# CHAPTER 3
# CURRENT STATUS OF ROAD MAINTENANCE

# CHAPTER 3 CURRENT STATUS OF ROAD MAINTENANCE

## 3.1 General

Although Kenya Roads Board (KRB) officially began operation on July 1st, 2000, it is still in transition and almost all work is still carried out under the previous system. The Study Team carried out a field survey to collect data from numerous on-site offices of related road organizations, which accurately reflects the issues and constraints of the Kenyan road maintenance system. The analysis in this report is built up on the basis of these collected data. The methodology and criteria for the selection of the districts taken up by the survey are described in ANNEX 2.

## 3.2 Present Road Inventory and Condition

### 3.2.1 Road Inventory

A full inventory of the classified road network is given in ANNEX 3, and shows road length by class and surface type for each province and district. Furthermore, road length by class and surface type for each province is described in Appendix 3.2.1.

**Road Length, Classified Roads**

The total length of the classified road network is 63,941.9 km. Road length by province and road class is as shown in Table 3.2.1.

**Table 3.2.1 Road Length by Province and Road Class** (unit: km)

| Province | Road Class | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E+SPR | Total |
| Nairobi | 90.5 | 8.3 | 122.1 | 39.5 | 123.5 | 383.9 |
| Central | 265.4 | 154.2 | 769.5 | 1,642.0 | 5,091.9 | 7,923.0 |
| Coast | 573.4 | 439.8 | 597.8 | 1,033.5 | 3,214.4 | 5,858.9 |
| Eastern | 960.3 | 590.0 | 1,358.8 | 1,961.1 | 8,212.1 | 13,082.3 |
| N/Eastern | 204.0 | 590.9 | 524.5 | 957.1 | 2,576.1 | 4,852.6 |
| Nyanza | 210.1 | 152.9 | 874.5 | 1,071.0 | 4,973.1 | 7,281.6 |
| Rift Valley | 1,094.5 | 683.3 | 3,255.0 | 3,820.0 | 11,661.2 | 20,514.0 |
| Western | 212.7 | 51.5 | 538.4 | 804.6 | 2,438.4 | 4,045.6 |
| Total | 3,610.9 | 2,670.9 | 8,040.6 | 11,328.8 | 38,290.7 | 63,941.9 |
| Ratio (%) | 5.6 | 4.2 | 12.6 | 17.7 | 59.9 | 100.0 |

Source: Schedule of Classified Roads in 1996 (Volume 1 Lists and Tables by Province and District).

The total road length of classified roads was 63,941.9 km in 1996. High standard roads, Class A, B and C, form approximately 22.4% of the total road length. Road lengths in the Eastern

Province and Rift Valley Province are longer because of the large geographic area.

Classified roads have four types of surface structure: premix, surface-dressed, gravel and earth. In Nairobi, approx. 83% of all classified roads were constructed with a premix surface; however, in other provinces, bitumen, premix and surface-dressed were only used on 13.0% of all roads. Table 3.2.2 shows road length by province and surface type.

**Table 3.2.2 Road Length by Province and Surface Type** (unit: km)

| Province | Surface Type | | | | |
|---|---|---|---|---|---|
| | Premix | Surface Dressed | Gravel | Earth | Total |
| Nairobi | 319.0 | 32.6 | 30.8 | 1.5 | 383.9 |
| Central | 260.1 | 1,732.8 | 3,610.7 | 2,319.4 | 7,923.0 |
| Coast | 133.5 | 627.0 | 1,832.7 | 3,265.7 | 5,858.9 |
| Eastern | 158.2 | 1,030.7 | 4,898.8 | 6,994.6 | 13,082.3 |
| N/Eastern | 136.4 | 11.0 | 659.0 | 4,046.2 | 4,852.6 |
| Nyanza | 193.1 | 558.8 | 3,888.0 | 2,641.7 | 7,281.6 |
| Rift Valley | 153.3 | 2,887.0 | 10,347.4 | 7,126.3 | 20,514.0 |
| Western | 154.8 | 283.4 | 2,634.3 | 973.1 | 4,045.6 |
| Total | 1,508.4 | 7,163.3 | 27,901.7 | 27,368.5 | 63,941.9 |
| Ratio (%) | 2.4 | 11.2 | 43.6 | 42.8 | 100.0 |

Source: Schedule of Classified Roads in 1996 (Volume 1 Lists and Tables by Province and District).

## Road Length, Unclassified Roads

### (1) Forest Roads

Forest roads consist of three classes: access roads, feeder roads and plantation roads. Table 3.2.3 shows the road length for these three road classes.

**Table 3.2.3 Length of Forest Roads**

| Road Class | Road Length (km) |
|---|---|
| Access Roads | 2,252.5 |
| Feeder Roads | 2,836.8 |
| Plantation Roads | 1,726.8 |
| Total | 6,816.1 |

Source: Data from Forest Department HQ.

These roads have the following purposes:

- Access Road: Connects forest stations and public roads.
- Feeder Road: Connects forest stations and plantations.
- Plantation Road: Roads serving plantation areas.

The surface of these roads consists of two types: gravel and earth. All access roads have a gravel

surface and the rest are earth roads.

**(2) KWS Roads**

KWS maintains three categories of road and they are as follows:

- KWS roads in parks,
- KWS roads in national reserves, and
- MORPW classified roads in parks.

Table 3.2.4 shows the total length of KWS roads.

**Table 3.2.4 Length of KWS Roads**

| Road Class | Road Length (km) |
|---|---|
| KWS Roads in Parks | 4,411.0 |
| KWS Roads in National Reserves | 2,734.0 |
| MORPW Classified Roads in Parks | 1,763.0 |
| Total | 8,908.0 |

Source: Data from KWS HQ.

**(3) Urban Roads**

The length of urban roads outside Nairobi city is not available, since many county councils, municipalities and township do not have a road inventory. The 1994 Local Authorities Inventory Survey provided revised data that cites the total length of unclassified road as being 134,035.3 km compared with the 94,161.1 km provided by the MORPW. Further details on the revised figures are contained in Chapter 5.2.

### 3.2.2 Road Conditions

**Classified Roads**

Classes A to E roads consist of three surface types: bitumen (premix and surface dressing), gravel and earth. The selection of surface type is based on route importance and traffic volume. Generally, Class A and B roads have a bitumen surface and are in good condition. However, the bitumen surface of other roads was found to have cracks and potholes. Gravel and earth roads were found to have rutting, pavement softening and waterlogged sections.

**Unclassified Roads**

Unclassified roads are divided into three road types: urban roads, forest roads, and KWS roads.

**(1) Urban roads**

Urban roads have three surface types: surface-dressed, gravel, and earth. Generally, road

maintenance in municipalities and townships is inadequate due to an insufficient budget and a lack of engineers and equipment.

**(2) Forest Roads**

Forest roads consist of two surface types: gravel and earth. Rutting, pavement softening and waterlogged roads are found on some sections.

**(3) KWS Roads**

KWS roads also have two surface types: gravel and earth. These roads are in the same condition as forest roads.

**(4) Sugar, Tea and Wheat Roads**

Sugar, tea and wheat roads also have two surface types: gravel and earth. Although rutting was found on some sections, road surfaces were in reasonably good condition.

| | |
|---|---|
|  <br>Bitumen Surface Road of Class A<br>(Nanyuki-Isiolo) |  <br>Earth Road of Class A<br>(Garissa Area) |
|  <br>Bitumen Surface Road of Class B<br>(Narok Area) |  <br>Earth Road of Class B<br>(Narok Area) |
|  <br>Gravel Road of Class C<br>(Londiani Area) |  <br>Bitumen Surface Road of Class D<br>(Baringo Area) |

**Figure 3.2.1 Photographs of Different Road Classes & Surfaces (1)**

Earth Road of Class E
(Nanyuki-Isiolo)

Urban Road
(Kisii Township)

Game Park Road
(Maasai Mara)

KWS Road
(Tsavo East)

Sugar Road
(Sony Co., Migori)

Forest Road
(Kakamega-Shinyalo)

**Figure 3.2.2 Photographs of Different Road Classes & Surfaces (2)**

### 3.2.3 Present Road Damage

**Damage Type**

Possible types of road damage in Kenya are as shown in Table 3.2.5.

**Table 3.2.5 Possible Types of Road Damage**

| Structure | Damage |
|---|---|
| Embankment | (1) Submerged (2) Collapsed |
| Pavement | (1) Settlement (2) Cracked (3) Potholed (4) Rutted (5) Waving (6) Waterlogged (7) Pavement softening |
| Gully | (1) Accumulation of debris (2) Settlement (3) Collapsed |
| Shoulder | (1) Washed out |
| Side Ditch | (1) Accumulation of debris (2) Settlement (3) Collapsed |
| Retaining Wall | (1) Cracked (2) Settlement (3) Collapsed |
| Slope | (1) Landslide (2) Rock avalanche (3) Protection wall collapsed (4) Cracked (5) Eroded |
| Culvert | (1) Accumulation of debris (2) Settlement (3) Collapsed |

**Pavement Damage**

On many bitumen-surfaced sections of pavement, cracking and potholes are numerous. However, some of this damage is repaired via either routine or periodic maintenance. As for gravel and earth roads, potholes, settlement, pavement softening, and rutting are prevalent. This damage is being repaired via routine maintenance. Figure 3.2.1 shows the main types of pavement damage.

**Slope Damage**

Erosion has occurred where drainage crossings are installed. This erosion has also caused the collapse of slope protection. Figure 3.2.3 shows slope damage.

**Shoulder Damage**

The only observed shoulder damage was washing out from water overflows.

**Embankment Damage**

Collapsed roads were found at river crossings or channels due to inadequate drainage capacity. Figure 3.2.4 shows an example of a collapsed road.

**Drainage Damage**

Two types of drainage damage were found. One is culvert collapse and the other the accumulation of debris in ditches and culverts. Figures 3.2.3 and 3.2.4 show examples of drainage damage.

**Repair Works**

Figure 3.2.5 shows the repair work of pavement, patching, and grading. Grading is carried out by machine or by manual labor.

| | |
|---|---|
|  |  |
| Cracking | Pothole |
|  |  |
| Water Logged Road | Erosion of Slope |
|  |  |
| Collapse of Pipe Culvert | Accumulation of Debris of Box Culvert |

**Figure 3.2.3 Photographs of Main Road Damage (1)**

| | |
|---|---|
|  |  |
| Accumulation of Debris of Ditch | Collapse of Road |
|  |  |
| Pavement Softening | Collapse of Slope Protection |
| | |

**Figure 3.2.4 Photographs of Main Road Damage (2)**

Patching of Pavement

Grading by Manual Labor

Grading by Machine

Overlay of Pavement

**Figure 3.2.5 Photographs of Repair Work**

## 3.3 Legal and Institutional Set up for Road Maintenance

### 3.3.1 Background and Present Situation

The Kenyan road network had been maintained by road agencies such as the RD of MORPW, the 167 local authorities under MOLG, the KWS under the Office of the President, and the Forest Department of MOENR. Furthermore, some roads in agricultural areas, producing items such as tea, coffee, sugar and wheat, were maintained by independent authorities and/or boards.

The road network in Kenya was mostly developed before the 1980s; however, road maintenance was ignored for a long time. Consequently, existing roads deteriorated to a very bad condition. In the 1990s, the Kenyan Government became more aware of the importance of road maintenance work, resulting in Parliament passing the Road Maintenance Fuel Levy Fund Act in 1993, which was amended in 1994, to establish a source of sustainable road maintenance funding. The amount of this fund has increased year by year since the beginning and reached about 8 billion Kenyan shillings in 2000/2001. Until the Finance Bill of 1997, these funds were mostly used for the repair/rehabilitation of classified roads. After this Bill's passage, the use of funding was widened to include not only classified roads but unclassified roads as well.

The widening of the RMLF resulted in the involvement of more road agencies, making the fund more difficult to manage. To increase accountability and better the performance of road agencies, the KRB Act was passed and then enacted on 1$^{st}$ July 2000. However, the Act failed to resolve several important issues. For example, the status of DRCs, the management of CESS and LATF funds, and the jurisdictional and administrative relationship between the KRB and local authorities. Due to these issues, the KRB system has not been able to become fully operational.

Several alternatives have been proposed to solve the problem of the status of DRCs. One of those proposals, as a practical solution, is the utilization of road sub-agencies to execute DRC maintenance work. However, the road maintenance capacity of existing road agencies is insufficient to cover the entire unclassified road network. If Class D and E roads and SPRs are allotted to DRCs, as has been recommended, this problem of road sub-agencies providing sufficient maintenance services becomes even more difficult. The sub-agency concept is quite reasonable, but the capability of sub-agencies is questionable. If this concept is to work, close cooperation between the existing DWOs of the MORPW and DRCs is crucial.

In any case, interim remedies to deal with the shortcomings of the KRB Act, including the above sub-agency concept, should be applied only for a limited period of time until comprehensive

legal solutions are reached.

Past major contributions of international Donors are presented in Appendix-1 of this report.

### 3.3.2 RD

Of the ministries in Kenya, the MORPW has been the key agency for road maintenance works. In compliance with the authorization of the "Road Authority Ordinance of 1961", the Minister of MORPW categorized roads into Class A through E and special purpose roads (SPRs), while remaining roads were categorized as unclassified roads.

The organization of MORPW is composed of four departments. Among them, the RD, which is positioned under the Engineer-in-Chief of the MORPW and plays a key role in road administration, is in charge of such work as programming the annual implementation plan, the allotment plan for the budget, and the acquisition plan for the equipmentof classified roads. After the annual maintenance schemes, road maintenance procedures are approved by the Minister of MORPW and maintenance works executed by district roads engineers (DRE) stationed at district works offices (DWOs). Instructions issued by the Engineer-in-Chief of MORPW is relayed to DWOs via provincial works offices (PWOs).

The main role of a PWO, excluding special projects, is to act as a liaison between the headquarters of the MORPW and the DWOs. Special projects would be managed directly by the provincial roads engineer (PRE). Guidance for the planning, monitoring and evaluation of district activities, etc., are carried out through PREs.

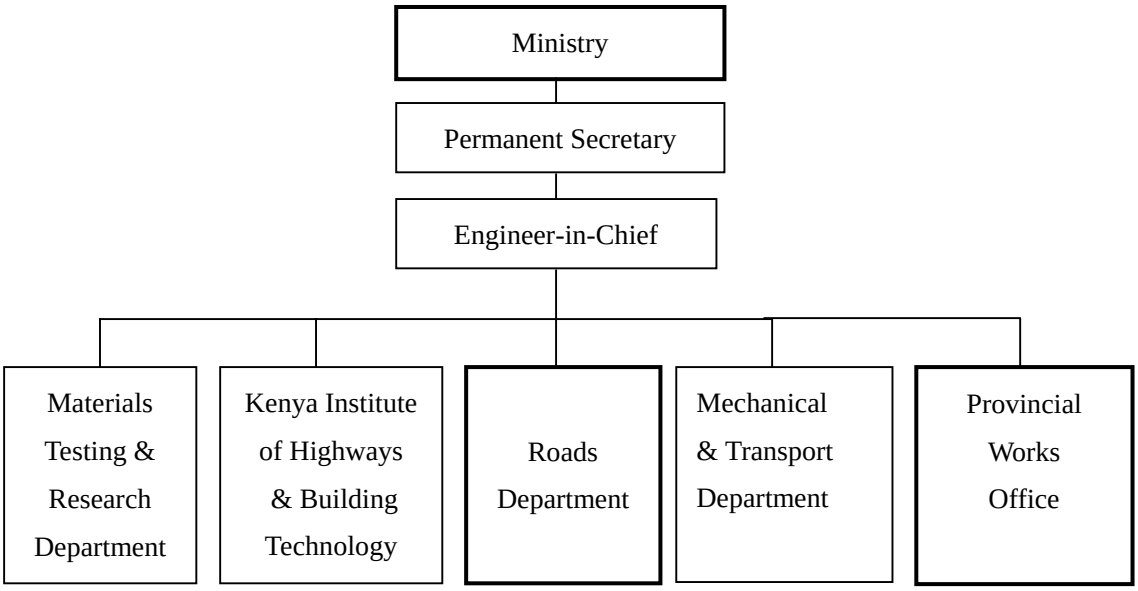



**Figure 3.3.1 Organizational Chart of MORPW**

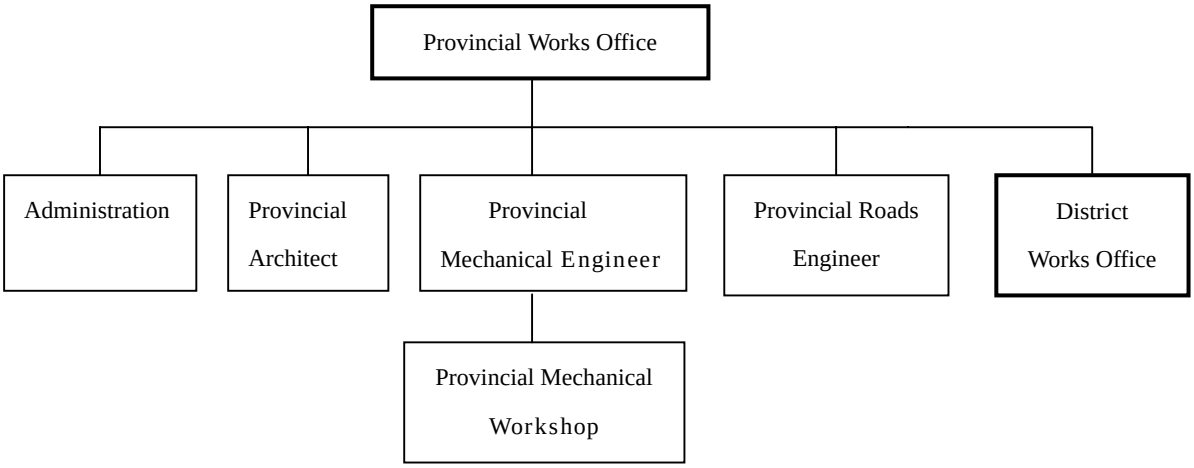



**Figure 3.3.2 Organizational Chart of PWO**

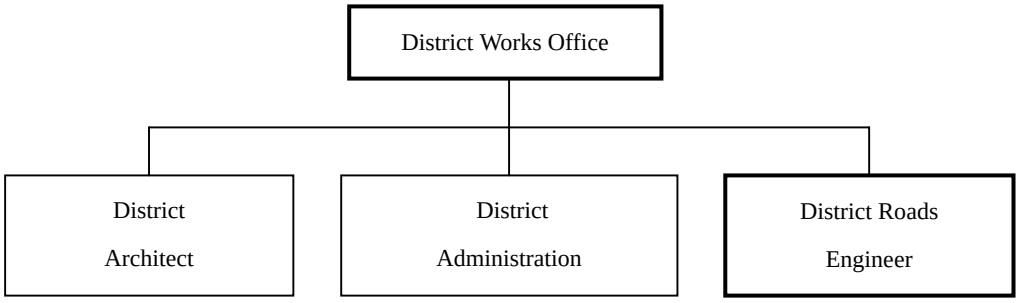



**Figure 3.3.3 Organizational Chart of DWO**

The actual execution of road maintenance work under RD has been mainly carried out by DREs after Government policy started focusing on the development of districts.

While RD has been discharging its role and tasks as a road agency under the above-mentioned system, RD has also been given a new role as one of the three road agencies defined in the KRB Act, complicating its position in the MORPW. RD is composed of five branches: Planning, Design, Bridges, Technical Administration, and Maintenance. It is not clear that all of these branches, or only the Maintenance branch, will become part of the KRB system. The other issue is who has the right and power to appoint the head of RD, who has the important function of appointing the Chairman of the KRB.

The Interim Steering Group (ISG) had recommended that RD be responsible for the maintenance of Class A, B and C roads only. This recommendation itself seems to be quite reasonable, since A, B and C roads serve as international and national trunk roads that support the country's economy, it is best to have the most experienced road agency (i.e., RD) maintain them as an integrated whole. Accordingly, these roads should be uniformly controlled in regards to traffic regulation, vehicle weight, vehicle-running speed, road signs, and maintenance procedures. Maintenance should be fully supported by the Road Maintenance Fuel Levy Fund.

On the other hand, once RD becomes responsible for Class A, B and C roads only, RD should change its basic maintenance system from being district based to being regional based. The total length of the classified road network is about 63,942 km and had been maintained by 70 DWOs, while the total length ofA, B and C roads is only 14,322 km in length. This means a DWO that previously had handled about 913 km of road on average would now only be responsible for about 205 km of road under the new system. This is too short for a road maintenance office. That is, taking into account the size of the organization, efficiency, and accountability, one road maintenance office should handle more than 1,000 km of road. Accordingly, there should only be a maximum of nine or ten offices under the RD. At present there are eight PWOs in the MORPW, or an office in each province. On the other hand, the locations of these PWOs are not suitable for managing the international and national trunk road network. Therefore, new locations for regional offices based on new arrangements are proposed (see Chapter 7.3).

### 3.3.3 MOLG/ DRCs

There are one hundred and sixty-seven local authorities, which consist of cities, municipalities, townships, and counties, etc. Each local authority has its own administrative organization that includes a road maintenance unit that handles the maintenance work of roads within their

respective administrative territories. All local authorities have direct access to the MOLG and there is no intermediate organization at the provincial level as in the case of MORPW. Orders and/or instructions issued from the Head Office of MOLG reach the local authorities directly.

Funding for road maintenance for local authorities had come from the fuel levy, CESS and LATF. However, the KRB Act does not specify the allocation of funds to local authorities, since they are not recognized as road agencies under the Act. Instead, DRCs have been specified as road agencies, meaning that local authorities within a particular district have to become part of a DRC to be considered for funds.

However, due to Members of Parliament being included as committee members, DRCs are at present not legally authorized to discharge all their powers as road agencies. This has resulted in the utilization of the concept of sub-agency in order to function properly. That is, a sub-agency, such as RD, KWS or some existing local government road maintenance unit, will execute road maintenance work on behalf of a DRC upon approval of its designation by KRB.

Local authorities prior to the establishment of the KRB system had managed the unclassified road network, which totaled 134,035 km in length. However, with the KRB system came the inclusion of Class D and E roads and SPRs under the jurisdiction of the DRCs, resulting in the length of road under the responsibility of local authorities (i.e., the DRCs) increasing to 183,655 km. This means that DRCs shall manage on average 2,685 km of road. This seems too much for any single DRC to handle.

Because of the complicated present situation of DRCs, such as the larger road network to manage, the lack of capacity to execute road maintenance work themselves, and the existence of competing local entities within a district, the sub-agency system will not be easy for KRB to manage. Accordingly, it is recommended that the legal status of DRCs as road agencies be resolved as quickly as possible.

### 3.3.4 KWS and Others

KWS is also specified as a road agency under the KRB Act, but the Forest Department (FD), the Sugar Board, and other entities that maintain their own roads are left un-specified.

KWS has its own road department that is capable of executing maintenance work on roads in parks and game reserves regardless of a road's classification. For example, MORPW has empowered KWS to maintain classified road segments in KWS territory and re-allocated funds

for this work from MORPW.

Forest roads, as defined by the Ministry of Environment and Natural Resources (MOENR), are maintained by the FD. FD has its own road classification that contains descriptions on such roads as access, feeder, and plantation roads (see below).

- An access road is a road that connects a plantation to a public road.
- A feeder road is a road that connects an access road to a plantation.
- A plantation road is a road that runs inside plantations.

Maintenance work for feeder and plantation roads are carried out at harvest time by force account. Access roads should be maintained throughout the year, but these are not maintained properly because of a shortage of money. Funding for the maintenance of these roads has been provided by the MOENR. FD sometimes contracts out road maintenance work to the private sector in the case of urgent repairs and/or for big-scale work. Generally, however, FD carries out maintenance work via force account.

The Ports Authority has no particular unit within its organization to maintain ports and access roads. The Authority contracts out road maintenance work usually with its own funds.

Some boards and agencies, such as those for tea, coffee, sugar, maize, wheat and other agricultural products, have their own units for carrying out road maintenance. However, they generally contract out this work with some funding coming from the CESS.

### 3.3.5 Maintenance Work Methodologies

Some road agencies retain a certain number of engineers and workers for the execution of road maintenance work via force account. However, if the employment of casual laborers for the tempory maintenance work is categorized as contract-based work, the majority of road maintenance in Kenya can said to be contracted out.

RD generally contracts out road rehabilitation work, while DWO engineers carry out routine maintenance using permanent employees and casual laborers.

Unclassified roads are managed by the local authorities but are generally poorly maintained, despite receiving assistance from the DWOs under MORPW in most cases. About 90% of the road maintenance funds in Nairobi were disbursed for wages and only 10% were spent on work directly.

There is, however, a trend towards phasing out the force account method because of its ineffective use of funds as compared to the contract-out method.

### 3.3.6 Equipment

More than two thousand pieces of equipments are held by the Mechanical and Transport Department of MORPW. However, the majority is obsolete, with only about 30% of this equipment usable at present and more than 30% remaining un-repaired because of a lack of spare-parts. Some major contractors own a certain amount of construction equipment. Leasing of construction equipment, on the other hand, is still not widespread at present.

### 3.3.7 Transition Issues

Setting up and/or restructuring the KRB, RD, DRC, KWS and their offices are essential to make the KRB system fully operational. To achieve this, the resolution of legal conflicts between the Act and other existing laws and the education and training of officials and engineers are key factors. A three year-time period is assumed in this report to be the required minimum to deal with these factors to fully establish the new system. This time period is considered to be a transition period, and an action plan is given in Chapter 7.

## 3.4 Funding for Road Maintenance

### 3.4.1 Sources

**(a) General**

A detailed review and discussion on funding will be presented in Chapter 6. Here, the general situation concerning funding is described.

With the recognition of the adverse impact that comes from the poorly maintained road network on the Kenyan economy, new methods for obtaining sufficient and sustainable road maintenance funding were sought. In 1984, the Kenyan Parliament passed the “Public Road Toll Act”, which levied a charge on motor vehicles using major roads, to supplement road maintenance funding. However, the monies collected from this were insufficient and resulted in a further deterioration of the overall road network.

Accordingly, Kenya joined the Road Maintenance Initiative (RMI) sponsored by the World Bank and other international agencies in 1991 to deal with its road maintenance problem. The eventual

consequence of Kenya's participation in the RMI was the passage of the Road Maintenance Levy Fund (RMLF) Act in 1993 and its amendment in 1994. Furthermore, the Kenya Roads Board (KRB) Act was passed in 1999. The RMLF, which consists of a levy on fuel oil producers and a transit toll on foreign heavy vehicles, has the purpose of obtaining sustainable road maintenance funding, and it has actually resulted in a large increase in the amounts of monies available for road maintenance. The KRB, which includes representation from the private sector, has the purpose of achieving more effective management of the RMLF.

There are other resources that have been used for road maintenance, such as the CESS, LATF, Treasury funding, and Donor contributions. CESS is a sort of tax levied on the transactions of agricultural products. LATF, which means local government transfer fund, is allocated to the local authorities and is equal to 5% of the Central Government's annual revenues. The other two sources of funds are not fixed and fluctuate from year to year. These funds have been used for road maintenance work by the local authorities. However, as mentioned previously, with the establishment of KRB, the current situation regarding the usage of these funds has become unclear. For example, the KRB Act and the Interim Steering Group (ISG) did not specify anything about the relationship between DRCs and local authorities concerning the transfer of the rights and power of the usage of maintenance funds derived from CESS and LATF.

Finally, there are organizations that finance their own road maintenance with revenues from the services that they provide, such as the KWS that uses entrance fees collected from visitors to national parks, reserves and sanctuaries.

**(b) Forest Department (FD)**

In the case of the FD of the MOENR, the sale of forestry products serves as a source of funding to finance the maintenance of its roads.

**(c) Ports Authority**

The Ports Authority is entitled to collect fees and levies on cargo and shipping. The Authority allocates a certain amount of money collected from these fees and levies to finance port road maintenance, which is generally contracted out. Access roads, which connect ports with trunk roads, are maintained by the Port Authority with their own funds. No money comes from the MORPW.

**(d) Other Possible Funds**

In addition to the Transit Toll, a vehicle weight levy might be collected not only from transit cargo vehicles, but also from domestic goods vehicles as well, since the weight of these vehicles

significantly affects the life span of road pavement.

### 3.4.2 Collection and Remittance of Funds

**(a) Fuel Levy**

Upon the delivery of oil products, the oil companies specified in the RMFL Act shall collect their monies from the buyers and transfer the required fuel levy to the Commissioner of Customs (CC) every 10 days. The CC hands over checks received to the Customs Department in the Kenya Revenue Authority, which consolidates these payments into one check made payable to the Kenyan Ministry of Finance. MOF has until now controlled the monies deposited in the RMLF account. That is, based on the annual work schemes drafted by the MORPW and MOLG, MOF decided the amounts to be disbursed to MORPW and MOLG, respectively. However, with the KRB Act, the RMLF should now be deposited in a KRB account, with KRB then responsible for the disbursement of RMLF monies.

**(b) Transit Toll**

Transit tolls are collected by the officials of MORPW working at toll stations located throughout the country. The collected monies are deposited in the RMLF account as same as the fuel levy.

**(c) CESS**

CESS is usually collected by local officials at the transaction centers of the independent authorities, agencies and/or boards in charge of the respective agricultural products. The management of CESS monies however is not standardized. Some boards hand monies over to the local authorities, while others send it directly to the MOLG. The authority that manages wheat, maize, and beans has centers in every district the country. They have a duty to deliver their products to any district upon request. However, it is difficult to transport their goods because of the poor condition of local roads. They are critical of the performance of the local authorities for this reason. This criticism of receiving insufficient value for money from the CESS in regards to the condition of farm-to-market roads is common. As a result, there seems to be a trend of agricultural boards not remitting all CESS monies to local authorities and keeping certain amounts for themselves in order to ensure that needed road maintenance work is carried out.

### 3.4.3 Usage of Funds

The Fuel Levy Fund, as specified under the Fuel Levy Fund Act, is exclusively for road maintenance and repair work. It is recommended in this report that this policy be adhered to. That is, from a cost-effectiveness perspective, it is crucial to ensure that the existing maintainable road

network be kept from deteriorating any further. Rehabilitation and reconstruction would be paid with monies from the general account, Donor contributions, or from other sources.

## 3.5 Performance of Road Maintenance Work

### 3.5.1 Classified Roads

Maintenance work on the classified road network had been carried out under RD. RD, however, had been using its limited funding more for rehabilitation than for maintenance work. Although this results in the rehabilitated roads being put back in good condition, portions of the maintainable network become non-maintainable because of inattention and the vicious cycle of having to do more rehabilitation continues. It is important, as just mentioned, to maintain what is capable of being maintained; otherwise, the whole network is at risk of falling apart.

Furthermore, it has been observed that there has been some confusion arising from the implementation of the new KRB system in regards to what roads road agencies should be responsible for and how they should fulfill those responsibilities. It is very important to clarify as quickly as possible the responsibilities of the road agencies and the schedule for transferring responsibilities when required.

### 3.5.2 Unclassified Roads

In general, the performance of road maintenance in Kenya cannot be ranked among the top countries of Africa. Especially, the condition of unclassified roads (both urban and rural), which come under the control of the local authorities, is very poor due to a lack of funds, inadequate equipment, etc. Complaints on intolerable road conditions and bad service are often reported in the newspapers.

On the other hand, the performance of the KWS and Forest Department is relatively commendable. KWS has maintained not only its own roads within its parks and reserves, but also the classified roads connecting the entrances to these areas. For the convenience of visitors to its parks and reserves, KWS is obliged to maintain some of the roads of RD, which (because of a set of different priorities) does not place as high a premium on these roads as KWS. FD maintains its roads in order to carry out necessary harvesting of forests, and road maintenance work usually consists of reshaping earth and/or gravel roads.

The Ports Authority, with its revenue from levies on cargo and port users, keeps port roads and

their access generally in fair condition. Maintenance work is usually contracted out.

## 3.6 Road Maintenance Capacity

### 3.6.1 Road Maintenance Capacity of Force Account

The comments below are based on data provided in questionnaires returned by the various organizations after completion of the Field Surveys. A table giving a summary of the comments is contained in Appendix 3.6.1.

#### (1) Ministry of Roads and Public Works

##### 1) Provinces

The use of force account varied from 20%, through 'used extensively', to '100% of routine maintenance'. All quoted inadequate staff, funds and equipment as a limitation. No real conclusions can be drawn from such comments. We have the impression that where equipment is required, this work is often contracted out. So the percentage would seem to be dependent on availability of in-house equipment and whether there are local contractors available.

##### 2) Districts

Of the eighteen districts interviewed, seven used force account for more than 70% of their works, one for a 'high proportion', and one for 50%. A further six did 100% of their routine maintenance works using force account.

Casual laborers are often hired to carry out force account maintenance works and again the lack of funds and equipment, together with lack of staff occasionally, are the limiting factors. From these returns, the vast majority is doing 100% of their routine maintenance work under force account and some are doing periodic maintenance work as well. We believe this is determined by the availability of serviceable equipment in a district.

#### (2) Local Government / Authority

##### 1) City (Nairobi)

All routine maintenance work is carried out via force account.

##### 2) Municipality

Only seven out of fourteen municipalities provided any useful data. Of the seven, three carried

out 100% of their maintenance work via force account. Of the other four, they varied from 4% in Garissa to 25% in Busia. It is difficult to draw any conclusions from such varied returns.

**3) County**

Three county councils were interviewed and two carried out 100% of their maintenance work under force account and the other only 20%.

**4) Township**

Only one township was interviewed so this is not a realistic sample. Migori does not carry out any work under force account but it also has no ongoing work at this time.

**(3) Kenya Wildlife Services**

According to the regional offices, most work is carried out under force account whereas the Headquarters is reporting only 21%. There is a limitation of staff and equipment in some areas.

**(4) Forest Department**

Three FD offices were interviewed and two carried out 100% of their maintenance work under force account and the other said that 'most work' is done under force account.

They employ casual laborers as required.

The FD has particular needs in terms of emergency teams for fire protection and short-term notice for tree planting and felling. In some regions they seem to have security problems regarding poaching and fire risk and so they prefer to use in-house teams for some of their work.

**(5) Tea, Sugar and Wheat Roads**

No interviews were carried out for tea or wheat roads. For sugar roads, one organization said 100% of routine and periodic maintenance work is via force account for gravel and earth roads.

### 3.6.2 Perspective of Road Maintenance by Contracting Out under the KRB

Two key government strategies under the KRB system have been:

- To increase the use of labor-based methods where appropriate, and
- To increase the use of contractors for all maintenance work.

**(1) Kenya Roads Board (KRB)**

KRB must decide how to proceed with these policies given their remit in the KRB Act 'to achieving efficiency, cost effectiveness and safety.' The Roads 2000 project provides some useful experience to compare the costs, and the advantages and disadvantages of labor-based versus equipment-based methods.

As there is a lack of experienced contractors in some regions, the short-term policy may have to have some flexibility to deal with the variations across the country. KRB must consider best value for money and consider advising the road agencies to use contractors where available and appropriate.

If the policy is to encourage more contractors, then regions where insufficient numbers of contractors are available should be quickly identified and appropriate training programs put in place to improve the situation for the future. In recent years, a number of labor-based contractors were trained under Roads 2000 but the subsequent lack of work meant that not all could use and develop the skills they had been taught. Any training programs need to be carefully targeted to suit the future workload projections.

More use of contractors should provide the continuity of work that has been lacking in recent years. This should be more attractive to the private sector and should mean more competitively priced tenders and hence lower costs to the GoK for contracted works. During the field surveys, we were frequently informed that local suppliers were forced to increase their prices on government contracts to cover finance costs because of the delayed payments by the government. If KRB can ensure the prompt payment of bills to suppliers, then some of the materials prices will be reduced by a significant percentage, providing a considerable savings where large quantities are involved over a financial year.

During the field surveys, it was observed that a very high percentage of the equipment was obsolete, and of the remainder, many items were in the workshops because there was not enough money in the budget to buy the spare parts or to carry out the repairs. This is a totally inefficient way to manage an equipment fleet. In many areas, any work requiring equipment was put out to contract because no in-house equipment was in a serviceable condition. The future strategy for the Mechanical and Transport Department must be given some careful consideration.

KRB needs to have a very close look at the policy of contracting out maintenance works in terms of cost effectiveness and the need to provide policy guidelines to the road agencies.

### (2) Roads Department (RD)

Under the KRB Act, the role of the RD is focused solely on Class A, B and C roads. This presents an opportunity for the RD to reorganize itself on a Regional or road network basis rather than on a district basis. There will need to be considerable downsizing and retraining of staff, and a range of options is discussed in the later sections our report.

### (3) District Roads Committees (DRCs)

Under the KRB Act and the subsequent guidelines for the setting up and working of the DRCs, the DRCs have the power to procure services, goods or equipment using procurement procedures laid down by KRB. DRCs may enter into such contracts up to the value of Ksh 20 million without reference to KRB. DRCs shall be responsible for the preparation of all contract documents.

At this time, no procurement guidelines have been issued by KRB to the DRCs and no standard contracts have been prepared or approved by KRB. In the interim, existing contracts will have to be adapted to suit DRC requirements.

The DRCs do not have their own resources and it is not precisely clear whether there is any intention to develop actual maintenance capability in the future. It is likely that they will continue to utilize existing staff and equipment in their districts. This may involve the DRE, county councils, municipalities, townships and private contractors: whoever has the appropriate staff and equipment for the work required. It is also likely that the DRCs will continue use the KWS and Forest Department for those roads now under DRC responsibility.

The Forest Department has some security and environmental concerns and they may need to retain a limited force-account team.

In the future, the DRCs have the option to contract out for some or all of the maintenance work under their control with the supervision and certification of contracted work being carried out by the DRE and his team. The appropriate policy will have to be developed by the DRCs together with KRB to achieve value for money from the funds available and to suit the situation in each district.

The High Court action over the involvement of MPs on the DRCs is likely to result in the DRCs becoming a non-executive body, with sub-agencies carrying out executive functions of the DRC. This issue is discussed later in our report.

**(4) Kenya Wildlife Services (KWS)**

KWS does not see any need to contract out routine maintenance work. They have security and environmental issues to consider, so the policy of contracting out has to be carefully considered.

Although KWS is an Agency under the KRB Act, its funding would come from three sources and not directly from the KRB:

(i) RD for Class A,B and C roads
(ii) DRCs for all roads of Class D and below, which could involve several DRCs that a park or reserve might extend across.
(iii) KWS funds obtained from gate fees to enter parks.

In regards to (i), KWS has generally had no problems in the past. On the other hand, as for both (i) and (ii) in the future, policy could be dictated by other agencies on the basis of cost-effectiveness solely without due consideration to KWS concerns. KWS does not currently have a position on the DRCs. KRB is, however, considering this issue and has proposed a solution that should avoid the perceived difficulties.

### 3.6.3 Maintenance Equipment

**(1) General Issues**

At present all organizations responsible for road maintenance, i.e., the Ministry of Roads and Public Works (MORPW), Kenya Wildlife Services (KWS), Forest Department (FD), Local Authorities under the Ministry of Local Government (MOLG) and several boards of the agricultural industry, have a pool of equipment to enable them to carry out work on a force account basis. When their owned equipment is not enough to carry out the work, they lease (with rental charge)/borrow (without rental charge) the necessary equipment from other organizations or private firms. The owned equipment repair is being carried out both by in-house mechanics and sometimes private garages. Most of these organizations have been suffering from the major problems as described below.

(a) Lack of budget for procurement of spare parts and the replacement of equipment, due to large expenditure on administration.
(b) Lack of appropriate equipment for maintenance and a surplus of obsolete equipment.

## (2) Mechanical and Transport Department (MTD)

### 1) Introduction

The Mechanical and Transport Department (MTD) of the Ministry of Roads and Public Works (MORPW) was originally established to provide plant, equipment, and vehicle services to all ministries of the Government of Kenya (GOK). In addition the department provides technical advice to other government ministries and public institutions. Recently, however, its activities have concentrated upon providing plant and equipment services to the Roads Department (RD) of MORPW. Until the early 1980's a relatively effective equipment service was provided. Rental charges had been established to cover the adequate provision of spare parts and equipment replacement. However, the inability of ministries to pay for the rental charges resulted in the collapse of the rental scheme. Moreover, the GOK's annual budget and periodic injections of donor-funded equipment has not been sufficient to provide the necessary resources and there has been a continuous decline in the effectiveness and morale of MTD.

**Strategic Plan**

The MTD made a Strategic Plan in 1997 that responded to the national trends of rationalization and retrenchment of government organizations. The Strategic Plan, Medium Term Expenditure Framework (MTEF) and Poverty Reduction Strategy Paper (PRSP) recognize the present weaknesses of MTD and the need for fundamental change. The Strategic Plan concluded that radical change was necessary.

Road maintenance will progressively be contracted out to the private sector although some limited capacity for urgent maintenance shall be retained.

For maintenance, labor-based methods using light equipment will take over many of the functions now undertaken by equipment-based methods. There is also the need to encourage the development of small/medium-scale contractors. Such contractors are unlikely to possess large resources such as plant and heavy equipment (e.g., bulldozers and graders), but will need access to light/intermediate equipment through either rental or the purchase of new/ secondhand equipment.

The Strategic Plan proposed the following changes:

- A substantial reduction in the size of MTD's holding of plant and equipment from 3,000 to 1,500 pieces.

- Establishment of a semi-autonomous government agency and the creation of a commercialized plant pool providing services to both the public and private sector.

**Progress of Commercialization**

In accordance with the Strategic Plan, MTD has recommended a new organizational structure for its operation. MTD has identified regional workshops that would be created with existing provincial workshops and is implementing a program to reorganize its staff with the aim of strengthening these regional workshops. The role of a regional workshop will be:

- To ensure the availability of equipment for an entire region, and
- To ensure the funding for implementation and to provide sufficient maintenance and repair services.

Establishment of sub-regional workshops (using existing district workshops) is also proposed to carry out preventive maintenance and minor maintenance works on a district basis, and to ensure that the equipment in their area is properly utilized, maintained, and available for work in other parts of the region when required. The regional/sub-regional workshops will also provide technical services concerning motor vehicles and plant to government departments and public institutions in their area.

Further changes to the organizational structure and commercialization process of MTD, based on a feasibility study sponsored by the World Bank, will be carried out. The study will commence during the fiscal year 2001.

**2) Organization**

**Function**

The Provincial Works Officer (PWO)/District Works Officer (DWO) is the head of all construction and maintenance works for classified roads at the provincial/district level.

Before KRB's enactment, the Provincial Road Engineer (PRE) managed periodic maintenance work for all classified roads as well as District Road Engineer (DRE) did routine maintenance work. Currently, their original function is changing to the new system under the KRB Act (i.e., PRE manages class A, B and C roads, DRE does class D, E and other roads). In the short term, both the original and new functions are in use in the province/district.

The Provincial Mechanical Engineer (PME)/District Mechanical Engineer (DME) is in charge

of workshop and maintenance of all the plant and equipment at the provincial/district level. The PME/DME, provides the required resources (plant and equipment and staff to repair and maintain it) to the respective roads engineer (i.e., PRE/DRE) on instructions from the PWO/DWO in the province/district.

The DRE/DME report to their respective provincial superiors (i.e., PRE/PME) on technical matters, but to the DWO on administrative matters.

Technically, the PRE reports to the Chief Engineer (Roads) while the PME reports to the Chief Mechanical and Transport Engineer (CMTE). The current organization chart for MTD is shown in Figure 3.6.1.

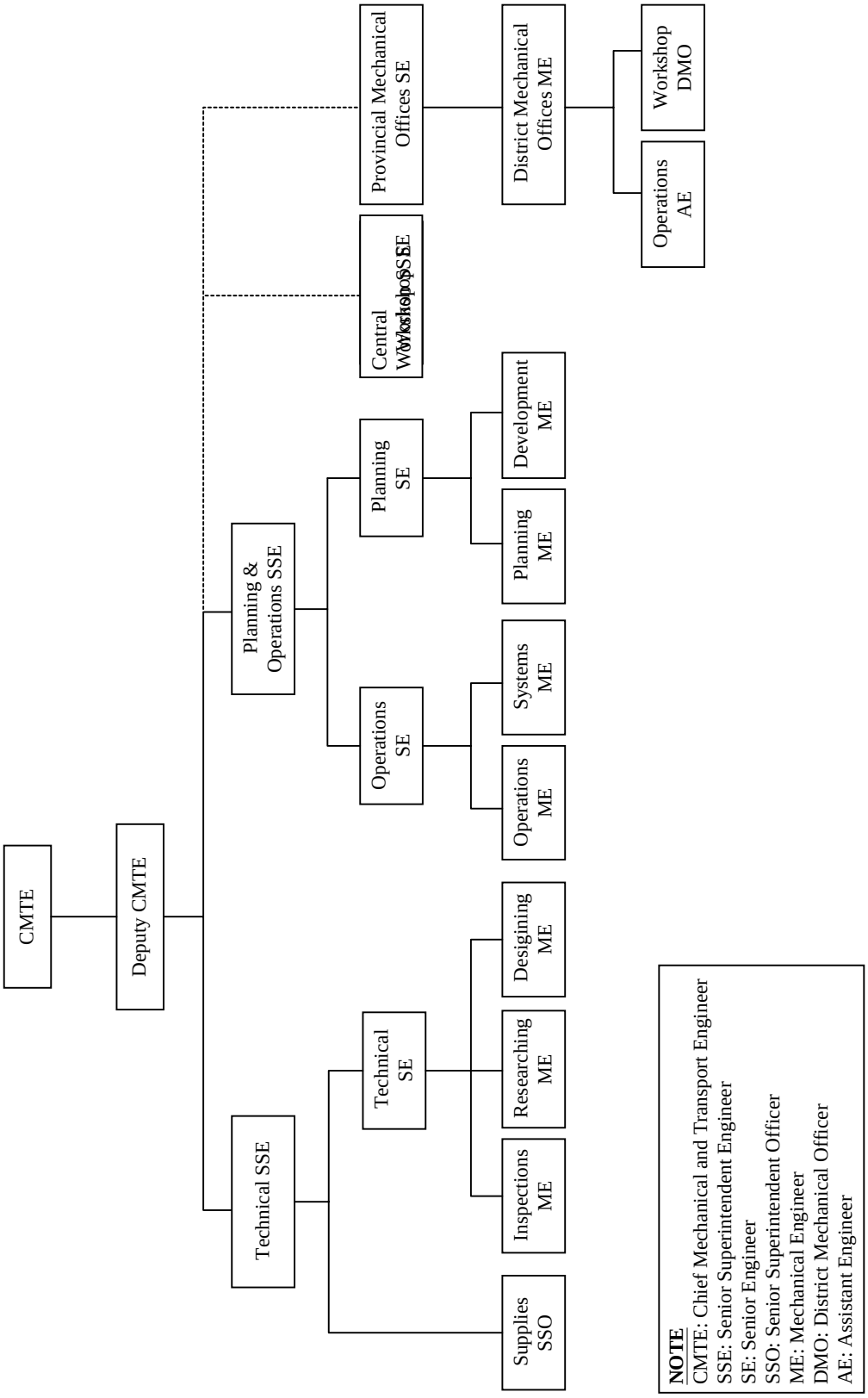


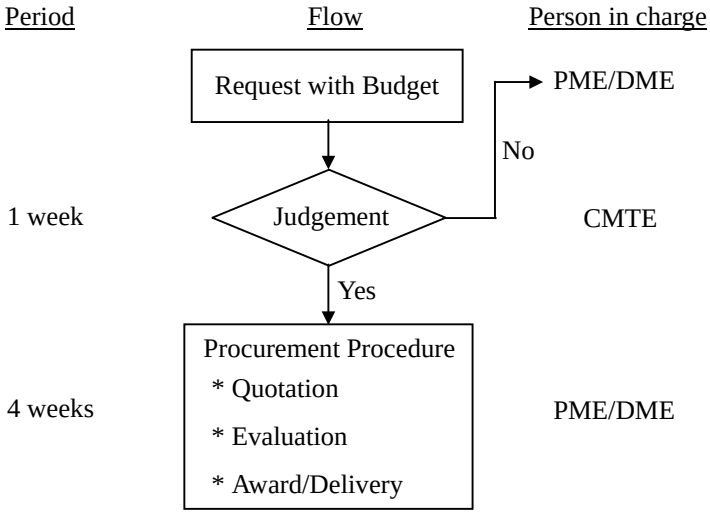

**Figure 3.6.1 Current Organization Chart of the Mechanical and Transport Department**

**Equipment Procurement Procedure**

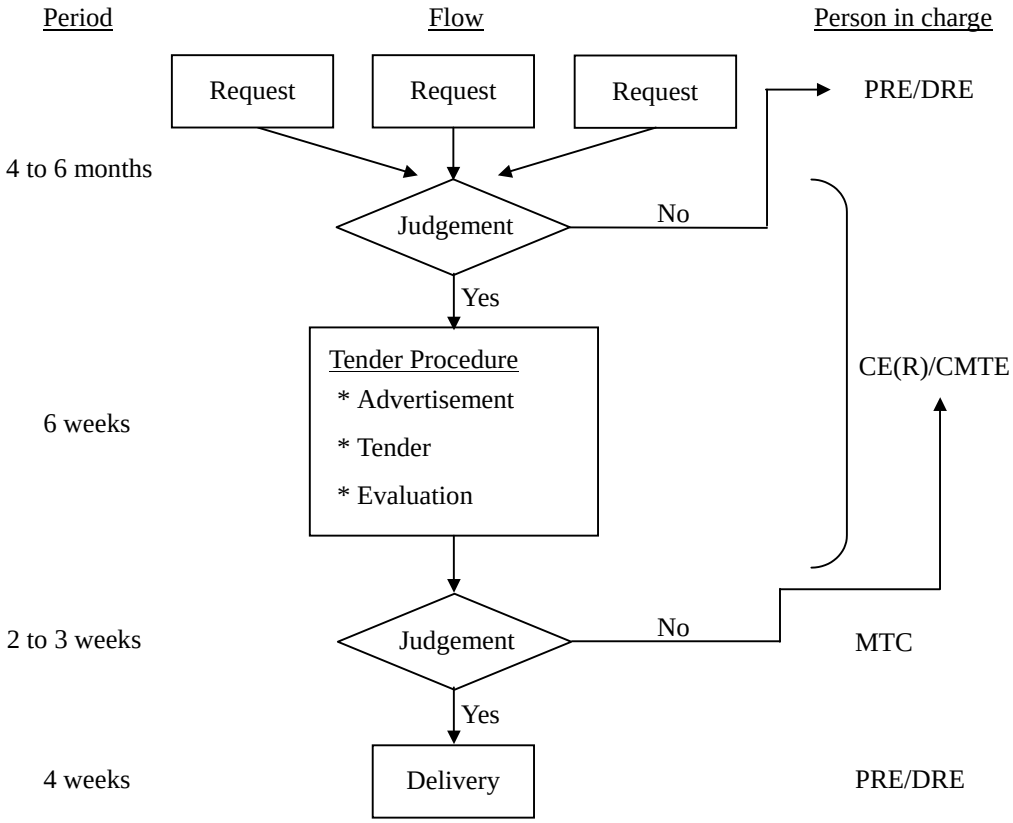
For the purchase of spare parts, for items costing less than Ksh. 10,000, the DME/PME can purchase directly with cash. For spare parts costing more than Ksh. 10,000, the PME/DME shall submit a request to the CMTE with his budget estimate. If CMTE approves the request and funds are available, then PME/DME carries out a procurement procedure for the designated item (i.e., quotation, evaluation, award and delivery).

For the purchase of new equipment, the PRE/DRE makes an application to CE(R)/CMTE collects such application from all provincial/district offices and when there are sufficient items to warrant a tender, CE(R)/CMTE carries out the formal tender procedure (i.e., tender advertisement, tender and evaluation). After review and approval by the Ministry Tender Committee (MTC), the supply is confirmed and the equipment is delivered to the province/district. This procurement procedure is shown in Figure 3.6.2

## Spare Parts




## Equipment




NOTE

CMTE: Chief Mechanical & Transport Engineer
PME: Provincial Mechanical Engineer
CE(R): Chief Engineer (Road)
DME: District Mechanical Engineer
PRE: Provincial Road Engineer
MTC: Ministry Tender Committee
DRE: District Road Engineer

**Figure 3.6.2 Flow of Procurement Procedure**

**Issues**

Purchasing spare parts takes at least 5 weeks, and occasionally the budget of CMTE is not enough to comply with the request, the PME/DME has to wait until budget of CMTE is sufficient. This is a very uncertain factor and a constraint for the management of the equipment service.

Regarding the purchase of equipment, the issue is more serious. The requests of PRE/DRE are held at CE(R)/CMTE until sufficient requests from after provinces/districts are received to make a viable tender. It is therefore almost impossible to estimate the date of purchase. Furthermore, this situation has caused delays to related road maintenance works and so the reliability of the equipment service has been lost.

**3) Level of Service**

**Current Status**

The level of service provided by MTD seems very poor in terms of both the availability and utilization of equipment. According to an equipment inventory executed by MTD, there were 3,325 pieces, consisting of vehicles, plant and equipment. The summary of the inventory is listed in Table 3.6.1.

**Table 3.6.1 Status of Equipment (MTD)**

| Item | Status | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | Serviceable | | Under Repair | | Unserviceable | | |
| | No. | % | No. | % | No. | % | |
| Flat bed | 50 | 26.0 | 37 | 19.3 | 105 | 54.7 | 192 |
| Tipper truck | 63 | 31.8 | 45 | 22.7 | 90 | 45.5 | 198 |
| Agricultural tractor (4x2) | 138 | 32.2 | 96 | 22.4 | 194 | 45.3 | 428 |
| Agricultural tractor (4x4) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Supervision vehicle | 164 | 25.9 | 68 | 10.7 | 401 | 63.3 | 633 |
| Crawler tractor | 10 | 12.2 | 29 | 35.4 | 43 | 52.4 | 82 |
| Motor grader | 67 | 19.1 | 70 | 20.0 | 213 | 60.9 | 350 |
| Pedestrian roller | 15 | 20.5 | 21 | 28.8 | 37 | 50.7 | 73 |
| Steel wheel roller | 11 | 18.0 | 18 | 29.5 | 32 | 52.5 | 61 |
| Pneumatic roller | 3 | 11.1 | 7 | 25.9 | 17 | 63.0 | 27 |
| Bitumen distributor | 6 | 33.3 | 4 | 22.2 | 8 | 44.4 | 18 |
| Bitumen premix | 3 | 20.0 | 3 | 20.0 | 9 | 60.0 | 15 |
| Asphalt paver/finisher | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Road marking machine | 2 | 50.0 | 1 | 25.0 | 1 | 25.0 | 4 |
| Concrete mixer | 18 | 36.0 | 1 | 2.0 | 31 | 62.0 | 50 |
| Generator | 1 | 33.3 | 1 | 33.3 | 1 | 33.3 | 3 |
| Compressor | 0 | 0.0 | 3 | 33.3 | 6 | 66.7 | 9 |
| Water tanker | 2 | 8.0 | 4 | 16.0 | 19 | 76.0 | 25 |
| Bitumen hand sprayer | 11 | 37.9 | 6 | 20.7 | 12 | 41.4 | 29 |
| Mechanical broom | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Water trailer | 37 | 29.6 | 33 | 26.4 | 55 | 44.0 | 125 |
| Prime mover/Tractor | 3 | 20.0 | 3 | 20.0 | 9 | 60.0 | 15 |
| Towed trailer | 186 | 24.9 | 178 | 23.8 | 383 | 51.3 | 747 |
| Wheel loader | 16 | 19.0 | 20 | 23.8 | 48 | 57.1 | 84 |
| Excavator | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Fuel tanker | 12 | 30.8 | 10 | 25.6 | 17 | 43.6 | 39 |
| Towed roller | 6 | 33.3 | 4 | 22.2 | 8 | 44.4 | 18 |
| Water pump | 6 | 26.1 | 6 | 26.1 | 11 | 47.8 | 23 |
| Mobile crane | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Mobile workshop | 23 | 51.1 | 10 | 22.2 | 12 | 26.7 | 45 |
| Service vehicle | 9 | 52.9 | 5 | 29.4 | 3 | 17.6 | 17 |
| Heavy trailer | 3 | 20.0 | 4 | 26.7 | 8 | 53.3 | 15 |
| Total | 865 | 26.0 | 687 | 20.7 | 1773 | 53.3 | 3325 |

Source: Chief Mechanical and Transport Engineer's Office
Note: Unserviceable means 'uneconomical to repair'.

According to Table 3.6.1, only 26.0% of plant and equipment is serviceable and 53.3% are uneconomical to repair. However, district reports show much lower levels of availability. RD is now moving to lease equipment from the private sector when MTD equipment is unavailable or unreliable. Where there are large shortages of spare parts, cannibalization of plant and equipment is thought to be widespread.

MTD engineers use standardized checklists to maintain equipment and plant at Provincial and District Workshops and at the Central Workshop. A sample is shown in Appendix 3.6.2.

**Issues**

Such a low rate of serviceability is caused by the shortage of funds. Table 3.6.1, 687 pieces of equipment (i.e., 20.7% of the total number) are 'under repair', but actually the majority of them are grounded in the workshops because of unavailability of spare parts. To recover from the current position, spare parts should be obtained as a matter of urgency.

### 4) Funding

**Actual Allocation**

In fiscal year 2000, MTD requested a budget of Ksh. 439,722,093. However, the actual money eventually allocated was only Ksh. 198,396,657 (see Table.3.6.2), or 45.1% of the original amount requested. For non-labor items (e.g., the replacement and purchasing of equipment and spare-parts), the actual allocation was on average 4.5% of the amount required. Another important issue is that about 96% of the total money allocated was for staff and administrative costs. This critical situation is indicative of a failure in management.

**Table 3.6.2 MTD Budget for FY 2000** (unit: Ksh.)

| Item | | Request | Allocation | % (Allocation /Request) |
|---|---|---|---|---|
| Non-labor | Replacement of Motor Vehicles | 10,000,000 (2.3%) | - | 0.0 |
| | Purchase of Plant & Equipment | 28,000,000 (6.4%) | 20,000 (0.0%) | 0.07 |
| | Purchase of Spare-Parts | 46,000,000 (10.5%) | 981,950 (0.5%) | 2.1 |
| | Maintenance of Plant, Machinery & Equipment | 74,618,859 (17.0%) | 5,993,844 (3.0%) | 8.0 |
| | Maintenance of Buildings | 3,500,000 (0.8%) | 227,010 (0.1%) | 6.5 |
| | Sub-Total | 162,118,859 (36.9%) | 7,222,804 (3.6%) | 4.5 |
| Staff & Administrative Cost | | 277,603,234 (63.1%) | 191,173,853 (96.4%) | 68.9 |
| Total | | 439,722,093 (100%) | 198,396,657 (100%) | 45.1 |

Source: 2000/2001 Estimates of Recurrent Expenditure of the GOK.
Note: ( ) means % of total amount requested.

The MTD was able to ease its financial problems by obtaining an additional Ksh. 100,000,000 from what is known as the 'Contribution to Maintenance Fund', which was contained within the revised annual budget for fiscal year 2000. The details of this allocation are in Table 3.6.3.

**Table 3.6.3 Allocation from the Contribution to Maintenance Fund (unit: Ksh.)**

| Item | | Amount | |
|---|---|---|---|
| Non-labor | Replacement of Motor Vehicles | 20,000,000 | 99,000,000 |
| | Purchase of Plant & Equipment | 57,000,000 | |
| | Maintenance of Plant, Machinery & Equipment | 22,000,000 | |
| Payment of Debt | | | 1,000,000 |
| Total | | | 100,000,000 |

Source: Fiscal year 2000 estimates of GOK's Recurrent Expenditure.

Due to this additional funding, the allocation for non-labor items increased to Ksh. 106,222,804. This is approximately 65.5% of the original request (Ksh.162,118,859). Increasing the budget allocation for non-labor items and decreasing the expenditures for staff and administration are crucial to improve the performance of MTD.

**Fuel Levy Fund**

The Fuel Levy Fund also contains an allocation for equipment known as the 'Equipment Maintenance and Rehabilitation Budget'. This budget is allocated to Provincial Works Offices (PWOs), District Works Offices (DWOs), and the MTD for the cost of specific equipment identified in Work Programs in the previous year. Table 3.6.4 indicates the amount requested and the actual allocation from this budget.

**Table 3.6.4 Equipment Maintenance and Rehabilitation Budget for FY 2000** (unit: Ksh)

| Office | Road Class | Request | Allocation | % (Allocation/Request) |
|---|---|---|---|---|
| MTD | A, B, C | 63,600,000 | 19,510,000 | 30.7 |
| | D, E & Others | 450,000 | 9,040,000 | 2008.9 |
| | **Total** | **64,050,000** | **28,550,000** | **44.6** |
| PWO | A, B, C | 20,140,000 | 6,850,000 | 34.0 |
| | D, E & Others | 1,000,000 | - | - |
| | **Total** | **21,140,000** | **6,850,000** | **32.4** |
| DWO | A, B, C | 40,990,000 | 14,540,000 | 35.5 |
| | D, E & Others | 54,385,000 | - | - |
| | **Total** | **95,375,000** | **14,540,000** | **15.2** |
| Grand Total | A, B, C | 124,730,000 | 40,900,000 | 32.8 |
| | D, E & Others | 55,835,000 | 9,040,000 | 16.2 |
| | **Total** | **180,565,000** | **49,940,000** | **27.7** |

Source: Chief Mechanical and Transport Engineer's Office.

The Fuel Levy Fund also has an allocation for equipment known as the 'Supervision and Maintenance of Equipment Budget'. However this budget was directly allocated to the headquarters of RD for the purchase of administrative vehicles. The amount allocated was Ksh. 154,000,000 for fiscal year 2000.

**Total Amount of Actual Allocation**

Based on the above two financial sources (i.e., the Annual Budget and Fuel Levy Fund exclusive of the Supervision and Maintenance of Equipment Budget), the actual monies allocated for non-labor items was Ksh. 156,162,804, or 45.6% of the amount originally requested of Ksh. 342,683,859 (see Table 3.6.5).

**Table 3.6.5 Total Allocation for Non-labor Items for FY2000 (unit: Ksh.)**

| Source | Request | Allocation | % (Allocation/ Request) |
|---|---|---|---|
| Annual Budget | 162,118,859 | 106,222,804 | 65.5 |
| Fuel Levy Fund | 180,565,000 | 49,940,000 | 27.7 |
| Total | 342,683,859 | 156,162,804 | 45.6 |

**Costs for Desirable Case**

Continuous financial problems have caused the suspension of some necessary activities for servicing equipment (e.g., repair work, rehabilitation, and replacement of unserviceable equipment). This has resulted in a decline in the levels of service provided. Currently, there is grounded equipment in provincial, district, and central workshops, even though this equipment is still economical to repair. Furthermore, due to the unavailability of new equipment, the gap between the desirable amount of equipment (the Desirable Case) and the actual amount has widened.

MTD drew up a 3-year plan to estimate the equipment cost for the Desirable Case and for properly maintaining existing equipment to meet the demands of users. The unit costs for the items of equipment in this estimate are shown in Table 3.6.6.

**Table 3.6.6 Unit Costs to Obtain New Equipment and Maintain Existing Equipment** (unit: Ksh. million/year)

| Item | Purchase | Maintenance | Rehabilitation | Unit Value of Surplus Equipment |
|---|---|---|---|---|
| Flat bed | 3.40 | 0.41 | 0.83 | 0.09 |
| Tipper truck | 3.70 | 0.45 | 0.90 | 0.10 |
| Agricultural tractor (4x2) | 1.90 | 0.25 | 0.45 | 0.05 |
| Agricultural tractor (4x4) | 2.30 | 0.28 | 0.55 | 0.06 |
| Supervision vehicle | 1.90 | 0.25 | 0.45 | 0.05 |
| Crawler tractor | 23.00 | 3.05 | 5.50 | 0.35 |
| Motor grader | 19.00 | 2.55 | 4.50 | 0.35 |
| Pedestrian roller | 1.10 | 0.15 | 0.27 | 0.03 |
| Steel wheeled roller | 8.00 | 1.15 | 2.00 | 0.23 |
| Pneumatic tyred roller | 6.00 | 0.80 | 1.60 | 0.16 |
| Bitumen distributor | 6.50 | 0.85 | 1.70 | 0.18 |
| Bitumen premix | 29.00 | 3.85 | 7.20 | 0.30 |
| Asphalt paver/finisher | 19.00 | 2.55 | 4.60 | 0.30 |
| Road marking machine | 4.50 | 0.58 | 1.10 | 0.13 |
| Concrete mixer | 0.30 | 0.04 | 0.08 | 0.01 |
| Generator | 0.50 | 0.07 | 0.13 | 0.01 |
| Compressor | 3.00 | 0.45 | 0.83 | 0.09 |
| Water tanker | 3.50 | 0.50 | 0.90 | 0.10 |
| Bitumen hand sprayer | 0.30 | 0.04 | 0.08 | 0.01 |
| Mechanical broom | 0.25 | 0.03 | 0.06 | 0.01 |
| Water trailer | 0.25 | 0.03 | 0.06 | 0.01 |
| Prime mover/Tractor | 9.00 | 1.25 | 2.20 | 0.25 |
| Towed trailer | 0.25 | 0.03 | 0.06 | 0.01 |
| Wheel loader | 16.00 | 2.18 | 4.00 | 0.43 |
| Excavator | 16.00 | 2.18 | 4.00 | 0.43 |
| Fuel tanker | 3.50 | 0.50 | 0.90 | 0.10 |
| Towed roller | 2.50 | 0.30 | 0.58 | 0.06 |
| Water pump | 0.20 | 0.03 | 0.05 | 0.01 |
| Mobile crane | 14.00 | 1.91 | 3.50 | 0.38 |
| Mobile workshop | 4.00 | 0.57 | 1.05 | 0.11 |
| Service vehicle | 2.00 | 0.25 | 0.45 | 0.05 |
| Heavy trailer | 2.50 | 0.31 | 0.58 | 0.06 |

Sources: Chief Mechanical and Transport Engineer's Office
Report of the Board of Survey on Stores (Unserviceable and Surplus to Requirement) (FY2001)

At present, MTD provides services to 3325 pieces of MORPW equipment. The current status of this equipment (i.e., serviceable, under repair, or unserviceable) is shown in Table 3.6.7.

**Table 3.6.7 Current Status of MTD Equipment**

| Serviceable | | Under Repair | | Unserviceable | | Total No. |
|---|---|---|---|---|---|---|
| No. | % | No. | % | No. | % | |
| 865 | 26.0 | 687 | 20.7 | 1773 | 53.3 | 3325 |

Source: Chief Mechanical and Transport Engineer's Office

MTD estimated that the desirable amount of equipment necessary to provide the most efficient service possible (i.e., the Desirable Case) is 3066 (see Table 3.6.8). MTD compared the amount of equipment for the Desirable Case with the total equipment that is 'serviceable' and 'under repair' (see below).

In the case where:

Equip for Desirable Case > 'serviceable' + 'under repair',

the purchase of additional equipment (equipment purchased = desirable amt. equip. – ('serviceable' + 'under repair')) is necessary.

On the other hand, in the case where:

Equip for Desirable Case< 'serviceable' + 'under repair',

the purchase of additional items of equipment is not necessary.

The unit costs for the purchase, maintenance and rehabilitation of equipment are shown in Table 3.6.6 and are applied to estimate the costs for the purchasing of additional equipment, the maintenance of 'serviceable' equipment and the rehabilitation of equipment 'under repair', respectively. Furthermore, the unit value of surplus equipment is applied to the sales of 'unserviceable' equipment.

**Table 3.6.8 Amount of Equipment for Desirable Case**

| Item | Status | | | Total | Desirable No. | Purchasing No. |
|---|---|---|---|---|---|---|
| | Serviceable | Under Repair | Unserviceable | | | |
| Flat bed | 50 | 37 | 105 | 192 | 97 | 10 |
| Tipper truck | 63 | 45 | 90 | 198 | 230 | 122 |
| Agricultural tractor (4x2) | 138 | 96 | 194 | 428 | 404 | 170 |
| Agricultural tractor (4x4) | 0 | 0 | 0 | 0 | 140 | 140 |
| Supervision vehicle | 164 | 68 | 401 | 633 | 388 | 156 |
| Crawler tractor | 10 | 29 | 43 | 82 | 45 | 6 |
| Motor grader | 67 | 70 | 213 | 350 | 248 | 111 |
| Pedestrian roller | 15 | 21 | 37 | 73 | 140 | 104 |
| Steel wheel roller | 11 | 18 | 32 | 61 | 70 | 41 |
| Pneumatic roller | 3 | 7 | 17 | 27 | 26 | 16 |
| Bitumen distributor | 6 | 4 | 8 | 18 | 26 | 16 |
| Bitumen premix | 3 | 3 | 9 | 15 | 8 | 2 |
| Asphalt paver/finisher | 0 | 0 | 0 | 0 | 4 | 4 |
| Road marking machine | 2 | 1 | 1 | 4 | 7 | 4 |
| Concrete mixer | 18 | 1 | 31 | 50 | 70 | 51 |
| Generator | 1 | 1 | 1 | 3 | 70 | 68 |
| Compressor | 0 | 3 | 6 | 9 | 18 | 15 |
| Water tanker | 2 | 4 | 19 | 25 | 70 | 64 |
| Bitumen hand sprayer | 11 | 6 | 12 | 29 | 70 | 53 |
| Mechanical broom | 0 | 0 | 0 | 0 | 27 | 27 |
| Water trailer | 37 | 33 | 55 | 125 | 70 | 0 |
| Prime mover/Tractor | 3 | 3 | 9 | 15 | 9 | 3 |
| Towed trailer | 186 | 178 | 383 | 747 | 431 | 67 |
| Wheel loader | 16 | 20 | 48 | 84 | 70 | 34 |
| Excavator | 0 | 0 | 0 | 0 | 9 | 9 |
| Fuel tanker | 12 | 10 | 17 | 39 | 70 | 48 |
| Towed roller | 6 | 4 | 8 | 18 | 70 | 60 |
| Water pump | 6 | 6 | 11 | 23 | 70 | 58 |
| Mobile crane | 0 | 0 | 0 | 0 | 3 | 3 |
| Mobile workshop | 23 | 10 | 12 | 45 | 70 | 37 |
| Service vehicle | 9 | 5 | 3 | 17 | 18 | 4 |
| Heavy trailer | 3 | 4 | 8 | 15 | 18 | 11 |
| Total | 865 | 687 | 1773 | 3325 | 3066 | 1514 |

Source: Equipment for Road Maintenance Cost Estimates (for Existing Holding and Desirable Holding) made by Chief Mechanical and Transport Engineer's Office.

A provision for the replacement of equipment should be made. The amount for this provision is calculated per annum as follows:

$$\frac{\text{Desirable No.} \times \text{Unit Cost to Obtain New Equipment (see Table 3.6.6)}}{15 \text{ years}}$$

All estimated costs are worked out using an inflation rate of 5% per annum. The purchasing of new equipment and the rehabilitation of equipment 'under repair' has been spread over a 3-year period. Purchased/rehabilitated equipment is shifted to 'serviceable' status in the next year and maintenance unit costs applied. A summary of the cost estimate for the Desirable Case is as shown in Table 3.6.9, with a detailed breakdown attached in Appendix 3.6.3.

**Table 3.6.9 Summary of Cost Estimate for Desirable Case** (unit: Ksh.)

| Item | Year 1 | Year 2 | Year 3 | Total |
|---|---|---|---|---|
| Purchase of Equipment | 2,032,000,000 | 2,133,600,000 | 2,240,280,000 | 6,405,880,000 |
| Maintenance of Equipment | 432,630,000 | 900,050,000 | 1,413,120,000 | 2,745,800,000 |
| Rehabilitation of Equipment | 278,200,000 | 292,110,000 | 306,720,000 | 877,040,000 |
| Provision for Replacement of Equipment | 854,870,000 | 854,870,000 | 854,870,000 | 2,564,620,000 |
| Revenue from Selling Surplus Equipment | 187,650,000 | - | - | 187,650,000 |
| Total | 3,410,060,000 | 4,180,630,000 | 4,814,990,000 | 12,405,680,000 |

Source: Chief Mechanical and Transport Engineer's Office.

As the above table shows, the actual allocation (Ksh. 156,162,804) is only 4.6% of the estimated cost (Ksh. 3,410,060,000) for Year 1 (fiscal year 2000), indicating that there would be a huge short-fall in the Desirable Case.

**Costs for Do-Minimum Case**

Given the case that MTD only implements maintenance and rehabilitation for existing equipment (i.e., the Do-Minimum Case), the estimated cost is as shown in Table 3.6.10, with a detailed breakdown shown in Appendix 3.6.4.

**Table 3.6.10 Summary of Cost Estimate for Do-Minimum Case** (unit: Ksh.)

| Item | Year-1 | Year-2 | Year-3 | Total |
|---|---|---|---|---|
| Maintenance of Equipment | 432,630,000 | 615,370,000 | 815,300,000 | 1,863,290,000 |
| Rehabilitation of Equipment | 278,200,000 | 292,110,000 | 306,720,000 | 877,040,000 |
| Revenue from Selling Surplus Equipment | 187,650,000 | - | - | 187,650,000 |
| Total | 523,180,000 | 907,480,000 | 1,122,010,000 | 2,552,680,000 |

Source: Chief Mechanical and Transport Engineer's Office.

As the above table indicates, the actual allocation (Ksh. 156,162,804) is only 29.8% of the estimated cost (Ksh. 523,180,000) even in the Do-Minimum Case, indicating that there is an absolute shortage of funding.

**Issues**

The shortage of funds is quite obvious and of a very serious nature. In fact, it can be said that

the survival of MTD itself is at stake. That is, after summarizing the above results in Table 3.6.11 below, it is clear that it is not even possible for MTD to carry out the minimum work required to maintain existing stocks of equipment, meaning that levels of service (at present 30.3% of equipment is serviceable) will continue to worsen. Given this situation, it is impossible to provide desired services to road maintenance agencies and perhaps impossible for MTD to avail serviceable and desired equipment for road maintenance.

**Table 3.6.11 Comparison of Equipment Costs by Scenario for FY2000** (unit: Ksh.)

| Item | Amount | % of Do-Minimum Case | % of Desirable Case |
|---|---|---|---|
| Actual Allocation | 156,162,804 | 29.8 | 4.6 |
| Requested Amount | 342,683,859 | 65.5 | 10.0 |
| Do-Minimum Cost | 523,180,000 | **100.0** | 15.3 |
| Do-Desirable Cost | 3,410,060,000 | 651.8 | **100.0** |

### (3) Kenya Wildlife Service (KWS)

#### 1) Introduction

In KWS, most of the plant and equipment has been donated together with a good stock of spare parts. All donated Japan International Cooperation Agency (JICA) equipment is operating and there is a JICA provision for ongoing funding for spare parts and maintenance.

The majority of their work is force-account. However, they are considering contracting more work out with KWS supervising.

#### 2) Organization

Mechanical Services Manager (MSM) is responsible for the management of equipment services in KWS. MSM is based at headquarters and supervises 6 Workshop Managers (WM) who are located in the Central Workshop and major National Parks (i.e., Nakuru, Mt. Elgon, Tsavo East, Tsavo West and Aberdares). Each WM is responsible for one of the six major Workshops. WM is also supervising minor National Parks which only have Plant Mechanics based in the responsible area. The organization chart for equipment services is shown Figure 3.6.3.

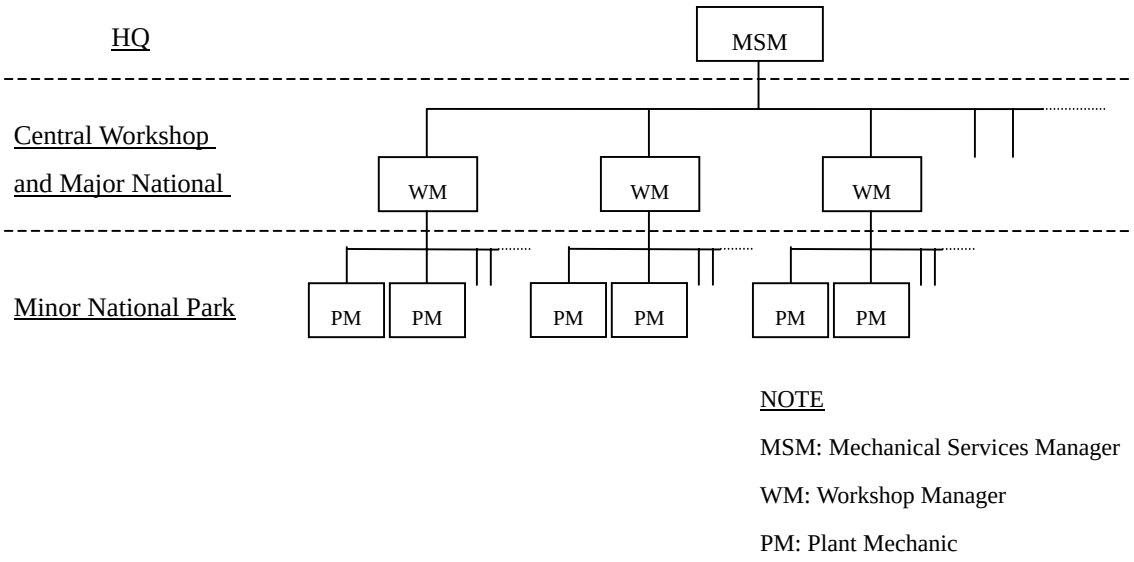



**Figure 3.6.3 Current Organization Chart for Equipment Services**

### 3) Finance

**Requested Amount**

According to the Mechanical Services Manager, KWS requested Ksh. 6,120,000 from Office of the President for equipment management for the fiscal year 2000.

**Actual Revenue**

In fiscal year 2000, KWS had 2 financial sources regarding road maintenance and equipment service mentioned below:

**(i) Allocation from Office of the President**

Total amount of this allocation was Ksh. 9,800,000 and a maximum of 30% was allocated for equipment, although a precise figure was not available.

**(ii) Internal Revenue (National Park Entrance Fee)**

Within Internal Revenue, Ksh. 2,500,000 was allocated for equipment service.

**(iii) Total Amount**

Given 30 percent of allocation of Office of President was realized, the total amount is shown below;

**Table 3.6.12 Actual Allocation for Equipment Service (FY2000) (unit: Ksh.)**

| Source | Request | Allocation | % (Allocation / Request) |
|---|---|---|---|
| Office of the President | 6,120,000 | 2,940,000 | Max. 48.0% |
| Internal Revenue | - | 2,500,000 | - |
| Total | 6,120,000 | 5,440,000 | Max. 88.9% |

**Issues**

According to Table 3.6.12, the current status of KWS seems better than other organizations (e.g., MTD, FD and Local Authorities). The allocation from Office of the President is estimated at a maximum percentage (30%) because the precise amount for equipment service was not available. Further, until fiscal year 1999, Fuel Levy Fund had been allocated to KWS for road maintenance work. In that year, the amount was Ksh. 30,000,000. However, the allocation of this fund has been suspended since fiscal year 2000 and so it is expected that the scale of service will be reduced in the future.

**4) Level of Services**

**Current Status**

National parks equip road maintenance equipment especially for unpaved road (e.g., graders, tractors etc.) and execute maintenance work for the park roads. Daily maintenance and minor repair work for equipment are carried out at their internal workshops. When the service capacity of the internal workshop is exceeded the equipment is transported to the Central Workshop in Nairobi for the repair.

According to Table 3.6.13, the availability of road maintenance equipment is very high compared with Mechanical and Transport Department (MTD). This table indicates that 76.6% of plant and equipment is serviceable (in case of MTD, 40.4% is serviceable).

**Table 3.6.13 Status of Equipment (KWS)**

| Item | Status | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | Serviceable | | Under Repair | | Unserviceable | | |
| | No | % | No | % | No | % | |
| Motor grader | 15 | 71.4 | 4 | 19.0 | 2 | 9.5 | 21 |
| Towed Grader | 2 | 50.0 | 1 | 25.0 | 1 | 25.0 | 4 |
| Bulldozer | 6 | 85.7 | 1 | 14.3 | | | 7 |
| Shovel dozer | 9 | 81.8 | | | 2 | 18.2 | 11 |
| Tractor | 4 | 100.0 | | | | | 4 |
| Roller | 8 | 72.7 | 1 | 9.1 | 2 | 18.2 | 11 |
| Wheeled loader | 3 | 75.0 | | | 1 | 25.0 | 4 |
| Low loader | 1 | 100.0 | | | | | 1 |
| Traxcavator | 1 | 100.0 | | | | | 1 |
| Total | 49 | 76.6 | 7 | 10.9 | 8 | 12.5 | 64 |

Source: KWS HQ

**Issues**

The owned equipment and plant is well equipped and maintained so far. However, since the fiscal year 2000 the allocation of Fuel Levy Fund has been suspended. Due to this issue the lack/shortage of spare parts and delay of replacement of obsolete equipment will occur in the future. Furthermore, this will cause a decline in the serviceable ratio.

### (4) Forest Department (FD)

#### 1) Introduction

Forest Department (FD) is an organization under the Ministry of Environment and Natural Resources (MOENR). FD is responsible for construction/maintenance of forest roads (unclassified; total length is 6,816.1km) composed of access roads (2,252.5km), feeder roads (2,836.8km) and plantation roads (1,726.8km). The majority of work is force account basis (i.e., own crew and equipment execute the works).

#### 2) Organization

Conservator of Forest (Infrastructure and Engineering) is responsible for management of the road sector including equipment service in FD. He is based at headquarters and supervises on-site offices called Road Units and District Forest Offices (DFO).

**Road Units**

FD set up 4 Road Units implementing the management of forest roads in the whole country. Road Superintendent (RS) is head of the unit and in charge of the road sector including

equipment service. The Road Unit has equipment, a workshop and mechanics. These units are listed below.

- Kinare Unit
- Nyeri Unit
- Londiani Unit
- Eldoret Unit

**District Forest Offices**

The Road Unit is supervising the DFO in the responsible area. The DFO is located on a district basis and the District Forest Officer is the responsible person in the office. The DFO does not own the road maintenance equipment and workshop. The Road Unit mobilizes the necessary equipment and executes road maintenance works when requested by the DFO. The organization chart for the road sector including equipment service is shown in Figure 3.6.4.

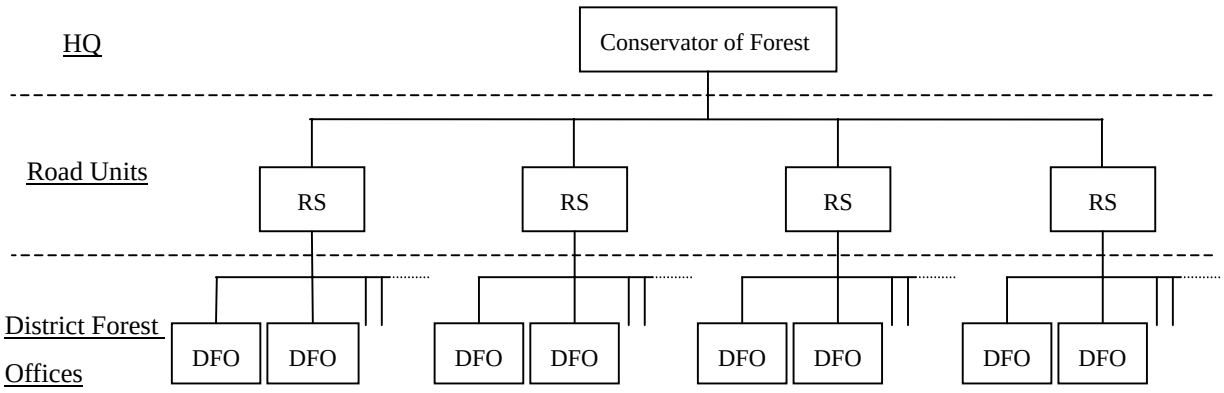



**Figure 3.6.4 Organization Chart for the Road Sector**

**3) Finance**

**Requested Amount**

In the fiscal year 2000, FD requested Ksh. 41,560,000 for the road sector from the Government of Kenya (GOK). Within this request, the amount for equipment which was named 'Maintenance of Plant, Machinery and Equipment' was Ksh. 14,830,000 (i.e., 35.7% of the requested amount).

**Table.3.6.14 Requested Amount for Road Sector (FY2000) (unit: Ksh)**

| Item | Amount | % of Total |
|---|---|---|
| Maintenance of Plant and Equipment | 14,830,000 | 35.7 |
| Other | 26,730,000 | 64.3 |
| Total | 41,560,000 | 100.0 |

**Actual Allocation**

The Annual Budget of GOK allocated Ksh. 3,871,100 for the road sector in fiscal year 2000. This was the only revenue for this sector and was only 9.3% of the requested amount. Further, the allocation for equipment was Ksh. 1,059,200 (i.e., 7.1% of the requested amount).

**Table 3.6.15 Actual Allocation for Road Sector (FY2000) (unit: Ksh)**

| Item | Request | Actual | Actual / Request (%) |
|---|---|---|---|
| Maintenance of Plant and Equipment | 14,830,000 | 1,059,200 | 7.1 |
| Other | 26,730,000 | 2,811,900 | 10.5 |
| Total | 41,560,000 | 3,871,100 | 9.3 |

**Issues**

A very small allocation for the road sector brought pressure on equipment service. Currently there is a shortage of spare parts at the workshops. Also, the equipment which should be sent to private garages for rehabilitation/overhaul is still grounded at the workshops.

**4) Level of Service**

**Current Status**

4 Road Units (i.e., Kinare, Nyeri, Londiani and Eldoret) own road maintenance equipment and workshops. When the request comes from the DFO, the Road Unit implements road maintenance works using its own equipment. Regarding maintenance/repair of equipment, daily maintenance and small repair works have been executed at the workshop. When rehabilitation/overhaul of equipment was necessary, the Road Unit had contracted out the work to private garages, but currently it has been suspended because of lack of funds as previously stated. Table 3.6.16 shows the current status ( type, no and condition ) of equipment which is owned by the Road Units. In this table 18 pieces of equipment are in status ‘under repair’ but actually repair works have been suspended because of a spare parts shortage.

**Table 3.6.16 Status of Equipment (FD)**

| Item | Status | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | Serviceable | | Under Repair | | Unserviceable | | |
| | No | % | No | % | No | % | |
| Motor grader | 4 | 40.0 | 6 | 60.0 | 0 | 0.0 | 10 |
| Bulldozer | 1 | 20.0 | 4 | 80.0 | 0 | 0.0 | 5 |
| Topper truck | 3 | 37.5 | 4 | 50.0 | 1 | 12.5 | 8 |
| Roller | 1 | 25.0 | 3 | 75.0 | 0 | 0.0 | 4 |
| Shovel dozer | 1 | 50.0 | 1 | 50.0 | 0 | 0.0 | 2 |
| Water bowser | 2 | 100.0 | 0 | 0.0 | 0 | 0.0 | 2 |
| Compactor | 2 | 100.0 | 0 | 0.0 | 0 | 0.0 | 2 |
| Total | 14 | 42.4 | 18 | 54.5 | 1 | 3.0 | 33 |

Source: Forest Department HQ, 2001

**Issues**

The current rate of serviceable equipment is only 42.4%, and this figure is anticipated to decrease unless more funds are obtained soon. Furthermore, repair work for equipment that has the status of 'under repair' has not been realized, which is also a constraint on carrying out road maintenance work smoothly.

### (5) Local Authorities (under Ministry of Local Government)

#### 1) Introduction

It seems that Ministry of Local Government (MOLG) doesn't have a reliable inventory that indicates the current status of plant and equipment (e.g., number, type and condition) held by the local authorities. Furthermore, no reports or data about their activities have been presented to MOLG. Given this situation, it seems that the proper management of equipment would be impossible.

During the field survey (implemented in phase-I), the Study Team visited 18 authorities (1 City Council, 13 Municipal Councils, 3 County Councils and 1 Town Council) and interviewed the staff in charge of equipment services in the authorities. The list of authorities visited is shown below (see Table 3.6.17). The current status and issues are discussed in the following sections.

**Table 3.6.17 List of Authorities Visited**

| Province | Authority |
|---|---|
| Nairobi | **Nairobi City Council** |
| Coast | **Mombasa Municipal Council** |
| | Voi Municipal Council |
| North Eastern | **Garissa Municipal Conucil** |
| Eastern | **Embu Municipal Council** |
| | **Embu County Council** |
| | Meru Central County Council |
| | Machakos Municipal Council |
| Central | **Nyeri Municipal Council** |
| | Nyahururu Municipal Council |
| Rift Valley | **Nakuru Municipal Council** |
| | Turukana Municipal Council |
| | Kericho Municipal Council |
| Western | **Kakamega Municipal Council** |
| | Busia Municipal Council |
| Nyanza | **Kisumu Municipal Council** |
| | Gusii County Council |
| | Migori Town Council |

Note: Highlighted offices are located in Provincial HQ.

### 2) Organization

Table 3.6.18 indicates the number of mechanical staff at the authorities. Among the authorities visited, only Nairobi City Council and Mombasa Municipal Council have mechanical engineers (i.e., 11.1% of visited authorities). 8 authorities have no mechanical staff

**Table 3.6.18 Number of Mechanical Staff**

| Province | Authority | No. of Engineers | No. of Plant Mechanics | No. of Plant Operators | Total |
|---|---|---|---|---|---|
| Nairobi | **Nairobi City Council** | 1 | No information | No Information | Min. 1 |
| Coast | **Mombasa Municipal Council** | 1 | 25 | - | 26 |
| | Voi Municipal Council | 0 | 0 | 0 | 0 |
| North Eastern | **Garissa Municipal Conucil** | 0 | 0 | 0 | 0 |
| Eastern | **Embu Municipal Council** | 0 | 2 | 2 | 4 |
| | **Embu County Council** | 0 | 1 | 2 | 3 |
| | Meru Central County Council | 0 | 0 | 2 | 2 |
| | Machakos Municipal Council | 0 | 0 | 2 | 2 |
| Central | **Nyeri Municipal Council** | 0 | 3 | 2 | 5 |
| | Nyahururu Municipal Council | 0 | 0 | 0 | 0 |
| Rift Valley | **Nakuru Municipal Council** | 0 | 0 | 0 | 0 |
| | Turukana Municipal Council | No information | No information | No information | - |
| | Kericho Municipal Council | No information | No information | No information | - |
| Western | **Kakamega Municipal Council** | 0 | 0 | 4 | 4 |
| | Busia Municipal Council | 0 | 0 | 0 | 0 |
| Nyanza | **Kisumu Municipal Council** | 0 | 0 | 0 | 0 |
| | Gusii County Council | 0 | 0 | 0 | 0 |
| | Migori Town Council | 0 | 0 | 0 | 0 |

### 3) Finance

**Current Status**

During the field survey, the Study Team could not obtain reliable data about the cost for equipment service (e.g., accurate amount of necessary cost and actual amount received) at the authorities visited. However, at the interviews with the person in charge of the authorities, the Study Team inquired about the financial status of equipment services. Table 3.6.19 and 3.6.20 shows the answers to the question 'Is the allocation for equipment service adequate?'.

**Table 3.6.19 Answers to the Question**

| Province | Authority | Is allocation adequate? |
|---|---|---|
| Nairobi | **Nairobi City Council** | No |
| Coast | **Mombasa Municipal Council** | No |
| | Voi Municipal Council | No |
| North Eastern | **Garissa Municipal Conucil** | No |
| Eastern | **Embu Municipal Council** | Yes |
| | **Embu County Council** | No |
| | Meru Central County Council | No |
| | Machakos Municipal Council | No |
| Central | **Nyeri Municipal Council** | No |
| | Nyahururu Municipal Council | No |
| Rift Valley | **Nakuru Municipal Council** | No |
| | Turukana Municipal Council | No information |
| | Kericho Municipal Council | No information |
| Western | **Kakamega Municipal Council** | No |
| | Busia Municipal Council | No |
| Nyanza | **Kisumu Municipal Council** | No |
| | Gusii County Council | No |
| | Migori Town Council | No information |

**Table 3.6.20 Summary of Answers**

| Answer | Number | Percentage |
|---|---|---|
| Yes | 1 | 5.6 |
| No | 14 | 77.8 |
| No information | 3 | 16.7 |
| Total | 18 | 100.0 |

**Issues**

According to Table 3.6.19 and 3.6.20, only Embu Municipal County answered 'Yes' (i.e., 5.6% of the authorities). It also indicates 77.8% of the authorities have financial problems. These problems brought the authorities a shortage of spare parts, suspension of equipment repair and suspension of the replacement of obsolete equipment.

### 4) Level of Service

**Current Status**

Current status of equipment owned by the authorities visited is summarized in Table 3.6.21. Among the authorities visited, the number of pieces of equipment owned by 4 authorities (i.e., Garissa Municipal Council, Nyahururu Municipal Council, Nakuru Municipal Council and Busia Municipal Council) shows less than 1 and their serviceable rate is 0%. Further, even among the authorities showing over 90% serviceability, Voi Municipal Council, Machakos Municipal Council and Nyeri Municipal Council answered 'number of owned equipment is inadequate'.

Four authorities (i.e., Nakuru Municipal Council, Kakamega Municipal Council, Busia Municipal Council and Gusii Municipal Council) answered that they had borrowed the necessary equipment from the nearby PWO/DWO and executed road maintenance work as the last resort.

**Table 3.6.21 Summary of Current Status of Equipment owned by Authorities Visited**

| Province | Authority | No. of pieces of equipment | % of serviceable equipment | Is number of equipment adequate? |
|---|---|---|---|---|
| Nairobi | **Nairobi City Council** | 23 | 57 | No |
| Coast | **Mombasa Municipal Council** | 9 | 44 | No |
| | Voi Municipal Council | 4 | 90-100 | No |
| North Eastern | **Garissa Municipal Conucil** | 1 | 0 | No |
| Eastern | **Embu Municipal Council** | 6 | 100 | Yes |
| | **Embu County Council** | 6 | 100 | Yes |
| | Meru Central County Council | 4 | 50 | No |
| | Machakos Municipal Council | 5 | 100 | No |
| Central | **Nyeri Municipal Council** | 4 | 100 | No |
| | Nyahururu Municipal Council | 1 | 0 | No |
| Rift Valley | **Nakuru Municipal Council** | 0 | 0 | No |
| | Turukana Municipal Council | No information | No information | No information |
| | Kericho Municipal Council | No information | No information | No information |
| Western | **Kakamega Municipal Council** | 5 | 20 | No |
| | Busia Municipal Council | 1 | 0 | No |
| Nyanza | **Kisumu Municipal Council** | 3 | No information | No |
| | Gusii County Council | 4 | 50 | No |
| | Migori Town Council | No information | No information | No information |

**Issues**

Table 3.6.21 indicates the situation of 4 authorities (i.e., Garissa Municipal Council, Nyahururu Municipal Council, Nakuru Municipal Council and Busia Municipal Council), which is critical. It is impossible to carry out proper road maintenance work. Nine other authorities also suffer from an inadequate amount of equipment.

## 3.7 Involvement of the Private Sector in Road Maintenance

### 3.7.1 Registration of Contractors for Road Works

In March 1999, the MORPW directed that the register of contractors should be reviewed. Contractors were invited, through a newspaper advertisement, to apply afresh for registration, and 133 applications were eventually received as of 30 September 1999. Currently the register is being updated and changed but the present situation can be summarized as follows.

- The registration process involves seven works categories: road construction (paved); bridge construction and other drainage structures; gravelling; labor-based construction and maintenance; specialist works such as piling and rock drilling; resealing and re-carpeting; and routine maintenance.
- Eight financial/contract ceilings are used (known as A through H but not related to class of road): A – over Ksh. 1.0 billion; B – Ksh. 500.0 million to 1.0 billion; C – Ksh. 250 to 500 million; D – Ksh. 100 to 250 million; E – Ksh. 75 to 100 million; F – Ksh. 50 to 75 million; G – Ksh. 25 to 50 million; and H – up to Ksh. 25.0 million.
- Of the seven works categories, only three have all eight money ceilings – road construction (paved), bridge construction, and resealing and recarpeting. For example, labor-based construction and routine maintenance only have two money ceilings – G and H.
- Of the 133 applications, about 50 were deferred or rejected due to lack of plant experience or inadequate information.
- 39 of the 133 applicants were foreign or national/foreign together or unidentified, while the remainder were Kenyan. To undertake works in the top Category "A", 12 contractors were registered of which nine were foreign and three were national. Of the 133 applications, 90 were based in Nairobi and the remainder in such places as Mombasa, Thika, Kisumu, Nakuru and Nyeri. Schedule of contractors classification is attached in Appendix 3.7.1.

### 3.7.2 Small-Scale Contractors

Following recent training initiatives launched by the Kisii Training Center (KTC), there are also 126 labor-based small-scale contractors trained by KTC and 28 small-scale contractors have been registered with RD. The lengthmen system is no longer used in some provinces mainly because donor-financed projects have dried up but partly because the system needs a lot of RD supervision (at present, RD does not have enough supervisors, overseers and inspectors to cover labor-based methods).

### 3.7.3 Equipment-Based Contractors

In terms of national contracting capability for equipment-based works, there is a shortage of firms compared with the length of the main road network. This reflects that there is no significant history in Kenya of the large contractors sub-contracting to medium-sized firms. About 30 years ago the World Bank supported a program in Kenya for the development of national contractors. The program was successful but most of the firms that emerged went into the building sector rather than roads.

### 3.7.4 Labor-Based Experience

In terms of capability for using labor-based methods, there is a large pool of experienced persons in Kenya, largely as a result of two earlier labor-based programs - the Rural Access Roads Program (RARP) and the Minor Roads Program (MRP). However, this pool of experience remains largely untapped because the business environment for someone to become a small/medium-scale contractor is not very favorable at the present time. The pool of labor-based experience includes the lengthmen and others who were engaged on the RARP and MRP, as well as former RD staff who took early retirement or were made redundant under the civil service downsizing program.

In the DANIDA Roads 2000 Project in Coast Province it is estimated that about 700 small/medium-scale contractors will be needed eventually to cover the whole province. There will be two categories of registered small/medium-scale contractors in Coast Province - about 550 labor-only lengthmen-type contractors using simple hand tools and about 150 contractors graduating to a higher level in order to own and use tractor-based equipment for works such as re-gravelling. If this is extrapolated nationwide, the demand for small/medium-scale contractors could reach around 5,000 if labor-based and labor-based equipment-supported methods are fully realized in all districts as envisaged in the Strategic Plan for the Roads Sector.

### 3.7.5 Key Issues

There are also many small/medium-scale building firms. These are mainly family-owned businesses working for private sector clients. Few of these firms have registered with RD. The reasons are several: lack of experience in road works, shortage of road funds leading to a lack of demand for road works contracts, and the need for the firms to invest in road maintenance equipment. However there might be good potential for these firms to enter the road maintenance market provided the entry incentives can be improved.

The majority of equipment-based contractors registered with RD are based in Nairobi. Although contractors are mobile, this poor geographical spread is indicative of the relatively weak road works contracting base in the country. There is no function of Contractors' Association for road works in Kenya.

At present the development of capacity building of contractors is constrained by several factors, including:

- Lack of access to resources such as works, credit and materials etc.
- Enabling environment for contracting such as funding and payment etc.

## 3.8 Road Maintenance Training

### 3.8.1 General

Policy in Kenya's roads sector is largely driven by three things. Firstly, the RMI which covers the commercialization of roads. Secondly, the Strategic Plan for the Roads Sector, which endorses labor-based methods, private sector participation and other related matters. Thirdly, the new structure for managing roads – namely, the new KRB and road agencies that eventually evolved from the commercial principles embodied in the RMI. The training programs and priorities should be driven by these directives and developments.

### 3.8.2 Kenya Institute of Highways and Building Technology

In September 1996 MORPW's Department of Staff Training was re-named the Kenya Institute of Highways and Building Technology (KIHBT). Over a period spanning about 50 years, roads-related training has evolved such that the Institute is a major skill improvement and training body. It is relatively well staffed and has an annual trainee turnover of more than 1,200 (about 800 for roads-related training and about 400 for buildings). It serves MORPW, other ministries, parastatal bodies, private sector clients, emerging small/medium-scale contractors and client countries in the Sub-Saharan region and beyond. The Institute is located in six places:

- Headquarters in Nairobi housing the Principal's office, administration and branch head offices.
- Hostel in Nairobi.
- Mechanics School in Nairobi.
- Plant Mechanics Specialist School in Nairobi.
- Field Practical Unit and Plant Operators Training School (Ngong Campus) located in Ngong Division in Kajiado District.
- Kisii Training Center located one km from Kisii Town on the Kisii-Kericho road.

As part of MORPW the Institute derives its training objectives from the National Manpower Training Policy. Its objectives are summarized below.

- To redress the imbalance of training artisans, craftsmen, technicians and professionals both for the public and private sectors across the country.
- To provide skills for self-reliance.
- To ensure a continuous supply of required skills in the roads and building sectors in the country.
- To create a capacity for increased and sustained productivity.
- To improve the performance of craftsmen, technicians, and supervisors offering them suitable skill improvement courses.
- Ensuring a continuous supply of required technical skills – working in cooperation with National Polytechnics and the Directorate of Industrial Training.
- To assist in improving management and supervisory capacity by offering tailor-made courses for other ministries, parastatals, the private sector and foreign countries on request.

The head of the Institute (the Principal) reports to the Permanent Secretary through the Engineer in Chief. The training function involves designing, organizing and running programs for six major areas: Roads, Mechanical, Electrical/Electronics, Buildings, Mechanical Building Services and Institutional Management. It also deals with the technical supervision and management aspects of these services. This includes syllabus preparation, teaching/instructing/ demonstrating, conducting practical exercises in specific technical fields, design and preparation of training material/teaching aids, research, monitoring and evaluation of programs, guidance/counseling of students, and sharing information and experiences with other institutions. Additionally, the Institute's function embraces training of foreign students, mainly labor-based road programs for students from Sub-Saharan Africa and beyond. The training offered by the Institute covers both pre-service and in-service courses. In total KIHBT has 391 permanent staff and on average 200 casual persons. The salaries of permanent staff are financed centrally by the Public Service Commission. Most of KIHBT's permanent staff are lecturers and instructors.

### 3.8.3 Training Selection Process

Based on discussions with DWOs and DREs during our field trips, it appears that the RD training selection process needs to be made more effective and transparent so as to ensure that training resources are directed at the right people. Also on our field trips there was a common theme that RD needs more district-level supervisors, inspectors and overseers in order to ensure that the emerging small/medium-scale contractor industry delivers good-quality road works. In turn this will create more demand for the training of supervisory staff. The move towards

private sector participation in road maintenance and the phasing out of force account methods may also generate a demand for training local consultants (design, supervision and contract management).

### 3.8.4 Kisii Training Center and Ngong Training School

The Kisii Training Center (KTC) specializes in labor-based road maintenance programs, both for national and international trainees. KTC, acting as an agent for the Roads Department (RD), is responsible for maintaining 450.9 km of RD roads in the Kisii area and consequently all things taught in the classrooms can be exercised and tested on site. Similarly, the Ngong Training School, which specializes in equipment-based methods, is responsible for maintaining 420.8 km of RD in the Ngong area. For purposes of teaching theory, KTC has fully equipped classroom facilities in the modern training center built with the assistance of the Swiss Agency for Development and Cooperation (SDC). KTC is currently in the process of developing a laboratory for materials testing.

### 3.8.5 Training Funds

KIHBT's sources of funds for fiscal year 2000/2001 are estimated to be as follows (in Kenya Shillings) – 118.0 million from the Government's general budget, 37.5 million from the Dutch formula, 30.0 million from RD's 57 per cent portion of the fuel levy and 20.0 million from fees paid by foreign and local students. The Dutch formula is related to donor-supported Roads 2000 projects – namely, that 4 per cent of the cost of each donor-supported Roads 2000 project (for example, DANIDA in Coast Province) is allocated to KIHBT for Roads 2000 labor-based training (small/medium-scale contractors and RD staff).

### 3.8.6 SDC Support

SDC together with Helvetas (a Swiss NGO) started supporting the Kenya Transport Sector in 1972. Helvetas support finished in 1982 while SDC support ended last year (2000). In the first phase of the 28-year period of Swiss support, the intervention aimed at providing quality training for the construction and maintenance of the classified road network in Kenya. In the second phase the development goal was to contribute to the reduction of poverty and the creation of sustainable livelihood in rural areas of Kenya through the promotion and application of labor-based methods for road works. This had to be achieved through the provision of an adequate and sustainable training capacity within MORPW. In the last phase an additional objective was to assist KTC in becoming semi-autonomous and, to some degree,

self-sustainable. The development themes of SDC's support program were: poverty, environment, empowerment, autonomy, institutional capacity building, and good governance.

Towards the end of the Rural Access Roads Program in 1985, SDC took on the technical assistance and funding role to develop KTC and the training courses currently in use. Support from SDC has now finished (June 2000) and later this year (2001) there will be an official hand-over ceremony. In light of this, KIHBT is urgently seeking a new long-term donor to take over and carry on the excellent support provided by SDC. In particular, support is needed for strengthening and expanding KTC's labor-based training for road agency staff and petty contractors, and for introducing equipment-based training programs at the Ngong Campus for small/medium-scale national contractors.

If such a long-term training relationship with a new donor can be realized, there would be a good fit with the labor-based and private sector development themes of the RMI, the Roads 2000 Program, and the Strategic Plan for the Roads Sector. It would also fit well with Kenya's Poverty Reduction Strategy since labor-based methods create employment opportunities for the rural poor.

### 3.8.7 Labor-Based Training

KTC's lecturers and instructors are experienced labor-based practitioners. In fiscal year 1999/2000 KTC accomplished 1,297 man-weeks of roads-related training including courses for supervising labor-based contractors, routine maintenance overseers, routine maintenance contractors, Roads 2000 rehabilitation, and trial contract training for DANIDA's Roads 2000 Project in the Coast Province.

Training programs scheduled for the remainder of the current fiscal year (to 30 June 2001) include courses for routine maintenance contractors (paved roads in Coast Province), routine maintenance contractors (unpaved roads and off-pavement), DANIDA Project engineers and supervisors, structure course for overseers, and practical road maintenance for municipalities under the umbrella of the Kenya Urban Transport Infrastructure Program (KUTIP).

There will also be some international courses including one on supervising labor-based contracts (course fee per student US$ 4,200 – the duration of this course in Kisii is 26 days). This particular course will have several modules: contracting development, preparation of contract documents, tender procedures, tender period and evaluation, negotiation and award of contracts, contract implementation, defects liability period, and project work. The International

Labor Organization (ILO), through its Advisory Support Information Services and Training arm (ASIST), assures the quality of the international courses. KTC has the capacity to accommodate and train up to 60 students on the campus at any one time. Also, up to 60 students can be accommodated and trained off campus at any one time by setting up camping sites where road site training is undertaken.

### 3.8.8 KTC's Strengths and Weaknesses

A brief assessment of KTC's strengths and weaknesses is provided below.

- KTC is a brand name in labor-based circles worldwide.
- KTC has been creative and innovative in venturing into diversification of its products.
- KTC has the capacity to develop new training products (courses), but support will be required.
- KTC has been pro-active in training development for its main client (RD).
- KTC's fieldwork is of high quality standard, and has a significant social and economic impact in the locality of operation and has triggered self-help projects.
- KTC trainers are very capable. As a result KTC instructors provide high quality training and are marketable. Thus there is a risk of "poaching".
- KTC demonstrates maturity, which is shown by the level of confidence and capacity among the professional staff.
- KTC together with KIHBT is a registered training provider. Budgetary provisions allow KTC to operate more or less independently.
- KTC finds it difficult to program non-commercial courses (Roads 2000) because training plans from RD do not exist and "fire brigade" actions destabilize KTC operations and sometimes affect commercial courses.
- KTC training programs are de-linked from financial planning such that income earned is not ploughed back into training development.
- KTC's shortage of qualified trainers is problematic and a threat to sustainability.
- KTC's path towards more commercialization and autonomy is affected by management
- Poor co-ordination and harmonization of initiatives in the Roads Sector is a major constraint such that training inputs cannot be properly formulated.
- Not all donors follow the Dutch formula, and those that do follow it do not always specify and quantify training inputs.
- Since there is no function of Contractors' Association for road works in Kenya, training is not synchronized with real market demands.

- The transition to more commercialization and autonomy will require donor support.

### 3.8.9 Key Issues

Future training programs and priorities shall also be driven by existing conditions and constraints in the Roads Sector as summarized below.

- With the introduction of the road maintenance levy fund, the issue of funding becomes somewhat less pronounced, leaving capacity building (technical, institutional and managerial) as the most urgent constraints requiring resolution. However, the issue of capacity building includes the urgent need to set up sound and transparent financial control systems at all three levels – KRB/Road Agencies.
- There is an urgent need to move away from maintenance by force account.
- The environment necessary for small/medium-scale contractors to emerge in any significant way needs to be put in place.
- Small/medium-scale contractors will need training.
- Supervisory staff in RD and DRCs will need training.
- As new entities, KRB and the DRCs will need a lot of capacity building support based on sound technical and commercial principles.
- To encourage more small/medium-scale national firms to enter the market for road works, the business environment needs to be improved and contractor training needs to be put in place.

Some of the training needs can be satisfied in-house by KIHBT but with donor support, while others will require tailored technical assistance projects supported by the donor community. Firstly we look at KIHBT's challenges and strategy, and secondly at the broad type of technical assistance projects that will be necessary to get KRB and the road agencies up and running and somewhere towards maturity.

## 3.9 Road Maintenance in African Countries

### 3.9.1 World Bank Perspective

The Sub-Saharan Africa Transport Policy Program (SSATP), which has been in existence for 13 years and is being managed as a joint initiative of the World Bank (WB) and the United Nations Economic Commission for Africa (UNECA), works to facilitate policy and institutional reforms that advance sustainable management and the financing of transport services in Africa. The Road Management Initiative (RMI) is a component of the SSATP and

has as one of its primary objectives the realization of road system management to address the state of crisis that road maintenance has been experiencing throughout the Sub-Sahara region. The Government of Kenya (GOK) became a participant in the World Bank's Road Maintenance Initiative in the early 1990s.

From July 9th through 11th, 2001, the Study Team interviewed World Bank experts and obtained their perspective on road maintenance systems in Kenya and the Africa region. The major points are summarized below.

**SSATP / RMI**

1. SSATP is moving towards a more holistic approach to transport policy reform. Moreover, it is now focusing directly on policy makers instead of various agencies to accomplish its objectives in developing countries, which are as follows:
   - lower transport costs,
   - alleviation of poverty, and
   - relevant thematic issues.

2. SSATP has been successful in the sense that almost every country in the region has adopted some aspect of its work. An example of this is the SSATP's concept of Roads Boards. Almost every country in the region has accepted this concept and many are implementing it. The World Bank's sister organization (the International Monetary Fund) has also accepted this concept. The SSATP has highlighted the importance of rural roads.

3. The SSATP is being rejuvenated and it has shifted its emphasis recently from research to on-site application.

4. The SSATP tries to bring together donor countries concerned about transport and development in Sub-Saharan Africa. It would like to eventually become a clearinghouse for transportation funding by the various donors in the Sub-Saharan region, by coordinating work in order to effectively satisfy the needs of the receiving country. This in addition would assist the donor countries in justifying their work in developing countries to their constituents, since there would be a clear plan of how money is being used to accomplish specific goals.

5. The SSATP, which does not have much money itself, tries to exert its influence via logical persuasion.

6. Some of difficulties that the SSATP has encountered in its work are as follows:
   - The lack of coordination between donors who are sometimes more interested in their own strategic goals, which can reduce the effectiveness of bilateral donor actions and/or SSATP policies.
   - The lack of policy implementation that is required to ensure the success of an investment.
   - The departure of government personnel in developing countries to the private sector after being trained.
   - The tendency of officials in developing countries to keep information to themselves to maintain their power, which results in a serious drag on the overall development and increase of capacity.

7. RMI is continually drawing lessons from its experiences – most recently though there has been an in-depth assessment of five countries that have set up Road Funds.

8. The RMI is now in transition and the level of its activity is less than that in the past. It will be gearing up again in 2002 after input is obtained from the stakeholders at the Annual General Meeting of the SSATP to be held later this year concerning such current activities as the following:
   - An assessment of road funds
   - The effectiveness of road-user participation in road boards
   - Best practices regarding performance-based contract management

   In addition to the above three items, the results of an SSATP Strategy Review 2001-2006 is most critical in helping determine the future program.

**KRB**

1. It is noted that district-level organizational structures are sometimes replicas of central government structures.

2. Given the size of the Kenyan road network, seventy district roads committees for carrying out maintenance is not an excessive number. This also conforms to the administrative divisions of the country and encourages decentralization, which is important to ensure that necessary work at the local level is actually done.

3. Roads Boards, including the KRB, should be in charge of providing the overall policy and planning framework, resource allocation, and monitoring and evaluation. If these functions were split between two different organizations it could get the situation where more roads are being built than can actually be maintained.

4. The practical link between fuel levies and roads is suspect since many of the countries that now have a Roads Board have still not experienced sufficient increases in road quality. This could be due to either poor management or poor organizational structure.

5. Given that much has been written about roads funds over the past ten years, it can be stated with confidence that the concept of a road fund results in transparency and accountability.

6. A different approach has been taken in Uganda, which has decided not to set up a Roads Board. Uganda completely privatised its Ministry of Works and all maintenance work is now outsourced. As a result of political will, the Treasury or Ministry of Finance has committed itself to financing roads and has been very aggressive in doing this.

7. RMI, although it is a good tool, is not the end product (i.e., good roads). It has also encouraged the implementation of independent auditing, which is a step in the right direction.

8. The Kenyan Ministry of Roads and Public Works can play the role of providing Guidelines /standards and being a monitor.

**Management**

1. The tendency of officials in developing countries to keep information to themselves to maintain their power, which results in a serious drag on overall development and increase of capacity.
2. The relationship between road length and costs should be made clear in order to achieve a road network that can be supported.

3. Capacity for road maintenance has disappeared since there has been a lack of work. Where there is work, such as in the construction of housing, there is capacity.

4. An arm's length relationship between the execution and management of road works should be maintained.

5. The Roads 2000 concept, which was developed by the Roads Department and accepted by all donors, is an excellent concept. However, it has not been really implemented.

6. Many computer systems simply become inoperable, as no one remembers how to operate them because the people that were originally trained to use them are either transferred or

switch to the more lucrative private sector after receiving training.

7. It can perhaps be said that the roads sector reform in Kenya is performing well. The country generates over US$ 100 million annually for the maintenance/repair of roads, it has an executive roads board, and they are controlling axle loads quite well. It is quite clear that in reality, the sector is performing much less well, and that Kenya has not been receiving value for money from the funds generated – poorly used and on the wrong roads.

8. The expenditure priorities in the "Strategic Plan for the Roads Sector" were good but it is unfortunate that they are not being implemented.

9. The current district roads engineers could form the nucleus for maintenance work at the district level under the KRB system.

10. The provincial roads engineers under the KRB system could be in charge of monitoring A, B, and C class roads at the provincial level.

11. Most of the backlog of commitments made by the MORPW will be cleared up by the end of this year. However, many claims regarding this backlog may exist.

12. A temporary increase in unemployment is no reason to retain an inefficient structure. An inefficient organization only results in unhappy employees, corruption, and is a drag on the Kenya economy. Providing a better safety net for unemployed workers is a better way of dealing with the effects of restructuring than keeping unproductive jobs.

**Road Funds**

1. The fuel levy, although it is not a direct road user charge, has been effective in raising funds and could also play a role in achieving a better balance in the use of different transportation modes.

2. Roads funds are actually supposed to be short-term in nature. This is because the concept earmarks money, which results in the use of the budget becoming inflexible. As in Uganda, if the necessary political will exists, a roads fund would not be necessary.

3. Although the World Bank usually has its agreements signed by the borrowing country's Ministry of Finance, the executing agency can be a different organization. This means that it is possible for the Kenyan Roads Board to be in charge of the monies from the World

Bank in the case of road-related projects.

4. Tolling is likely to be only acceptable in Kenya if there are concrete improvements first. Tolling, on the other hand, is an expensive way to get things done, since the private investor will require at least 25% return on equity, compared with low-cost loans and grants from donors. Tolling on 3 to 4 major roads in Kenya (including the Nairobi-Mombassa road) may be feasible.

**Funding Allocation**

1. RMI addresses all roads and not just arterial roads. Although, a core network should be chosen if funding is lacking. It should be mentioned that the method of funding can vary with the type of road. For example, minor roads might require some funding from local taxes due to lower economic viability, as well as to the fact that a higher proportion of the benefits of minor road improvements accrue to the immediate communities and thus they should pay more then the general road user.

2. Scarce funding should be allocated to those organizations that can perform, which means that funding may sometimes not go to local agencies having insufficient capacity. For example, in Ethiopia, 70% of the road funding goes to the national network because the local agencies are incapable of handling any more money than their current 30%.

3. Commercial road management considers how money should be allocated. Tanzania has done some work on the norms to consider in allocating road funds. Zambia has done some work on this as well using what is called a SEJI, or a social economic justification index, which takes into account road and population density and economic activity.

4. It should be possible for Kenya also to use factors such as traffic, population, and road density, etc., in a formula to allocate road funding. This is done by the US Highway Trust Fund as well as by Taiwan.

5. In Zambia, the percentage of road funding that goes to national roads, urban roads, and rural roads is 40%, 20%, and 40%, respectively, and is accepted as the norm. This, however, is not set in stone and more funding may sometimes go to the urban road sector due to a lack of capacity on the part of local road agencies. It should be noted that the percentage allocated for rural roads is relatively large to compensate for the diesel fuel that is bought by many communities for non-transportation purposes.

6. It is important to take into account the macro context of a country when considering road funding. Obviously, if a country is suffering from a great lack of basic health and educational facilities, it is not going to want to spend lots of money in order only to have top-notch roads. Roads that have a minimum level of service capable of providing basic access may be sufficient in such cases.

7. In the poorest countries, the roads fund is not capable of even funding the maintainable network. Roads funds should first focus on financing routine maintenance for the maintainable network and then periodic maintenance. Rehabilitation of roads would only occur after this is accomplished and not before.

8. Roads funds should finance all roads that are maintainable, since their loss would result in an even larger loss economically.

**Roads and Rural Development**

1. As for rural roads, prioritization of the maintenance process is possible if all the stakeholders are brought together.

2. Kenya was a world leader in labor-based maintenance work. This potential could be used to provide access and employment in the rural areas, both of which are crucial to life in these areas.

3. For roads with less than 50 vpd, models such as “RED” or “UMTP” are not capable of carrying out a suitable evaluation. On the other hand, there are plenty of studies that show the large benefits to be derived from providing access. It was suggested that a simple cost-effective analysis is most appropriate in such cases. That is, a minimum level-of-service for basic access on the premise of the human right to basic access. The indicator that could be used here consists of dividing “least life-cycle cost” by “population served”. Then, the roads under consideration would be ranked. This indicator is being used in Madagascar and has been used in an Adhra Pradesh Rural Roads Project, in Vietnam, and in Bhutan.

4. To achieve poverty reduction, access is crucial. The level of access is in many countries (including developed countries) a political decision. For example, in Vietnam, the above indicator in Item 3 was weighted for low-income persons by twice.

**Privatization of Road Organizations**

1. Equipment and labor pools via contractor's associations should be used to strengthen the private sector.

2. General contractors should be used to sub-contract out work. This would reduce the number of contracts to be directly handled by the roads agencies and make management simpler. It would be economically viable for general contractors to be in charge of 400 to 500 kilometers of road for a term of 2 to 3 years.

3. Reliable funding is the key to promoting small contractors.

4. Constant funding is required or capacity disappears.

5. In Madagascar, a micro-contractor employs about 10 lengthmen for a 20-kilometre section for a 1-year period. The contractor is responsible for providing materials to the lengthmen. A 20% advance payment is made to the contractor in order to buy the tools required and for other mobilization purposes.

### 3.9.2 Road Maintenance System in Ghana

The organization for the road sector in Ghana is shown in Figure 3.9.1.

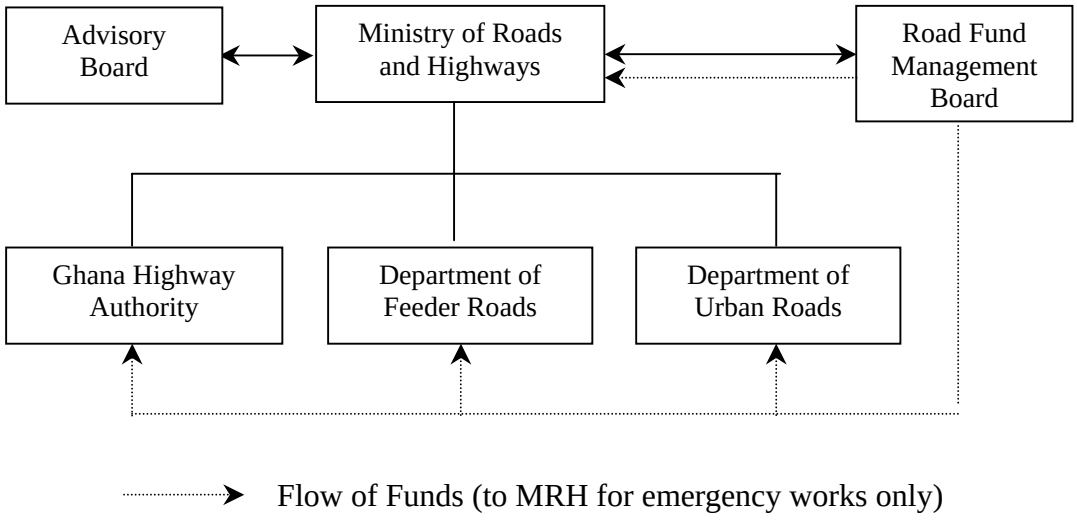



**Figure 3.9.1 Organisation of the Road Sector in Ghana**

The Ministry of Roads and Highways (MRH) is the single ministry responsible for the 40,000km road network in Ghana. MRH is responsible for all policy and strategy matters.

Three road agencies are responsible for implementing the maintenance works and they report directly to MRH. The three agencies are:

- Ghana Highway Authority (GHA): Established in 1974 as an autonomous highway authority is responsible for 13,400 km of trunk roads.
- Department of Feeder Roads (DFR): Established in 1981 and is responsible for 24,000 km of rural roads.
- Department of Urban Roads (DUR): Responsible for 2800 km of city roads in selected urban areas.

The role of the Advisory Board is as follows:

- To promote constant interaction between the Ministry and road users,
- To advise the Minister on adjustments in policy direction, planning objectives and operational strategies, and
- To perform such other advisory functions as the Minister may direct.

The Government objective is to clear the large backlog of maintenance work on the road network, while concurrently maintaining roads that have been rehabilitated and to put the financing of maintenance on a sustainable basis.

**Road Fund**

The Road Fund was established in 1985 under an Executive (military) Decree. The objective was to secure adequate and stable funding for routine, periodic maintenance and rehabilitation of public roads. Revenue sources were:

- fuel levy on petrol, diesel and refined fuel oil
- bridge, ferry and road tolls
- vehicle license and inspection fees
- international transit fees
- central government funds as agreed

This fund was very poorly managed by the various ministries involved and in 1997 a Road Fund Management Board was established to take over full control of the Road Fund. The Road Fund Management Board reports to the Minister for Roads and Highways.

The Board consists of thirteen members and is private sector driven with eight members from the private sector and five from the public sector. The private sector members, who are in the majority, are nominees of road-user organizations. The chairman of the Board is the Minister of Roads and Highways.

**Secretariat**

The Secretariat manages the day-to-day affairs of the Road Fund Management Board. They also carry out financial and technical audits using their own staff and by using external consultants.

**Funds**

The Road Fund Act, 1997, clearly defines spending priorities:

- first, routine and periodic maintenance
- second, upgrading and rehabilitation of roads
- third, road safety activities

Of the Road Fund revenues, 88 % comes from the fuel levy, 3 % from tolls and transit fees and 9 % comes from license and inspection fees.

The fuel levy is collected by the Ghana National Petroleum Company and deposited directly into the Road Fund account. The Ministry of Roads and Highways collects licensing and examination fees. Road, bridge and ferry tolls are collected by GHA.

Total gross revenue for 1999 was US$64.5 million. The Fund covers about 60% of the needs of Road Agencies. The Road Fund Management Board has a target to reach 100% by 2003. The Board prepares a rolling 4-year budget and monitors actual performance against this budget.

**Capacity**

Government policy is to move from force account to contracting out and now about 90 % of road works are executed by private contractors. The Government owns only limited equipment for emergency road maintenance operations.

The road agencies have all developed procedural manuals to control their activities. They have also developed 1- or 2-page activity specifications to describe all maintenance works to use in their contract documents.

**Key Issues in the Ghana Maintenance System**

- The Road Fund Management Board and Road Agencies seem very positive about their road maintenance system. Targets have been set to achieve 100% funding and the Agencies are enhancing their procedures, technical know-how, manuals and contract documents.
- A single ministry has responsibility for roads.

- The Department of Urban Roads was created to deal with the different needs of carrying out maintenance works in the major cities of Ghana.
- The road fund includes fuel levy, bridge, ferry and road tolls, vehicle license and inspection fees, and additional central government funds as agreed.
- **The Road Fund Act, 1997 defines the priorities for the road fund expenditure with routine and periodic maintenance being the first priority.**
- **The fuel levy is paid directly into the road fund account.**
- **Procedures manuals have been developed to ensure common practices are used throughout the country.**
- Single sheet Activity Specifications have been developed for inclusion in contracts to assist the contractors and supervisors.
- **Approximately 90% of maintenance works are now contracted out.**
- Term maintenance contracts of between 1 and 3 years are now in use in Ghana.
- The government has retained only a very small equipment fleet.

More detailed information on the maintenance system in Ghana is given in ANNEX 5.

### 3.9.3 Road Maintenance System in Zambia

There are 67,000km of roads in Zambia, of which only 37,000km are gazetted. There are 3 key ministries involved in the management of the road network.

- The Ministry of Communications and Transport (MOCT) is responsible for policy and strategy for roads in Zambia. It has overall responsibility for roads and implementation of the Roads and Road Traffic Act. The two ministries responsible for implementing maintenance works and the National Road Board all report to MOCT.
- The Ministry of Works and Supply (MOWS) has responsibility for 21,000km of Trunk, Main and District roads.
- The Ministry of Local Government (MOLG) is responsible for 16,000km of Feeder Roads and urban roads, and 30,000km of ungazetted roads.

A small amount of park roads are administered by the Ministry of Tourism.

The government objective is to focus all maintenance funds on a core network of 33,500km and to achieve 50% of all roads in good condition and a maximum of 10% of roads in poor condition.

Figure 3.9.2 shows the organization of the road sector in Zambia.

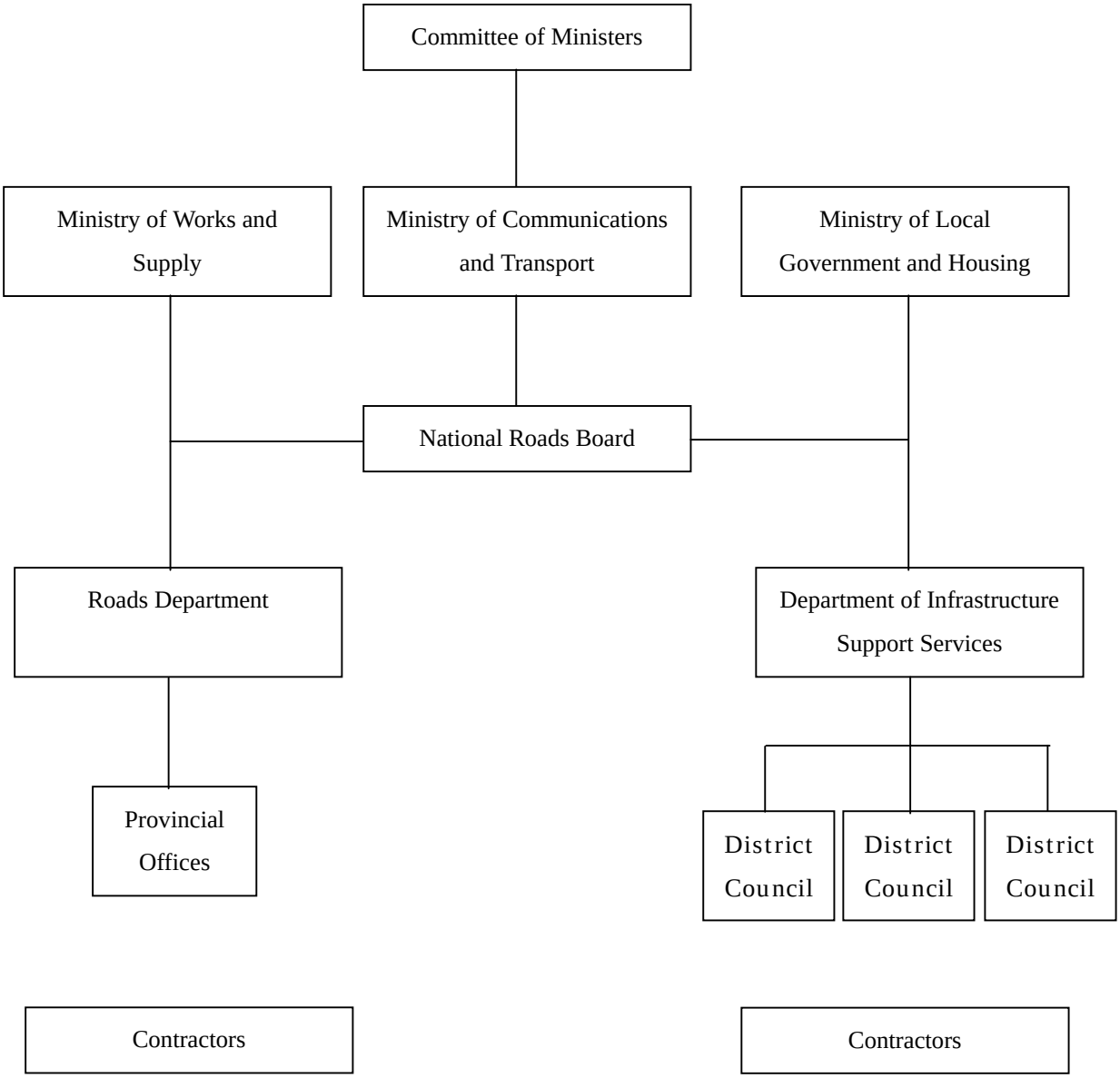



**Figure 3.9.2 Organisation of the Road Sector in Zambia**

## Road Fund

A Road Fund was established in 1993 based on a fuel levy charge, which is now 15% of the wholesale price of fuel (approximately US$0.07 per liter).

## Management Board

The National Roads Boards (NRB) was set up in 1994 to manage the Road Fund. The Board is private sector driven, as seven members are from the private sector and four are from the public

sector. The private sector members have the right to vote, whereas, the public sector members do not. The private sector members are nominees of road users and the four public sector members represent relevant Government Ministries. The Chairman and Vice Chairman are elected by the Board from among the private sector representatives.

The board conducts effective public relation programs, including such mediums as radio programs and monthly press releases, to enhance the sense of ownership among road users.

NRB is trying to force the standardization of contracts and specifications. They have not found manuals to be successful, so include what they need in the contract documents and specification for works. The Agencies have their own design standards.

**Secretariat**

The Secretariat of the Road Fund is the foundation of the Board as it manages the day-to-day operations of the Road Fund. The Secretariat started with just three staff members. It has taken on additional responsibilities and has grown considerably with highly skilled staff. The Secretariat has also set up a small engineering unit, because the Board perceived that it needed a sound technical basis for deploying its resources.

**Capacity Building**

The government has adopted a deliberate policy to move from force account to using private sector contractors. Previously, 94 % of work was done by force account. Now 90 % of works under the Road Fund, including both routine and periodic maintenance, are done by contract. The main reason for this is that by using private sector contractors, there is more transparency and accountability. Also, under force account, only 15 % of equipment was in good condition and some of the very limited funds were having to be used for the maintenance of equipment.

The number of contractors increased from 50 in 1995 to 100 by the end of 2000. Consequently, the pricing for some road works also declined by about 40%. The Board is assisting in the development of contractors. For this purpose, the Road Training School is being revamped and reorganized to train and develop contractor capacity with greater emphasis on labor-based road works.

The Agency role has changed and it is now very much involved in the setting up contracts, procuring services, management and supervision. The HQ problem was that they lacked these skills and did not appreciate the need for such training early enough and there was no such experience in the provinces.

**Funds**

The Road Fund is dedicated to road maintenance. At present, the only source of revenue for the road fund is the fuel levy, which is collected from road users. In the year 2000, Kwacha35.5billion (US$8.9million) was collected from fuel levy but only Kw22.6billion (US$5.7million) was issued to NRB. Top-up funding comes direct from the Ministry of Finance and Economic Development (MOFED) to the road agencies.

In order to broaden the revenue base, the Board has proposed that revenues from transit tolls, weighbridge charges, traffic fines, and motor vehicle licensing fees should go to the road fund. Government is considering this proposal. Funds are only disbursed for approved road maintenance programs.

The revenues from the fuel levy cover around 60% of the entire needs of maintenance. The gap is still funded by the government. The fuel levy is routed through 5 agencies/ministries before reaching the NRB. This is causing delays for funding and leakages in the fund. The contractors are generally paid on time, within 30 days of NRB receiving the certification.

Funds are focused on a 33,500km core road network, which was identified by a National Road Task Force Committee involving Government and the private sector that included all interested parties. The Task Force reported to the NRB.

NRB has a policy not to commission any contract until it has the funds to cover the works costs. In this way, it can ensure that works can be completed and that contractors will not suffer any cash-flow problems.

They are in the first year of a trial of 12-month performance contracts for off-carriageway works. In the future, they may combine the off-carriageway with on-carriageway works, so that the main/larger contractors can manage off-carriageway labor-based contractors as sub-contractors.

They have also completed 5 community cost sharing projects where the community contributes 50% of the project costs and NRB provides the other 50%. The community share is in the form of their labor, materials, supervision, equipment, tools and transport. This initiative is helping to reduce poverty through community participation as well as passing on the maintenance ownership of the roads to the communities.

**Auditing**

Road Fund accounts are audited on a quarterly basis by external auditors. The Auditor General also audits the books once a year. The financial statements are submitted to Parliament and are published in major newspapers. They are also available on the NRB web page.

**Key Issues in the Zambia Maintenance System**

- The National Roads Board has a very strong secretariat financially supported by the World Bank. However, the Board feels weakness as it was established under a statutory instrument and not an Act of Parliament.
- Several ministries are involved in road maintenance activities.
- **A core road network has been identified in order to focus maintenance funding on an essential road network.**
- Activity Specifications have been produced to include in contracts to help both the contractor and the supervisor.
- **The National Roads Board is moving to standardize the contract documents and specifications.**
- **Approximately 90% of maintenance works are now contracted out.**
- The savings through adopting the new maintenance system and moving from Force Account to contracting, are estimated to be up to 40%.
- The road fund is limited to the fuel levy only.
- The fuel levy passes through 5 agencies/ministries before reaching the Road Fund Account. This causes delays and leakage of the fund.
- The Roads Board has adopted a prompt payment policy to provide a reliable cash flow to contractors.
- **No work is commissioned until the funds are available.**
- **Performance contracts for maintenance works are in use.**
- **Community cost-sharing projects have been completed.**

More detailed information on the maintenance system in Zambia is given in ANNEX 6.

## 3.10 Roads Program and International Cooperation in Road Maintenance for Kenya

### 3.10.1 Rural Access Roads Program

The idea of labor-based methods for the construction and maintenance of roads in Kenya can be traced back to 1967 when the Government began a labor-based special Rural Development Program in selected districts. As a result of the success of this program, the Government

designed and launched the labor-based Rural Access Roads Program (RARP) in 1974. The RARP constructed and brought under maintenance farm access roads so as to provide all-weather access between high potential farming areas and market centers. Originally, it was planned to construct about 14,000 km of farm to market access roads in 23 districts having high agricultural potential over a period of eight years from 1974 to 1982. This target was later reduced after being found to be over-optimistic compared with the resources available from both the Government and donors. Eventually, about 8,000 km of rural access roads were constructed and graveled in 26 districts by 1986 under the RARP. The dominant feature of the RARP was the extensive and successful use of labor-based methods for road construction and maintenance.

### 3.10.2 Minor Roads Program

In 1986, the RARP was phased out and a new labor-based program known as the Minor Roads Program (MRP) was introduced. At that time, a change in strategy was adopted under the MRP whereby, instead of constructing more new rural access roads, the same labor-based methods successfully developed under the RARP were employed for the improvement of the neglected higher class D, E and special purpose roads. These roads often provided the link between the rural access roads and the main road network. From 1986 to 1997, about 4,000 km of the neglected D, E and special purpose roads were improved, graveled and brought under regular maintenance through the MRP. To a large extent, the MRP upgraded the condition of the network and enhanced accessibility in the districts where it was implemented. After the upgrading, however, routine maintenance was sometimes inadequate which negated some of the initial benefits. Under the MRP, a ‘lengthman’ system was used for some routine maintenance with each lengthman being responsible for about 1.5 km of road. In the later years of MRP implementation it was recognized that effective ongoing supervision of lengthmen was an essential ingredient.

### 3.10.3 Road Maintenance Initiative

In 1988 the Road Maintenance Initiative (RMI) was launched by the United Nations Economic Commission for Africa (UNECA) and the World Bank, under the auspices of the Sub-Saharan Africa Transport Policy Program (SSATP). The SSATP is an international partnership to facilitate policy reforms in the transport sector in Sub-Saharan Africa. The SSATP has five components: the RMI, Urban Transport, Rural Travel and Transport, Trade and Transport, and Railway Restructuring. The theme of the RMI program is **the commercialization of roads**: bring roads to the marketplace, put them on a fee-for-service basis, and manage them like any

other business enterprise. Recognizing the need to improve the management of the road network, the Government of Kenya joined the RMI in the early 1990s. In 1992, Kenya hosted a RMI seminar during which the main factors contributing to the deterioration in the condition of the network were identified. The constraints identified were institutional, managerial and financial. It was resolved that a sustainable source of funding should be established and that the existing road management institutional set up should be reviewed. In response, the Government took several steps. Firstly, the Road Maintenance Levy Fund Act was passed in 1993 and amended in 1994. Secondly, a Road Sector Institutional Study funded by the European Commission was launched in 1995. Thirdly, the Kenya Roads Board bill was passed into law in December 1999 and received Presidential assent in January 2000 (the Institutional Study had earlier recommended the establishment of a roads board and road agencies).

### 3.10.4 Roads 2000 Maintenance Program

In 1991 a further evolution of strategy took place with the conceptualization of the Roads 2000 Maintenance Program (Roads 2000). This represents a new strategy in Kenya for the use of local resources within the RMI main policy framework for improved road maintenance (namely, the policy for commercializing roads covering such matters as establishing a Roads Board, a Road Fund and commercially-oriented road agencies). Roads 2000 will make more use of the "employment-generating labor-based" methods that were previously developed for the minor end of the Kenyan network (RARP and MRP). The objective of Roads 2000 is to establish maintenance of **the classified road network** to an economic level of serviceability using local resources and labor-based methods wherever these are cost effective.

The Roads 2000 approach has grown directly from the RARP and MRP. Faced with the situation where minor roads at the low end of the network (improved and maintained using labor-based methods) had on average better levels of serviceability than higher classes of road, it was decided that change was necessary. The resultant concept was that, instead of the piecemeal improvement and rehabilitation of individual roads (which is still currently occurring as a direct consequence of the lack of maintenance), whole networks will be brought to a minimum level of serviceability such that effective routine maintenance can be re-established. Much of this maintenance will be undertaken by the private sector using labor-based methods supported by light equipment (e.g. tractor-towed graders and compactors). The use of petty and lengthman contractors will be encouraged, developed and introduced. Also, the local manufacture of light equipment will be encouraged and expanded. Priority will be given to developing decentralized planning procedures involving the community and district authorities. This will facilitate road users to be involved in decision-making on road priorities and

standards and help to enforce the correct use of funds.

Techniques have been tested in several areas of Kenya, and the Roads 2000 approach is now accepted as technically feasible. The aim of the Government is to progressively implement Roads 2000 in all districts, hopefully by 2005. Originally, it was expected that Roads 2000 would be implemented in all districts by the year 2000 (hence, the name Roads 2000). However, progress has been very slow due to unresolved institutional, managerial and financial issues, which in turn have deterred some donors from supporting Roads 2000 projects. Hopefully, some of these issues can start to be addressed once KRB is up and running. To date, 12 of Kenya's 70 districts have received donor support for Roads 2000 projects: two districts in Central Province (SIDA); six districts in Eastern Province (European Union); and four districts in Coast Province (DANIDA). The SIDA and DANIDA projects are ongoing but currently subject to donor evaluation/review. The EU project is also under donor review.

### 3.10.5 Strategic Plan for the Roads Sector

The Strategic Plan for the Roads Sector, approved and published in March 1997, endorses all the initiatives promoted in Roads 2000 (not only technical initiatives but also institutional, managerial and financial initiatives that will be needed for commercializing roads in Kenya). Specific endorsements include the following measures (covering both Roads 2000 and unclassified roads).

- The attainment of sustainability of adequate routine and periodic maintenance of roads through local resources.
- The Strategic plan is predicated upon an increased participation of the private sector in all road maintenance works.
- The resistance to private sector small-scale (petty) contractors has been removed with the Strategic Plan expressing the intention of positive discrimination in favor of labor-based contracting.
- The training of small-scale labor-based contractors.
- The creation of an environment conducive for effective participation of the private sector in road maintenance works.
- The development of effective planning systems at district level.

### 3.10.6 Poverty Reduction Strategy

#### (1) Background

Kenya's Poverty Reduction Strategy has five basic components.

- To facilitate sustained and rapid economic growth.
- To improve governance and security.
- To increase the ability of the poor to raise their incomes.
- To improve the quality of life of the poor.
- To improve equity and participation.

The Roads 2000 concept obviously fits well with the Poverty Reduction Strategy because the central theme of Roads 2000 projects will be the use of "employment-generating and labor-based maintenance methods", particularly in rural areas where most of the poor reside. The manufacture of simple hand tools for Roads 2000 projects is another area where the poor might be able to pursue employment opportunities. For road maintenance activities on unclassified roads, labor-based methods will be used very intensively, thereby creating a good number of jobs for poor men and women, particularly when the road agencies responsible for unclassified roads start to receive their full budget entitlements from the fuel levy fund which in turn would facilitate the emergence of more petty and lengthmen contractors.

#### (2) Rural Area Case Study

The benefits of labor-based road works in rural areas are very high. A typical case study is pictured below.

- Project – graveling and bringing under maintenance an E class road, 10 km in length in a tea area. Before the Project, the road track was only partially passable and income-generating activity was limited to a one-person brick making business.
- Before the Project: schools – one at each end of the road; tea buying centers – none; shopping areas – one at each end; housing standards – almost no permanent houses; horticulture – none; and transportation and rural travel – very poor and very little.
- After the Project – six more schools; four tea buying centers; three more shopping areas; several permanent houses; several more brickmakers; horticulture now practiced; transportation now efficient and all-weather; and a lot of rural travel to/from markets.

### 3.10.7 Kenya Urban Transport Infrastructure Project

The World Bank-financed Kenya Urban Transport Infrastructure Project (KUTIP) is a capacity building initiative for the urban road sub-sector in 26 towns. Capacity building for the towns under KUTIP is being carried out by the Transport Management Unit (TMU) of MOLG and covers several key aspects:

- A comprehensive maintenance management and budgeting system.
- Guidelines for technical review of design standards.
- A rigorous procurement management system.

The TMU has also developed a computerized maintenance management and works inspectorate function (complete with road roughness survey equipment) to oversee and assist the local authorities to improve their routine road maintenance performance and to effectively use the funds allocated to them from the Road Maintenance Levy Fund. Also included in this component are:

- Development and training of local authority technical staff, with particular emphasis on strengthening their planning and implementation capacity.
- Local Authority Roads Network database development, condition survey and maintenance budget analysis.
- Support for conducting periodic workshops and seminars involving the project towns for the purpose of exchanging information/experience and for an open review of maintenance and implementation performance by individual project towns.

### 3.10.8 Donor Agencies

#### (1) Background

International donors have been active in Kenya since the 1960s. Over the years, the donor funds have been crucial in supporting the government efforts to develop and maintain the road network in Kenya. They have also been instrumental in providing the funds to develop the institutional frameworks and a program of implementation for the new Kenya Roads Board. The coordination of the international donor support is in two parts:

(a) MORPW has a donor coordinator.

(b) Informal Donor Group –This group meets at least every 2 months. The key objectives are to coordinate donor activities to ensure there is minimum overlap in the Terms of Reference

for donor projects, to ensure good geographical coverage and to provide a forum for discussion of donor issues to enable unified actions to be taken forward.

There are between 158,000km and 198,000km of road in Kenya, depending on which data is used. Since independence over 20 years ago, about 40% of this network has been lost due to lack of maintenance.

The network expanded after independence but it was not maintained. The Sub-Saharan Africa Transport Policy Program (SSATP), funded by the World Bank, was initiated to look at the issues in Africa in general. As a result of this, the Road Maintenance Fuel Levy Fund (RMFL) was established in 1993 to fund road maintenance in Kenya.

Although RMFL increased the cash available, there was not a corresponding improvement in the road maintenance.

In 1995, the donors expressed their concerns over funding issues. They insisted on reforms in the system and proper planned maintenance programs before any further funding would be available.

Between 1995 and 1999, donors funded a study, Road Sector Institutional Study (ROSIS), prepared by bmb Management Consultants, to design an institutional framework for the effective management of Kenya's road network. This report was very comprehensive and looked at the formation of the Kenya Roads Board (KRB) and other road agencies, the legal framework, KRB management and the need for further studies and capacity building.

In 1999, DFID provided the funds for a consultant to review the reform program in the ROSIS Report. WSP/INTECH were appointed to do the study 'Management of Change to Roads Authority in Kenya, Stage 1, February 1999'. This developed the ideas in the earlier report and produced solutions to the issues at stake. It developed a complete organization structure together with roles and responsibilities. The report was submitted to all government departments and donors.

Between June and November 2000, EU funded a study ' Review of the Road Maintenance Fuel Levy by BCEOM (France) November 2000 for the Ministry of Finance'. The purpose of this report was:

(a) To review past performance of the GoK in executing the RMFL and to review the Auditor General's (AG) reports on the performance of the Ministries involved.

(b) To review the performance of the Ministries since the AGs audits and see if improvements have been achieved.
(c) To demonstrate if the actions taken under (b) are being followed and are adequate to ensure proper and transparent management of the RMFL.

The conclusion of the Review Consultant was:

(i) Major roadwork improvements were being carried out without proper budgetary control.
(ii) The Fuel Levy Fund was being used to finance major works improvements when it should have been reserved for repair and maintenance.
(iii) Authority was being delegated to District engineers to supervise the works when they had insufficient contractual and works experience to efficiently carry out these duties.
(iv) Item (iii) resulted in the Employer being put at risk of poor quality work and excessive costs.
(v) Flouting of government procedures for tendering and ordering of extra works leading to overspending and increase in costs.

Additional conclusions were also given as follows:

The 1993 Act was neither being implemented efficiently nor as intended, and as a result the accounting of the Fund was uncertain. The audits are deficient of fact and published too late to prevent continuing bad practice.

After June 1998, there has been an effort made by all relevant departments of the Government to improve the implementation of the Road Maintenance Levy Fund. However, the Review Consultant is not in a position to confirm that positive changes in the physical execution of the Fund indeed took place.

Procedures and Regulations, which govern the procurement of roads, are perfectly satisfactory and equal to international standards.

Much of the administration of the fund is being conducted in a proper and transparent manner.

The Road Maintenance Fuel Levy Fund is not being utilized in a cost effective manner and the Review Consultant recommends that the Roads Department of the Ministry of Roads and Public Works, and future District Agencies seek external help.

The KRB Bill was drafted between July 1998 and September 1999. The draft bill was approved by cabinet in October 1999 and was presented to Parliament in November 1999. During debate in parliament, the District Roads Committees were included and in December 1999 the revised KRB Bill passed into Law. Presidential assent was given in January 2000.

In February 2000, the Minister of Roads and Public Works, set up an Interim Steering Group (ISG). The purpose of the ISG was to 'oversee, guide and monitor the program to establish the KRB so that all tasks essential for that establishment and continued effective functioning of the Board were put in hand with the least possible delay.' Three sub committees were set up dealing with Legal, Finance and Management, and Technical matters. A number of short and long term action plans were examined along with a range of other issues. Matters that quickly came up were the need for a full road inventory and to unify about 21 laws which had conflicts with the KRB Act. They also looked at the strategy for reform including the Road Agencies. The Kenya Roads Board Implementation Report was published by the ISG in July 2000.

The international donor group is trying to assist with the progress of the KRB.

The majority of the donors in the informal donor group have now placed some conditionality on any future donor assistance to the road sector in Kenya. The key condition is that the KRB framework is seen to be implemented. They would like further clarification on the roles and responsibilities at the DRC level and would prefer the MPs to have a watchdog role but with no control over the money, which is in line with the High Court ruling. They believe that the KRB Framework will provide better use of the funds available, will give greater accountability and with effective audit functions in place, should ensure the full and efficient use of the funds.

**(2) World Bank (IDA)**

The World Bank (WB) has been active in Kenya since the early1960s. The World Bank assistance to the sector has contributed to the creation of part of the regional, national and rural road network and also in the reconstruction of the existing network.

Currently, the World Bank support to the sector is through the ongoing widening and reconstruction of Mtito Andei – Bachuma Gate a 150 km section of the Nairobi to Mombasa Road, officially opened in September 2001. The main civil works contracts are substantially completed except for some additional works (rehabilitation of the Voi Loop Road; widening three major road bridges and a rail bridge). This is an extremely high quality section of road and probably the best in Kenya at the moment. In addition to this, the World Bank is also

financing some design studies for roads identified for possible funding. These include Lanet-Mau Summit-Timboroa, Mau Summit-Kisumu, and Machakos Turn Off-Sultan Hamud. Funding for this can only be considered if there is a framework in place to ensure sustainability in the sector. In particular, establishing the Kenya Roads Board as an effective body with full jurisdiction over prioritisation for road maintenance.

WB has received a request from the GoK to consider financing the reconstruction of the Maji ya Chumvi – Miritini section (35km)of the Nairobi to Mombasa Road. This is currently being processed by the WB. The selection of consultants for the design and supervision has been concluded. If the KRB process is seen to be proceeding positively, then the WB will take this to its Board for review and approval but this is conditional on the KRB process moving forward.

WB has also had a request from the GoK regarding the section of the Nairobi to Mombasa Road from the International Airport to Sultan Hamud. WB prepared a project proposal for this in 1996 under the 3rd Highway Sector Project but it was suspended at that time because of slow implementation of institutional reforms in the road sector.

WB had a component of the Roads 2000 project involving labor-based methods but they have not done anything on this as yet. MORPW wanted WB to go ahead but they received a letter from the MOF saying that MOF preferred WB to focus on major rehabilitation works on the main road network and not on minor roads. WB feels they are better suited to run major contracts than many small minor roads contracts. They are waiting for this issue to be sorted out between the Ministries.

WB is involved in KUTIP. Some of the KUTIP funds were reallocated to the El-Nino Project. The work in the major cities is nearly complete. The WB funding for the El-Nino project finished in December 2001 and KUTIP will finish in early 2003.

WB is not clear how KRB will deal with new roads and development. Loan Agreements have traditionally been signed by the Treasury as they generally need a government backed guarantee. WB cannot see KRB having those powers so solutions to this issue will have to be found.

In 1996, the WB introduced pre-conditions on its loans. They agreed a plan to meet the pre-conditions and they were met by the GoK.
In 1998, MORPW received a number of proposals from private sector organizations regarding the possible tolling of some major roads in Kenya. These were sent to the WB for review and

WB said they would need a study to look at the technical and financial viability of such proposals. Funds were provided by Public Private Infrastructure Advisory Facility. This facility can provide funds for analytical studies that may lead to the private participation in infrastructure projects in Kenya. WB issued an EOI for a 1-year viability study, bids were received, and they are currently evaluating the tenders.

A RMI feed back mission was here earlier this year to look at restructuring the RMI project based on the experience gained so far.

WB is positive about the future of funding in the road sector in Kenya. However, all future WB funding is conditional on KRB proceeding in a manner acceptable to the WB.

**(3) European Union (EU)**

Under the 7th European Development Fund (EDF), National Indicative Programmes (NIP) signed in 1991, the original focal area of assistance was rural development with one of the specific objectives being 'Development of social infrastructures (mainly roads)'.

In 1995 a revision of the programme was carried out to increase the effectiveness of the Community's aid through the promotion of Kenya's commitment to sound policy and institutional development. The 7th EDF NIP was restructured with road infrastructure receiving 46% of the resources.

The 8th EDF NIP, signed in 1997, provides a total programmable package of Euros (€) 136.9 million.

The transport and roads infrastructure portfolio is currently the largest area of concentration, representing over 40% of the total active portfolio in Kenya.

The agreement in principle for European Commission (EC)-GoK cooperation in the road sector is 'the creation of sustainable institutional and financial arrangements for the management and maintenance of Kenya's road network; ECs sectoral support must be seen in the broader context of general reforms in the Public Sector, which aim at efficient transparent and accountable management of all Public sector activities and good governance in general.'

EC funding is conditional upon fulfillment and adherence to a series of conditionalities and accompanying measures.

Two major projects on the northern corridor, totaling €134.5 million, have been approved for funding. Phase I Sultan Hamud-Mtito Andei (132km on the A109 Mombasa to Nairobi road) and Phase II Mai Mahui-Naivasha-Lanet (96km on the A104 Nairobi to Nakuru road). Following discussions with the GoK regarding suitable procedures, it is hoped to appoint consultants in October 2001 and to appoint contractors in April 2002 for Phase I.

Funding has also been approved for a Pre-Feasibility Study for the Bachuma Gate to Mombasa road. It is hoped that this will go ahead this financial year. EU funded a Pre-Feasibility study for the improvement of the Isiolo-Moyale Road (500km). This study was completed in December 2000.

In addition, support has been provided to rural roads aimed at improving roads in coffee growing areas to maintainable conditions.

EU is also supporting the GoK in the control of axle loads that are a major factor in the deterioration of roads in Kenya. EU is proposing further initiatives to improve the level of control.

A review of the Roads 2000 Programme in 8 Districts in Eastern Province concluded that the programme failed to meet its objectives largely due to the change from labor based approach to equipment based contracts; there was a lack of commitment and poor implementation. Discussions have been held with GoK to extend the financing agreement, to conclude the on-going contracts and to refocus on labor based works to achieve the Roads 2000 objectives.
In the future, it is proposed to give priority in the use of EDF resources to road rehabilitation through improvement of the Northern Corridor (Mombasa-Nairobi-Uganda) as well as other sections of the most trafficked network including rural roads. This is to be complemented by specific and focused support to road sector reforms.

**(4) Department for International Development (DFID)**

DFID policy, as set out in its Development White Paper, is to increasingly provide support to developing country budgets. This will result in a gradual reduction in the proportion of project finance. Projects will increasingly consist of consultancy and advisory services, often in support of budget support, either completely untied or linked to sector wide programs.
The last major road project they funded was a new section of road in 1982 followed by funding for re-sealing completed in 1999.

They were due to have some involvement in Roads 2000 but they have not participated so far. Currently they are providing funding to support the development and implementation of the KRB process. This started initially through the MORPW in developing the framework followed by funding for the ISG. They have funded consultancy services and workshops to assist the progress of the KRB implementation.

**(5) Danish International Development Agency ( DANIDA )**

DANIDA is working on the Roads 2000 Program in 4 of the 7 Districts in Coast Province. They have a project coordinator and a mechanical advisor, both based in Mombasa.

It is a 5-year program in 2 phases. The first 2-year phase finished in June 2001. A review of DANIDA support to Roads 2000 recommended that Phase 1 be extended by 1 year to give time to assess the achievement of the project as well as the reform developments within the roads sector before deciding on the future of Phase 2 of the project.

Under Roads 2000, DANIDA requires the Government of Kenya to pay for the works done and only then will DANIDA reimburse the costs. This has caused many problems as the Government often delays payment. From July 2000 to January 2001, no work was done because the government had not allocated funds. Funds were finally released in March 2001 and maintenance works are now ongoing.

Roads 2000 is a continuation of the Minor Roads Programme (MRP), which DANIDA thinks contained some very good initiatives. DANIDA provided tractors and trailers under the MRP and is using this equipment under Roads 2000 in the transition phase from Force Account to Private Sector contracting.

The strategy of the DANIDA supported Roads 2000 project is as follows:

(i) Maintenance of all maintainable roads.
(ii) Spot improvement of bad sections on the maintainable roads.
(iii) Improvement of non-maintainable roads.

The emphasis is thus on routine and periodic maintenance rather than improvement. The strategy is to maintain all the roads that are in a reasonable condition and slowly expand the maintainable network through spot improvements. The project actively supports contracting through training of small-scale contractors and development of contract documents. In the first

year 26 % of the works were done by contract whereas in year two approximately 50% of the works were carried out by contractors.

Due to lack of national work plan, reporting and contracting formats, the project has had to develop its own formats that are now being field-tested.

**(6) Groupe Agence Francaise de Developpment (AFD)**

The AFD (French Agency for Development) started operating in Kenya in 1997.

In 1999, when the KRB was coming into being and the donor groups were more positive about the future in the sector, they proposed to the Government of Kenya an involvement in the Roads 2000 program. It is envisaged that AFD be requested to provide finance for rural roads rehabilitation in 3 Districts in Central Province: Nyandarua, Muranga and Maragwa. The Ministry of Roads and Public Works is currently procuring a preparation study to be entrusted to a consultant, on AFD funding.

AFD has also mentioned interest in co-financing with KFW the reconstruction of the Maai Mahiu - Narok road. It is expected that the updated feasibility study of this project be available in the third quarter of 2001.

For both projects it is anticipated that funding will be dependent on a successful settlement of the KRB issues and a move forward in terms of actual implementation of the reform of the road maintenance set-up.

**(7) Kreditanstalt fur Wiederaufbau ( KfW )**

Kreditanstalt fur Wiederaufbau has been active in Kenya since 1965.

They provide project finance but any future funding is conditional in accordance with the main donor group requirements. KRB must be functioning, the implementation process must be clear and there must be mechanisms to ensure that the Fuel Levy funds are received where it is needed and that those funds are actually spent on the works designated for the funding.

They are involved in Roads 2000. They will be involved in 6 Districts in the Rift Valley Province. They carried out an appraisal in 1996 but there were long delays at MORPW in the tendering process. The concept then changed from Force Account to labor-based so they have

not started anything yet. When they do start, it will be on a similar basis to DANIDA; assisting with labor-based contracts, spot maintenance and training.

They have recently handed over about 70km of road from Narok to the Amala River. They have proposals to co-finance with AFD the reconstruction of the Maai Mahiu - Narok road and they are also currently working on the Lamu to Garsen Road in Coast Province.

**(8) Swiss Development Cooperation ( SDC )**

The Swiss Agency for Development and Cooperation (SDC) has been providing funding to Kenya since 1964 at that time through the embassy. In 1972 they established a Development Department in the embassy to continue that funding. Their main funding activities were institutional strengthening and studies.

As part of the Roads 2000 project that started in 1990, SDC took on the funding role to develop the Kisii Training Center and the training course programs currently in use. This program has now finished and they will be handing over the facility officially to MORPW this year.

Through the SDC support, the training programs have developed such that Kisii now offers international training programs in roads related topics and earns revenue from these courses.

SDC does not see any further involvement in the road sector in Kenya other than perhaps some limited study support.

**(9) Swedish International Development Cooperation Agency (Sida)**

Sida has been involved in Kenya for more than 20 years mainly through all the joint donor projects, RARP, MRP and Roads 2000.

However, Sida has been reducing its involvement in the roads sector as a result of the overall reduction in the Swedish assistance to Kenya i.e. ‘Country Frame’, which resulted in Sida’s decision to focus on other sectors. There is now an overall increase in the volume of Swedish allocations to development cooperation, plus an increasing interest in the Lake Victoria region that may lead to continuation of support to the Roads Sector. One of the preconditions for continued support is improved institutional arrangements, i.e., a fully functioning and operational Kenya Roads Board.

Sida has been involved in Roads 2000 from the start and is active in Central Province in the Districts of Nyeri and Kirinyaga. The present agreement expired in June 2000 but because of slow implementation, caused by insufficient and late issuance of funds by GoK and bureaucracy in the financial disbursement system, a 1-year extension was granted. After Sida interventions, GoK implemented reforms in the District Treasuries that led to improved implementation. Also GoK allocations improved. The 1-year extension was sufficient to complete the backlog of activities.

A review team from Sweden visited Kenya in November 2000 and returned in March 2001 to discuss their findings and recommendations regarding future funding for this project. After the latter visit, it was agreed that a further 2-year prolongation of the support to the Roads Sector be granted. In summary, the objectives during this prolongation will be as follows:

1. To wind up the project in Nyeri and Kirinyaga by the rehabilitation of roads in some areas which had not been covered in the original work plans/budgets; and,
2. To carry out a project preparation for support to new districts in the Lake Victoria region

As with DANIDA, the GoK is required to pay first and then Sida will reimburse on a sliding-scale basis. However, in the 2-year prolongation, Sida will fully fund rehabilitation in the selected areas, while GoK will focus on routine/periodic maintenance. The problem has been to get GoK to send the money to the Districts and this has caused problems and delays to the project. This did improve slightly after a mid ’99 review that showed the lack of activity and Sida threatened to terminate their involvement. It was this improvement which enabled the 1-year extension.

For future funding in the road sector in Kenya, Sida must see an efficient functioning KRB system.

**(10) United States Agency for International Development (USAID)**

USAID has been involved in Kenya since the 1960s and its first involvement in the Road sector was in 1978.

From 1978 to 1989, USAID along with other donors was involved in the Rural Access Roads Program (RARP). USAID worked in Western and Nyanza Provinces. The program was aimed at spot improvements and was quite successful however, on handover, routine maintenance was not carried out so the road condition deteriorated.

USAID then continued with a program of graveling, bridges and culverts.

From 1990 to 1997, USAID embarked on the Kenya Market Road Development Program. This was aimed at C, D and E roads and was piloted in 8 Districts in various Provinces. This was funded through the Food Aid Program and about 550km of road was graveled and it was quite successful but again the lack of routine maintenance after handover allowed these roads to rapidly deteriorate.

From 1998 to present, they have allocated loans as part of the Roads 2000 Program for 2 Districts in Central Province, 2 Districts in Nyanza and 8 Districts in Western Province. None of this money has yet been used as there have been delays in the appointment of local consultants to carry out the design, tendering and supervision. They hope this tender will be awarded very soon.

The USAID economic strategy is to increase rural household income by improving the local infrastructure.

**(11) The Government of Japan**

The Government of Japan has been providing official development assistance to Kenya since 1966.

The assistance is in 2 forms:

(a) Grant Aid, Under the Ministry of Foreign Affairs, for humanitarian issues
(b) Loan Aid, Under the Treasury, for economic issues

Two organizations are responsible for aid projects:

(i) Japan International Cooperation Agency (JICA) is responsible for Grant Aid Projects.
(ii) Japan Bank for International Cooperation (JBIC) is responsible for Loan Aid Projects.

Under Grant Aid, the first 3 projects in 1984, 1988 and 1993 were all for the supply of equipment and spare parts.

The first road sector construction project under grant aid came in 1994 and was for bridge

reconstruction. This was followed by 2 further bridge reconstruction projects.
Grant Aid projects are strictly controlled to time and expenditure programs.

Under Loan Aid, they have carried out 6 projects starting in 1975.

No loans have been issued since 1997.

The Japanese government monitors its loan projects very closely. This monitoring is usually done by JBIC. No conditionality is placed on the loans from Japan.