

# RURAL ACCESSIBILITY CHALLENGES ASSOCIATED WITH UNPAVED ROADS IN MALAWI

Presentation by

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# 1.0 INTRODUCTION

- Malawi is a landlocked country located in Southern Africa. It has an area of about 118,000 sq. km, 35% of which is occupied by lakes.
- The country is located along the Great Rift Valley, and has a varied topography – mountains, escarpments, plains, valleys
- Because the country is landlocked, road transport forms the most important component of transport systems.
- Its economy is predominantly agro-based therefore connectivity to rural agriculture communities is of paramount importance.

# MALAWI: LOCATION MAP

Located in southern Africa, bordered by Mozambique to the south, south-east and south-west Tanzania to the north and north-east and Zambia to the west and north-west

Population (2008) of Malawi is estimated at 13 million, with 85% in rural areas



## 2.0 DESCRIPTION OF THE ROAD NETWORK

- Malawi has a designated road network of about 15,451 km, classified into four categories: Main (M), Secondary (S), Tertiary (T) and District (D) roads.
- Of the total network, only 4,038 km are paved. These are mostly major trunk roads and urban roads. The rest 11,413 km are unpaved and mostly S, T and D roads which provide connectivity to the rural areas.
- There is also about 9,478 km of undesignated network of community feeder roads which is also unpaved.

# 3.0 DESIGNATED ROAD NETWORK SIZE AND CLASSIFICATION

Road Class	Paved km	Unpaved km	Total km	% Share
Main	2,809	548	3,357	22
Secondary	407	2,718	3,125	20
Tertiary	44	4,077	4,121	27
District	8	3,492	3,500	23
Urban	770	578	1,348	9
<b>TOTAL</b>	<b>4,038</b>	<b>11,413</b>	<b>15,451</b>	<b>100</b>

# 4.0 MANAGEMENT OF THE ROAD INFRASTRUCTURE

- In 1998, the National Roads Authority (NRA) now Roads Authority (RA) was established through an act of Parliament to manage an otherwise then very dilapidated road infrastructure in Malawi following years of neglect.
- The Vision statement of the RA reads, *'By the year 2020 the Malawi designated public road network is developed and maintained to a standard where all motorised and non-motorised traffic can reach every society of the country in an adequate, safe, reliable, efficient, economic and environmentally friendly manner at all times of the year'*.

# MANAGEMENT OF THE ROAD INFRASTRUCTURE (Cont)

- RA also operates under the following Mission Statement, *‘To develop and maintain the designated public road network infrastructure investment in a cost effective manner with a view to provide an accessible, reliable, efficient, safe, sustainable and most economic transport system in Malawi.’*
- From both the Vision and Mission statements safety, efficiency, economic, environmental and sustainability issues are clearly highlighted as guiding statements RA operations.

# 5.0 RURAL ACCESSIBILITY CHALLENGES ASSOCIATED WITH UNPAVED ROADS

- A lot of positive strides have taken place in the improvement of the road infrastructure in Malawi since 1998, due to increased investment and proper road management practices.
- However, despite the heavy investment, still a challenge to ensure proper rural accessibility with the unpaved road network. Addressing safety, efficiency, economic, environmental and sustainability issues captured in both the Vision and Mission Statement is still a challenge on these roads.

# RURAL ACCESSIBILITY CHALLENGES ASSOCIATED WITH UNPAVED ROADS (cont)

- According to Roads Authority Annual Report for 2009/10, 90% of the unpaved roads were either in fair to poor condition as compared to only 22% for paved roads despite considerable financial investment on road maintenance for both types of roads.
- The table below illustrates the road types and their condition:

# ROAD TYPE AND PAVEMENT CONDITION ACCORDING TO RA ANNUAL REPORT FOR 2009/10

CONDITI ON	PAVED KM	PAVED %	UNPAVE D KM	UNPAVE D %	TOTAL KM	TOTAL %
GOOD	3,136	77	1,138	10	4,274	28
FAIR	855	21	6,030	53	6,886	45
POOR	81	2	4,210	37	4,291	28
TOTAL	4,073	100	11,378	100	15,451	100

# RURAL ACCESSIBILITY CHALLENGES ASSOCIATED WITH UNPAVED ROADS (cont)

From the table:

- only 10% of the unpaved roads were in good condition against 77% for the paved roads
- 53% of the unpaved roads were in fair condition against 21% for the paved roads
- 37% of unpaved roads were in poor condition against 2% for paved roads.

# RURAL ACCESSIBILITY CHALLENGES ASSOCIATED WITH UNPAVED ROADS (cont)

- The table above only depicts differences with respect to the condition of the riding surface of unpaved roads as compared to that paved roads.
- The table is also indicative of better response to maintenance interventions of paved roads as opposed to unpaved roads.
- However, there are a number of challenges regarding rural accessibility due to the fact that most of the rural roads are unpaved. These are listed below as follows:

# 5.1 ENGINEERING RELATED FACTORS

1. Poor geometric features due to lack of alignment design compromising on both safety and efficiency of travel
2. Undesigned pavement structure:
  - Earth roads mostly constructed from poor strength existing natural subgrade material
  - Even on roads where gravel is applied, no correlation between the traffic volumes, material characteristics and selected pavement layer thickness.

# 5.1 ENGINEERING

## RELATED FACTORS (cont)

3. Lack of protection of the pavement structure from the weather elements as opposed to paved roads:
  - In rainy season heavily exposed to water resulting in mud pools and slippery surfaces both of which compromise on safety and efficiency of travel
  - In dry season combined effects of traffic and dry weather lead to loss of fines and hence plasticity, resulting in dust and corrugations making travelling unsafe, uncomfortable and inefficient.
4. Lack of design for drainage structures leading to their poor performance.

## 5.2 ENVIRONMENTAL RELATED FACTORS

1. Depletion of construction material sources like gravel which are not a renewable resource.
2. Environmental pollution (water sources, houses and vegetation) due to dust emissions
3. Unpaved roads are more susceptible to wash-aways as a result of disturbances to the natural environment through uncontrolled land usage (deforestation and cultivation).

## 5.3 ECONOMIC FACTORS

1. Reduced travel efficiency due to combined effects of poor geometrics and usually poor riding surface condition.
2. High vehicle operational costs due to high wear and tear of vehicle parts
3. High transportation costs due to (2) and the resulting reduced number of transport operators serving the rural areas.

# 5.4 MAINTENANCE CHALLENGES

1. Short term impact of recurrent maintenance interventions – one major reason why the unpaved road network is still in poor condition despite heavy financial investment.
2. Inadequate financial resources to cater for backlog and recurrent maintenance demands
3. Lack of community ownership of the road investment

## 5.5 SAFETY CHALLENGES DUE TO:

1. Poor road geometrics, mud pools and slippery surfaces
2. Reduced visibility due to lack of grass cutting operations on the road reserve
3. Conflict between traffic, people and animals especially at market centres.
4. Vandalism of road furniture

# 6.0 CONCLUSION

- Rural accessibility challenges associated with unpaved roads are many.
- The report has highlighted engineering deficiencies, environmental issues, maintenance challenges as well as safety and economic issues.
- In view of the vastness of the unpaved road network in Africa and the rest of the developing world and the lack of adequate financial resources to keep it in good condition, more studies and consultative meetings will be required to come up with more cost-effective and environmentally friendly solutions.

**END**

**THANK YOU**