

PRELIMINARY STUDY

資料— 5

FOR

FEASIBILITY STUDY ON NAIROBI BYPASS CONSTRUCTION PROJECT

QUESTIONNAIRE

1. GENERAL

- 1.1 Outline of trunk roads construction program in Kenya and its progress.
- 1.2 Outline of national industrial development program in Kenya. (Location, kind of industry etc.)
- 1.3 Outline of the next 5-year development plan and roles of the Project in this plan.
- 1.4 Kenya's implementing agency in planning, investigation stage of the Project, and its organization and responsibilities of each section.
- 1.5 Kenya's expectation of the feasibility study
 - study period.
 - completion data of the Study.
 - implementation program of the Project.
- 1.6 Budgetary system and arrangement for roads construction.

2. ENGINEERING STUDY

- 2.1 Basic policy for planning, design and construction of the Project.
 - expected roles and functions of bypass.
 - other routes alternative, if any.
 - construction system and road maintenance system.
 - toll road system.
- 2.2 Available data of geology and hydrology.
- 2.3 Policy on land aquisition and payment.
- 2.4 Available report on traffic survey.
- 2.5 Policy on sources of construction budget.
- 2.6 Availability of topographic maps and aerial photographs
- 2.7 Bill of quantities with unit price for major road projects.
- 2.8 Outline of major road projects under construction and problems in execution.
- 2.9 Availability of construction materials in Kenya (cement, reinforcing steel bar, explosives, fuel, oil, spare parts, corrugate metal pipes, etc.)
- 2.10 Present condition of local contractors.
- 2.11 Outline of materials laboratory of MOTC.
- 2.12 Local campanies (consulting engineers) for boring and survey works.

3. SOCIO-ECONOMIC STUDY

- 3.1 National industrial development projects in Kenya.
- 3.2 Traffic congestion records in Nairobi city.
- 3.3 Statistics of traffic accidents in Nairobi city.
- 3.4 Urban development program and road improvement program in Nairobi city.
- 3.5 Major harbour, airport and pipeline construction program and their progress in Kenya.
- 3.6 Policy on freight terminal

PRELIMINARY STUDY
FOR
FEASIBILITY STUDY ON NAIROBI BYPASS CONSTRUCTION PROJECT

List of the Required Data and Information

1. Country's General Information

- 1.1 Geography
- 1.2 Economy
- 1.3 Population
- 1.4 National development plan/policy
- 1.5 Urban development plan/policy in Nairobi city and its environs
- 1.6 Related organization chart

2. Related Regulations, Standards, etc.

- 2.1 Related regulation for road construction and environmental control
 - Traffic act chapter 403
 - Transport licence act chapter 404
- 2.2 Road structural ordinance
- 2.3 Road design standards
 - Geometric design of rural roads
 - Design of bridges
 - Materials & pavement design for new roads
 - Standard culverts and drifts manual
- 2.4 River facilities structure ordinance

3. Topographic Maps & Aerial Photographs in Study Area

3.1 Topographic Maps

-1/50,000

-1/25,000

-1/5,000

-1/2,500

3.2 Aerial photographs

3.3 Control points for aerial triangulation

4. Soil and Geological Data in Study Area

- 4.1 Reports of soil and geological investigations
- 4.2 Mechanical boring test results
- 4.3 Other available data

5. Hydrological and Meteorological Data in Study Area

- 5.1 Flood records of main river (Flux, H.W.L.)
- 5.2 Precipitation and weather records
(rainy days, workable days)
- 5.3 Rainfall intensity data

6. Traffic Survey in Study Area

- 6.1 Traffic volume on existing roads
- 6.2 Origin-destination survey data
- 6.3 Future traffic volume forecast
(growth of traffic volume)
- 6.4 Traffic volume on existing intersections
- 6.5 Number of retained motor vehicles

7. Others

7.1 Budget for road project, road inventory, etc.

- Road investment program, 1984-'88
- Development estimates for the year 1983/84, 1984/85, 1985/86
- Maintenance of roads, allocation of funds 1985/86
- Road maintenance schedule
- Estimate manual for requirement of fund for road maintenance*
- List of on-going and planned road projects in the Fifth 5-year National Development Plan

7.2 Nairobi Urban Transport Project (Final Report, Technical Appraisal Report, 1981)

PRELIMINARY STUDY FOR
FEASIBILITY STUDY ON NAIROBI
BYPASS CONSTRUCTION PROJECT

GENERAL

The Government of Japan, on request from the Government of Kenya, sent a Team to undertake a Preliminary study of the Proposed Nairobi Southern Bypass. The Japanese team started its study on 27th June, 1986. From then on a series of meeting have been held between the Japanese Team and Ministry of Transport & Communications officials.

On 27th June, 1986 there was a meeting between the Japanese Team, MOT&C Engineers and Mr. Kigen of the External Aid Division of Ministry of Finance. The MOT&C team usually comprises of :-

Eng. S. N. Otonglo (Chief Supt. Engineer (Design))
Eng. J.M. Wanyoike S.S.F.(Design)
Eng. G. N. Muthigani S.E. (Design)

ANSWERS TO QUESTIONNAIRE

The Japanese team presented a questionnaire on some of the information and data the team required. The questionnaire is herewith attached, while the answers given are as below.

- 1.1. In response to the point on the outline of trunk roads construction program in Kenya and its progress, the Japanese team was issued with a list showing.
 - (a) The projects which are under construction in the 1986/1987 financial year.
 - (b) The on coming projects
 - (c) The Projects which were completed by the end of the 1985/1986 financial year.
- 1.2 On the outline of the National Industrial development Program in Kenya - this information is obtainable in the Development plan 1984/88 and also in the secession paper No 1 of 1986 on National Development.

All these documents are available in the Government Printers office Nairobi. Details on the National Development Program are with Ministry of Commerce and Industry, and it is hoped that the project consultant will be in a position to obtain the data from the Ministry.

- 1.3 The outline on the next 5 year development plan was also referred to the Development plan for 1984/88 period.
- 1.4 Kenya's implementing agency in planning, investigations and all responsibilities for the project is the Ministry of Transport and Communications.
- 1.5 The Kenya team agreed with the tentative schedule of the implementation of the feasibility study as attached to the scope of work.

- 1.6 The Budgetary system as related to roads is generally laid out in in the national budgetary estimates which are released every year. However, in brief the procedure is as follows:

The Ministry of Finance lays down the budgetary ceilings within which each of the Ministries in the Kenya Government must work. Within the ceiling for the MOT&C the Roads Department is allocated funds for construction, and maintenance of the road network in the country.

The allocation for road construction is based on cost estimates for the road projects earmarked for construction during the financial year. The allocation for road maintenance is based on maintenance requirements for all the classified roads in the country.

ENGINEERING STUDY

2.1

- (a) The expected roles and functions of the Nairobi bypass are basically to ease congestion on the road A104 (Mombasa road/ Uhuru Highway) by diverting westward bound traffic from the Nairobi City centre.

In conjunction with the proposed Truck Depot, and also with the proposed road construction projects in the Nairobi

Industrial area, the bypass will divert the trucks, oil tankers and other traffic from the industrial area heading towards Western Kenya and Uganda from passing along Uhuru Highway.

- (b) There are no other alternative routes to the Southern bypass as such, but in the future it is proposed to construct an Eastern bypass farther East of the existing outerring road joining the A104 and the A2. A Northern bypass is also in the pipeline connecting the A104 west of Nairobi with the A2. These two roads, together with the Southern bypass, will form a bypass ring road round Nairobi City.
- (c) There are two types of road construction systems in this country i.e. donor assisted projects and Kenya Government financed projects. Both are generally constructed by tendering to private contractors. The Roads department has got two direct labour construction units while the office of the President has got two more units.

All the roads are maintained by MOT&C staff. These are organised on district and Provincial basis.
- (d) The toll road systems is a recent inclusion in the road system. At present there are four road toll stations and two bridge toll stations. The money so obtained is used in the maintenance of the trunk roads. The toll system was introduced when it was realised that the money allocated by treasury for road maintenance was usually not adequate to maintain the roads to satisfactory conditions.

2.2. There is adequate data on geology from the Ministry of Natural Resources. There is also adequate data on hydrology from the Meteorology department and from the Ministry of water.

2.3 On land acquisition for road development, the roads department approaches the Commissioner of Lands and asks him to acquire the land and property which is encroached on by the road or needed for the road construction. This is done after the road is designed. During the design the roads department ensures that the road alignment does not cause unnecessary destruction to property and the alignment follows existing roads as much as possible. The Commissioner of Lands values the Land to be acquired for the road development and the property to be destroyed. The MOT&C pays the money to the Commissioner of lands, who then forwards the money to the property owners.

- 2.4 Traffic data on the road A104 through Nairobi and on several other roads related to the bypass project is available both from the City Engineer and the MOT&C. Data from MOT&C is attached.
- 2.5 As mentioned in 2.1 the sources of the construction budget are either local finance from Ministry of Finance or donor assisted in which case it could be a loan or a grant from International banks or foreign Government.
- 2.6 Topographic maps and aerial photographs for the project area are readily available.
- 2.7 Bills of quantities with unit prices for several road projects constructed in 1984 is available
- 2.8 An outline on major road projects under construction is included in 1.1, and a list of the projects is included. The problems encountered during a road construction in Kenya are generally normal ones found in any construction, such as Mechanical breakdowns and hostile weather especially during the rainy seasons.
- 2.9 The availability of construction materials in this county is satisfactory. Cement, reinforcing steel bars, explosives, fuel oil and spare parts are in abundance. However, in case of special machinery requiring spares not available in Kenya, the constructor is allowed to import the spares. The MOT&C has tended to discourage the use of corrugated metal pipes unless concrete structures and pipes cannot be used instead.
- 2.10 There are several local contractors registered with MOT&C. These range from the big contractors whp can undertake projects of unlimited value to small contractors who can only undertake projects of a limited amount, e.g 40 million shilling projects.
- 2.11 The Japanese mission was taken around the materials laboratory of MOT&C, and the mission saw for itself the facilities the laboratory has. It should suffice to say that the laboratory can undertake all the necessary tests to which would be required for the southern bypass.

2.12 There are several local consulting engineering companies which can undertake boring and survey works.

3. SOCIO - ECONOMIC STUDY

3.1 The National industrial development projects in Kenya can be obtained from the 5 years development plans, while more details can be obtained from the Ministry of Commerce and Industry.

3.2 Traffic congestion records in Nairobi were made available to the mission.

3.3 Statistics of traffic accidents in Nairobi can be obtained from the book on accidents in Kenya. This book was made available to the mission.

3.4 The current road improvement program in Nairobi City is based on a study done in 1973/74. Most of the recommendations were supposed to be implemented in the seventies but due to lack of funds very few of the projects have been implemented as yet. The urban development program would be available to the project consultant from the city planning department.

3.5 Kenya has one main Harbour at Mombasa, and two International Airports; one in Mombasa and the other in Nairobi. There are no plans to construct another Harbour or major airport. There is an oil pipeline from Mombasa to Nairobi. There are plans to extend the pipeline to Western Kenya in the future.

3.6 The major freight depot is Mombasa because of the Harbour. There is a rail container freight terminal in Nairobi. It is also proposed to construct a truck and trailer freight terminal next to the rail freight terminal. Land has already been allocated. Both these terminals are near the start of the Southern bypass project.

PRELIMINARY STUDY FOR
FEASIBILITY STUDY ON NAIROBI BYPASS
CONSTRUCTION PROJECT BY JAPANESE MISSION

PROGRESS ON LIST OF REQUIRED
DATA AND INFORMATION

- 1.1 Geography: This can be obtained from the various text books available in the bookshops on the Geography of Kenya.
- 1.2 Economy: The economy of Kenya can be studied from the annual economic reviews and from the economic development plans. These books are available in the Government printer bookshop.
- 1.3 Information on population is available from the statistical abstracts which are available.
- 1.4 The National development plan and policy are to be found in the 5 year development plans and the various session papers.
- 1.5 The urban development plan and policy for Nairobi and its environs is obtainable from the City Commission offices.
- 1.6 The related organisation chart is as found in the list showing Kenya Government Ministries and from the Roads department chart. The mission has got these.
- 2.1 Traffic Act chapter and chapter 404 are available in Government printer bookshop.
- 2.2 Road structural ordinance is not available.
- 2.3 Roads design standards
 - (a) Geometric design of rural roads - available
 - (b) Design of bridges - not available
 - (c) Materials and pavement design for new roads - available
 - (d) Standard culverts and drifts manual - available.

- 2.4 River facilities structure ordinance - not available.

- 3.1 Topographic maps
1/50,000, 1/25,000, 1/5,000 are all available.
1/2,500 will be available by October, 1986.

- 3.2 Aerial photographs - available

- 3.3 Control points for aerial triangulation - will be in place
by October, 1986

- 4.1 Reports on soil and geological investigations on the southern
bypass route are not available.

- 4.2 Mechanical boring test result are also not available.

- 4.3 The mission has discussed the southern bypass with MOT&C engineers
thoroughly and all the available data has been given to the mission.

- 5.1 There are no rivers along the project route. The route is along the
top of a watershed.

- 5.2 Precipitation and weather records are available for at least one
station along the route. The record of rainy days will be shown
Workable days can be worked out from the record of rainy days.

- 5.3 Rainfall intensity can be calculated from the hourly rainfall
intensity.

- 6.1 Traffic volume on existing roads is available to the mission.

- 6.2 A variation of original/destination survey data is available.

- 6.3 Future traffic volume can be forecast from the traffic records.

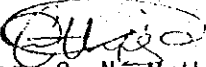
- 6.4 Traffic volume on existing interjections is also available

- 6.5 In traffic engineering in this country we do not calculate retained motor vehicles.
- 7.1 The budget for road projects and the road investment program for 1984/88 year is available in the Development plan for 1984/88. This document, together with the Development Estimates for 1983/84, 1984/85, 1985/86 are available at the Government printer bookshop.

The Maintenance of roads allocation of funds 1986/87, Road maintenance schedule 1986/87, Estimate for requirement of funds for road maintenance. These were all made available to the mission.

The list of on-going and planned road projects in the fifth 5 year National Development plan can be found from the 1984/88 Development plan document, together with the list already given to the mission.

- 7.2 Nairobi Urban Transport Project (final Report, Technican Appraisal Report, 1981) was not available form the City Engineer, but the mission was given the 1979/80 Draft Report.


Eng. G. N. Muthigani
S.E. (Design)

NAIROBI CITY COMMISSION



TELEGRAMS: "MUNICIPALITY" NAIROBI
TELEPHONE 24281

EXT: 160 : Mr. Chiuri

CITY ENGINEER'S DEPARTMENT

CITY HALL
P.O. BOX 30075
NAIROBI
KENYA

Ref. No. CE/2072/CME/HM/14/1/3F

4th July, 1986.

Permanent Secretary,
Ministry of Transport and Communications,
P.O. Box 52692,
NAIROBI.

ATT. Mr. Muthigani

Dear Sir,

REF: NAIROBI BY-PASS.

I refer to your letter ref. No. R4821/P.124 dated the 3rd. July, 1986 indicating the list of the data the Japanese Mission would like to be provided with.

Enclosed herewith please find:-

- (a). A copy of drawing No. T4200/8 showing the traffic counts carried out at various junctions in the City.
- (b) Tables 2 to 8 showing the results of the cordon survey carried out during the Nairobi Urban Transport Study.
- (c) Tables 27 and 28 showing the traffic volume forecasts deduced from the Nairobi Urban Transport Study.
- (d) Drawing Nos. T.4344/32 and M.8227 showing the traffic congestion areas in the City.

As was pointed out during the discussions, the feasibility study on the southern by-pass would need to include other related projects that will have an effect on the construction of the Southern by-pass. These projects are:-


- (a) Dualling of Langata road.
- (b) Construction of a road to join Ngong Road, Langata Road and the Southern by-pass. You are aware of this outstanding project.

- (c) Extension of Likoni Road to connect with the proposed Southern by-pass including the interchange on Mombasa Road.
- (d) The construction of the proposed oil tankers depot off Mombasa Road near the start of the proposed by-pass including the interchange.

Note that construction of the by-pass must be done simultaneously with the above projects if the effects of the by-pass is to be realised.

It would be appreciated that the Commission be involved in future decision on this project.

Yours faithfully,



W. KAHORO
CITY ENGINEER.

ケニア共和国ナイロビ
バイパス建設計画調査

面会者リスト

資料-6

[I] Ministry of Transport & Communications

- | | | |
|-----|----------------|---|
| (1) | W.P. Wambura | Permanent Secretary, MOTC |
| (2) | J.K. Kirika | Engineer-In-Chief, MOTC |
| (3) | S.M. Kiguru | Chief Engineer (Roads & Aerodromes) |
| (4) | S.N. Otonglo | Chief Superintending Engineer (Design) |
| (5) | J.M. Wanyoike | Senior Superintending Engineer (Design) |
| (6) | G.N. Muthigani | Superintending Engineer (Design) |
| (7) | K. Tada | Bridge Engineer |

[II] Ministry of Finance

- | | | |
|-----|--------------|---------------------------------|
| (1) | J.W. Njoroge | Permanent Secretary, MOF |
| (2) | M.N. Dangana | Director External Aid Dep., MOF |
| (3) | K.M.S. Kigen | under Secretary, MOF |

[III] Survey of Kenya

- | | | |
|-----|--------------|-----------------------------------|
| (1) | Mr. Wanaina | Chief Superintended Engineer, SOK |
| (2) | C.A. Kimele | Chief Cartographer, SOK |
| (3) | Mr. Miyazaki | Surveyor, SOK |
| (4) | Mr. Nakazawa | Surveyor, SOK |

[IV] Air Survey Section, MOTC

- | | | |
|-----|------------|--|
| (1) | F. Mahinda | Senior Photographimesrist,
Air Survey Section, MOTC |
|-----|------------|--|

[V] Meteorological Dep. Headquater, MOTC

- | | | |
|-----|------------|------------------------------------|
| (1) | A.L. Alusa | Director Meteorological Dep., MOTC |
|-----|------------|------------------------------------|

[VI] Laboratory, MOTC

(1) J.H.G. Wambura Chief Materials Engineer, Laboratory, MOTC

[VII] Training Center, MOTC

(1) ENG. J.M. Masila Chief Machinery & Transport Engineer

(2) Mr. Yamada Machinery Engineer

(3) Mr. Nagataki Machinery Engineer

[VIII] Nairobi City Council

(1) Mr. Kahoro City Engineer, NCC

(2) Mr. Njora Deputy City Engineer, NCC

(3) Mr. Chiuru Head of Roads Section, NCC

(4) Mr. Gichohi Engineer Roads Section, NCC

ケニア共和国
ナイロビ・バイパス建設計画調査

収集資料リスト

昭和61年7月

国際協力事業団

ケニア共和国ナイロビ・
バイパス建設計画調査 収集資料リスト

1. 一般

- (1) DEVELOPMENT PLAN 1984 ~ 1988
- (2) ECONOMIC MANAGEMENT FOR RENEWED GROWTH 1986
- (3) ROAD MAINTENANCE AND IMPROVEMENT SCHEDULE VOLUME 1.2 1986/1987
- (4) RAINFALL FREQUENCY ATLAS OF KENYA 1978
- (5) ANALYSIS OF CONTRACT RATES 1984
- (6) BRIDGING PROGRAMME 1986/1987
- (7) ALLOCATION BREAKDOWN OF FUNDS 1986/1987 ETC.
- (8) 経済基盤施設調査報告書
- (9) ケニア国全国総合交通計画
(FINAL REPORT I, II, III)

2. レポート・データ関係

- (1) KENYA GOVERNMENT COMPOSITION
- (2) ROADS DEPARTMENT ORGANISATION CHART DECEMBER 1982
- (3) ORGANISATION CHART OF THE MINISTRY OF TRANSPORT & COMMUNICATIONS
- (4) SAFARI REPORT 2/86
- (5) ケニア測量局における測地専門家の役割
- (6) ケニアにおける建設コントラクターの実態
- (7) MINISTRY OF WORKS MATERIALS LABORATORIES REVISED TEST FEE.
- (8) THE PROJECT WHICH ARE UNDER CONSTRUCTION 1986/1987
- (9) 1985 TRAFFIC FLOW DATA (ADT) (NAIROBI OUTLET ROADS)
- (10) 日別降雨量データ (1973 ~ 1983, 空港)
- (11) ANSWERS TO QUESTIONNAIRE

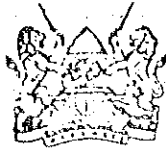
- (12) PROGRESS ON LIST OF REQUIRED DATA AND INFORMATION
- (13) REF; NAIROBI BY-PASS
NAIROBI CITY COMMISSION
- (14) STUDY OF URBAN TRANSPORT NEEDS OF NAIROBI STAGE I 4, 1984
- (15) NAIROBI METROPOLITAN GROWTH STRATEGY VOLUME 1 MAIN REPORT
- (16) THUCHI - NKUBU ROAD
FINAL ECONOMIC FEASIBILITY REPORT 7, 1979
- (17) KABETA - LIMURU ROAD PROJECT NOA104/302A
 - (i) PROPERTY INVESTIGATIONS CARRIED ALONG TWO ALTERNATIVE
ROUTES FOR THE PROPOSED DUAL CARRIAGEWAY 5, 1982
 - (ii) PRELIMINARY REPORT PART I 7, 1983
 - (iii) PRELIMINARY REPORT PART II 7, 1983
 - (iv) PRE-FEASIBILITY STUDY 5, 1979

3. 基準・要領関係

- (1) TRAFFIC ACT CHAPTER 403 (1978)
- (2) TRANSPORT LICENCE ACT CHAPTER 404 (1979)
- (3) ROAD DESIGN STANDARD
 - ° GEOMETRIC DESIGN OF RURAL ROAD (PART I)
 - ° MATERIALS AND PAVEMENT DESIGN FOR NEW ROADS (PART III)
 - ° STANDARD CULVERTS AND DRIFTS MANUAL (PART I, II)

4. 圖面關係

(1)	NAIROBI & ENVIRONS	1 : 100,000	1 葉
(2)	KENYA AND NORTHERN TANZANIA ROUTE MAP	1 : 1,000,000	1 葉
(3)	CITY OF NAIROBI	1 : 20,000	1 葉
(4)	NAIROBI AREA	1 : 50,000	1 葉
(5)	EAST AFRICA (NENYA) NAIROBI	1 : 50,000	4 葉
(6)	NAIROBI AND DISTRICT SK14 SERIES	1 : 5,000	3 葉
(7)	PROVISIONAL EDITION NAIROBI SK66 SERIES	1 : 5,000	11 葉
(8)	NAIROBI	1 : 5,000	1 葉
(9)	CITY OF NAIROBI SK88 SERIES	1 : 10,000	3 葉
(10)	ROAD MAP	1 : 500,000	45 葉



KENYA GOVERNMENT

COMPOSITION

PRESIDENT, OFFICE OF THE

State Houses
 Presidential Press Unit
 Immigration Dept.
 Registration of Persons Bureau
 National Assembly
 National Youth Service
 Directorate of Personnel Management
 Kenya Institute of Education
 Provincial Administration
 Government Press
 Government Chemists Department
 Kenya Police
 Criminal Investigation Department
 Kenya Railways & Port Police
 Defence Department

AGRICULTURE AND LIVESTOCK DEVELOPMENT, MINISTRY OF

Agriculture Department
 Veterinary Department
 Scientific Research Division
 National Horticultural Research Station

ATTORNEY-GENERAL, OFFICE OF THE

Attorney General Chambers
 Department of the Registrar-General
 Judicial Department and High Court of Kenya

COMMERCE AND INDUSTRY, MINISTRY OF

Trade Department
 Weights & Measures Department
 Kenya Institute of Business Training

CO-OPERATIVE DEVELOPMENT, MINISTRY OF

Professional Services
 Co-operative College of Kenya
 Kenya Nordic Co-operation Development Programme

CULTURE AND SOCIAL SERVICE, MINISTRY OF

Department of Social Services
 Department of Adult Education
 Department of Culture

EDUCATION SCIENCE AND TECHNOLOGY, MINISTRY OF

Professional Services
 Kenya Institute of Education
 Kenya Literature Bureau

ENERGY AND REGIONAL DEVELOPMENT, MINISTRY OF

Electrical Department
 Planning and Technical Division

ENVIRONMENT AND NATURAL RESOURCES, MINISTRY OF

Forest Department
 Mines and Geology Department
 National Environment and Human Settlement Secretariat

FINANCE, MINISTRY OF

Internal Revenue Department
 Price Control
 Sales Tax Department
 PAYE Department
 Income Tax Department
 Customs & Excise Department
 Government Coast Agent

FOREIGN AFFAIRS, MINISTRY OF

Permanent Mission of the Republic
 of Kenya to UNEP
 Permanent Mission of Kenya to Habitat

HEALTH, MINISTRY OF

Medical Department
 Technical Services
 National Hospital Insurance Fund

INFORMATION AND BROADCASTING, MINISTRY OF

Department of Information
 Kenya Institute of Mass Communication
 Department of Broadcasting
 Voice of Kenya

LABOUR, MINISTRY OF

Labour Department
 National Social Security Fund
 Industrial Court
 Factory Inspectorate
 Industrial Training Centres

LANDS AND SETTLEMENT, MINISTRY OF

Lands Department
 Settlement Department
 Lands Adjudication Department
 Survey Department

LOCAL GOVERNMENT, MINISTRY OF

Development and Technical Divisions
 Local Government Offices

PLANNING AND NATIONAL DEVELOPMENT, MINISTRY OF

Planning Department
 Central Bureau of Statistics
 Kenya Rangeland and Ecological Monitoring Unit

OFFICE OF THE CONTROLLER AND AUDITOR GENERAL

PUBLIC SERVICE COMMISSION

OFFICE OF THE AUDITOR-GENERAL CORPORATIONS

TOURISM AND WILDLIFE, MINISTRY OF

Tourism Department
 Kenyatta International Conference Centre
 Fisheries Department
 Wildlife Conservation and Management Department
 Catering Levy Trustees

TRANSPORT AND COMMUNICATION, MINISTRY OF

Roads Department
 Meteorological Department
 Aerodromes Department
 Directorate of Civil Aviation
 Provincial Engineers
 Staff Training Department

OFFICE OF THE VICE-PRESIDENT AND MINISTRY OF HOME AFFAIRS

National Population Development
 Prisons Department
 Betting Control and Licensing Board
 Probation Service
 Kenya National Archives
 National Museums of Kenya
 Childrens Offices

WATER DEVELOPMENT, MINISTRY OF

WORKS HOUSING AND PHYSICAL PLANNING, MINISTRY OF

Housing Development Department
 Rent Restriction Department
 Physical Planning Department
 National Housing Corporation
 National Construction Corporation
 Supplies Branch

参 考 资 料

1. ケニア共和国の一般的状況

1) 人口

表1-1-1 ケニア国の人口成長：1948～1979年

Year	Population	Average Annual Growth	
		Number	Rate (%)
1948	5,406,000		
1962	8,636,000	231,000	3.3
1968	10,943,000	330,000	3.44
1979	15,327,000	399,000	3.43

表1-1-2 地域別面積，人口及び人口成長率：1962～1979年

Provinces	Area km ²	Population (000's)		Density per km ²		Growth rate % per year	
		1969	1979	1969	1979	1962-'69	1969-'79
Nairobi	684	509	828	745	1,356	5.6	4.98
Central	13,173	1,676	2,346	127	178	3.2	3.42
Coastal	83,041	944	1,343	11	16	3.4	3.59
Eastern	154,540	1,907	2,720	12	24	3.0	3.61
North-Eastern	126,902	246	374	2	3	1.4	4.28
Nyanza	12,525	2,122	2,644	169	211	3.7	2.22
Rift Valley	170,162	2,210	3,240	13	19	3.1	3.84
Western	8,223	1,328	1,833	162	22	3.8	3.27
Kenya	569,249	10,943	15,327	19	27	3.4	3.41

表 1 - 1 - 3 主要都市の人口：1948～1979年

Towns	Population				Growth rate		
	1948	1962	1969	1979	1948 - 68	1962 - 69	1969 - 79
Nairobi	118,976	342,500	509,286	827,775	7.9	5.8	5.0
Mombasa	84,746	179,575	247,073	341,148	5.5	4.7	3.3
Nakuru	17,625	38,181	47,151	92,851	5.7	3.3	7.0
Kisumu	10,899	23,526	32,431	152,642	5.7	4.7	16.8
Thika	4,435	13,952	18,387	41,327	8.5	4.0	8.4
Eldoret	9,193	19,605	13,196	50,503	6.7	-1.1	14.4
Nanyuki	4,090	10,448	11,624	18,986	7.2	1.4	5.0
Kitale	6,338	9,342	11,573	28,327	3.1	3.3	9.4
Malindi	-	5,818	10,757	23,275	-	9.2	8.0
Kericho	3,218	7,692	10,144	29,603	6.7	4.0	11.3
Nyeri	2,705	7,857	10,004	35,753	7.9	3.5	13.6
Total (excluding Malindi)	261,225	653,678	921,626	1,618,916	6.6	4.9	5.7
(share %)	(4.83)	(7.57)	(8.42)	(10.56)			

Sources: Population Census, Kenya, 1948, 1962, and 1969.

2) 經濟社会指標

Key Economic and Social Indicators, 1981-1985*

Table 1

	1981	1982	1983	1984	1985**	Annual % Rate of change 1982-1985
1. Population	17.3	18.0	18.8	19.5	20.2	
2. Growth of gdp at constant prices	6.0	2.4	3.1	0.9	4.1	
3. GDP at market prices	3,023	3,411	3,826	4,046	4,763	
4. Net cost of petroleum products	200	179	214	185	257	
5. Trade balance	-497	-430	-313	-373	-445	
6. Money supply	918	1,066	1,118	1,262	1,346	
7. Total domestic credit	969	1,252	1,253	1,589	1,569	
8. Balance of payments (current account)	-336	-253	-89	-147	-159	
9. Coffee marketed production	91	88	95	119	97	
10. Tea marketed production	91	96	119	116	147	
11. Maize marketed centrally	473	571	636	561	583	
12. Wheat marketed centrally	203	235	242	135	194	
13. Sugar-cane production	3,822	3,108	3,286	3,611	3,463	
14. Milk sold centrally	223	260	274	190	231	
15. Manufacturing output	1,804	2,054	2,426	2,957	3,536	
16. Construction output	403	402	411	437	461	
17. Cement consumption	653	579	511	541	610	
18. Petroleum consumption	1,585	1,491	1,373	1,482	1,497	
19. Electricity consumption	1,663	1,701	1,747	1,845	2,014	
20. Tourism earnings	90	118	122	152	209	
21. New registration of vehicles	18,115	15,061	13,940	15,694	16,320	
22. Rail freight	2,241	2,097	2,091	2,034	1,858	
23. Air passengers handled	1,972	1,900	1,928	2,058	2,108	
24. Wage employment	1,024	1,046	1,093	1,126	1,174	
25. Education - primary enrolment	3,981	4,184	4,324	4,380	4,700	
26. Education - secondary enrolment	411	438	494	498	437	
27. Education - post secondary enrolment	23	22	22	23	24	
28. Hospital beds and cots	28,108	29,044	29,294	30,886	30,936	
29. Registered doctors and dentists	2,254	2,390	2,614	2,752	2,842	
Export volumes	103	100	96	95	99	-0.3
Import volumes	118	100	79	93	86	-4.9
Terms of trade	105	100	94	110	92	-2.7
Consumer prices	82	100	115	125	138	11.3
Real wages	112	100	93	94	91	-3.1
Agricultural terms of trade	104	100	98	94	94	-2.0

Index Numbers: (1982=100)

*More precise measures are given in individual chapters.

**Provisional.

(出典) Economic Survey (1986)

2. ケニア共和国における道路行政

運輸行政と実務は次のように分担されている。

・運輸行政は、運輸通信省 (Ministry of Transport and Communications (MOTC)) がその中心となり、複数の省庁が所掌する。

・運輸に関する実務は、MOTC 中にある公団 (Parastatals) が行う。

ケニアの道路輸送に関する各種輸送機能を支える MOTC の役割を以上に述べる。

② 組織

MOTC は道路、鉄道、空港、港湾そして内陸水路といった、様々な交通機関に関する開発計画の立案、設計、実施そして監督を行う。その他の業務や施設も所掌しているが、MOTC の中心となっているのは道路関係の部署である。下記の各部署はそれぞれ道路建設の管理と実施を担当している。

① 官房 (Administrative Division)

当部署は、予算、人事および自動車登録に関することといたって、すべての行政的事項を所掌する。

② 道路・空港局 (Roads & Aerodroms Department)

当部署は、規格道路およびアクセス地方道網の計画・設計・施工・維持管理を所掌する。また、空港に関する技術的事項を担当する。

③ 運輸計画調整部 (Transport Planning and Coordinating Division)

当部署は新しい部で、1980年末に設立された。同部では、運輸通信に関する短期および長期計画全般に関することを所掌し、効率的な開発投資を行い、またその優先順位をつけるための、国の運輸政策の見直しや総括的分析を行う。また、運輸政策の中の「国家開発計画」の達成目標を実現させる役割も果たし、さらに輸送施設の計画立案に関する事項についての経済規格開発省 (Ministry of Economic Planning and Development) に対する窓口としての役割もある。

MOTC にはほかに多くの通信手段に関する所掌業務があるが、これは、MOTC の実務を行っている公団が行っている。

3. ケニア共和国における道路交通の現況

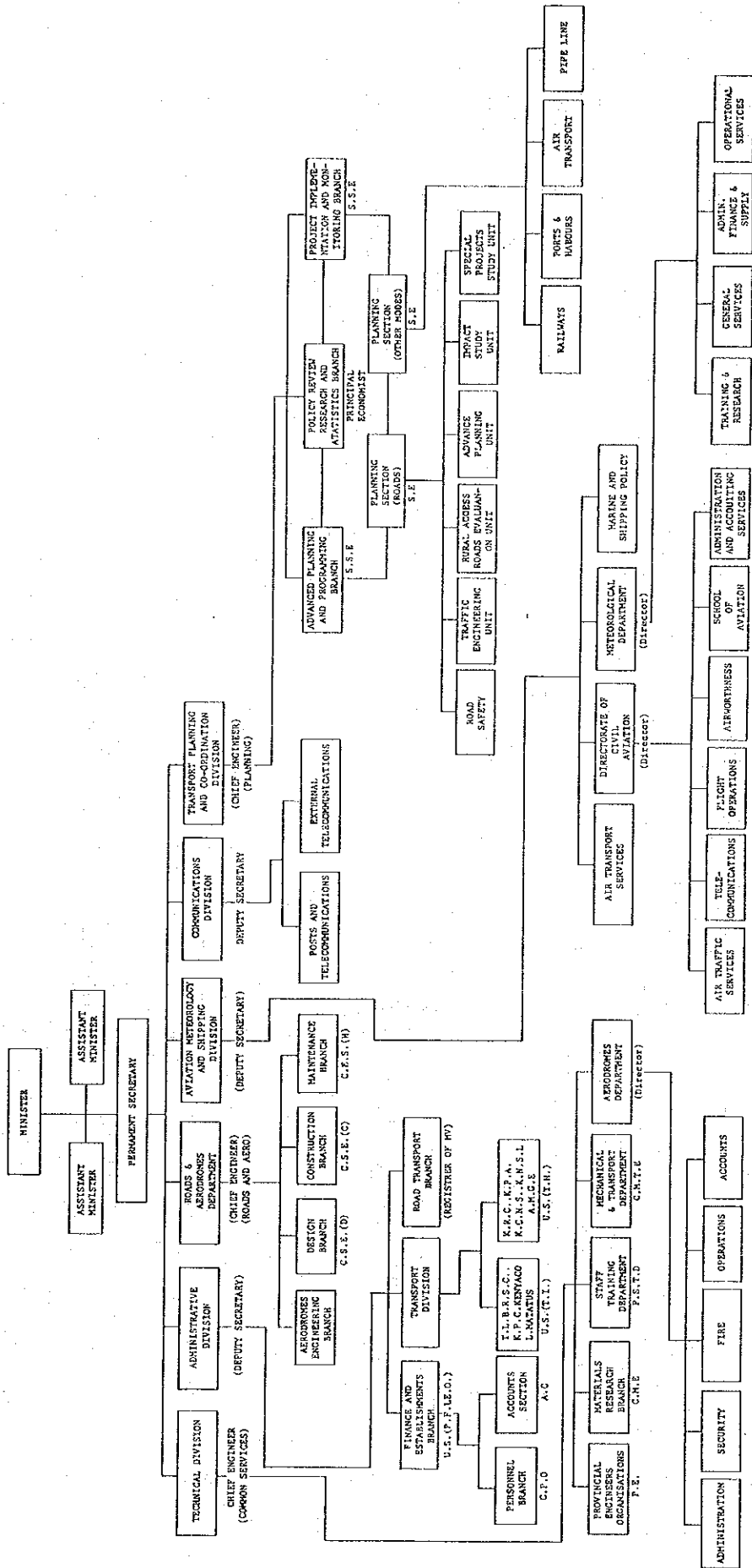
1. 道路の分類

ケニアの道路網は総延長が6万1,895kmであり、規格道路5万1,814km、特殊目的道路 (Special Purpose Road) 2,770km (アクセス国道 (Government Access Road) 含む) そしてアクセス地方道 (Rural Access Road) 7,311kmに分類される。アクセス地方道を除いては、近年道路網の整備は進んでいない。

② 規格道路

規格道路は、その主要な機能によって下記の5つのクラスに分類されている。

クラスA——国際幹線道路 (International Trunk Road) : 国際的重要地を結ぶ国境を横断し、また



は国際港を終点とする道路。

クラスB——国内幹線道路 (National Trunk Road) : 国内の主要な都市間を結ぶ道路 (主要都市もしくは都市)

クラスC——一級道路 (Primary Road) : 地方の主要な町相互を結ぶ、もしくは上級道路に接続している道路 (都市もしくは地方都市)

クラスD——二級道路 (Secondary Road) : 地域の主要な町相互を結ぶ道路、もしくはより重要な町あるいは上級道路に接続する道路 (地方都市もしくはマーケットセンター)

クラスE——地方道路 (Minor Road) : その他の町を結ぶ道路 (マーケットセンターもしくはローカルセンター)

クラスAおよびBといった高級道路の主要な機能は輸送力であり、一方、クラスEの道路の機能は、アクセスである。クラスC、Dの道路は、輸送力とアクセスの両方の目的を持つが、クラスCは輸送力に、クラスDはアクセスに重点が置かれている。

このほかに、アクセス地方道と特殊目的道路があるが、後者はその名が示唆するように、主に砂糖、紅茶、小麦やアクセス国道に関する特別開発計画に関連した道路であり、また、上記の分類のいずれにも属さない、乾期にしか通行できないような小道があり、その延長は10万kmに及ぶと考えられている。

2. 道路および道路交通の現状

(1) 道路の現状

ケニアの6万1,895kmの道路網のうち、11%はアスファルト舗装道路、38%は砂利道、残りの51%は未舗装道 (土道; earth surface) である。道路種類別舗装タイプ延長を表-1に示す。国際幹線道路でも交通量が少ないため、未だ砂利道もしくは未舗装道の区間が多くある。ここで強調しておきたいのは、前述の道路の分類は機能によるものであり、現在の道路交通の量と質には関係なく分類されているということである。すなわち、ある道路は今後交通量が伸びることが予想されているが、それでもその道路の分類上の位置づけが変わるものではない。

(2) 道路交通

1983年3月、全国規模の道路交通調査が行われた。その結果、自動車の道路利用台数1日2万5,000台のうち半分以上が貨物車であった。人の輸送には、バス、マタツ (matatus) 小型トラック・バスを改造した乗り合いタクシー、通常10~20人乗り)、乗用車が使われている。バスとマタツが輸送する旅客数は多く、それぞれ乗用車の倍以上になっている。貨物輸送については、車種別輸送トン数で見ると、大型貨物車と中堅貨物車の割合が圧倒的に大きい。道路交通量の概要は、表-2を参照されたい。

交通量の多くは、モンバサからナイロビを經由してウガンダとの国境へ通じる道路に集中している。もう1つの主要な交通の流れは、ナイロビから東部地域へ向かうもので、ティカ (Thika),

ニユリ (Nyeri) を経てナニユキ (Nanyuki) に至るものである。これら2つの主要な経路は、ケニアを通過して内陸国へ行く国際交通のための連絡路として主要な役割を果たしている。

表-3 Vehicle - Kilometres by class of vehicle on 1984
(1,000,000 vehicle kilometre per year)

Class of road	Cars	Light Goods	Medium Goods	Heavy Goods	Buses	TOTAL
Trunk roads	503.7	681.8	320.8	118.6	94.9	1,719.8
Primary roads	101.5	357.0	91.3	6.9	18.6	575.3
Secondary roads	21.9	99.6	30.3	0.4	8.8	161.0
Minor roads	10.0	92.7	29.2	-	2.6	134.5
TOTAL	637.1	1,231.1	471.6	125.9	124.9	2,590.6

(出典) ACCIDENT STATISTICS (1978 - 1985)

表-4 Total number of road traffic accidents involving personal injury by province in 1972 and 1984

Province	1972		1984	
	Accidents	Per cent	Accidents	Per cent
Central	960	17.6	1,282	15.5
Coast	784	14.4	1,017	12.4
Eastern	363	6.7	605	7.4
Nairobi	2,070	38.0	2,815	34.2
North Eastern	1)	1)	69	0.8
Nyanza	292	5.4	484	5.9
Rift Valley	817	15.0	1,505	18.3
Western	157	2.9	452	5.5
TOTAL	5,443	100.0	8,229	100.0

1) Not available

(出典) 同上

表 5 ROAD VEHICLES

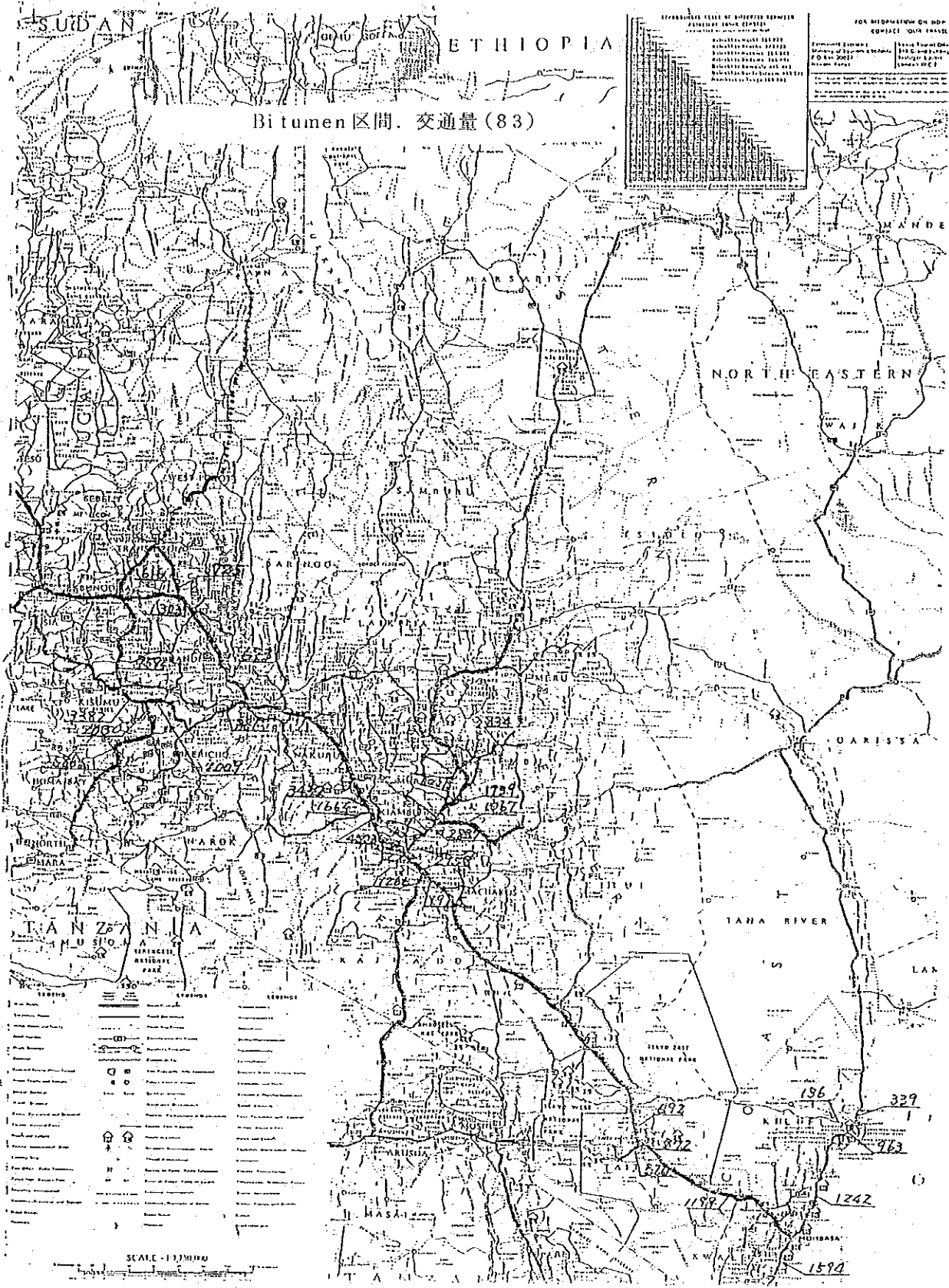
Vehicles with Current Licences, 1976 - 1984

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Motor Cars	99,947	104,272	109,121	110,431	113,629	114,197	115,316	116,852	122,300
Utilities, panel vans, pick-ups, etc.	44,543	48,264	50,203	52,249	55,524	57,969	59,358	59,618	64,805
Lorries, trucks and heavy vans	20,732	21,007	22,185	23,115	23,594	23,956	23,634	23,335	24,769
Buses and Mini-buses	4,706	4,772	4,825	4,985	5,075	5,432	5,724	5,959	7,001
Motor and auto cycles	11,870	12,763	13,746	14,573	15,343	16,345	16,870	16,823	17,944
Other motor vehicles**	12,842	14,121	15,491	16,316	16,703	17,318	17,367	17,493	18,454
Trailers	8,806	9,152	9,876	10,360	10,567	10,915	10,893	10,839	11,337
Total	203,446	214,351	225,447	232,029	240,435	246,132	249,162	250,919	266,613

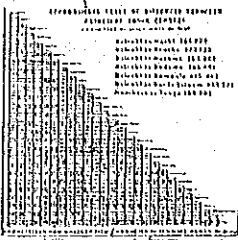
Source: Central Bureau of Statistics.

* Vehicles for which licences are renewed, plus those registered for the first time, during the year.
All government vehicles are included, except military vehicles.

** Includes road construction vehicles, farm tractors and three-wheelers.



Asphalt Road Sections, Traffic Volume (83)



FOR INFORMATION ON ROAD CONTACT YOUR TRAVEL

Estimated Traffic Volume: 100,000 vehicles per day
 Estimated Traffic Volume: 200,000 vehicles per day
 Estimated Traffic Volume: 300,000 vehicles per day
 Estimated Traffic Volume: 400,000 vehicles per day
 Estimated Traffic Volume: 500,000 vehicles per day
 Estimated Traffic Volume: 600,000 vehicles per day
 Estimated Traffic Volume: 700,000 vehicles per day
 Estimated Traffic Volume: 800,000 vehicles per day
 Estimated Traffic Volume: 900,000 vehicles per day
 Estimated Traffic Volume: 1,000,000 vehicles per day

4. ケニア共和国経済・社会開発計画概要

1-1 ケニアの概要

- ① 面積 582.64 km² (日本の約1.6倍)
- ② 人口 18.1百万人
(1982年)
- ③ 政体 共和制
元首: ダニエル・アラブ・モイ大統領 (1978年10月就任)
- ④ 宗教 伝統的部族信仰 (約50%), キリスト教 (約30%) その他にイスラム教など
- ⑤ 言語 公用語としてスワヒリ語。
その他英語も広く通用。主要部族語はキクユ語, ルオ語
- ⑥ 部族 アフリカ人が95%を占め, キクユ (20%), ルオ (14%), アバルユア (12%), カンバ (12%) など約60の部族に分かれている。他にインド・パキスタン系6万人, 白人5万人, アラブ系4万人など。
- ⑦ 教育 1984年の教育制度改正により小学校8年 (無料), 中・高校5年, 大学3年となった。大学はナイロビ大学, ケニヤック農工大などがある。
- ⑧ 貿易 輸出: 1,216百万ドル
西ドイツ, イギリス, ウガンダ, オランダ, アメリカ
輸入: 2,121百万ドル
イギリス, 西ドイツ, 日本, アメリカ, イラン
- ⑨ 通貨準備高 263百万ドル
(1981年)
- ⑩ G N P 6,479百万ドル (373ドル1人)
(1981年)
- ⑪ 援助の要請 ① 経済企画省が各省より提出されたプライオリティー順の開発計画プロジェクトリストに基づき5カ年計画期間中の開発対象プロジェクトを決定する。
② ローカルコストの資金手当ての確実なもの (毎会計年度の開発予算に計上されているもの) について大臣省書簡にて援助要請を行う。なお、個々の援助要請に際し、閣議決定は不要である。



ケニアはイギリス統治下にあったが、1963年に独立し、翌1964年に共和制を施行し、ケニア・アフリカ人国民同盟 (KANU) の指導者であったケニヤッタを大統領に選出した。ケニヤッタ大統領は外国からの投資を導入するとともに、ケニア化を押し進めてきた。

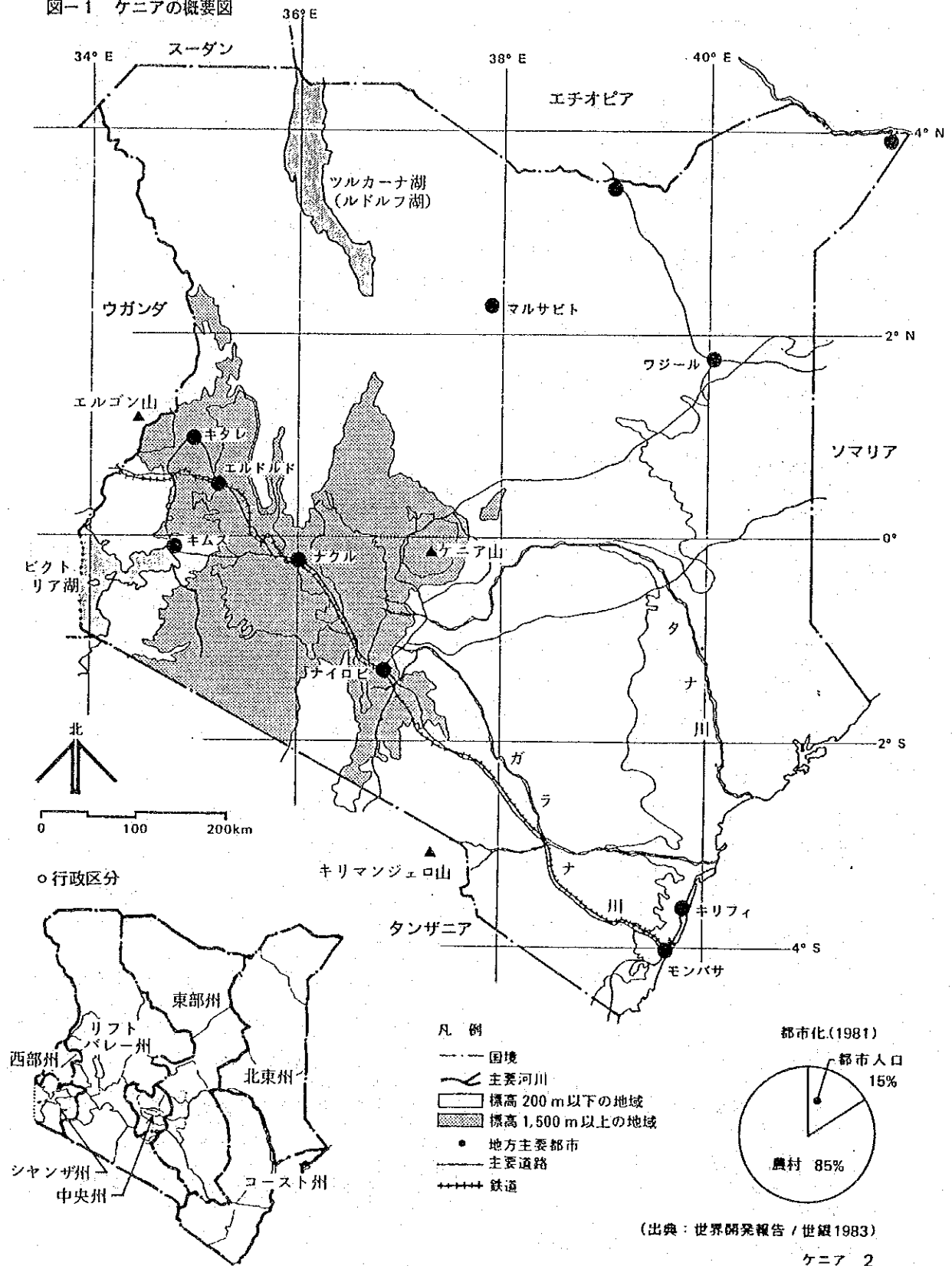
ケニヤッタ大統領は1978年に病死し、その後ダニエル・アラブ・モイが大統領となった。モイ大統領はアフリカ統一機構 (OAU) の議長を務め、東アフリカ近隣諸国との関係を強化しつつある。

アフリカの中では比較的気候が良く、政治的にも安定しており、経済的には失業問題、地域格差、貿易収支の赤字などの問題があるが、順調な発展を遂げている。

南部の高地通称 (ホワイト・ハイランド) はめざましい。気候条件のもとで、白人の大きな投資対象地域として発達してきた。これに反し、北部は年間降雨量が500mm以下の低地乾燥地帯が多く、ラクダ牧畜 (レンディーン族, ガブラ族, ソマリイ族) 牛牧畜 (トルカナ族, サレブル族, ナンディー族, ソコット族) と牧畜部族の生活圏とし放置された土地が多い、充実した都市機能を持つ首都ナイロビと散在する保護された自然動物公園は、ケニアを観光のメッカとしている。

1 ケニア

図-1 ケニアの概要図



1-2 開発計画概要

1-2-1 既往の開発計画

- 第1次5ケ年計画（1966～1970）
- 第2次5ケ年計画（1970～1975）
- 第3次5ケ年計画（1975～1979）
- 第4次5ケ年計画（1979～1983）

第4次5ケ年計画においては、国内総生産（GDP）の実質成長率は年平均6.3%と計画されたが、同計画期間中における実際の成長率は5.0%にとどまった。国内総生産成長率の実績は計画値に達しなかったが、第4次5ケ年計画以前の実績値4.0%（1972～76年）は上回る結果となった。部門別の国内総生産をみると、鉱業部門のマイナス成長、建設部門の低成長が目立っている。

1-2-2 現行の開発計画：第5次5ケ年計画（1983～1988）

(1) 主要目標

- ① GDP実質成長率年平均4.8%の達成。
- ② 雇用機会を年平均3.8%で増大させる。
- ③ 輸入超過額をGDPの10.9%とする（1982年には15.5%であった）。

第5次5ケ年計画では、GDP成長目標を年平均4.8%とし、第4次5ケ年計画における目標値よりも低く、過去の実績値に近い値となっている。年別の成長率目標をみると初年度が3.9%、最終年度が5.6%となっており、徐々に高める計画となっている。

産業別のGDP成長率目標をみると金融部門、不動産部門、その他サービス部門がいずれも6%を超え、3次産業の育成に重点を置いた計画となっている。

(2) 部門別開発パターン

<基本インフラ>

① 運輸、通信

- ・道路：舗装化、未舗装道路の改良
- ・鉄道：車両保守施設整備、コンテナ・ターミナル建設、通信システム整備
- ・航空：施設の近代化、国際標準に見合った技術訓練
- ・海運：国際海運会社の設立
- ・パイプライン：モアイ空港へのジェット燃料供給、西部ケニアへの延長
- ・郵便、電報：郵便局の増設、電話、テレックス交換能力の拡大、インド洋海底ケーブルの運用開始

② 建設

- ・公共による建設資金融資機関の設立
- ・民間建設業者の育成

③ エネルギー

- ・140 MWの水力発電所の建設
- ・地熱発電能力の倍増

④ 環境

- ・環境アセスメントの確立
- ・天然資源の管理

⑤ 科学、技術

- ・農業、畜産、獣医学、林業、保健、工業、水産、エネルギーの各分野にわたる調査・研究の推進

<社会基盤>

- 家族計画の普及
- 雇用機会の増大を図るため地域開発の推進
- 経済成長を支えるための教育の普及
- 国民の健康保持と産業の発展に必要な給排水施設整備
- 公共及び民間による約60,000戸の住宅建設
- 国民の生活向上のための社会サービスの拡充

<第1次産業>

① 農業、畜産

- ・食料増産による自給の達成と輸出による外貨の獲得
- ・流通整備による需給地域格差の是正

② 林業

- ・民有地における多目的な植林
- ・乾燥地帯の植林
- ・木材需要の増加に見合った産業化の達成

③ 鉱業

- ・科学的調査・開発による効率化の達成

④ 水産業

- ・5年間で漁獲量を50%増とするため、養殖業の進展を図る。

3 ケニア

<製造業、商業、観光>

- ① 製造業
 - ・生産の効率化、産業の多様化、輸出産業の振興、輸入代替産業の育成のための産業の近代化を図る。
- ② 商業
 - ・商業部門のケニア化の推進
- ③ 貿易
 - ・近代産業製品の輸出増加および輸入手続きの効率化
- ④ 観光
 - ・外貨獲得の手段として観光開発を推進する。

表一 第5次5ヶ年計画GDP成長目標

単位：百万ケニアポンド
(82年価格、1ケニアポンド=1.57ポンド)

部門	1984	1988	年平均成長率
農業	956.7	1,146.3	4.6%
製造業	390.1	503.6	6.6%
商業	305.2	360.8	4.3%
金融業	221.0	282.7	6.3%
運輸・通信	172.2	209.7	5.0%
不動産	159.1	200.9	6.0%
建設	114.7	126.5	2.5%
その他	155.5	203.0	6.9%
小計	2,474.5	3,033.5	5.2%
その他	697.3	836.8	4.7%
合計	3,171.8	3,870.3	5.1%

(出典：Development Plan, 1984~88)

1-3 開発予算

1-3-1 開発予算

ケニアにおける第5次5ヶ年計画の投資額は1982年価格表示で48億ポンド(約75.4億ドル)にのぼり、その部門別内訳は表一2に示すとおりである。

ここでの投資割合はGDPの部門別割合とは異なっている。投資割合では運輸・通信部門が19.5%を占めて1位となっているが、GDPでは同部門は5.6%を占めているに過ぎない。農業部門は11.9%であるがGDPの中では28.9%を占め1位となっている。

表一2 部門別投資額(1984年~1988年)

単位：百万ケニアポンド
(82年価格、1ケニアポンド=1.57ポンド)

部門	投資額	割合
農業	572.5	11.9%
製造業	771.9	16.0
運輸・通信	938.9	19.5
不動産	489.0	10.1
政府	631.6	13.1
その他	1,415.1	29.4
合計	4,819.0	100.0

(出典：Development plan, 1984~88)

1-3-2 ケニアの国家予算

ケニアの第5次5ヶ年計画初年度(1983/84年)の国家予算を示す。これは前年度1,020百万ケニアポンド(約1,601百万ドル)と比較して14.4%増となっている。

経常収支によって経常支出および公債基金をまかない、2,700万ポンドの余裕があるが、開発支出をまかなうために外国からの贈与、借款および国内借入が必要となっている。

歳出 総額 1,167百万ケニアポンド
(約1,832百万ドル)

経常支出 645
公債基金 239
開発支出 283

歳入 総額 1,167百万ケニアポンド

経常収入 911
外国援助 71
外国融資 60
国内融資 125

図一2 国家予算内訳

	歳出	歳入	
開発支出	24%	11%	外国資金
		11%	国内資金
公債基金	20%	78%	経常収入
経常支出	56%		

ケニア 4

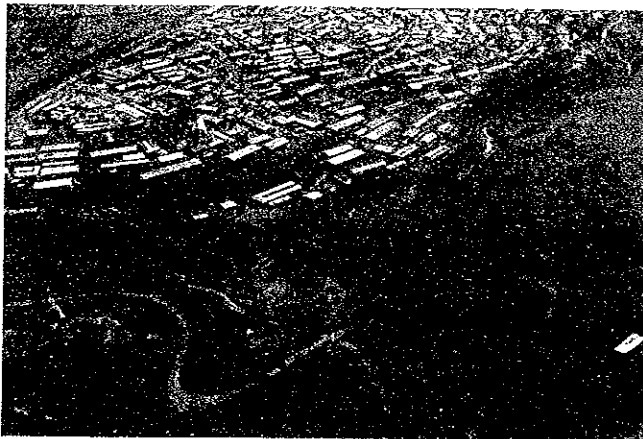
ナイロビ・バイパス建設計画調査
事前調査

写真集



1. ナイロビ市内混雑状況

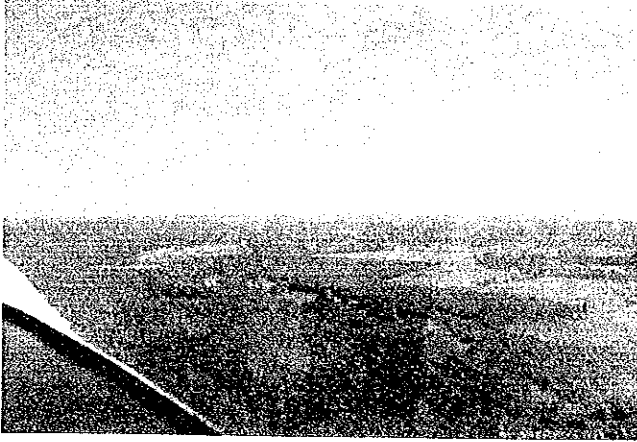
2. 空查出発直前打合せ



3. 飛行機より、起点から数Km地点

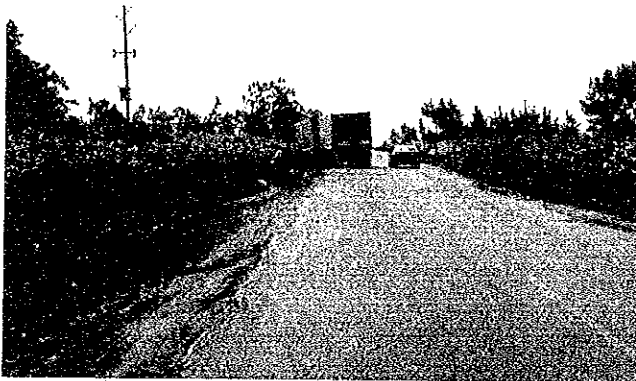
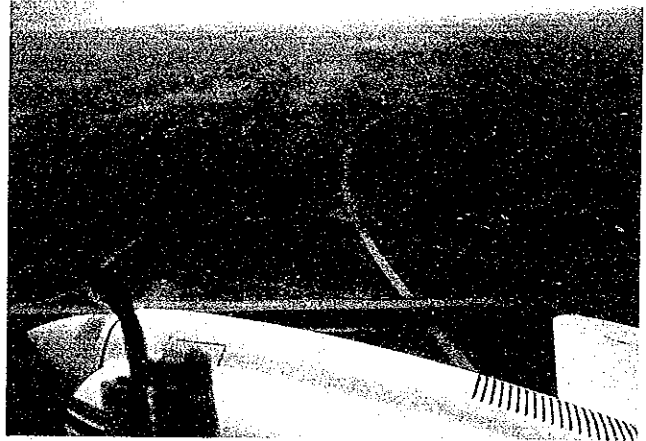
4. NGONGの森周辺





5. NGONG の森

6. 南ルート of 東端附近



7. 路肩破壊状況

8. バイパス起点附近 (A 104 号)



9. C58号よりNGONG 森の方向を望む



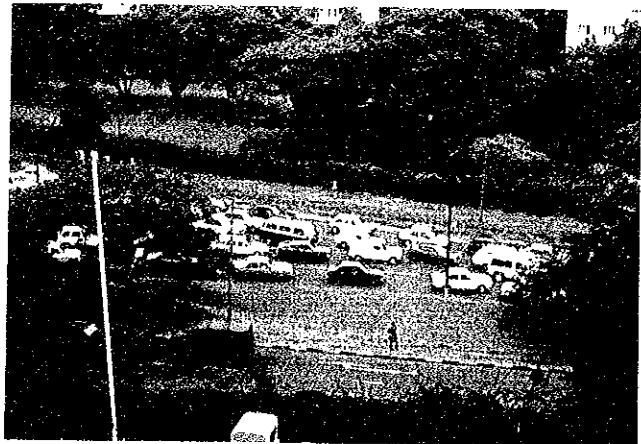
10. NGONG の森



11. バイパス終点附近



12. ナイロビ市混雑状況 (ホテルより)





13. 内陸向け大型トレーラー・ターミナル(ナイロビ)



14. MOTC 試験所



15. ナイロビ市内混雑状況



16. MOTCにてS/W署名(1)



17. MOTCにてS/W署名(2)

JICA

