the current level of cooperation among and between African railways and those of developed countries, the latter having begun much earlier. The study also looks into prospects for cooperation with other countries, including developing countries, outside the continent.

11. It examines, on the basis of exchanges with managers of African railways, the infrastructural, structural and institutional obstacles affecting cooperation among African railways.

12. To put into clearer focus the obstacles affecting cooperation, the report offers an insight into the history of cooperation among African railways, and looks into areas in respect of which it could be expanded.

13. Accordingly, it focuses on infrastructure, telecommunications, rolling stock and equipment for maintenance and repairs, technical and commercial operations, exchange of equipment and spare parts, as well as bilateral, subregional and regional cooperation in training and staffing.

14. It might be appropriate to look into the possibility of establishing cooperation models applicable to African railways and railways in other parts of the world, including other developing countries. In that context, accumulated knowledge, achievements made so far, and the experience gained can serve as a starting point, particularly in the establishment and operation of transport networks for the development of international traffic.

15. This will require, at the outset, a modicum of cooperation between transport enterprises in general, and railways in particular. Links between other transport modes should, at the same time, not be overlooked, because the element of complementarity is an important factor in the expansion of the transport sector as a whole.

IV. THE PRESENT LEVEL OF COOPERATION AMONG AFRICAN RAILWAYS

16. As already mentioned, the following factors should be taken into account in examining the present level of cooperation among railway systems in Africa:

(a) The management level (administration, training, and the quality and availability of specialized-training facilities);

(b) The progress made towards harmonizing regulations and procedures;

(c) The formulation and establishment of exchange guidelines for the purposes of investment;

(d) Exchange mechanisms in trade, tariffs and marketing and in the development or railway transport;

(e) Joint procurement and purchasing mechanisms and joint management of maintenance workshops;

(f) Harmonization of telecommunications equipment and station installations to streamline the flow of information and optimize transportation efficiency; and

(g) Prospects for exchange arrangements, on the basis of comparative cost analyses, in respect of rehabilitation of transport equipment and the acquisition of heavy machinery for track construction and repairs, and possibilities of subcontracting arrangements, in neighbouring regions, of used heavy machinery lying idle in workshops. Transport cost analyses are particularly important in the case of physically separate railway systems; they are no less necessary, however, in respect of pooled machinery stocks for construction and repair works, with qualified personnel that can work in two or more countries with interconnected railways. This would be a starting point for the establishment, at the subregional level, of pooled equipment for the maintenance, repair, rehabilitation and even construction, of railway lines across the continent.

17. For all these initiatives, attention should constantly be given to technological development of infrastructure and equipment as well as railway operation mechanisms generally.

18. Efforts should be made to identify the key areas for expansion of cooperation at the subregional level. In the transport sector, attention should be given to the development of cooperation in railways as well as in road transport, particularly in the transport corridors serving landlocked countries. The requisite priority should be given to south-south cooperation, which, particularly in regard to sub-Saharan African railway systems -- with the exception of the interlinked railways of southern Africa -- is still at an embryonic stage.

19. Non-physical barriers are an obstacle to subregional and regional cooperation generally. Overcoming them will necessitate earnest efforts in policing customs and immigration/emigration services to facilitate cross-border transactions and streamline international traffic, which with the introduction of block trains and containers, is set to develop further, increasing access to port-to-port networks. Accordingly, the focus should now be on cooperation modalities which as in a number of European countries, accommodate interlinking cross-border controls.

20. In the same vein, transport terminals should be modernized and developed, with a view to rendering them suitable for use by a broad range of transport systems. This would help minimize management and operational costs at these terminals.

21. A further scope for collaborative development of railway systems in Africa is in the area of subregional and regional centres for research, which would enhance the technological development of railway services in conformity with specific conditions obtaining in Africa. Attention should also be given to the dimension of developing interlinkages between existing railway networks and improving their operations through collaborative initiatives.

22. The Union of African Railways (UAR), a specialized agency of the Organization of African Unity concerned with the development of railway services, can go a long way towards the attainment of that objective.

23. Parallel with ongoing efforts to optimize the benefits of north-south cooperation to Africa, attention should be given --in the perspective of enhancing and strengthening cooperation among developing countries -- to the potential capacities of the railway networks in subregions such as North and southern Africa which are already relatively advanced in the area of cooperation.

V. COUNTRIES COVERED AND THEIR EXPERIENCE IN THE AREA OF COOPERATION

24. As mentioned above, the methodology followed for this study is focused on exchanges of experiences, ideas and perspectives drawn from meetings with managers of railway services in the various countries visited, as well as on the identified priority areas in the context of the development and promotion of cooperation between railway systems and in the perspective of the reciprocal advantages expected from such cooperation.

25. The overall picture is that avenues of cooperation vary from one system to another, and this is partly predicated on the extent to which railway systems are interlinked.

1. Côte d'Ivoire (Société Ivoirienne des chemins de fer-SICF)

26. It should be mentioned at the outset that Côte d'Ivoire and Burkina Faso previously had between them just one railway network, the Réseau Abidjan-Niger (RAN), which was the pioneering network in the subregion. The pattern of railway development in West Africa towards the end of the 19th century, under French rule, was centred on the Niger river as the end-point inland, hence the existence of networks such as Bénin-Niger, Conakry-Niger, Dakar-Niger, and so on.

27. Following political developments in both Côte d'Ivoire and Burkina Faso (the latter having been previously known as Haute-Volta, or Upper Volta) Abidjan-Niger split up and has, since June 1989, given place to two separately-managed corporations: the Société Ivoirienne des chemins de fer (SICF) and the Société des chemins de fer du Burkina (SCFB),

28. On the basis of the separate management, it became necessary for the two corporations to pursue more diversified cooperation between them.

29. Cooperation was centred on streamlining the operations of the Abidjan-Ouagadougou line with a view to:

(a) Increasing the volume of trade between the two countries; and

(b) Consolidating the railway-transport sector as a vital avenue of development in both countries.

30. It was governed by general provisions as well as more specific agreements and arrangements covering various aspects of railway operations.

31. Among the steps towards better management is the establishment of a joint-venture company and two corporations. According to the schedule of negotiations, the newly privatized concern should have become operational during 1995.

32. Accordingly, the two networks -- previously managed along the lines, on the one hand, of a framework cooperation agreement between the Republic of Côte d'Ivoire and Burkina Faso, and, on the other, a cooperation agreement pertaining to railway operations between the Ivorian corporation, SICF, and the Burkinabé one, SCFB, both agreements dating from 23 May 1989-- would henceforth be run by just one corporation. The Abidjan-Ouagadougou-Kaya line will therefore be privatized, by common consent, at governmental levels of Côte d'Ivoire and Burkina Faso, with the result that the operation of the line passes on to a concessionaire-company the majority of the equity whereof will be held by the private sector and that the erstwhile national corporations (SICF and SCFB) become, respectively, managing companies for the equity that is the subject-matter of the divestiture.

33. According to the protocol-agreement, already signed, the new company's capital base is to be distributed as follows:

(a)	Equity falling to the private sector:	67.5 per cent;
(b)	Côte d'Ivoire and Burkina Faso governments, each:	15 per cent;
(c)	Staff	2.5 per cent

34. It should be noted that the structural transformation of SICF and SCFB is being closely monitored by the managers of other railway systems in the subregion, concerned by the implications of the restructuring.

35. What emerges from an analysis of the current position is that, while there existed between SICF and SCFB a framework for cooperation which was governed by well-defined agreements and arrangements, the results were not wholly satisfactory, because there was some inconsistency in translating the provisions and objectives into concrete action on the ground. In the result, the perspective of cooperation, though resting on a well-articulated juridical framework, will run up against some obstacles.

36. Cooperation between Côte d'Ivoire and Burkina Faso is centred on international goods traffic between them. This traffic is managed through the Bureau international de traffic (international traffic bureau), the constitutive text of which is the result of consensus between the railway companies of the two countries.

37. To facilitate this traffic, there are specific provisions governing various joint activities and setting out the respective obligations of both railway systems.

38. Against the backdrop of economic difficulties and financial constraints, both railway networks have had to contend with inadequacies in quantity and quality of rolling stock, including traction equipment. To a considerable extent, this situation has led to shoddy services and the concomitant lack of promptitude in meeting the transport demand.

39. Despite serious financial constraints, the managers of these networks have set in motion major efforts to address the shortages of equipment. None the less, the magnitude of the inadequacies render these efforts insufficient, in respect of rolling stock as well as track equipment.

These have depreciated owing to non-implementation of planned maintenance works for lack of resources.

40. It is generally recognized that much remains to be done in the area of inter-network cooperation. Transactions among networks in the subregion have been few and far between, generally involving occasional exchanges of rolling stock and spare parts. In the main, this has been done through equipment transfers, the quantitative scope of which, again, has not been significant.

41. To some extent, therefore, Côte d'Ivoire's cooperation policies in railway-transport operations and transactions with other railway systems, still fall short of the objectives set in the agreements and arrangements entered into by the government. Much remains to be done at the level of management to diversify these cooperation programmes and expand their scope to a broader spectrum of railway operations in order to enhance inter-network traffic which, at present, is centred on the Abidjan-Ouagadougou-Kaya line.

2. Burkina Faso: Société des chemins de fer du Burkina, SCFB

42. As already mentioned at the beginning of Chapter V.1, the Burkina Faso railway corporation and SICF of Côte d'Ivoire both operate the same line, under separate management structures. The line, Abidjan-Ouagadougou, was previously the Abidjan-Niger network (RAN).

43. The profile of management transformations to-date for the two systems is given in preceding chapters. It should be added, however, that the SCFB network has been prolonged by an additional 105km of line; and has as its provisional terminus, the Kaya station. This portion of line is part of the projected Ouagadougou-Kaya-Dori-Assongo line, the construction of which -- at any rate as far as Tambao for the time being -- had been suspended with the introduction of the sectoral plan for transport operation.

44. To-date, cooperation between SCFB and SICF is essentially centred on interlinkages in various operational aspects of the Abidjan-Ouagadougou-Kaya line. With regard to both systems, the cooperation programme is governed by agreements and arrangements which have been signed by both governments, and by specific agreements concluded by the top managers of both networks.

45. Apart from transit arrangements, the specific agreements support and complement the framework agreements, which mainly relate to passenger tariffs and international transit goods management policy on trade, finance and accounting as well as operation, maintenance and spare parts procurement.

46. None the less, the cooperation objectives have not been wholly achieved, owing to a number of financial and human-resources constraints. More particularly, trade arrangements have not been systematic, and there has been some degree of lethargy in the conveyance of information necessary for decision-making.

47. The diagnosis of various departments of these railway systems reveals a number of relevant factors, which are discussed in the following paragraphs.

48. The supply of spare parts is far from adequate. Strengthening cooperation in this area will necessitate the formulation of new policy orientations involving in particular, stocktaking and systematic arrangements for redistribution of spare parts to other railway networks. Burkina Faso's national railway corporation (SCFB), for instance, has a stock of spare parts for certain categories of equipment, which could be transferred to other networks, within the subregion, with similarly-constructed machinery. If this experiment is broadened to include other countries in the subregion, a "barter" system will thus be introduced, which may obviate the necessity to resort to already overburdened national treasuries.

49. Joint procurement mechanisms and collaborative investment for maintenance equipment should be regarded as high-priority approaches, the success of which will necessitate coordination at the level of management. Well-structured cooperation programmes should spearhead such coordination. Accordingly, efforts should be made to alleviate the obstacles identified, facilitate contacts between managers, and streamline the circulation of strategic information in order to minimize operational bottlenecks and management constraints.

50. Inter-network cooperation in infrastructure development is still at an embryonic stage. There is hardly any collaborative effort in rail transport operations; the rather limited track equipment exchange often stalls, owing to irregular supply. The same situation obtains with respect to the use of equipment on interlinked networks, which can be shared, and approaches to some of the maintenance problems, such as warping, where cooperation can again be beneficial. To that end, joint efforts by managements of mechanical and electrical engineers' units may be necessary. The result of such cooperation should be more dynamic rail transport maintenance mechanisms in Africa.

51. Cooperation should also extend to the area of transport costs computation.

52. To that end, concerted efforts on the part of research- and - development departments and finance departments, at the service level, should facilitate the bringing up-to-date of costs and the exchange of information. There are also avenues for institutionalizing and strengthening these collaborative frameworks.

53. In this perspective, the crucial task is to ensure the prompt delivery of a wide range of economic data to the national and international statistical systems. At both levels, the costs computed are costs other than overheads (i.e. variable costs).

54. The existing cooperation programmes in maintenance operations for costs computation systems should be strengthened in order to maximize their effectiveness.

55. A case in point in that context is the "Rail Tracker" system, financed by the World Bank through its office in Burkina Faso but, through the Bureau international de traffic, covering operational-development mechanisms in Côte d'Ivoire as well.

56. As with Côte d'Ivoire, cooperation programmes in railway transport operations between Burkina Faso and other railway-transport systems are rudimentary, though of long standing. Much remains to be done if the political will expressed by governments and railway-transport managers are to become a reality. To be beneficial to both countries (i.e. Burkina Faso and Côte d'Ivoire), as well as to other railway networks within the continent, existing cooperation programmes should

be strengthened and extended to all key areas of railway operations. Suggestions to that end are given further below, in the conclusion section.

3. MALI: Régie des chemins de fer du Mali (RCFM)

57. Since the origin of railway transportation in Africa towards the end of the 19th century and until the immediate post-colonial period, Mali's national railway system, RCFM was part of the Senegalese one.

58. Dakar-Niger, as it was then called, covered a distance of 1227 km and linked Dakar with Bamako.

59. Like Abidjan-Niger, the Malian/Senegalese network broke up, following political transformations in both countries, into two separate networks, viz. Société nationale des chemins de fer du Sénégal (SNCS) and Régie des chemins de fer du Mali (RCFM). Though still interlinked, RCFM and SNCS are today run as distinct entities.

60. Policy stances in both countries have, more recently, favoured cooperation, which has been perceived as a way of improving the management and operation, by both corporations, of the shared line, and so promoting international traffic as well as service delivery.

61. Despite the severance, at independence, of the Dakar-Niger corporation into two separate national enterprises, historical links between the networks are still manifest. Current reunification efforts are focused on re-establishing something like the defunct network that existed before, in parallel with the objective of improving and modernizing the operations of the Dakar-Bamako line.

62. The main objective, on both sides, is to promote cooperation in order to improve the management of both the Malian and the Senegalese railway services.

63. Accordingly, rehabilitation programmes to restructure the network are in progress and reform measures have been instituted in various areas of rail transport operations. Blueprints have been drawn up, which delineate the respective areas of government and corporate intervention with regard to the specifications set. Mali's national railway corporation (RCFM) is at its third development plan.

64. RCFM's new mandate, adopted by its managing body as well as the World Bank, has been approved by the Malian government (decree no. 93-254/PRM of 23 July 1993). Among other things, it confers upon the corporation:

(a) The character of a trading company and autonomy of operation; and

(b) The authority to set tariffs for goods and passenger transport of a commercial nature.

65. It sets out the operational and regulatory parameters for public service-oriented passenger transportation.

66. In the course of the implementation of the development plan described as Contract-plan Etat/RCFM (1986-1990), the Malian national railway company made considerable progress, and by 1990, had achieved financial equilibrium.

67. It formulated and set in motion a second plan, covering the period 1992-1993, to restructure railway operations.

68. By supplementary legislation, the railways development plan, a joint Government-RCFM projection, was extended to 30 June 1995 (from 1992-1993) in order to achieve outstanding targets and a further plan period (1995-1997) was set.

69. In a policy statement adopted on 2 November 1993, the Malian government affirmed, regarding the railway transport sector, that the promotion of technical and commercial cooperation between RCFM and SNCS was an essential component of international transport development policy and that RCFM would, in that connection, work with SNCS to establish a joint agency to manage and operate the two corporations' rolling stock. This, the first step in the envisaged process, has since been achieved.

70. The policy statement also stipulates that it would be open to the joint agency (Parc International Wagons) to extend its scope of operations to include technical management for both corporations as well as international goods transportation, and that, as regards international passenger transport, the Malian corporation would, in collaboration with SNCS, and in concert with external partners, explore the possibilities of establishing a jointly-run subsidiary. Negotiations and meetings which have been launched since the beginning of 1995 indicate that concrete efforts have been made to actualize that declaration of intention.

71. The statement concludes that:

72. In the long run, the feasibility of integrating the operations of the two networks will be explored, on the basis of the conservation by each of the two States of their respective proprietary rights over the infrastructure.

73. The Malian government has, in its sectoral development programme -- considered satisfactory by the World Bank -- undertaken to collaborate with the Senegalese government towards the technical and commercial integration of both corporations' international goods traffic operations on the Dakar-Bamako line.

74. This commitment, and the similar one entered into by the Senegalese government in its Plan d'ajustement structurel transport (transport-sector structural adjustment programme, PAST), have since become part of the World Bank's conditionality for the railway-transport sectoral development programmes of each of the two countries.

75. On the basis of those commitments, interministerial committees of both countries respectively set out the terms of reference for a study on various related considerations, on 9 May 1994. The study itself was to be carried out by a "TER Cabinet."

76. The terms of reference enjoined the Cabinet to:

(a) Analyse the current position of the two railway systems and the cooperation programmes already under way (i.e. the profile, imperfections, etc.)

(b) Analyse the following options:

(i) Option I: Establishment of a joint RCFM/SNCS agency to manage the technical and trade aspects of international goods traffic with a view to enhancing the competitiveness of the line; and

(ii) Option II: In the long-term perspective, the possibility of integrated operations. This option will be dependent on various scenarios, regarding each of which the study must establish:

a. Financial projections, such as operational accounts, financing schedules and periodical financial reports;

b. Projections, on the basis of the most accurate available data, of international traffic volumes over at least a five-year period; and

c. Propositions regarding simplification of administrative and customs formalities as well as supervision mechanisms for minimal delay in loading and unloading operations and in overall conveyance from one point to another.

77. The study was centred on the terms of reference and focused on the realities mentioned above. The interministerial committees and experts from both corporations hold regular consultations on the establishment, in the long run, of a subsidiary company conforming to a schedule set by both governments.

78. As the objectives of the study indicate, the corridor linking Bamako with the port at Dakar is a key segment of the system. Most of the traffic centred on the North-Western region of Mali is handled on this line. It is also noteworthy that Mali is heavily dependent on external trade; up to 1993, for example, its imports and exports represented, respectively, 25 per cent and 13 per cent of its GDP.

79. The Dakar-Bamako line is therefore crucial for both the Senegalese (SNCS) and Malian (RCFM) railway services, in terms of production, revenue and contribution to the respective corporations' profit margins.

80. In 1993, international trade accounted for 48 per cent of SNCS' output (in terms of kilometer-equivalent) and, on the same measure, 56 per cent of RCFM's output.

81. The proportion of revenue attributable to international trade is 62 per cent in the case of SNCS and 56 per cent in the case of the Malian corporation, RCFM. Indeed, the returns for SNCS from this sector during 1992 outranked other activities and even enabled the corporation to recuperate deficits incurred over the latter.

82. Transit operations through Mali account for a sizeable proportion of traffic handled at Dakar port. The figure in 1992 was 291,000 tonnes of unitized cargo, out of a total of 2,357,000 tonnes (i.e. 12 per cent).

83. The smooth functioning of the railway system is therefore of major interest to all economic operators using the Dakar-Bamako line.

84. An assessment of ongoing and envisaged actions should help enhance cooperation between RCFM and SNCS. This should of course involve analyses on the prevailing market conditions, the economic and financial position of both networks -- the current position as regards commitments with government agencies, and studies on ways and means of improving the operations of the common line.

85. This dimension is taken into account in a study carried out by the TER Office on the Dakar-Bamako line.

86. The foregoing analysis of the ground covered so far in terms of cooperation takes into account those considerations; the focus here will therefore be on ways and means of developing and strengthening cooperation between the two systems, which, as already mentioned at the beginning of the chapter, are interconnected.

87. Cooperation should be strengthened in trade, implementation of the joint wagon pool plan and its regulatory framework, block trains, and in the improvement of communications and of the entire railway transport system.

88. This will necessitate continued and enhanced innovative efforts towards the harmonization and simplification of tariff policies between the two networks, and joint implementation of contracts with major commercial partners.

89. Another area that requires attention is the need to ameliorate the turnaround schedule of railway wagons. Although the situation is somewhat better than it was before, there is room for improvement to meet standards.

90. In the context of the objectives of the study, the management of the Malian corporation has mainly focused on diagnosis of the current status of cooperation between the two railway-transport systems, and on seeking ways and means of developing and consolidating it. RCFM has also considered possibilities of cooperation with other African railway systems, and links with northern African networks.

91. Cooperation between RCFM and SNCS, and the feasibility of establishing a subsidiary company to manage international trade between Mali and Senegal, has been prominent on the agenda in deliberations of the managements of the two networks. In that connection, the managements of the two corporations, and the Malian and Senegalese ministers responsible for transport, have met regularly.

92. Following a meeting held on 8 and 9 June 1995, in Dakar, a final decision was made regarding the establishment of a private subsidiary company during 1996.

93. Cooperation with other networks in Africa is almost nonexistent -- as is the case with most of the continent's networks, with the exception of the interconnected ones in North and southern Africa.

94. New areas of possible cooperation have been jointly identified by the managements of RCFM and SNCS -- in regard to relations between non-interconnected networks as well as those with advanced countries solely in the context of north-south cooperation which are, in effect, linear linkages between consumer and supplier.

95. In the search for ways and means of developing and strengthening cooperation, RCFM's managers have given particular attention to the need to develop the areas most accessible to the networks but which have not been fully exploited, starting with existing agreements and convention which have not been implemented in accordance with the spirit of the pertinent texts.

96. For RCFM, the cooperation dimension is still at an embryonic stage, with the exception of its linkages with the Senegalese network. The two are in fact coextensive. As with other railway networks visited, a diversification of cooperation linkages in a broad spectrum of railway transport operations should enhance the development and efficiency of the Dakar-Bamako line and create a favourable environment for the development of inter-network traffic.

4. SENEGAL: Société nationale de chemins de fer du Sénégal (SNCS)

97. As already mentioned, Senegal's national railway network is coextensive with RCFM of Mali. For the purposes of commercial operations, the management of the former has an agency in Bamako; conversely, RCFM is represented in Dakar. The core services of SNCS are at Thies, with branch offices at the port city, Dakar, which is also the base for most of the commercial departments.

98. As with the other corporations visited, discussions with SNCS managers highlighted the current state and various aspects of cooperation and identified new areas in which it can be strengthened and expanded.

99. The level of cooperation, at present, is modest. For SNCS, the only significant linkage is with RCFM of Mali, and this is mainly in the area of international trade and the attendant management and support functions.

100. Its links with other networks within the subregion are confined to just a few transactions.

101. It is clear, from an analysis of the present situation, that much remains to be done to expand cooperation, as a priority area, and an avenue for exchanges of experiences, technology and equipment, all of which can contribute to better management of railway services. In examining the prospects of regional cooperation in Africa, managers have focused on spare parts supply and manufacture, at bilateral and subregional levels, the possibilities of adapting some of the equipment to joint utilization by more than one corporation and rationalization of investment.

102. Like the Malian corporation, SNCS has looked into the prospects for the establishment of a joint international-traffic management agency.

103. On the basis of suggestions emerging from a number of meetings during 1994 and 1995 between specialists as well as transport ministers of both countries, the new agency was to be known as: Organisme commun de gestion du trafic international (joint agency for international-traffic management, OCGTI). The joint agency is expected to apply the trade policy of both corporations.

104. Various ongoing actions in both countries in connection with the establishment of the joint agency are based on a common implementation programme. Following a decision of the respective transport ministers, the joint agency was to be transformed, with effect from 1 January 1996, into a subsidiary company with the equity distributed as follows:

(a)	Senegalese and Malian governments	:	20 per cent each.
(b)	Companies staff	:	15-20 per cent
(c)	Senegalese and Malian nationals (private sector)	:	30 per cent
(d)	Non-nationals (private sector)	:	10-15 per cent

105. The analysis of the current situation as regards cooperation, and the quest for ways and means of expanding it must of course include a review of some of the significant events in the history of the Dakar-Niger railway.

106. As already mentioned, cooperation between the Senegalese and Malian railway systems dates back to the construction of the Dakar-Bamako line.

107. The single network split up in 1960; the respective governments re-established links between the corporations in 1963. The pertinent agreement served as an operational guide for the two corporations for over three decades.

108. For the purposes of service development and further cooperation, the sectoral administrations of Senegal and Mali hold biannual consultations, at which common goals are identified and current accounts scrutinized in respect of services which are jointly given by both corporations. The pertinent resource implications and the necessary facilitating measures are highlighted. Results for the period are assessed and readjustments made with a view to reaching acceptable levels of performance.

109. Over the past three years, cooperation between the two countries has been strengthened in order to keep pace with the competitive environment created by Mali's other service areas.

110. A joint rolling-stock management office was accordingly established, with exchanges of staff for operational purposes.

111. The joint management office has the task of managing the shared pool of wagons and monitoring trade patterns. It was established with assistance from the World Bank. A board headed by the trade department and consisting of representatives from customs, business enterprises, storage units of both countries, as well as officials from Dakar port and the Senegalese

and Malian railway corporations meet once a week to evaluate the operations of the railway and organize the distribution of wagons to various users. The monitoring unit follows the decisions of this committee.

112. Accordingly, the two corporations have set a harmonized international tariff scale and, for goods being transported through the Dakar-Bamako line, a common tariff scale. The corporations take stock, annually, of the international pool of rolling stock, including those in reserve, and, where necessary, adjustments are made.

113. Block trains -- consisting of railway carriages joined end-to-end in a caterpillar-like formation, such that senior officers can supervise the vehicles all through--were introduced to help streamline transportation.

114. With assistance from the World Bank, the two corporations also engaged an expert to carry out a one-off study on a hydrocarbons transportation plan, envisaging a 100,000 - ton hydrocarbons carrying capacity by the turn of the century.

115. Another dimension of the reorientation process relates to measures--concerning "informal" transporters on the one hand, and those focusing on the fluidity and availability of hydrocarbons storage tanks on the other -- which resulted in a 40-per cent increase in hydrocarbons transportation.

116. With government assistance towards restructuring, and the shift to a centralized loading mechanism, the tonnage of cargo reached 70,000t. in 1994, from 50,000t. previously. The increased tonnage, it must be noted, is also due to improvements in radio communications and the use of facsimile transmission which has helped streamline the flow of traffic.

117. In addition, efforts have been made to streamline the flow of rail traffic, particularly familiarization missions to study safety systems in various countries, including South Africa, with the objective of developing a computerized rail-transport safety system. This is part of a joint project between Mali and Senegal under the 1995/1998 investment programme, costing about 1 billion CFA francs. The new system envisaged will replace the current sol-train system.

118. With the assistance of UNCTAD, a computer program, SIAM (systeme d'information anticipée marchandises), also known as "rail tracker," has been installed to facilitate monitoring of the useful life of engines and traction vehicles in the Dakar-Bamako line. Until 1993, the SIAM program was relied on for many management decisions.

119. A study on ways and means of improving overall service delivery in trade-related operations of the Dakar-Bamako corporations was launched in November 1993, with donor funding.

120. Cooperation in railway operations, which is now being promoted, is in keeping with the unequivocal political will of both countries.

121. Accordingly, experts and transport Ministers from the two States entered into negotiations that culminated in the adoption, by the Ministers, of the following activity programme:

(a) 1995: Creation of a joint international traffic management organization; and

(b) 1996: Creation of a private subsidiary company with its capital distributed as described above.

122. The two railway networks, then, had to implement the transport Ministers' decision by setting up a joint international traffic management organization and drawing up, in collaboration with inter-ministerial committees, terms of reference and other documents required for the final meeting to decide on the private subsidiary company. The meeting held in June 1995 in Dakar was attended by the group of experts from the two States led by their respective transport ministers and prospective donors, including the World Bank, CIDA and CDF.

123. Concerning equipment and maintenance of infrastructure and rolling stock, the present level of cooperation was deemed inadequate partly owing to the low volume of international trade within the region, the non-exchange of results of studies and surveys, and inadequate dissemination of know-how developed during the implementation of equipment rehabilitation and adjustment programmes. A case in point is the failure to share the experience gained from operations for the modification of the MISTRAL (SNCF) type carriages designed for the 1.435-meter gauge to fit the metric (1.00 meter) gauge. This is all the more significant as it involves an experience that is the first of its kind in western and central Africa and that should be widely shared.

124. For SNCF, cooperation is now focused on joint operation of the Dakar-Bamako railway line. Collaborative actions are for the most part designed to support the operation of infrastructure, equipment and rolling stock in order to streamline and stabilize the flow of international traffic. For it to be effective and serve as an exchange forum, international cooperation in railway transport operations should be strengthened and extended to all sectors connected with railway services.

5. Morocco: Office nationale des chemins de fer du Maroc,
ONCF (Morocco's national railways authority)

125. ONCF maintains ties of cooperation with certain sub-Saharan African countries, countries of the Union arabe des chemins de fer (Union of Arab Railways) and a number of European railway networks.

126. The existence of joint commissions for cooperation enable the authority to develop and strengthen its collaborative mechanisms with the Société nationale des chemins de fer francais (SNCF), Société nationale des chemins de fer belges (SNCB), Comité des transports ferroviaires du maghreb (CTFM), Société nationale des transports ferroviaires algerienne (SNCFT) and the Office des chemins de fer transgabonais (OCTRA) -- the national railway enterprises, respectively, of France, Belgium, the Maghreb countries (collectively), Algeria, and Gabon.

127. Actions undertaken within the purview of this cooperation include the following:

(a) Organizing courses and missions to French and Belgian railways corporations for ONCF officials;

(b) Factory inspection,on behalf of ONCF, of items purchased from French and Belgian suppliers to ensure high standards;

(c) Provision of documents dealing with various domains;

(d) Purchase of spare parts for rolling stock and other equipment; and

(e) Seeking, through meetings of the Comité des transports du Maghreb, solutions to the Transmaghreb's traffic problems by, for instance, reducing the number of stops in order to minimize the time taken over journeys, surveying the North African cargo transport market, introducing on-board police and customs checks to shorten station stops and eliminate border stops, assessing the Transmaghreb's progress and establishing joint representation at various organizations and institutions such as the International Railways Union, the Union of Arab Railways and the Union of African Railways.

128. Based on a 1979 convention merging ONCF of Morocco with OCTRA (Transgabon), the Moroccan railways authority signed a protocol to the Convention with sub-Saharan African countries on 25 June 1993, which was a major step in the development of railway transport cooperation between Morocco and Gabon. The provisions of the protocol primarily focus on:

(a) Secondment of ONCF specialized personnel to OCTRA; and

(b) Supervision by ONCF of the delivery of and follow-up on supplies of equipment which OCTRA expects to procure from Morocco.

129. The secondment of the group of experts to OCTRA took effect in September 1993. As part of the effort to seek ways and means of promoting cooperation between African railways, collaboration between Morocco and other African countries could be developed and extended to specialized staff training, for which Morocco has suitable facilities. Created in 1984 to help restructure and harmonize the training offered by the railway and engineering department, the training centre in Rabat meets all the needs of ONCF's track and civil engineering works, as well as signposts and telecommunications services.

130. In view of the fact that training is a constant concern for all managers, all railway corporations should endeavour to support this aspect of management.

131. Indeed training is imperative for African railway corporations to modernize railway operations, develop maintenance capacities, adapt physical facilities to traffic conditions, replace equipment as needed to maximize safety, enhance reliability and improve management methods to increase the productivity of human and material resources.

132. Like Morocco, several countries in northern and southern Africa have achieved the capacity to expand the scope of their railway training centres and mechanical-engineering operations to the subregional or regional level.

133. It is therefore imperative to take stock of existing expertise in railway operations, the training centres' enrolment capacity, and the technological scope of industrial units across the continent, in order to fill in any gaps - in terms of technology - with the objective of endowing African railways with adequate and self-sufficient training and technological development facilities.

134. Moreover, it should be noted that Africa is a potential market for more technologically advanced countries and will remain so for a long time to come. For this reason, a degree of adaptation of north-south cooperation to the development objectives of the African continent should be part of the trade priorities , the basis for which must be redefined. Such transformation, or restructuring, in the scope and focus of cooperation, necessitates a redefinition of the foundation of existing relations between Africa and the developed world, so as to take into account development imperatives and other factors that might promote the continent's advancement, such as domestic processing of primary commodities and the promotion of small-scale industries.

135. At the outset, industrialization should be focused on the creation of small-scale industries, with existing infrastructures in railway networks' workshops serving as a base for maintenance works and the manufacture of components for rolling stock and equipment.

136. Northern and southern African railway industrial complexes, some of which have in the past supplied rolling stock and spare parts to other African railway networks, could be used as described above.

137. The potentialities in this sector in Africa, the rest of the developing world, and the industrialized North, could be brought together to enhance technological capabilities in Africa.

138. The foregoing indicates that some progress is being made in the area of cooperation between ONCF and other railway networks in Africa and elsewhere. The collaboration with Transgabon should be extended to other African railways and to other areas of railway operations. Likewise, efforts should be made to propagate the utilization of the technological capabilities existing in Morocco and the rest of North Africa, particularly with regard to spare parts and rolling stock.

VI. SUGGESTED ACTIONS TO EXPAND AND STRENGTHEN COOPERATION

139. Considerable scope remains for cooperation between African railways to be strengthened and expanded. In sum, this would involve the following measures:

140. Concerning raw materials, existing capacities in African countries should be utilized to support the development of small industries; in that connection, production costs should be compatible with the purchasing power of consumers in Africa.

141. Once established on this basis, dialogue will benefit all concerned, with regard to both the resultant economies of scale and sources of employment which are stimulants of progress for any economy.

142. Achieving the objective of reducing spare parts supply costs would be a possibility if, in addition to industrialization efforts, cooperation with some of the more technologically advanced countries of Asia, Latin America and the third World in general, were intensified and enhanced.

143. Regarding trade among African railways, practical modalities should be re-examined with a view to eliminating the drawback represented by the cost factor, and systematizing the pertinent transactions in all areas of railway operation, including feasibility studies at bilateral, subregional and regional levels.

144. Thus, assistance sought from developed countries will essentially be confined to the development of areas which African countries have not yet mastered, with particular attention being paid to the similarities in socio-economic conditions in Africa.

145. To this end, partnership with developed countries should be focused on facilitating the transfer of technology through the decentralization of some of the manufacturing units to African countries.

146. Not only would such a move encourage the desired transfer, but it would also contribute to the creation of employment, with positive results for socio-economic development.

147. The key to greater economic cooperation among African countries, in the context of integration, lies in comprehensive policy analysis, covering all aspects of transport and communications.

148. In that connection, a thorough diagnosis of each transport mode, focused on the potentialities of cooperation, should be followed by efforts to seek ways and means of actualizing those potentialities, proceeding from one transport subsector to another.

149. For African railways, the interlinked lines and networks are an ideal stepping-stone in the perspective of realizing the shared objectives of physical, economic and social integration.

150. To that end, consideration should be given to the following proposed courses of action:

(a) Consolidating the subregional dimension of railway transport and its important role in national development;

(b) Managing railway enterprises independently, according to principles and regulations applicable to other corporations of the transport sector;

(c) Conducting railway operations efficiently on a commercial basis by providing users with quality service at competitive prices;

(d) Fulfilling the public service role of railway transport, by means of cost sharing; and

(e) Ensuring a modicum of operational stability, and improving the self-financing capacity of the railways.

151. Accordingly, African countries should pledge to initiate efforts to improve the competitiveness of the transport sector and establish some coordination between railway and road transport to ease the way for fair economic competition between the two subsectors.

152. Thus, regulatory obstacles to competition could be gradually abolished. Recovery of costs for the use of infrastructure would be improved, this being the initial stage of a policy aimed at helping each transport mode ultimately recover recurrent costs of maintaining and replacing infrastructures.

153. As a rule, subregional cooperation should take the form of actions mentioned above to enable railway managers to benefit from the outcome of exchanges between railway corporations, and from subregional and regional cooperation generally.

154. If successfully undertaken as part of the development of international traffic, the actions recommended above should help strengthen the foundations of cooperation and promote appropriate initiatives for the intensification and consolidation of collaborative links in various domains of railway transport operations in Africa.

155. Sensitization and supervisory actions should be focused on ensuring that existing cooperation agreements are actualized and that a supervisory mechanism is established at several levels to oversee the implementation of the pertinent international agreements between governments and between railway corporations. Such a mechanism will facilitate timely detection of impediments to the application of the provisions so that corrective measures can be instituted.

156. Resistance to change is one of the obstacles to the expansion of cooperation. This necessitates the introduction of measures to change attitudes. In the rare cases where actions are initiated at various levels to this end, they are not always effective. More often than not, financial agreements and arrangements are not applied to the letter. To rectify the situation, it is imperative to put in place appropriate monitoring and follow-up mechanisms, to ensure accountability in the event of structural failure.

157. Regarding spare parts, there is no flow of information and each network operates in near isolation. Moreover, there does not appear to be much enthusiasm for exchanges, which might explain in part the non-dissemination of information. Sometimes, the rolling stock of a given corporation might grind to a halt due to lack of spare parts, while in the neighbouring country, the same parts are found in sufficient quantity, though often obsolete and set aside for modification. In that connection, regular publication of the list of available spare parts, or even inventories of equipment supply units within the same subregion or in countries using the same kind of equipment, would, through information dissemination, promote cooperation in this particular area which is a nerve centre of railway operations. A locomotive comprises several thousand components, and it would be in the interest of African railways to establish inventories of their equipment stock with a view to facilitating an exchange mechanism which would help alleviate shortages of rolling stock and other operational equipment.

158. Likewise, in view of the insignificant rate at which equipment components are manufactured locally, there is need to establish dynamic cooperation between railways to encourage domestic production, which already exists in certain countries, and the distribution of manufactured products, the cost prices of which are demonstrably lower than those of imported products. The time taken for the delivery of supplies, which may exceed six months in some cases, should also be reduced.

159. In view of this lacuna, dissemination of information on Africa's technical potentialities pertaining to the manufacture of spare parts and railway equipment will benefit all concerned.

160. Such information would acquaint railways with the continent's equipment supply capacity, and by obviating the need to have recourse to overseas sources, will help minimize procurement costs as well as delays in delivery and transportation.

161. Similar imperatives obtain with regard to track construction and maintenance. Through cooperation and interpenetration, interlinked railways can coordinate joint use of heavy-duty maintenance and reconstruction equipment, particularly for rehabilitation programmes.

162. In the case of separate railway systems, physical distance is a drawback, which means that, for the purposes of cooperation in equipment barter and machine leasing, profitability is a particularly relevant factor. Apart from transportation, cost comparisons as between the cost of acquiring new equipment and that of taking rehabilitated equipment on lease, must take into account the volume of operations, as well as the extensiveness of the workshops and their serviceability over time.

163. The foregoing indicates that the interconnection of railway lines is among the foremost conditions that can facilitate the strengthening of technical cooperation and the development of railway transport. The same applies to the development of international traffic, which is often impeded by cargo transfers at border points. The appropriate response consists in the complementarity of the various transport modes, including road transport -- in other words, multi-modal transport. Such cooperation amongst the various subsectors would help solve a number of problems that hinder the free flow of traffic and have a direct or indirect impact on service costs, promptitude in delivery, and quality in general. It is therefore essential to define objectives and priorities to pave the way for a dynamic south-south cooperation.

164. Ports often experience shortages of the rolling stock necessary for the transportation of goods to landlocked countries, while the railway systems of neighbouring countries have rolling stock lying unused for lack of traffic. Moreover, since the various networks do not have the same peak periods, cooperation would make for rational use of facilities and effective programming of actions that are part of railway transport operations.

165. Another area of interest is the joint use of specialized personnel and of training centres found in a number of countries. The creation of regional research-and- development centres would be another innovative approach.

166. Finance, an area in which cooperation is seldom viewed positively, has been rather overlooked in the context of cooperation actions.

167. In fact, the only form of cooperation normally established in this domain is north-south. All African railways, particularly south of the Sahara, depend on supplies from developed countries. A lot of difficulties arise from the fact that these railways systems are not in control of supply channels and that most of the equipment is not manufactured on the continent.

168. Efforts should therefore be made to find ways and means of comparing costs on a more extensive market. This should also apply to the issue of profitability in all new ventures.

169. Given that integration is the overriding objective, development - oriented decisions should guide all initiatives, for the purpose of expanding and strengthening cooperation among African railways.

170. The pertinent structures should be able to monitor north-south trade and bring down costs, which at present are rather exorbitant, to acceptable levels.

171. To this end, units for the manufacture of spare parts and light equipment should be established across the continent, with a view to promoting industrialization and reducing imports which are a drain on foreign exchange reserves.

172. The Union of African Railways (UAR) would, within this framework, play a pivotal role in coordinating the various actions necessary for the realization of those objectives.

173. Cooperation among African railways in the pursuit of cheaper alternatives is modest at the moment. Owing to the inadequacy of supporting information, cooperation, such as it is, is sporadic. Exchanges of experience regarding social rehabilitation in the context of railway-transport management restructuring programmes and the dissemination of results of research conducted in some African countries, might help strengthen south-south cooperation, which is a high-priority objective.

174. Regionally, human resource managers currently meet each year to exchange ideas on specific themes. These exchanges should extend to the harmonization of policies concerning the management of railway corporations under the auspices of UAR.

175. In addition to intra-African cooperation, where interconnection contributes to adaptation, efforts should be made to establish collaboration with other countries faced with development problems, on the basis of existing north-south cooperation mechanisms, which should now be modified if they are to be of any benefit and serve the interests of developed as well as developing countries.

176. Efforts have been made to establish cooperation with other developing countries that are more advanced technologically, such as India and Brazil. The possibility of such contacts yielding technologies adapted to appropriate conditions for African railways should be pursued.

177. To enhance the competitiveness of railway transport, it is imperative that, among other initiatives, concerted efforts be made to improve and modernize station infrastructure with a view to streamlining and enhancing management and the delivery of goods. Efforts should, likewise, be made to simplify customs procedures (such as by substituting the International Customs Declaration Form--the TIF form--with a railway manifest).

178. Reforms initiated as part of the restructuring process for the improvement of management should focus on the objectives defined by governments. These objectives essentially involve transforming railway transport into an efficient and autonomous commercial enterprise, the management of which can enable it to compete with other transport subsectors.

179. Ultimately, the cooperation among African railways and between the railway transport enterprises in the developing world, on the one hand, and those of the industrialized countries on the other, involving exchanges of experience in the areas outlined above, might mutually benefit all concerned. This is achievable through timely dissemination of information on the operations of the various enterprises and the convening of meetings among railway mangers in Africa.

180. Having conducted the evaluation cited above, railway officials observed that in their routine management chores, they did not always give adequate attention to the development of cooperation

among national railway transport enterprises, yet cooperation should, by virtue of its impact, help provide solutions in many aspects of railway operations.

181. The verdict is that a great deal remains to be done at all levels by officials of African railway enterprises and organizations, to advance cooperation and promote the concept of exchanges -- a concept that necessitates a change of attitudes.

182. A further observation, which has been stressed throughout this report, is that African railways are faced with broadly similar development imperatives.

183. African railways have reached a stage in their development where cooperation is crucial. For them to be able to stand up to the competition posed by other transport subsectors, they will have to pool their efforts and resources, and use these jointly through the exchange of spare parts and equipment as well as through harmonization and standardization.

184. Furthermore, various analyses indicate that at least 80 per cent of railway enterprises assets are fixed assets (land and buildings, machinery and equipment, etc.,); 8 to 10 per cent of supplies in stock are hardly assets, since, not being tangible assets, they cannot be stored; 15 per cent of the assets are not realizable.

185. If management efforts were to modify the 80 per cent proportions, it would no longer be possible to satisfy transport needs, hence the necessity to concentrate on private wagons and "private sidings".

186. Any modification in supply stocks in order to respond to other requirements would jeopardize the supply of spare parts. These impediments necessitate the standardization of supply mechanisms to ensure financial stability. It is important to bear in mind that, with a few exceptions, African railway systems are modest in size, in terms of both coverage and capacity.

187. The foregoing indicates that the development and expansion of cooperation in the railway transport sector, necessitates timely dissemination of pertinent information among railway enterprises, as well as the exchange of specialized personnel at various levels and in diverse areas of railway operations. Information exchanges on training programmes offered by various railway enterprises, the content of which should be adapted to the needs and priorities of each railway transport organization, would also contribute significantly to cooperation efforts.

188. Groupings of railways will facilitate the operation of compensation bureaux to develop intra-African international traffic. In this context, cooperation among industrialized countries can be strengthened if it is adapted to the railway transport environment in Africa.

189. Finally, it should be noted that, in various ongoing or envisaged interventions to expand and strengthen cooperation, transport operators, and particularly those in the railway transport subsector, should be guided by the law of minimum overall cost. Cooperation between railway systems which are not interconnected is, at present, virtually nonexistent.

VII. CONCLUSIONS AND RECOMMENDATIONS

190. To found, expand and strengthen cooperation in general terms, the following courses of action should be considered:

191. Creating procurement units for the joint procurement of supplies, and specialized subregional workshops for the maintenance of track and rolling stock might help realize economies of scale.

192. Given the similarities in the management problems afflicting most of the railways in sub-Saharan Africa, solutions to specific problems could, through dissemination of information across the continent, prove to be common solutions for African railways in general. The Union of African Railways could provide support in this context. Lack of cooperation has resulted in a situation where the findings of studies conducted in one country remain unknown to others which, being faced with the same problem, often undertake the same studies. If a regional railway transport data bank were established, it would go a long way towards helping find solutions to problems confronting railway managers.

193. As part of the effort to improve railway operation and management, railway enterprises should take advantage of the new environment created by the adoption by many governments of liberalization policies, so as to be able to operate on a commercial basis and be able to compete with other modes of transport.

194. Once consolidated, cooperation will facilitate consultations among managers of different railway enterprises and help harmonize their actions. The Cameroonian railway corporation's experience with staff retrenchment is of interest, because African railways can base their retrenchment programmes on it.

195. Considering African railways' modest supply and stock-building capacity, efforts should be made to pool resources in order to jointly acquire standardized equipment, which would facilitate the harmonization of African railways' equipment and technology to conditions. Joint procurement will facilitate the establishment of African standards, and create favourable conditions for the development of an African expertise based on the exchange of local experiences.

196. Regarding human resources development and in the context of diversification, the training centres should develop their capacities, establish research units, and market their services to railway enterprises.

197. The best approach for railway enterprises might be to adapt to the new economic environment in the sector, and to systematize exchanges as well as the dissemination of information on current capacities.

198. Regarding tenders, many African enterprises are at a disadvantage in the African markets, owing to inadequacies in capacity and experience.

199. The establishment of small-scale businesses managed along free-market principles should be encouraged to address those inadequacies and develop local production of spare parts and components. In addition, information regarding the production capacities of these enterprises

should be widely disseminated; some of them should be oriented to the subregional scale in order to promote sustainable development of large-scale production.

200. So far, the efforts that have been made in sub-Saharan African countries are inadequate.

201. Similarly, not much headway has been made in the area of cooperation between non-interlinked railway systems, except the subcontracting, in some cases, of maintenance engineering projects, and the acquisition of some traction engine components.

202. In the area of financing, a great deal remains to be done.

203. Given the environment in which African railways are operating, whereby the conditionalities for assistance from industrialized countries are numerous, it may become necessary for railways to orient themselves towards African institutions, particularly those in Northern and Southern Africa.

204. Such an orientation would counter-balance the situation of near-monopoly in which many African railways are operating. Financing from African industries which have the resources should be considered, to facilitate the acquisition of rolling stock and equipment. Such a process should lead to a new investment environment in Africa founded on cooperation among developing countries ("south-south" cooperation), and eventually, to a cooperation structure across the continent, relating to sources of financing. As already mentioned, a knowledge of existing capacities will facilitate the expansion of Africa's markets.

205. To coordinate and follow up the process of expanding cooperation, resources should be made available to UAR, which would have the mandate for that purpose, with the objectives clearly defined. UAR, a specialized regional organization, would be an ideal repository of information relating to cooperation among railway systems in Africa and with the rest of the world.

206. Faced with the increasingly rapid development of other modes of transport, the survival of railway corporations will also depend on the interaction with these transport subsectors. Since private enterprises have invested heavily in road transport, railways should endeavour to acquire composite material, in order to minimize interruptions en route, which raise costs and impede productivity.

207. Taking into account the fact that road transport interests are generally privately owned, while most enterprises are government-owned, the two transport subsectors would benefit by operating on a collaborative basis. Similarly, there should be operational linkages with the ports and cargo-handling enterprises, including forwarding agents, consignees, stevedores, supply shippers, customs officers and police and other security officers. Railway enterprises should endeavour to operate harmoniously within that overall structure in order to keep abreast of the needs, requirements and constraints of the subsector and improve its service delivery.

208. To enhance a clearer analysis of the competitivity of railway transport vis-à-vis other transport subsectors, African countries which have railway infrastructures should consider the feasibility of establishing a unit for monitoring costs.

209. In the area of financing, there is hardly any cooperation between the railways, especially between the subregional networks of West and Central Africa. Linkages with North Africa and Southern Africa are much more structured in this respect.

210. In fact, existing linkages basically involve technical and commercial operations in the subregions concerned. There is hardly any data on financial management and investment projects. Paradoxical as this may seem, data on African railways is more easily obtained abroad than in Africa.

211. This situation demonstrates the low level of cooperation among railway enterprises in Africa. Moreover, the situation is not attributable only to the problem of finance, because it could be extended to include other assets. It will be necessary, therefore, to fill this gap, strengthen cooperation and make it more dynamic, centralize data collection on railway operations in Africa and give it wide dissemination both within the continent and overseas.

212. The situation described above may be attributable to variations in systems of national accounting from one country to another. If so, the problem can be addressed through harmonization of the accounting systems. Here, however, the problem of variations in interpretation and approaches is bound to arise.

213. The railway systems of English-speaking countries follow broadly similar national accounting systems, and this has significant implications for cooperation among them. In that connection, it may be suggested that UAR derivation standards which are applicable to data originating from a multiplicity of sources should be adopted.

214. The present situation, none the less, is that financial and investment projections follow different accounting systems according to the country concerned. To harmonize these systems, the best approach might be to bring the pertinent accounting tasks under a single supervisory mechanism and that some measure of standardization be sought, within the context of regional cooperation, to enhance the comparability of data.

215. To this end, meetings between finance officials from different railway enterprises should lay the basis for fruitful cooperation, and provide a forum for management projections in a forward-looking perspective.

216. African railways could, in the spirit of "south-south" cooperation, benefit -- particularly in terms of costs -- from exchanges of specialists for various research assignments. To facilitate this approach, however, the existing African expertise in the subsector should be widely disseminated within the continent and among funding institutions.

217. The establishment of a railway databank managed by UAR and operating in collaboration with ECA's transport-sector databank, would also greatly contribute to the development and strengthening of cooperation among African railways, and between them and railways in other parts of the world.

218. In searching for ways and means of intensifying cooperation among African railways within the framework of south-south cooperation, financial management units should, on the basis of the

projected volume of international transactions, establish current accounts at the level of the corporation or enterprise. This proposition deserves further study.

219. Moreover, railway operations may even be financed through investment exchanges. Well-structured cooperation should allow for strengthening the foundations of a true platform of assistance and complementarity in the financial management of African railways.

220. Finally, for cooperation in railway transport to be effective, it should cover all areas of railway operations.

221. This necessitates a thorough study of all areas related to linkages between railway enterprises, to analyse the existing structures, highlight the structural weaknesses and assess the adequacy of mechanisms to facilitate the joint use of infrastructure, materials and equipment, and other facilities; on the basis of such a study, the parameters of cooperation in railway transport, in key areas of management and operations, can be defined.

222. The expansion and strengthening of south-south cooperation in this context, therefore, necessitates concerted action on the part of railway managers. As a preliminary step, a strong effort should be made to disseminate information regarding the capacities of Africa's railway enterprises in terms of equipment, rolling stock and workshops.

223. In the implementation of these processes, economic groupings and mechanisms for the joint use of railway facilities will be a distinct advantage.

224. In the light of existing constraints, however, rationalization of Africa's railway transport sector will necessitate the interlinking of the continent's railways. At present, physical distance between separate railway systems is a formidable handicap to international traffic, on which international movement of people and goods within the continent depends. Interlinkage will facilitate the establishment of specialized central workshops at the regional level, and the joint planning of investment in equipment and modernization of railway operations.

225. To expand and strengthen cooperation among developing countries in the railway transport subsector, action at subregional level should be focused on the formulation of framework agreements and final agreements between African railway enterprises to facilitate the joint utilization of human and material resources, and the intensification of research-and-development programmes to enhance the service delivery of railway enterprises in terms of reliability as well as quality.

SICF (COTE D'IVOIRE)

STATUS OF TRACTION FLEET TO 12/5/1995

SUMMARY

ORDER	TYPE OF EQUIPMENT	NO. OF PERSONNEL	ENGINES OUT OF SERVICE			ENGINES IN SERVICE	OPERATIONAL LEVEL %
			LONG TERM	SHORT TERM	TOTAL		
1	CC 2200	9	1	3	4	5	55.56
2	3B 1800	6	4	1	5	1	16.67
3	ZE 200	8	2	3	5	3	37.50
4	AA - BB S 200	24	12	5	17	7	29.16
5	DRAISINES	7	2	2	4	3	42.85
6	CRANES	2	0	0	0	2	100
GENERAL TOTAL		56	21	14	35	21	37.50

Source : Engineering and equipment unit.

SICF (COTE D'IVOIRE)

INVENTORY OF TRACTION STOCK
TO 20/4/1995

TYPE OF VEHICLE	FLEET PERSONNEL	AVAILABLE	UNAVAIL.	OBSER. ?	
1 UNOXIDIZABLE				% Hebdo H	% Hebbo. H41
1st Class	2	1	1		
2nd Class	18	4	14		
sleeping cars	2	1	1		
Restaurant cars	2	0	2		
TOTAL 1	**24**	**6**	**18**	**25%**	
2 VOITURE SOULE					
1st Class	3	0	3		
2nd Class	26	7	19		
Restaurant cars	1	1	0		
Sleeping cars	3	1	2		
Collector wagons	18	5	13		
TOTAL 2	**51**	**14**	**37**	**27%**	
3 WAGONS					
Covered wagons	314	178	136		
Flatwagons	136	93	43		
Car-carriers	10	2	8		
Tippers	62	32	30		
Tremmies	20	16	4		
Service wagons	25	15	10		
Wagons on lease	1	1	0		
"Private" tankers	94	53	41		
Service tankers	4	2	2		
TOTAL 3	**666**	**392**	**274**	**59%**	
TOTALS	**741**	**412**	**329**	**56%**	
					Le C.D.M.R

Source: Engineering and equipment unit.

SICF (COTE D'IVOIRE)

INVENTORY FOR 1993/94

No. of TRAINS	=	700	D = 395 U = 305
No. of WAGONS	=	17 814	D = 9071 U = 8743
GROSS TONNAGE	=	619.092 Tonnes	D = 410.146 Tonnes U = 208 946 Tonnes
NET TONNAGE	=	317.416 Tonnes	D = 257.097 Tonnes U = 60.319 Tonnes

D = DOWN LINE
U = UP LINE

Source : **Department of operations.**

SICF (COTE D'IVOIRE)

MONTH	Number of Trains		Number of wagons		Gross tonnage		Net Tonnage	
	Down line	Up line	Down line	Up line	Down line	Up line	Down line	Up line
October (1993)	30	22	683	559	30 140	12 976	18 846	3 349
November	20	20	545	563	20 854	14 687	11 708	5 387
December	32	24	772	685	32 353	17 665	19 539	6 115
January (1994)	32	26	732	762	33 145	17 747	21 013	4 913
February	39	24	890	751	38 605	18 174	23 498	5 471
March	44	30	950	908	45 466	23 014	29 484	7 096
April	40	29	893	828	40 910	20 418	25 974	6 528
May	32	26	732	749	34 894	19 200	21 902	7 201
June	31	26	744	729	39 834	21 004	20 326	8 663
July	30	30	672	822	30 221	17 194	18 742	3 281
August	29	21	654	617	31 268	11 804	20 124	1 069
September	36	27	804	770	39 456	15 063	25 941	1 246
TOTAL	395	305	9 071	8 743	417 146	208 946	257 097	60 319

Source: Department of Operations

SICF (COTE D'IVOIRE)
Department of Research and Planning

GOODS TRAFFIC BY TYPE

	1980		1981		1982		1983		1984		1985		1986		1987		1988	
	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)	Tons	TK (000)
DOMESTIC CI	195426	67537	163236	58616	121124	44052	150485	57043	147438	53537	168668	60432	272163	106681	ND	ND	ND	ND
CI on BF	376344	371130	398670	410469	462260	449773	363785	342588	338093	316370	355381	327788	301718	250999	ND	ND	ND	ND
BF on CI	154794	14762	157078	1132987	114702	98996	104691	96396	140458	128799	102390	94180	121730	101641	ND	ND	ND	ND
TOTAL INTERNATIONAL	531138	518692	553748	543456	576969	554492	468476	439584	478551	445189	457761	427761	421363	382540	ND	ND	ND	ND
DOMESTIC BF	20608	6876	15916	5565	6854	1879	4726	1406	2728	360	4999	1751	5463	1193	ND	ND	ND	ND
TOTAL	747172	593105	732900	607637	704947	60042	623637	498033	628717	499866	631423	484201	701087	490514	ND	ND	ND	ND

Source : Annual Reports.....

SICF (COTE D'IVOIRE)
DEPARTMENT OF RESEARCH AND PLANNING

INTERNATIONAL PASSENGER TRAFFIC

	NO. OF PASSENGERS (000)	PASSENGERS-kms (000 000)	SEATER-KMS (000 000)	REVENUE (000 000)	OCCUPANCY RATE (%)
1980	1155	878			
1981	863	650			
1982	694	532			
1983	901	652			
1984	789	580			
1985	953	629			
1986	731	521			
1987	494	349			
1988	441	308	484		63.6
1989	135	59	88	610	67.0
1990	333	140	242	1 469	57.9
1991	279	125	218	1 281	57.3
1992	262	119	216	1 247	55.1
1993	197	92	197	869	46.7
1994	152	74	138	770	53.6

NB: 1989-1994 SICF budget period
(skms and pkms achieved by the SICF network)

REVENUE = SICF SHARE

1989: First SICF budget period (4 months).

Source: Department of Research and Planning

SICF (COTE D'IVOIRE): RAILWAY OPERATIONS, 1991/94
DEPARTMENT OF RESEARCH AND PLANNING

TYPE	UNITS	1990/91	1991/92	1992/93	1993/94
FREIGHT TRAFFIC					
VOLUME	10.3T				
-DOMESTIC CL		141	147	61	93
-INTERNATIONAL		347	337	231	197
-TOTAL		488	484	292	290
TRAFFIC IN TK	10.6TK				
- DOMESTIC CL		1 043	1 038	467	961
-INTERNATIONAL		220	215	145	126
-TOTAL		272	266	168	156
REVENUE	10.6CFAF				
-DOMESTIC CL		1 043	1 038	467	961
-INTERNATIONAL		4 333	4 060	2 684	2 285
-TOTAL		5 376	5 098	3 151	3 246
AVERAGE DISTANCE	KM				
-DOMESTIC CI		368.8	346.9	377.0	322.6
-INTERNATIONAL		634.0	638.0	627.7	639.6
- OVERALL		557.4	549.6	575.3	537.9
REVENUE PER UNIT	CFAF/TK				
-DOMESTIC CI		20.1	20.4	20.3	32.0
-INTERNATIONAL		19.7	18.9	18.5	18.1
-OVERALL		19.8	19.2	18.8	20.8
PASSENGER TRAFFIC					
VOLUME	10.3V				
-DOMESTIC CI		647	557	547	605
-INTERNATIONAL		279	262	197	152
-TOTAL		926	820	744	757
TRAFFIC IN VK	10.6VK				
- DOMESTIC CI		74	70	81	92
-INTERNATIONAL		125	119	92	74
-TOTAL		926	820	744	757
REVENUE	10.6CFAF				
-DOMESTIC CL		785	712	763	891
-INTERNATIONAL		1 281	1 247	869	770
-TOTAL		2 016	1 959	1 632	1 661
AVERAGE DISTANCE	RM				
-DOMESTIC CL		114.4	125.7	148.1	152.1
-INTERNATIONAL		448.0	454.2	467.0	486.8
-OVERALL		214.9	230.5	232.5	219.3
REVENUE PER UNIT	CFAF/VK				
-DOMESTIC CL		9.9	10.2	9.4	9.7
-INTERNATIONAL		10.2	10.5	9.4	10.4
-OVERALL		10.1	10.4	9.4	10.0

NB: 1993/94 : PROVISIONAL RESULTS OVER 11 MONTHS
PKMS AND TKMS : PERFORMANCE OF THE SICF NETWORK : SICF SHARE

Source : Department of Research and Planning

SCFB (BURKINA FASO) RAILWAY COMPANY

DEPARTMENT OF RESEARCH AND PLANNING

December 1994

INVENTORY OF TRACTIVE ENGINES

ENGINES	Service personnel	Unit power	Total power	Total stroke engines	Available				Unavailable				Equivalence		Distance	Consumption			
					product. hours	unprod. total	Total Hours	%	Operation period	accident repairs	Total Hours	%	in CV	in engines	(000 Km)	Gas-oil		Oil	
																Qty.KL.	Av./Km	Qty.1	Av./000
GM 2200	11	2.250	24.750	8.184	4.419		4.419	54			3.765	46	13.364	6	104.70	206.40	1.97	8,097.00	7.73
ZE 200	6	950	5.700	4.464	0		0	0			4.464	100	0	0	0.00	5.51	0.92	351.00	58.50
BBB 1800	1	1.650	1.650	744	0		0	0			744	100	0	0					
LOCOTRAC	17	524	8.908	12.648	4.360		4.360	34			8.288	66	3.071	6		8.82		696.00	
DRAISINES	6	185	1.110	4.464	714		714	16			3.750	84	178	1		0.00			

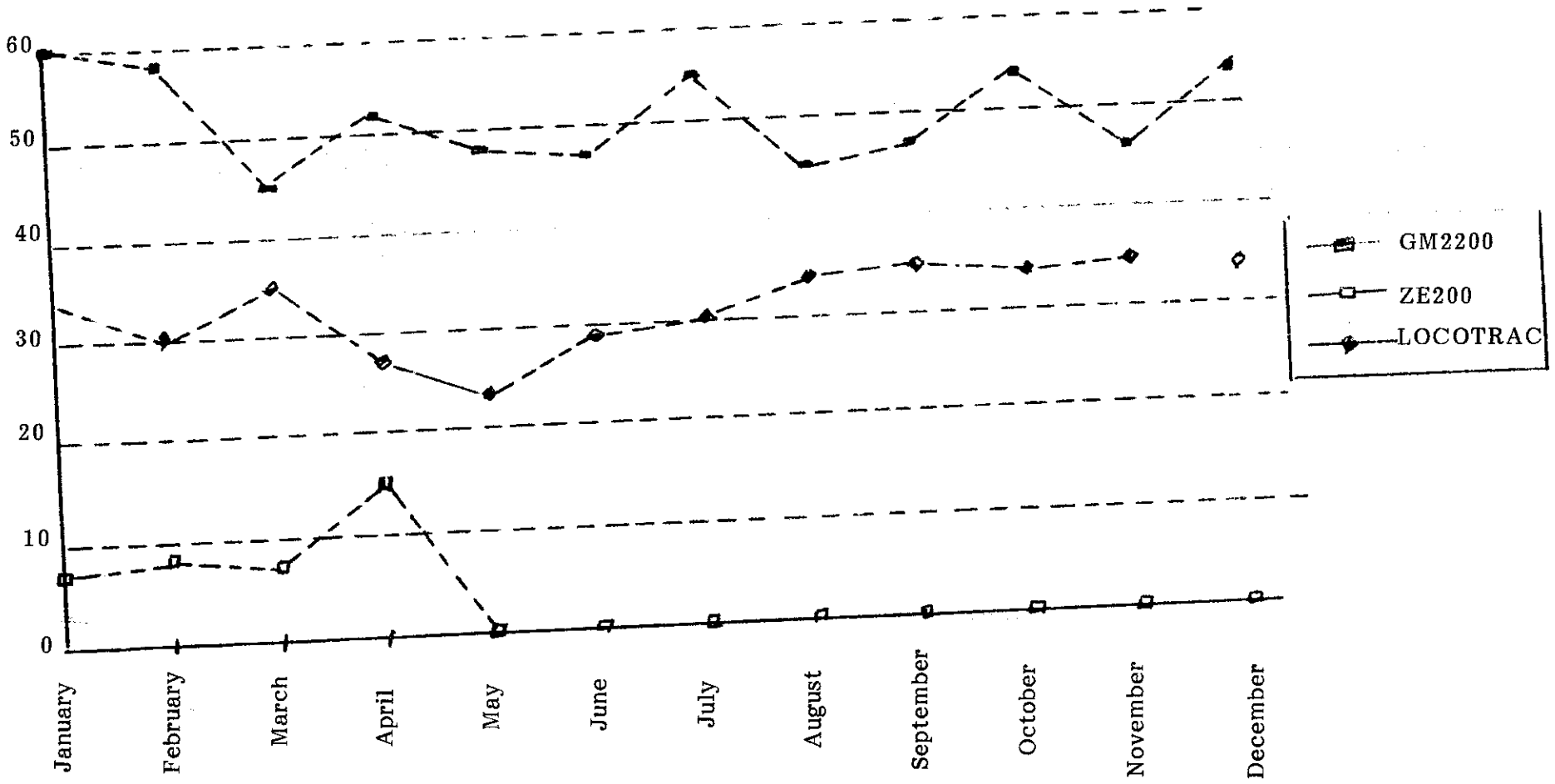
Consumption by ZE 200 is relative: More is consumed by wagons than by tractive engines :the ratio for ZE 200 shown above is the average per engine

Source : **Department of Research and Planning**

SCFB (Burkina Faso)

RESEARCH AND PLANNING DEPARTMENT

ENGINES AVAILABLE, BY TYPE (%)



Source : Research and planning department

SCF (BURKINA FASO) RAILWAY COMPANY

DECEMBER 1994

DEPARTMENT OF RESEARCH AND PLANNING

AVAILABILITY OF TRAILER STOCK

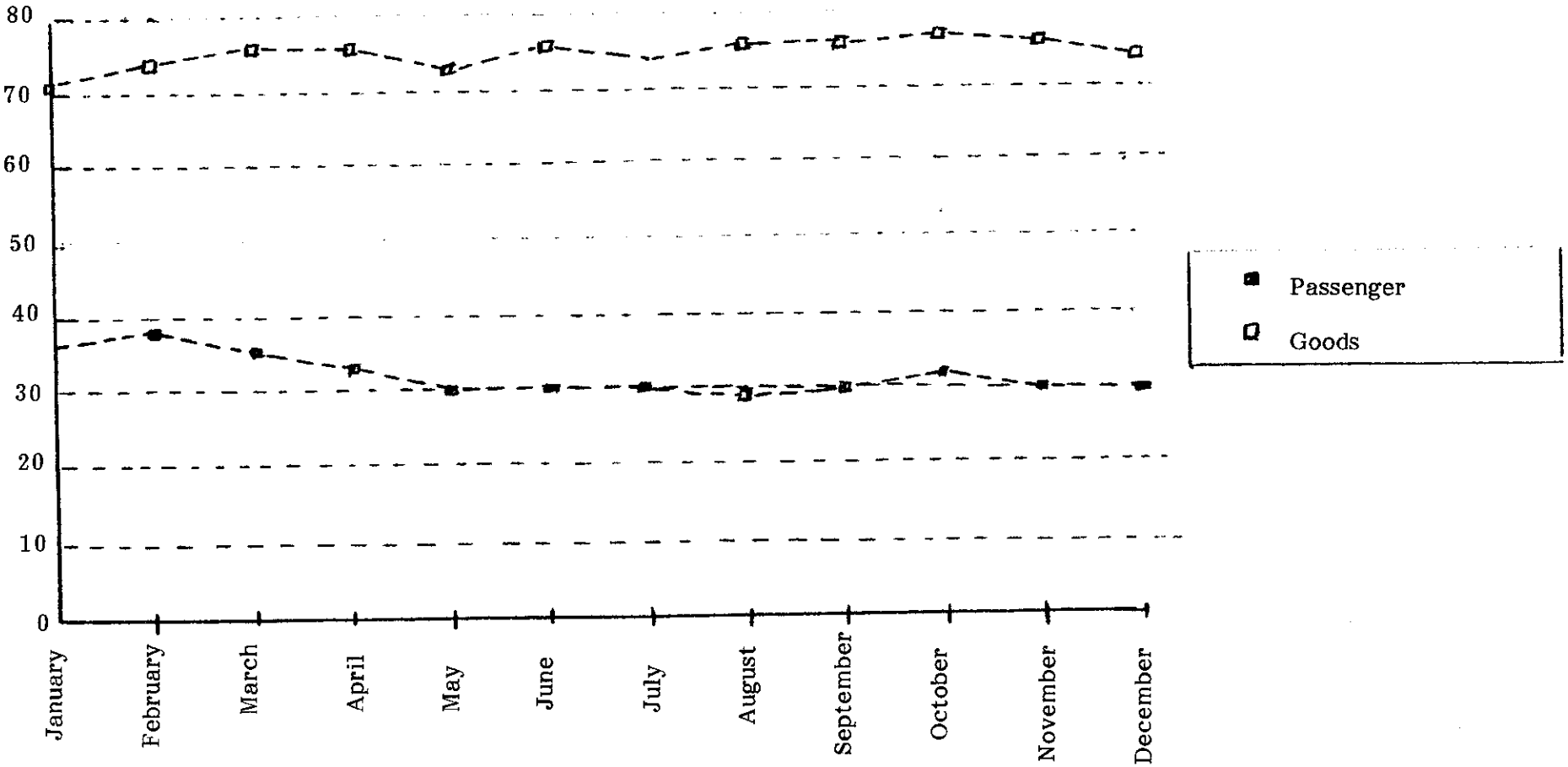
	PERSONNEL		Available	Available
	Fleet	Out of action	in number	in %
Passenger stock				
Coaches 1st class	4	2	2	50
Compartments 1st class	6	3	3	50
Sleeping cars	5	3	2	40
Restaurant cars	3	3	0	0
Total	18	11	7	39
Coaches 2nd class	48	35	13	27
Total 2nd class	48	35	13	27
Total passenger stock	**66**	**46**	**20**	**30**
Goods stock				
Pool				
Covered wagons	200	73	127	64
Flatwagons	74	5	69	93
Open wagons	50	5	45	90
Total Pool	324	83	241	74
Outside the Pool				
Covered wagons				
Flat wagons				
Open wagons				
Total outside the pool				
Total goods stock	324	83	241	74
Total pass. + goods	390	129	261	67

Source: Department of Research and Planning

SCFB (Burkina Faso)

RESEARCH AND PLANNING DEPARTMENT

ROLLING STOCK (PASSENGER / GOODS CARRIAGE) AVAILABLE (%)



Source: Research and planning department

SCFB (BURKINA FASO)
DEPARTMENT OF RESEARCH AND PLANNING

TRAFFIC EXPANSION IN 1994

CATEGORIES	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Gross tonnage (thousands)	33.96	30.20	45.18	41.54	39.46	41.05	33.50	27.55	40.62	30.63	35.39	29.49	428.57
Gross tonnage (millions)	11.88	10.57	15.81	14.54	13.81	14.37	11.73	9.64	14.22	10.72	12.39	10.32	150.00
Net tonnage (thousands)	16.92	15.88	26.62	23.17	22.56	23.17	17.13	14.19	20.85	13.15	16.81	15.16	225.41
Net tonnage-Km (millions)	6.33	6.05	7.71	6.97	7.85	8.32	7.24	5.54	7.98	5.36	4.66	5.33	79.32
No.of passengers (millions)	50.01	54.38	60.07	61.07	62.61	57.5	70.51	69.5	72.73	59.53	51.39	73.50	743.10
Passenger-km (millions)	12.30	13.84	14.82	15.16	15.48	15.03	18.96	18.15	18.39	14.97	13.37	18.84	189.31
Physical turnaround													
Ouaga-Abidjan-Ouaga	40.18	40.97	42.48	36.66	41.47	42.69	37.48	48.58	44.50	47.43	45.43	43.64	42.64
Wagon pool journey (in days):													
In Côte d'Ivoire	15.634	11.301	16.072	12.004	10.479	12.955	8.975	10.495	12.833	8.472	11.122	10.885	141.227
To Burkina	6.699	5.399	6.192	5.928	9.093	8.347	9.300	6.109	7.452	7.893	5.563	7.378	85.853
Accumulated train delays													
Upon arrival:													
National	61 h 02	84 h 19	121 h 57	187 h 48	154 h 06	107 h 55	124 h 42	202 h 27	178 h 01	164 h 52	238 h 18	189 h 29	1814 h 56
International even units	148 h 20	129 h 50	139 h 21	123 h 00	126 h 33	115 h 50	95 h 05	111 h 40	93 h 40	80 h 53	80 h 53	100 h 43	1277 h 39
International odd units	203 h 43	205 h 33	208 h 19	172 h 01	257 h 31	205 h 45	203 h 54	37 h 17	246 h 17	45 h 10	222 h 33	204 h 50	2213 h 16
Accumulated train delays													
Upon departure:													
National	05 h 07	12 h 08	31 h 41	61 h 17	82 h 01	30 h 13	41 h 13	70 h 11	61 h 28	45 h 19	84 h 11	64 h 09	588 h 59
International even units	109 h 41	83 h 09	95 h 08	64 h 57	82 h 41	72 h 00	68 h 04	205 h 57	63 h 47	199 h 52	47 h 22	40 h 11	1132 h 59
International odd units	170 h 33	173 h 14	176 h 12	133 h 00	173 h 52	158 h 46	139 h 55	136 h 33	169 h 46	164 h 13	169 h 49	169 h 38	1935 h 31

Source : Department of Research and Planning

SCFB (BURKINA FASO)

CONDITION OF LOCOMOTIVES AS AT 7 - 04 - 95

Order No.	Vehicle No.	Date of entry into service	E T A T	
			In service	Out of service
1	7cc-2201	16-06-79		26-06-91
2	7cc-2205	15-06-79	X	
3	7cc-2207	15-0679		31-01-95
4	7cc-2208	11-07-79	X	
5	7cc-2211	25-07-79		26-11-92
6	7cc-2213	25-07-79		27-07-91
7	7cc-2216	18-07-79	X	
8	7cc-2218	19-07-79	X	
9	7cc-2220	8-01-82	X	
10	7cc-2222	8-01-82	X	
11	7cc-2225	31-12-81	X	

Source : **Research and Planning Dept.**

SCFB (BURKINA FASO)

CONDITION OF RAILWAY ENGINES AS AT 7 - 04 - 95

Order No.	No. Vehicle	Date of entry into service	CONDITION	
			In service	Out of service
1	7 ZE 212	10-03-77	X	
2	7 ZE 214	25-02-78	X	
3	7 ZE 217	10-06-78		19-12-91
4	7 ZE 219	12-09-78		-06-88
5	7 ZE 224	13-03-80		29-11-94
6	7 ZE 227	-08-80	X	

Source : Stock and equipment department

SCFB (BURKINA FASO)

CONDITION OF LOCOTRACTORS AS AT 7 - 04 - 95.

Order No.	No. of Vehicle	Date of entry into service	CONDITION	
			In service	Out of service
1	7 AA 108	21-07-79		28-04-93
2	7 AA 111	6-07-79	X	
3	7 AA 113	6-07-79	X	
4	7 AA 115	6-07-79		
5	7 AA 117	6-07-79	X	
6	7 AA 119	1-10-79		18-04-91
7	7 AA 120	29-02-80		11-10-90
8	7 AA 122	29-02-80	X	
9	7 BB 150	30-70-79		-11-82
10	7 BB 152	14-08-79		-06-83
11	7 BB 156	25-03-83		21-01-91
12	7 BB 157	16-03-83		-03-89
13	7 BB 159	17-03-83	X	
14	7 BB 162	17-03-83		15-09-90

Source : Stock and Equipment Department

SCFB (BURKINA FASO)

INVENTORY OF TRACTION EQUIPMENT

TYPE	NUMBER	Observations
Covered	363	
Flat	132	
Open	104	
Tremmies	31	
Service	31	
On lease	4	
Car carrier	10	
Special	85	KLINKE CIMAT transport
Tanks	9	
Collector wagons	12	
TOTAL No. WAGONS	**781**	
Coach 1st class (unox.)	3	
2nd class (uox.)	20	Including those that are repairable
Sleeping berths	3	
Restaurant car (unox.)	3	
1st class Bar	1	
2nd class Bar	28	
Sleeping/Bar	2	
Restaurant/Bar	0	
Grill/Bar		
Generator wagons	2	
TOTAL No. OF COACHES	**62**	

Source : Engineering Department

SCFB (BURKINA FASO)

CONDITION OF DRAISINES AS AT 7 - 04 - 95

Order no.	Vehicle no.	Date of entry into service	Condition	
			In service	Out of service
1	7 SZ 952	2-07-80		24-05-91
2	7 SZ 954	11-08-80		19-05-93
3	7 SZ 981			28-09-92
4	7 SZ 984	28-02-70	X	
5	7 SZ 990	16-06-80		15-06-93
6	7 SZ 992	5-07-80		17-07-90

Source: Engineering Department

SCFB (BURKINA FASO)
DEPARTMENT OF INFRASTRUCTURE (TRACK AND BUILDINGS)
May 1995

1. **Composition of the installations and general characteristics**

Metric rail guage 1,000 m

Fittings = rail 30kg, metal sleepers or monobloc prestressed concrete, or double-blocked reinforced concrete.

Speed 1500 sleepers/km

Track lengths

PK border Côte d'Ivoire to Ouaga	517 km
Ouaga to Kaya	104 km
TOTAL	**621 km**
Welded tracks	433 km
Unwelded tracks	128 km

Other general characteristics

Slopes (d) $0‰ \leq d \leq 10‰$
Curves $500m \leq Rayon \leq 1000m$

ballast Mostly granite
Sandstone in a few parts
The ballast on the main track is still quite insufficient (300l to 800l per metre)

Civil Engineering works

channels and vents (width $\leq 2m$)	number	573
bridges on wrapped beams	number	82
arched bridges	number	29
reinforced concrete bridges	number	24
metal platform bridges (width ranging from 10 to 60m)	number	27

Level crossings number 14 guarded and 62 unguarded	76
Track machinery (simple two-track branch lines)	
11° ≤ tangential to ≤ 13°	
Main track devices	112
Secondary devices on service routes or branch lines	90
Speed of operations	
Fast trains	90km/h
Other passenger trains	80km/h
Goods	70km/h

2. **Track maintenance** (routes and engineering works)

Maintenance works are followed up on the basis of annual programmes called the Programme Calendar. This Programme schedules and prescribes maintenance of work by station (district) at a specified location and within a specified timeframe.

The coverage of the Programme Calendar for essential assignments is 60 per cent, with a peak of 200 per cent in the case of delays and for administrative purposes.

Track maintenance is complex, due both to obsolescence in production tools and faulty logistics (transport of maintenance crews). In fact, todate, for 621 kms, SCFB has only 2 transport vehicles, 1 locotractor and 0 draisine.

Source : **Maintenance Department**

RCFM
MALI

I. INVENTORY OF RAILWAY ENGINES

The following types of railway engines were available:

-	1 loco tractor	BB 500	operational
-	4 locos	BB 800	operational
-	4 locos	BB 1100	(of which, 2 operational)
-	6 locos	CC 1600	(of which, 3 operational)
-	10 locos	CC 2200	(of which, 9 operational)
-	3 locos 2400	Alsthom	(of which, 1 operational)
-	5 ZM 100		(of which, none operational)
-	2 ZE 150		(of which, none operational)

II. INVENTORY OF TRAILERS

- Passenger carriers

Breakdown of the fleet of trailers (68 in all):

-	1st class cars	=	13
-	2nd class cars	=	26
-	Bar/Restaurant coaches	=	3
-	Sleeping cars	=	5
-	Misc. messages & services	=	15
-	Wagons	=	26

- Goods carriers

The 381 operational wagons comprised :

-	Covered wagons	=	183
-	"Tippers" and platforms	=	116
-	Tankers	=	47
-	Service wagons	=	35

Source : **Mechanical engineering unit**

RCFM
MALI

Mali's national railway corporation earned FCFA 13.26 million profit over the first ten months of 1993.

III. VOLUME OF OPERATIONS

As at 31/10/1993, the corporation's turnover since the beginning of the year stood at FCFA 6080.92 million, as against FCFA 6112.17 million realized over the same period in 1992 (the projected figure having been FCFA 7423.53 million). the ratio of the actual vis-à-vis the projected turnover was 81.91 per cent, i.e. below the level attained during 1992. A breakdown of RCFM's turnover (by category of traffic) is contained in the following table:

Period	1993 to 31 Oct.	%	BUD. Proj.	%	1992 to 31 Oct.	%
PASSENGER & LUGGAGE	1694.88	27.9	2088.56	28.14	1787.27	29.2
GOODS	4209.8	69.2	5034.32	67.81	4262.34	69.8
VARIOUS MERCHANDISE	176.17	1.8	300.64	4.03	62.24	1.0
TOTAL	6080.92	100	7423.52	100	6112.17	100

Source : Mechanical engineering unit.

RCFM
MALI

IV. ENGINE STOCK

CURRENT MAINTENANCE (PERIODIC INSPECTIONS) ENGINE FLEET STATISTICS

MONTH	MILEAGE KM	INSPECTIONS		NO. DISTRESS SIGNALS	NO. OF ACCIDENT INSPECT.	AVAILABILITY	
		Carried out	%			CL %	BM %
JANUARY	122 286	8	57.14	11	19	44.86	72.01
FEBRUARY	107 410	9	64.28	7	21	44.23	70.84
MARCH	112 818	8	57.14	12	25	43.49	69.09
APRIL	113 165	11	87.92	10	32	44.28	67.39
MAY	115 666	10	45.12	11	22	45.56	69.33
JUNE	114 013	14	83.88	13	16	46.89	74.59
JULY	117 960	8	52.27	7	35	44.31	70.49
AUGUST	103 057	9	57.50	5	34	49.38	78.56
TOTAL	905 975	77	63.08	76	204	45.37	71.53

- Inspections were carried out 63.08 per cent, compared to 70.83 per cent in 1992.
- BM availability = 71.53 per cent, compared to 74.40 per cent in 1992.

These differing performances were due basically to technical problems and to delayed supplies which in turn set back the 1993 maintenance programme for the fourth quarter.

Source : **Technical Department.**

RCFM
MALI

V. TRAILER STOCK

- CURRENT MAINTENANCE (INSPECTIONS)

Statistical Report on Trailer Stock

MONTH	ACTIVITIES CMD.TS		TSD/KCW ACTIVITIES KAYES WORKSHOPS				DERAIL-MENTS	AVAILABILITY %		
	WAGONS RCFM	WAGONS SNCS	Inspections		RA			PASS.	FREIGHT	FR. FLEET
			P	F	P	F				
JANUARY	137	168	2	20	25	9	5	78.19	93.62	85.90
FEBRUARY	133	161	-	13	18	5	3	78.37	92.46	85.41
MARCH	97	178	-	10	30	4	5	76.92	91.72	84.32
APRIL	152	156	1	9	27	6	5	74.64	92.71	83.67
MAY	109	214	1	5	20	3	8	75	92.35	83.67
JUNE	86	67	-	9	25	2	7	68.78	95.31	82.04
JULY	116	40	-	12	23	5	4	67.90	96.13	82.01
AUGUST	151	48	-	12	21	7	4	75.24	93.68	84.46
TOTAL	981	1032	4	90	189	41	41	74.38	93.49	83.93

INSPECTIONS

PASSENGER FLEET		FREIGHT FLEET			
PO Projected	= 9	PO Projected	= 111	AR Wagons	= 41
PO Achieved	= 4	PO Achieved	= 90	AR Coaches	= 189
Achievement rate	= 44.4 %	Achievement rate	= 81 %	TOTAL AR	= 230

This low achievement rate for the passenger fleet is explained by the problems of workshop fees owed to AR for this stock (damaged through lack of proper care on the part of users).

Fleet availability = 83.93 per cent, as against 85 per cent projected.

ABBREVIATIONS :

PO = Periodic operations
AR = Accident Repairs
TS = Trailer Stock
TSD/CKW = Trailer Stock Division/Central KAYES Workshop
CMD TS = TS Current maintenance Division

Source : **Technical Department**

RCFM
MALI

VI. RCFM/SNCS: "POOL" WAGONS

Wagons	Flats	Covered	Tanks	Tippers	Total
SNCS	157	223	65	83	528
RCFM	112	161	49	32	354
Total	269	384	114	115	882

Source: Engineering Department

RCFM
MALI

VII. RCFM. PASSENGER TRAFFIC 1987-1992

PASSENGERS	1987	1988	1989	1990	1991	1992
1. Number						
Domestic	745153	725761	791163	851606	736700	926000
International	82398	74601	70513	78355	71115	80800
TOTAL	827551	800362	861676	929961	807815	1006800
2. In %, 1987 = 100						
Domestic	100.0%	97.4%	106.2%	114.3%	98.9%	124.3%
International	100.0%	90.5%	85.6%	95.1%	86.3%	98.1%
TOTAL	100.0%	96.7%	104.1%	112.4%	97.6%	121.7%

Source : **Technical Department**

RCFM
MALI

VIII. RCFM. FREIGHT TRANSPORT 1987-1992

FREIGHT	1987	1988	1989	1990	1991	1992
1. Tons						
IMPORT	274310	296790	365140	331080	353130	369500
Hydrocarbons	62880	50750	53460	58610	46790	47300
Containers	39970	57270	68860	96950	86870	95600
EXPORT	80600	80080	97940	104170	87770	92700
Domestic and Retail	76526	72929	80518	94273	94108	110386
TOTAL	431436	449799	543598	529528	535003	572586
2. In %. 1987=100						
IMPORT	100.0%	108.2%	133.1%	120.7%	128.7%	134.7%
Hydrocarbons	100.0%	80.7%	85.0%	93.2%	74.4%	75.2%
Containers	100.0%	143.3%	172.3%	242.6%	217.3%	239.2%
EXPORT	100.0%	99.4%	121.5%	129.2%	108.9%	115.0%
Domestic and Retail	100.0%	95.3%	105.2%	123.2%	123.0%	144.2%
TOTAL	100.0%	104.3%	126.0%	122.7%	124.0%	132.7%

Source: RCFM. Statistical Reports 1992: Extracted from first semester x 2

NATIONAL RAILWAY COMPANY OF SENEGAL

DEPARTMENT OF STOCK AND EQUIPMENT

STOCK DEVELOPMENT SINCE 1984

ENGINE STOCK

1984 to 1986

5 BB 110
3 BB 1200
10 BB 1600
3 CC 1700
2 CC 2400 GM
2 ZE 131 (rail cars)

1987

5 BB 110
3 BB 1200
10 BB 1600
3 CC 1700
2 CC 2000 (acquisition of 2 CC 2000)
6 CC 2400 GM (acquisition of 4 CC FM)
2 ZE 131 (engines)
4 ZE 140 (acquisition of 4 rail cars)

no new acquisition since 1987

Status of fleet in 1995

-3 BB 1100 (2 repaired)
-3 BB 1200
-10 BB 1600 (6 allocated to PTB)
-3 CC 1700
-2 CC 2000
-6 CC 2400 GM

Total of 25 locomotives

Source : Engineering Department

SOCIETE NATIONALE DE CHEMINS DE FER DU SENEGAL
(SENEGAL NATIONAL RAILWAY CORPORATION)

TRACTIVE STOCK

PASSENGER STOCK

This fleet has not expanded since 1984,
except for acquisition of B 10 t cars and Mistral coaches down graded from SNCF.

GOODS STOCK

83/84	personnel	=	688
84/85	"	=	691
85/86	"	=	729 (acquisition of 38 kv)
86/87	"	=	659 (reconditioning of 70 wagons)
87/88	"	=	837 (acquisition of 110 Danish wagons + 60 Canadian wagons)
88/89	"	=	826 (reconditioning of 11 wagons)
89/90	"	=	774 (reconditioning of 52 wagons)
1991	"	=	772 (reconditioning of 2 wagons)
1992	"	=	702 (reconditioning of 70 wagons)
1993	"	=	702
1994	"	=	702
1995	"	=	702

Source : **Department of Stock and Equipment**

SOCIETE NATIONALE DE CHEMINS DE FER DUE SENEGAL
(SENEGAL NATIONAL RAILWAYS CORPORATION)

PASSENGER AND GOODS TRAFFIC
as at 24/02/1995

1970-1994 Budget period

STATE.WKL

	DOMESTIC				INTERNATIONAL				TOTAL (Y/C PTB & SEFICS)				PRIVATE TRAFFIC			
	PASSENGER		GOODS		PASSENGER		GOODS		PASSENGER		GOODS		P T B		SEFICS	
	PASS.	PK (000)	T	TK (000)	PASS	PK (000)	T	TK (000)	PASS.	PK (000)	T	TK (000)	P	PK (000)	T	TK (000)
70/71	2795000	226073	1479000	181600	46000	20899	228000	140604	2841000	246972	1707000	322204	0	0	0	0
71/72	2715000	220007	1649000	204070	45000	21300	205111	116319	2760000	241307	1854111	320389	0	0	0	0
72/73	2399000	202200	1675948	214093	51000	24900	229352	141826	2450000	227100	1905300	355919	0	0	0	0
73/74	2215000	186700	1599670	198846	66000	33500	303282	189588	2281000	220200	1902952	388434	0	0	0	0
74/75	1830000	166200	1634503	204105	54000	27000	251223	155771	1884000	193200	1885726	359876	0	0	0	0
75/76	1791445	157708	1357847	166895	59314	28506	263620	166655	1850759	186214	1621467	333550	0	0	0	0
76/77	1691727	158704	1324503	161524	46142	22874	239477	146997	1737869	181578	1563980	308521	0	0	0	0
77/78	1394467	125627	1468144	176557	54327	27172	285648	176450	1448794	152799	1753792	353007	0	0	0	0
78/79	1003053	111662	1423615	170233	51016	26097	227079	138070	1054069	137759	1650694	308303	0	0	0	0
79/80	687722	76817	1465865	174342	43581	23061	214751	133459	731303	99878	1680616	307801	0	0	0	0
80/81	783631	85844	1319559	153000	37118	19428	229177	138963	820749	105272	1548736	291963	0	0	0	0
81/82	806852	87796	1273753	150402	41175	20699	226104	145385	848027	108495	1499857	295787	0	0	0	0
82/83	472003	54672	1685062	192752	38325	19668	250716	151049	510328	74340	1935778	343801	0	0	0	0
83/84	315233	54609	1586418	174516	27921	14266	337532	207126	343154	68875	2071950	393187	0	0	148000	11545
84/85	229329	30483	1502491	161560	49929	25364	485485	300764	279258	55847	2364976	49733	0	0	377000	29409
85/86	270986	35770	1646889	176217	56634	28572	441251	273360	327620	64342	2592140	433393	0	0	504000	39316
86/87	394940	52596	1751738	231229	62377	31470	353836	219378	457317	83966	2611574	490079	0	0	506000	39472
87/88	713692	94207	1812613	239265	65767	33179	308292	191141	1879459	139486	2733905	478225	1100000	12100	613000	47819
88/89	655704	86553	1834918	242209	67109	33857	400221	248137	2782813	143070	2808139	535045	2060000	22660	573000	44699
89/90	652600	84556	1923857	255127	102561	51688	471839	290159	4997671	182994	3264265	612104	4242510	46750	859569	66818
1991	468050	76707	1502085	159750	93590	46889	404081	248481	5056045	173034	2890044	484982	4494405	49438	983878	76751
1992	406691	54025	1334089	141056	92685	46714	427643	262960	4413352	168757	2664746	474459	3913976	68018	903014	70443
1993	193508	26060	1049103	1101054	77073	38844	349880	215145	3670949	139712	2262134	392632	3400368	74808	863151	67333
1994	260439	34743	757551	79545	71388	35980	369226	227036	5241248	178730	2144388	385964	4909421	108007	1017611	79383

Source : **Operations department**

SOCIETE NATIONALE DE CHEMINS DE FER DU SENEGAL
(SENEGAL'S NATIONAL RAILWAYS CORPORATION)

CARRYING CAPACITY (GOODS)

TYPE OF WAGONS	CAPACITY	STAFF	TOTAL CAPACITY	REMARKS
Platforms	**In tons**		**In tons**	
	8	2	16	
	30	35	1050	
	35	47	1645	
	40	76	3040	
	45	30	1350	
	50	2	100	
TOTAL PLATFORMS		192	7201	
TIPPERS				
	30	46	1380	
	35	17	595	
	40	57	2280	
TOTAL T		120	4255	
COVERED				
	25	2	50	
	30	45	1350	
	35	70	2450	
	40	110	4400	
TOTAL K		**227**	**8250**	
COVERED BULK				
	30	65	1950	
	35	47	1645	
	40	38	1520	
TOTAL PK		**150**	**5115**	
TOTAL WAGONS		**689**	**24821**	
TANKERS	**EN M3**		**EN M3**	
	25	2	50	
	30	1	30	
	40	2	80	
	41	2	82	
	46	2	276	
TOTAL TANKERS		13	518	
TOTAL W + H		702		

Source : **Operations department**

SOCIETE NATIONALE DE CHEMINS DE FER DU SENEGAL
(SENEGAL'S NATIONAL RAILWAYS CORPORATION)

GOODS TRAFFIC: FLUCTUATIONS IN VOLUME AND CAPACITY

PERIOD	83/84	84/85	85/86	86/87	87/88	88/89	89/90	91	92	93	TOTAL	AVERAGE 10 Years
Capacity												
SNCS	23693	23800	25320	23220	28594	2800	26331	26286	24821	24821	254886	25489
Private	9707	11700	12914	12480	10182	1000	11669	11714	11714	11714	113860	11386
TOTAL	33400	35500	38300	35700	38776	3800	3800	3800	36535	36535	368746	36875
Staff												
SNCS	688	691	729	659	837	826	774	772	702	702	11380	738
Private	250	300	330	353	354	354	354	367	377	377	3416	342
TOTAL	938	991	1059	1012	1191	1180	1128	1139	1079	1079	10796	1080

Source : **Operations department**

SNCF (SENEGAL)

PASSENGER FLEET CAPACITY

Type of vehicle	Personnel	Number of bunks/car	Number of seats/car	Total no. of bunks	Total seating	Remarks
EXPRESS						
1030105 to 107	3	20	0	60	0	
1030101	1	16	0	16	0	
1030111	1	12	10	12	10	1st class
1031126 to 127	2	0	80	0	160	1st class
1031123 to 125	3	0	62	0	186	1st class
1032131 to 137	7	0	88	0	616	2nd class
1032141 to 146	3	0	88	0	264	2nd class
1035161 to 163	2	0	80	0	160	1st cl restaurant
1041181 to 189	7	0	0	0	0	
Total Express	29			88	1396	
PTB						
1032212 to 225	24	0	54	0	1296	2nd class
1033202 to 205	4	0	46	0	184	2nd class
1032161 to 168	8	0	80	0	640	2nd class
Total PTB	36				2120	
TRAILERS						
1041441	1	0	50	0	50	2nd class
1024447 to 448	2	0	55	0	110	2nd class
1022461 to 468	8	0	86	0	688	2nd class
1024451 to 4	4	0	69	0	276	
Total trailers	15				1124	
GRAND TOTAL	80			88	4640	Of which 516 1st class 4124 2nd class

Source : **Stock and Equipment Department**

SNCF (SENEGAL)

TRAILER STOCK : NO OF PERSONNEL

GOODS

TYPE OF WAGON	PLATFORM	OPEN	COVERED	Cov.BULK	TANKERS	TOTAL
PERSONNEL	192	120	227	150	13	702

PASSENGERS

Types of vehicles	EXPRESS	PTB	TRAILERS	TOTAL
PERSONNEL	29	36	15	80

SERVICES

	Operations	DME	DIF	DG	TOTAL
PERSONNEL	23	53	141	11	228

Source : **Stock and Equipment Department** (DME)

SNCF (SENEGAL)

ENGINE STOCK

1993 Figures

	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
BB 1100	12450	11720	7770	3873	9940	5740	7700	11080	8130	6860	8176	0	93439
BB 1200	4987	2586	5768	9142	7518	7451	7381	8102	4364	4898	12632	8063	82892
BB 1800	70597	17163	18098	15425	16343	15937	38243	33378	38410	30216	28555	32502	304867
CC 1700	17903	18904	18098	15529	16075	10846	9921	12415	19027	16514	13690	11529	180451
CC 2000	78511	12774	108973	7109	11726	5279	4695	1370	3378	1164	82	0	136961
CC 2475/80	39919	31765	38318	39977	29657	73840	36212	31387	36055	44769	41226	43047	436172
TOTAL	**174367**	**94912**	**98925**	**91055**	**91259**	**69093**	**104152**	**97732**	**109364**	**104421**	**104361**	**95141**	**1234782**
ZE 120	0	552	0	0	0	0	0	0	0	0	0	0	552
ZE 140	28061	203789	23213	24699	14327	22007	22285	72573	9563	12222	20690	24957	244975
TOTAL	28061	20930	23213	24699	14327	22007	22285	22573	9563	12222	20690	24957	245527
Locotractors	0	0	0	0	0	0	0	0	0	0	0	0	0

Source : **Mechanical engineering department.**

SNCF (SENEGAL)

ENGINE STOCK: OPERATIONAL LEVELS

1993 Figures

		1	2	3	4	5	6	7	8	9	10	11	12		Average
BB 1100	%	65	45	56	50	51	33	10	29	16	13	20	0	%	32
BB 1200	%	33	30	67	71	71	69	47	58	53	47	76	52	%	56
BB 1600	%	85	86	84	84	88	82	81	83	70	72	67	63	%	79
CC 2000	%	73	85	81	68	69	38	32	19	32	13	0	3	%	43
CC 2475/80	%	70	63	61	67	56	58	63	69	68	77	73	62	%	65,5
ZE 120	%	0	9	0	0	0	3	0	0	0	0	0	0	%	1
ZE 140	%	65	63	59	56	55	57	55	52	26	27	50	55	%	52
Average	%	39	41	35	33	33	35	33	31	15	16	30	30	%	31
Locotractors	%	44	45	49	35	36	27	30	33	36	35	36	39		

Source : **Mechanical engineering department.**

SNCF (SENEGAL)

1993 Figures

	1	2	3	4	5	6	7	8	9	10	11	12	Average
BB 1100	1.6	1.1	1.6	1.4	1.5	0.9	0.2	0.7	0.4	0.3	0.5	0	0.8
BB 1200	0.9	0.6	1.8	1.9	1.8	1.6	1.2	1.6	1.7	1.2	2.1	1.5	1.4
BB 1600	7.1	6.9	7.9	7.8	7.2	6.7	6.8	6.8	6.2	6.1	6	5.8	6.7
BB 1700	1.6	1.8	1.7	1.6	1.4	0.9	1.2	1.6	1.7	1.4	1.4	1.1	1.4
CC 2000	1.3	1.4	1.4	1.2	1.3	0.6	0.5	0.3	0.5	0.2	0	0	0.7
CC 2475	3.7	3.2	3.5	3.9	3.2	3.2	3.7	3.4	3.6	4.3	4.1	3.7	3.3
Average	16.5	15.3	17.3	17.4	16.7	13.9	13.9	14.7	3.8	13.7	14.3	12.1	14.9
ZE 120	0	0.1	0	0	0	0	0	0	0	0	0	0	0
ZE 140	1.9	1.5	1.6	1.6	1.3	1.6	1.6	1.5	0.7	0.8	1.5	1.6	1.4
Average	1.9	1.6	1.6	1.6	1.3	1.6	1.6	1.5	0.7	0.8	1.5	1.6	1.4
Locotractors	5.2	4.7	4.3	2.9	2.4	2.2	2.4	2.8	3	2.7	3.2	3.7	3.2

Source : **Mechanical engineering department**

SNCF (SENEGAL)

DEPARTMENT OF INFRASTRUCTURE

TELECOM-SIGNAL UNIT

COMPOSITION OF THE TELECOM NETWORK

- Thiès - Kidira airlink : 573 km, four lines (i.e 2 circuits, 1 general, the other restricted).
- 1 ALCATEL 2600 auto-commutation switch with 400 subscribers, to Thiès.
- 1 TELIC independent intercom, with 5 extensions at the Head Office.
- 1 ALCATEL auto-commutation switch with 100 subscribers, to Dakar.
- 11 Independent intercoms to the Commercial Division in Thiès.
- 1 - 14 quad cable link between Thiès and Dakar.
- 1 - 7 quad cable link between Thiès and Tivaouane.
- 1 internal underground cable network serving homes and offices in Dakar and in Thiès.
- 1 radio-sol train network, consisting of:
  . relay stations to Sèbikotane : 30W, Meché : 100W, Louga 100W.
  . Permanent Stations : Dakar passengers,

Hann extension : 25W; Allou Kagne extension : 25W - Khombole extension : 25W
Bel-Air extension : 25W; Thiès Care extension : 25W - Bambey extension : 25W
PK 13 extension : 25W; Thiès PC extension : 25W - Diourbel extension : 25W
Thiaraye extension : 25W Tivaouane extension : 25W - Guingunéo extension : 25W
Rufisque extension : 25W Kèbèmer extension : 25W - Kaolack extension : 25W
Bargny extension : 25W Sakal extension : 25W
Pout extension : 25W Louga extension : 25W

. Mobile station

23 locomotives equipped with 35w extension.

Source : **Telecommunications and Signals Service**

ONCF (MOROCCO)
NATIONAL RAILWAYS OFFICE 1993

ROLLING STOCK

Passengers and goods

	1992	1993	VAR%
PASSENGERS			
PERSONNEL			
Bunks and beds	23	23	-
1st class	54	58	7.41
2nd class	395	453	14.68
Mixed coaches, 1st and 2nd class	8	8	-
Railcars	24	24	-
Generator wagons	39	41	51.13
TOTAL	543	607	11.79
CAPACITY (places)			
Bunks and beds	1 076	1 076	-
1st class	2 940	3 216	9.39
2nd class	35 028	40 992	17.03
Mixed coaches 1 and 2 class	576		-
Railcars	2 168	2 168	-
TOTAL	41 788	48 028	14.93
GOODS			
PERSONNEL			
Wagons O.N.C.F of which	8 459	8 355	-1.23
phosphates	1 208	1 208	-
Special	358	359	0.56
Services	1 015	999	-1.58
TOTAL	9 832	9 713	-1.24
CAPACITY (tons)			
Wagons O.N.C.F	367 136	368 473	0.36
of which, phosphates	78 064	78 064	-
Special	14 613	14 527	-0.59
Services	30 052	29 398	-2.18
TOTAL	411 801	412 398	

Source : ONCF Head Office

ONCF (MOROCCO) 1993

PASSENGER TRAFFIC

MAIN LINE TRAINS + TNR	1992	1993	VAR%
PASSENGERS (thousands)			
1st class	480	480	
2nd class	6 918	8 977	29.79
Economy class	3 971	68	-98.29
TOTAL	11 369	9 525	-16.22
PASSENGER-KM (thousands)			
1st class	128 252	129 193	0.73
2nd class	1 419 777	1 769 600	24.64
Economy class	684 689	4 773	-99.30
TOTAL	2 232 718	1 903 566	-14.74
SEATS AVAILABLE-KM (thousands)			
1st class	439 651	537 151	22.18
2nd class	3 721 987	5 040 468	35.64
Economy class	1 136 993	19 207	-98.31
TOTAL	5 298 631	5 604 826	5.78
AVERAGE DISTANCE (KM)			
1st Class	267.19	269.15	0.73
2nd class	205.23	197.13	-3.95
Economy class	172.42	70.19	-59.29
TOTAL	196.39	199.85	1.76
OCCUPANCY RATE			
1st class	29.17	24.05	-17.55
2nd class	38.15	35.05	-8.13
Economy class	60.22	24.86	-58.72
TOTAL	**42.14**	**33.96**	**-19.41**

GOODS TRAFFIC

	1992	1993	VAR%
TONNAGE(1) (thousands)			
Phosphates	18 655	16 982	-8.97
Slow speed	8 911	7 833	-12.10
High speed	5	5	
Services	789	684	-13.31
TOTAL	28 360	25 504	-10.07
TONNAGE-KM (1) (thousands)			
Phosphates	3 265 546	2 994 984	-8.29
Traditional	1 609 941	1 304 013	-19.00
High-speed	1 726	1 757	1.80
Services	123 887	114 700	-7.42
TOTAL	5 001 100	4 415 454	-11.71
PARCOURS MOYEN (KM)			
Phosphates	175	176	0.57
Traditional	181	166	-8.29
High speed	360	377	4.72
Services	157	168	7.1
TOTAL	176	173	-1.70
WAGON LOADS			
Phosphates	293 543	267 262	-8.95
Goods	263 728	232 305	-11.91
Services	25 677	23 089	-10.08
TOTAL	582 948	522 656	-10.34

(1) Excluding luggage

Source : ONCF General Administration

ONCF (MOROCCO) 1993

TRACTIVE STOCK

Personnel and Supplies

	1992	1993	VAR%
PERSONNEL	257	256	-0.39
	104	104	-
Electric locomotives			
Electric railcars	8	8	-
Diesel Locomotives	145	144	
- of which manual	109	108	
Locomotives delivered during the year	20	8	-60.00
Average distance			
LOCOMOTIVE (in km)	59 485	60 268	1.30
Electric locomotives	83 134	89 962	8.21
Electric railcars	92 745	101 750	9.71
Diesel train (automatic)	106 242	91 917	-13.48
Diesel train (manual)	19 036	18 028	-5.30
ENERGY CONSUMPTION			
ELECTRICITY			
Total (PTE)	41 289	43 215	4.66
KgEP per Km	4.57	4.25	-7.00
KgEP per 1000 TKBR	4.88	5.25	7.58
DIESEL			
Total (PTE)	20 769	19 552	-5.86
KgEP per km	3.49	3.72	6.59
KgEP per 1000 TKBR	9.11	10.62	16.58

PTE = Petrol ton equipment
1 m^3 de Gazoil = 0,917 PTE
1000 kw = 0,235 PTE

GROSS TON-KMS HAULED PER LOCOMOTIVE (T.K.B.R)

	1992	1993	VAR%
TOTAL T.K.B.R (thousands)	10 748 480	10 071 750	-6.30
Electric locomotives			
Passenger	1 902 154	2 195 805	15.44
- of which, railcars	133 885	147 902	10.47
Phosphates	4 523 789	4 150 177	-8.26
Goods	2 042 965	1 884 704	-7.75
TOTAL	8 468 908	8 230 686	-2.81
Locomotives Diesel			
Passengers	1 183 683	1 001 563	-15.39
Phosphates	2 064	892	-56.78
Goods	1 093 825	838 609	-23.33
TOTAL	2 279 572	1 841 064	-19.4
TOTAL TRAINS-KM (Thousands)	12 863	13 125	2.04
Electric locomotives			
Passengers	5 033	6 092	21.04
- of which, railcars	692	746	7.80
Goods	3 800	3 529	-7.13
Other	1	1	-
TOTAL	8 834	9 622	8.92
Diesel Locomotives			
Passenger	2 443	2 241	-8.27
Goods	1 440	1 172	-18.61
Other	146	90	-38.36
TOTAL	4 029	3 503	-13.06
Other services (thousands)			
Electric Locomotives	553	548	-0.90
Diesel Locomotives	1 870	1 753	-6.26

Source : ONCF Head Office

ONCF (MOROCCO) 1993

LENGTH OF LINES AND ROUTES

	1992	1993	VAR%
LENGTH OF LINES (km)	1 907	1 907	-
Electrified	988	1 003	1.52
-Double Track	271	271	-
Length of routes (in km) including:	3 058	3 064	0.20
Main routes	2 307	2 313	0.26
Branch lines	550	550	-
Feeder lines	201	201	-
Number of :			
Stations	113	108	-4.42
Posts and Halts	28	30	7.14
Branch lines	140	132	-5.71
Feeder lines	4	3	-25.000
Level crossings			
Guarded	90	90	
Unguarded	540	537	-0.56

NO. OF PERSONNEL

	1992	1993	VAR%
As at 31/12			
Professionals	811	804	-0.86
Skilled workers	1 492	1 590	6.57
Supervisors	8 324	8 522	2.38
Manual workers	3 530	3 433	-2.75
TOTAL	14 157	14 349	1.36
DISTRIBUTION BY DEPT			
Head Office	537	553	2.98
Supplies	437	445	1.83
Computer	107	110	2.80
Commercial Transport }	4 582	3 027	
		4 540	
Vehicles & equipment	4 923	615	
L.C & S/Stations }		2 542	
Track	3 127		
S.T.T }		615	
Buildings	392	391	-0.26
Property	52	67	28.85
TOTAL	14 157	14 349	1.36
Average	14 075	14 263	1.34
Percentage inactive	2.94	3.21	9.18
Working hours per individual	2 298	2 298	-
Total real working hours	31 538 974	31 724 252	0.59

Source : ONCF Head Office

ONCF (MOROCCO)

PASSENGER TRAFFIC

1) Passengers

YEAR	No. OF PASSENGERS TRANSPORTED			
	1st Class	2nd Class	Econ. Class	Total
1981	181 451	2 337 000	3 609 696	6 128 147
1982	230 146	2 666 814	4 622 849	7 519 809
1983	229 888	2 636 765	4 908 658	7 775 311
1984	221 000	2 913 000	5 586 087	8 720 087
1985	198 000	3 284 000	5 779 521	9 261 521
1986	287 055	5 432 001	5 883 449	11 602 505
1987	322 495	5 723 752	6 108 190	12 154 437
1988	321 592	5 353 798	5 880 302	11 555 692
1989	377 484	5 673 936	5 730 864	11 782 284
1990	420 414	5 950 457	5 626 457	11 997 328
1991	459 867	6 370 322	5 211 926	12 042 115
1992	479 809	6 917 623	3 971 615	11 369 047

2) Passenger-km

YEAR	PASSENGER-Km (in thousands)			
	1st Class	2nd Class	Econ. Class	Total
1981	61 848	616 000	461 967	1 139 815
1982	76 057	701 910	596 793	1 374 760
1983	74 104	684 731	648 390	1407 225
1984	75 623	806 385	738 026	1620 034
1985	70 705	987 276	771 612	1 826 593
1986	80 510	1 072 928	804 841	1 958 279
1987	87 593	1 115 855	865 497	2 068 945
1988	88 061	1 128 177	876 250	2 092 488
1989	107 451	1 184 626	875 553	2 167 630
1990	119 041	1 234 963	883 272	2 237 276
1991	126 154	1 342 424	876 884	2 345 462
1992	128 252	1 419 777	684 689	2 232 718

Source : ONCF Head Office (Annual reports)

ONCF (MOROCCO)

PASSENGER TRAFFIC 1985 - 1992
NUMBER OF PASSENGERS (in thousands)

YEAR	HIGH-SPEED SHUTTLE TRAINS			AIRCONDITIONED TRAINS			ORDINARY TRAINS				OVERALL			
	1st Cl	2nd Cl	TOTAL	1st Cl	2nd Cl	TOTAL	1st Cl	2nd Cl	Econ. Cl.	TOTAL	1st Cl	2nd Cl	Econ. Cl.	TOTAL
1993							229	2637	4909	7775	229	2637	4909	7775
1985	62	1180	1242	105	1188	1293	31	916	5780	6727	198	3284	5780	9262
1986	109	1470	1579	152	2113	2265	26	1849	5883	7758	287	5432	5883	11602
1987	118	1544	1662	178	2406	2584	26	1773	6108	7907	322	5723	6108	12153
1988	102	1414	1516	201	2455	2656	18	1484	5880	7382	321	5353	5880	11554
1989	121	1461	1582	238	2645	2883	18	1567	5626	7316	377	5673	5731	11781
1990	112	1521	1633	291	2835	3126	17	1594	5212	7237	420	5950	5626	11996
1991	126	1595	1721	318	3159	3477	15	1616	3971	6843	459	6370	5212	12041
1992	126	1860	1986	340	3134	3474	14	1924	3971	5909	480	6918	3971	11369

Source: **ONCF Head Office**

ONCF (MOROCCO)

PRODUCTIVITY OF ENGINE STOCK

NETWORK	TOTAL NO. OF LOCOMOTIVES				KILOMETRE-UNITS (in millions)				PRODUCTIVITY (in millions)			
	1988	1989	1990	1991	1988	1989	1990	1991	1988	1989	1990	1991
ONCF	236	236	256	258	7779	6687	7234	6872	32.96	28.33	28.26	26.64
SNCF	7112	7422	7422	7473	116824	118858	113438	115766	16.43	16.01	15.28	15.49
RNFE	1988	1970	2072	1933	30081	29108	29436	28006	15.13	14.78	14.21	14.49
SNCB	1727	1740	1727	1738	15353	15842	16067	14940	8.89	9.10	9.30	8.60
SNCFT	234	234	242	230	3170	3103	2839	2852	13.55	13.26	11.73	12.40
SNTF	229	222	248	242	5253	5426	5665	5909	22.94	24.44	22.84	24.42

Source : **UIC Statistics**

Gross Ton-kilometers hauled per locomotive

NETWORK	TOTAL NO. OF LOCOMOTIVES				TOTAL TKms (in millions)				PRODUCTIVITY (in millions)			
	1988	1989	1990	1991	1988	1989	1990	1991	1988	1989	1990	1991
ONCF	236	236	256	258	11301	10165	10973	10254	47.89	43.07	42.86	39.74
SNCF	7112	7422	7422	7473	246967	250718	250602	252098	34.73	33.78	33.76	33.73
RENFE	1988	1970	2072	1933	57406	56621	58248	58562	28.88	28.74	28.11	30.30
SNCB	1727	1740	1727	1738	38280	39674	40320	39222	22.17	22.80	23.35	22.57
SNCFT	234	234	242	330	4173	ND	ND	ND	17.83	-	-	-
SNTF	229	222	248	242	8563	8843	8884	81511	37.39	39.83	35.82	33.68

Source : **UIC statistics for 1994**

ND = Data not available

ONCF (MOROCCO)

OPERATIONAL LEVEL OF EQUIPMENT (%)

YEAR	1988	1989	1990	1991	1992
ENGINE STOCK					
Electric locomotives	84.5	79.6	81.5	77.8	73.2
Railcars	97.7	94.8	86.8	77.2	82.1
Automatic diesel locomotives	82.0	83.2	82.3	79.4	77.5
Manual diesel locomotives	81.5	81.4	81.6	87.0	83.0
Passenger traction engines	83.0	78.2	75.0	74.5	88.1
Goods traction engines	96.6	96.1	95.9	95.7	95.8

Source : **ONCF Head Office (Reports)**

ONCF (MOROCCO)

SUMMARY OF SIGNALLING INSTALLATIONS AS AT 30/10/93

Homogenous lines and feeder lines	Length	Signal		Shunting points	Equipment out of service	Equipment on VP	Block-section
		Luminous	Mechanical				
Casablanca station and signalling posts	36 km	140	3	2 PRS 2 Electrical 3 Mechanical	49 on VP 90 on VS (1)	75	BAL :36 km
Casablanca out to Kenitra in	238 km	96	15 (2)	3 PRS 5 PML	30 on VP 8 on VS	96	BMDV :160 km BAL : 16 km CT : 62
Casablanca to En Nouasser out	72 km	78		1 PRS 3 PML	34 on VP 3 on VS	61	BAL : 60 km BMVU : 12 km
En Nouasser to Oued Zem out	262 km	69	23	5 Mechanical 2 Electromechanical	8 on VP	86	CT :262 km
En Nouasser to El Jadida out	102 km	36	11	2 Mechanical	17 on VP	34	BMVU :102 km
Sidi El Aïdi to Marrakech out	189 km	53	9	3 Mechanical 5 PML	15 on VP 5 on VS	66	CT :189 km
Benguérir to Safi out	150 km	15	30	2 Mechanical		35	BMVU :140 km CT : 10 km
Kénitra out Fès in	195 km	71	11	5 Mechanical	2 on VP	92	BMVU :195 km
Tangier to Sidi Kacem out	201 km	5	29			49	CT :201
Fes to Oujda	354 km	41	31	4 Mechanical	7 on VP	97	CT :354 km
Total	1799 km (3)	599	162	6 PRS 24 Mechanical 13 PML 2 VS electronic 2 Electromechanic	162 on VP of which 23% equipment VP 106 on VS	191 2228	BAL :112 km BMDV :160 km BMVU : 449 km CT :1078 km

(1) Casablanca Roches Noires station
(2) Kenitra and Sidi Bouknadel (modernization in progress)

Source : **ONCF Head Office (Reports)**