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STAFF APPRAISAL REPORT

FEDERAL REPUBLIC OF NIGERIA

SECOND MULTI-STATE ROADS PROJECT

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(September 30, 1992)

Currency Unit	=	Naira (₦)
US\$1	=	₦19.56
₦1.00	=	US\$0.054

Measures and Equivalents

1 kilometer (km)	=	0.62 miles
1 meter (m)	=	3.28 feet
25.4 millimeters (mm)	=	1 inch

Abbreviations and Acronyms

ADT	Average Daily Traffic
DFRRI	Directorate of Food, Roads and Rural Infrastructure
EAMU	Environmental Assessment and Monitoring Unit
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EPC	Environmental Protection Commission
FEPA	Federal Environmental Protection Agency
FGN	Federal Government of Nigeria
FHWA	U.S. Federal Highway Administration
FMA	Federal Ministry of Aviation
FMF	Federal Ministry of Finance
FMTC	Federal Ministry of Transport and Communications
FMWH	Federal Ministry of Works and Housing
HSL	Highway Sector Loan
ICB	International Competitive Bidding
LCB	Local Competitive Bidding
LGC	Local Government Council
MSRP-I	First Multistate Roads Project
MSRP-II	Second Multistate Roads Project
NAA	Nigerian Airports Authority
NPA	Nigerian Ports Authority
NRC	Nigerian Railway Corporation
NTCC	National Transport Coordinating Commission
SMOW	State Ministry of Works
SSA	Sub-Saharan Africa
TPP	Transport Parastatals Project
TTC	Technology Transfer Center

FISCAL YEAR

January 1 - December 31

FEDERAL REPUBLIC OF NIGERIA

SECOND MULTISTATE ROADS PROJECT

Table of Contents

	<u>Page No.</u>
<u>CREDIT AND PROJECT SUMMARY</u>	i
<u>I. INTRODUCTION</u>	1
<u>II. THE TRANSPORT SECTOR</u>	2
A. Overview of the Sector	2
B. Transport Planning and Coordination	3
C. Previous Bank Group Involvement in the Roads Sector and Lessons	3
<u>III. THE ROAD SUB-SECTOR</u>	4
A. The Road Network	4
B. Road Safety	5
C. Roads Administration	6
D. State Roads	6
E. Development of State Roads	7
F. Development Strategy	8
G. Rationale for IDA Involvement	9
H. Financing the State Roads Program	9
<u>IV. THE PROJECT</u>	11
A. Project Objectives	11
B. Project Description	11
C. Cost Estimates and Financing	14
D. Road User Charges and Cost Recovery	16
E. Implementation	17
F. Procurement	17
G. Disbursements	20
H. Accounting and Auditing	22
I. Reporting and Monitoring	22
J. Environmental Aspects	22
K. Project Supervision	24

This report is based on the findings of a Bank mission which visited Nigeria in June/July 1992, comprising Messrs./Mmes. A. Bhandari (Sr. Transportation Engineer, and Mission Leader), M. Makanda (Financial Analyst), O. Ikejiani (Infrastructure Engineer), assisted by consultants A. Ross (Development Specialist), R. Chandran (Procurement Specialist), S. Hertel (ILO Consultant) and S. Olugbekan (Highway Engineer). A. Dalfelt carried out the environmental assessment, and R. James provided the computing and research assistance. Secretarial work was done by H. Kofi. The report has benefited greatly from work done earlier under the First Multi-State Roads Project by Messrs./Mmes. C. Queiroz, E. Warner and S. Berkman. The peer reviewers were J. Riverson (AFTIN) and S. Torabi (AFTIM). Messrs. J. Wright and E. Lim are the Division Chief and Director, respectively of the operation.

V. PROJECT JUSTIFICATION AND RISKS 24
VI. AGREEMENTS AND RECOMMENDATION 25

ANNEXES

1-1 Nigeria: Road Rehabilitation and Maintenance Initiative

2-1 Past Bank Involvement in the Road Sub-Sector

3-1 Characteristics of State Road Networks, 1988
3-2 Selected Information on Project States
3-3 State Government Finances
3-4 State Roads Maintenance Cost Recovery

4-1 Design Standards
4-2 List of Vehicles and Equipment to be Procured under the Project
4-3 Draft Terms of Reference for State Roads Management Consultancy
4-4 Manpower Development and Training and Technology Transfer Centers
4-5 Draft Terms of Reference for Project Oversight
4-6 Project Cost Tables
4-7 Draft Terms of Reference for Supervision of Road Work Contracts
4-8 Project Monitoring and Evaluation
**4-9 Project Implementation Schedule, Details of Procurement Arrangements,
and Monitorable Targets and Performance Indicators**
4-10 Disbursement Schedule & Disbursement Chart
4-11 Environmental Assessment Summary
4-12 Supervision Plan

5-1 Economic Analysis

6-1 Documents Available in the Project File

Maps IBRD No. 23954 Multi-State Roads Project II (Project States)
IBRD No. 23955 Multi-State Roads Project II (Oyo State)
IBRD No. 23956 Multi-State Roads Project II (Osun State)

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
CREDIT AND PROJECT SUMMARY

- Borrower:** Federal Government of Nigeria (FGN)
- Beneficiaries:** Federal Ministry of Works and Housing (FMWH),
Oyo State Ministry of Works and Transport
Osun State Ministry of Works, Lands and Physical Planning
- Implementing Agencies:** State Ministries of Works (SMOWs), FMWH
- Credit Amount:** SDR 61.4 million (US\$85.0 million equivalent)
- Terms:** Standard IDA terms with 35 years maturity
- Lending Terms:** From FGN to the States for twenty years, including 5 years of grace at the IBRD variable interest rate. The States would bear the foreign exchange risk. US\$2.3 million would be retained by the Government to finance technical assistance to FMWH.
- Description:** The project is the second phase of a national state roads program that is planned to eventually cover most Nigerian states. The first phase covered the two states of Kano and Jigawa. The proposed project would cover Oyo and Osun, and would include:
- (a) **Road works:** implementation of selected high priority road works in the States' five-year economically justified road investment program including rehabilitation and strengthening works, paving of selected high volume unsurfaced roads and limited construction of new roads;
 - (b) **Maintenance by contract:** initiation of a program of routine and periodic maintenance of roads by private contractors, including the development and training of small scale domestic contractors in using labor based and light equipment assisted construction methods;
 - (c) **Vehicles and equipment:** purchase of vehicles and equipment to strengthen institutional capacity to plan, design and supervise the project work; and

- (d) **Institutional development:** establishment of appropriate institutional arrangements within the SMOWs and support for planning, design, construction, maintenance and supervision of roads, and for contract management.

Estimated Project Costs:

	Project Costs and Financing Plan (US\$ million)		
	Local Costs	Foreign Costs	Total
A. State Components			
Civil Works	26.9	50.0	76.9
Vehicles and Equipment	0.8	3.2	4.0
Technical Assistance	1.5	3.6	10.1
Training	<u>0.4</u>	<u>1.6</u>	<u>2.0</u>
Subtotal (Base Costs):	29.6	63.4	93.0
B. Federal Components			
Technical Assistance	0.1	0.7	0.8
Training	0.0	0.1	0.1
Studies	<u>0.2</u>	<u>0.9</u>	<u>1.1</u>
Subtotal (Base Costs):	0.3	1.7	2.0
Total Base Costs	29.9	65.1	95.0
Physical Contingencies	3.0	6.5	9.5
Price Contingencies	<u>4.4</u>	<u>9.3</u>	<u>13.7</u>
Total Project Costs: 1/	<u>37.3</u>	<u>80.9</u>	<u>118.2</u>
Financing Plan:	Local	Foreign	Total
IDA	4.1	80.9	85.0
State Governments			
Oyo	16.8	0.0	16.8
Osun	16.2	0.0	16.2
Federal Government (FMWH)	<u>0.2</u>	<u>0.0</u>	<u>0.2</u>
Total:	<u>37.3</u>	<u>80.9</u>	<u>118.2</u>

1/ Of which US\$3.7 million represents taxes and duties.

Estimated IDA Disbursements
(US\$ million)

<u>Fiscal Year</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
Annual	7.5	16.8	20.4	19.6	12.7	8.0
Cumulative	7.5	24.3	44.7	64.3	77.0	85.0

Benefits and Risks: The main benefit from the project would be a more efficient and cost effective state roads network that permits a higher level of economic activity. Quantifiable benefits consist of savings in vehicle operating costs for normal traffic and for generated or diverted traffic where applicable which would result from improved links between the federal inter-urban highways and tertiary rural road systems. Additional benefits would consist of reductions in maintenance costs, improved road safety, time savings and improved links between federal and rural road systems. The benefits of the institutional development component, the pilot program of road maintenance by contract and development of local contractors are potentially high but unquantifiable.

There are three major risks associated with the project. The first concerns the ability of new and untried states executing agencies to effectively manage both a large increase in maintenance operations and the switch to contract works. The second risk concerns state level capacity to maintain an acceptable contracting process. The third risk involves the provision of counterpart funds which have historically been a major problem in project implementation in all sectors. The first two risks will be addressed through the close and continual interactions of the state agencies, the consultants, FMWH, and IDA. The third risk will be addressed by having counterpart funds deducted at the source from the Federation Account.

Rate of Return: The economic rates of return for the civil works sub-components range from 25% to over 100%. The overall ERR for the combined investment in the two states is 35%.

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT

I. INTRODUCTION

1.1 Nigeria is the most populous country in Africa with a population of about 88.5 million ^{1/}, which is expected to double during the next 25 years. It is located between latitudes 4°N and 13°N and has an area of approximately 925,000 km². The climate varies from semi-arid in the north, with about 500 mm of rainfall, to wet and humid in the south with over 2,000 mm of rainfall per year. There is a well defined wet season in the summer, extending for as little as four months in the north to as long as seven months in the south. In the north, the terrain is flat with sparse natural vegetation; across the middle belt, there are hills and granite outcrops with savannah type vegetation, while in the south the terrain is generally flat with tropical forest vegetation.

1.2 Despite its oil wealth, Nigeria is among the 15 poorest countries in the world with annual per capita income at around US\$290 (1991). Social indicators are slightly below the average for Sub-Saharan Africa (SSA). The Structural Adjustment Program (SAP) launched in mid-1986 supported a number of reforms in economic and human resource development. The SAP recognized that removing transport bottlenecks and improving transport efficiency were crucial to obtaining an adequate supply response in the economy. It also endorsed a policy of making better use of assets in the sector through adoption of a "maintenance culture" as a means to achieve the highest overall return.

1.3 Over the last 15 years there has been a remarkable expansion and improvement of the roads system in Nigeria, but inadequate maintenance now threatens the road network, raising the possibility of the loss of past investments and serious repercussions for the economic well-being of the country. Road maintenance capability is weak at all levels of Government, and this problem is compounded by weak organizational structures for managing the road system.

1.4 The Bank is supporting a shift in emphasis from new construction to maintenance and rehabilitation of the federal highways under the Highway Sector Loan (HSL, 2963-UNI, US\$250 million, September 15, 1989). In line with this policy shift towards rehabilitation and maintenance, the Government of Nigeria has requested the Bank's assistance to improve the road networks in selected states. The proposed project, which would be the Bank's second operation for state roads, is consistent with the Bank's development strategy (para 3.12) and key policy reforms recommended under the Road Rehabilitation and Maintenance Initiative (Annex 1-1). The Project would provide the opportunity to pursue at the state level the types of improvements being introduced at the federal level to strengthen the management of road administrations. The needs of the rural roads which are administered by Local Government Councils (LGCs) are being addressed through the Bank-assisted Agricultural Development Projects. More recently, the Directorate of Food, Roads and Rural Infrastructure (DFRRI) in the Executive Office of the President has also become involved.

1.5 The proposed project, Multi-State Roads Project II (MSRP II), which involves the States of Oyo and Osun, is a follow-up to the first Multi-State Roads Project (MSRP I) which

^{1/} Based on the preliminary results of the 1991 census.

involved Kano and Jigawa States. The project was prepared with financing from a Japanese Grant of Yen 166 million (about US\$1.3 million). Under the grant, FMWH retained consultants who completed the road network condition surveys and other data collection activities in the field required for developing the 5-year economic program for state road rehabilitation, strengthening, upgrading, construction and maintenance in Oyo and Osun similar to the programs developed for Kano, Jigawa and Lagos under the First MSRP.

II. THE TRANSPORT SECTOR

A. Overview of the Sector

2.1 During the oil boom of the seventies, Nigeria experienced a strong growth in transport demand, with road, port, and air traffic increasing at 15-20% per year. The railways did not share this prosperity to the same extent, although a doubling of freight during a three-year period at the end of the decade (1979-1982) suggests that there was (and still is) considerable latent demand for reliable rail service.

2.2 The Federal Government responded to these strong demand pressures with a considerable investment program in roads, ports, and civil aviation. Between 1975 and the early 1980's, Nigeria spent some ₦7 billion on roads, mostly in the Federal system. Some 10,000 kms of roads were constructed, 3,000 kms rehabilitated, and 4,000 kms strengthened. Port capacity was more than doubled, and 14 major airports (eight capable of accepting 747s or 727s) were constructed or improved.

2.3 Although there are still significant deficiencies in infrastructure, the downturn in the economy during the eighties has reduced both the need and the means to greatly expand capacity. The emphasis now needs to be on maintaining and rehabilitating existing infrastructure, increasing the efficiency with which it is used, and recovering more of the costs from transport users.

2.4 The Federal Government owns and operates parastatals in all transport modes except roads. These range from large enterprises such as the Nigerian Railway Corporation (NRC), the Nigerian Airports Authority (NAA), and the Nigerian Ports Authority (NPA) with federal government investments in excess of ₦1.2 billion, ₦1.3 billion and ₦0.8 billion respectively (as of end 1988), to smaller enterprises like the Central Water Transportation Authority. With the exception of NAA which no longer receives operating subsidies, all transport enterprises depend on federal government subventions for most of their operating expenses and for their entire capital investments. Inadequate levels of capital and recurrent expenditure over several decades have left these enterprises with substantial deferred maintenance requirements and technologically obsolescent capital stock. The federal government has clearly indicated its intention to adopt policy reforms in parastatals to reduce operating losses and to begin to operate them on a commercial basis, and, in some cases, to fully privatize or liquidate them. Efficiency measures to be adopted by NRC (i.e. concentrating on more profitable long haul bulk traffic) will place growing demands on the road system to serve smaller centers with service that the railways are unable or reluctant to offer. The result is that demand for road services will continue to grow in Nigeria as the economy expands.

B. Transport Planning and Coordination

2.5 The Federal Ministry of Transport and Communications (FMTC) is responsible for all federal transport matters except the federal highway system which is under the Federal Highways Department (FHD) in the Federal Ministry of Works and Housing (FMWH). The responsibilities of FMTC include the formulation of transport policy, supervision of the federal transport parastatals, and the provision of infrastructure and services not provided by either FMWH or the parastatals themselves. Through its National Transport Coordination Commission (NTCC), FMTC is responsible for planning and coordinating investments and operations in all transport modes. So far, NTCC, whose membership includes the FMWH, FMTC, and Federal Ministry of Finance (FMF), has had little influence on the road subsector. FMTC has not been very effective on some matters within its jurisdiction, such as restructuring of parastatals and economic assessment of its own investment programs. This is partly because of a lack of government interest in these issues in the past, and partly because of inadequate professional staff to develop annual and five-year plans based on engineering and economic criteria. With greater constraints on government spending, there is now more interest at FMTC and FMF in making only the most economic investments. This objective is being supported under an ongoing Transport Parastatals Project (TPP) (para. 2.6).

C. Previous Bank Group Involvement in the Roads Sector and Lessons Learned

2.6 The Bank's and IDA's past involvement in the transport sector in Nigeria has totalled US\$584.9 million and has been predominantly in highways (77%). The MSRP I with proposed IDA credit of US\$68 million equivalent, was negotiated in April, 1992, and approved by the Board in July 1992. Details of past lending to the highway sector are described in Annex 2-1. Assistance to railways was provided in 1958 (Loan 193-UNI, US\$28 million) and in 1970 as part of a Transport Rehabilitation Project (Loan 694-UNI, US\$25 million). There were two port projects (Loan 326-UNI, US\$13.5 million, 1963 and Loan 922-UNI, US\$55 million, 1978). The ongoing TPP approved in June 1986 (Loan 2734-UNI, US\$20.9 million) supports the Government's effort to improve the policy environment and the performance of parastatals, especially NRC and NPA. The MSRP-I is expected to become effective in August 1993.

2.7 Two types of problems predominated in past lending operations in the transport sector, and measures have been taken in the design of the proposed MSRP to avoid their recurrence. The first problem was the lack of success of institutional development components compared to the relative success of physical investment. The MSRP would build up the State Ministries of Works and Transport (SMOWs) by first of all, reducing the amount of force account operations and strengthening management's capacity to plan, design and supervise the works to be carried out by contract (paras 4.4-4.5). By focussing on priority areas, this approach would maximize the use of the limited manpower available in the SMOWs at the technical and managerial levels. Most road maintenance works would be transferred to private contractors thereby reducing bureaucratic constraints and increasing efficiency. The project would also extend initiatives under the HSL to establish at the state level a network of technology transfer centers to meet the technological needs of the SMOWs and the construction industry (para 4.7). Past road projects suffered substantial delays in agreeing on bidding documents and other procurement related matters due partly to a lack of familiarity with Bank requirements stemming from the lack of staff continuity, poor training and communication. During preparation of the proposed project, special effort has been taken

to familiarize staff at the FMWH and the SMOWs with Bank requirements for standard bidding documents, which the FMWH has now adapted for its own use.

2.8 The Highway Sector Loan (US\$250 million) was approved by the Board in March 1988, and became effective in March 1990. Implementation of the civil works components has been very slow due in part to bureaucratic delays in decision making in the Federal Ministry of Works and Housing and in part due to the lack of advance preparation of designs and tender documents. After consultations with the Nigerian Government, \$50 million loan was subsequently canceled as of Jan 1, 1993. Nevertheless, there has been a significant progress in recent months in completing the engineering designs, preparing tender documents and inviting bids for the first year road projects. The allocation of budgetary resources for capital and recurrent expenditure has improved in 1992. All audit reports for the project are up-to-date and satisfactory (Annex 2-1). At the state level, experience in other projects has shown decision-making to be faster, and implementation of the civil works components under the proposed project is expected to be enhanced due to the advanced level of preparation of designs and tender documents for the first batch of roads. These documents are expected to be ready for inviting bids on at least two road projects in each state by June 1993. The implementation readiness of the project is further expected to be enhanced by the adoption of model procurement documents already reviewed and approved by Bank under the Highway Sector Project.

III. THE ROAD SUB-SECTOR

A. The Road Network

3.1 The total road network in Nigeria is about 167,800 km, including the federal system which amounts to 28,600 km (see Table 1 below). The state roads system is approximately 30,500 km (34% bituminous surfaced), while the LGC road system comprises about 108,700 km (about 1.0% bituminous surfaced). The federal network accounts for about 17% of the total network and 67% of bituminous surfaced roads, while the state roads network comprises 18% of the total network and 30% of bituminous surfaced roads. The density of the total road network at 1.89 km/1000 population is above the average of 1.17 km/1000 population for SSA. The paved road network represents a density of about 0.38 km/1000 population, which is also above the average for SSA (0.29 km/1000 population).

Table 1: Roads Network
(Lengths in km)

<u>Type of Roads</u>	<u>Paved</u>	<u>Unpaved</u>	<u>Total</u>	<u>Percentage</u>
Federal Highways	23,000	5,600	28,600	17
State Highways	10,430	20,070	30,500	18
Rural Roads	870	107,830	108,700	65
Total Nigeria	34,300	133,500	167,800	100
Total SSA	111,037	213,092	324,129	

3.2 Since 1975, some 10,000 km of federal roads have been constructed, 3,000 km rehabilitated, and 4,000 km strengthened. Despite this substantial program, the federal network is still underdeveloped, with 20% unpaved and in poor condition. Some sections are only open to traffic in the dry season, while a few exist only as lines on the map. Many roads were constructed with relatively weak pavements with the intention of strengthening them with asphalt-concrete overlays when needed. However, this logical stage-construction approach proved difficult to put into effect in recent years, mainly owing to the lack of adequate budgetary resources. As a result, strengthening works have not been carried out on time. In addition, FHD's practice of designing pavements for the 10-ton legal maximum axle load then in effect ^{2/}, instead of the considerably heavier loads actually experienced, combined with poor supervision, led to instances of substandard construction. For all the above reasons, coupled with unexpectedly high traffic growth of about 30% a year in the late 1970s, the network deteriorated rapidly. The latest field survey (1988) showed that of the paved federal road network, 36% was in very good condition, 29% good, 20% fair, and 15% in poor or very poor condition. Strengthening and rehabilitating the federal network is thus the principal focus of the FHD Program currently being supported by the HSL.

B. Road Safety

3.3 Road accidents impose a heavy toll in terms of fatalities, injuries and property damage. Available road accident statistics for 1980-1988 indicate that Nigeria has an exceptionally high road accident fatality rate (about 33 fatalities per 100 million veh-km), a rate that is about 16 times higher than in the U.K. and U.S.A. The total number of road accidents declined from a peak of 40,900 in 1976 to 31,600 in 1980; data beyond 1982 suggest a similar decrease in accidents, injuries and fatalities, possibly due to a reduction in the vehicle fleet and improvements in road geometry and condition. However, fatality rates (deaths per 10,000 vehicles) have tended to rise which suggests a worsening of road safety. In terms of system performance, road safety deserves priority attention, as the annual

^{2/} The FGN recently decided to raise the axle load standard in Nigeria from 10 to 11.5 ton/axle, to more closely match the Economic Community of West Africa States (ECOWAS) standard of its neighbors.

economic loss to the country due to road accidents was conservatively estimated at ₦2.0 billion in 1989. Actions proposed under the project, including emphasis on road rehabilitation, maintenance and road safety improvements, would contribute to reducing accident costs on state roads. The consultants assisting in the design of the civil works will be required to give special attention to enhancing road safety.

C. Roads Administration

3.4 The FHD is responsible for managing the federal trunk road network; the SMOWs administer the state road systems while the LGCs have responsibility for local roads. As mandated by the constitution, the three tiers of government have independent planning, financing and budgeting responsibilities for the roads under their jurisdictions. A persistent problem has been the shortage of professional and technical staff at all levels of roads administration. As a result, planning, project and contract supervision, and the execution of maintenance have been weak, resulting in instances of poor quality of construction and inadequate maintenance. Measures are being taken via the HSL (para 1.4) and the proposed MSRP to define an organization and action plan to improve the administration, rehabilitation and maintenance of state roads. The findings will be implemented under the MSRP.

3.5 Road planning is carried out in principle at three levels. FMF assesses federal highway needs in relation to other sectors with respect to resource allocation while FHD initiates programs for federal roads based on need, and establishes construction and maintenance priorities. The SMOWs are responsible for performing similar tasks for state roads. A third level of planning, although not readily recognizable, exists at the local government level where some decisions concerning LGC roads are made. Coordination among the federal, state and local government agencies has not been very effective due in part to the lack of adequate manpower at middle and senior technical and managerial levels. An additional problem at the state level is the frequent turnover of key personnel which seriously affects continuity of management. The MSRP would address this problem by providing technical assistance and training to help strengthen the coordinating role of FMWH already begun under the First Multi-State Roads Project, and the planning and managerial capability of SMOWs. By establishing Technology Transfer Centers (TTCs) at the state level, MSRP would not only improve internal linkages, but would allow access to training for SMOW and LGC technical staff. Such centers are provided for in the Project (para 4.8).

D. State Roads

3.6 The state road networks consist of two classes of roads: the remnants of Trunk Roads B (secondary roads), which provide important links to the federal trunk roads; and tertiary roads transferred from the LGCs and incorporated in the state road systems. The estimated 30,500 km of state roads range from engineered two-lane asphalt-surfaced roads to dry-season earth tracks. About one-third of the state roads is bituminous-surfaced as shown in Table 1. The condition of the state roads varies considerably, much depending on the financial resources allocated to roads and, more importantly, the availability of trained and experienced staff within the SMOWs. States with well established institutions for implementing road projects have made considerable progress in upgrading and improving their road systems during the last decade, while progress in other states has been inadequate.

3.7 The characteristics of the state road networks are summarized in Annex 3-1. There is a degree of correlation between size of state road systems and the area and population of the state. Bendel/Delta, for example, has the largest state road network with 3,300 km, while Lagos has the smallest network with 370 km. The extent of paved roads (bituminous-surfaced) ranges from 1,490 km in Bendel/Delta to 210 km in Kwara/Kogi. State road networks with a large proportion of bituminous-surfaced roads are in: Lagos (96%), Rivers (91%), Kano/Jigawa (72%), Imo/Abia (64%), Kaduna/Katsina (58%), Ondo (52%), and Bendel/Delta (45%). In terms of coverage and quality, the state road systems in Anambra/Enugu, Benue, Gongola/Taraba, Kwara/Kogi, Niger, and Plateau appear to be the least developed.

3.8 A recent Trunk Road Study (TRS) carried out by consultants under the Bank financed Sixth Highway Project, estimated aggregate traffic on the state roads system at 15 million veh-km per day or about 25% of the traffic flow on the almost equally sized federal system. The corresponding road user costs on the state system are about US\$3.8 million per day or US\$1.4 billion per annum. The replacement cost of the state road system is estimated at about US\$2.0 billion, excluding major bridges and about 13,000 km of tracks.

3.9 The condition of the state road system is determined by two main considerations: the extent of road rehabilitation, upgrading, and new construction during the last 10-15 years, and the adequacy of maintenance. On a relative scale, state road systems in the best condition (less than 20% in poor condition) are found in Kaduna/Katsina, Lagos, Borno/Yobe, and Rivers mostly because of the large investments made by these states in bituminous-surfaced roads during the last 10 years. As a result, these states now face a heavier maintenance burden and require a major reorientation of their road expenditure priorities to preserve their recent road investments. The worst road conditions (more than 50% in poor condition) are to be found in Anambra/Enugu, Bauchi, Kwara/Kogi, Oyo/Osun, and Ondo due to weak state institutions for road development and maintenance and to financial constraints. The road conditions in other states fall somewhere between these limits but, in all cases, the institutions for road management at the state level require considerable strengthening, particularly in road planning and maintenance.

E. Development of State Roads

3.10 Parts of the state road system are still in the process of definition; there are no accurate inventories of state roads and the recent TRS suggests that there is a considerable overlap between state and LGC road systems. Despite their vital importance for intra-state commerce and trade (as the main connectors between the seats of local governments and as the backbone of the secondary collector-distributor road systems), the majority of the state road networks is still at an early stage of development. The Five-Year Development Plan (1986-1990) aimed at a complete overhaul of the state road system, including the improvement to paved standard of 20,000 km out of the total network. No priority was, however, assigned to road projects included in the state road development plans. Furthermore, these plans bore little relationship to the availability of financial resources or the ability of SMOWs to absorb additional resources. With the exception of a few states, the Development Plan was not carried out.

3.11 According to the Road Sector Strategy Paper (Report No. 7844-UNI, of January 10, 1991) a road investment program for state roads is economically justified for some 11,000 km. The scope of economically-justified resealing, rehabilitation, strengthening, and upgrading works on the state road networks is summarized below:

Table 2: State Roads Rehabilitation Program

<u>Type of Work</u>	<u>Length in km</u>
Resealing	3,500
Widening and Surfacing	1,200
Asphalt Concrete Overlays (including widening)	1,100
Rehabilitation	2,600
Upgrading to Paved Standard	2,900
Total	11,300

F. Development Strategy

3.12 Future development of the state road networks will depend on the ability of the states to mobilize financial resources for road development and maintenance (para 3.17) and their capacity to plan and utilize these resources in a cost-effective manner. The strategy for future state road development programs as agreed between the Government and the Bank should include:

- (a) creation of appropriate organizational and institutional arrangements within the SMOWs for planning and management of the state road system;
- (b) development of an institutional capacity for state road maintenance, which will eventually reach the LGCs;
- (c) mobilization of internal state resources for the MSRP through road user charges, land development fees, and other appropriate revenue generation measures to recover at least the recurrent maintenance costs;
- (d) development of a phased program of road improvements in order to strike a proper balance between expansion of road infrastructure and preservation of existing assets;
- (e) a strong emphasis on manpower development and contract management to strengthen SMOW capacity to oversee state road programs carried out by private contractors; and
- (f) the implementation of an extension program for private road contractors to strengthen their ability to carry out road maintenance and rehabilitation operations.

Selected information for Oyo and Osun states chosen for inclusion in the proposed MSRP II is shown in Annex 3-2.

G. Rationale for IDA Involvement

3.13 The project would be part of the ongoing effort to upgrade Nigeria's state highway system, to make more effective use of existing infrastructure, and to identify cost recovery mechanisms for roads. As works and transportation normally account for a significant percentage of public expenditure at the state and local levels, an IDA-financed state roads project could be an effective vehicle for institutional and fiscal reform. The Bank/IDA has been a catalyst in Nigeria at the federal level in achieving more economic road investment programs, stressing rehabilitation and maintenance over new investment, and emphasizing institutional development and cost recovery. IDA is now in a strong position to extend these benefits to the state level. IDA has also intensified its dialogue with Government on the need to shift road maintenance activities from force account operations to greater use of contractors and to make progress towards cost recovery from road users. The project provides a good opportunity to strengthen the SMOWs in contract supervision while encouraging greater involvement of the private road contracting industry. Hence, the project fits well into the overall Country Assistance Strategy, which was discussed at the Board meeting of May 28, 1992. The project also fits well into the country strategy for environmental institution building (paras 4.33-4.35).

H. Financing the State Roads Program

3.14 A summary of the 1990 actual and 1991 budgeted revenue, receipts and expenditures for the combined states of Oyo and Osun is presented in Annex 3-3. Receipts and expenditures for Oyo and Osun were budgeted at ₦1.7 billion for 1991. The state relied heavily on statutory revenue from the Federation Account amounting to ₦1.2 billion (75% of total receipts). Capital receipts totalled ₦181 million (10 percent of total receipts) and internally generated revenues amounted to ₦258 million (15% of total receipts) together making up the balance (25%) of the 1991 state budget.

3.15 Road works are financed from general government revenues; there is no ear-marking of user charge revenues for road works in Nigeria. Generally, construction, rehabilitation, pavement strengthening and periodic maintenance are financed from the states' capital budget, and routine maintenance operations from their recurrent budget. The budget for Oyo/Osun shows capital expenditures on road infrastructure at ₦58.7 million, or 10.9% of the total capital expenditure for 1990 and ₦71.7 million or 9% of total capital expenditure for 1991. Total expenditure on roads in 1991 was ₦107.4 million for Oyo/Osun. The road work planned for Oyo/Osun is predominantly rehabilitation and upgrading.

3.16 The cost of adequately providing recurrent (routine) maintenance of state roads ranges from about ₦7,000 per km for the lower volume unpaved roads (ADT < 300 vpd) to about ₦17,900 per km for the higher volume (ADT > 1500 vpd) asphalt concrete roads. When the annualized costs for periodic maintenance are also added, total maintenance costs (excluding rehabilitation and construction) range from ₦18,000 to ₦57,500 per km. On that basis, the estimated annual recurrent maintenance costs (in 1991 prices) for Oyo and Osun are respectively ₦10.6 million and ₦9.7 million and the total maintenance costs (recurrent and periodic) are, ₦30.5 million and ₦29.5 million respectively annually. Annex 3-4 shows

details of the recurrent and total maintenance costs in relation to the total transport related revenue generated in Oyo/Osun states. During negotiations it was agreed with the Borrower that a specific amount of funds, to be agreed by October 31 each year with IDA, will be allocated annually in the budget of each project state for recurrent maintenance of the state roads, and that these funds will be released in a timely manner. Currently, the estimated annual cost of recurrent maintenance in each state is US\$750,000 equivalent.

3.17 Table 3 shows a summary of the recurrent and total maintenance expenditure required to keep the state road networks in Oyo/Osun and the entire country in good condition. Total transport related revenue collected in 1991 cover 56% of the desirable recurrent maintenance expenditure in Oyo, and 50% in Osun, but constitute only 19% of the total (recurrent plus periodic) maintenance expenditure in Oyo and 16% in Osun. In comparison, the nationwide cost recovery ratios (based on 1990 data) are 40% for recurrent and 16% for total maintenance costs. The main source of transport related revenue is vehicle license fees (65%), followed by drivers license fees (15%), while other fees including registration of vehicles, change of ownership, safety inspection, annual hackney, etc. account for the remaining 20%. The individual rates are very low (see Table 3 in Annex 3-4), and have not been adjusted since August 1986.

Table 3: State Road Maintenance Costs and Revenues in 1991

<u>State Roads</u>	<u>Recurrent Maintenance</u> (₦ million)		<u>Rec + Periodic Maintenance</u> (₦ million)	
	<u>Oyo</u>	<u>Osun</u>	<u>Oyo</u>	<u>Osun</u>
<u>Oyo/Osun (1991)</u>				
Annual Costs	10.6	9.7	30.5	29.5
Transport related Revenue	5.98	4.82	5.98	4.82
Revenue/Costs (%)	56%	50%	19%	16%
<u>All States (1990)</u>				
Annual Costs	213.2		536.8	
Transport related Revenue	84.8		84.8	
Revenue/Costs (%)	40%		16%	

3.18 During negotiations it was agreed with the Borrower that the participating States will adjust the transport related charges sufficiently to recover fully at least the recurrent road maintenance costs each year. To be compatible with the overall national requirement, and avoid disparities among neighboring states, all the states should eventually increase the user charges uniformly by a factor of 2.5 (paras 4.15 - 4.16).

IV. THE PROJECT

A. Project Objectives

4.1 The main objectives of the project are: (a) to improve inter-city roads and transport in the states of Oyo and Osun and reduce transport costs through improving the condition of the state road networks; (b) to improve organizational arrangements for better planning and management of the state road system, including strengthening of the institutional capacity of SMOWs; (c) to use contractors for road improvement and for a major portion of road maintenance works; (d) to enhance resource mobilization and budgetary allocation at the state level to ensure sustained maintenance of the road networks; and (e) to build technical capacity at the state level to assess environmental impacts of road projects. The Project would also contribute to development of the private sector through training and participation of small and medium scale local contractors in carrying out an increased share of road maintenance and rehabilitation using labor and light equipment based technologies.

B. Project Description

4.2 The project would support the following main components in the states of Oyo and Osun:

- (a) **Road works:** implementation of selected high priority road works in the States' five-year economically justified road investment program including rehabilitation and strengthening works, paving of selected high volume unsurfaced roads and limited construction of new roads;
- (b) **Maintenance by contract:** initiation of a program of routine and periodic maintenance of roads by private contractors, including the development and training of small scale domestic contractors in using labor based and light equipment assisted construction methods;
- (c) **Vehicles and equipment:** purchase of vehicles and equipment to strengthen institutional capacity to design and supervise the project work and enhance road safety in the participating states; and
- (d) **Institutional development:** establishment of appropriate institutional arrangements within the SMOWs and support for planning, design, construction, maintenance and supervision of roads, and for contract management.

In addition, technical assistance would be provided to FMWH for coordinating the project in all the states and conducting environmental and other relevant transport sector studies, including preparation of the next phase of the state roads project.

4.3 **Road Works:** The road works under the project comprise a total of 994 km of rehabilitation, upgrading, construction and resurfacing works, of which 481 km are in Oyo and 513 km are in Osun as summarized in Table 4. In Oyo, road works comprise pavement reconstruction, overlay, resealing or upgrading (from gravel to bituminous surfaced) of 181

km; new construction of a 50 km section of the Iseyin-Ijaiye road; and complete rehabilitation of 150 km of high volume gravel roads and spot improvement of 100 km of low volume gravel roads. Similarly, in Osun, the project will finance 255 km of rehabilitation or upgrading works, construction of a four-lane 8 km by-pass to Oshogbo township; and complete rehabilitation of 150 km of high volume gravel roads and spot improvement of 100 km of low volume gravel roads. The list of priority roads to be included in the project and their economic rates of return are shown in Annex 5-1.

Table 4: Road Works (km)

Category	Oyo	Osun	Total
Rehab. or Upgrading	181	255	436
Rehab. of gravel roads	150	150	300
Spot improvement of gravel roads	100	100	200
New Construction	50	8	58
Total	481	513	994

4.4 The above works will be carried out in accordance with agreed standards which include designs for enhanced road and traffic safety with minimal adverse environmental impacts. All of the rehabilitation and upgrading work will be carried out on existing alignments, except for local improvements to meet the design standards (Annex 4-1). Rehabilitation and spot improvement of gravel roads will be carried out largely by using labor based and light equipment supported methods. After an initial training and trial period of about 12-18 months during which time contractors would be provided in-depth, on-site training and classroom instructions followed by 5 km trial sections for rehabilitation, the trained contractors would be awarded contracts through competitive bidding procedures. During negotiations it was agreed that road maintenance works to be performed under the Project (ensuring up to 70% of all maintenance works being carried out by the fifth year of Project execution) will be carried out by the contractors through contractual arrangements.

4.5 Maintenance by Contract: Currently very little routine and periodic maintenance work is carried out in Oyo and Osun, all of which is done by force account. Under the project it is intended to initiate programmed maintenance by contract on about 80 km initially, increasing gradually to at least 700 km per annum by the end of the project in each participating state. About 15 to 20 local contractors will be selected and trained in using labor and light equipment based methods for road maintenance. After the initial training period (expected to last about 12-18 months), maintenance contracts generally for 10-50 km road sections, will be awarded on a competitive basis using simplified contract documents, bills of quantities and technical specifications. In addition, about 200-250 single-man contractors will be trained to carry out routine maintenance as lengthmen. After satisfactory training, they may be awarded contracts with unit rates based on experience gained during the training period. For more details see Document No. 3 in project file.

4.6 Vehicles, Equipment, Parts and Supplies: Equipment for materials testing, laboratories, field testing, traffic counting, condition surveys, and axle load measurements; and vehicles for surveying, field inspections, design and supervision of works and for enhancing road safety enforcement will be provided for the two project states. Provision will also be made for acquisition of four sets of light construction equipment in each state for leasing to domestic contractors under the maintenance by contract component of the project. (Details are included in Annex 4-2 and in Document No. 3 in project file).

4.7 Institutional Development: The main areas of weakness in the SMOWs with regard to management of state roads are: (a) planning, programming and budgeting for recurrent and capital expenditure; (b) procurement, supervision, quality control and contract management; (c) organization and monitoring of programmed maintenance by contract; and (d) financial control, accounting and information flow. There is also concern in Osun that having two directorates responsible for highways (one each for construction and maintenance) might lead to coordination delays (para 4.19). The institutional development component aims at building the capacity of the SMOWs and streamlining the organizational structure. Technical assistance will be provided with counterpart arrangements to assist the SMOWs in supervising and managing implementation of the project; SMOW staff will be trained to deal more efficiently with contract management (including training of domestic contractors in labor and light equipment based construction methods); and a computerized system will be established for collecting and updating data on road network inventory and condition. Under the project, provision will be made for collecting and updating data on the state road network and on high volume local government roads which may be eligible for take over by the state government. Axle load surveys will also be carried out and if necessary, load control measures stipulated. During negotiations it was agreed that by June 30, 1995, axle load surveys would be undertaken by the project states, with a view to develop and implement appropriate load control measures, if required.

4.8 The technical assistance under the project will be provided by internationally recruited consultants and will comprise long-term specialists (project manager, highway planner, materials specialist, accounting expert, management information specialist and a specialist in labor-based construction and contractor development) and short-term specialists (transport economist, procurement specialist, and training specialist). As part of their terms of reference, the consultants will be required to train counterpart staff on the job, facilitate programmed training of selected SMOW staff in country and abroad as necessary, oversee the manpower development program and the establishment of Technology Transfer Centers (TTC) at the state level and monitor the performance and developmental impacts of the project. The TTCs will be established in collaboration with an existing state level institution or university that has interest in the transport sector. Annex 4-3 gives draft terms of reference for the state level project management consultant services and Annex 4-4 gives a description of the manpower development plan and the proposed TTCs. The extent to which the transfer of skills is actually effected will be taken into account in the evaluation of consultants' performance. Details of the manpower development and training plan were agreed on during negotiations and will be reviewed annually with IDA.

4.9 In Osun, which is a new state, the project will support establishment of a materials laboratory fully equipped to enable SMOW to provide technical services for construction quality control and field investigations for planning and design work. In Oyo, the project would support rehabilitation of old and procurement of new laboratory equipment.

4.10 At the Federal level, the project will provide support to FMWH Technical Coordination Unit being established under the first Multistate Roads Project. The Federal component will consist of continuing support for the technical assistance comprising a project coordinator and an assistant highway engineer (48 man-months); training; and studies (preparatory studies for the next phase of state roads projects and complementary local transport sector studies). Draft terms of reference for the Federal level technical assistance for project oversight are given in Annex 4-5.

C. Cost Estimates and Financing

4.11 The estimated total cost of the project amounts to US\$118.2 million (including taxes and physical and price contingencies) with a foreign component of US\$80.9 million equivalent or about 68% of total project cost as summarized in Table 5 below. Detailed cost estimates are provided in Annex 4-6. Import duties and taxes on the project related inputs are estimated at US\$3.7 million equivalent. Physical contingencies tailored to each project component average about 10% of base cost. Price contingencies have been derived from the following annual projected rates of inflation: foreign 2.8% in 1992, 3.9% in 1993 and 1994, and 3.8% in 1995 through 1997; and local 42% in 1992, 25% in 1993, 15% in 1994, and 10% per annum thereafter. Costs have been estimated at mid-1992 prices and at an exchange rate of US\$1.0 = Naira 18.0. The exchange rate is expected to adjust over the project period to reflect differences between international and domestic prices.

**Table 5: Estimated Project Cost
(US\$ million)**

<u>Components</u>	<u>Local a/</u>	<u>Foreign</u>	<u>Total</u>
Civil Works	26.9	50.0	76.9
	0.8	3.2	4.0
	1.8	10.3	12.1
Vehicles and Equipment	0.4	1.6	2.0
Technical Assistance			
Training			
Base Cost	29.9	65.1	95.0
Physical Contingencies	3.0	6.5	9.5
Price Contingencies	4.4	9.3	13.7
Total Project Cost	37.3	80.9	118.2

Note: Amounts rounded.

a/ Includes US\$3.7 million in taxes and duties.

4.12 The financing plan for the project is summarized in Table 6 below. It is proposed to finance US\$85.0 million (about 74% of total project costs net of taxes) from IDA funds. The Federal Government would finance US\$0.2 million equivalent, and the State Governments

US\$33.0 million equivalent in local costs spread over the five-year period of implementation. The state governments would be required to provide counterpart funding in equal monthly installments (amounting to about US\$280,000 equivalent or ₦5.2 million per month for Oyo and US\$270,000 equivalent or ₦5.0 million per month for Osun). In addition, the state governments would be responsible for repaying the loan to the Federal government and bear the associated foreign exchange risk. To help ensure that limited resources go to priority areas, it was agreed during negotiations that during the project implementation period, the states will not undertake any investment for roads estimated to cost more than US\$4.0 million equivalent unless such an investment has been reviewed and agreed upon with the Association.

Table 6: **Project Financing**
(US\$ million)

	Local	Foreign	Total
Funds Required			
FMWH	0.4	2.1	2.5
Oyo SMOW	18.8	39.8	58.6
Osun SMOW	18.1	39.0	57.1
Total Requirements	37.3	80.9	118.2
Sources of Funds			
FMWH	0.2	0.0	0.2
Oyo SMOW	16.8	0.0	16.8
Osun SMOW	16.2	0.0	16.2
IDA	4.1	80.9	85.0
Total Sources	37.3	80.9	118.2

4.13 Of the proposed credit of US\$85.0 million, US\$82.7 million would be passed on to the participating states (Oyo US\$41.8 million and Osun US\$40.9 million) at standard IBRD variable interest rate, and the Federal government would retain US\$2.3 million for coordination of the project, training and preparatory studies. At negotiations, it was agreed that onlending of the credit will be at IBRD variable interest rate for 20 years, including five years of grace, and that the states will bear the foreign exchange risk. A subsidiary loan agreement would be required between the FGN and each state. A condition of credit effectiveness is the signing of a subsidiary agreement with at least one state. A condition of disbursement in any one of the project states is for that state to have signed a subsidiary loan agreement between it and FGN.

4.14 The states of Oyo and Osun have agreed to have the required counterpart funds deducted at source from the Federation Account in monthly installments, and letters to that effect have been written to the Federal Ministry of Finance by the respective state Governors. The counterpart contribution of the project states have been estimated at US\$16.8 million equivalent for Oyo and US\$16.2 million equivalent for Osun over five years. This translates

to approximately US\$280,000 equivalent per month for Oyo and US\$270,000 equivalent per month for Osun.

D. Road User Charges and Cost Recovery

4.15 Some states, such as Lagos, are already recovering the cost of recurrent maintenance through transport related user charges. On average, states would have to increase road user charges by about 2.5 times to achieve this goal. In the long run, some part of revenue from fuel tax levied at the federal level or a separate sales tax on fuel levied at the state level would be necessary to meet the costs of periodic as well as routine maintenance, but legal and constitutional constraints would prohibit this in the short term. A recent road user charges study ^{3/} has estimated that to recover at least the recurrent cost of maintenance of the federal and state road networks, a fuel surcharge of 23 Kobo/liter on petrol and 9 Kobo/liter on diesel would be required in addition to increasing annual license fees for cars and trucks. To recover the recurrent and periodic maintenance cost, the surcharge would have to be, respectively, 61 and 27 Kobo/liter (or an increase of 87% and 49% respectively) ^{4/}.

4.16 In the short run, however, it should be possible for states to recover more of the costs of recurrent maintenance by increasing the road user charges already under their jurisdiction. Although present coverage of costs by user fees varies, states have similar vehicle license and fee levels. This approximate parity should be maintained to avoid tax leakage among states. A condition of effectiveness is the implementation, in at least one state, of appropriate measures, satisfactory to IDA, to increase the level of road user charges collected at the state level to recover at least the costs of recurrent maintenance. A condition of disbursement in any one of the project states is the implementation of appropriate measures, satisfactory to IDA, for recovering the costs of recurrent maintenance at the state level, for that state.

4.17 With premium gasoline priced at 70 Kobo (less than 4 US cents) per liter, Nigeria's petroleum product prices are amongst the lowest in the world. It is estimated that the present pricing policy involves a direct subsidy (to cover crude production and refining costs) of around ₦23 billion per year, and an additional ₦27 billion in revenue foregone from not charging export parity prices. Reduction of the subsidy on petroleum products has been a critical issue in the dialogues between the Government of Nigeria and the Bank and the IMF since the emergence of major fiscal and external imbalances early in the '980s. This is an extremely sensitive issue, and occasional disruptions to the supply of cheap gasoline have triggered popular unrest. While occasional price increases have been implemented, they have been overtaken by continued depreciation of the Naira, so that in real terms, the subsidy has grown considerably. In its budget speech, the Transitional Council presented a compelling case for the reduction of the domestic petrol subsidy (but stopped short of announcing immediate action). Increasing petroleum product prices to help reduce fiscal imbalance is considered as a critical ingredient of a medium-term strategy.

^{3/} LBI International Inc., "Road User Charges and Axle Load Study", Nigeria, FMWH, May 1992.

^{4/} Current fuel price is 70 kobo/liter for petrol and 55 kobo/liter for diesel (October 1992)

E. Implementation

4.18 Agreement was reached during appraisal that the project would be implemented by the SMOWs of Oyo and Osun and coordinated by the FMWH assisted by consultants acceptable to IDA. The project would be managed by the Director of Highways and in each State, each of whom has been appointed as state Coordinator of MSRP-II. Each SMOW would constitute a project implementation team comprised of the Deputy Directors of Construction, Maintenance, Planning, and others who would also be counterparts to the state technical assistance consultants (STAC). Working document No. 3 in project files gives a detailed description of the organization of the SMOWs in Oyo and Osun. It was agreed further that the maintenance by contract component of the project would be implemented directly under the maintenance division to ensure continuity after the project.

4.19 To enhance the capacity of the SMOWs to supervise road works under contract and ensure quality control and strict adherence to technical specifications, local consultants will be appointed as required. Draft terms of reference for supervision consultant services are given in Annex 4-7. During negotiations it was agreed that consultants to be appointed by the FMWH and the individual states for various tasks under the project would be procured on terms and conditions agreeable to the Bank. Appointment of technical assistance consultants for project management in the two states is a condition of effectiveness. Project preparation is already in an advanced stage. Local consultants have been appointed and are currently in the field preparing design details and tender documents for two road projects in each state. Model ICB documents already in use by FMWH and approved by the Bank will be adapted for use by SMOWs. Tender documents are expected to be ready by May 1993 and bids would be invited by June 1993.

4.20 During implementation, the project will be monitored to ensure that its development objectives are being achieved. This monitoring will be undertaken by using the Disaggregated Effectiveness Evaluation (DEE) Technique. This is based on developing objectives achievement frameworks for each of the main subsectors of activity and monitoring implementation with respect to developmental impact. A brief description of the DEE Technique and indicative DEE frameworks for the project are presented in Annex 4-8. Only one subsector has been developed in any detail at present in order to illustrate a typical framework and similar frameworks will need to be developed for each of the other subsectors in due course. This is best done at the Project Launch Workshop (PLW) as the local officials responsible for implementation will then be able to participate fully in developing the detailed frameworks and agreeing on the targets and indicators to be used in gauging success during implementation. It is proposed to hold the PLW within a few months of Board approval. The PLW, a structured project start-up activity, will bring together the key staff members of the SMOWs and the FMWH to review the project's objectives and procedures and to discuss in detail the sequence of implementation activities and agree on performance indicators to be monitored. The project implementation schedule, details of procurement arrangements and monitorable targets and performance indicators are outlined in Annex 4-9.

F. Procurement

4.21 The table below summarizes the project elements, their estimated costs and proposed methods of procurement:

**Table 7: Summary of Procurement Arrangements
(US\$ million equivalent)**

Project Element	Procurement Method			NBF	Total Cost
	ICB	LCB	Other		
1. Civil Works:					
1.1 Buildings (Osun State)	-	0.7 (0.5)	-	-	0.7 (0.5)
1.2 Road Works (Osun State)	35.4 (26.5)	5.5 (4.1)	0.6 (0.5)	4.7	46.2 (31.1)
1.3 Road Works (Oyo State)	35.8 (26.8)	7.5 (5.6)	0.6 (0.5)	5.1	49.0 (32.9)
2. Goods:					
2.1 Vehicles, equipment, tools and supplies a/ (Oyo State)	1.9 (1.6)	-	0.5 (0.4)		2.4 (2.0)
2.2 Vehicles, equipment, tools and supplies a/ (Osun State)	1.9 (1.6)	-	0.5 (0.4)		2.4 (2.0)
3. Consultancies b/:					
3.1 Oyo State	-	-	5.9 (5.6)		5.9 (5.6)
3.2 Osun State	-	-	6.5 (6.0)		6.5 (6.0)
3.3 FMWH	-	-	2.4 (2.2)		2.4 (2.2)
4. Training:					
4.1 Oyo State	-	-	1.3 (1.3)		1.3 (1.3)
4.2 Osun State	-	-	1.3 (1.3)		1.3 (1.3)
4.3 FMWH	-	-	0.1 (0.1)		0.1 (0.1)
Total	75.0 (56.5)	13.7 (10.2)	19.7 (18.3)	9.8 -	118.2 (85.0)

Note: Amounts rounded

Note: Figures in parentheses are the respective amounts financed by the IDA credit.

a/ Including proprietary items, consumable and office equipment.

b/ Services should be procured in accordance with World Bank Guidelines: Use of Consultants by World Bank Borrowers and by the World Bank as Executing Agency (Washington, D.C. 1981).

NBF: Not Bank Financed (includes fully Government financed components).

4.22 Procurement arrangements would be similar to those of the First Multi-State Roads Project being implemented in Kano and Jigawa states. Most of the IDA-financed road contracts would be procured by International Competitive Bidding (ICB). To the extent appropriate, contracts would be advertised on a slice-and-package basis to allow domestic contractors to participate. After prequalification, potential bidders would be classified to bid for one or more slices. However, for expediency, post-qualification of contractors would be used for the first year civil works contracts and as justified. The works which are dispersed geographically in remote locations and difficult to package for ICB would, however, be procured by Local Competitive Bidding (LCB) using procedures acceptable to IDA (foreign firms would be eligible for bidding). For bid evaluation in ICB civil works procurement, Nigerian contractors would be allowed a preferential margin of 7 1/2% which will be added to bids received from foreign contractors for evaluation and comparison of bids. Contracts for civil works, estimated to cost individually more than US\$0.5 million and contracts for goods individually costing more than US\$100,000 will be procured by ICB. Civil works contracts estimated to cost less than US\$0.5 million (up to an aggregate value of US\$13.7 million) would be procured by LCB procedures which will include: local advertising, public opening, clearly stated evaluation criteria and award to be made to the lowest evaluated responsive bidder. The first package under LCB procedures would be subject to IDA's prior review.

4.23 ILO has an on-going project with the National Directorate of Employment, in collaboration with UNDP ^{5/} to train domestic contractors and government officials in selected states to adopt labor-based and light-equipment supported road maintenance and rehabilitation methods. In the project states, all maintenance and most of the rehabilitation work is undertaken by force account. Since one of the objectives of the project is to increase the share of road works undertaken by contract, a pilot project has been designed to build the capacity of small domestic contractors for road maintenance and rehabilitation by contract as opposed to using force account methods. For this purpose, selective tendering procedures will be used, in which about 20-30 pre-selected contractors will be provided training. The bidding documents will include a priced bill of quantities and after an initial period of training, contractors will be asked to bid on a plus and minus basis in reference to the indicated rates. Contracts will be awarded to the lowest priced bidders, depending on their capacity to perform, up to an aggregate value not to exceed US\$1.2 million.

4.24 The bulk of vehicles and equipment (amounting to US\$3.8 million) required by the states would be procured by ICB. The remaining (amounting to US\$1.0 million), are required at various stages by each state. In view of this, it is felt that flexibility in implementation would be essential. Prudent shopping and use of UN International Agency Procurement Service Unit, and when applicable, limited international bidding (LIB) would be appropriate depending on the exigencies of the situation (consistent with Article 3.7 of the Guidelines). Consultant selection would follow the Bank's Guidelines for the Use of Consultants. Mandatory pre-shipment inspection will not include price inspection for IDA-financed procurement under ICB.

5/ Capacity Building and Support to Pilot Labor-based and Light Equipment Supported Rural Infrastructure Program.

4.25 During project supervision, IDA-financed works contracts above a threshold of US\$500,000 would be subject to IDA's prior review procedures. Goods contracts or packages above US\$100,000 would also be subject to prior review, covering about 80% of the total value of IDA-financed goods. IDA supervision missions will periodically review procurement arrangements for smaller contracts. Annex 4-9 gives further details of procurement arrangements.

4.26 Procurement information would be collected and recorded as follows:

- (a) prompt reporting of contract award information by the two SMOWs to the FHD/FMWH which would furnish the information to IDA; and
- (b) comprehensive quarterly reports to IDA by the FHD/FMWH based on information submitted by the SMOWs (assisted by consultants), indicating:
 - (i) revised cost estimates for individual contracts and the total project, including best estimates of allowances for physical and price contingencies;
 - and (ii) revised schedule of procurement actions, including advertising, bidding, contract award, and completion time for individual contracts.

G. Disbursements

4.27 Disbursements are expected to be completed in six years, assuming some improvement over the historic disbursement profile for projects in Nigeria, given the relative simplicity of the proposed project. The estimated disbursement schedule and chart are given in Annex 4-10. The table below gives the categories and proposed amounts to be financed out of the IDA credit, and the percentage to be financed in each category.

Table 8: Disbursements

<u>Category</u>	<u>Amount of the Credit Allocated (Million US\$)</u>	<u>% of Expenditures to be Financed</u>
1. <u>Civil Works</u>		
(a) Oyo State	30.0	100% of foreign and 30% of local expenditures
(b) Osun State	28.5	100% of foreign and 30% of local expenditures
2. <u>Equipment and Vehicles</u>		
(a) Oyo State	1.8	100% of foreign and 75% of local expenditures
(b) Osun State	1.8	100% of foreign and 75% of local expenditures
3. <u>Technical Assistance</u>		
(a) Oyo State	4.9	100%
(b) Osun State	5.5	100%
(c) FMWH	2.2	100%
4. <u>Training</u>		
(a) Oyo State	1.1	100%
(b) Osun State	1.1	100%
(c) FMWH	0.1	100%
5. <u>Unallocated</u>		
(a) Oyo State	4.0	
(b) Osun State	4.0	
TOTAL	85.0	

4.28 To facilitate project implementation, a Special Account in foreign currency would be established for the Borrower and for each project state in a commercial bank on terms and conditions acceptable to IDA. Initial deposits of US\$200,000 for FMWH and US\$1.5 million for each of the two states would be made, sufficient to cover estimated eligible disbursements over three months. All payments under US\$150,000 (US\$20,000 in the case of FMWH) equivalent must be met out of the Special Accounts. Payments above this threshold may be made through the Special Accounts or by using the direct payment or Special Commitment procedures. Replenishment applications will be submitted monthly, or when US\$500,000 has been disbursed from a Special Account (US\$100,000 in the case of FMWH), whichever

comes first. A condition of credit effectiveness is the opening of a Project Account with an initial deposit of at least US\$280,000 in equivalent Naira, in an acceptable commercial bank, by each participating state. All disbursements under the project would be made against standard documentation except for expenditure under contracts of less than US\$50,000 equivalent which may be claimed under Statements of Expenditures (SOEs) with related documentation retained for review by IDA supervision missions.

H. Accounting and Auditing

4.29 The accounting for all Special Account transactions and for all other project-related accounts will be maintained in accordance with international accounting standards. Technical assistance and training of local staff will be provided under the project. Annual financial statements of IDA-financed components will be prepared and audited in accordance with International Auditing Guidelines by suitably qualified independent auditors acceptable to IDA. Audits will also be carried out, at the same time, and for corresponding periods in accordance with IDA guidelines, for SOEs against which disbursements have been made or are due to be made out of the credit proceeds, and specific reference will be made in the audit reports accompanying the financial statements. During negotiations, it was agreed that, by June 30 each year, the states will submit to IDA the auditors' report and audited financial statements for the Special Account, Project Accounts and SOEs for the preceding calendar year, audited by an independent accountant acceptable to the Bank. The FMWH project accounts will be audited on a similar basis.

I. Reporting and Monitoring

4.30 Quarterly progress reports covering all project components will be prepared by each participating SMOW, consolidated by FMWH, and sent to IDA within one month after the end of each quarter. These reports will include: (a) progress achieved against agreed implementation and disbursement schedules, and key performance indicators; and (b) work programs and cost estimates for the coming quarter and for the total project. The main purpose of the reports will be to provide managers timely and updated information on implementation of project components, highlighting issues and problem areas, recommending actions and commenting on progress in resolving previous recommendations. The FMWH will also prepare a Project Completion Report in accordance with IDA guidelines. During negotiations, agreement was obtained on these reporting requirements.

J. Environmental Aspects

4.31 An environmental assessment has been completed for the proposed MSRP (September 1990). It stated that road construction projects often have adverse impacts on local environments. These impacts include soil erosion due to improper designs of embankments or side drains; scouring of the landscape due to borrow pits; and destruction of vegetation due to clearing of right of ways. In the case of road rehabilitation and reconstruction works, the environmental impacts tend to be more local and limited, and result more from reconstruction activities or improper design. The following impacts could be expected: (i) soil erosion from side drains and improperly reseeded embankments; (ii) environmental and health problems associated with the improper restoration of gravel borrow pits; (iii) local and temporary air quality problems due to emissions from bitumen processing plants; and (iv) some destruction

of vegetation along the roads by the clearing of right-of-ways. Annex 4-11 provides more details of the findings of the assessment.

4.32 The impacts of road rehabilitation will vary from state to state as each state has different environmental conditions, particularly with respect to topography and soil structure. The severity of environmental impacts depends also on the type of rehabilitation work to be undertaken, such as bituminous resealing, asphalt overlay, or regravelling, and the amount of clearing associated with these works. In most cases, indirect environmental impacts of road rehabilitation works under the project will probably not occur, since the road alignments and gradients will generally remain unchanged.

4.33 The following steps are proposed to mitigate any adverse environmental impacts of the proposed project: (i) survey of each project road to determine whether and where road specific environmental impact analysis will be necessary; (ii) involvement of the Federal Environmental Protection Agency (FEPA) in providing locally adapted environmental guidelines; (iii) systematically conducting local public hearing for the population living along each project road to gather views on environmental issues and concerns related to planned project activities, and to incorporate these concerns in project planning to the extent possible; (iv) identification of appropriate or innovative design procedures for dispersing water runoff for project roads in all states. Under the first MSRP, an Environmental Assessment and Monitoring Unit (EAMU) will be established in the FMWH headed by an environmental specialist. This unit will coordinate the environmental aspects of road construction and maintenance in the states and at the federal level. So far, the FMWH has designated an environmental specialist from its Environmental Division to be in charge of environmental impact assessment and monitoring and coordination of similar functions at the state level. During negotiations, the steps to be taken to mitigate adverse environmental impacts were discussed and agreed upon.

4.34 The final responsibility for implementation of road specific Environmental Impact Assessment (EIA) lies with each participating state. As neither the FEPA nor the SMOWs have sufficient in-house capabilities at present to conduct EIAs, this function will be performed initially by consultants working under terms of reference provided by FMWH and agreed with FEPA and IDA. The consultants would be hired by each participating state under the framework of the project.

4.35 At the direction of FEPA, the Environmental Protection Commission (EPC) in each state in Nigeria is in the process of establishing an Environmental Impact Assessment Unit (EIAU) to assess impacts of various projects in different sectors within the state (Oyo has already established such a unit). It was agreed during appraisal that the unit would assign one person from its staff to work in close collaboration with and train under the consultants to conduct EIA of road subprojects to be implemented under the project in each participating state. Suitable training related to EIA of roads would be financed under the project.

4.34 Iseyin-Ijaiye Road (50 km) in Oyo and the Oshogbo bypass (8 km) in Osun are new roads to be constructed under the project. These roads are not passing through any sensitive area which would pose serious environmental concerns, nor will there be any relocation of local population necessitated by their construction. An environmental specialist has been engaged in making an environmental impact assessment of the proposed new roads. His preliminary report indicates that no significant environmental and health impacts are envisaged during construction. Although no major issues are likely to arise, it has been agreed with the

SMOWs that final construction of the roads would be conditional on satisfactory resolution of any major issues and incorporation of steps needed to mitigate adverse impacts.

K. Project Supervision

4.35 Three IDA supervision missions per year, each staffed by a highway engineer, a financial/institutional analyst and a specialist (such as an economist, procurement specialist, environmental specialist, training specialist, traffic and safety specialist etc.) would be required on average, during the life of the project. Missions would review the physical components of the project, monitor achievement of the institutional development objectives, review implementation of the cost recovery measures proposed under the project, review expenditures and flow of funds and agree on remedial measures. The mission reviews would be done in the context of agreed targets. A proposed supervision plan is given in Annex 4-11.

4.36 A mid-term project review involving IDA and relevant government agencies would be held not later than June 1996, the objective of which would be to assess: (i) overall progress in project implementation with respect to, inter alia, key monitoring indicators agreed with the Association, including status of road user charges and cost recovery, use of private contractors, and training; (ii) performance of the FMWH in its coordinating capacity; (iii) performance of the SMOWs as executing agencies; (iv) performance of consultants; (v) evaluation of the key monitoring indicators; (vi) assessment of environmental impacts; (vii) the axle loads on state roads and stipulation of an action plan to deal with over-loading, if needed, and (viii) the need for redesign and/or restructuring of project components. In addition to the mid-term project review, annual reviews would be held before October 31 of each implementation year, to assess progress and evaluate performance during the past year and review the work program and budgetary allocations for the following year with particular attention focused on the manpower development and training programs. During this annual project review, evidence of minimum budgetary allocations (agreed in advance with Bank) would be provided by the states. During negotiations, agreement was obtained: (i) on the scope and timing of the mid-term and annual reviews; and (ii) that SMOWs will prepare one month ahead of time, the reports required for a comprehensive mid-term review.

V. PROJECT JUSTIFICATION AND RISKS

5.1 The benefits of road improvements under the project consist of savings in vehicle operating costs (VOC) of normal traffic and any generated or diverted traffic where applicable. Additional benefits comprise savings in maintenance costs resulting from the improved condition of roads. Specific investments have been selected based on economic analysis using the methodology described in Annex 5-1 which employs the Bank's Highway Design and Maintenance Model (HDM III) for evaluating alternative investments on each of the road sections under consideration in the state road networks. The cost estimates for the economic analysis were based on engineering studies which were carried out by consultants during project preparation in accordance with agreed design standards. Costs were considered both in financial and economic terms (after adjusting for taxes, duties and subsidies, etc). Benefits to generated traffic, where applicable, were computed on the basis of 50% of savings

in unit VOC. Traffic projections over the economic life of a road improvement are based on a uniform growth rate of 3% per annum.

5.2 Alternatives for determining the extent of works ranged from minimal routine maintenance on the existing roads to resurfacing and complete reconstructing of the road pavement. Benefits were evaluated on a "with and without investment" basis, derived from savings in VOC and reductions in the cost of road maintenance. Evaluation was based on the net present value (NPV) of all costs and benefits and the economic rates of return (ERRs) of the proposed works on each road section under consideration. The minimum desirable cut-off ERR was taken as 12% per annum.

5.3 The cost of equipment and vehicles to be purchased under the project amounts to about 4%, and technical assistance components, including manpower development and training, amount to about 15% of total project cost. These components are of a qualitative rather than quantitative nature and thus no ERR has been calculated for them. They are, however, expected to enhance the efficiency and sustainability of road improvements.

5.4 Tables 6 and 7 of Annex 5-1 give a summary of the ERRs of selected road improvements to be implemented in each of the participating states under the project. Estimates of ERRs on individual road projects selected for implementation range from 15 to over 100%, with most works exceeding 40%. Overall weighted average ERR for road investments in Oyo is 53% and in Osun 32%. The ERR for the combined road investment in both states (amounting to 81% of total costs) is 43%. Excluding benefits from the remaining components consisting of technical assistance, training, studies and logistical support, but including their costs (amounting to 19% of total costs), the composite weighted average ERR for the whole project is 35%. For road projects to be included in the project it was agreed during negotiations that the minimum acceptable ERR was 12%.

5.5 There are three major risks associated with the project. The first concerns the ability of new and untried state executing agencies to effectively manage a large increase in maintenance operations and the switch to contract works. The second risk concerns state capacity to maintain an acceptable contracting process. Given the many problems encountered in implementing contracts in Nigeria over the past decades, extra caution will be required to ensure that the proper supervision and completion of contracts is maintained. The third risk involves the provision of counterpart funds which have historically been a major problem in project implementation in all sectors. The first two risks will be addressed through close and continual interactions of the state agencies, consultants, FMWH, and IDA. The third risk will be addressed by having counterpart funds deducted at the source from the Federation Account.

VI. AGREEMENTS AND RECOMMENDATION

6.1 During negotiations, agreement was obtained from the Federal and State Governments on the following:

- (a) a specific amount of fund, not less than \$750,000 equivalent to be agreed by October 31 each year with IDA, will be allocated annually in the budget of

each state for recurrent maintenance of state roads and that these funds will be released in a timely manner (para 3.16);

- (b) the states will adjust the transport related charges sufficiently to recover fully at least the recurrent road maintenance costs each year (para 3.18);
- (c) road maintenance works to be performed under the Project (ensuring up to 70% of all maintenance works being carried out by the fifth year of Project execution) will be carried out by the contractors through contractual arrangements. (para 4.4);
- (d) by June 30, 1995, axle load surveys would be undertaken by the project states with a view to develop and implement appropriate load control measures, if required (para 4.7);
- (e) the details of the manpower development and training plan (para 4.8);
- (f) the states will not undertake any investment for roads estimated to cost more than US\$4.0 million unless such an investment has been reviewed and agreed upon with the Association (para 4.12);
- (g) FGN will onlend the proceeds of the IDA credit to the states at the IBRD's standard variable interest for 20 years, including five years of grace, and the states will bear the foreign exchange risk (para 4.13);
- (h) suitable consultants as required will be appointed by FMWH and the states on terms and conditions agreeable to the Bank (para 4.20);
- (i) after credit effectiveness, by June 30 each year, the states will submit to the Bank the auditor's report and audited financial statements of the Special Accounts, Project Accounts, and SOEs for the preceding calendar year, audited by an independent auditor acceptable to the Bank. The FMWH accounts will be audited on a similar basis (para 4.30);
- (j) key indicators and targets for monitoring project performance and achievement of development objectives (para 4.31);
- (k) arrangements to conduct EIAs and steps to mitigate any adverse environmental impacts of the proposed project (para 4.34);
- (l) a mid-term project review will be carried out involving IDA and relevant government agencies not later than June 1996 to evaluate and assess (i) overall progress made in project implementation with respect to inter alia, key monitoring indicators agreed with IDA, including status of road user charges and cost recovery, use of private contractors, and training; (ii) performance of FMWH in its coordinating capacity; (iii) performance of SMOWs as executing agencies; (iv) evaluation of key monitoring indicators; (v) assessment of environmental impacts; (vi) axle loads on state roads and stipulation of an

action plan to deal with over-loading, if needed; and (vii) need for redesign and/or restructuring of project components (para. 4.39);

- (m) the SMOWs will prepare, one month ahead of time, the reports required for a comprehensive mid-term review (para. 4.39);
- (n) in addition to the mid-term project review, annual reviews would be held no later than October 31 of each implementation year to assess progress and evaluate performance during the past year and review and agree on the work program and budgetary allocations for the following year with particular attention focussed on the manpower development and training programs (para 4.39); and
- (o) the minimum acceptable ERR on any road project to be included in the project would be 12% (para. 5.4);

6.2 The Conditions of Credit Effectiveness are:

- (a) either Oyo State or Osun State has fulfilled all the conditions referred to in sub-paragraphs (i), (ii) and (iii) below:
 - (i) signing of a subsidiary loan agreement between the FGN and at least one of the participating states (para 4.13);
 - (ii) implementation, in at least one state of appropriate measures satisfactory to IDA to increase the level of road user charges collected at the state level, to recover at least the costs of recurrent maintenance (para 4.16);
 - (iii) appointment of management consultants by at least one participating state, on terms and conditions agreeable to the Bank (para 4.20); and
- (b) opening by each participating state of a Project Account (in Naira) with an initial deposit of at least US\$280,000 equivalent in Naira in a commercial bank (para 4.29).

6.3 The Conditions of Disbursement are:

- (a) signing of a subsidiary loan agreement between the state and FGN, for the state which had not signed such an agreement by the time of credit effectiveness (para 4.13);
- (b) implementation of appropriate measures, satisfactory to IDA, to increase the level of road user charges collected at the state level to recover at least the costs of recurrent maintenance, for the state which had not implemented such measures by the time of credit effectiveness (para 4.16); and
- (c) appointment of management consultants, for the state which had not appointed the consultants by the time of credit effectiveness (para 4.20).

6.4 Recommendation: Based on the agreements reached on the above conditions, the Second Multistate Roads Project is suitable for an IDA credit of SDR 61.4 million (US\$85.0 million equivalent) to the Federal Republic of Nigeria.

FEDERAL REPUBLIC OF NIGERIA

SECOND MULTISTATE ROADS PROJECT

Nigeria: Road Rehabilitation and Maintenance Initiative (NRRMI)

Background

1. The World Bank's 1988 report on "Road Deterioration in Developing Countries: Causes and Remedies" revealed the magnitude of the loss of road infrastructure due to inadequate maintenance. Due to the extensive construction program the condition of Nigerian paved roads has been better than average in Africa. However, the deterioration process along the Nigerian road network has already brought more paved roads to the class "poor" than the average in Africa and the situation with unpaved roads is even worse.

Table 1: Estimated Condition of the Main Road Network in Nigeria and Africa in 1989

Condition of roads in %	Good	Fair	Poor
Nigerian main paved roads	67%	5%	28%
Nigerian main unpaved roads	0%	10%	90%
African paved roads average	45%	31%	24%
African unpaved roads avg.	26%	34%	40%

2. Studies have revealed that the reasons for poor condition of African roads are mainly institutional and managerial, but also financial and technical. Strong local commitment is needed to reform policies related to road maintenance, to improve the operation and management of road agencies, to develop human resources and to use road related funds to maintain the existing network. As a first step toward addressing these issues and helping governments improve their own capacities to address transport problems, the Sub-Saharan Africa Transport Program (SSATP) was initiated in 1987.

The Road Maintenance Initiative (RMI)

3. The RMI has been developed as one of the central components of the SSATP, as an effort to define and resolve any road maintenance policy issues by the participating countries themselves. The RMI is a joint undertaking of the United Nations Economic Commission for Africa and several Development Agencies coordinated by the World Bank. The RMI was designed to facilitate national policy dialogue, to select important themes for reform, to create positive environment for the reform process and to bring about sustained reforms in the selected road maintenance policies.

4. The RMI is being implemented in a phased approach. During the first phase all of the SSA countries participated in one of the six regional seminars held from May 1989 to February 1990 in Harare, Accra, Addis Ababa, Dakar, Libreville and Antananarivo. During these seminars the participating country teams identified the sources of the main problems associated with road deterioration and poor maintenance in their countries, set clear goals, devised a policy strategy to achieve these goals and finally specified the measures to be carried out by government institutions and agencies in their countries.

5. The seminars followed the Policy Action Planning (PAP) method developed by the Carl Duisberg Gesellschaft, a training institute of Cologne, Germany. The PAP method brought the participants to work together as a national team to choose a limited number of goals as national priorities. Those goals were transformed into concrete objectives. The participants then defined the measures needed to achieve these objectives.

6. The second phase of the RMI focuses on facilitating the process for policy reforms in a limited number of selected countries. It has been designed to support the development, introduction, adoption and implementation of improved policies, related to one or more important aspects of road planning, maintenance and administration, in a limited number of volunteering countries. The RMI Phase II is carried out in those countries that express an interest in developing road maintenance from the policy perspective, indicate their commitment to undertake reforms and for which key donors have expressed an interest in financial support.

RMI in Nigeria

7. The RMI phase II in Nigeria is called Nigeria Road Rehabilitation and Maintenance Initiative (NRRMI). It is intended to enable Nigerian policy makers and senior managers to assist Nigeria in improving its road maintenance policies and strategies. It will be the link between the various efforts in Nigeria being undertaken by Federal Government, State Governments, private organizations, development banks and donor agencies to improve road maintenance.

8. The overall development objective is to secure sustainable improvements in road sector performance in Nigeria. The immediate NRRMI objectives are:

- (a) to ensure that the need for reform is recognized, and to build up motivation and commitment to address the problems;
- (b) to facilitate through NRRMI, the identification of appropriate policy options and promote the adoption of these policies; and
- (c) to support and monitor the implementation of the adopted policies and to assess their effectiveness.

The Development of NRRMI

9. A team of nine officials represented Nigeria at the RMI Phase I Seminar in Accra on June, 1989. The participating officials identified two major areas for further development for policy reforms:

- (a) inadequate road maintenance funding; and
- (b) the need to establish an autonomous Road Agency.

10. To initiate the RMI Phase II the Government of Nigeria in February 1991 expressed its willingness to take the following actions in order to enter Phase II of the RMI:

- (a) select policy issues for review;
- (b) establish an Inter-Ministerial Steering Committee for the RMI Nigeria; and
- (c) establish a Secretariat and appoint a National Coordinator (NC) for RMI.

The National Road Maint. Policy Seminar (RMPS), Otta, Ogun State, September, 1991

11. To launch the RMI Phase II in Nigeria, a Seminar on Road Maintenance Policy Reform was organized by the Nigerian Institute of Transport Technology (NITT) on behalf of the FMWH and in collaboration with the World Bank at the Gateway International Hotel, Otta, Ogun State from the 9 to 13 September, 1991. The objectives of the Seminar were:

- (a) to raise and sustain awareness and commitment for maintaining and rehabilitating the Nigerian road network;
- (b) to identify issues mitigating against effective road maintenance; and
- (c) To develop policy action planning capacity amongst the participating institutions and government organizations.

12. The Seminar was headed by the Hon. Ministers of Works and Housing, and Transport and Communication, and attracted more than hundred participants from the Federal and State organizations. The RMPS revealed a number of key matters to be reformed when aiming at improvements in road maintenance. These issues were elaborated into the following nine recommendations in the Seminar Communique:

- (a) increase in recurrent and periodic maintenance funding;
- (b) establishment of a Federal Highway Authority;
- (c) improved training for highway sector civil servants;
- (d) support for competent indigenous contractors;
- (e) safeguarding of public highway property;
- (f) inclusion of maintenance training in university level curricula;
- (g) use of contractors for road maintenance;

- (h) appropriate use of labor intensive and lightly mechanized methods in road maintenance;
- (i) strengthening of pavements and stricter axle load control.
- (j) need for improved management procedures, methods and systems.

13. Some additional issues arising from the review and assessment of current FHD operations are:

- (a) adoption of 'resealing' in maintenance activities;
- (b) poor dissemination of study reports as well as available data in the Pavement Evaluation Unit and the Training Centers;
- (c) need for substantial increase in the 1st and 4th quarter budget allocations for road maintenance works;
- (d) institutionalizing the separation of planning and monitoring functions from those of execution; and
- (e) clearing the maintenance backlog.

NRRMI Project Document

14. A Project Document has been prepared by a local consultant under the guidance of the National Coordinator and World Bank AF4IN and AFTIN RMI Unit, in order to further develop policy reforms. The following issues have been selected in the Project Document as the first priority policy reform topics:

- (a) sufficient maintenance financing through a Road Fund;
- (b) increased use of contractors in road maintenance;
- (c) establishment of the Federal Highway Authority.

15. The selected priority issues as well as the remaining issues as stated above, are further elaborated in the NRRMI Project Document. A Plan of Operation is also included in the Project Document for studies, seminars and policy reforms.

16. The following studies are proposed in the Project Document:

(a)	study of financing road maintenance	US\$100,000
(b)	use of contractors to perform road maintenance	US\$ 60,000
(c)	preparation of a 10-year Road Program	US\$300,000
(d)	Road sector manpower and training needs	US\$250,000
(e)	Use of labor intensive and lightly mechanized road maintenance methods	<u>US\$100,000</u>
	Total	<u>US\$810,000</u>

The Project Document recommends these studies to be taken as part of the consequent Highway Sector and Multistate Roads Projects.

The Role of States in NRRMI

17. As part of the NRRMI there will be three Regional Road Maintenance Policy Seminars during 1992-1993. The focus on these seminars will be on state level improvement of applied maintenance policies and the cooperation between federal and state authorities. The first regional seminar will focus on the selected three priority reform issues. It will be held in conjunction with the launching of the MSRP. The studies and reports prepared under NRRMI will be discussed with and delivered to the states. NRRMI will support the state level policy reforms and contribute to the state road sector seminars within its capacity. Under the NRRMI the federal and state officials, the indigenous stakeholders, the donor and aid organizations will be brought together to reinforce the efforts in improving road maintenance in all levels in Nigeria.

FEDERAL REPUBLIC OF NIGERIA

SECOND MULTISTATE ROADS PROJECT

Past Bank Involvement in the Road Sub-Sector

1. There have been eight projects in the highway sub-sector, including the road component of a transportation rehabilitation project. In summary, the project content was as follows:

- (a) Northern Road Project (Credit 73-UNI, March 1965). This credit was made to the Northern Region of Nigeria, and financed road construction, construction supervision by consultants, and the supply of materials testing equipment and weigh bridges.
- (b) Apapa Road Project (Loan 426-UNI, September 1965). This was a section of urban road which consisted of the Ijora Causeway (1.2 miles) and Apapa Road (2.5 miles) both to 4-lane divided standard.
- (c) Western Road Project (Loan 427-UNI, September 1965). This loan was on-lent to the Western Region. It covered trunk road improvements and consulting services for the supervision of works and detailed engineering, and reorganized maintenance operations. It also included the procurement of maintenance equipment and spare parts.
- (d) Road Rehabilitation Project (Loan 640-UNI, November 1969). The project included the rehabilitation of about 200 miles of roads in the Lagos-Kano corridor, and detailed engineering of the Lagos-Ibadan expressway.
- (e) Transportation Rehabilitation Project (Loan 694-UNI, June 1970). This was intended to be a quick disbursing loan to rehabilitate priority transport infrastructure that had been damaged during the 1967-70 civil war. Project components were only tentatively identified at appraisal, consisting of eight road sections, and consultants for engineering and construction supervision.
- (f) Fifth Highway Project (Loan 883-UNI, June 1974). As appraised, the project provided for: (i) rehabilitation of 109 miles of highways and reconstruction of eight bridges, (ii) consulting services for construction supervision, feasibility studies and detailed engineering, plus technical assistance for improvements in federal highway management planning and maintenance, and (iii) acquisition of highway planning and vehicle weight control equipment.
- (g) Sixth Highway Project (Loan 1883-UNI, August 1980). The project components provided for: (a) strengthening about 520 km of federal trunk roads, (b) studies of the Calabar-Ikom road, and establishing improvement priorities on the federal trunk road system, (c) technical assistance for a training program for technicians, and personnel planning, design, construction and maintenance in FHD, and a pavement evaluation unit, (d) housing for

technical assistance staff, and (e) highway safety equipment and pavement evaluation equipment.

- (h) Highway Sector Loan (Loan 2963 UNI, September, 1989) The loan became effective as of March 30, 1990. The loan was to support FHD's highway sector program over the 1989-91 period. It required the following significant changes in FHD's past practices:
- (i) highway expenditures to reflect substantial changes in favor of routine maintenance, rehabilitation, and strengthening;
 - (ii) improved planning and programming of proposed improvement works by carrying out economic analyses;
 - (iii) more orderly budgeting and planning, and systematic preparation of detailed designs;
 - (iv) civil works lots to consist of road sections approximately 50 km long which will enable most contracts to be completed in 12 to 18 months;
 - (v) better supervision of rehabilitation, strengthening, new construction, and routine maintenance.

2. A ninth project, the Multi-State Roads Project I, has recently been approved by the Board on July 21, 1992.

3. No Project Completion or Audit Reports were written on the Northern Road Project. The road construction encountered significant technical problems during and immediately after execution.

4. The Apapa Road project (PPAR No. 1229, July 1976) was eventually completed successfully, and in spite of cost and time overruns the project was economically justified. Issues discussed in the Project Performance Audit Review (Report No. 1229, July 1976) were:

- (a) The quality of the original technical design: the consultant chosen by FHD (on the basis of price as later revealed) to review the FHD design proved to be incompetent.
- (b) Use of consultants for construction supervision: the consultants began work in July 1966; the Bank had proposed supervision by consultants, but accepted a compromise that the consultants act in an advisory capacity to FHD which insisted it had competent staff. The subsequent Tribunal of Inquiry considered that the Bank would have been justified in insisting on full construction supervision by the consultants.
- (c) The traffic capacity of the initial design was inadequate and was more than doubled during the redesign.

- (d) **The Government did not comply with some loan covenants. The Bank may have chosen not to enforce these because of the civil war in progress at the time. Irregularities in the administration of the project led to the appointment of a Tribunal of Inquiry and the removal of the FHD Director from office.**

5. **The works included in the Western Road Project (PPAR No. 1639, June 1977), were successfully completed, but there was only limited success in improving maintenance operations as the Government lacked adequate management personnel, funds, and control over heavy vehicles. The Government was late with payments to consultants and contractors, and there was delay in appointing the maintenance advisors because of disagreement between the Government and the Bank over the terms of service for the advisors.**

6. **The main objective of the Road Rehabilitation Project (PPAR No. 1410, January 1977) was the rapid rehabilitation of two road sections. Project processing was prompt and flexible, but loan effectiveness and contract awards were delayed, the first by 4 months more than expected, and the second by a year. As a result the roads continued to deteriorate and rehabilitation was much more extensive than expected, raising costs and ultimately less than half the original length was built. The study of the Lagos-Ibadan road led to a major disagreement between the Government and the Bank about the timing of construction.**

7. **For the Transport Rehabilitation Project (PPAR NO. 2092, June 1978), despite modification of the Bank's procedures, the intended rapid disbursements did not materialize. The delays were caused by the Bank's need for economic analysis during the "identification" of sub-projects, and by the Government's slow procurement. The slow procurement under the Road and Transport Rehabilitation Projects was partly related to the Tribunal of Inquiry on the Apapa Road Project.**

8. **The execution of the Fifth Highway Project (PPAR No. 3244, December 1980) covered a period of major disagreement on highway matters between the Government and the Bank. As a result no supervision missions visited Nigeria between September 1975 and May 1978. Execution of civil works was generally satisfactory except for poor contractor performance on one lot, which reduced the length of highways completed from 109 to 99 miles. All the bridges were completed satisfactorily. The institutional development was less successful. Measures for improving federal highway maintenance were well conceived but reallocation of responsibility for maintenance from FHD to SMOWs made the consultants' efforts of marginal relevance. The Government made only limited progress on implementing loan covenants on axle-loading and building up a data base, because these were not priority objectives for FHD. Apparently, conditions offered were not sufficient to attract high caliber experts to Nigeria to build the capacity of FHD, although eventually a traffic engineer was seconded from the British Transport and Road Research Laboratory for eighteen months. He was assisted by two experts funded by United States Agency for International Development.**

9. **The Sixth Highway Project was completed September 30, 1988. The road strengthening works have been completed, together with the acquisition of highway safety equipment and pavement evaluation equipment. Institutional development was limited. The pavement evaluation unit was established, although its role is only now being defined under the Highway Sector Loan. Other than the consultants for maintenance monitoring, the posts foreseen in planning, design and construction were not filled. This was partly due to**

administrative delays, but also to a Government desire to reduce the amount of expatriate assistance.

Highway Sector Loan

10. The Highway Sector Project is approximately 15% completed. Overall, the project is about 2 years behind schedule. As of December 31, 1992 the loan has disbursed about US\$43 million against the original SAR forecast amount of US\$213 million. Now, the project management and coordination consultants are in place; progress has improved. About 27 contracts for design work have been signed. Suppliers for procurement of equipment have been selected and the contracts are soon to be awarded (US\$2.1 million). Tenders for nine road projects (US\$40 million) have been invited and prequalification of contractors for another six roads (US\$30 million) is in progress.

11. Financial Covenants: The Special Account, Project Accounts, and the Statements of Expenditure under the project were audited in December 1991 and June 1992. The auditors' reports have been found satisfactory.

12. Funding: The allocation of budgetary resources for capital and recurrent expenditure has improved in 1992. As of June 1992 about ₦500 million have been spent on capital expenditure (including supplementary allocation) and the annual allocation is expected to be about 9% of the total federal capital budget. Similarly, allocation for recurrent expenditure has increased from ₦254 million in 1991 to ₦368 million in 1992. However, due to past inadequate investments in periodic and routine maintenance, a large fraction of the recurrent expenditure continues to be made on emergency and special repair projects, leaving little for programmed routine maintenance. The FHD is in the process of implementing pilot schemes for programmed routine maintenance by contract. Government has allocated ₦8 million for initial expenditure.

13. Road User Charges: After the delay of 18 months in getting started, the road user charges study was successfully completed in May, 1992. Draft recommendations have been presented to FMWH. The study shows revenue from federal taxes and duties on importation of vehicles and petroleum products, and from road tolls already exceed the desirable recurrent maintenance expenditure on federal roads. Nevertheless, the study recommends imposing a fuel surcharge of 23 Kobo/liter on the price of gasoline, and 9 Kobo/liter on diesel to cover the recurrent maintenance expenditure on state and federal roads. An action plan has been put together by FMWH, for consideration by IDA and Government.

14. Implementation Delays: The delays in implementation currently experienced under the project are a result of the bureaucratic decision making process. Almost every decision has to go through the Minister, before which time it must go through the Director of the Federal Highways and the Director General. For the same reason, the ability of the internationally recruited project management consultants is greatly hampered in terms of speeding up implementation. These and other implementation issues have been discussed with the Government and FMWH during a sector implementation review held in Nigeria in June 1992. As a result of that review, US\$50 million was canceled from the outstanding loan balance as of January 1, 1993.

**FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT**

CHARACTERISTICS OF STATE ROAD NETWORKS, 1988

Road Network	Paved Roads		Condition of State Roads (a)			Road Length With ADT = 300 or More		Paved Roads With ADT Less Than 300		Road Projects Included in 4th 5-yr Plan (1981-1985) for Rehab/Constr./Resurfacing to:		Total (km)
	(km)	(%)	% Good	% Fair	% Poor	(km)	% Paved	(km)	Paved Standard (km)	Unpaved Standard (km)		
	(km)	(%)	% Good	% Fair	% Poor	(km)	% Paved	(km)	(km)	(km)		
Anambra/Enugu	1686	320 19	21	16	68	733	(41)	0	1100	0	1100	
Bauchi	1480 (c)	250 17	11	0	89	182	(100)	68	770	0	770	
Damdel/Delta	3304	1490 45	21	50	29	1117	(82)	570	2000	0	2000	
Benue	2950	530 18	23	40	37	1118	(36)	142	940	1350	2290	
Dorno/Yobe	1700 (c)	149 9	0	100	0	149	(100)	0	1700	0	1700	
Cross River/												
Akwa Ibom	1964	310 16	24	30	46	439	(66)	25	800	350	1150	
Gongola/Taraba	1165	240 21	69	0	31	352	(56)	46	140	890	1030	
Imo/Abia	1217	780 64	29	32	39	920	(85)	0	1290	0	1290	
Kaduna/Katsina	1880	1090 58	78	16	6	1096	(99)	0	730	530	1260	
Kano/Jigawa	1390	1000 72	68	25	7	825	(89)	266	1620	0	1620	
Kwara/Kogi	1189	210 18	4	4	92	373	(58)	64	1000	0	1000	
Lagos	370 (b)	350 96	75	17	8	207	(97)	148	320	0	320	
Niger	700	447 58	42	27	30	450	(90)	0	300	660	960	
Ogun	917 (b)	400 44	34	33	32	497	(67)	70	780	500	1280	
Ondo	2160	1120 52	3	24	73	1170	(68)	330	2500	0	2500	
Oyo/Osun	1099 (b)	480 44	25	22	53	387	(68)	220	1340	1520	2860	
Plateau	2242	240 11	15	48	37	395	(56)	25	540	560	1100	
Rivers	515	470 91	69	12	19	247	(96)	255	1090	0	1090	
Sokoto/Kebbi	2620	558 21	50	25	25	526	(78)	124	1220	50	1270	
TOTALS	30548	10434 34							20180	6410	26590	

(a) Condition data based on a 20-95% sample of state roads with ADT of 250 or more. The overall condition of state road networks is likely to be much worse than the statistics shown above, as the condition statistics do not include lower volume roads which are generally in worse condition.

(b) Excluding urban and township roads.

(c) Estimate.

Source: Report No. 7844-UNI, "Federal Republic of Nigeria: Road Sector Strategy Paper", January 1991, World Bank.

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Selected Information on Project States

A. OYO STATE

1. Oyo state is located in the south west section of the Federal Republic of Nigeria. It is bounded in the east by Osun state, in the west, by the Republic of Benin (formerly Dahomey), in the north by Kwara state and in the south, by Ogun state.
2. Together with Osun state, Oyo state covers an area of about 35,750 square kilometers and it is fairly urbanized. Ibadan, the capital of Oyo state is a very cosmopolitan town. It is reputed to be the largest indigenous city in Africa, south of the Sahara. It is one of the largest industrial cities in the country. It has both private and public businesses and serves both the southern and northern areas of the country.
3. The town of Oyo has an important historical background. It is famous for its past warrior kings and it is well noted for carvings particularly of calabashes and the fabrication of native drums. Iseyin, another sizeable town in Oyo state lies north of Oyo town. It is noted for the weaving of native cloth fabrics.
4. Oyo state has two universities within its geographical area. University of Ibadan is a federal institution while the Ladoke Akintola University of Technology situated in Ogbomolsho is owned by the State.
5. Oyo state has two major climatic seasons, the dry and the wet. The wet season commences around April and lasts till October while the remaining five months are relatively dry. In the southern part of the state, the vegetation is both thick and deciduous. To the north, it is predominantly grassland that is suitable for arable crops. The average rainfall is 61.3 cm in the south and 50.3 cm in the north.
6. Agricultural production in Oyo state consists of a wide variety of food and cash crops. The food crops include yam, maize, cassava, beans, millet, plantains and banana. Fruits, like oranges, tangerine are also produced in appreciable quantities. The cash crops are primarily cocoa and palm produce. The area is suitable for cattle and in the 1960s, dairy farming by government was extensively practiced at Fashola, a village some kilometers north of Oyo town. Farming and fishing (on a limited scale) form the major agricultural activities of the state. The International Institute of Tropical Agriculture, the Cocoa Research Institute of Nigeria and the Federal Department of Agricultural Research are all located in Ibadan.
7. Provisional results from the 1991 census put the present population of Oyo state at about 3.5 million.

B. OSUN STATE

8. Osun state was created out of the old Oyo state in August 1991 and shares the same climatic characteristics. It is bounded in the east by Ondo state, in the west, by Oyo state, in the north by Kwara state and in the south by Ogun state.

9. The population of the State is provisionally put at about 2.2 million. The agricultural activities are similar to those in Oyo state but being a young state, it has yet to develop its industrial potentials. However, a fairly large brewery operates near Ilesha.

10. Osun state however, has a distinctive tourist attraction in the annual Osun festival which is held at the Osun shrine. During the festival, presents are brought to the goddess of the river and blessings, prosperity and pro-creation are invoked on all Osun state women.

11. Furthermore, the ancient city of Ile-Ife is situated in Osun state. It is believed to be the origin of all Yorubas both in Nigeria and the diaspora.

C. SELECTED STATISTICS

Total Estimated Population, 1991

Oyo	3.49 million
Osun	2.20 million

Total Area	<u>35,750 km²</u>
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Expenditure Pattern (budgeted) 1991 (N million)

Total expenditure	1,702
Total capital expenditure	767
Amount allocated to Roads	72
Amount allocated to Roads as % of capital expenditure	9%
Amount allocated to Roads as % of total expenditure	4%

Main Sources of Revenue for the States (Actual) (N million)

	<u>1989</u>	<u>1990</u>	<u>1991 (budget)</u>
Statutory allocation from the Federal Government	792	982	1262
Internal Revenue Mobilization	341	381	259

FEDERAL REPUBLIC OF NIGERIA

SECOND MULTISTATE ROADS PROJECT

SUMMARY OF GOVERNMENT RECURRENT REVENUE

(in Naira millions)

	OYO/OSUN					
	1986	1987	1988	1989	1990	1991
TAXES	38.49	43.00	49.14	63.76	74.06	99.26
FEES & FINES	37.29	68.82	55.40	50.49	51.20	61.07
Vehicle Ownership Transfer	0.02	0.06	0.07	0.06	0.07	0.08
Vehicle Registration	0.07	0.02	0.01	0.01	0.01	0.01
Fines & Towing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Road Worthiness Test	0.32	1.13	0.23	0.25	0.25	0.26
Parking Charges	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Subtotal Transport	0.41	1.21	0.31	0.32	0.33	0.35
LICENSES	10.31	10.82	11.01	11.94	11.41	11.98
Drivers License	0.90	1.04	1.20	1.17	2.77	4.52
Motor Vehicle License	6.27	5.15	6.01	6.30	5.97	5.38
Hackney Permits	0.37	0.35	0.43	0.54	0.56	0.55
Subtotal Transport	7.54	6.54	7.07	8.01	9.30	10.45
Total Transport	7.95	7.75	7.95	8.33	9.63	10.80
EARNINGS & SALES	10.91	n.a.	n.a.	22.39	22.87	n.a.
STATUTORY ALLOCATION	264.10	318.24	551.48	729.21	982.01	n.a.
OTHER	9.52	n.a.	n.a.	23.68	11.75	n.a.
TOTAL	378.57	448.63	674.98	909.80	1162.93	183.11
Transport as % of Total Revenue exc.Stat.Alloc.	6.95	5.94%	6.44%	4.61%	5.32%	n.a.

Data reflect actual revenue for each year.

FEDERAL REPUBLIC OF NIGERIA

SECOND MULTISTATE ROADS PROJECT

SUMMARY OF STATE GOVERNMENT RECEIPTS AND EXPENDITURES

(in Naira millions)

REVENUE/EXPEND. PATTERN	OYO/OSUN									
	Budget 1989	%	Actual 1989	%	Budget 1990	%	Actual 1990	%	Budget 1991	%
Statutory Revenue from Federation Account	590.42	60.60	792.21	58.88	729.00	56.05	982.01	66.96	1262.00	74.13
Internal Revenue	298.24	30.62	341.45	27.57	411.54	31.64	380.92	25.97	258.86	15.21
Capital receipts	85.55	8.78	167.66	13.54	160.00	12.30	103.64	7.07	181.55	10.66
Total Receipts	974.21	100.00	1238.31	100.00	1300.54	100.00	1466.57	100.00	1702.43	100.00
Current Expenditures	683.55	70.10	688.80	55.90	855.80	65.81	863.93	61.49	934.92	54.91
Of which Road Maint.	5.00		7.2		8.12		10.5		7.9	
Maint. % of Curr. Exp.		0.73		1.00		1.00		1.20		0.53
Capital Expenditures	290.66	29.84	543.38	44.09	444.74	34.19	541.07	38.51	767.51	45.09
of which Road Capital Exp.	22.77		29.26		32.44		58.72		71.76	
% of Capital Expenditure		7.8		5.4		7.3		10.9		9.0
Total Expenditures	974.21	100.00	1232.18	100.00	1300.54	100.00	1405.00	100.00	1702.43	100.00
Roads Financing	29.11		36.26		40.56		68.77		71.96	
Roads Financing as % of Total Receipts	3%		3%		3%		5%		4%	

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROAD PROJECT
CAPITAL EXPENDITURE PATTERNS
(Naira millions)

SECTOR/Subsector	OYO/OSUN				
	1989 Approved	Actual	1990 Approved	Actual	1991 Approved
ECONOMIC					
Agriculture & Rural Dev.	26.54	45.44	86.72	64.56	85.26
Livestock	0.77	0.95	2.71	0.20	4.24
Forestry	1.17	n.a.	0.24	0.24	1.25
Fisheries	0.49	0.89	2.67	0.15	3.80
Manufacturing	n.a.	n.a.	n.a.	n.a.	n.a.
Power	n.a.	n.a.	n.a.	n.a.	n.a.
Commerce, Finance	14.65	77.41	33.30	39.95	81.77
Transport	32.04	107.12	44.57	92.80	89.87
Subtotal	74.66	221.81	170.21	197.79	266.19
SOCIAL SERVICES					
Education	27.35	31.19	75.31	139.71	103.88
Health	12.66	31.77	28.43	21.32	60.25
Information	24.29	23.10	12.38	25.60	38.85
Social Development	5.25	13.67	6.50	6.56	12.30
Subtotal	69.54	99.73	122.62	193.18	215.27
REGIONAL DEVELOPMENT					
Water Supply	32.85	56.25	70.35	48.98	97.90
Sewerage & Drainage	2.40	6.39	15.92	12.18	57.70
Housing	n.a.	n.a.	18.16	25.13	27.69
Town & Country Planning	12.99	20.74	18.14	0.70	7.41
Community Development	n.a.	n.a.	n.a.	n.a.	n.a.
Subtotal	48.24	83.37	122.57	86.99	190.05
GENERAL ADMINISTRATION	94.08	119.33	30.54	58.00	63.05
GRAND TOTAL	286.52	534.24	445.94	535.96	735.21
Transport Expenditure as % of Total Capital Expenditure	11.81%	20.05%	9.99%	17.31%	12.22%

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
State Roads Maintenance Cost Recovery 1/

Introduction

1. Desirable costs for recurrent (routine) maintenance of state roads range from about ₦7,000 per km for the lower volume unpaved roads (ADT < 300 vpd) to about ₦17,900 per km for the higher volume (ADT > 1500 vpd) asphalt concrete roads. When the annualized costs for periodic maintenance are also added, total maintenance costs (excluding rehabilitation and construction) range from ₦18,000 to ₦57,000 per km. On this basis, annual desirable maintenance costs for the states of Oyo and Osun are ₦30.5 and ₦29.5 million respectively, of which recurrent costs constitute ₦10.6 million and ₦9.72 million respectively. In comparison, the estimated total road transport related revenue at the state level amounts to ₦5.98 million and ₦4.98 million in Oyo and Osun respectively. Tables 1 and 2 give summaries of the recurrent maintenance costs and total (recurrent and periodic) maintenance costs in relation to the total transport related revenue generated in the two states.
2. As seen from these tables, the revenue amounts to only 19% and 16% of the total maintenance costs or 56% and 50% of recurrent maintenance costs respectively, for Oyo and Osun.

Transport Related Revenues

3. Table 3 shows typical rates of road user charges and fees currently levied by the states in Nigeria, and the specific ones levied in Oyo/Osun. Average yearly amounts collected by the states vary from a maximum of ₦26 million for Lagos to a low of about ₦1.0 million for Benue. The main source of revenue is by far the motor vehicle license fees which represent about 65% of all revenue, followed by driver's license fees amounting to about 15%. The total revenue collected by all states in Nigeria amounted to ₦82.9 million in 1988 and ₦84.8 million in 1990.

Cost Recovery

4. Table 4 shows a summary of recurrent and total maintenance expenditure required to keep the entire state road network in Nigeria in good condition. Recurrent maintenance costs amount to ₦213 million while total maintenance costs, including periodic maintenance but excluding rehabilitation and construction costs, amount to ₦537 million. In comparison, the

1/ Figures in this Annex are based on data available as of December 1991. On the basis of the projected inflation rates and assuming 60% of the costs are in foreign exchange, the expected increase in maintenance cost is 18% in 1992, 12% in 1993, 8% in 1994 and 6% per annum thereafter.

total revenue collected at the state level in 1990 (N84.8 million) represents only 40% of the recurrent maintenance requirement, and only 16% of the total maintenance requirement. To recover at least the recurrent maintenance costs at the state level, the states should be required to increase on average the road user charges and fees by a factor of 2.5. Considering the rates have not changed significantly in most states since 1986, this increase would be regarded reasonable in light of the generally high inflation rate in the country.

Fuel Tax

5. In the long run, the full cost of recurrent and periodic maintenance needs to be recovered from road users. This can be done more efficiently by including a pump sales tax on fuel to generate the bulk of the revenues necessary for highway maintenance needs. Constitutionally, only the Federal Government can regulate fuel prices and levy sales tax on fuel. A recent study by consultants has estimated that a fuel tax of Kobo 23 on petrol and Kobo 9 on diesel per liter would be required to recover fully recurrent maintenance expenditure on Federal and State roads. The tax would have to increase to Kobo 61 and Kobo 27 per liter respectively on petrol and diesel respectively, to recover the full cost of road maintenance, i.e. recurrent and periodic.

Table 1: Recurrent Road Maintenance Costs

State Roads	Unit Cost (N/km)	Oyo (km)	Osun (km)
AC Paved			
ADT < 1500	12,800	153	50
> 1500	17,900	61	56
SD Paved			
ADT < 1500	10,800	199	276
> 1500	14,900	46	184
Unpaved			
ADT < 300	7,000	259	128
> 300	8,000	368	182
Subtotal		1,086	876
Annual Routine Maintenance Costs (Nm)		10.64	9.72
1991 Road Transport Revenue		5.98	4.82
Revenue/Total Costs (%)		56%	50%

Source: LBI Inc., Road User Charges and Axle Load Study, Phase One Report 1991.

Table 2: Total (Recurrent and Periodic) Road Maintenance Costs

State Roads	Unit Cost (₦/km)	Oyo (km)	Osun (km)
AC Paved			
ADT < 1500	39,160	153	50
> 1500	57,500	61	56
SD Paved			
ADT < 1500	33,850	199	276
> 1500	49,450	46	184
Unpaved			
ADT < 300	18,000	259	128
> 300	20,000	368	182
Subtotal		1,086	876
Annual Total Maintenance Costs (₦m)		30.53	29.5
1991 Road Transport Revenue		5.98	4.98
Revenue/Total Costs (%)		19.6%	16%

Source: LBI Inc., Road User Charges and Axle Road Study, Phase One Report, November 1991.

Table 3: Rates of Road Transport Related State Taxes
(Naira per annum)

MOTOR VEHICLE LICENSES FEES:

<u>Other than commercial</u>	<u>States Average</u>	<u>Oyo/Osun</u>
1000 kg	50	69
1500 kg	90	100
2000 kg	140	170
 <u>Commercial</u>		
1000 kg	72	61
5000 kg	205	204
8000 kg	256	252
12000 kg	314	286
25000 kg	578	460
40000 kg	796	790
 <u>Annual Hackney payable by owner</u>		
Taxi	150	30
Danfo	125	53
Molue	150	106
911 Buses	300	106
Trailers	250	106
Tankers	250	106
 <u>Various Fees:</u>		
Registration of Motor Vehicle	5	5
Change of Ownership	5	5
Driver's License Profesional	10	10
Private	5	5
Examination of Commercial Vehicles (every 6 months)	5	5

Sources: LBI Inc., Road User Charges and Axle Load Study,
Phase One Report, November 1991.
OYO State Government.

Table 4: Maintenance Costs for State Road Network

State Roads	Length (km)	Recurrent Maintenance		Rec+Periodic Maintenance	
		(N/km)	Total (Nm)	(N/km)	Total (Nm)
AC Paved					
ADT < 1500	1,536	11,355	17.44	34,715	53.32
> 1500	171	15,872	2.71	50,912	8.71
SD Paved					
ADT < 1500	9,133	9,589	87.58	20,989	191.69
> 1500	1,015	13,222	13.42	43,822	44.48
Unpaved					
ADT < 300	4,580	5,799	26.56	14,799	67.78
> 300	7,799	8,402	65.53	21,902	170.81
Total			213.24		536.79

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Design Standards

1. New construction in Nigeria follows the Federal Highway Department (FHD) design standards manual. These standards are based on the U.S. AASHTO standards and are acceptable. Relatively little in the way of new contracts for construction on new alignments will be undertaken under MSRP.

2. In Nigeria, asphalt concrete overlays are the standard method of applying strengthening courses to bituminous surfaced roads. The deteriorated state of the roads often requires extensive rehabilitation or patching before the overlay is applied. In the past, the overlay thickness applied was often 40 to 50mm, which was frequently insufficient to carry the heavily overloaded axles found in Nigeria. The Pavement Evaluation Unit (PEU) established under the Sixth Highway Project has developed a methodology for the Nigerian environment for dimensioning overlays, which will be applied in the project. All pavement design under the project will take into account the recent increase in legal axle load limit from 10 to 11.5 tons/axle, as well as a survey of actual vehicle loading. All road designs carried out under the project will take into account the recommendations from the MSRP Environmental Assessment Study (Annex 4-10).

3. All works, including reconstruction and rehabilitation, will be to the standards of FHD design manual, modified for rehabilitation projects to lower standards, as applicable, as follows:

(a) **Cross Sections:**

(i)	Carriage way width	=	6.70 - 7.30m
(ii)	Shoulder width	=	1.50m each
	Overall road width	=	9.70 - 10.30m

(b) New pipe culverts: minimum diameter of 900mm.

(c) Existing culverts to be extended in their present form.

(d) Where soil is subject to erosion, a paved side ditch will be incorporated, as well as other measures indicated by the environmental assessment to prevent erosion.

(e) Low lying sections of road will be raised as necessary with selected fill materials.

- (f) **Sub-base and base course will be of naturally occurring material, where appropriate.**
- (g) **Double bituminous surface treatment will be applied where technically and economically justified.**
- (h) **Where a reasonable length of existing pavement is in good condition only single bituminous surface treatment will be required.**

Tentative List of Vehicles, Equipment, Parts and Supplies to be procured:

	<u>Oyo State</u>		<u>Osun State</u>		Total
	SMOWT	FRSC	SMOWT	FRSC	
A. <u>Vehicles</u>					
Station Wagons	8	5	6	4	23
Pick-up Vans	10		8		18
Saloon Cars	5		3		8
Ambulances		3		2	5
Motorbikes	25	8	16	7	56
Bicycles	90		90		180
B. <u>Light Equipment for Rehabilitation of Gravel Roads</u>					
Tipper Truck	4		4		8
Tractor	12		12		24
Trailer	24		24		48
Vibrating Pedestrian roller	8		8		16
Roller Tractor-drawn (8t)	4		4		8
Water Tank Trailer (2m)	4		4		8
Water pump (portable, 75mm)	4		4		8
Power saw	4		4		8
Pick-up	4		4		8
Fuel Trailer (3,000 l)	4		4		8
Motorbike (1800 cc)	8		8		16
Bicycle	16		16		32
Puley block and rope	8		8		8
Site tools (set)	4		4		4
C. <u>Other</u>					
Lab and Field Testing Equip.					
Office Equipment					
Traffic Counting Equipment					
Mobile Axle Load Measuring Equipment					
Surveying Equipment					
Design Office Equipment					

Hand Tool Requirements for Force Account Routine and Emergency Maintenance

<i>Hand Tool</i>	<i>Unit Cost (N)</i>	<i>Requirements for force account routine and emergency maintenance Oyo State</i>	<i>Cost (N)</i>
Cutlass	130	400	52,000
Mattock	90	60	5,400
Shovel	180	300	54,000
Spade	150	150	22,500
Rake/Spreader	100	300	30,000
Hand Rammer	250	100	25,000
Pickaxe	240	200	48,000
Axe	200	60	12,000
Headpan	130	300	39,000
Sledgehammer	140	10	1,400
Watering can	70		
Crowbar	500	10	5,000
Bucket	60		
Wheelbarrow	700	100	70,000
Bowsaw	400	20	8,000
Power Saw	8,000	6	48,000
Manual bitumen sprayer	5,000	6	30,000
30m tape	1,000	6	6,000
3m tape	60	12	720
Spirit level	300	12	3,600
Ranging Rod	150	30	4,500
Line level	200		
Masonry level	500	6	3,000
Tool handles			30,000
Bicycle	2,500	90	225,000
Total			681,800

Requirement for	1993/94 (100%)	N681,800	
• 1995	(50%)*	N189,400	
• 1996	(30%)*	N113,600	
• 1997	(20%)*	N 75,800	<u>N1,060,700 (US\$55,000)</u>

* The percentages are excluding the cost of bicycles and power saws which would not be replaced during the project.

‡ Needs of Osun State estimated at 40% of above or N424,300 (US\$22,000)

Hand Tool Requirements for Routine Maintenance Training

<i>Hand Tool</i>	<i>Unit Cost (N)</i>	<i>Requirements for routine maintenance training per State</i>	<i>Cost (N)</i>
Cutlass	130	50	6,500
Mattock	90	15	1,350
Shovel	180	50	9,000
Spade	150	10	1,500
Rake/Spreader	100	50	5,000
Hand Rammer	250	20	5,000
Pickaxe	240	50	12,000
Axe	200		
Headpan	130	50	6,500
Sledgehammer	140	10	1,400
Watering can	70		
Crowbar	500	5	2,500
Bucket	60		
Wheelbarrow	700	30	21,000
Bowsaw	400		
Power Saw	8,000		
Manual bitumen sprayer	5,000		
30m tape	1,000		
3m tape	60		
Spirit level	300		
Ranging Rod	150		
Line level	200		
Masonry level	500		
Tool handles			12,000
Bicycle	2,500	10	25,000
Total			N108,750 = \$5,725

Total tools for 2 training sections \$11,450

Hand Tool Requirements for Earth Road Rehabilitation Training

<i>Hand Tool</i>	<i>Unit Cost (N)</i>	<i>Requirements for training on 10km earth road rehab. sect.</i>	<i>Cost (N)</i>
Cutlass	130	100	13,000
Mattock	90	100	9,000
Shovel	180	150	27,000
Spade	150	60	9,000
Rake/Spreader	100	40	4,000
Hand Rammer	250	40	10,000
Pickaxe	240	80	19,200
Axe	200	5	1,000
Headpan	130	80	10,400
Sledgehammer	140	12	1,680
Watering can	70	30	2,100
Crowbar	500	10	5,000
Bucket	60	10	600
Wheelbarrow	700	40	2,800
Bowsaw	400	4	1,600
Power Saw	8,000	1	8,000
Manual bitumen sprayer			
30m tape	1,000	6	6,000
3m tape	60	12	720
Spirit level	300	10	3,000
Ranging Rod	150	15	2,250
Line level	200	6	1,200
Masonry level	500	2	1,000
Tool handles			15,000
Bicycle	2,500	20	50,000
			N203,550 = \$10,700

Total tools for 2 training sections \$21,400

FEDERAL REPUBLIC OF NIGERIA
MULTISTATE ROADS PROJECT II
STATE ROADS MANAGEMENT CONSULTANCY
(State Technical Assistance Consultants)

Draft Terms of Reference

Objectives

1. The main objectives of the technical assistance are to:
 - (a) assist in carrying out the planned strengthening of State Ministry of Works (SMOW) roads organization;
 - (b) ensure efficient and cost-effective management of road maintenance, rehabilitation, construction, upgrading and planning activities;
 - (c) train managers, engineers and technicians to carry out their various functions, with the objective that all road and equipment management and operating functions can be carried out independently by SMOW; and
 - (d) in collaboration with a suitable institution in the state, establish a Technology Transfer Center for dissemination of information, facilitation of technology transfer from more developed countries to Nigeria, and providing training materials.

Scope

2. The State Technical Assistance Consultants (STAC) will assist and advise SMOWs in implementing the road program under MRSP II. In particular, the following tasks will be carried out:
 - (a) assist the SMOWs in planning the execution and the monitoring of field operations for construction, rehabilitation and maintenance of roads;
 - (b) assist in planning, implementing and monitoring road maintenance by labor intensive and light equipment assisted methods;
 - (c) train selected domestic contractors in labor intensive and light equipment assisted construction methods;
 - (d) assist SMOWs in preparing quarterly and annual estimates of local budget requirements for implementing the roads program;
 - (e) assist in setting up the statements of completed road works for payments from the Project and Special Accounts;

- (f) assist the SMOWs by carrying out periodic field inspections of the roads program;
- (g) assist in the project's procurement of works, services and goods (e.g. equipment, vehicles, spare parts, bitumen, fuel), including preparation of bidding documents and subsequent bid evaluations;
- (h) ensure that the proper project accounting and auditing practices are followed at field units and headquarters for road works, equipment and maintenance, and related activities;
- (i) computerize the road management information system, including financial, cost accounting and monitoring functions;
- (j) provide and monitor on-the-job training to managerial, office and field personnel of SMOWs (headquarters and field units);
- (k) provide technical and institutional support to LGCs as agreed with SMOWs;
- (l) provide guidance to SMOWs in selecting trainees, training materials and courses to be attended by staff;
- (m) set-up and implement a system for monitoring and reporting developmental impacts of the MSRP using suitable indicators;
- (n) prepare quarterly progress reports and a project completion report at the end of the project; and
- (o) identify local university or other institution suitable for setting up the Technology Transfer Center; work out the resource requirements and modalities for making the Center functional; and facilitate its operation.

Technical Assistance Services

3. The technical assistance team will consist of:

- (a) project manager and team leader (36 months);
- (b) a financial and accounting expert (36 months);
- (c) highway planner (24 months);
- (d) materials specialist (24 months);
- (e) labor based construction and contractor development expert (36 months);
- (f) management information systems specialist (24 months); and
- (g) short-term visits by specialists (8 man-months total).

**Training Specialist
Procurement Specialist
Environmental Engineer**

The technical assistance team will be engaged full time for three years with periodic visits over two years to monitor implementation of program and to run upgrading courses.

Work Description and Qualification

4. Particular functions and qualifications of the technical assistance team are described below:

A. Project Manager and Team Leader

The Team leader will assist and advise the Director General and/or the Director of Civil Engineering of SMOWs. In particular, he will:

- (a) coordinate and manage all activities of the technical assistance;**
- (b) update quarterly, and as required, the state roads program and supervise its implementation;**
- (c) analyze the cost and performance data of the road contractors every three months and make recommendations to improve their performance;**
- (d) prepare manuals of standard procedures for road design and works supervision, and provide on the job training to SMOW engineers and supervisors;**
- (e) carry out at least on a quarterly basis field inspections to verify the accuracy of the works reporting;**
- (f) scrutinize and countersign the work accomplishment statements prepared for the payment of contractors from the Project and Special Accounts;**
- (g) assist with and monitor the procurement and utilization of goods and services for all components of the MSRP;**
- (h) develop and implement training programs and provisions for on-the-job training of SMOW staff and counterparts;**
- (i) prepare quarterly progress reports reviewing accomplishments, presenting project statistical data, progress in transferring skills to counterparts, general outlook for following quarter and important project schedule revisions; including provision of other data required by SMOW, the World Bank and co-financiers;**
- (j) assist the implementing agencies in meeting all credit and/or loan agreement obligations and covenants;**

- (k) assist in the planning, design, construction and monitoring of the state roads program;
- (l) participate in the state transportation planning activities;
- (m) install and operate a system for monitoring achievement of project objectives and developmental impacts;
- (n) submit a final report summarizing the accomplishments with all relevant data in accordance with SMOWs and Bank requirements;
- (o) by the end of the initial three-year period, prepare in consultation with the relevant counterparts detailed procedures for effective takeover of the above activities, and assist other team members in preparing detailed procedures for their counterparts; and
- (p) be responsible for setting up the Technology Transfer Center in the State.

5. The expert should be a well qualified civil engineer with at least twenty years post-qualification experience, out of which 10 years shall be in managing and supervising road projects. He/she should have some experience in Sub-Sahara Africa. He/she should be fluent in English.

B. Financial/Accounting Expert

6. The financial/accounting expert will be assigned to SMOWs and will:
- (a) Design and install a comprehensive project accounting system;
 - (b) assist SMOWs in preparing monthly reconciliations of the Project and Special Accounts;
 - (c) assist SMOWs in ensuring that all the required accounting documents are prepared and processed, and make proposals to remedy any deficiencies;
 - (d) if required, prepare inventory control procedures for SMOWs' divisions and headquarters;
 - (e) assist, as required, with the development of software for computerizing the accounting functions, the inventory management and the cost and performance accounting system;
 - (f) assist SMOW in planning, programming and budgeting for recurrent and capital expenditure;
 - (g) train counterpart staff in the use of the project accounting system.

7. The expert should have full accounting qualifications and, at least 10 years of accounting experience in managing multiple road construction and maintenance (or similar) contracts and must be able to set up accounting systems in the specific offices of SMOWs.

C. Highway Planner

8. The expert will be assigned the responsibility of planning and designing the rehabilitation of existing roads and construction of all new road works included in the project. He/she will:

- (a) evaluate current traffic patterns and growth rates;
- (b) plan, schedule and monitor all data collection, including traffic counts, condition surveys, and axle load measurements and design work in the office and publish annual reports;
- (c) coordinate, review and evaluate data collected, formulate design criteria and prepare multi-year road construction, rehabilitation and maintenance plans;
- (d) ensure that designs and documentation conform with approved criteria;
- (e) with assistance of local consultants, where applicable, prepare bills, cost estimates, reports, bidding documents and other project documentation, and participate in bid evaluation;
- (f) supervise and direct day-to-day technical performance, review and approve designs, supervise preparation of all deliverables;
- (g) assist and advise the Team Leader on all technical matters as needed;
- (h) review all pavement alignment and drainage data;
- (i) take note of the high accident rates in Nigeria in discussing road works, and ensure particular attention is given to enhancing road safety, including the need to improve road alignments, and arrange for conducting road safety audits of all design and rehabilitation works;
- (j) provide on-the-job and programmed training to counterpart engineers and technicians;
- (k) participate in the development of detailed work schedules;
- (l) ensure that economic analysis of all proposed investments is performed satisfactorily; and
- (m) ensure that satisfactory environmental assessments are carried out for all road projects and that recommendations of the mitigation plan are carried out.

9. The highway planner should be a well qualified highway engineer with at least 10 years of experience in highway planning and design. He/she should be familiar with the design and construction of highways, and have experience in the investigation and data collection for highway planning, design, construction and maintenance. He/she should be able to give on-the-job training to committed counterparts, and should have adequate knowledge of computers. He/she should be fluent in English.

D. Materials Specialist

10. The expert will be assigned the responsibility of evaluating all material investigation, testing, usage and quality control. The materials specialist's tasks will include the following;

- (a) inspect sites for verification of site information;
- (b) prepare quality control tests and plans for all road works under the project and advise SMOW, supervise consultants and contractors accordingly;
- (c) develop materials/geotechnical investigation and testing plan;
- (d) direct materials/geotechnical field investigation to confirm materials information;
- (e) carry out reconnaissance of quarries for selection of materials, sampling, test pits and testing;
- (f) select material sources, estimate deposits, haulage costs and oversee the testing and approval of material;
- (g) approve material and installation standards for subgrade and pavement layers;
- (h) in the state of Osun, assist in the establishment of a materials laboratory to enable SMOW to provide technical services for construction quality control and field investigations for planning and design work; and
- (i) train counterpart staff in managing materials laboratory and monitoring quality control on sites.

11. The Material Specialist should be a well qualified civil engineer with at least 10 years of experience in geotechnical engineering or soil mechanics. He/she should be familiar with the design of regravelling, overlaying and resealing, and routine maintenance techniques for bituminous and laterite roads. He/she should be able to give on-the-job training to committed counterparts. He/she should be fluent in English.

E. Labor Based Construction and Contractor Development Specialist

12. Under the project, labor-based methods will be used for all routine road maintenance works; labor-based/light equipment supported methods will be used for periodic maintenance, rehabilitation and spot improvements to earth roads. The Labor-based Construction/Contractor Development Expert (LCCDE) would have responsibility for assisting SMOW in planning and implementing all labor-based and light equipment supported road works to be executed by contractors to be trained. Furthermore, the LCCDE would provide assistance to SMOW in making effective use of its gradually reduced labor force to carry out road emergency and routine maintenance by force account.

13. The LCCDE would carry out his/her work under the overall direction and guidance of the STAC team leader and in close collaboration with his/her counterparts. These would include the Assistant Director of Maintenance, District and Superintendent Engineers. In

addition, two selected engineers would be trained by the LCCDE to gradually take over responsibilities. These two engineers would, in advance of project commencement, have received introductory training under a UNDP/ILO supported labor-based infrastructure program executed by the National Directorate of Employment (NDE) of the Federal Ministry of Employment and Productivity.

14. It is suggested that LCCDE arrange with the Federal Highways Department (FHD) in the Federal Ministry of Works to agree with ILO on information sharing and support in FHD in the area of labor-based/light equipment supported road construction and maintenance methods. This may encompass without being limited to:

- (a) routine exchange of relevant information, data and special study findings;
- (b) ILO training material made available to SMOW and vice versa;
- (c) mutual participation in selected seminars and workshops organized by SMOWs/STACs and ILO;
- (d) SMOW staff and contractor short term participation in ILO special training modules; and
- (e) as appropriate (NDE)/ILO participation in relevant parts of FHD/FEDTAC-SMOW/STAC coordination meetings.

15. In greater detail, the LCCDE, in close collaboration with his/her counterparts, shall:

- (a) arrange for introductory visits to NDE/ILO work sites and training activities; subsequently, if feasible, agree on and implement short term specialized training for SMOW staff and contractors at NDE/ILO training sites;
- (b) review with NDE/ILO possibilities for contractors trained under the NDE/ILO program to execute works under the multistate roads project;
- (c) elaborate training materials suitable for training of various categories of SMOW staff, domestic contractors and consultants. As appropriate, the training material, to be consolidated into training manuals, could be based on material produced under the NDE/ILO program. Furthermore, the FHD/FEDTAC would provide coordination between the various SMOWs to avoid duplication of efforts;
- (d) assist SMOW and local consultants in design of works to be carried out by labor-based methods;
- (e) assist SMOW in elaborating bidding documents suitable for:
 - (i) routine road maintenance work;
 - (ii) periodic maintenance of earth roads; and
 - (iii) rehabilitation and spot improvements of earth roads;

- (f) assist SMOW and consultants in supervising labor-based/(light equipment supported) works by contract. Elaborate supervision procedures in a short manual (this to be coordinated by FHD/FEDTAC);
- (g) establish contact with the Kissi Training Centre in Kenya and arrange for SMOW staff to participate in the training;
- (h) assist, as appropriate, in the systematic planning of maintenance and rehabilitation activities including those emergency and routine maintenance activities to be carried out by force account with a gradually decreasing SMOW labor force;
- (i) train at least two trainers who would gradually take over responsibility for training from the LCCDE, and at the LCCDE's departure be fully capable of undertaking continued future training;
- (j) contribute to the elaboration of the following SMOW/STAC reports:
 - (i) inception report to be issued six weeks after commencement of consultants services;
 - (ii) quarterly progress reports;
 - (iii) special reports as warranted; and
 - (iv) terminal training report summarizing experiences other than those included in manuals.

16. The LCCDE will train his/her counterparts and oversee the training being carried out by others. The LCCDE shall gradually and systematically transfer know-how and responsibility for his/her assignments to the counterparts and others as appropriate. Capacity building is a prime objective of the project and will be closely monitored and reported on. In case of inefficiencies or delays being observed corrective action must be taken.

17. The LCCDE should be a well qualified civil engineer with at least 10 years relevant post-graduate experience to a large extent acquired in developing countries, preferably including Sub-Saharan Africa. He/she should be experienced in planning, design and execution of low cost roads where labor-based methods are used. In particular, the LCCDE should have substantial experience in providing training to engineers and technicians in applying these methods. He/she should be fluent in English.

F. Management Information Systems Specialist

18. The expert will be assigned the responsibility of developing a management information system to automate road management accounting and tracking:

- (a) computerize the road management reporting system and choose and install appropriate software for the MIS;

- (b) establish a system for synthesizing and updating data on road network inventory and condition;
- (c) create a database to collect financial information and assist financial expert in design and implementation of the project accounting system;
- (d) assist SMOW in selection of computer hardware and software for MIS application, install the appropriate systems and train counterparts and SMOW staff;
- (e) develop monitoring and scheduling systems to give up-to-date information on each contract, contractor, consultant and on physical progress;
- (f) install and operate an appropriate system for monitoring developmental impacts and skills transfer achievement; and
- (g) mount basic training courses for selected SMOW staff.

19. The expert should have 15 years experience in management information system development and database management systems, and have a degree in MIS or computer science. Candidate should have full knowledge of word processors, spreadsheets and common applications programs and have the ability and experience in training others.

Short-Term Visits by Specialists

20. These experts will spent a total of 8 man-months.

- (a) Training Specialist. Assist in the institutional development. Develop a management training program to train managers in: planning, programming and budgeting for recurrent and capital expenditures, procurement, supervision, quality control and contract management, organization and monitoring of programmed maintenance by contract, and financial accounting and control. Assist in training management in monitoring developmental impacts of infrastructure investment.

The Training Specialist should be an engineer with 15 years of experience in the management of capital projects, preferably roads, with experience in financial accounting, project management, and development monitoring.

- (b) Procurement Specialist. Assist in the project's procurement of works, services and goods (e.g. equipment, vehicles, spare parts, bitumen, fuel), including preparation of bidding documents and subsequent bid evaluations.

The Procurement Specialist should have 15 years' experience in capital procurement and contract administration, and be familiar with the development of ICB and LCB documents under World Bank guidelines.

- (c) Environmental Engineer. Assist in building capacity for environmental impact assessment of roads. Assist in and train SMOW staff to determine if the roads are passing through any sensitive area which would pose serious

environmental concerns. Determine if there are any relocations expected to result from the construction of these roads. Work with the Environmental Impact Commission or with the Environmental Impact Assessment Unit to prepare an Environmental Impact Assessment report.

The Environmental Engineer should have 15 years experience in the development of environmental impact studies, preferably those related to road construction and land development.

21. Deliverables:

Management training report
Institutional development report
Tender documents
Database: software and operating manuals
Geotechnical laboratory: operating procedures manual, tests, training report
Monthly reports on design progress
Material availability reports
Construction cost estimates and bill of quantities.

Transfer of skills and know-how to Local Staff

22. Consultants are required to progressively transfer skills, know-how and responsibilities to their local counterparts. Development of and agreement with the client of a detailed program for achieving this transfer of skills and know-how is very essential. The extent to which such a transfer is actually effected will be taken into account in the evaluation of consultant's performance.

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Manpower Development and Training

Background

1. The ability of SMOWs to plan and implement effective road maintenance and rehabilitation has traditionally been very weak. This has often been due to a variety of factors such as insufficient operating budgets, excess numbers of marginally qualified staff, lack of tools and equipment, and poor management of available resources. While sometimes recognizing these institutional constraints, SMOWs have been ineffective in improving their capacity to maintain the state road networks with the result that many state road systems are deteriorating at a faster rate than they are being maintained. Now, after several decades of poor management and widespread road deterioration, both the Federal and State Governments are recognizing the need to make drastic changes in the way they carry out road maintenance operations. After an extensive review of various alternative strategies, it has been decided to transfer the major portion of road maintenance works from force account operations carried out by the SMOWs to private contractors. To this end, SMOW staff in the three pilot states will oversee works carried out by local contractors. By being relieved from the management of force account operations, the SMOWs will be able to concentrate on planning, design, and supervision of contracts, while the contractors will be able to carry out their responsibilities without the typical bureaucratic constraints that had previously plagued the SMOWs.

Manpower Development

2. Due to the nature of the proposed road maintenance program, manpower development will take on a limited role in that: (i) only small numbers of SMOW personnel will require training in contract management, and (ii) contractors will be motivated to acquire necessary skills by competitive means within the labor market. This does not preclude, however, the need to provide a forum for Government agencies and the construction industry to exchange ideas, educate the work-force, and provide general channels of communication between all parties in the sector. To address this need, the Government wishes to continue and expand the use of Technology Transfer Centers initiated under the ongoing Highway Sector Loan (see Annex 4-3). In order to achieve these objectives, the project will finance the following activities:

- (a) **Training for SMOW and FMWH Staff.** Selected senior and mid-level SMOW staff from the pilot states and from FMWH will have need to attend various international workshops, seminars, conferences and/or study tours during the project implementation period. Participation in this component will be effected according to an annual training plan to be prepared in advance by each SMOW and submitted to the Bank for review and non-objection prior to implementation. The training plan will identify:

- (i) each participant including job title, and length of service;
- (ii) the training venue, including the purpose and/or training topics, and the duration of training; and
- (iii) a breakdown of travel, tuition, and living costs.

The purpose of the above training plan is to establish a standard and acceptable procedure for manpower development that will maximize the use of available funds, and minimize ad hoc participation without proper planning. The foreign exchange available for this component is to be accounted for on an actual cost basis and is not to be used to pay Government Estacode allowances. In conformity with the Bank's Articles concerning payment for actual costs, while at the same time recognizing the Estacode requirements, the project will finance only actual costs of travel, tuition and living expenses, with any difference between actual costs and Estacode allowances being paid by Government from other sources.

- (b) Custom Designed Courses. International organizations, such as the International Roads Federation (IRF), and other teaching institutions abroad, over the years, have produced a great deal of training material related to maintenance and rehabilitation of roads. They also have programs for conducting customized training courses in host countries and abroad. These courses could also be conducted for training of trainers. The participating SMOWs and FMWH could avail themselves of these training courses and materials under the project. Where feasible, the training will include attachments to Road Authorities, Construction Firms and Materials testing facilities.
- (c) Technology Transfer Centers (TTC). Under the ongoing Highway Sector Loan, contacts were established between FMWH and the National Highway Institute (NHI) of the U.S. Federal Highway Administration (FHA). NHI operates a network of technology transfer centers (called T-Square Centers) throughout the United States and has extensive experience in the dissemination of road sector information. With the objective of setting up similar types of centers in Nigeria, the Government decided to establish a Technology Transfer Center within FMWH which would then form the basis for establishing similar centers at the state level. Under the proposed MSRP, work begun under the Highway Sector Loan will be intensified to provide capacity at the state level to meet the technology needs of SMOWs and the construction industry. In this regard, the project will finance:
 - (i) local costs and the provision of facilities to administer the extension program to the two states;
 - (ii) the cost of purchasing and/or reproducing the various software and training materials to be provided by NHI and other sources;

- (iii) local costs to conduct seminars and workshops for SMOW personnel and contractors over a five-year period; and
- (iv) the costs of training local environmental specialists in assessing environmental impacts of road projects (One from FMWH, and one each from Oyo and Osun SMOW).

In order to implement the above program, FMWH and the SMOWs will prepare a plan for staffing and provision of facilities for the Technology Transfer Centers to be ready for Bank review by the time of project effectiveness. The plan will follow the staffing guidelines already established under the Highway Sector Loan (see Annex 4-3) and is to include a description of facilities and equipment required along with a proposed annual budget for each of the eight years of project implementation. In addition, the plan will indicate the training requirements of SMOW personnel and the proposed activities of the Centers (i.e. workshops, seminars, production of materials, etc.).

Cost Estimates (Per State):

	<u>Equivalent US\$ (million)</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
(a) Training SMOW and FMWH staff including seminars, study tours	0.05	0.60	0.65
(b) Custom Designed Courses and practical attachment	0.05	0.20	0.25
(c) TTC			
(i) Facilities			
(ii) Software & train. materials			
(iii) Seminars & workshops	<u>0.15</u>	<u>0.20</u>	<u>0.35</u>
Total	<u>0.25</u>	<u>1.00</u>	<u>1.25</u>

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Technology Transfer Centers

Introduction

1. The concept of establishing technology transfer centers throughout Africa was endorsed at the 18th World Road Congress sponsored by the Permanent International Association of Road Congresses (PIARC) during their meeting in Brussels in 1987. Establishing centers in Nigeria would be the first step in reaching the PIARC goal. The long range goal is to establish an Africa Technology Transfer Center supported by member centers provided within each country. Ultimately Nigeria, due to its pioneering initiative, would become the nucleus for the technology transfer program within the continent of Africa.

2. In essence, technology transfer addresses not only technical skills but also managerial and supervision aspects as relevant and appropriate to the Nigerian context. This consultant service will be provided to the FHD under the Highway Sector Loan.

Consultancy Assignment

3. The main objective of this part of the consultancy assignment is to assist the Federal Highways Department (FHD) to establish a network of Technology Transfer Centers (TTCs) modeled after similar centers successfully established in more developed countries. The main TTC, which could be established in Lagos directly under FHD, would include direct linkage with a major TTC center abroad, such as the United States Federal Highway Administration (FHWA). This linkage would include access to several hundred training courses, training films, student textbooks, and user manuals. FHD will have the capability of sending instructors to the United States National Highway Institute (NHI) for the purpose of taking the training and then transferring the entire training course to Nigeria. Instructors would be Nigerian highway engineers from FHD, if available, or hired engineers. Alternatively, engineers from the United States or elsewhere may come to Nigeria to provide the training.

4. In addition to increasing the technical abilities of FHD, the technology is to be shared by the Highways officials in the Nigerian States. At first, three pilot state highway TTCs, will be established as part of the MSRP. The initial state centers will be served by the primary TTC operating within the FHD. The primary center will provide services to the FHD field offices.

5. The objectives of the Nigerian TTC system are to:

- Establish a mechanism for transferring highway technology from the United States and other countries to Nigerian transportation officials.
- Encourage the use of innovative, cost-effective technology within Nigeria.

- **Provide linkages to receive technology from transfer systems operating in other parts of the world (such as Pan American Institute of Highways, Canada and China).**
- **Demonstrate new technology so that it can be quickly used within Nigeria.**
- **Determine highway training needs within Nigeria and provide training to FHD and State employees.**
- **Synthesize the successful application of new technology in one center so that it can be used by other centers.**
- **Establish a TTC within the FHD. The minimum staffing should include one full-time experienced engineer (center director), one full-time secretary and two well-trained highway technicians.**
- **Establish two pilot TTCs in the States participating in the MSRP: Jigawa and Kano. The minimum staffing should include one full-time experience engineer (center director) and a full-time secretary. In addition to operating the center, this staff will also be available to assist the MSRP State Coordinator.**
- **New TTC center directors shall be provided training (one month) in the NHI of the U.S. FHWA and selected state highway departments in the U.S.**
- **The training currently provided by the FHD maintenance training centers at Badagry, Kaduna and Ugneki is critical to the maintenance of Nigerian highways and to the success of the MSRP. The immediate task of the Nigerian TTCs should be to provide high quality training materials and visual aids to the 1,200 students trained each year.**
- **Locate and distribute technical data and information throughout Nigeria.**
- **Publish quarterly a newsletter informing federal and state transportation officials of new and existing technology available to Nigeria.**
- **Maintain mailing lists of transportation officials.**
- **Conduct at least six seminars each year.**
- **Provide technology transfer materials.**
- **Perform a yearly self-evaluation and prepare annual report.**
- **Complete technical development and demonstration projects.**
- **Provide technological and training support to ensure that road projects do not cause unnecessary environmental or social damage, and support the implementation of environmental impact assessments of road projects.**

- Establish a TTC advisory committee.

Timetable

6. The timing for implementing the TTCs will be as follows:

Action

- (1) Signature of Consultancy Contract, Month 00.
- (2) Outline plan of action for TTCs, Months 00-04.
- (3) Establish TTCs, give technical support and complete all training under TTCs, Months 05-14.
- (4) Evaluate TTCs and develop policy for long-term sustainability, Months 15-22.
- (5) Produce Draft Final Report, Month 23.
- (6) Produce Final Report, Month 24.

Reports

7. The following reports will be produced for FMWH and World Bank information. The World Bank will be supplied with four copies.

- (a) An Inception Report three months after contract signature and Progress Reports at three-month intervals commencing at Month 06; and
- (b) A Final Report describing the TTC information system and training conducted.

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Draft Terms of Reference for Project Oversight
(Federal Technical Coordination Assistance)

Background

1. A National State Roads Program (NSRP) is being considered for funding by the World Bank and other lending institutions. The funds will be used to upgrade, rehabilitate and maintain state road systems. The First Multistate Roads Project (MSRP) is the initial phase of the NSRP. The Federal Ministry of Works and Housing (FMWH) has agreed to act as the Apex Agency for the MSRP. This terms of reference covers the functions of a Federal Technical Assistance Coordinator(FEDTAC) for the project. The FEDTAC is to help the FMWH provide assistance in coordination and an independent assessment of the implementation of the MSRP.
2. Two states were selected to participate in phase I of the MSRP (Kano and Jigawa), and another two in Phase II (Oyo and Osun). Each state will hire a State Technical Assistance Consultant (STAC) to help them carry out their project. Each STAC will help their state contract and supervise the road upgrading, rehabilitation and maintenance program funded under the MSRP. Also, the STACs will train counterparts to do the same functions in the future. The FEDTAC will help the FMWH monitor and evaluate the performance of all MSRP participants. This includes each State, each State's STAC and the contractors hired by each state to do the work.
3. Other states will be added in the future. The FEDTAC will continue to help the MSRP as additional states are added to the Project. Further, the FEDTAC will help the MSRP identify future NSRP states.

Objective

4. The FMWH is the Apex Agency for the MSRP. The consultant hired as the FMWH's FEDTAC will help the FMWH objectively monitor and evaluate the effectiveness of the participating states in the MSRP. This oversight function is being undertaken to allow timely improvements and corrections to the project. This process is directed toward enhancing the success of the MSRP.

Scope of Work

5. The FEDTAC is principally an advisor to the FMWH. The work comprises:
 - (a) Visiting each participating state at periodic intervals and collecting information to use in evaluating the performance of the State, the STAC and the contractors.

- (b) **Advising the FMWH on the progress and achievements realized in each state and helping the FMWH identify other states to include in future phases of the project.**
- (c) **Preparing reports to document their assessments with recommendations for improving the MSRP implementation process.**

Activities of the FEDTAC

6. Monthly, the FEDTAC is to visit each State participating in the MSRP. These are to be random visits. The state, STAC and contractors are to cooperate with the FEDTAC and make available, for examination, any information requested by the FEDTAC.

- (a) **The FEDTAC should provide each state with a list of the types of information that will be sought during each visit. This list should be made available to the state before the FEDTAC's first visit. The list should be annotated as needed during the project. Revised lists should be forwarded to states at intervals.**
- (b) **The FEDTAC should meet with the STACs and determine how effectively the STACs are doing their tasks. He should judge the overall caliber and performance of each STAC's staff member. Included in the review will be an assessment of the following STAC activities:**
 - **Supervising construction work and checking work progress.**
 - **Monitoring the quality and conformance of materials to specifications by ordering and evaluating appropriate tests and results.**
 - **Insuring contractors comply with safety guidelines and directing contractors through SMOW to carry out measures needed to insure safety.**
 - **Assisting the State plan, execute and monitor routine and periodic maintenance.**
 - **Helping the State MOW to budget road programs to ensure that adequate funding is included in the State's budget each year.**
 - **Guiding the State obtain works, services, and prepare bid documents.**
 - **Monitoring and approving accounting and auditing activities.**
 - **Assessing progress on the computerization of road management information.**
 - **Training counterpart personnel.**
 - **Providing technical assistance to LGCs as needed.**

- **Maintaining a Daily diary of events relevant to contracts.**
 - **Vetting of submitted as built drawings from the contractors.**
 - **Ensuring sound environmental procedures are being applied.**
 - **Preparing monthly progress reports for the State which will include minutes of site meetings with the Contractors.**
- (c) **During the monthly visits, the FEDTAC will examine road projects and assess the contractor's performance in:**
- **Complying with consultant's reports on quality and work completion.**
 - **Adhering to safety guidelines.**
 - **Removing and replacing unsuitable materials and work as directed by the STAC and State.**
- (d) **During site visits, the FEDTAC should determine how timely the contractors are being paid. If there are delays, the reasons for the delays should be established and recommendations made for corrections.**
- (e) **During monthly visits, the FEDTAC will evaluate how effectively the State's counterpart personnel are adapting to the techniques being provided under the technology transfer function of the Consultants. This should be based on:**
- **How well the STAC is transferring the skills and knowledge identified in the STAC terms of reference to the local counterpart staff. This includes examining the requirements for counterpart certification and the progress made by counterpart staff towards certification.**
 - **The adequacy of the STAC/Counterpart facilities, transportation and budget.**
 - **If individual counterpart staff members are capable of learning and performing their designated job assignments without STAC assistance in the future.**
 - **If all counterpart staff positions are filled.**
- (f) **Review and endorse any proposed replacements or substitutions proposed by the STAC for counterpart staff. Replacements will be required when counterparts leave. Substitutions will be necessary when current counterpart staff prove incapable of performing their designated job assignments.**

7. The FEDTAC is to work directly for and report to the FMWH's Deputy Director of Federal Highways, Planning [DDFH(P)]. The FEDTAC should orally brief the DDFH(P) weekly and cover:

- (a) His previous week's activities and his plans for coming weeks.
- (b) Critique and assessments of the State Ministries of Work and Transport (SMOWs), the STACs and contractors as reflected in trip reports. Trip reports are to form the basis for monthly progress reports.
- (c) The current monthly progress report contents as proposed by the FEDTAC.
- (d) Any activities of the FMWH that impact on the conduct of the MSRP.

8. The FEDTAC is to prepare monthly progress reports covering his findings and evaluations of the SMOWs, STACs and Contractors. Six copies of the report should be delivered to the FMWH within one week of the end of each month. Also, two copies of the report should be sent to each participating state. The contents of the monthly reports should be summarized in quarterly progress reports. Twelve copies of this report are to be delivered to the FMWH. Two copies of the report are to be sent to each loan agency participating in the MSRP.

9. The FEDTAC may be required to the FMWH in identifying candidate states for an expanding NSRP. The FEDTAC is to work with FMWH's Pavement Evaluation Unit (PEU) in developing high priority rehabilitation programs for candidate states.

10. At six month intervals, the FEDTAC will arrange to present a seminar to all participating states. The purpose of the seminar will be to review the progress being made on the MSRP. Problems encountered will be identified and discussed. The success of proposed solutions to problems reviewed. The objective will be to gain an exchange of ideas that can be implemented increase the opportunity for success in the MSRP.

11. The expert filling the FEDTAC role is to be a well qualified highway engineer. This expert should have at least ten years post-Qualification experience. Also, the expert should have five years of project managing and supervising experience. He should have sufficient computer skills to use word processors and spreadsheet programs in preparing documents and reports. Some experience in sub-Sahara Africa will be desirable.

12. The FEDTAC should be able to handle up to four states concurrently. Once more states become involved in the MSRP, the FEDTAC should have assistance. Any assistant should be a highway engineer with at least five years post qualification experience. He/she should have some experience managing and supervising projects and be conversant with computer use. Staffing for the FEDTAC function should be as follows:

- a) One to Four States.....1 FEDTAC & 1 assistant
- b) Four to eight States.....1 FEDTAC & 2 assistants
- c) Eight to twelve States.....1 FEDTAC & 3 assistants
- d) Twelve to sixteen States.....1 FEDTAC & 4 assistants

Federal Republic of Nigeria
Oyo State Ministry of Works and Transport
Proposed Multistate Rd Proj.II
Table 1. OYO STATE
Detailed Cost Table
Maira

	Base Costs in US\$							Totals Including Contingencies US\$							Breakdown of Totals Incl.Cont. US\$			
	1992	1993	1994	1995	1996	1997	Total	1992	1993	1994	1995	1996	1997	Total	F.Exch	Local	Taxes	Total
I. INVESTMENT COSTS																		
A. CIVIL WORKS																		
Upgrading	0.00	1.18	2.53	2.53	2.53	1.77	10.54	0.00	1.36	3.03	3.15	3.27	2.37	13.18	8.56	4.31	0.30	13.18
New Construction	0.00	1.00	2.50	2.50	2.50	1.50	10.00	0.00	1.15	2.99	3.11	3.23	2.01	12.50	8.12	4.09	0.29	12.50
Rehabilitation	0.00	1.55	3.21	3.21	3.21	2.08	13.26	0.00	1.79	3.84	3.99	4.14	2.79	16.56	10.76	5.41	0.38	16.56
Maint. by Contract	0.00	0.20	0.50	0.50	0.50	0.30	2.00	0.00	0.23	0.60	0.62	0.65	0.40	2.50	1.62	0.82	0.06	2.50
Gravel Road Rehab.	0.00	0.30	0.75	0.75	0.75	0.45	3.00	0.00	0.35	0.90	0.93	0.97	0.60	3.75	2.44	1.23	0.09	3.75
Spot Improvement	0.00	0.06	0.14	0.14	0.14	0.07	0.55	0.00	0.07	0.17	0.17	0.18	0.09	0.69	0.45	0.22	0.02	0.69
Sub-Total	0.00	4.29	9.63	9.63	9.63	6.17	39.35	0.00	4.95	11.53	11.98	12.43	8.27	49.16	31.96	16.08	1.13	49.16
B. Vehicles & Equipments	0.00	0.40	1.60	0.00	0.00	0.00	2.00	0.00	0.46	1.92	0.00	0.00	0.00	2.38	1.90	0.12	0.36	2.38
C. Technical Assistance																		
Project Management	0.00	0.85	0.85	0.85	0.15	0.00	2.70	0.00	0.98	1.02	1.06	0.19	0.00	3.25	2.76	0.32	0.16	3.25
Design, Engrg. & Superv.	0.00	0.21	0.52	0.52	0.52	0.31	2.10	0.00	0.24	0.63	0.65	0.68	0.42	2.62	2.23	0.26	0.13	2.62
Sub-Total	0.00	1.06	1.37	1.37	0.67	0.31	4.80	0.00	1.22	1.65	1.71	0.87	0.42	5.87	4.99	0.59	0.29	5.87
D. Training	0.00	0.20	0.20	0.20	0.20	0.20	1.00	0.00	0.23	0.4	0.25	0.26	0.27	1.25	1.00	0.25	0.00	1.25
Total INVESTMENT COSTS	0.00	5.95	12.80	11.20	10.50	6.68	47.15	0.00	6.86	15.34	13.94	13.56	8.96	58.66	39.85	17.03	1.78	58.66
Total	0.00	5.95	12.80	11.20	10.50	6.68	47.15	0.00	6.86	15.34	13.94	13.56	8.96	58.66	39.85	17.03	1.78	58.66

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Federal Republic of Nigeria
Osun State Ministry of Works and Transport
Proposed Multistate Rd Proj. II
Table 2. OSUN STATE
Detailed Cost Table
Waira

	Base Costs in US\$							Totals Including Contingencies US\$							Breakdown of Totals Incl. Cont. US\$			
	1992	1993	1994	1995	1996	1997	Total	1992	1993	1994	1995	1996	1997	Total	F.Exch	Local	Taxes	Total
I. INVESTMENT COSTS																		
A. CIVIL WORKS																		
Upgrading	0.00	2.45	5.38	5.38	5.38	3.31	21.90	0.00	2.82	6.44	6.69	6.95	4.44	27.34	17.77	8.94	0.63	27.34
New Construction	0.00	0.35	0.87	0.87	0.87	0.52	3.49	0.00	0.40	1.05	1.09	1.13	0.70	4.36	2.84	1.43	0.10	4.36
Rehabilitation	0.00	0.80	1.41	1.41	1.41	1.03	6.06	0.00	0.92	1.69	1.75	1.82	1.38	7.57	4.92	2.47	0.17	7.57
Maint. by Contract	0.00	0.20	0.50	0.50	0.50	0.30	2.00	0.00	0.23	0.60	0.62	0.65	0.40	2.50	1.62	0.82	0.06	2.50
Material Lab Building	0.00	0.06	0.14	0.14	0.14	0.09	0.58	0.00	0.07	0.17	0.18	0.19	0.12	0.72	0.47	0.24	0.02	0.72
Gravel Road Rehab.	0.00	0.30	0.75	0.75	0.75	0.45	3.00	0.00	0.35	0.90	0.93	0.97	0.60	3.75	2.44	1.23	0.09	3.75
Spot Improvement	0.00	0.06	0.14	0.14	0.14	0.07	0.55	0.00	0.07	0.17	0.17	0.18	0.09	0.69	0.45	0.22	0.02	0.69
Sub-Total	0.00	4.22	9.20	9.20	9.20	5.77	37.58	0.00	4.86	11.02	11.44	11.88	7.73	46.93	30.51	15.35	1.08	46.93
B. Vehicles & Equipments	0.00	0.40	1.60	0.00	0.00	0.00	2.00	0.00	0.46	1.92	0.00	0.00	0.00	2.38	1.90	0.12	0.36	2.38
C. Technical Assistance																		
Project Management	0.00	1.00	1.00	1.00	0.30	0.00	3.30	0.00	1.15	1.20	1.24	0.39	0.00	3.98	3.38	0.40	0.20	3.98
Design, Engrg. & Superv.	0.00	0.20	0.51	0.51	0.51	0.31	2.04	0.00	0.24	0.61	0.63	0.66	0.41	2.55	2.17	0.25	0.13	2.55
Sub-Total	0.00	1.20	1.51	1.51	0.81	0.31	5.34	0.00	1.39	1.81	1.88	1.05	0.41	6.53	5.55	0.65	0.33	6.53
D. Training	0.00	0.20	0.20	0.20	0.20	0.20	1.00	0.00	0.23	0.24	0.25	0.26	0.27	1.25	1.00	0.25	0.00	1.25
Total INVESTMENT COSTS	0.00	6.02	12.51	10.91	10.21	6.28	45.92	0.00	6.94	14.98	13.57	13.18	8.41	57.09	38.96	16.37	1.76	57.09
Total	0.00	6.02	12.51	10.91	10.21	6.77	45.92	0.00	6.94	14.98	13.57	13.18	8.41	57.09	38.96	16.37	1.76	57.09

- Values scaled by 1000000.0 10/26/1992 23:16

Federal Republic of Nigeria
 Federal Ministry of Works and Housing
 Proposed Multistate Rd Proj. II
Table 3. FEDERAL MINISTRY OF WORKS & HOUSING
 Detailed Cost Table
 Naira

	Base Costs in US\$			Totals Including Contingencies US\$							Breakdown of Totals Incl. Cont. US\$			
	1992	93-97	Total	1992	1993	1994	1995	1996	1997	Total	F.Exch	Local	Taxes	Total
I. INVESTMENT COSTS														
A. TECHNICAL ASSISTANCE														
TECHNICAL ASSISTANCE	0.00	0.16	0.80	0.00	0.18	0.19	0.20	0.21	0.21	1.00	0.87	0.07	0.05	1.00
TRAINING	0.00	0.02	0.10	0.00	0.02	0.02	0.02	0.03	0.03	0.12	0.12	0.00	0.00	0.12
STUDIES	0.00	0.22	1.10	0.00	0.25	0.26	0.27	0.28	0.29	1.37	1.12	0.18	0.07	1.37
Sub-Total	0.00	0.40	2.00	0.00	0.46	0.48	0.50	0.52	0.54	2.49	2.12	0.26	0.12	2.49
Total INVESTMENT COSTS	0.00	0.40	2.00	0.00	0.46	0.48	0.50	0.52	0.54	2.49	2.12	0.26	0.12	2.49
Total	0.00	0.40	2.00	0.00	0.46	0.48	0.50	0.52	0.54	2.49	2.12	0.26	0.12	2.49

- Values scaled by 1000000.0 10/26/1992 23:31

FEDERAL REPUBLIC OF NIGERIA
 PROPOSED MULTISTATE ROADS PROJECT II
 CONSOLIDATED:(OYO, OSUN & FMMH)
 Summary Accounts Cost Summary

	NAIRA			US\$			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. INVESTMENT COSTS								
A. CIVIL WORKS								
1. OYO STATE	247.90	460.39	708.30	13.77	25.58	39.35	65.00	41.38
2. OSUN STATE	236.82	439.80	676.62	13.16	24.43	37.59	65.00	39.53
Sub-Total	484.72	900.20	1384.92	26.93	50.01	76.94	65.00	80.92
B. VEHICLE & EQUIPMENT								
1. OYO STATE	7.20	28.80	36.00	0.40	1.60	2.00	80.00	2.10
2. OSUN STATE	7.20	28.80	36.00	0.40	1.60	2.00	80.00	2.10
Sub-Total	14.40	57.60	72.00	0.80	3.20	4.00	80.00	4.21
C. TECHNICAL ASSISTANCE								
1. OYO STATE	12.96	73.44	86.40	0.72	4.08	4.80	85.00	5.05
2. OSUN STATE	14.42	81.70	96.12	0.80	4.54	5.34	85.00	5.62
3. FED.MIN.OF WORKS & HOUSE.	5.41	30.68	36.09	0.30	1.70	2.00	85.00	2.11
Sub-Total	32.79	185.82	218.61	1.82	10.32	12.14	85.00	12.77
D. TRAINING								
1. OYO STATE	3.60	14.40	18.00	0.20	0.80	1.00	80.00	1.05
2. OSUN STATE	3.60	14.40	18.00	0.20	0.80	1.00	80.00	1.05
Sub-Total	7.20	28.80	36.00	0.40	1.60	2.00	80.00	2.10
Total BASELINE COSTS	539.11	1172.42	1711.53	29.95	65.13	95.08	68.50	100.00
Physical Contingencies	53.91	117.24	171.15	3.00	6.51	9.51	68.50	10.00
Price Contingencies	671.41	1436.33	2107.74	4.37	9.28	13.66	67.97	14.36
Total PROJECTS COSTS	1264.43	2725.99	3990.43	37.32	80.93	118.25	68.44	124.36

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FEDERAL REPUBLIC OF NIGERIA

SECOND MULTISTATE ROADS PROJECT

Technical Assistance for Supervision of Road Work Contracts

Draft Terms of Reference

Background

1. The Government of Nigeria has applied to the World Bank for a loan. A portion of the loan will be used by the SMOWT for an upgrading, rehabilitation and maintenance program. Under the program, road contracts will be awarded by ICB on a slice and package basis. This will provide domestic contractors the opportunity to participate. Geographically dispersed work will be procured by LCB.

Objective

2. The main objective of the consultant services is to enhance the ability and capacity of the states to supervise road works under contract and ensure quality control and adherence to technical specifications.

Scope of Work

A. Duties and Responsibilities of the Consultant

3. The Consultant is to supervise the works and to approve the materials and workmanship of the works. He is to do this in cooperation and consultation with the State. He shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract. He shall not order without consultation with the State any work entailing delays or any extra payment by the State.

4. Accordingly, and in consultation with the State, the principal responsibilities of the Engineer shall be:

- (a) to issue the order to commence to the Contractor;
- (b) to authorize the Contractor's subletting parts of the work;
- (c) to explain and/or adjust ambiguities and/or discrepancies in the Contract Documents;
- (d) to provide assistance to the State in the settlement of disputes with the Contractor;
- (e) to approve the Contractor's working drawings and, if necessary, to issue further drawings and/or to give instructions to the Contractor;

- (f) to approve data for the setting out of work;
- (g) to approve or to disapprove the Contractor's superintendence, key personnel and/or construction program, land to be occupied by the Contractor, materials and/or sources of materials;
- (h) as required, to order special tests of materials and completed works and/or remove and replace improper materials and/or work after prior consultation with the State;
- (i) to control and appraise Works progress, to order the suspension of Works, and to authorize extension periods for Works completion;
- (j) to issue variation orders, to evaluate variations, to fix rates for un-priced work, to order daywork after obtaining prior approval of the State, and/or to make recommendations to the State regarding alternatives;
- (k) to issue interim certificates for payment to the Contractor and to certify works completion or parts thereof;
- (l) to inspect the works during and/or after the Maintenance Period and to issue the Maintenance Certificate;
- (m) to carry out all the Engineer's duties as specified in the Contract, within the limitations specified above;
- (n) to advise the State on all matters concerning claims from the Contractor and to make recommendations thereon, including the possible recourse to arbitration;
- (o) to insure that their representative and staff provide the State's counterpart staff with the skills and knowledge needed to provide effective contract supervision on future state projects;
- (p) advising the State and carrying out work following the appeal to arbitration or litigation concerning the Works; and
- (q) any other specialist services by the Consultant or other specialists as may be agreed upon.

B. Duties & Responsibilities of the Consultant's Representative & Staff

5. The duties of the Consultant's Representative and staff are to supervise construction of the Works. They are to test or order to test and examine any materials to be used or workmanship employed concerning the Works. They shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract. They shall not order any work involving delay or any extra payment by the State nor to make any variation of, or in, Works. They will transfer to local counterpart staff the skills and knowledge needed to provide contract supervision on future projects.

- 6. The principal responsibilities of the Resident Engineer shall be as follows:**
- (a) to inspect the performance of the Works concerning workmanship and compliance with the Specifications and to order, supervise or perform tests on materials and/or work and to approve or disapprove the Contractor's plant and equipment;**
 - (b) to order, if required, the uncovering of completed work and/or to remove and replace improper materials and/or work;**
 - (c) to check systematically Works progress and to order the initiation of certain work that is part of the Contract;**
 - (d) to examine and attend the measurement of any work that is about to be covered up or put out of view before permanent work is placed thereon and/or to examine and attend the measurement of the completed Works;**
 - (e) to check the Contractor's accounts, invoices, claims and other statements concerning arithmetical error and compliance with the Contract, and if required to correct thereof;**
 - (f) to supervise the Contractor in all matters about safety and care of the Works and if required to request from the Contractor the necessary lights, guards, fencing and watching;**
 - (g) to direct the Contractor to carry out all such work or to do all such things the Resident Engineer thinks may be necessary to avoid or to reduce the risk in case of an emergency affecting the safety of life or of the Works or of adjoining property;**
 - (h) to carry out such duties under the terms of the Contract as may from time to time be delegated in writing by the Consultant;**
 - (i) to prepare as-built drawings for the complete Works;**
 - (j) preparing reports or additional contract documents for consideration of proposals for the carrying out of additional work;**
 - (k) carrying out work consequent upon any assignment of the Contract;**
 - (l) maintaining a day-by-day project diary that shall record all events relevant to and that might impinge upon the Contract, requests from and orders given to the Contractor, and any other information which may later be of assistance in resolving queries that may arise about executing the Works;**
 - (m) to insure counterpart personnel receive the skills and knowledge needed to provide contract supervision on future state projects;**

- (n) to identify the skills and knowledge that have been transferred to the counterpart personnel; and
- (o) to demonstrate through certification procedures that the counterpart personnel are qualified to provide effective contract supervision.

7. The Consultant shall furnish the State with a full list of all the responsibilities he will delegate to the Consultant's Representative for Contract supervision in accordance with the Agreement.

8. All additional services will be authorized by the State at rates and under conditions to be mutually agreed.

Reports and Documents

9. The Consultant shall furnish to the State the following reports and documents in the number of copies stated:

- (a) **Progress Reports** (10 copies). The Consultant shall submit monthly Progress Reports to the State. The reports shall include minutes of site meetings with the Contractor that the Consultant's Representative has convened. The reports are to commence at the end of the month following the date of award of the contract for construction. After the issue of the Completion Certificate, these reports shall be submitted at quarterly intervals until the end of the Maintenance Period.
- (b) **Completion Report** (20 copies). The Consultant shall submit a completion report at the time of final certification.

Qualifications of the Consultant's Representative

10. The Resident Engineer is to be a well qualified highway engineer. This expert should have at least ten years post-Qualification experience. Also, the expert should have five years of construction management experience. The Resident Engineer will need an assistant and someone with accounting experience. The assistant should be a highway engineer familiar with construction quality control procedures and tests. The accountant should have experience in monitoring construction projects and be able to document the flow of materials and funds for construction projects. It will be useful if the Consultant's Representative is familiar with the FMWH(HSL) standard bidding documents and procurement procedures which will be used by State for contracting under the MSRP.

11. It is estimated that this consultancy will consist of about 80 staff-months during the project implementation.

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Project Monitoring and Evaluation

Introduction

1. In the past there have frequently been problems and delays encountered during implementation of projects in Nigeria. The end results of many projects have also often not produced the developmental or institutional impact which had been anticipated at project commencement. In an effort to rectify this situation, particular attention was focused during preparation of the MSRP II project on how such deficiencies might be overcome.

2. This annex briefly outlines the proposed approach to monitoring and evaluation of MSRP II. It is based on monitoring progress during implementation towards achievement of developmental objectives. The approach known as the Disaggregated Effectiveness Evaluation (DEE) technique, is described in more detail in background Document No. 4 in project file (Monitoring and Evaluation, June 1992). This annex outlines the DEE technique, describes its application to MSRP II and presents sample DEE frameworks to illustrate the processes involved.

The DEE Technique - An overview

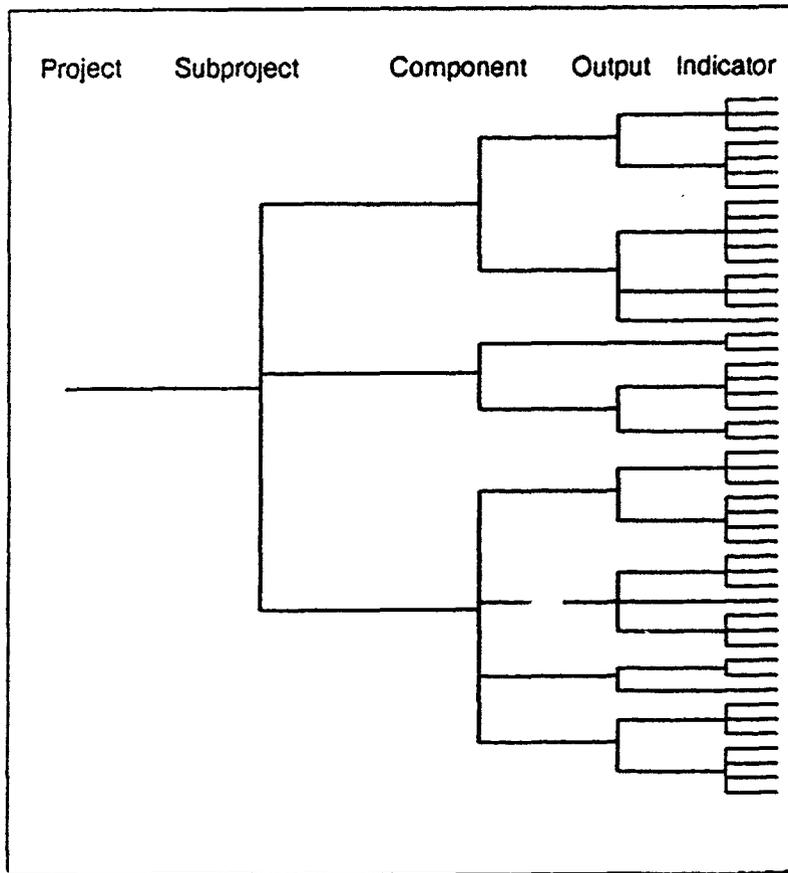
3. The DEE technique has been developed for the design, monitoring and evaluation of projects, programs and master plans and for the effectiveness evaluation of organisations in the private and (especially) in the public sector. The DEE technique uses a systematic approach to develop frameworks which link objectives, outputs and indicators. These, on an aid funded project or otherwise, can be used to assess the degree to which stated developmental objectives are being achieved, either project or plan implementation, or in terms of the functions of an organisation.

4. The DEE technique offers an analytical tool to assess how well an organisation is doing in terms of achievement of its developmental objectives in different technical sectors of its activity. It also, at the same time, enables assessment of the organisational effectiveness of the different divisions in the organisation in terms of their expected contribution to achievement of those stated objectives. Through this method the technical areas of an organisation's activities, and its organisational effectiveness in achieving its objectives, can be monitored and evaluated.

5. The technique is particularly appropriate for application to service sectors and situations where outputs are difficult to define and measure through conventional monitoring techniques. It can be applied in any situation where the stated objectives are known and it provides a measure at any point in time of the degree of achievement attained with respect to the objectives specified.

6. In a typical application, DEE frameworks (see figure below) are devised in consultation with the client organisation to cover all the technical sectors to be evaluated.

Each DEE framework constitutes a skeletal framework which links outputs and indicators in a very specific way with stated developmental objectives. The technique is aimed at achieving more clarity in the definition of objectives, outputs and indicators at the project or plan design stage providing a simple and systematic means for monitoring and evaluation of the project or plan.



Typical DEE Framework Structure

7. The technique consists of first establishing an overall objective for the project (or plan) and then breaking work to be undertaken into a number of sub projects. For each of these sub-projects, a developmental objective is established. Components of improvement in each sub-project are then selected such that they are directly derived from the sub-project developmental objective. Each component is then defined via a number of outputs and each output is defined via a number of easily verifiable indicators.

8. Through this hierarchical method it is only necessary to monitor the individual indicators and, since these are chosen and formulated to be easily verifiable, this is a

relatively straightforward task. The technique has been or is now being used for project or plan design or monitoring on the following types of applications:

- Public health project (Egypt).
- Water supply project (Kenya, Nepal).
- Rural integrated development programme (Nicaragua).
- Road projects (Peru, Philippines).
- Forestry project (Kenya).
- Forestry master plan (Nepal).
- National road safety projects (Kenya, Ghana).
- Development of county road safety plans in 4 UK county councils (viz. Nottinghamshire, Durham, South Glamorgan and Clwyd).

Application of DEE Technique to MSRP II

9. As a means to illustrate the DEE Technique and its potential application for monitoring projects in Nigeria, it was agreed that some illustrative frameworks would be devised of the type that could be used by the relevant State Authorities and by World Bank officials to track developmental progress during implementation.

10. Since the elements included in both Osun and Oyo States are broadly similar (with the exception that Osun State includes a materials testing laboratory), the only real difference between the 2 states will be in the timing of activities and the actual length of roads to be maintained or rehabilitated in each State. It was therefore felt acceptable to develop a single set of DEE frameworks based upon Oyo State in order to illustrate the process involved and the types of indicators which could be considered for monitoring. Separate (but similar) DEE frameworks can readily be devised for Osun State in due course so that that project can be monitored independently from the Oyo project.

11. The development strategy agreed between the Nigerian government and the World Bank and the list of project objectives indicated the key elements and issues which somehow had to be incorporated into the developmental objectives. Similarly examination of the project description identified three of the major areas where activities would need to be implemented. The fourth was derived on the basis of the description of the Roads Sector. This gave four potential self contained "sub projects" which, between them, appeared to cover all the main areas of activity implied by the stated objectives (see Figure 1).

12. Developmental objectives were then derived for the whole project and for the 4 individual "sub projects". These developmental objectives were formulated in such a way that they encompassed all the key elements of the stated project objectives while providing a specific focus for developing each DEE framework. These developmental objectives are given below.

(a) Whole Project (MSRP2-OYO)

Protection of existing assets and implementation of a more efficient cost effective and safe road network through selected road improvements, institutional strengthening and the development/implementation of an effective labour based system for routine and periodic road maintenance in Oyo State.

(b) Sub-project 1: Road Improvement

Implementation of a road improvement programme to protect existing assets while minimising environmental and road safety disbenefits on the improved network.

(c) Sub-project 2: Maintenance

The development and training of small scale domestic contractors and SMOWT staff in labour based and light equipment construction methods and gradual transfer of routine and periodic maintenance to the private sector in order to improve significantly the quality and sustainability of road maintenance activities.

(d) Sub-project 3: Road Safety and the Environment

SMOWT staff, trained in the appropriate techniques, planning and designing safer, environmentally sound road improvements and rehabilitation schemes and identifying and improving hazardous locations.

(e) Sub-project 4: Institutional Strengthening

Improvements of organisational arrangements, institutional capacity and cost recovery for better planning and maintenance of Oyo State road system and, in particular, to ensure sustainable maintenance of the road network.

13. In order to demonstrate how Objectives Achievement frameworks and indicators could be devised for the project a single sub-project was selected as an example. One of the main objectives of MSRP2-Oyo is to develop labour and light equipment based methods of road maintenance and rehabilitation and to gradually move from a force account maintenance system to a contract maintenance system. Hence the maintenance sub project was selected as the illustrative example.

14. The monitoring and evaluation specialist, working with the labour based methods and maintenance specialists, was able to devise a number of key indicators which, if achieved, would give a reasonable degree of confidence that the desired developmental impact had occurred. A DEE Framework was prepared reflecting discussions with the maintenance specialists and key monitorable quantitative and qualitative indicators were derived so that progress could be tracked during implementation.

15. Figure 1 provides an overview of the whole MSRP-Oyo project and shows the 4 sub projects mentioned earlier. Only sub-project 2, Road Maintenance framework (see figure 2) has been developed down to indicator level as an illustration of the processes involved. This particular framework was devised in close consultation with the maintenance specialists on the Mission team but should only be regarded as indicative of the approach to be adopted.

16. Before this MSRP2-Oyo project can be monitored similar frameworks have to be developed for the other three sub-projects and the Maintenance framework has to be further refined and edited. Weightings, indicators, targets etc., all have to be agreed with State

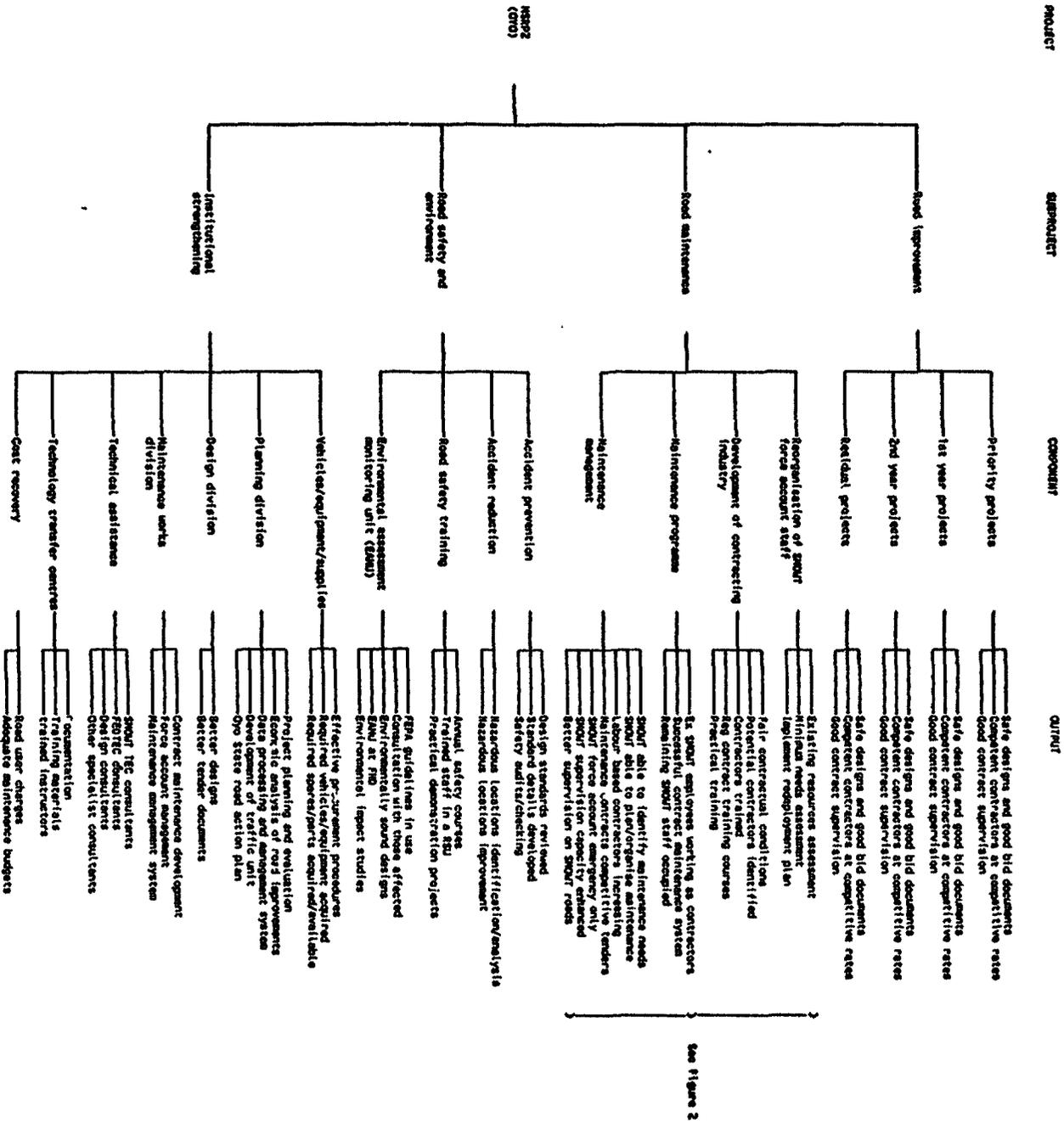
officials. This can be best done at the proposed Project Launch Workshop when all parties and implementing agencies will participate in discussions about the project and on how best to ensure trouble free implementation.

17. That forum would be the appropriate time and place to introduce all parties to the way the project will be monitored and to get broad agreement on detailed indicators and weightings for use with DEE frameworks for Oyo and (in due course) for Osun.

Monitoring during implementation

18. A key element of design is in the selection and derivation of the monitorable indicators. These are derived in such way that it can be easy to answer with a "yes" or a "no" to the question "has this indicator been achieved?". If the answer is "yes" then that particular indicator can be assumed to have been achieved 100%. If the answer is "no", it should always be possible to estimate the degree of progress towards achievement of that particular indicator (eg. 10%, 50%, 70% etc.).

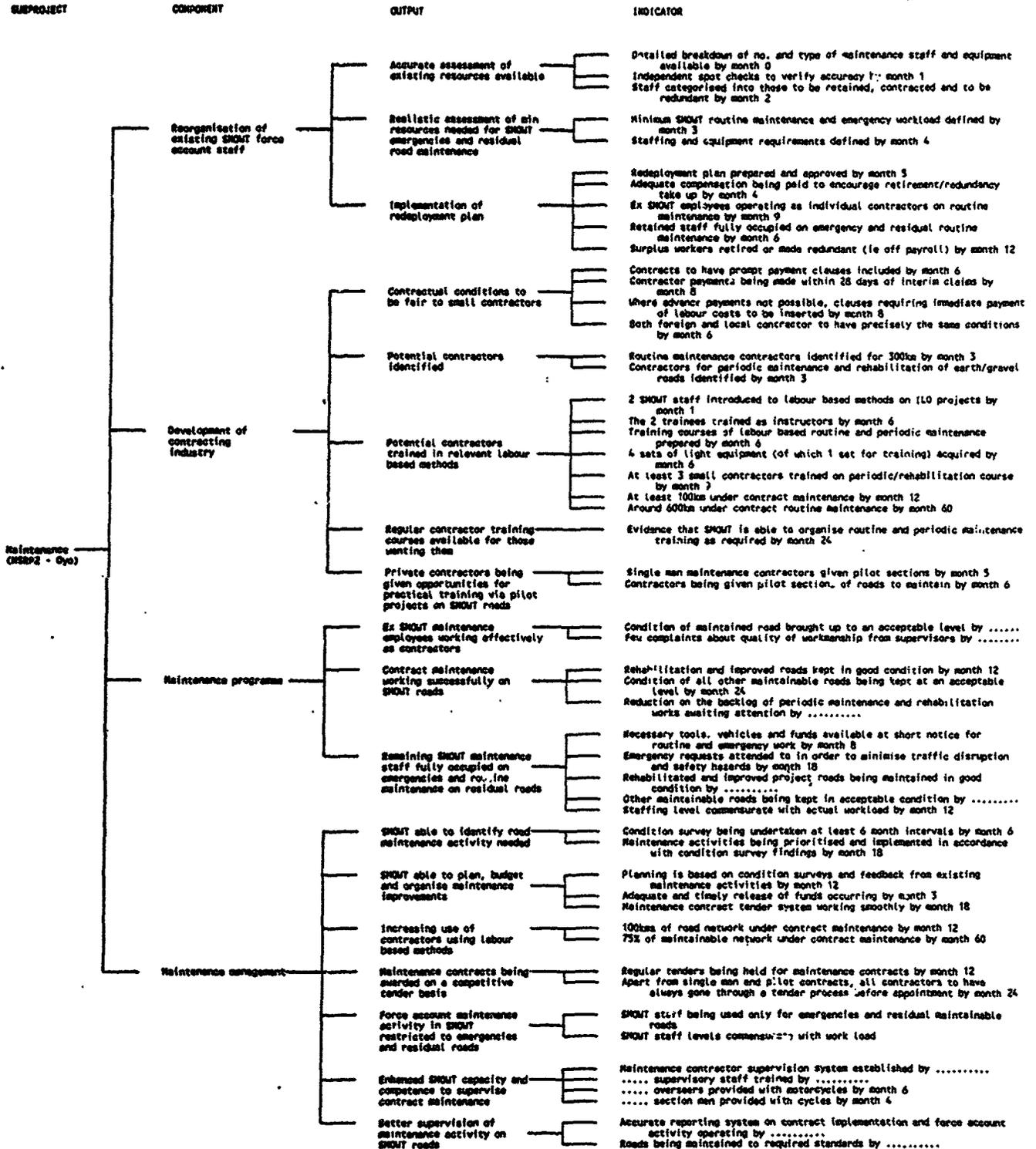
19. At any point during the course of the project, assessments can be made as to what progress, if any, has been made with respect to each indicator. These assessments can then be used along with the weightings ascribed at each hierarchal level to assess overall progress within sub-projects and by amalgamating sub-projects each project with respect to achievement of its developmental objectives. Comparison against precalculated achievement profiles of anticipated progress enables assessment of whether the project is ahead, on or behind schedule with respect to achievement of its developmental objectives.



DEVELOPMENTAL OBJECTIVE
 Procurement of selected assets and implementation of a more efficient, cost effective and safe road network through selected road improvements, institutional strengthening and the development/implementation of an effective labour based system for routine and periodic road maintenance in Oyo State.

Figure 1: Whole Project: Multi Roads Sector Project 2 - Oyo State

See Figure 2



DEVELOPMENTAL OBJECTIVE

The development and training of small scale domestic contractors and SNOUT staff in labour based and light equipment construction methods and gradual transfer of routine and periodic maintenance to the private sector in order to improve significantly the quality and sustainability of road maintenance activities.

FIGURE 2: Subproject 2: Maintenance (MSRP2 - Oyo)

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
I. IMPLEMENTATION SCHEDULE

SMOW (Oyo & Osun)

<u>Activity</u>	<u>Date</u>
1. Appointment of local consultants (from local funds) for designing two roads in each state (Done)	August 15, 1992
2. Submission of Training Plans to the Bank for review and agreement	January 31, 1993
3. Appointment of State Coordinating Consultants on terms and conditions agreeable to the Bank	
(a) Submission of request for proposals (RFP) to Bank for review and clearance (comprising LOI, short list of Consultants, TOR and draft contract)	January 15, 1993
(b) Invitation for Proposals	February 15, 1993
(c) Appointment of Consultants	June 30, 1993
4. Letter of commitment to implement an agreed plan of action to adjust road user charges to recover recurrent maintenance costs	January 31, 1993
5. Opening of Special Account (in Dollars) and Project Account (in Naira) with an initial deposit of at least \$280,000 equivalent (Naira) in a commercial bank	May 31, 1993
6. Appointment of consultants (Bank financed) for designing first and second year road projects	June 15, 1993
7. Appointment of consultants (Bank financed) for designing 3rd, 4th and 5th year road projects	June 15, 1994

8. Civil Works in Para. 1 above:

- (a) Finalise bidding documents May 15, 1993
- (b) Invite bids June 15, 1993
- (c) Award Contracts November
15, 1993

9. Civil Works in Para. 6 above:

- (a) Finalise bidding documents April 15,
1994
- (b) Invite bids May 15, 1994
- (c) Award Contracts October 15,
1994

10. Works in Para. 7 above:

- (a) Finalise bidding documents April 15,
1995
- (b) Invite bids May 15, 1995
- (c) Award Contracts October 15,
1995

11. Procurement of vehicles and equipment (ICB):

- (i) Preparation of specifications and schedule of requirements January 15,
1993
- (ii) Preparation of draft bidding documents February 15,
1993
- (iii) Clear draft bidding documents with the Bank March 15,
1993
- (iv) Invitation for bids May 15, 1993
- (v) Award Contracts August 16,
1993

12. Labor based maintenance by contract component;

- | | | |
|-----|---|--------------------|
| (a) | Assignment of two persons for training with ILO/NDE project in Nigeria (Done) | September 30, 1992 |
| (b) | Identification of local contractors to be trained | June 15, 1993 |
| (c) | Commence training of contractors | July 15, 1993 |
| 13. | Appointment of External Auditors at the State level | May 15, 1993 |
| 14. | Submission of annual audit reports starting | December 1993 |

FMFED/FMWH

- | | | |
|-----|---|--------------------|
| 15. | Signing of subsidiary loan agreement between the states and FGN | June 15, 1993 |
| 16. | Obtain legal opinion of FGN on the Credit Agreement | July 31, 1993 |
| 17. | Consultants: | |
| (a) | Appointment of Consultants for MSRP III | February 15, 1993 |
| (b) | Appointment of consultants for MSRP IV | September 15, 1993 |

II. DETAILS OF PROCUREMENT ARRANGEMENTS

A. OYO STATE

Project Element	Project Year						Remarks
	1993	1994	1995	1996	1997	1998	
Loan Timing: Sign/Effective/Close	5/93 8/93					6/98	
<u>Works:</u> ICB Bid/Award	0 0						
Iseyin-Ijaye	1.5 XXXX	3.6 XXXXXXXX	3.8 XXXXXX	3.6 XXXXXXXX			12.5 (Lot 1)
Ikoyi-Ile-Ahoro Dada-Idiege		1.5 XXXX	3.1 XXXXXX	3.3 XXXXXXXX	3.2 XXXXXXXX		11.1 (Lot 2)
Ibadan Jn.-Dagbolu-St.Bdr.			1.0 XXXXXX	2.0 XXXXXXXX			3.0 (Lot 3)
Igangan-Igboora			1.0 XXXX	2.1 XXXXXXXX	2.1 XXXXXXXX	1.0 XXX	6.2 (Lot 4)
Undefined			0.5 XXX	1.0 XXXXXXXX	1.0 XXXXXXXX	0.5 XXXXX	3.0 (Lot 5)
<u>LCB:</u> Package: Bid/Award	0 0	0 0	0 0	0 0	0 0		
Ibadan (Central)-Ibadan (West) Ibadan (Central)-Ibadan Jn. (Bere) Ibadan (Gate)-Ibadan (Molete)		0.7 XXXXXXXX	0.9 XXXXXX	1.0 XXXXXXXX	0.9 XXXXXXXX	.5 XXX	4.0 (4 Lots)
Oyo (Central)-Ahinmorin				0.1 XXXX	0.2 XXXXXXXX		0.3 (1 Lot)
Budo Iyayoyin-Kishi			.3 XXXXXX	.7 XXXXXXXX	.8 XXXXXXXX	.2 XXX	2.0 (3 Lots)
Gravel Roads Rehabilitation		.8 XXXXXXXX	.8 XXXXXX	.8 XXXXXXXX	.8 XXXXXXXX	.5 XXXXX	3.7 (12 Lots) (1.2 IDA) (2.5 GOSL)
<u>Other:</u> Road Maintenance by Contract		.7 XXXXXXXX	.7 XXXXXX	.7 XXXXXXXX	.7 XXXXXXXX	.4 XXX	3.2 (Other) (0.6 IDA) (2.6 GOSL)

Project Element	Project Year						Remarks
	1993	1994	1995	1996	1997	1998	
Goods: Bid/Award Vehicles, Light Equipment for rehab. of gravel roads, hand tools and office, lab and survey equipment, etc.	0 0	.8 xxxxxx	.8 xxxxxx	.8 xxxxxx			2.4 (1.9 ICB) (0.5 Other)
Technical Assistance: Project Implementation	.2 xxxxx	.5 xxxxxxx	.6 xxxxxx	.6 xxxxxxx	.5 xxxxxxx	.2 xxx	2.6
Capacity Building	.5 xxxxx	1.0 xxxxxxx	1.0 xxxxxx	.5 xxxxxxx	.3 xxxxxxx		3.3
Training:	.1 xxxxxx	.2 xxxxxxx	.3 xxxxxx	.3 xxxxxxx	.3 xxxxxxx	.1 xxx	1.3
Total (Oyo State)	2.3	9.8	14.8	17.5	10.8	3.4	58.6

B. OSUN STATE

Project Element	Project Year						Remarks
	1993	1994	1995	1996	1997	1998	
Loan Timing: Sign/Effective/Close	o o					o	
Works: ICB Package:							
Oshogbo By-Pass	.4 XXXX	1.0 XXXX	1.0 XXXX	1.0 XXXX	1.0 XXXX		4.4 (Lot 1)
Ada-Ibokun Igbajo-Imesi-Ile Ondo St.Bdr. Osogbo-Ibokun Imesi	.7 XXXX	2.0 XXXX	2.0 XXXX	2.0 XXXX	2.0 XXXX		8.7 (Lot 2)
Ijebu-Jesa-Illare Otan-Ile Illare-Ibokun Esacke-Esado Ibokun-Orita Ido Minasi		.7 XXXX	1.5 XXXX	1.5 XXXX	1.5 XXXX	.8 XXXX	6.0 (Lot 3)
Ejigbo-Ara-Ede Ejigbo-Ara-Ede Kuta-Ede		.9 XXXX	1.9 XXXX	1.9 XXXX	1.9 XXXX	1.0 XXXX	7.6 (Lot 4)
Apomo-Araromi-Owu-Orile Owu			1.7 XXXX	1.7 XXXX	1.6 XXXX		5.0 (Lot 5)
Undefined			.7 XXXX	1.5 XXXX	1.5 XXXX		3.7 (Lot 6)
LCB: Package:							
Asipa-Edunabon Ilesa (SU)-Ifewara Inisa-Agbeye-Ekosi		.5 XXXX	1.0 XXXX	1.0 XXXX	1.0 XXXX	.4 XXXX	3.9 (5 Lots)
Gravel Roads Rehabilitation		.8 XXXX	.8 XXXX	.8 XXXX	.8 XXXX	.5 XXXX	3.7(12 Lots) (1.6 IDA) (2.1 GOSL)
Materials Lab. Bldg.		.7 XXXX					0.7 (1 Lot)
Other							
Road Maintenance and Spot Improvement		.7 XXXX	.7 XXXX	.7 XXXX	.7 XXXX	.4 XXXX	3.2 (Other) (0.6 IDA) (2.6 GOSL)

Project Element	Project Year						Remarks
	1993	1994	1995	1996	1997	1998	
Goods							
ICB: Vehicles, Light equipment for rehabilitation of gravel roads, hand tools and office, lab and survey equipment, etc.		.8 XXXXXXXX	.8 XXXXXXXX	.8 XXXXXXXX			2.4 (1.9 LCB) (0.5 Other)
Technical Assistance							
Project Implementation	.2 XXXX	.5 XXXXXXXX	.6 XXXXXXXX	.6 XXXXXXXX	.5 XXXXXXXX	.2 XXXX	2.6
Capacity Building	.5 XXXX	1.0 XXXXXXXX	1.0 XXXXXXXX	1.0 XXXXXXXX	0.4 XXXXXXXX		3.9
Training	.1 XXXX	.2 XXXXXXXX	.3 XXXXXXXX	.3 XXXXXXXX	.3 XXXXXX	.1 XXXX	1.3
Total (Osun State)	1.9	9.8	14.0	14.8	13.2	3.4	57.1

C. FMWH

Technical Assistance:				.2 XXXXXXXX	.2 XXXXXXXX		0.4
Project Implementation							
Capacity Building		.6 XXXXXXXX	.7 XXXXXXXX	.7 XXXXXXXX			2.0
Training:				0.1 XXXXXXXX	0.0 XXXXXXXX		0.1
Sub-total (FMWH)		.6	.7	1.0	.2		2.5
GRAND TOTAL (Project)	4.2	20.2	29.5	33.3	24.2	6.8	118.2
IDA FINANCING (Annual by FY)	7.5	16.8	20.4	19.6	12.7	8.0	85.0

III. MONITORABLE TARGETS AND PERFORMANCE INDICATORS

A: OYO STATE

Monitorable Items	Units	At Start	Dec 93	Dec 94	Dec 95	Dec 96	Dec 97	At Project Completion
<u>Road Improvement</u>								
Design Studies	%	0	30	80	100			100
Safety audit system established	%	0	100					100
Designs reviewed/safety audited	%	0	30	80	100			100
Engineering designs + bid documents completed	km	0	84	200	350	381		381
Civil Works Contracts awarded	km	0	45	150	250	350	381	381
Kms. of roads in maintainable condition	km	300	300	400	500	600	750	750
Operational elements (signs, markings, etc.) installed	km	100	200	400	500	600	750	750
Local capacity to administer contracts independently	%	20	20	40	80	100	100	100
<u>Maintenance</u>								
Kms. under contract maintenance	km	0	100	250	350	500	700	700
% of network under force account maintenance	%	100	90	75	65	50	30	30
Supervisory staff in maintenance division	no	34	27	20	20	20	20	20
Labourers in maintenance division	no	638	510	383	255	200	200	200
Labor/light equipment based contractors trained	no	0	0	10	15			15
Single man contractors employed	no	0	30	80	120	180	250	250
Periodic maint. with labor/light equip. based methods	km	0	0	100	200	300	450	450
Share of force account in total maintenance cost	%	100	90	75	65	50	30	30
Local capacity to administer maint. contracts	%	10	40	90	100			100
Local capacity to effectively supervise maintenance	%	10	20	50	75	100	100	100
<u>Vehicles/Equipment/Spares</u>								
Bid documents completed	\$		2.4					2.4
Contracts awarded	\$		2.4					2.4
Vehicles purchased	\$		0.8					0.8
Equipment/supplies/spares purchased	\$		1.6					1.6
<u>Institutional Strengthening</u>								
Local staff trained (domestic)	mm	0	50	100	150	200	250	250
Local staff trained (overseas)	mm	0	20	40	60	80	100	100
Capacity to manage/supervise contract maint. system	%	10	40	90	100			100

Monitorable Items	Units	At Start	Dec 93	Dec 94	Dec 95	Dec 96	Dec 97	At Project Completion
Cost recovery from road users (recurrent maint.)	%	56	100	100	100	100	100	100
Maintenance budget allocation as % of need	%	30	60	100	100	100	100	100
Quarterly progress Reports	no	0	2	6	10	14	18	18
Financial								
Disbursement target achieved (cumulative)	\$m	0	1.8	8.5	19.0	31.3	39.2	41.9
Counterpart fund target achieved (cumulative equiv.)	\$m	0	0.7	3.4	7.6	12.5	15.6	16.7
Consultants								
STAC Consultants	mm	0	40	120	200	240	250	250
Design + Supervision Consultants	mm	0	30	110	160	180	200	200
Local Counterparts	mm	0	40	120	200	240	250	250
B: OSUN								
Road Improvement								
Design Studies	%	0	30	80	100			100
Safety audit system established	%	0	100					100
Designs reviewed/safety audited	%	0	30	80	100			100
Engineering designs + bid documents completed	km	0	55	182	318	377		377
Civil Works Contracts awarded	km	0	41	136	228	328	377	377
Kms. of roads in maintainable condition	km	200	200	300	400	500	650	650
Operational elements (signs, markings, etc.) installed	km	100	150	300	400	500	650	650
Local capacity to administer contracts independently	%	20	20	40	80	100	100	100
Maintenance (Sven)								
Kms. under contract maintenance	km	0	100	250	350	500	700	700
% of network under force account maintenance	%	100	90	75	65	50	30	30
Supervisory staff in maintenance division	no	16	12	10	6	4	4	4
Labourers in maintenance division	no	195	150	100	75	50	50	50
Labor/light equipment based contractors trained	no	0	0	10	15			15
Single man contractors employed	no	0	30	80	120	180	250	250
Periodic Maint. labor/light equip. based methods	km	0	0	50	150	250	350	350
Share of force account in total maintenance cost	%	100	90	75	65	50	30	30
Local capacity to administer maintenance contracts	%	10	40	90	100			100
Local capacity to effectively supervise maintenance	%	10	20	50	75	100	100	100
Vehicles/Equipment/Spares								
Bid documents completed	\$	0	2.4					2.4
Contracts awarded	\$	0	2.4					2.4

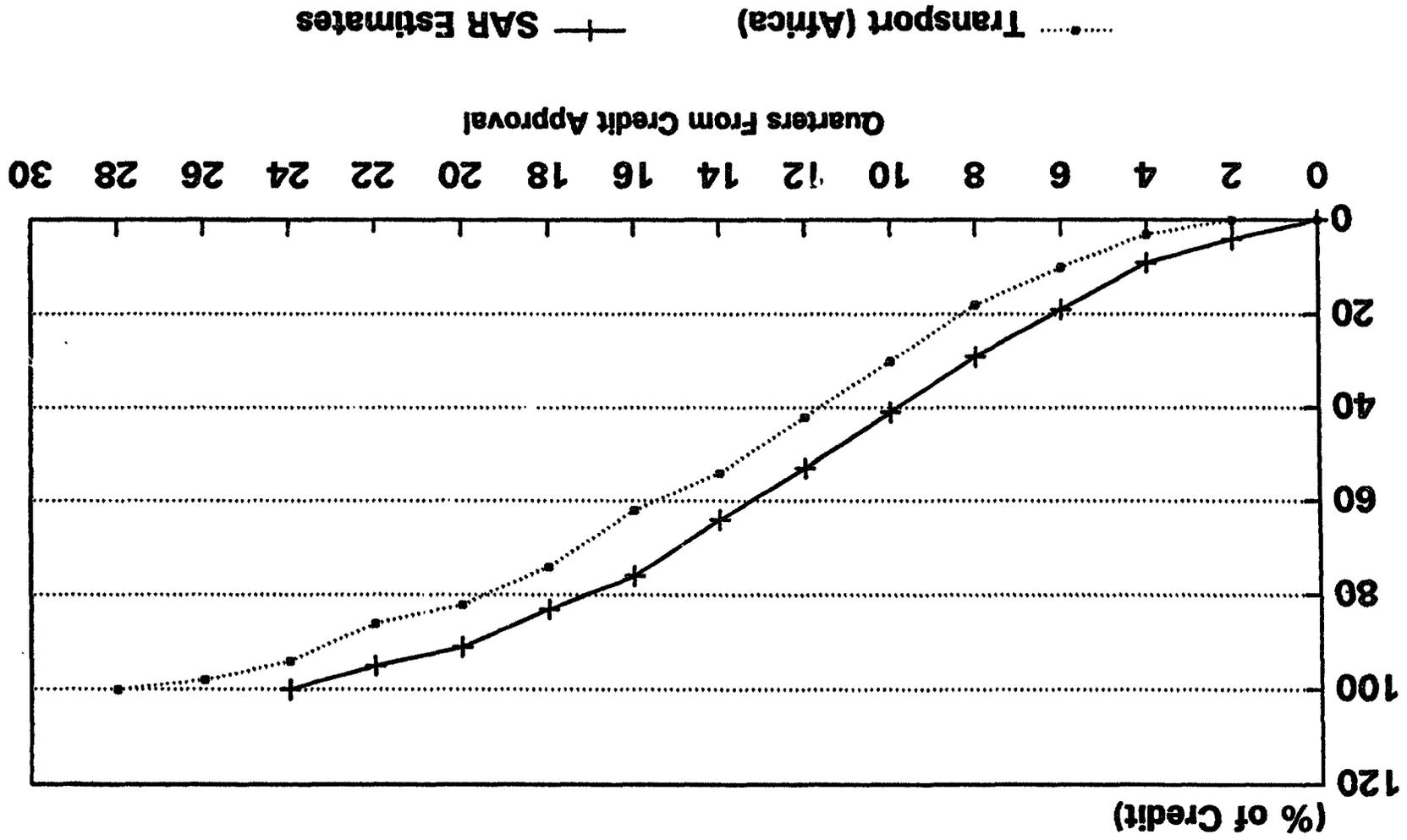
Modifiable Items	Units	At Start	Dec 93	Dec 94	Dec 95	Dec 96	Dec 97	At Project Completion	
Vehicles purchased	\$	0	0.8					0.8	
Equipment/supplies/spares purchased	\$	0	1.6					1.6	
Institutional Strengthening									
Local staff trained (domestic)	mm	0	50	100	150	200	250	250	
Local staff trained (overseas)	mm	0	20	40	60	80	100	100	
Capacity to manage/supervise contract maint. system	%	10	40	90	100	100	100	100	
Cost recovery from road users (recurrent maint.)	%	50	100	100	100	100	100	100	
Maintenance budget allocation as % of need	%	30	60	100	100	100	100	100	
Quarterly progress Reports	no	0	2	6	10	14	18	18	
Financial									
Disbursement target achieved (cumulative)	\$m	0	1.5	8.7	18.7	29.3	38.5	40.8	
Counterpart fund target achieved (cumulative equiv.)	\$m	0	0.6	3.5	7.5	11.7	15.4	16.3	
Consultants									
STAC Consultants	mm	0	40	120	200	240	250	250	
Design + Supervision Consultants	mm	0	30	110	160	180	200	200	
Local Counterparts	mm	0	40	120	200	240	250	250	
C: FMWE									
FEDTAC	mm	0	0	0	0	24	48	48	
Training	mv/ks	0	0	5	10	15	20	20	
Studies	mm	0	0	60	72	80	80	80	
Disbursement target achieved (cumulative)	\$m	0	0	0.6	1.2	2.1	2.3	2.3	
Counterpart fund target achieved (cumulative, equiv.)	\$m	0	0	0.05	0.10	0.18	0.20	0.20	

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT

DISBURSEMENT SCHEDULE
(US\$ MILLION)

QUARTER ENDING	APRAISAL ESTIMATES				STANDARD DISBUR. PROFILE AFRICA REGION TRANSPORTATION (%)
	ANNUAL DISBURSMENT AT END QUARTER		CUM. DISBURSMENT AT END QUARTER		
	%	US\$	%	US\$	
<u>FISCAL YEAR 1994</u>					
First Quarter Sep 93	2	1.88	2	1.88	
Second Quarter Dec 93	2	1.88	4	3.75	0
Third Quarter Mar 94	2	1.88	7	5.63	
Fourth Quarter Jun 94	2	1.88	9	7.50	3
<u>FISCAL YEAR 1995</u>					
First Quarter Sep 94	5	4.20	14	11.70	
Second Quarter Dec 94	5	4.20	19	15.90	10
Third Quarter Mar 95	5	4.20	24	20.10	
Fourth Quarter Jun 95	5	4.20	29	24.30	18
<u>FISCAL YEAR 1996</u>					
First Quarter Sep 95	6	5.10	35	29.40	
Second Quarter Dec 95	6	5.10	41	34.50	30
Third Quarter Mar 96	6	5.10	47	39.60	
Fourth Quarter Jun 96	6	5.10	53	44.70	42
<u>FISCAL YEAR 1997</u>					
First Quarter Sep 96	6	4.90	58	49.60	
Second Quarter Dec 96	6	4.90	64	54.50	54
Third Quarter Mar 97	6	4.90	70	59.40	
Fourth Quarter Jun 97	6	4.90	76	64.30	62
<u>FISCAL YEAR 1998</u>					
First Quarter Sep 97	4	3.18	79	67.48	
Second Quarter Dec 97	4	3.18	83	70.65	74
Third Quarter Mar 98	4	3.18	87	73.82	
Fourth Quarter Jun 98	4	3.18	91	77.00	82
<u>FISCAL YEAR 1999</u>					
First Quarter Sep 98	2	2.00	93	79.00	
Second Quarter Dec 98	2	2.00	95	81.00	86
Third Quarter Mar 99	2	2.00	98	83.00	
Fourth Quarter Jun 99	2	2.00	100	85.00	94
<u>FISCAL YEAR 2000</u>					
First Quarter Sep 2000	-	-	-	-	98
Second Quarter Dec 2000	-	-	-	-	
Third Quarter Mar 2000	-	-	-	-	100

Second Multistate Roads Project Nigeria



FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Environmental Assessment Summary

Introduction

1. State roads in Nigeria handled 15 million vehicles/km/day in 1988 or 25 percent of the flow of the federal roads system. State roads are of primary importance as the link for intra-state commerce and trade between seats of local governments and as the backbone of the secondary collector-distributor road system. Many of the roads are in very bad condition and in significant need of rehabilitation and routine maintenance.

2. The main objective of the proposed State Roads Project is to support a five year State Roads rehabilitation program in selected states, including a feasible road upgrading, rehabilitation, and maintenance program; and an institutional development program including training. The FMWH will coordinate all the design, rehabilitation, and maintenance activities of the participating states.

3. An environmental reconnaissance (assessment) of the proposed multi states roads project (MSRP) was carried out in May/June 1990 in cooperation with the Nigerian Federal Environmental Protection Agency (FEPA) and the Federal Ministry of Works and Housing (FMWH). As a result of the findings of this reconnaissance, the project was classified as Category B.

The Environmental Reconnaissance Study

4. The Terms of Reference for the environmental study were:

- (a) to identify environmental issues which relate to road rehabilitation in the participating states of Nigeria at generic and specific levels, while providing definition of those issues to clearly illustrate the type and scope of issues which should be addressed during project implementation;
- (b) to identify potential adverse ecological changes which are normally associated with road maintenance in general and, specifically, within the participating states;
- (c) to prepare recommendations for environmental studies which would provide necessary information to road agencies to ensure the environmental soundness of the design and techniques employed in state road programs, and recommend measures which would mitigate potentially adverse impacts of road maintenance, rehabilitation and upgrading practices; and

- (d) to assist government agencies in establishing environmental assessment practices which could be applied to all road components of the federal roads system.

5. The states selected for participation in the Multi State Roads Project have different environmental conditions. In general, road construction projects - including the reconstruction or rehabilitation of roads - have local environmental impacts, positive or negative. The most common negative impacts include soil erosion due to improper designs of embankments or side drains; scouring of the landscape due to the opening of borrow pits; and destruction of vegetation due to clearing of right-of-ways. Positive environmental impacts may accrue to the local population living along the roads, in the form of less road accidents, better agricultural marketing possibilities, and others. Adverse impacts due to the construction of new roads are normally much more severe, and could include disturbing fragile ecosystems or opening up areas of natural resources to exploitation or unplanned population movement. Examples of this include placing roads through wildlife areas or forest reserves, which increases the chances of poaching or over-exploitation of timber. New road construction can also create land-tenure system stress, as roads through areas can increase market opportunities and, therefore, the value of land. Since no new roads will be constructed by this project, environmental concerns associated with new road construction are not relevant to this project. Neither will the project cause any resettlement of people.

6. In the case of road rehabilitation works, as in the MSRP case, the environmental impacts tend to be more limited, local and direct, and will result more from construction activities or improper design. Based on secondary research and limited field trips, the following impacts are expected:

- (a) potential increase of gully erosion in all states, but especially in Anambra State, due to the improper placement of state roads and the lack of design procedures for adequately distributing runoff;
- (b) local and temporary reductions in air quality due to emissions from bitumen processing plants;
- (c) soil erosion from side drains and improperly reseeded embankments; and
- (d) environmental and health problems associated with the improper restoration of gravel borrow pits.

7. Since the road alignments of most roads in the project are expected to remain unchanged, the secondary impacts of the MSRP are fairly benign. The following recommendations were made to ameliorate the potential adverse environmental impacts of the MSRP:

- (a) each road to be rehabilitated should be surveyed by the appropriate agency in each state to determine whether a separate environmental analysis is necessary;

- (b) the FEPA should develop environmental assessment (EA) guidelines with particular reference to road construction and rehabilitation works, and should use the MSRP as a case study for the preparation of EAs on road rehabilitation projects; and**
- (c) the case study should identify appropriate or innovative design procedures for dispersing water runoff for roads in all of the states, but with particular emphasis on roads being rehabilitated in Anambra State.**

Environmental Impacts

8. Road rehabilitation and the continued maintenance of these roads may have either positive or negative direct and secondary impacts, depending on the former condition of the road (i.e., its use and the accessibility of the community to markets) and the opened opportunities to improved health and other social services. Rehabilitating a feeder road from a foot path to an all-seasonal road opening new markets and social services will have a positive direct environmental impact due to opening up of new land-use opportunities for the community at the end of the road.

9. In the case of the MSRP, the main impacts will probably result from the direct effects of rehabilitation activities on the immediate environment. The severity of the impacts will depend on the type of rehabilitation activity, such as bituminous resealing, asphalt overlay, or regravelling, and the amount of clearing associated with this resurfacing. The extent of realignment and change in the road gradient will also determine the extent to which the direct environment will be affected, especially with respect to soil erosion.

10. The environmental impacts of rehabilitating state roads varies from state to state. As evidenced in Kaduna State, soil erosion has been exacerbated due to inadequate design of runoff drains and culverts. Additionally, improper re-vegetation of embankments on bridge abutments and gravel borrow pits leads to increased water and wind erosion. In the case of Osun and Oyo states, it is expected that proper engineering designs of surface water drains will reduce erosion and sedimentation problems along the profile of the roads.

11. Borrow pits used for gravel base and sub-base material are not always restored properly. With federal highways, the pits may be levelled, but they do not appear to be revegetated. In livestock production areas, local population often request that these pits be left open for watering livestock. This may be an acceptable use, but only if they are protected from livestock damage and soil erosion, something which is presently not the case. In addition, these pits provide breeding habitat for mosquitos and snail hosts of bilharzia.

12. In certain states, like Anambra and Imo, gully erosion is severe and caused by, or exacerbated by, road construction. However, there are other reasons for the gully erosion that originate from improper land-use activities and land clearing. From interviews with consultants involved in erosion control projects, it appears that the problems are created by the inadequate provision of drainage facilities, especially crossroad drains. This leads to serious damage of roads and the increase in erosion in the vicinity of the roads.

13. Specifications for the design and construction of roads, it appears, do not necessarily consider proper stabilization of subsoil material for crossing wetland areas.

14. In most cases, indirect environmental impacts of road rehabilitation works will probably not occur, since the road alignments and gradients are not being changed. In certain cases, as in the Kano/Kaduna road, markets have developed along the road when there has been a change in alignment. This should be expected especially if the old alignment passes through a settlement. Therefore, the selection of the final road sites for each state is very important.

15. Road rehabilitation is supervised and inspected differently in each state. In some states, the staff exist to inspect and supervise all of the reconstruction work. In other states, the State Ministries of Works and Transport (SMOWs) must hire consulting firms to supervise and inspect all of the rehabilitation work. In both cases, contractors should be required to reseed embankments and restore gravel pits.

Institutional Aspects

16. The primary responsibility for environmental protection in Nigeria rests with the FEPA. Specifically, FEPA is mandated to "...have responsibility for the protection and development of the environment in general and environmental technology, including initiation of policy in relation to environmental research and technology..." In relation to the assessment of environmental impacts of development project, FEPA is also mandated to:

- (a) develop, utilize, coordinate, and share environmental monitoring programs, promote environmental research, collect basic data on chemical, physical, and biological effects of various activities on the environment, and engage in other environmentally related activities as appropriate;
- (b) establish environmental criteria, guidelines, specifications, or standards for the protection of the nation's air and inter-state waters as may be necessary to protect the health and welfare of the population from environmental degradation;
- (c) establish procedures and guidelines for industrial or agricultural activities in order to minimize damage to the environment from such activities; and
- (d) providing a program of technical assistance to bodies (public or private) concerning implementation of environmental criteria, guidelines, regulations, and standards, and monitor the enforcement of these regulations and standards.

17. To date, FEPA has concentrated on developing its central and regional offices, and developing expertise in specific areas. In the near future, FEPA will be located in Abuja with zonal offices in six regions. These include the five already established at Kano, Lagos, Kaduna, Port-Harcourt, and Benin City. The other will be at Maiduguri. FEPA views its mandate mainly as quantifying and reducing pollution from direct water pollution sources. The background and experience of the staff at the agency reflect more of the chemical

engineering and environmental engineering perspective than that of environmental assessment and the development of plans to mitigate the adverse impacts of road rehabilitation and/or reconstruction. However, FEPA has a strong interest in developing the guidelines, procedures, and staff to review and evaluate environmental assessments on infrastructure, engineering, and development projects.

Mitigation Plan

18. FEPA will provide FMWH with the broad environmental guidelines applicable to the project. These guidelines will also be agreed with the Bank. However the final responsibility for the implementation of EAs lies with each participating state. The SMOWs would be responsible for: (a) environmental screening and monitoring of their programs; and (b) conducting, with the use of local consultants, EIAs of sensitive road links.

19. Since neither FEPA, nor the respective SMOWs have the in-house capabilities at present to conduct EAs, the EAs will be conducted by consultants working under terms of references agreed with FEPA and the Bank. The consultants should be hired by each participating state under the framework of the project. Previous environmental work performed by Nigerian consultancy organizations for Bank projects have demonstrated an adequate EA capacity in the private sector.

20. The First Multi-State Roads Project will facilitate the establishment of an Environmental Assessment and Monitoring Unit, (EAMU) in the FMWH. This unit will work directly with FEPA and the SMOWs in the preparation of terms of references for EIAs, selection of consultants, approval of EIAs, supervision of mitigation programs, and regular monitoring of impacts caused by the projects.

21. The local population living along the roads to be rehabilitated must be kept informed through public meetings that would also serve as suitable forums for consultation on environmental impacts and the need for local community measures.

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT
Supervision Plan

The IDA input into the table below is in addition to regular needs for the review of progress reports, procurement actions, correspondence, etc., estimated to require 12 staff weeks per year for the first three project years, and 8 per year thereafter.

Approximate Dates of Input (mo/yr)	Activity	Expected Skill Requirements	Staff Weeks
9/93	Supervision Mission (Project Launch)	Engineer, Economist, Institutional Specialist, Procurement Development Specialist, Disbursements	10
1/94	Supervision Mission with special emphasis on technical assistance and training	Engineer, Financial Analyst, Institutional and Training Specialist, Traffic and Safety Engineer	8
5/94	Supervision Mission	Engineer, Economist/Institutional Specialist, Procurement, Disbursements, Environment	12
8/94	Supervision Mission with special emphasis on supervision of works	Engineer, Financial Analyst, Institutional and Training Specialist	10
12/94	Supervision Mission	Engineer, Financial Analyst, Institutional Specialist	7
6/95	Supervision Mission	Engineer, Economist/Institutional Specialist, Analyst, Environment	7

Approximate Dates of Input (mo/yr)	Activity	Expected Skill Requirements	Staff Weeks
9/95	Supervision Mission	Engineer, Financial Analyst, Institutional and Training Specialist	7
12/95 to 98	Supervision Mission	Engineer, Financial Analyst, Institutional and Training Specialist	7
6/96	Supervision Mission and mid-term review	Engineer, Institutional and Training Specialist, Environmental Specialist, Financial Analyst	9
6/97 to 99	Supervision Mission	Engineer, Economist, Institutional and Training Specialist	7
9/99	Supervision and PCR preparation	Engineer, Financial Analyst, Institutional and Training Specialist	8

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT

Economic Analysis

General

1. From an economic point of view, the main objectives of the physical components of MSRP's road improvement program are to increase the road transport capacity, reduce transport costs and protect past investments in the highway network. The purpose of the economic analyses is to determine the appropriate design, timing and the works to be undertaken on each road. The work on economic analyses, summarized below, was conducted by Consultants (TRDF) financed under a Japanese Grant Agreement as part of the preparatory studies undertaken in the participating states to develop a five-year program of priority road works in each state and to identify financial and institutional requirements for carrying out the program. A copy of their report ^{1/} is included in the project files.

Methodology

2. The Consultants used the World Bank's Highway Design and Maintenance Model (HDM III) for evaluation of alternative investments on each of the road sections in the state roads network. The model essentially simulates the total life cycle conditions and costs on each road section to provide the economic decision criteria for multiple road maintenance and rehabilitation alternatives.

3. Benefits were evaluated on a "with and without investment" basis, derived essentially from savings in vehicle operating costs, but the impact of variations in the costs of road maintenance was also included. Evaluation was based on the net present value (NPV) of all costs and benefits and the economic rates of return (ERR) of the proposed works. Prioritization and phasing of individual road projects was done on the basis of the ERR.

4. Alternatives for determining the extent of works ranged from minimal routine maintenance on the existing roads to resurfacing and complete reconstruction of the road pavement. The depth to which each alternative was studied was related to its likelihood of being chosen as the optimal solution. Each component of the most promising alternative (i.e. strengthening, rehabilitation, upgrading, improvement of alignment, new construction, etc.) was, whenever technically meaningful, studied separately. The economic rate of return was computed separately for each road section which was then selected for implementation only if the return was at least 12% per annum.

^{1/} TRDF, Multi-State Roads Project (MSRP) Preparation, Draft Final Report, June, 1992.

Basic Data

5. Basic data required for input to the HDM model was collected by the Consultants during preparatory studies. This comprised, inter alia, network inventory and pavement surveys to obtain for each road link, the geometric characteristics, pavement condition and structural strength, subgrade strength, traffic volumes and vehicle distribution, unit costs of maintenance operations, and vehicle fleet characteristics and unit operating costs. Tables 1 through 4 give a summary of representative data on road link characteristics, unit maintenance costs, vehicle fleet characteristics and unit costs, and maintenance alternatives evaluated. For a more detailed description of the input data see Consultants' report on file.

6. Costs were considered both in financial and economic terms (after adjusting for taxes, duties and subsidies, etc.). Benefits to generated traffic, where applicable, were computed on the basis of 50% of savings in unit vehicle operating cost (VOC). Traffic projections over the economic life of a road improvement were based on a uniform growth rate of 3% per annum.

Results

7. Table 5 gives a summary of the average vehicle operating costs for different vehicle classes obtained on roads varying in condition from good to very poor. As seen from the table, weighted average savings in VOC resulting from improvements in the road condition range from US Cents 2.8 to 12.3 per veh-km depending on the initial condition of the road.

8. Tables 6 and 7 give a summary of the ERR of selected road improvements in Oyo and Osun states respectively, to be implemented under the project. The minimum desirable ERR is taken as 12 percent. As indicated, the evaluation and selection of some gravel and paved roads to be improved, reconstructed or upgraded in the two states will be done during implementation of the project. In addition, some allowance has been made in the cost estimates for spot improvement of selected unpaved roads by contract using labor intensive and light equipment assisted methods in both states. For road projects to be included in the project subsequently, it would be agreed during negotiations that the minimum acceptable ERR would be 12%.

9. Based on evaluations carried out thus far, the results show that the weighted overall ERR for roads component in Oyo state is 53% and in Osun 32%. The combined ERR for the roads component in both states is 43%. Benefits for the remaining components (technical assistance, equipment and vehicles purchase and training), amounting to about 19% of total project costs, are high but non-quantifiable. Excluding benefits from these components but including their costs, the composite weighted average ERR for the project is 35%.

TABLE 1
ROAD LINK CHARACTERISTICS

<u>Link No.</u>	<u>From</u>	<u>To</u>	<u>Length (km)</u>	<u>Pavement Type a/</u>	<u>Pavement Width (m)</u>	<u>Shoulder Width (m)</u>	<u>ADT 1991</u>	<u>Roughness (IRI)</u>
<u>Ogun State</u>								
844	Ikire	Ikoyi	4.6	SD	5.7	0.0	4488	8.67
835	Iwo Rdabout	Ibadan Road	2.7	SD	6.7	0.0	3503	5.29
867B	Ijebu Ijesha	Ilare	14.5	SD	6.1	0.8	758	9.06
838	Awo	Ejigbo	22.3	SD	6.7	1.2	661	13.00
856	Ifetu	Ondo St. Border	10.0	SD	5.9	0.0	620	13.00
832	Iwo Rdabout	Ejigbo Road	2.6	AC	7.4	1.4	3053	15.21
930	Oshoobo By-pass	Oshoobo Bypass	15.0	NEW	6.1	0.0	1335	9.63
850	Ife So. Okerewe	Ife (E) Abiri St.	0.7	AC	7.2	0.0	9427	5.32
864	Ibokun	Ada	12.0	AC	6.0	0.0	600	13.00
852A	Ilesha (SW)	Ifewara	19.0	SD	--	--	--	--
827	Iwo North	Iwo Central	0.9	AC	6.1	0.0	758	13.00
847B	Asifa	Ife Central	19.3	EAR	11.1	0.0	100	13.00
866	Ibokun (E)	Ibokun	1.5	EAR	6.6	0.0	2100	7.06
857	Okuku	Ekosin	8.1	SD	5.7	0.0	585	18.24
867A	Ilare	Ibokun (E)	5.5	EAR	6.0	0.0	399	13.00
825	Iwo West	Iwo North	2.7	AC	5.0	0.0	1662	9.93
847A	Asifa	Ife (Central)	3.3	SD	4.8	0.0	1552	17.24
103	Ejigbo	Ede	35.0	EAR	6.0	0.0	100	13.00
860B	Oyo Border	Ore	13.9	EAR	6.0	0.0	100	13.00
833	Iwo (Awo Jct)	Iwo Roundabout	4.0	SD	7.3	2.0	3051	5.44
843	Ikoyi	Alogutan	28.4	EAR	5.8	0.0	703	9.31
925	Ede	Awo/Osho Obo Jct.	1.7	AC	7.3	2.0	3009	5.05
846	Asipa	Eduaboni	7.8	SD	6.7	1.2	661	13.41
928	Esa-Oke	Esa-Odo	9.0	EAR	9.0	0.0	399	7.00
851	Ife(E)	Ife (NE)	1.9	AC	6.5	0.0	103	13.00
104	Ijebu-Ilesha	Erinmo	8.3	SD	6.0	0.0	300	13.00
855	Ilesha	Ondo Border	50.8	EAR	6.0	0.0	290	15.00
751	Ilesha/Akure Rd.	Ilesha	4.0	AC	9.0	0.0	282	13.00
924	Ijebu Ijesha	Ibokun (E)	16.5	EAR	6.5	1.2	502	15.87
929	Iresi	Ondo Border	21.0	EAR	6.7	1.2	977	6.15
858B	Otan-Ile	Imesile	7.6	SD	7.0	1.4	5761	3.84
557B	Oshoobo	Oyo St. Border	18.0	EAR	5.4	0.0	230	13.00
102	Kuta	Ede	25.0	EAR	5.3	0.0	357	8.21
855A	Ibokun	Oshoogbo (E)	16.4	EAR	7.0	1.0	8756	3.00
845B	Iwo RR. Sta	Ikire	19.3	EAR	4.2	0.0	100	13.00
870	Igbajo	Imesile	11.0	EAR	5.9	0.9	299	17.61
871A	Igbajo	Orita Iresi	4.1	EAR	4.8	0.0	100	13.00
855B	Ibokun	Oshogbo (E)	3.9	SD	7.4	1.5	282	9.09
860C	Ore	Ikirun	11.4	SD	7.0	1.5	244	5.00
858	Ikosin	Iyeku	6.2	SD	6.2	0.0	444	6.07

Link No.	From	To	Length (km)	Pavement Type a/	Pavement Width (m)	Side Lader Width (m)	ADT 1991	Roughness (IRI)
Oyo State								
819A	Ibadan (Mokola)	Ibadan Cen. (Dubge)	1.2	AC	14.6	1.2	10000	10.00
818	Ibadan Central	Ibadan (W)	2.9	AC	7.3	1.2	13417	10.00
875	Ibadan	Akufu	2.7	AC	6.0	0.0	604	13.00
820	Ibadan Central	Ibadan Jn (Bere)	0.5	AC	7.3	1.2	10000	13.00
100B	Yoyim	Kishi	4.7	SD	6.9	0.0	1241	13.00
819B	Ibadan (Mokola)	Ibadan Cen. (Dug)	3.6	AC	7.3	1.2	10000	9.00
814	Oyo (Central)	Akinmorin	41.5	SD	5.5	0.0	2090	8.11
821A	Ibadan Jn.	Olode	30.0	EAR	7.5	0.0	6663	13.00
822	Ibadan Jn.	St. Bor Dagbolu	7.8	AC	7.0	0.0	1961	10.68
813	Oyo	Moniya Junction	11.1	EAR	6.8	0.0	600	13.00
812	Moniya	Oke Oko	75.0	NEW	5.8	0.0	600	13.00
811	Ominadio	Moniya	12.0	AC	4.5	0.0	600	13.00
876	Ibadan	Agbeja-Osun Border	33.4	EAR	6.0	0.0	698	13.00
817	Kfi Ayure	Ibadan (Central)	9.2	EAR	7.4	0.0	5000	13.00
874	Iseyin	Ajaiye	61.0	EAR	6.0	0.0	597	13.00
801A	Iganna	Igangan	25.0	EAR	5.5	0.0	479	13.00
107	Old Ife Rd	Old Ife Rd	34.0	NEW	7.3	0.0	3513	15.00
523	Aha	Kishi	34.9	EAR	7.4	0.0	332	13.00
877	Iddo	Eruwa Titun	34.3	AC	7.3	2.5	597	5.00
524B	Akaka	Okaka	74.5	EAR	7.1	0.0	77	15.00
821B	Ibadan Jn.	Olode	17.0	EAR	6.5	0.0	300	13.00
559	F206/State Rd	Ogbomosho	16.0	EAR	6.5	0.0	294	13.00
801B	Igangan	Igboora	17.0	EAR	5.3	0.0	479	9.12
521	Maya	Iseyin	56.0	AC	6.0	0.0	200	15.00
810	Abugaga	Iseyin	30.6	EAR	5.1	0.0	200	13.00
557	Osun Border	F206/State Rd.	14.4	SD	6.5	0.0	294	13.00
524D	Ago-Are	Aha	60.0	EAR	4.4	1.4	89	15.00
525	Ibgora	Maya	4.3	AC	7.3	1.5	734	15.00
524A	Iseyin	Akaka	35.8	EAR	7.1	1.7	77	19.86
816	Akinmorin	Awe	39.7	SD	5.5	0.0	264	14.79
860	Obgomosho (N)	Oyo/Osun Border	12.9	EAR	6.8	1.5	539	5.00

TABLE 2

UNIT COSTS OF MAINTENANCE OPERATIONS

Maintenance Operations	Unit	Cost Type	Cost (US\$)
<u>Paved Roads</u>			
Patching	sq.m	Fin.	8.20
		Econ.	8.90
Resealing	sq.m	Fin.	2.90
		Econ.	3.10
Asphalt Overlay (40mm)	sq.m	Fin.	5.50
		Econ.	5.10
Pavement Reconstruction (SD)	sq.m	Fin.	9.50
		Econ.	10.10
Basic Routine Maintenance	km./yr.	Fin.	232.00
		Econ.	246.00
<u>Unpaved Roads</u>			
Blading	km	Fin.	172.80
		Econ.	183.20
Spot Regravelling	cu.m.	Fin.	8.90
		Econ.	9.40
Surface Regravelling	cu.m.	Fin.	4.50
		Econ.	4.70
Basic Routine Maintenance	km./yr.	Fin.	232.00
		Econ.	246.00

TABLE 3
VEHICLE FLEET CHARACTERISTICS AND UNIT COSTS

<u>Item</u>	<u>Car</u>	<u>Utility</u>	<u>Mini-Bus</u>	<u>Lrg Bus</u>	<u>2-Axle Truck</u>	<u>3-Axle Truck</u>	<u>>3-Axle Truck</u>
Vehicle Characteristics							
Vehicle Type	1	4	5	5	8	9	10
Fuel Type	Petrol	Petrol	Diesel	Diesel	Diesel	Diesel	Diesel
Gross Vehicle Wt (tons)	1.10	1.70	2.70	12.70	18.30	26.00	38.00
ESAL	-	-	0.02	1.50	1.55	3.50	6.20
Payload (tons)	-	0.30	2.30	2.30	4.50	6.00	13.00
Drive HP	30	40	100	100	100	100	210
Brake HP	17	30	160	160	250	250	500
Annual Hours Driven	500	1,500	2,000	2,033	1,500	1,900	2,500
Annual kms Driven	50,000	54,000	100,000	122,000	40,000	40,000	77,600
Vehicle Svc Life (yrs)	6	5	7	7	9	9	9
No. of Tires/Veh.	4	4	4	6	6	10	14
Unit Costs (US\$)							
A. Financial Costs							
New Vehicle	11,939.00	18,855.00	28,500.00	179,620.00	65,000.00	103,339.00	140,355.00
Tires	82.20	96.90	82.20	355.90	267.80	394.10	515.00
Maintenance Labor	.23	.23	.23	.37	.23	.23	.37
Crew Time	-	.23	.23	1.33	.44	.44	.92
Annual Overhead (%)	-	5.00	5.00	12.00	8.00	10.00	12.00
Annual Interest (%)	17.00	17.00	17.00	17.00	17.00	17.00	17.00
Fuel & Lubricants (liter)	Petrol = .07		Diesel Fuel = .06		Engine Oil = .92		
B. Economic Costs (\$)							
New Vehicle	10,544.00	16,652.00	27,765.00	179,627.00	65,000.00	103,339.00	140,355.00
Tires	74.70	88.10	74.70	323.50	243.50	358.30	468.20
Maintenance Labor	.25	.25	.25	.40	.25	.25	.40
Crew Time	-	.25	.25	1.41	.47	.47	.98
Annual Overhead (%)	10.00	15.00	15.00	15.00	15.00	15.00	15.00
Annual Interest (%)	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Fuel & Lubricants (liter)	Petrol = .10		Diesel Fuel = .08		Engine Oil = .90		

TABLE 4
MAINTENANCE ALTERNATIVES

PAVED ROADS:

ALT0 NULL	"Without Improvements" which is maintenance standard NUL1 including: Patch 50% of Potholed area plus Routine Maintenance-Paved Road
ALT1 NCMM	"Minimum Maintenance" which is maintenance standard MIN1 including: Patching 100% of the Potholed area to a maximum applicable roughness of 9 IRI. Reconstruct when roughness exceeds 9.0 IRI. New surface: Surface Treatment 15 mm thick. Initial roughness 3.0 IRI. New granular base 150 mm. Increment in the Structural Number (SN) 0.8. Routine Maintenance - Paved Road.
ALT2 NCD1	"Overlay Design 1" which is maintenance standard DES1 including: Patching 100% of potholed area. Overlay when roughness exceeds 4.0 IRI. Minimum applicable interval 10 years, Overlay type AC. Strength Coefficient 0.44. Overlay thickness 40 mm. Routine maintenance Paved Road.
ALT3 NCD2	"Overlay Design 2" which is maintenance standard DES2 including: Same as above with Overlay thickness of 60 mm.
ALT4 NCD3	"Overlay Design 3" which is maintenance standard DES3 including: Same as above with Overlay thickness of 80 mm.
ALT5 COD1	"Reconstruction with surface treatment" which is maintenance standard REC1 including: Reconstruction when roughness exceeds 4 IRI. Minimum applicable interval 10 years. New surface: surface treatment. New surfacing layer thickness 15 mm. Initial roughness 3.0 IRI. 150 mm. of granular base. Increment in the SN 0.8. Routine maintenance Paved Road.
ALT6 COD2	"Reconstruction with Asphalt Concrete" which is maintenance standard REC2 including: Same as above but new surface: AC. New surfacing layer thickness 50 mm. Increment to the SN 1.7. Initial roughness 2.0 IRI.
ALT7 NCM2	"No Construction Patch and Seal" which is maintenance standard MIN2 including: Patch 100% of potholed area. Reseal when total damage area exceeds 30%. Reconstruct when roughness exceeds 9.0 IRI. Minimum applicable interval 10 years. Surface type: surface treatment. New surfacing layer thickness 15 mm. Initial roughness 3.0 IRI. 150 mm granular base. Increment of the SN 0.8.
ALT8 PRJ1	"Upgrade from single lane road to dual carriageway" with construction option PRJ1 and maintenance standard MIN1 including: Patching 100% of the potholed area to maximum applicable roughness of 9 IRI. Reconstruct when roughness exceeds 9.0 IRI. New surface: surface treatment 15 mm. thick. Initial roughness 3.0 IRI. New granular base 150 mm. Increment in the SN 0.8. Routine maintenance - paved road.

UNPAVED ROADS:

- ALT0 MMUP** "Minimum Maintenance Unpaved Roads" which is maintenance standard UPM0 including:
Routine Maintenance Unpaved Roads: includes drainage, vegetation, shoulder, and miscellaneous activities.
- ALT1 UPM1** "Unpaved Maintenance 1" which is maintenance standard UPM1 including:
Grading when roughness exceeds 10.0 IRI. **Spot regravelling** 100% of material loss. **Routine maintenance** for unpaved roads.
- ALT2 UPM2** "Unpaved Maintenance 2" which is maintenance standard UPM2 including:
Grading when roughness exceeds 10.0 IRI. **Gravel resurfacing** with granular material every two years making upto 100 mm. thick layer; initial roughness 5.0 IRI. **Routine maintenance** for unpaved road.
- ALT3 PRJ2** "Upgrade from unpaved to paved road" which is construction option PRJ2 and maintenance standard MIN1 including:
Construction to upgrade to paved road the first year. **Patching** 100% of potholed area maximum applicable roughness 9.0 IRI. **Reconstruct** when roughness exceeds 9.0 IRI to surface treatment. **New layer thickness** 15.00 mm. **Initial roughness** 3.0 IRI. **Base layer thickness** 150 mm. **Increment in the SN** 0.8.

TABLE 5
VEHICLE OPERATING COSTS
(US Cents/km, Economic costs)

Item	Car	Pick-up	Mini Bus	Large Bus	2-axl Truck	3-axl Truck	3+ axl Truck	Weighted Average
<u>VOC</u>								
Good (IRI 2.5)	8.6	12.1	12.0	69.0	40.7	73.0	101.5	20.9
Fair (IRI 5.5)	10.0	14.5	12.4	72.7	58.9	84.0	116.2	23.7
Poor (IRI 7.7)	11.8	17.8	12.8	77.1	57.3	95.0	131.7	26.9
Very Poor (IRI 11)	16.0	25.3	14.0	86.0	70.8	112.7	156.7	33.2
<u>SAVINGS</u>								
Fair to good	1.4	2.4	0.4	3.7	8.2	11.0	14.7	2.8
Poor to good	3.2	5.7	0.8	8.1	16.6	22.0	30.2	6.0
Very poor to good	7.4	13.2	2.0	17.0	30.1	39.7	55.2	12.3

Exchange rate at the time of data analysis was US\$1.0=₦10.0

TABLE 6
PROPOSED PRIORITY ROADS PROGRAM IN OYO STATE

Link No.	Road Section	Length (Km)	Surface Type g/	ADT (1992)	Proposed Works	Economic Rate of Return	Estimated Base Cost (US\$)
818	Dugbe-Oke Ado-Molete [Ibadan Central)-Ibadan (West)]	2.9	AC	13,417	Overlay	>150	0.73
820	Dugbe-Old Gbagi-Bere [Ibadan (Central)-Ibadan Jn. (Bere)]	2.7	AC	10,000	Overlay	>150	0.68
819B	Adamasingba-Dugbe [Ibadan (Mokala)-Ibadan (Dugbe)]	0.5	AC	10,000	Overlay	119	0.30
876B	Agodi Gate-Molete [Ibadan (Gate)-Ibadan (Molete)]	6.0	AC	698	Overlay	42	1.50
814	Oyo (Central)-Akinmorin	4.7	SD	2,090	Rehab.	116	0.25
822	Ibadan Jn.-Dagbolu-St. Bdr.	41.5	SD	1,961	Reseal	102	2.40
874	Iseyin-Ijaiye	50.0	New	597	Construct	70	10.00
100B	Budo Ibariba-Kishi	11.1	EAR	1,241	Pave	72	1.64
801B	Igangan-Igbo-Ora	34.3	AC	479	Widening/ Rehab.	31	5.00
	Ikoyi Ile-Ahoro Dada-Idiege h/	60.0	EAR	722	Pave	42	8.90
	Undefined g/	17.0	EAR/SD		Rehab.		2.40
	High Volume Gravel Roads g/	150.0	EAR	100-200	Rehab.	28	3.00
	Low Volume Unpaved Roads	100.0	EAR	< 100	Spot impr	15	0.55
	Maintenance by Contract						2.00
Total:		480.7				53	39.35

h/ AC = Asphalt Concrete
SD = Surface Dressing plus sectional reconstruction
EAR = Earth/Gravel

i/ ERR estimated from link 100B in proportion to the traffic volume

j/ Subject to economic justification

k/ The following roads will be considered along with others for inclusion in the program based on economic justification:

- (i) Oke-Iho-Isoimi-Ile-Ado-Awaye (35 km)
- (ii) Okaka-Otu Igbo-Ijaya-Baba Ode (39 km)
- (iii) Ogbomoso-Ajinope-Olorunda-Gbete (45 km)
- (iv) Agunroge-Owo-Ofiki-Ago-Are

TABLE 7
PROPOSED PRIORITY ROADS PROGRAM IN OSUN STATE

Link No.	Road Section	Length (Km)	Surface Type g/	ADT (1992)	Proposed Works	Economic Rate of Return	Estimated Base Cost (US\$)
867B	Ijebu-Jesa-Ilare Otan-Ile	18.0	SD	758	Resurface	88	1.11
930	Osogbo Bye Pass	8.0	New	3,500	Construct	72	3.49
864	Ada-Ibokun	12.0	AC	1,662	Overlay	53	0.72
852A	Ilesa (SU)-Ifewara	19.0	SD	1,552	Resurface	52	0.93
867A	Ilare-Ibokun	5.5	EAR	299	Pave	42	0.99
103	Ejigbo-Ara-Ede	35.0	EAR	599	Pave	38	4.55
846	Asipa-Edunabon	7.8	SD	977	Reseal	30	0.30
928	Esa-Oke-Esa-Odo	9.0	EAR	399	Pave	28	1.33
923	Ibokun-Orita Ido Minasi h/	10.0	EAR	479	Pave	34	1.38
	Inisa-Agbeye-Ekosi	15.2	EAR	1,225	Pave	26	1.90
870	Igbajo-Imesi-Ile Ondo St. Bdr.	18.0	EAR	250	Pave	19	2.25
102	Kuta-Ede	12.0	EAR	300	Pave	37	1.50
843	Apomo-Orile Owu-Araromi-Owu	32.0	EAR	585	Pave	32	4.00
	Osogbo-Ibokun Imesi	32.0	EAR	350	Pave	16	4.00
	Undefined g/	29.0	SD/AC		R shab.		3.00
	High Volume Gravel Roads g/	150.0	EAR	100-200	Rehab.	28	3.00
	Low Volume Unpaved Roads	100.0	EAR	< 100	Spot impr	15	0.55
	Maintenance by Contract						2.00
Total		512.5				32	37.00

g/ AC = Asphalt Concrete
SD = Surface Dressing plus sectional reconstruction
EAR = Earth/Gravel

h/ ERR estimated from link 928 in proportion to the traffic volume

c/ The following roads will be considered along with others for inclusion in the program based on economic justification:

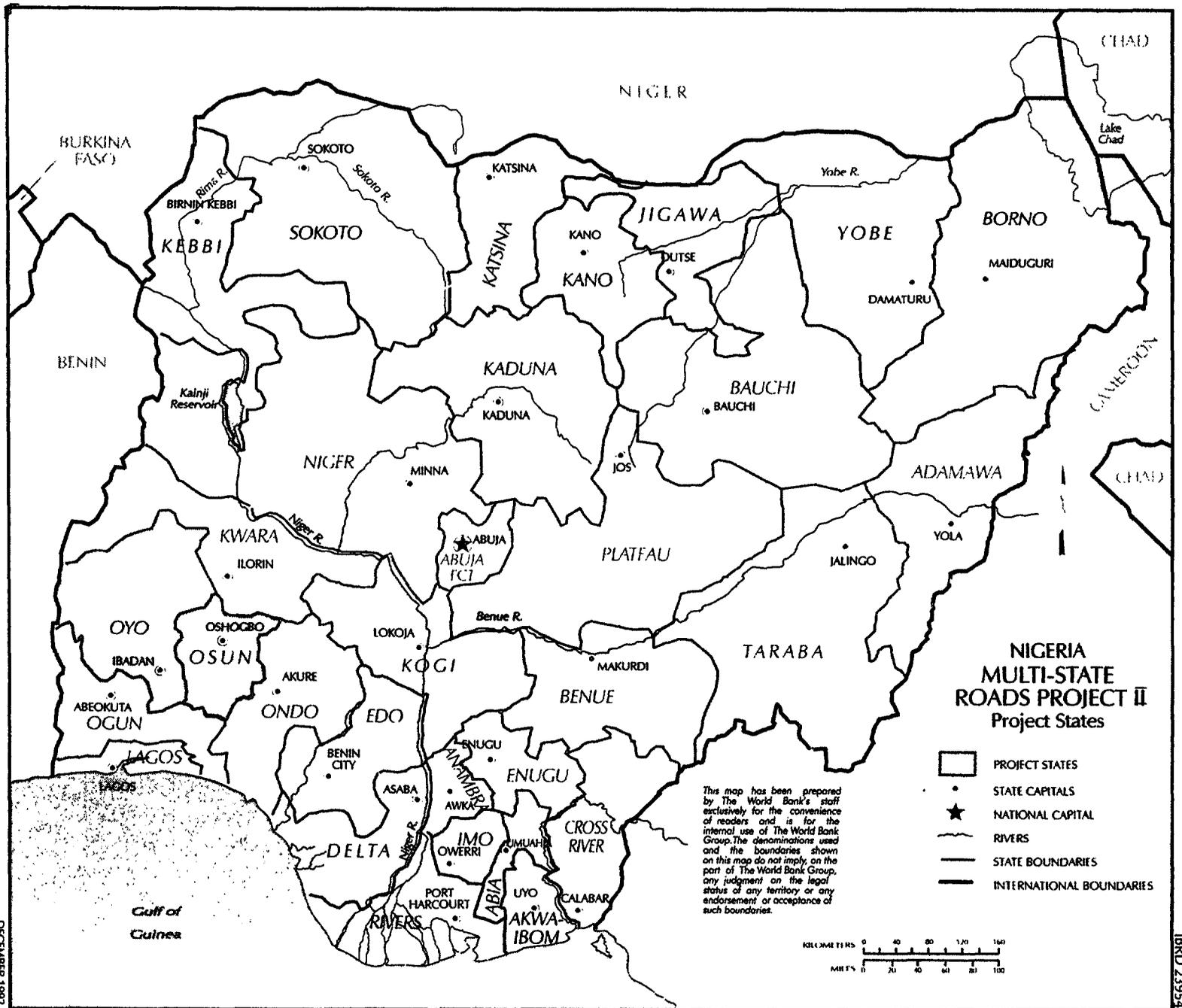
- (i) Akinlalu-Asipa (7 km)
- (ii) Ipetmodu-Odemu (7 km)
- (iii) Sabo-Odudu-Eriwa SQ (Ife) (2 km)
- (iv) Inisa-Ekusa-Okusa (8 km)
- (v) Ife-Famin (15 km)
- (vi) Oyan-Ila Orangun (14 km)
- (vii) Iragbiji-Egbeda (15 km)
- (viii) Ilesha-Ikpa-Ondo St. Border (855) (35 km)

FEDERAL REPUBLIC OF NIGERIA
SECOND MULTISTATE ROADS PROJECT

Documents Available in Project File

1. **MSRP Preparatory Studies, Draft Final Report, Texas research and Development Foundation (TRDF) & Federal Ministry of Works and Housing (FMWH), June 1992.**
2. **Road User Charges and Axle Load Study, Draft Final Report, Federal Ministry of Works and Housing, and Louis Berger International, Inc., May 1992.**
3. **Labor Based and Light Equipment Supported Road Maintenance and Rehabilitation and Development of Domestic Contractors, Preparation-Appraisal Report, Sven Hertel (ILO) in collaboration with Olusoji Olugbeka (Consultant), August 1992.**
4. **Monitoring and Evaluation Frameworks, Alan Ross, Ross Silcock Partnership, June 1992.**

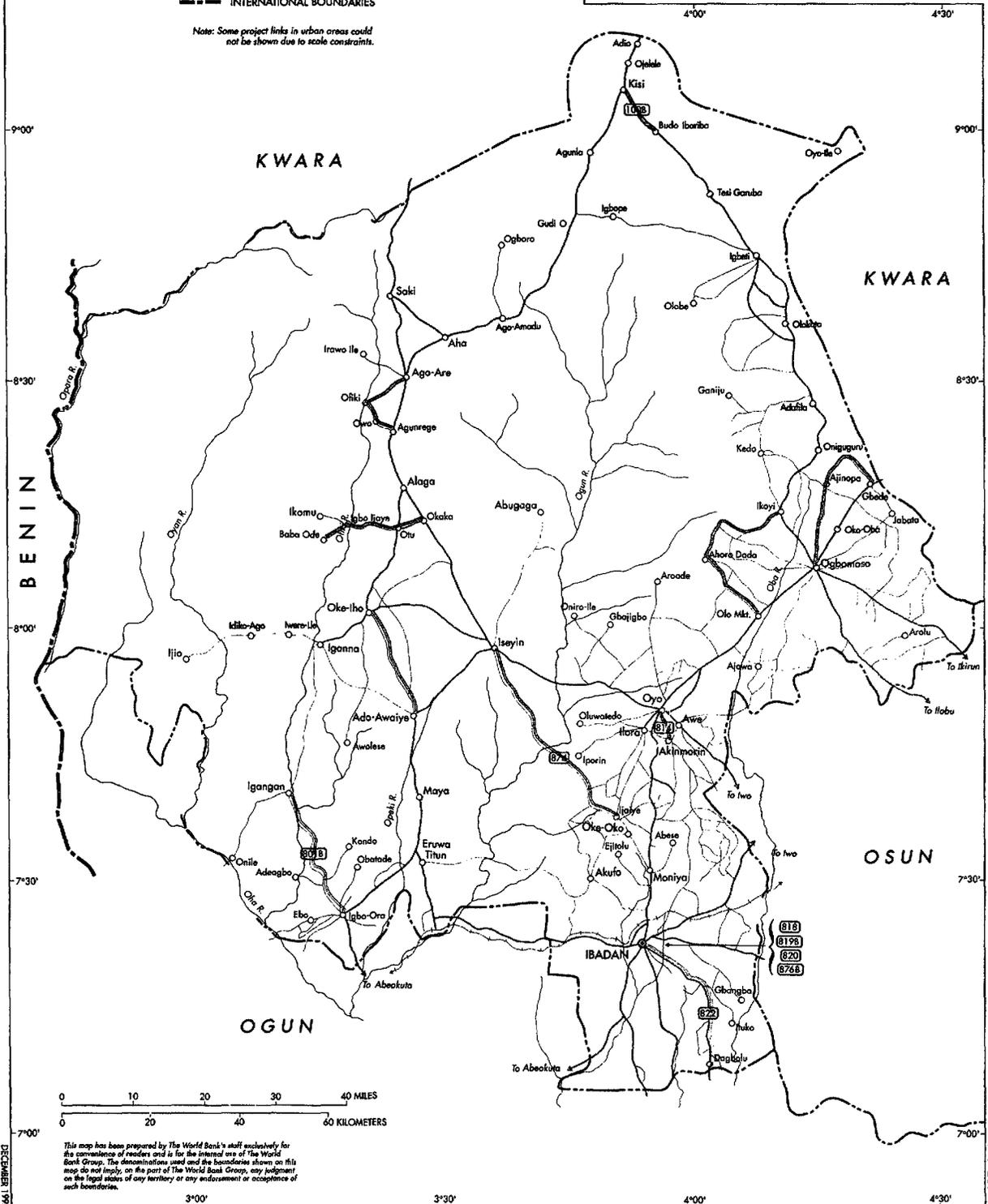
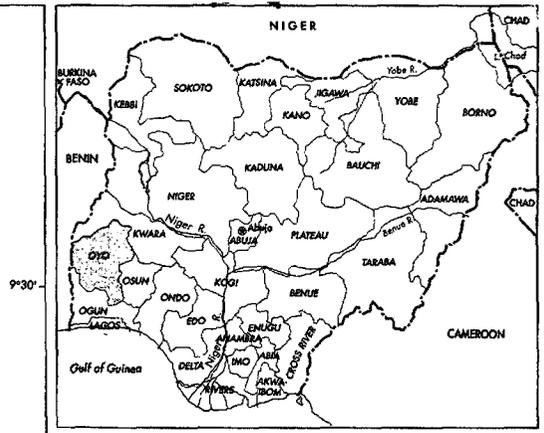
MAP SECTION



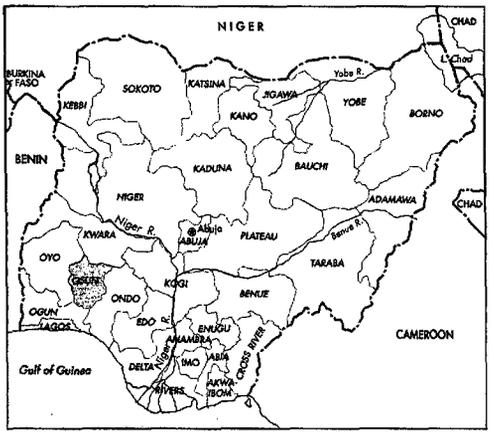
NIGERIA MULTI - STATE ROADS PROJECT II OYO STATE

- PROJECT ROAD LINKS
- PRIMARY ROADS
- SECONDARY ROADS
- RAILROAD
- RIVERS
- STATE CAPITAL
- STATE BOUNDARIES
- INTERNATIONAL BOUNDARIES

Note: Some project links in urban areas could not be shown due to scale constraints.



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NIGERIA MULTI - STATE ROADS PROJECT II OSUN STATE

