



**AGEPAR**



# **INTERNATIONAL SEMINAR ON SUSTAINABLE ROAD FINANCING AND INVESTMENT**



## **Summary Proceedings**

**16 – 20 APRIL 2007**

**NGURDOTO MOUNTAIN LODGE, ARUSHA, TANZANIA**

**Organised by:**  
**The Ministry of Infrastructure Development of the**  
**United Republic of Tanzania**  
**in Collaboration with PIARC, ARMFA, AGEPAR, ASANRA & SSATP**

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## ACKNOWLEDGEMENT

Special thanks are extended to the Tanzania Ministry of Infrastructure Development who in collaboration with The World Road Association (PIARC) through its Technical Committee on Financing Road System Investment (TC 1.2), African Road Maintenance Funds Association (ARMFA), Association of African Road Managers and Partners (AGEPAR), The Association of Southern Africa National Roads Agencies (ASANRA), and The Sub-Saharan Africa Transport Policy Program (SSATP) organised this International Seminar on Sustainable Road Financing and Investment.

We are indebted to the Organising Committee and especially it's Chairman Mr. Joseph Odo Haule who is also the ARMFA President, for organising the Seminar in a style that made the event a success.

Thanks are given to PIARC for having put faith in Tanzania to organise and host this important event. Tanzania has proven that African countries are able to host such seminars and it is hoped that more African countries consider this as a challenge and positive initiative when hosting similar events in the future.

We would like to extend our thanks to the Seminar Administrator Ms. Roselyne Mariki and the Seminar Moderator Mr. Edward Mhina for doing a superb job.

We are grateful to all the sponsors whose contributions were fundamental to the success of the Seminar namely CRDB Bank Tanzania, the Norwegian Government through their Institutional Support to TANROADS of Tanzania, PIARC, Roads Fund Board Tanzania, Nyanza Road Works, MECCO, ITECO Consult Tanzania Ltd., NAS Hauliers, and National Micro finance Bank (NMB). Other Sponsors were Inter Consult Ltd., Engineering Research Associates, COWI Tanzania Consulting Engineers and Planners Ltd., Contractors Registration Board (CRB), Neng Engineering, and UWP Consulting (Tanzania) Limited.

We would like to thank all the paper presenters for such a positive response given the very short notice in preparation for the seminar. A total of 35 presentations were made and discussed, one round table discussion, and one training seminar.

Last but not least, we would like to thank the participants for attending, contributing, sharing your ideas, and finally giving your own personal evaluation of the seminar.

Eng. R. Lwakatare

Eng. L. Chobya (Mrs.)

**Rapporteurs**

**International Seminar on Sustainable Road Financing and Investment**

**Ngurdoto Mountain Lodge, Arusha, Tanzania**

**16<sup>th</sup> – 20<sup>th</sup> April 2007**

## ACRONYMS AND ABBREVIATIONS

<b>AGEPAR</b>	-	Association of African Road Managers and Partners
<b>ARMFA</b>	-	Association of Road Maintenance Funds in Africa
<b>ASANRA</b>	-	Association of Southern African National Road Agencies
<b>AWP</b>	-	Annual Work Programme
<b>BOT</b>	-	Built Operate and Transfer
<b>CEA</b>	-	Cost Effective Analysis
<b>CRB</b>	-	Contractors Registration Board
<b>DART</b>	-	Dar es Salaam Rapid Transit
<b>GDP</b>	-	Gross Domestic Product
<b>GIS</b>	-	Geographical Information Systems
<b>GPS</b>	-	Global Positioning Software
<b>gTKP</b>	-	Global Transport Knowledge Partnership
<b>HDM-4</b>	-	Highway Development and Management System Version 4
<b>HOT</b>	-	High Occupancy Tolling
<b>HOV</b>	-	High Occupancy Vehicle
<b>ICB</b>	-	Institutional Capacity Programme
<b>ITIP</b>	-	International Association of Public Transport
<b>JY</b>	-	Japanese Yen
<b>LDC</b>	-	Laptop Data Collection System
<b>MCA</b>	-	Multi-Criteria Analysis
<b>MDG</b>	-	Millennium Development Goals
<b>MOF</b>	-	Ministry of Finance
<b>MOID</b>	-	Ministry of Infrastructure Development, Tanzania
<b>MP</b>	-	Member of Parliament
<b>MRGenS</b>	-	Map Reference Generation System
<b>NMB</b>	-	National Micro Finance Bank
<b>PACS</b>	-	Project Anti-Corruption System
<b>PAM</b>	-	Performance Assessment Model
<b>PASER</b>	-	Pavement Surface Evaluation and Rating
<b>PCB</b>	-	Performance Based Contracts
<b>pdus</b>	-	Professional Development Units
<b>PIARC</b>	-	World Road Association
<b>PMORALG</b>	-	Prime Minister's Office Regional Administration and Local Government, Tanzania
<b>PPP</b>	-	Public Private Partnership
<b>QSM</b>	-	Quality Management Systems
<b>RED</b>	-	Roads Economic Decision Model
<b>RFB</b>	-	Roads Fund Board, Tanzania
<b>RMS</b>	-	Road Management System
<b>RMLF</b>	-	Road Maintenance Levy Fund
<b>RONET</b>	-	Road Network Evaluation Model
<b>RSIP</b>	-	Road Sector Investment Programme
<b>RSL</b>	-	Remaining Service Life

<b>SADC</b>	-	Southern African Development Community
<b>SSA</b>	-	Sub-Saharan Africa
<b>SSATP</b>	-	Sub-Saharan Africa Transport Policy Program
<b>TANROADS</b>	-	Tanzania National Roads Agency
<b>TanT<sup>2</sup> Centre</b>		Tanzania Transportation Technology Transfer Centre
<b>TASAF</b>	-	Tanzania Social Action Fund
<b>UATP</b>	-	African Association of Public Transport
<b>UITP</b>	-	International Association of Public Transport
<b>USA</b>	-	United States of America
<b>vpd</b>	-	Vehicles per day

## FOREWORD

The International Seminar on Sustainable Road Financing was by all accounts a very successful one.

The Seminar brought 187 delegates from 37 countries from around the World to exchange and share experiences in matters related to Road Financing. The papers presented provided in-depth knowledge that will certainly go a long way to improve Road Financing situations in many countries.

Funding for road construction and maintenance is inadequate and not sustainable in many countries. We have learnt from the presentations that there are ways in addressing the issue particularly by bringing in the private sector to invest in the roads sector. To ensure such success we have also learnt that much has to be done in legal and policy aspects to create a good environment that will support increased financing for the roads sector.

I call on all delegates to put into action what they have learned from this Seminar to address their challenges and identify solutions for the development of the roads sector and socio-economic development of our countries.



Mr. Joseph Odo Haule  
**President of ARMFA and Chairman of the Organising Committee**  
**Dar es Salaam, Tanzania**

## EXECUTIVE SUMMARY

The International Seminar on Sustainable Road Financing and Investment was hosted by the Ministry of Infrastructure Development of Tanzania who, in collaboration with The World Road Association (PIARC) through its Technical Committee on Financing Road System Investment (TC 1.2), African Road Maintenance Funds Association (ARMFA), Association of African Road Managers and Partners (AGEPAR), The Association of Southern Africa National Roads Agencies (ASANRA), and The Sub-Saharan Africa Transport Policy Program (SSATP), organised this event. The Seminar was held from Monday, 16<sup>th</sup> to Friday, 20<sup>th</sup> April 2007 at the Ngurdoto Mountain Lodge in Arusha, Tanzania. The seminar was preceded by a meeting of the PIARC Technical Committee on Financing Road System Investment (TC 1.2).

The main theme of the meeting was ‘Sustainable Road Financing and Investment’ and the sub-themes were:

- ◇ The Role of Road Infrastructure in Achieving Millennium Development Goals
- ◇ Road Investment Planning and its Management
- ◇ Mechanisms and Modalities for Revenue Collection and its Allocation
- ◇ Policies, Legislation and Reforms in Road Financing and Management
- ◇ Cross Cutting Issues/ Good Governance

The meeting attracted 187 delegates from 37 countries worldwide. The delegates came from various institutions that included Parliaments, Governments, Road Authorities, Financiers, Private Sectors and Development Partners.

The official opening was held on Tuesday, 17<sup>th</sup> April 2007 and was officiated by Dr. Enos Bukuku, the Permanent Secretary Ministry of Infrastructure Development of Tanzania, who represented the Minister for Infrastructure Development. In his speech, the Minister noted that transport was a pre-requisite for any viable economic development of a country. He stated that maintenance should take precedence over investment for upgrading or new infrastructure and equipment. The Minister noted that progressive transfer of the management, operation and maintenance of transport networks to the private sector had a number of advantages that included improved service quality and lower transport costs. The speech was followed by a key note address by Mr. Mustafa Benmaamar, Senior Transport Policy Advisor, SSATP. In his address he stressed the need for countries to establish second generation Road Funds to ensure stable and regular financing for maintenance of roads.

Presentations were made over four days in 12 sessions, based on the sub-themes for the Seminar. Presentations were followed by sessions of questions, answers and discussions. A number of recommendations to improve road financing were brought up. These include:

- ◇ Provide Rural Roads Infrastructure for Economic Growth to Create Short and Long-Term Employment Opportunities through Road Maintenance, and Improved Access.
- ◇ There should be clear Legislation and Institutional Set up to Support Implementation of PPPs.
- ◇ Establish Performance-Based Management and Maintenance of Roads (PMMR) and ensure that it is Tailored to Address each Specific Maintenance Needs.
- ◇ Road Space be Provided for Different Modes of Transport e.g. Motorised and Non-motorised Transport.

- ◇ Implement an Integrated Road Management System (RMS) encompassing both Information Processing and Human Resources; Determination and Optimization of Economically Warranted Projects, Programmes, Strategies and Budgets if possible, for both Development and Maintenance.
- ◇ Create an enabling Environment for PPPs such as Standard Procurement Provisions to Mitigate the Complex Procurement Process.
- ◇ Implement and Finance Self-Help Community Projects that could Facilitate Improved Access hence Improved Economic Activities in the Communities and Eventually Sustainable Development.
- ◇ Apply Good Communication Strategy in Road Management Organization (RMO) by Addressing Clear Objectives; Target Market; Tailor the Message to Suit the Targeted Market; Sell the Benefit and Not the Features as well as Use Appropriate Terminology.
- ◇ Adopt good communication strategies by: Having clear objectives; Knowing your target market; Tailoring the message to suit your target; Selling benefits and not features; Using appropriate terminologies; Using local people and language and be Consistent.
- ◇ Address knowledge gaps that PIARC, gTKP and other institutions could assist to fill in. These include knowledge exchange mechanisms, documentation and exchange of case studies; guidelines/ manuals for managers; training and education materials; seminars & workshops; and study tours.
- ◇ Implement Declaration of Accra by 2008 [See Appendix 4 or visit website [www.armfa.org](http://www.armfa.org)]

A one-day technical visit was arranged in collaboration with TANROADS on the 18<sup>th</sup> April 2007 where delegates visited the Makuyuni-Ngorongoro road (77km) which was upgraded from gravel to paved standard (asphalt concrete) in 2005. The road passes through flat terrain and then goes up the Great Rift Valley escarpment to Ngorongoro Gate which is the entrance to the famous Ngorongoro Conservation Area which is endowed with wild animals that include the big five i.e. rhinoceros, lion, leopard, elephant and buffalo. Other wild animals found there are cheetahs, giraffes, zebras, gazelles, and wild beast. The road has features that include three public toilets, road humps, bus bays and side walks. The drifts are also crossing points for migrating wild animals. Natural pozzolanic material was used in construction of the road being part of the sub-base material. As part of the visit, delegates had the opportunity to visit the Ngorongoro Conservation Area Authority Museum at the parks gate, Ngorongoro Conservation Area, a Masaai Cultural Museum, and Meserani Snake Park.

The closing session was officiated by the Regional Commissioner for Arusha Region, Tanzania, Colonel (retired) Samwel Ndomba. In his speech, he noted that the timing of the seminar was at the appropriate moment when many countries were facing challenges of inadequate financing for road maintenance and investment. He hoped that the Seminar has strengthened partnerships between countries in exchange and sharing of information and best practices on matters related to road financing. The Deputy Secretary General of PIARC Mr. Franck Charmaison gave closing remarks in which he said he was pleased that the institutions such as ARMFA, AGEPAR, SSATP and ASANRA cooperated with PIARC to organise this important seminar. He informed that PIARC was preparing its next 4-year strategic plan that would address, among others, issues related to road financing.



## 1. INTRODUCTION

### 1.1. Background

The Ministry of Infrastructure Development of Tanzania in collaboration with The World Road Association (PIARC) through its Technical Committees on Financing Road System Investment (TC 1.2), African Road Maintenance Funds Association (ARMFA), Association of African Road Managers and Partners (AGEPAR), The Association of Southern Africa National Roads Agencies (ASANRA), and The Sub-Saharan Africa Transport Policy Program (SSATP), organised this International Seminar on Sustainable Road Financing and Investment.

The Government of the United Republic of Tanzania kindly accepted to host this Seminar, following a request from PIARC in November 2006, It was decided to hold the meeting at Ngurdoto Mountain Lodge in Arusha, Tanzania.

### 1.2. Organisation of the Seminar

#### Organising Committee:

The Organising Committee for the Seminar comprised of the following:

- |   |          |
|---|----------|
| 1. Mr. J. O. Haule, Roads Fund Board                          | Chairman |
| 2. Eng. H. Bishanga, TAN T <sup>2</sup> Centre, TANROADS      | Member   |
| 3. Eng. L. Chobya (Mrs.), TAN T <sup>2</sup> Centre, TANROADS | Member   |
| 4. Eng. R. Lwakatare, Roads Fund Board                        | Member   |
| 5. Mrs. J. Mwankusye, TANROADS                                | Member   |
| 6. Eng. J. Lwiza, TANROADS                                    | Member   |

#### Meeting Administrator



Administration services for the Seminar were contracted to Mrs. Roselyne Mariki (pictured, wearing a white coat) who together with her team did a praiseworthy job.

#### Seminar Moderator

Moderation of the seminar was contracted to Mr. Edward Mhina (pictured) who also did a commendable job.



### **Paper Reviewers**

The paper reviewers were Mrs. Sherri Alston, The Chair of PIARC TC 1.2 on Financing Road System Investment, and Eng. Prof. N. M. Lema, Deputy Principal, College of Engineering and Technology, University of Dar es Salaam, Tanzania. They reviewed the abstracts and papers for all the presentations to ensure that they were relevant to their respective sub-themes and were of excellent quality.

### **Rapporteurs**

The rapporteurs for the seminar were Eng. R. Lwakatare (pictured, 2<sup>nd</sup> left), Planning and Monitoring Engineer with the Roads Fund Board of Tanzania and Eng. L. Chobya (Mrs.) (pictured, left), a Senior Engineer at TAN T<sup>2</sup> which is under TANROADS of Tanzania.



### **1.3. Participants**

The Seminar was attended by a total of 187 participants from the public and private sectors representing a wide range of organisations such as government ministries, parastatals, non-governmental organisations, donors, research organisations, universities, consultants, and international organisations.

A total of 37 countries were represented, namely: Australia (2), Belgium (1), Brazil (1), Burundi (1), Cameroon (4), Central African Republic (2), Cote D'Ivoire (6), Denmark (1), Ethiopia (2), Finland (1), France (3), Germany (2), Ghana (5), Hungary (1), Italy (1), Japan (1), Kenya (5), Malawi (2), Namibia (3), Netherlands (4), Nigeria (4), Norway (4), Philippines (1), Rwanda (1), Senegal (1), South Africa (5), Spain (1), Sweden (2), Switzerland (3), Tanzania (92), Togo (1), Tunisia (1), Uganda (13), United Kingdom (4), USA (1), Zambia (4) and Zimbabwe (1).

A complete list of participants is included in **Appendix1**.

The Engineers Registration Board (ERB) of Tanzania, a regulatory Board for engineers, allocated 25 Professional Development Units (PDUS) for its members who attended this seminar. The ERB website can be accessed at [www.erb.go.tz](http://www.erb.go.tz).

### **1.4. The Venue and Seminar Languages**

The Seminar was held at Ngurdoto Mountain Lodge in Arusha, 25 kilometres from Arusha town centre, in Tanzania. During the seminar there was a provision for a simultaneous translation service in English and French.



A welcome Cocktail was held at Ngurdoto Mountain Lodge on Monday 16<sup>th</sup> April 2007 and an official dinner was held on Thursday, 19<sup>th</sup> April 2007.



### **1.5. Seminar Objectives**

The objective of the Seminar was to facilitate sharing and exchange of experiences, best practices, and innovative solutions on road financing and investment. Currently, most developing countries, Africa in particular depend on traditional sources of road financing and investments. Unfortunately the funding for road construction and maintenance is inadequate as well as not sustainable. In addressing these challenges, countries are implementing various initiatives such as establishment of road fund and toll roads systems. However, the challenge of funding inefficiency is not yet resolved. In addition, less emphasis is put on long-term investment planning to address transportation challenges. In this respect, there was a need of organizing the seminar to facilitate sharing and exchanging of new approaches on road construction and maintenance financing; long-term investment planning; and macro-economic impact of road investment, particularly in achieving Millennium Development Goals and poverty alleviation strategies.

The seminar was targeted for road sector policy and decision makers, development partners, practitioners, contractors, consultants, researchers and academics, students, road users, and other interested parties.

### **1.6. Theme and Sub Themes**

The main theme of the Seminar was ‘Sustainable Road Financing and Investment’ and the sub-themes were as follows:

- ◇ The Role of Road Infrastructure in Achieving Millennium Development Goals
- ◇ Road Investment Planning and its Management
- ◇ Mechanisms and Modalities for Revenue Collection and its Allocation
- ◇ Policies, Legislation and Reforms in Road Financing and Management
- ◇ Cross Cutting Issues

### **1.7. Seminar Programme**

The Seminar programme had technical presentations over four days that included discussions, question and answers sessions. There was one day for a site visit on Wednesday 18<sup>th</sup> April 2007. PIARC Technical Committee 1.2 held a one-day meeting on Sunday, 15<sup>th</sup> April 2007. The official opening was held on the second day of the meeting due to

unavoidable circumstances in which the Guest of Honour could not be available on the first day.

Sunday, 15 <sup>th</sup> April 2007-05-16	-	PIARC TC 1.2 meeting
Monday, 16 <sup>th</sup> April 2007	-	Technical presentations
Tuesday, 17 <sup>th</sup> April 2007	-	Opening session, Technical presentations
Wednesday, 18 <sup>th</sup> April 2007	-	Site visit
Thursday, 19 <sup>th</sup> April 2007	-	Technical presentations
Friday, 20 <sup>th</sup> April 2007	-	Technical presentations, Closing session

The detailed programme is shown in **Appendix 2**.

## **2. OPENING SESSION**

### **2.1. Opening Speech by the Guest of Honour**

The Guest of Honour was the Minister for Infrastructure Development in the Government of Tanzania, Honourable Andrew Chenge (MP) who unfortunately could not attend the event. His speech was read on his behalf by the Permanent Secretary Ministry of Infrastructure Development Dr. Enos. Bukuku (pictured). He stated that Tanzania was greatly honoured to host this International Seminar. The Minister noted that Transport was a pre-requisite



for any viable economic development of a country. He noted that many countries did not have adequate funds for maintenance and development of their roads. He quoted a study by the World Bank in 1988 which showed that losses in value of infrastructure in Africa in the 1970s and 1980s was of the order of US\$45 billion for not spending US\$12 billion on maintenance. He stated that maintenance should take precedence over investment in upgrading or new infrastructure and equipment. Since inadequate funding is a major constraint, he urged delegates to come up with innovative approaches for funding road maintenance as the traditional sources were being competed for by other sectors. The Minister noted that progressive transfer of the management, operation and maintenance of transport networks to the private sector had a number of advantages that included improved service quality and lower transport costs. The Minister noted that the construction sector was one of the most corrupt sectors and thus needed systems to combat it. The Minister concluded his speech by inviting delegates to visit tourist attractions located near the Hotel and Arusha. The Opening Speech is shown in **Appendix 3**.

### **2.2. Key note address by Mr. Mustafa Benmaamar, Senior Transport Policy Advisor, SSATP**

The keynote address focused on the commercialisation of roads in Sub-Saharan Africa (SSA). It informed that there was a big Financing gap of US\$20 billion in Transport

Infrastructure that had an impact on economic growth increased the level of poverty in SSA. There was need for countries to stay on course towards putting in place 2<sup>nd</sup> Generation Roads Funds and establish autonomous Road Agencies to manage the road networks efficiently using available resources.

The keynote address also highlighted the following:

- Poor roads in SSA were an impediment to economic growth in the region and contributed to 50% of the transport costs.
- Truck tariffs in Sub-Sahara Africa were higher than those in Asia by up to 4 times and transport costs in landlocked countries were 50% higher than coastal countries.
- 40% of the rural population in SSA lived without access to all season roads, which was very high as compared to India's 22% and USA's 1%.
- SSA's urban population has quadrupled from 50 million to 218 million putting pressure on the existing urban infrastructure which is inadequate, leading to congestion and higher transport costs.
- The Financing gap for investment for transport infrastructure was US\$7.5 billion/year (US\$4.1 billion for new roads and \$3.4 billion for maintenance of existing roads).
- 2<sup>nd</sup> Generation Roads Funds were established to address the issue of financing maintenance needs. There were currently 27 Road Funds in SSA and Fuel levy was the principal road user charge with an average of US cents/litre at 8 and 7 for petrol and diesel respectively.
- The characteristics of the 2<sup>nd</sup> generation Roads Funds included the following:
  - Roads Funds and their Boards established by legislation.
  - Boards with private sector involvement.
  - Revenue dependent on Road User Charges.
  - Revenue channelled directly to the Roads Fund Bank account without passing through the Ministry of Finance.

Mr. Mustafa Benmaamar recommended the following:

- Countries should stay on course towards establishing 2<sup>nd</sup> Generation Roads Funds with the following main characteristics:
  - Roads Funds and their Boards established by legislation.
  - Boards with private sector (road users) involvement.
  - Revenue dependent on Road User Charges.
  - Revenue channelled directly to the Roads Fund Bank account without passing through the Ministry of Finance.
- Countries should establish autonomous Road Agencies to manage the road networks efficiently using available resources.

### **3. PRESENTATION SESSIONS**

This chapter provides a brief overview of the presentations made during the Seminar. Full papers and the presentations can be obtained from the website at [www.roadsfundtz.org](http://www.roadsfundtz.org) and on the PIARC website [www.piarc.org/en/events/](http://www.piarc.org/en/events/).



### 3.1. Day 1, Monday 16<sup>th</sup> April 2007

**Session Chair Ms. Sherri Alston (pictured),  
Chair of PIARC Technical Committee 1.2 on  
Financing Road System Investment**



#### **Session 1: Mechanisms and Modalities for Revenue Collection and its Allocation**

**Title: The Harmonisation of Cross- Border Road User Charges in the SADC region**  
**Author & Presenter: Dr. Paul Lombard (pictured), Director, Africon Engineering  
International (Pty) Ltd. South Africa.**



The paper was based on a study done to harmonise cross border road user charges in the SADC region. The presenter informed that there was inadequate funding for maintenance in the SADC region and that 15% and 31% of paved and unpaved roads respectively were in poor condition. The poor roads had a negative impact on the economy of the SADC region countries. There was a need to instil an appropriate system of cost recovery through levying of road user charges to ensure there are adequate funds for road maintenance. The presenter noted that Article 4.6 of the SADC Protocol on Transport, Communications and Meteorology committed Member States to implement harmonized cross-border road user charging systems which shall be regularly reviewed, improved and supplemented through improved research and data. A review of all charges in the member states was done, which showed there were 16 charges, categorised into Compulsory Access fees, Domestic fees, and Other fees. The presenter proposed putting in a charge that considered the type of vehicle and the distance it travels.

#### **Session 3: Policies, Legislation and Reforms in Road Financing and Management**

**Title : Best Practices in Managing Road Funds**  
**Author and Presenter: Dr. Frank N. Nyangaga (pictured), Executive Director, Kenya  
Roads Board**

The presenter highlighted that lack of maintenance was eroding road asset value in developing countries and in particular Sub-Saharan Africa. The Presenter further emphasized that lack of maintenance was not rooted in technical matters but was political and institutional. Therefore, he said, there was a need to improve the situation by raising awareness at the



highest level of government. The Presenter emphasized on the four basic building blocks critical to reforms as: a need for creating ownership; secure sustainable financing; clarifying responsibilities; and providing effective systems, procedures and accountability.

### **Highlights of the Presentation:**

- Road Maintenance Initiatives (RMI) facilitated changes.
- Implementation of changes include: Addressing Company concept; Source of financing; Annual work programmes (AWP); Fund receipt collection method; Fund disbursements and Release Performance agreements. Others are Reporting systems; Technical Compliance; Performance and Technical Audits
- Challenges include inadequate mandates given to Roads Fund Boards (RFB); Capacity building; Enforcement of Rules; Sharing of information with stakeholders; and inadequate capacities of key players
- Establishment of Road Maintenance Levy Fund (RMLF) has been the most successful reform in most developing countries in addressing issues of sustainable source of financing.
- Shareholders should be given appropriate recognition in line with company structures.
- Adequate preparation time frames must be provided to road agencies
- The disbursement criteria to road agencies should be contained in the Act.
- Shareholders to the RFB must be informed regularly of fund releases to road agencies.
- The PA provides a more specific relationship and its major objective is to tie funding to delivery of the approved AWP.
- RFB can have standard road agency reporting packages such as Pavement Management Systems, HDM4, road design packages, etc.
- **Value for Money Review** is normally ascertained through: Technical Compliance (physical verifications) – TC; Performance (against agreed AWP) – P; and Financial Audits (financial discipline) – FA.
- The RFB must make every effort to address as many complaints as possible.
- RFB must ensure that they provide for clear enforceable Performance Agreements between themselves and road agencies.
- Road Sector Investment Programme (RSIP) should be developed to assist in providing for a clear prioritization approach to tackling backlog maintenance.
- Audit reviews should be undertaken ‘live’, i.e., while the works are ongoing, during the implementation year.
- Roads Fund should continue to create rapport with shareholders to create sense of ownership and commitment

### **Recommendations:**

- The RFB should be established through legislation. Presidential, ministerial or any other non-legislative means of establishing Road Fund Boards are not appropriate. Establishments through non-legislative means lead to creation of weak RFBs that are easily infiltrated and whose decisions can be ignored
- Consulting firms should be joint ventures between ‘Engineering Consultancy and Financial Audit’ firms. Most of the conventional consultancies are in the process of learning how to undertake the services.

- Results of the TC, P and FA be communicated in terms of loss of funds and in terms of poor workmanship.

**Title: Status of Road Sub-Sector Reforms in Sub-Saharan Africa**

**Authors: Dr. Addo Abedi, Mr. Olav Elleveset, Mr. Mustapha Benmaamar**

**Presenter: Dr. Addo Abedi (pictured), Chief Executive, TANROADS, Tanzania.**



The presenter highlighted that Road Transport is the dominant mode in Sub-Sahara Africa (SSA) and typically carries over 75% of passenger and freight traffic. In some cases, it provides the only form of access especially to rural communities. By the end of the 1980s, SSA had over 2 million km of roads out of which about 600,000km were classified as main roads. He further emphasized that the replacement value was estimated at over US\$150 billion. In term of assets,

roads are some of SSA's largest. Despite the importance to economic growth and poverty reduction, roads were poorly managed and inadequately maintained. The result was that by the early 90s most countries in SSA had more than 50% of their networks in poor condition. Transport costs were thus high through high vehicle operating costs. The road networks had therefore become bottlenecks to economic recovery programmes which most of these countries had embarked on. Dr Addo emphasized that there had to be reasons for Road Sub-Sector Reforms in Sub-Sahara Africa.

#### **Highlights of the Presentation:**

- To ultimately provide the road user value for money through better management of resources.
- To bring roads into the market place and put them on a fee – for – service basis through appropriate cost recovery policies (commercialization).
- Supported by appropriate legislation and administrative frameworks for sustainability.
- To redefine the role of the private sector in road delivery by increasing its role in the management of the sector to engender ownership.
- To run as accountable commercial entities while parent Ministries would be responsible for policy and oversight i.e Eyes on – hands off.
- Funding for road maintenance needed to be increased and predictable for effective planning.

#### **Recommendations:**

- Autonomy should be given to Agencies and Road funds for accountability and improved efficiency. This can be enhanced through the restructuring of ministries in parallel with the setting up of new road sector bodies.
- Inflows to Funds should be made directly rather than through Ministries of Finance (MOFs.)
- Collection Base for Funds should be widened.
- Agencies should develop management systems for cost-effective use of available funds.



- Agencies should be moving towards a network management approach rather than considering maintenance and rehabilitation/reconstruction as separate interventions.
- Sector Policies must be put in place to guide Agencies in their work and reduce friction between them and their parent ministries.

**Session Chair Mr. Philip A. Magani (pictured),  
Chairman of Roads Fund Board, Tanzania.**



### **Session 3: The Role of Road Infrastructure in achieving Millennium Development Goals**

**Title: Estimating the Impact of Rural Road Investments on Socio-Economic Developments**

**Authors: Dr. Paul Lombard, L. Coetzer**

**Presenter: Dr. Paul Lombard (pictured), Director, Africon Engineering International (Pty) Ltd. South Africa.**



The presentation focused on estimating impact of rural road investment which the presenter notes has been neglected to a large extent in the past in Africa. The presenter noted that the impact of road investments on socio-economic development and economic growth is an important indicator for justification of the considerable costs involved. The need to alleviate poverty has led to an increased interest in rural roads investment in recent years. He highlighted that roads provide accessibility and mobility leading in turn to increased transport operations, economic activities and subsequently economic growth. However, lack of road infrastructure in rural areas results in significant limitations for communities such as lack of access to socio-economic and cultural centres such as schools, health centres and markets. He stressed that rural road infrastructure is essential and a pre-requisite for economic growth and development in Africa. Financing rural roads face challenges that include: determination of road financing needs; knowing the nature and extent of the road network; and identification of financing sources. He noted that estimating the impact of rural road investments is a complex task as benefits are difficult to quantify. There are several appraisal techniques and software tools to determine the impact of rural roads. The tools include the RED model which was developed by the World Bank for low volume roads (less than 200 vehicles per day) as another tool the HDM-4 (developed by the World Bank under co-ordination of the University of Birmingham) was suitable for traffic levels greater than 200 vpd. He noted that

most of the techniques focus on determining direct benefits that are easier to quantify and that there is an increasing trend to determine the larger impact of rural road investments on socio-economic development and ultimately economic growth. Qualitative methods can be used for impact determination.

### **Highlights of the Presentation:**

- In the Southern Africa Development Community [SADC] region road transport carries over 80% of the region's goods and services
- It is estimated that about 1.8 million km of roads in Sub-Saharan Africa, of which only 284,000km (approximately 16 %) are paved.
- External investment in economic infrastructure<sup>1</sup> from 1990-1996 for Sub-Saharan Africa was US\$26.7 billion, compared to US\$41.4 billion for Latin America and the Caribbean and US\$ 101.9 billion for Asia.
- Parallel work indicated that a significant improvement in socio-economic living conditions was estimated with rural roads investment. The estimated benefits included the following: Improved accessibility to social infrastructure (schools and health centres), increased opportunities to access education and health facilities and improved social interaction and mobility, which are important for social and economic development; improved access to markets by reducing transport costs; improvement of the marketability of perishable goods through timely and cheaper transport that will provide a direct incentive for more market-oriented agriculture, with more profitable cash crops, an increase in rural income as well as additional employment opportunities.
- Impacts of an investment on rural roads can be measured either directly (e.g. saving on VOCs, travel time), indirectly (e.g. jobs created) or induced (e.g. increased agricultural production).
- Appraisal techniques such as Multi-Criteria Analysis (MCA) and Cost-Effective Analysis (CEA) are applied to support project appraisal of road investments through software tools such as HDM-4 and the RED model.

### **Session 4: Road Investment Planning and its Management**

**Title: IRF experience on road financing and investment worldwide**

**Author & Presenter: Mr. Anthony Pearce (pictured), Director General International Road Federation**

The presenter highlighted the international experience on PPPs, key steps for successful PPPs, both at a national level and at project level. He emphasized that it is important not to give the private sector the tough projects and keep the good ones for the public sector. He stressed also that easy projects and gradual private sector involvement will build success. In addition, he noted above all that it is crucial to have a firm public sector political commitment, with a focused, dedicated



and experienced public sector team, a clear legal and institutional framework, transparent and competitive procurement and realistic risk sharing. Furthermore, the Presenter highlighted on the IRF role in promoting PPPs, and gave some examples of PPPs projects implemented in India.

**Highlights of the Presentation:**

- Frequently, governments look at PPPs only as the answer to their funding shortages, and the benefits in terms of quality, management and creativity for network development are not sufficiently appreciated.
- There is a global trend towards payment for roads based on road usage.
- For nearly 60 years the IRF has had a role in promoting more, better and safer road infrastructure.
- The IRF is a strong supporter of the UN Millennium Development Goals, and good transport is a crucial element because people are poorer, less health and have less social and administrative services.
- The IRF has established a PPP Task Force which aims to help governments and decision makers design feasible, profitable projects and help to inform politicians and civil servants on issues surrounding PPPs,
- IRF is ready and willing to assist the government and national road administrations with their PPP programmes.

**Title: History of Road Finance and Investment in Japan**

**Author & Presenter: Mr. Takaaki Nambu (pictured), Executive Director, Hanshin Expressway Company Ltd. Japan**



The presenter discussed Japan's experience in Road Infrastructure Development and Road Financing System by addressing earmarked tax revenue system established in 1952 and Toll road system established in 1953.

**Highlights of the Presentation:**

- Before the modern age (until 1868), due to topographical nature of Japan (surrounded by sea; covered by mountains and crossed by rivers) it was difficult to develop wheeled traffic. The main means of transport was by foot and horseback
- Given such circumstances, the earmarked tax revenue system for road projects and a toll road system managed by public corporations were introduced for the development of the Japanese road network. These two systems were strongly related to Five Year Plans for Road Improvement established in 1954.
- The two systems have been working well and continue to be two driving wheels of road improvement programs in Japan.

- The earmarked tax system was expanded and reinforced to its current size of 5.7 trillion Yen (US\$48 billion) and includes both national and local budgets. The toll road system incorporated the pooling system and has developed the comprehensive toll expressway network of more than 8,000km.
- Nowadays, these systems are being modified. The public corporations for toll highways were recently privatized. In December 2006 the prime minister decided to generalize the earmarked tax and concrete measures will be discussed in 2007.
- Japan now has an approximately 1,189,000km road network that includes 7,800 km of expressways and 54,000km of national highways and 128,000km of prefecture roads. However, about 40% of the planned expressway network is either under construction or at the planning level, and there are daily traffic congestions in large city areas and on many national routes.
- Development of the road network require large scale financing and stable financing.
- Beneficiaries from road use must bear the burden
- When a country expects an increase in traffic demand in the future, earmarked tax systems can be effective because tax revenues related to automobiles increase in proportion to traffic demand.
- It is possible to introduce toll road systems to cover the cost of development even in countries with low economic growth rates with some assistance from the government as long as traffic demand is above certain levels.
- It is important that stable development and maintenance plans are practiced with corroboration of the earmarked tax system and toll road system.

**Title: The importance of infrastructure investments in the urban agglomerations cities of Africa**

**Author & Presenter: Mr. Aka Assafou (pictured), Secretary General, African Association of Public Transport (UATP)**

The presenter highlighted on the role of African Association of Public Transport (UATP) and its objectives that are to: Gather all the actors of urban, suburban, regional and interregional public transport of persons and goods at the scale of the continent; Lead the necessary reflections to develop organised public transport in Africa taking into account the social and economical context of each region; Promote a better mobility of persons and goods at African scale; Reinforce Africa voice inside the International Association of Public Transport (UITP) and generally at international level. He emphasized on challenges that might result into urban demographic growth. These include: Urban sprawling; uncontrolled urbanisation; poorest and labour population at the periphery of the towns. Lack of transportation infrastructure results into problems such as lack of accessibility of basic services for the poorest; congestion; pollution and road insecurity.



**Highlight of the Presentation:**

- Huge galloping urbanisation in Africa: Sub-Saharan Africa population will reach around 1.3 billion in 2025 with an urbanisation rate at around 60%.

**Recommendations:**

- An urban planning, including transport infrastructures development (For instance, Latin America cities with BRT systems)
- Fund for road maintenance should take into account urban road financing
- Need for reinforcement of public-private partnership

**Title: Transport infrastructure and the transport supply chain**

**Author & Presenter: Mr. Tony Dufays (pictured), Regional Director, International Association of Public Transport (UITP)**



The presenter emphasised that mobility of goods and services was the basis for each economic activity and that an adequate transport was essential for socio-economic growth of African countries. He noted that investment in Transport systems increased efficiencies of other sectors such as education and health by providing access. The presenter stated further that apart from providing infrastructure, supply chains had to be considered which was often ignored. He gave the

example of urban roads which needed space for other modes of transport such as pedestrians and cyclists. To use road space efficiently, he supported the idea of having collective transport services such as buses with provision of dedicated road lanes.

**Highlights of the Presentation:**

- UITP represented over 2,700 urban, local, regional and national mobility actors and was based in Brussels, Belgium.
- Road infrastructure does not offer a direct service to the consumers.
- All modes of transport when using the same lanes might result in accidents.
- Congestion is due to provision of inadequate transport systems. Currently, congestion is the biggest challenge to Africa.
- Seoul in South Korea has a good transport system. It has dedicated bus lanes and their operations are self financed.
- Tanzania is introducing dedicated bus lanes through a project called DART, which is financed by the World Bank.

**Recommendations:**

- Provide dedicated lanes for public transport i.e. buses.
- Encourage the use of public transport rather than private vehicles to reduce congestion.
- Set up suitable institutions to manage the transport systems.

**Session Chair Mr. Anthony Pearce, Director General of International Road Federation**

**Session 5: Road Investment Planning and its Management**

**Title: Road Investment for Sustainability of Network and Domestic Contractors**

**Author & Presenter: Mr. Adam Andreski, Manager Infrastructure Development, I.T. Transport, UK.**

The presenter highlighted that many countries have recently created Roads Funds and Roads Agencies to improve road management. However, investment strategies have often not been optimal for the sustainability of the network and development of domestic contractors. He discussed the current investment strategies in Suriname, Tanzania and Malawi. He addressed two issues, namely: Strategic model for road investment and Ways of developing local contractors. Strategies to develop local contractors include:

- Package contracts attractively both vertically and horizontally
- Use simpler forms of contract and specifications
- Apply the Development Team Model (The Model that was pioneered in South Africa, has four basic functional components namely; construction management; materials management; materials supply and the works. The works are contracted out to a small scale contractor, materials management and supply is contracted out on a fee-basis to a materials manager, and construction management is contracted out on a fee-basis to a construction manager. The materials manager and construction manager may be either consulting firms or established contractors
- “Greenhouse contracts”
  - Greenhouse contracts are those set up for newly established contractors where much of the risk is removed. “Greenhouse contracts” allows “high risk tendering” and management of contracts. This might include reduced or no bonding, large advances with easy repayment terms, fast track payments, short listing of contractors thus reducing competition, price controlled or internet tendering. These types of contracts throw a lot of the risk on the client even the individuals managing such tenders.
- Implement technical competitive tendering
- Apply labour or low cost equipment-based contracting

**Highlights on the Presentation:**

- Giving priority to road maintenance at local level will enhance development of both national total road asset and the local construction industry
- Key data input for investment model are: Road Asset Value; Backlog Value; Deferred maintenance cost factor; Maintenance requirement as a % of asset value and Annual increase in budget
- Basic Statistics for Suriname are: The Country has GDP of \$1.1b; Population of 440,000; GDP per capita is \$2,500; and has 4,750km of road network.
- The main problems faced in Suriname include: Maintenance Expenditure ~15% of requirements; Local contracting industry undeveloped; and Roads damaged by overloaded trucks, particularly loggers



- Tanzania National Development of Contracting Industry Strategy indicates the following facts: National Construction Council established in 1979; Management Action Group set up in 1994; Tanzania Civil Engineering Contractors Association set up in 1995; Contractors Registration Board established in 1998; In 1986, 43 contractors and 2005 > 1,000 and Equipment available for hire from TANROADS plant pools
- Zambia statistics include: 1993 - President Chiluba introduced private sector reforms in most sectors because there were very few contractors; From 1995 – 2001 – greenhouse contracts in E. Province; 1998 – National Construction Council was established; 2002 – New Transport Policy & Road Act; in 2006 – 450 contractors; and 2006 – Road Development Agency takes over the national network of 67,000km

### **Recommendations:**

Develop local contractors by addressing the following:

- Give priority to maintenance at sub national level.
- Package contracts attractively both vertically and horizontally.
- Use simpler forms of contract and specifications.
- Apply the Development Team Model.
- Implement “Greenhouse contracts”.
- Implement technical competitive tendering.
- Apply labour or low cost equipment-based contracting.

### **Title: Roads in the Marketplace, A Search for Sustainable Growth Engines for Sub-Saharan Africa**

**Author & Presenter: Mr. Fred Amonya (pictured), Transport Consultant, Scott Wilson, UK.**

The presenter gave the status of the road network in Sub-Saharan Africa (SSA); the amount required in investing improving the road network so that it could facilitate achievement of the first goal of the Millennium Development Goals (MDGs) of halving income poverty estimate of 1990 by the year 2015. Also, he emphasized the contribution of the private sector for the road development. The presentation explored ways of capturing private finance, and management expertise, for road network management. He further emphasized that the poor state of the network is attributed to the widespread notion that roads are a public good. It is argued that this is a delusion that must be dispelled. A change in attitude would make the heavily trafficked roads attractive to private finance; create fiscal space for low volume roads; and subsequently lead to a sustainable road network. The presenter discussed emerging success stories in private road financing in Africa.



### **Highlights of the Presentation:**

- State of the road network in Sub Sahara Africa is: 1.5 million km of classified roads; less than one sixth is paved; less than one fifth is passable in all weather.

- Estimated value of the SSA road network is US\$150 billion. Using an asset accumulation rate of 5.5 percent, the road network is equivalent to approximately 15 percent of the region's gross domestic product (GDP).
- In spite of the high value of the road network - and importance to economic growth - efforts to preserve, renew or develop the network have been dismal.
- Roads are a public good therefore their provision is the domain of the public sector; poor public policy framework, for instance clamping of roads, water and housing estates. This is reflected in network management problems (note: whilst major reforms have been made to bring market discipline to public policy, the ills of the past persist), and reverberate in the road network management (unclear responsibilities and acutely inadequate finance). The end result is poor road networks.
- The current road investment gap in SSA, and indeed most of the world, is to a large extent caused by a delusion that roads are a public good (hereinafter 'the delusion'). A public good, in the strict sense, is a commodity that is both non-rival and non-excludable
- Lack of Clear Responsibilities: This stretches from unclear roles at ministerial level to poorly defined staff job specifications at the road management level. While good progress has been made at the ministerial level, duplication of roles is still common at the road management level.
- Thin Skills Base: Technical and management skills shortage is a problem in SSA just like the rest of the world. Inadequate finance in SSA compounds the problem. With exception of donor financed projects, staff pay is poor. Staff motivation is low, and does not measure to the challenges that the network poses.

#### **Recommendations:**

- Road space should be treated as a private good, subject to market forces of demand and supply. Where demand is high, road space should be packaged and taken to the marketplace.
- Utility enhancement must address equity and efficiency
- To improve efficiency in road provision, private finance and expertise are vital
- Poor equity and debt markets are major hurdles in capturing private finance
- Government initiatives and pro-action by the private sector are required in overcoming these hurdles.

#### **Title: Development Corridors: Emphasizing Economic Function to Accelerate Infrastructure Development**

**Author & Presenter: Mr. Smak Kaombwe (pictured), Central Development Corridor (CDC) Project Manager, Rwandese Development Bank (BRD), Rwanda**



The presenter highlighted on the Development Corridors (Spatial Development Initiatives) methodology as a tool to expedite infrastructure development by emphasizing its economic function. He further listed various development corridors. He pointed out some factors that contribute for projects taking a long period to be implemented. Such factors include: Difficulty to appreciate plans and timing of key inputs from other projects or sectors for success of project, (to show ways to mitigate externally driven risks for potential



investors); and Difficulty to consistently and clearly prioritize across sectors and countries (for cross-border projects). There are some factors to be addressed for corridors development these include: Demand and Revenue to justify investment in infrastructure projects; and Lower production, logistics and transaction cost and improved competitiveness. Also, the Presenter discussed on the CDC infrastructure development framework

### **Highlights of the Presentation:**

- Central Development Corridor (Spatial Dev Initiative): implemented under Rwanda and Tanzania Agreement signed on 14 January 2005.
- Burundi and DRC (Eastern part) also involved.
- Projects should be profiled and promoted as an integrated Business Case. For instance, they should provide the following: Clear definition and prioritization of key or anchor projects; Clear elaboration of projects' interdependence and need for integration for success and to achieve intended benefits; and Facilitate “crowding in” of investors and project financiers around integrated business case: (enables consulting and solving mutual concerns – for quicker investment decision making).
- Projects are drivers of development process.
- 2 Pillars of Central Development Corridor Business Case: i) Viable economic/ industry development projects/ clusters in Rwanda and Tanzania (Tourism, minerals, agriculture, livestock, forestry, fisheries, processing and manufactures and trade centre development); ii) Infrastructure Projects (Ports, Rail, Pipeline, Energy, Roads, Aviation, Logistics, Lake Services, Trade, Transit facilities and ICT)
- Address infrastructure development to facilitate economic projects as follows: i) Improve port terminals, road and rail access to existing and new port terminals to cater for increased containers and break bulk traffic; ii) Improve railway performance and extend to Kigali (the extension is make or break for large nickel project); iii) Improve roads for access to key economic development, processing and markets centres; iv) Improve airports and air freight and air travel to cater for fresh (horticulture) & time sensitive products, tourist and business travel; v) Improve power (adequate, reliable and competitively priced) to cater especially for dramatic increase in process industries and other manufacturing activities; vi) Improve ICT system to reduce transactional costs; vii) Improve facilitation (Customs and other admin processes or procedures along trade routes); viii) Establish inland terminals and other logistics services centres; ix) Establish cold chain transport capacity to cater for chilled and frozen goods (eg meat, milk, horticulture products, etc); x) Establish pipeline for more efficient transportation of fuel (including refinery at Dar); and xi) Improve Lakes (Tanganyika and Victoria) ports and services to provide links to economic centres and also especially with neighbouring states.

### **Title: Presentation on PIARC by Chair of the PIARC TC1.2**

**Author & Presenter: Ms. Sherri Alston (pictured) (USA)**

Ms. Sherri Alston presented on the World Road Association (PIARC), when it was established; its



mission; members, National Committees and their objective. She presented also on the PIARC Strategic Plan and Strategic Themes; Technical Committees. Under Strategic Theme 1 (ST1) that is Governance and Management of the Road System, there are four Technical Committees namely: 1.1 Road System Economics; 1.2 Financing Road System Investment; 1.3 Performance of Road Administrations; and 1.4 Management of Network Operations. The Presenter discussed Issues under the TC 1.2 Road Financing Investment that include: i) *Exploration of financial strategies*; Investigate the evolutions in the various financial strategies (innovative solutions, difficulties met, efficiency, allocation of earmarked funds, etc) and Investigate the forms of user charges (including road tolls) and how they are used as a means of financial strategy; ii) *Cost management for long-term investment*; Investigate methodologies applicable at project level for cost estimates concerning long-term road infrastructure investment including cost management methods; Investigate cost management methods which make a proper appraisal of road assets; and Investigate strategies for the effective allocation of funding for new development and maintenance projects; iii) *Public private partnerships for roads and road transport administration*; Explore the protection of public sector oversight and the necessary expertise for road administrations for the management of PPP contracts; Investigate the effective use of PPP as a fund procurement measure; and Analyse the experience gained from past PPPs. Ms. Sherri Alston ended her presentation by providing the PIARC e-mail contact [info@piarc.org](mailto:info@piarc.org) and website address [www.piarc.org](http://www.piarc.org) in case any person would like to get more information or keep in touch with PIARC or becoming a member of PIARC.

#### **Highlights of the Presentation:**

- PIARC was established in 1909. It is a Non-political, non-profit organization it aims at development of global road community.
- 111 member governments of PIARC (22 North America; 33 Europe; 28 Africa; 28 Asia; and Australasia). PIARC Members are: National Governments; Regional Authorities; Collective Members; and Individual Members
- 34 Countries with National Committees are: Algeria, Argentina, Australia, Austria, Belgium, Bénin, Burkina Faso, Cameroon, Canada, Canada-Québec, Congo, Czech Rep., Denmark, Finland, France, Germany, Greece, Hungary, Iceland, India, Italy, Japan, Madagascar, Mexico, Morocco, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom
- PIARC Strategic Plan serves as: Guidelines for the activities; 4 year-cycle between two World Road Congresses and there are 4 Strategic Themes in the period of 2004-2007 (ST1: Governance and Management of the Road System; ST2: Sustainable Mobility; ST3: Safety and Road Operations; and ST4: Quality of Road Infrastructure)
- PIARC has 18 Technical Committees + Terminology; 800 experts and decision-makers addressing various topics of road and road transport and the outputs assist decision-makers
- Conferences on Financing Road Infrastructure started long time ago in the 3rd World Road Congress – 1913 – London
- PIARC has many publications addressing this area on road financing and investment. These include: *Economic Evaluation Methods for Road Projects in PIARC member countries of 09.07.B, September 2004*; *Costing and Pricing of Road Use of 09.06.B, 2003*; *Public-Private Partnerships and other Innovative Partnerships in Financing*

- Infrastructure of 09.05.B, 2003; Financing of Road Infrastructures: Guide for New Methods of Financing and Public/Private Partnership of 09.04.B, 2000 and Cost Recovery and Dedication of Road User Fees of 09.03.B, 1999
- Also, PIARC has a large range of Publications and interactive CD ROMs on the four Strategic Themes.
  - PIARC publish bilingual quarterly magazine known as Routes/Roads. The magazine is read in more than 140 countries.
  - PIARC has a trilingual newsletter about activities of the National Committees and the website [www.piarc.org](http://www.piarc.org).
  - PIARC organizes seminars worldwide.
  - In 1908 - The 1st World Road Congress in Paris (France) was conducted. Since then, there is a World Road Congress once every four years where it facilitates sharing of techniques and experiences of road and road transport.
  - The Centenary Congress (23rd World Road Congress) will be held from 17 - 21 September 2007, Paris, France. More details can be accessed at [www.paris2007-route.fr](http://www.paris2007-route.fr).
  - PIARC has a Virtual Library: The Library consists of all technical reports by TCs since 1986; A selection of articles from Routes/Roads; Other documents produced by PIARC. Contents will continue to expand.
  - PIARC has Online Multilingual Road Dictionaries for 12 Languages.

### 3.2. Day 2, Tuesday 17<sup>th</sup> April 2007

The day started with the opening session, which is described in Chapter 2 above. The presentations continued thereafter.

**Session Chair** Mr. Adam Andreski, Manager Infrastructure Development, I.T. Transport (UK)

#### **Session 6: Performance Base Contracting**

**Title: Performance Based Road Management & Maintenance – Experiences Worldwide**

**Author & Presenter: Dr. Gunter Zietlow (pictured), Consultant, German Development Organisation (GTZ), Germany**



The presenter provided a brief the history of Performance Based Contracts (PBC), describing the main reasons for implementing such contracts. He presented the spectrum of performance indicators and response times being applied, discussed the preparation of bidding documents and the bidding process. He summarized how these contracts had been implemented and provided lessons learnt so far.

### Highlights of the presentation:

- Studies made by World Bank in 1980s revealed that outsourcing road maintenance works to the private sector reduce costs by between 30-50%.
- PBCs define minimum conditions of road, bridge, and traffic assets that have to be met by the contractor, as well as other services such as the collection and management of asset inventory data, call-out and attendance to emergencies, and response to public requests, complaints and feedback.
- Payments are based on how well the contractor manages to comply with the performance standards defined in the contract, and not on the amount of works and services executed.
- PBC define a final product and it is up to the contractor how to achieve this. Therefore, work planning, execution, and control are all his responsibility. Hence, the choice and application of technology and the pursuit of innovative materials, processes, and management procedures are all up to the contractor. This allocates higher risk to the contractor compared to traditional contract arrangements, but at the same time opens up opportunities to increase his margins where improved efficiencies and effectiveness of design, process, technology or management are able to reduce the cost of achieving the specified performance standards.
- Savings realized from PBCs ranged from 15-40% in Australia, New Zealand and Virginia in USA.
- Benefits from use of PBCs include: **To Road Agency:** Reduced workloads; assures long-term maintenance funding; provides better transparency and accountability; reduces maintenance costs; improves customer focus; improves control and enforcement of quality standards; avoids frequent claims and contract amendments to increase quantities of work by contractors; reduces road rehabilitation; and reduces risks. **To Road Users:** Provides better and safer roads with consistent conditions; and reduces road user costs. **To Consultants and Contractors:** Guarantees workloads over longer periods; provides potential for increased margins; and opens excellent opportunities for business growth.
- Disadvantages of PBCs: **To Road Agency:** Tends to prolong tender period; requires new procedures, mentality change of staff and training; loss of information if contractor is not obliged to supply information on condition, interventions and inventory of the road; loss of flexibility; loss of expertise; and reduces competition.
- Examples of Performance Indicators/ Standards include Absence of potholes, Roughness of road surface, and Amount of obstruction of drainage system.

### Recommendations:

- To cut the cost of road maintenance and improve road conditions, countries should consider applying PBCs as a way of contracting out road maintenance. However, savings might not be produced immediately.
- Durations of contracts include at least one periodic maintenance cycle i.e. 4 -5 years for gravel roads and 8 -10 years for paved roads. Routine maintenance contracts can be 1 – 2 years. Initially go for shorter contract periods to enable corrections to be made in future contracts if problems in the contract arise.
- Secure financing for the entire contract period.

- Roads have to be in maintainable condition. An element of rehabilitation may be necessary and could be up to 50% to the contract price.
- Dispute resolution mechanism be incorporated in the contracts.
- Risks should be assigned to the party that can best bear and manage the risk.
- All contractors should use proper Quality Management Systems (QMS).

**Session Chair Mr. Ousmane Thiam (pictured), President of African Association of Public Transport (UATP) & President of Conseil Exécutif des Transports Urbains de Dakar.**



## **Session 7: Road Investment Planning and its Management**

**Title: Application of the Performance Assessment Model (PAM) now renamed Road Network Evaluation Model (RONET) as a decision support tool for road management – Ugandan Experience**

**Author & Presenter: Mr. David Luyimbazi (pictured), Senior Project Engineer, Road Agency Formation Unit, Uganda.**



The presentation was based on an evaluation tool called RONET (Road Network Evaluation Tools) which is a simplified road management model used to determine road network needs for strategic decision making. The presenter informed that the model carried out an analytical evaluation of network, programme and policy issues for top level decision-makers in the road sub-sector. The paper examined hypothetical or projected circumstances especially the impact of funding levels

and consequences thereof through the analysis of what-if scenarios. The main outcomes of the analysis included consequences of different funding decisions on the network condition, the road asset value, the user costs and impact on the national economy. He informed that the Model is to be used by Uganda's Ministry of Works to support the case for increased funding for road maintenance from the Treasury.'

### **Highlights of the presentation:**

- RONET is an improvement of model PAM of 2003 and is still under development with support from the SSATP. Pilot testing is being done in 4 African countries namely Ghana, Mozambique, Tanzania and Uganda. The Model is based on software programme Microsoft Office Excel 2003.
- The Model is applicable at Strategic or Macro level and its results are only indicative.

- Inputs for the Model include Country data, Road inventory, Unit costs for road works, Asset value, Roughness, Road condition, and Traffic.
- The Model determines the overall budget requirements in terms of routine maintenance, periodic maintenance and improvement requirements for seven different scenarios
- Benefits of RONET include: The software is user friendly being MS Excel; provides valuable information to decision makers; input data is easily available; its outputs add credence to budget requests by Road agencies.
- Drawbacks of RONET include: Summary aggregate data required is susceptible to errors; up to date data on traffic and road condition is usually not available; Comprehensive sensitivity analysis has not yet been carried out to determine the impact elasticity of inputs; Model doesn't carry out standards optimisation; and impacts of overloading not yet modelled.

#### **Recommendation:**

- Simple analytical models be used for building cases to increase funding levels when making requests to Governments and Donors.

#### **Title: Road soft GIS, A Transportation Asset Management Solutions for Counties and Cities in Michigan and It's Application to Agencies in Africa**

**Authors: T. McNinch, T. Colling, R. Retagi, Fernando de Melo e Silva**

**Presenter: Mr. Fernando de Melo e Silva (pictured), Pavement Management Engineer, Michigan LTAP, Michigan Tech Transportation Institute, Michigan Technology University, Houghton, USA**

The presentation focused on the RoadSoft-GIS system developed by Michigan Technological University for the State and Local Transport Agencies in Michigan State, USA for road asset management. The system provides a wide variety of inventory and management modules for road surfaces, signs, crash data, culverts, guardrails, pavement markings and traffic counts. The asset management analysis tools in RoadSoft create deterioration curves for individual road segments, generate maintenance and reconstruction strategies, optimize strategies and budgets, and provide the engineer with a wealth of information for use when communicating with elected officials and the public.



#### **Highlights of the presentation:**

- RoadSoft GIS system was developed after legislation passed in Michigan State laid the foundation for both state and local roadway managers to break away from the traditional “tactical” approach of concentrating on the immediate and most severe problems—fixing the Worst First. Instead, agencies can move forward to a strategic and system-wide approach, keeping the good roads good by applying the Correct Fix, in the Correct Place, at the Correct Time.



- Road surface condition data is collected using the Pavement Surface Evaluation and Rating (PASER) methodology, which is a visual assessment system that rates the road surface on a scale of 1-10. 10 is Excellent and 1 is total failure.
- The RoadSoft GIS system is comprised of a variety of roadway inventory, management, and analysis modules accessed through a geographic information system (GIS) interface and a “Road Traveler” interface.
- GPS Laptop Data Collection System (LDC) is used to collect data. This system uses a GIS and database export from the version of RoadSoft-GIS in the engineer’s office and a low cost GPS device to allow real time data collection while driving down the road. Collected data is simply imported back into the agency’s version of RoadSoft-GIS.
- A Map Reference Generation System (MRGenS) enables an agency with or without a referenced GIS base map or linear referencing system to create the necessary files needed by RoadSoft-GIS.
- The RoadSoft-GIS strategy evaluation tool first determines the Remaining Service Life (RSL) of all of the road segments within a particular road network.
- The strategy optimization tool helps the engineer determine optimum strategies and develop budgets. The engineer can set a maximum annual budget, select preferred treatments to be applied to the road network, and then optimize those selections to get a variety of solutions. The optimizer will attempt to find solutions that are the most cost effective when maximizing average network Remaining Service Life (RSL). The resulting optimized strategies can then be saved and evaluated in the strategy evaluation tool.

**Title: Challenges in Financing Road Maintenance in Sub-Saharan Africa**

**Author & Presenter: Dr. Addo Abedi (pictured), Chief Executive, TANROADS, Tanzania**



The presentation was based on road financing for maintenance in Sub-Saharan Africa where the presenter noted that though over 75% of passenger and freight traffic depended on road transport, the sector was getting much less than the desired amounts of money required to sustainably maintain the roads. The presenter noted that there is high correlated relationship between a country’s Road Development Index and GDP. The presentation also dwelled on the importance

of maintaining roads where the presenter stated that roads were a country’s most expensive asset and thus it was necessary to provide adequate funding to maintain it. Many countries in SSA embarked on reforms in the roads sector to bring them into the market place by charging for road use basing on fee-for-service. Dr Addo Abedi used Tanzania as a case study where he explained the reforms it had undertaken, and that though funding had increased, it was still not meeting the maintenance needs. He then concluded by explaining the strategies Tanzania is attempting to bridge the funding gap which include adjusting the rates for existing sources and introducing new ones.

**Highlights of the presentation:**

- A dollar saved on maintenance increases vehicle-operating costs by up to US \$ 10 over the life of the road.
- The cost of rehabilitation/ reconstruction can be up to 20 times more expensive than the cost of sustained maintenance over the life of the road.
- Fuel levy at US 10 cents per litre is considered optimal level. Increasing it further affects inflation and retards economic growth.
- It is advised not to use Overloading fees/fines for planning purposes.
- Tanzania wants to introduce an Annual Access Fee to be charged to all vehicles using the roads. The fee is to be structured to reflect the relative damage done by a vehicle.
- An infrastructure levy of 1% of CIF on all imports is proposed.

**Title: Road Asset Valuation & Management - Case Study Finland**

**Author & Presenter: Jani Saarinen (pictured), Executive Director, Rakli- The Finnish Association of Building Owners and Construction Clients, Finland**

The presentation was based on Road Asset Management, which the presenter stated, was about managing roads like a business. The term 'asset management' is increasingly being used to characterise a 'business-like approach' to road network management at a time where Road administrations are moving from purely government-controlled organisations with their own executive departments to agency status. Mr. Jani Saarinen



explained that each road asset has both an economic, and a capital value, calculated from either the cost of repairing the asset to its as built condition or the cost of replacing the asset. Valuation of the road asset, based on good engineering, technical tools, and modern accounting, has made road management more efficient and transparent. Asset value is a significant factor in determining priorities for the future investment. The presenter provided an example of how Road Asset Management was implemented in Finland.

**Highlights of the presentation:**

- The key difference between traditional management systems and asset management system is that the latter requires implementing of an accounting and valuation of assets in monetary terms.
- Asset management includes the following elements: Inventory of assets; Road management systems; Valuation of the assets; Accounting; and Information.
- Valuation of assets is done to enable reporting in monetary terms to reflect the physical conditions of the road network, and to assist asset managers inform asset owners of the effects of financing strategies.
- The depreciation to be written off yearly should be planned beforehand and confirmed according to local accounting standards and requirements. Ideally, the amount of depreciation should correspond with the actual wearing and consumption of an asset.



**Recommendations:**

- The annual depreciation of the assets should reflect the need for maintenance and upkeep of the road network.
- The accounting methodology used should be simple rather than comprehensive.

**Session Chair:**        **Ms. Judith Mulongoti (pictured), Director, National Road Fund Agency, Zambia**



**Title: The Walvis Bay Corridor Group Experience,**  
**Author & Presenter: Johny M. Smith (pictured), Business Development Executive,**  
**Walvis Bay Corridor Group, Namibia.**

The presentation was based on the experience of the Walvis Bay Corridor Group in Namibia which is a Public Private Partnership created in 2000 to promote the increase of imports and exports via the Port of Walvis Bay between Southern Africa and the rest of the World. The group has a five-year strategic plan, from 2005 to 2010, which is focused on developing 3 corridors through various projects that include a Dry port, Railway track upgrades, and Cross border infrastructure.

**Highlights of the presentation:**

- Plans are to increase the capacity for cargo of Walvis Bay port by more than five times in the next 5 to 10 years.
- The 3 corridors that link to the port are the TransKalahari (links to Botswana), TransCaprivi (links to Zambia) and TransCunene (links to Angola).
- To ensure success, the corporate, management and ownership structure, and the operating agreements between the key stakeholders, must be such that:
  - Long-term transport contracts can be entered into with major international companies or organisations.
  - Equity, Loans Financing, and financial guarantees are available.
  - There is Operational sustainability by having agreements which allow the project to operate independent of the operations of the key stakeholders.
  - There is One Stop Shop for marketing commitments and authority to commit to performance targets by the operator, for all elements of the supply chain

- Coordinated operating strategy, marketing and development vision by all the project partners/shareholders/stakeholders.
- There is executive control – management must be able to take immediate action when stakeholder performance fails, or to react to unforeseen circumstances.

**Recommendation:**

- To develop such projects, focus should not be only on national benefits but consider regional and international benefits.

**Title: Sustainable Asset Management System in the Context of the Namibian Road Sector Reform - A Model for Africa & Beyond**

**Author & Presenter: Sophia - Belete Tekie (pictured), RMS Manager, Roads Authority of Namibia**



This paper looked at how the Road Management System (RMS) of Namibia Roads Authority was developed and is being used in contributing to the management of the road network in the context of the Road Sector reform. It also covers some experiences gained from the World Bank programme HDM-4 in the strategic output. The presenter states that a well developed RMS can assist Road Fund institutions and Road Agencies/ Authorities to make the right decisions

when it comes to determining the level of funding and the various projects that needs to be attended to by flagging potential projects.

**Highlights of the presentation:**

- Use of an RMS is a requirement stipulated in legislation that established the Namibia Roads Authority.
- The RMS integrates various sub-systems such as Pavement Management Systems, Bridge Management Systems etc. It has one database, which avoids duplication of efforts and money to get data under stand-alone systems.
- By having different funding scenarios, the system can project into the future, effects on road condition, backlog maintenance, and remaining structural life of roads. This is very useful information for decision makers.

**Title: Presentation of ASANRA**

**Presenter: Dr. Addo Abedi, Chief Executive Officer of TANROADS, Tanzania**

A presentation was made of ASANRA which is the Association of Southern African National Road Agencies, established in March 2001 under the SADC protocol on Transport, Communication and Meteorology. The association's vision is to create harmonised, safe, effective, efficient, and sustainable world-class road transport system at reasonable cost. The association has a Board whose members are the Chief Executives of the Road Agencies in SADC region and is supported by small secretariat. The association has a strategic plan for the period 2004-2009 in which their main objective is to coordinate the development of the

road sector in the SADC region with expected out put that a safer road and road transport environment is provided for all road users. The association's sources of funds are membership fees and grants from development partners.

### 3.3. Day 3, Wednesday 18<sup>th</sup> April 2007

#### Technical Field Visit

A good presentation of the Makuyuni – Ngorongoro road project was made by Eng. Arnold Maeda of TANROADS on Tuesday, 17<sup>th</sup> April 2007.

Delegates visited the Makuyuni – Ngorongoro road that was upgraded from gravel/earth to a two lane paved road. The road is a Trunk road and is managed by TANROADS. The project whose length is 77km was built at a cost of JY3,109,000 (Tshs.22.96 billion or US\$24 million). The road had traffic volume of 220 vehicles per day before the project, which has increased to the current 477 vehicles per day. The contract period was 3 years from 12<sup>th</sup> September 2001 to 31<sup>st</sup> December 2004.

The contractor was Konoike Construction Co. Ltd. and consultant was Japan Engineering Consultant Co. Ltd. in association with Oriental Consultant Co. Ltd. all from Japan.



**Road features:** The surfacing layer was Asphalt concrete and the road with 6.0 to 6.5 metres wide carriageway and 1.0 to 1.5 metres shoulders. The road has one bridge, six culverts, and five drifts. There are three public toilets, road humps, bus bays and side walks. The road promotes agriculture and tourism in the area. The road starts at Makuyuni Town (80kms west of Arusha City) off the Great North road (Cairo – Cape Town Road) and passes over flat terrain where it is crossed intermittently by migrating wild animals to Mto wa Mbu (about 35km). The drifts are also crossing points



for the migrating wild animals. The road then goes up the Great Rift Valley escarpment north tip of Lake Manyara National Park to highland plateau up to Ngorongoro Gate.

**Pavement layers:** The subgrade comprises of natural pozzolanic subgrade in some sections, imported selected material on weak areas and lateritic clayish material on the remaining sections. The subbase, 250mm, comprises of natural pozzolana (61.5%) mixed with lime (2%) and sand (36.5%). The base course, 150mm, comprises of crusher run material. There is a 40mm binder course and a 30mm asphalt concrete wearing course. Environment: Construction of the road highly considered environmental issues in that the surface finish was constructed such that it is as flush as possible with the natural ground to allow wild

animals to cross easily. Deep cuts and high embankments were avoided as much as possible. Borrow pits were left uncovered and trimmed to be used as water ponds for wild animals and cattle. Trees used by birds as breeding places were specially identified and left untouched. Drifts rather than culverts were constructed on the migration corridor to act as convenient crossing areas for the wild animals.

**Other places visited:** Several delegates visited the Esilalei Maasai Women Cultural Boma located along the road while some visited the famous Ngorongoro Conservation Area where they saw many wild animals. Ngorongoro Conservation Area became a World Heritage site in 1979. Ngorongoro Conservation area is endowed with wild animals that include the big five i.e. rhinoceros, lion, leopard, elephant and buffalo. Other wild animals found there are cheetahs, giraffes, zebras, gazelles, and wild beast. Land in the conservation area is multi-use; it is unique in Tanzania as the only conservation area providing protection status for wildlife whilst allowing human habitation. As such land use is controlled to prevent negative effects on the wildlife population, for example cultivation is prohibited at all but subsistence levels. Other delegates went to the Maasai Museum and Meserani Snake Park located near Arusha.



**Delegates boarding a bus at one point where they stopped to view a section of Makuyuni – Ngorongoro road**



**A convoy of vehicles carrying delegates at the road side of Makuyuni - Ngorongoro road**



**A group of lions at Ngorongoro Conservation area**



**Rhinoceros at Ngorongoro Conservation Area**





**An elephant at Ngorongoro Conservation area**



**Flamingos at Lake Magadi at the Ngorongoro Crater**



**Display of Maasai shukas (wrappers) at Mto wa Mbu village along Makuyuni-Ngorongoro road**



**ESILALEI WOMEN'S GROUP CULTURAL BOMA along the Makuyuni - Ngorongoro Road**



**A group of Middle Aged Maasai Men living near Makuyuni – Ngorongoro road**



**A python snake at Meserani Snake Park**

### 3.4. Day 4, Thursday 19<sup>th</sup> April 2007

**Session Chair:** Mr. Samuel Nengue (pictured), Director General, Road Fund Cameroon



#### **Session 8: Road Investment Planning and its Management (continued)**

**Title: Public - Private Partnership as a Viable Alternative of Road Financing under Public Budgetary Constraints**

**Author & Presenter: Massimo Marconi (pictured), Head of Design Department, Stretto di Messina S.P.A, Italy.**



The presentation was based on Italy's experience on Public Private Partnerships (PPP). In recent years, Italy has experienced budget constraints in meeting demand for infrastructure due to increased traffic levels. To solve the problem of financial constraints, they resorted to attracting private investments through Public Private Partnerships. To attract the private sector, improvements have been made to the regulatory framework in which a number of models have been established that balance the risks between the public and private sectors during the construction and operational stages. The presenter gave the example of a PPP that is being used to construct the Strait of Messina bridge which has a suspension length of 3,666 metres and its estimated cost of Euro 6 billion.

#### **Highlights of the presentation:**

- PPPs have been encouraged by the adoption of suitable privatisation policies and legislation. In Italy, the percentage of value of PPPs as compared to total investments in public works has increased from 17% in 2003 to 30% in 2006.
- Risks need to be assessed and balanced between the key stakeholders involved in a project.
- Investors are assured of amortisation of up to 50% in case of a worse scenario such as political risks that could end the project.

**Recommendation:**

- Countries should consider having PPPs to get financing from the private sector especially when their Governments can't adequately finance road infrastructure development from their fiscal budgets.

**Title: Public Private Partnerships in South Africa**

**Author & Presenter: Jacobus J. Smit (pictured), Engineering Services National Executive, South African National Roads Agency Ltd., South Africa**

The presentation was based on the experience from South Africa regarding PPPs in the roads sub-sector. South Africa that was faced with limitations in funding from the Government for infrastructure development had to find alternative sources of funds and hence the idea of PPPs to bring in private financing. The PPPs have been applied to three projects which are Toll roads with success though there have been challenges such as complex regulatory approval and procurement processes, and sponsors expecting short-term profits which is unfavourable for long-term investments.

**Highlights of the presentation:**

- PPPs have successfully been applied to the Maputo Development Corridor Toll road (520km), N4 Platinum Toll Road (380km) and N3 Toll Road (420km).
- Introduction of PPPs into infrastructure development have developed financial institutions.
- Political support and favourable regulatory approval processes are key to successful PPPs.
- There is a need to have standard procurement provisions for PPPs to mitigate complex procurement processes.
- Viability of a Toll road needs should be assessed before embarking on a PPPs.
- Increased finances from financial institutions prove the viability of PPPs Toll road projects.

**Session 9: Mechanisms and Modalities for Revenue Collection and its Allocation****Title: Financing Community Roads – TASAF Experience**

**Author & Presenter: Eng. Elisifa Kinasha (pictured), Operations Manager, Tanzania Social Action Fund (TASAF), Tanzania.**



The presenter gave TASAF's (Tanzania Social Action Fund) experience in financing community roads where 2,225kms of roads were constructed during TASAF Phase I in pursuit of supporting the Government's poverty reduction efforts. Communities contribute not less than 20% of the total costs of a project where the

greater part is from a World Bank credit. At least 40% of a project cost must be for wages and at least 40% of the workers must be women. The Local Government Authorities provide supervision for the projects. Communities had the liberty to choose whatever projects they needed and 65% of them were road projects. Communities have benefited by getting access and employment in the road projects, which has reduced poverty in their areas. People employed in the projects have developed skills but lack of simple equipment has remained a big challenge to implementing road works.

**Highlights of the presentation:**

- Communities contribute at least 20% of project costs.
- At least 40% of workers are required to be women.
- At least 40% of project costs must be for wages.
- The projects have created employment and provided access roads that have assisted reduce poverty in the rural areas.
- Communities have developed skills in labour-based technologies for road works.
- Simple equipment are essential for success implementation of roadworks using labour based technology.

**Title: Sustainable Road Financing in Developing Countries: A Pragmatic Cost - Revenue Model**

**Authors: Charles Amoatey, Dr. F. Weiler, A. Wagner, Dr. S. Thielmann**

**Presenter: Charles Amoatey (pictured), Research Assistant, University of Stuttgart, Germany**

The presentation was on a pragmatic cost-revenue model for estimating road network costs and road sector revenues. Ghana and Namibia were used as case studies where it was observed that in spite of their revenues being able to meet the maintenance needs, they were only able to finance 76% and 43% of the life cycle costs respectively. It was also observed that only about half of the road user contributions in Ghana went to roads. The presenter states that it is important to have performance indicators to measure road sector performance in terms of revenue generation and allocation and its coverage. It is estimated that 1.5 -3.0% and 4.5 – 6% of GDP allocation would be needed for annual maintenance and network life cycle costs respectively. The presenter recommends reduction of the size of road networks to an affordable size in cases where funding is inadequate.



**Highlights of the presentation:**

- The cost-revenue model is developed in MS Excel software.
- Maintenance needs including Backlog are determined using unit costs for different activities and an administrative cost of 5% of the total road costs is assumed.
- The model ignores contributions from Donors since it focuses on internal generated funds i.e. road users paying for the services and general budget allocations to the roads sector.



- Performance indicators used are ‘User contributions’ and ‘Domestic funds’ in relation to the maintenance requirements; including backlog.

**Session Chair:**           **Sarah Nansubuga Nyombi (pictured) (Member of Parliament, Uganda)**



**Session 10:   Mechanisms and Modalities for Revenue Collection and its Allocation (continued)**

**Title:   The Evolution of Road Funding in South Africa - within it's SADC Context**

**Authors:       Peter Copely, Dr. Andrew Shaw**

**Presenter:     Peter Copely (pictured), Transport Specialist, Development Bank of Southern Africa, South Africa.**

The presentation was based on road financing evolution in South Africa where it has gone through three generations of road Tolls that were introduced following constraints in finances for roads. The fuel levy, used to finance roads, performed well prior to 1970 but it began to fall in real terms necessitating introduction of 1<sup>st</sup> generation road tolls through legislation in the 1980s which required that there should be a free alternative to the newly built toll roads. These toll roads were not sustainable because their pricing was based on fuel and timesavings ignoring vehicle depreciation, operating costs and road safety costs. Introduction of 2<sup>nd</sup> generation toll roads was implemented to address two very pronounced peaks during Easter and Christmas but it was observed to be unsustainable because the Government subsidised the periods between the peaks where there was lesser traffic through shadow tolls. The 3<sup>rd</sup> generation introduced fully privatised road tolls in South Africa. Two factors, which are inflation and overloading, have been observed to influence performance of road tolls. There has been a decrease of 20% in overloading since introduction of the 3<sup>rd</sup> generation road tolls.



**Highlights of the presentation:**

- Road tolling was introduced to bring in finances from the private sector when there were Government budgetary constraints.
- Shadow tolling was not sustainable because the toll prices considered only savings in time and fuel.
- In South Africa, experience showed that to have a fully pledged concession toll road for 30 years, 4,000 vehicles per day minimum was required.
- Political support and commitment are key to successful toll roads.
- Maputo toll road was the first of the 3<sup>rd</sup> generation of toll roads and has been operating successfully since 1997.
- Heavy trucks pay more in road toll than lighter trucks.
- Overloading decreased by 20% under private sector involvement in road tolls.
- The first 5 to 8 years of any toll road are risky and progress is normally slow.

**Title: Road Tolls and Road Pricing: Innovative Methods to Charge for the Use of Road Systems**

**Author & Presenter: Daphnée Benayoun (pictured), Project Engineer/ Transport Economist, Louis Berger SAS, France**



The presentation was on innovative methods to charge road users as alternatives to the common source of fuel taxes, which it is noted, will not be sufficient to cope with the growing needs in the long run. Apart from trying to get revenue to meet the costs of developing and maintaining roads, other challenges have emerged that greatly affect the roads sub-sector such as congestion, road safety and environmental issues. To tackle these challenges together with the issue of

meeting development and maintenance financial needs for roads, many countries have resorted to using public private partnerships for toll roads or direct user charging systems. The presenter focused on three types of road user charging that are Electronic toll collection systems, Managed lanes and mileage based user charges and Urban tolls. Examples from around the world were presented including the congestion charging system in central London, Stockholm, and Singapore that have reduced congestion and optimised transport demand.

**Highlights of the presentation:**

- Taxes from fuel are not sufficient to cope with the financial demands for development and maintenance of roads.
- Direct road user charging is an alternative to fuel taxes to meet financial needs for the roads.
- Other challenges have emerged such as congestion, road safety and environmental issues whose mitigation measures carry a cost.
- Introduction of congestion charges to reduce traffic should be coupled with provision of adequate public transport for commuters.

**Title: Developing Effective Communication Strategies for Organisations Funding & Managing of Roads**

**Author & Presenter: Mark Thriscutt (pictured), Independent Consultant, Australia.**

The presentation was based on the need for road agencies to have effective communication strategies with external stakeholders which is noted to be an essential element in developing and sustaining, financial and political support for road management activities. Unfortunately, many such institutions have no such strategies and this has resulted in them having to fight a continual rear-guard action to support the work they are doing. This reactive approach is usually ineffective, wasteful and demoralising to those involved. The presentation notes that those paying for and using the roads have no choice as to who spends their money and little say over the quality of service that they receive and they also can not take their money or custom elsewhere. Therefore, there is a much greater onus on those spending this money to reassure these customers that they are receiving good value for their money, by clearly and continually demonstrating this. Strategies recommended include the road agency clearly defining its objectives and tailoring information to targeted audiences. The presenter recommends that road agencies create a small Public Relations unit dedicated to develop and implement appropriate communications strategies.



**Highlights of the presentation:**

- Effective communication strategies are important between road agencies and stakeholders who include decision makers and road users.
- Road users have a right to know how their money is spent and whether there is Value for Money.
- Decision makers who include politicians need to have the right information so that useful decisions are made for the development of the roads sub-sector

**Recommendation:**

- Road agencies need to have effective communication with stakeholders in the roads sub-sector.
- Road agencies need to establish Public Relations units that will be responsible for communicating with stakeholders.

**Session Chair: Dr. Mohammed Salifu (pictured), Ghana Road Fund Board Member and Lecturer at Kwame Nkrumah University of Science and Technology, Ghana**



## **Session 11: Cross cutting issues/ Good Governance**

### **Title: Round Table Discussion on Governance in Road Transport,**

**Authors & Presenters:** Charles Melhuish (pictured right) & Stephen Vincent (pictured left) of Global Transport Knowledge Partnership (gTKP – UK)

The roundtable discussion on Governance in Road Transport was conducted for 2 hours.

### **Presentation**

The Presenter dwelt on Strategic focus of gTKP that are identify the best and most relevant transport knowledge; increasing the practical application of good practice; stimulating debate and discussion on priority issues and approaches to tackling them; promoting networking between transport practitioners and building long-term partnerships. He further presented the gTKP Organisation. He presented also the gTKP Activities that include: Develop knowledge communities;



Seminars and workshops; Learning and education material; Document case studies; Fill knowledge gaps and Disseminate knowledge from existing research programmes. The Presenter listed various Governance roundtable discussions conducted worldwide. He further presented the output from Manila roundtable held from 07-08 March 2007 and that held at World Bank, Washington, 30<sup>th</sup> March 2007.

### **Output Issues from the Manila roundtable discussions included:**

#### **What are the main governance issues in the transport sector?**

Weak planning process; Inappropriate political interference; Lack of long term view – (e.g. 12 months budget cycle); Flawed procurement processes; Corruption; Transparency – being able to see what is really happening; Inadequate technical skills; Inadequate contract supervision & poor quality control; and Weak enforcement of laws and regulations (e.g. overloading).

#### **What interventions were tried to improve governance in the transport sector, what worked, and what did not work?**

These include: Contracting out maintenance (worked – but maybe limit to 5 years); Contracting out design and supervision (worked); Separate supervising consultant (worked); Standard methodologies for project appraisal (worked); and Effective technical & financial audits (worked); Decentralisation (mixed results – perceived good, practical problems); Road fund initiatives (delayed implementation, political interference); Information made available to stakeholders (positive effect); Multi-sectoral involvement (positive effect)

**What information should be in the public domain?**

Generally – the more information available the better; Annual performance report; Comprehensive details of each current project; Quality of information important; Media education - potential misuse of some information; Benchmarking - between projects & between countries. Others are: Budget details and road sector plans; Procurement process details for each project; Condition of the road network and traffic levels; Information to support toll levels and road user charges.

**How can civil society be mobilized to improve governance in the transport sector?**

Take a multi-sectoral approach – public, private, civil society, academic, media; Very few NGOs support governance in transport; More information could lead to more participation; and Effective protection of whistleblowers. Others are: Identify a focal point (e.g. on projects) to respond to questions; Media training needed (solutions rather than causing controversy); Public education to raise awareness & understanding of issues and Each country needs a unique solution.

**Are there “knowledge gaps” that gTKP could assist to fill in?**

Documentation and exchange of case studies; “Guide to road infrastructure for Dummies”; Guidelines/manuals for managers; Training and education materials; Seminars & workshops; Study tours; Mobilizing civil society involvement; Benchmarking; Directory of knowledge champions; Website; Networking between people interested in governance; and Translation of documents

**World Bank, Washington – 30 March 2007 - Selected comments from discussion**

Asymmetry between government & public knowledge; Expectations: many people doubt they can have any effect; National level / local level differences in governance systems; Need balanced focus on government, media and civil society; and Are we expecting too much from the public?

**Discussion**

After the presentation on the previous roundtable discussion, the Presenter mentioned three Discussion Topics as follows:

- A. What are the key governance issues in the road transport sector?
- B. How can civil society assist in improving governance?
- C. What should gTKP focus on in the next 2 years?

**Highlights of the Presentation and Discussions:**

- gTKP has a website [www.gTKP.com](http://www.gTKP.com) that facilitates knowledge, news and events; focussed themes; and discussions.
- gTKP Focus Areas are Governance in Transport; Environment, Health and Road Safety; Rural Transport and Sustainable Urban Transport.

Comments from seminar participants were as follows:

**What are the key governance issues in the road transport sector?**

- Sharing and exchange of best practices.

- Networking and building up partnerships.
- Governance in transportation.
- The public aware and knowledgeable of what is happening.
- Transparency of the procurement processes.
- Professionalism in both public and private sectors.
- Integrity.
- Board Members and Chief Executive Officers knowledgeable on road sector matters and issues.
- Existence of corruption.
- Focus on control procedures and process and outcomes
- Road Management. There is no holistic approach.
- Value for money.
- Community participation.
- Capacity building.
- Conducting independent audits.
- Inadequacies in management of roads.
- Political interference.
- Identification and prioritisation of road projects.
- Institutional setups.
- Role of Development Partners.
- Conflicts in legislations.
- Accountability.
- What has been done and what has not been done:
  - Reforms in the roads sector have taken place.
  - Strategic plans and Work programmes are prepared.
  - Procurement procedures have been improved through legislation.
  - Committees have been formed in the Parliament to deal with matters related to roads.
  - Declaration of wealth by public servants being done.
  - Development Partners and Governments have formed joint technical committees.
  - Technical and Financial audits are conducted.

#### **How can civil society assist in improving governance?**

- Civil society's knowledge about governance needs to be improved.
- Hold public hearings,
- Roads Fund Boards finance training of civil societies and have a feedback mechanism for receiving complaints from the public.
- Involvement of public be provided in legislations.
- Publish information in media e.g. Kenya Roads Board publishes road programmes in six newspapers.
- Invite media to stakeholder meetings and hold press conferences.

#### **What should gTKP focus on in the next 2 years?**

- Share experiences among the countries.
- Address Road Safety matters and issues.
- Educate people on the Role of Transport since effective transportation is the catalyst for the economic development.



- Gather information on what has worked and what has not around the world and disseminate the information to stakeholders.
- Educate people that roads are for all road users and not only for vehicles.
- Address Non-motorised transport matters and issues.
- Add value on what has been done around the world regarding exchange and sharing of information on best practices.
- Add information on good governance in the website.
- Encourage countries to share and exchange information through the internet, visits and seminars.

**Title: Presentation of African Road Maintenance Funds Association (ARMFA)**

**Author and Presenter: Jerome Obi Eta (pictured), Coordinator, ARMFA**

The presenter gave a background of how ARMFA was established. ARMFA was established in Libreville, Gabon by 18 Roads Funds in December 2003 after various reforms. He presented on the objectives of ARMFA; Membership; Organs; Achievements; Challenges; and the Way Forward. He further discussed on the ARMFA ambition. That is to implement the ACCRA Declaration of 2006. The Declaration of ACCRA is aimed at implementing objectives, strategies and targets in financing of road maintenance. Such issues to be addressed under the Declaration of ACCRA include:



1. Stay the course on “second generation” principles and restructure all road funds according to principles of second generation set out below by 2008: i) The Declaration of ACCRA sound legal basis – separate road fund administration, clear rules and regulations; ii) Strong oversight – broad based private/public board. iii) The President of the Board should be an independent and known personality (elected by members) – this contributes to acquire the adhesion of the public vis-à-vis the road programme and it’s financing. iv) Agency which is a purchaser not a provider of road maintenance services. (Funding Agency). v) Revenues incremental to the budget and coming from charges related to road use and channeled directly to the Road Fund bank account.; vi) Sound financial management systems, lean efficient administrative structure.; vii) Regular technical and financial Audits (both internal and external).
2. Diversify revenue and capture road tolls, vehicle license fees and other charges related to road use by 2008.
3. Mobilize road users and stakeholders more effectively in order to influence decision-making. Develop a dissemination and Communication strategy – knowing our needs – to rally partners and use the media to trigger political will by 2007.
4. Implement recommendations of technical audits reports and contribute to improving the efficiency of road management practices by 2008.
5. Establish regional focus groups, in 2006, to report on progress on the collection mechanisms, Negotiation and Public Relations strategies, Audits (value for money) and other regional issues related to road maintenance financing as follows: ECOWAS – pilot BENIN;



CEMAC (plus Burundi) – pilot CAMEROON; EAC (plus Rwanda) – pilot KENYA; SADC – pilot ZAMBIA. The Declaration of ACCRA is shown in **Appendix 4**.

### **Highlights of Presentation:**

- SSATP initiated reforms in the Road Sector – late 1980s. From 1992 there was Birth of new type of Road Maintenance Funds in SSA. In December 2003 ARMFA was created. Hiccups - Reform of statutes in April 2004 led into formulation of New EXCO. After these reforms the partnership programme with SSATP was established. The Coordinator was recruited, financed by SSATP to assist the Executive Committee
- The objectives of the Association are to: i) Promote a Network for exchange of Experiences and information on good practices in the financing of road maintenance in Africa; ii) The promotion and strengthening of ties between Road Maintenance Funds in Africa; iii) Strengthening of capacities of existing structures; iv) Support to nascent structures; v) Promotion of the sound management of road maintenance funds; vi) Promote an efficient public/private partnership - best conditions for the mobilization of resources for road maintenance; vii) Strengthen cooperation with partners in development; viii) Ensure the sustainability and the harmonious development of RMF.
- The membership of ARMFA is open to all African National Road Maintenance Funds. In the case of countries with federated states, the Road Maintenance Funds could be admitted as Associate Members, provided that the said country is a member of the Association. Associate Members are non-voting members of the general assembly. Currently, ARMFA has 25 members, namely Benin, Burundi, Cameroon, Central African Republic, Congo Rep., Cote D'ivoire, Djibouti, Ethiopia, Gabon, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Rwanda, Tanzania, Tchad, Togo, Zambia, Zimbabwe and 1 Associate Member – Zanzibar
- Organs of ARMFA are i) General Assembly; ii) The Executive Committee, and iii) any other organ created by G.A. The EXCO is made up of the President, 2 Vice Presidents, and An Auditor
- The Headquarters and permanent secretariat is in Yaounde
- ARMFA has made a lot of achievements. These include holding of Annual General Meetings and 1 extraordinary meeting. Also, Technical Workshops and General Assemblies at each meeting; Developed Performance Indicators and Performance Criteria, Monitoring and Evaluation of execution of Road Maintenance Works; Established Mechanisms for the collection of RF Revenues; Adjusting or widening Road Tariffs; Conducting of Audits of RF; Development of 5 year Strategic and Business plan in preparation. Others are ARMFA which has a website [www.armfa.org](http://www.armfa.org); Updated RMF Matrix; Created Key Performance Indicators; Encouraged sensitisation of RF board members; Facilitated dialogue and study tours between members; Developed partnerships with PIARC, ASANRA, AGEPAR and soon with IRF
- Challenges facing ARMFA include: Respect for second generation RF Principles; Involve road users more by enhancing communication with them; Sensitize the government; Sensitize and educate roads funds board members – RMF course; Release of resources to the Road Fund there are some delays, leakages and inefficient use of the available resources. Other challenges are to continue sharing of experiences on ways for adjusting and collecting road tariffs; Demonstrate RF effectiveness, show users how the

funds they pay are actually being utilized and establish procedure for adjusting or increasing road tariffs.

### **Conclusion**

- “THE DECLARATION OF ACCRA” was adopted by ARMFA to be submitted to governments of members’ countries as guideline for future development of Roads Funds.

### **3.5. Day 5, Friday 20<sup>th</sup> April 2007**

**Session Chair:** Mr. Alfred Charles Juma (pictured), Chairman Kenya Roads Board



**Session 12: Cross cutting issues/ Good Governance (continued)**

**Title: Project Anti-Corruption System (PACS) for Construction Projects**  
**Author & Presenter: Catherine Stansbury (pictured) (UK), Project Director, Anti-Corruption Systems, Transparency International (UK)**

Ms. Stansbury presentation focused on corruption in the Construction Sector which she noted was a worldwide problem. She emphasized that the Construction Sector is perceived as the most corrupt industry worldwide. She described how corruption can cause damage and hamper social and economic development of the countries. As corruption is concealed, it is impossible to quantify the exact positive corruption. She said that Transparency International had developed PACS specifically for construction projects to combat the problem of corruption. PACS was issued as a consultative edition in February 2007 and circulated to stakeholders worldwide for comments. The presentation was part of the consultation process. She discussed how PACS could be implemented to address corruption in the Construction project. However, she emphasized that to implement effective PACS there is a need to have decision from the Government; Project funders; and Procuring entities. Thereafter, the Project Owner is responsible for operating PACS. The presenter also discussed the cost surrounding PACS and she listed some potential problems that might occur while implementing PACS.



**Highlights of the Presentation:**

- Corruption is not only bribery, but fraud, collusion, extortion and other similar offences.
- A survey carried out by Transparency International showed that the Construction sector is perceived to be the most corrupt industry worldwide ahead of defence and extractive industries.
- Both the World Bank and the European Union Commission estimate corruption at 5% of the World's GDP. Losses are estimated to be 1 trillion United States Dollars in a year.
- Effects of corruption can be extremely damaging, resulting in projects that are unnecessary, over designed, overpriced, defective and dangerous.
- Damage done by corruption in two aspects: Socially and economically.
- Many people believe that the cost of corruption in construction projects ranges between 5 and 50 percent of the project cost. Value of World's construction output is estimated to be US \$ 5 trillion. If construction losses are conservatively estimated at 5%, losses in the construction sector could be US \$ 250 billion. This is misappropriation of huge sums of money that could be spent on poverty reduction, health and education.
- Corruption can occur in the identification phase, funding phase, tender phase, in execution and maintenance.
- There is a need for anti-corruption actions due to following reasons: Corruption on construction projects is complex; it can occur during any phase; it may involve a range of participants; It can take place at all contract levels. Therefore, anti-corruption measures must impact on all these phases.
- Project Anti-Corruption System (PACS) is a system with combination of tools. It applies only to projects. When PACS is applied there is no interference with procurement or other procedures.
- PACS is available for use and can be adapted to suit project requirements. Whole, or part, or individual modules of PACS can be used
- PACS is easy to operate; all tools are provided and instructions on how to operate PACS are provided
- PACS is applied during all the stages of the project execution: that is Tender Phase; Execution Phase
- During implementation of PACS, the project owner engages an Independent Assessor. There is also an Anti-Corruption Agreement that is signed by Project Owner and tenderer. It applies for duration of project involvement. It has anti-corruption warranties. Also other key issues are addressed such as co-operation with Independent Assessor; Transparency; Anti-Corruption Programme and Criminal and contractual penalties.
- The version of PACS is being published as a "Consultative Edition". The consultation period ends on 30<sup>th</sup> April 2007. The First Edition of PACS will be published in mid-2007.
- PACS is written by Catherine Stansbury and Neill Stansbury who are both lawyers, each with over 20 years' experience working in the international construction industry. They have in total been involved in over 75 major construction projects in 20 countries.

**Title: Good Governance and Integrity through Institutional Capacity Building - Some Experiences & Strategies**

**Authors; Prof. James Odeck, M.D. Langaas, and K. Bjørvig**

**Presenter: Prof. James Odeck (pictured), Senior Research Economist/ Professor, Norwegian Public Roads Administration (Norway)**



The presentation was based on institutional capacity building (ICB) within the roads sector in developing countries. The review had considered case studies focused on road projects in some sub-Saharan countries such as Botswana, Ghana and Tanzania. The presenter stressed that ICB should be appropriately defined to include both the tangible (hard) factors (technical competence and organisational framework) and the intangible (soft) factors (social arrangements) which are often ignored. The

presenter noted as an example that what can be easily done in a European country cannot necessarily be easily done in an African country due to cultural differences. If done properly, ICB creates efficient and effective institutions and pursues the objectives of good governance and integrity. He presenter noted the following as success factors for ICB: Long-term involvement; Demand-driven assistance; Interventions adapted to the level of development and absorption capacity of the institutions involved; Focus on human resources development; and Emphasis on the intangibles. However, there were also factors that lead to shortcomings such as: Lack of understanding/competence of institutional reform processes and capacity building; and low public sector salary levels. Prof. Odeck concluded by stating the sustainability of institutional reform processes strongly depended on political commitment, stakeholders' ownership and mechanisms to secure and allocate human and financial resources.

**Highlights of the presentation:**

- This study is part of the work of the PIARC Commission on Technological Exchanges and Development.
- Successful ICB should comprise of the hard (tangible) and also soft (intangible) factors.
- ICB encompasses three main activities (1) skill upgrading (2) procedural improvements and (3) organisational strengthening.
- Tangibles are physical assets which are easily measurable either in physical terms or indices. They include infrastructure, machinery, training, economic resources, legal framework etc.
- Intangibles are soft but equally important factors such as social skills, experience, creativity, social cohesion, values and motivations, habits and traditions, institutional culture etc.

**Recommendation:**

- When carrying out ICB, there should be a balance between the tangible (hard) and intangible (soft) factors.

**Title: Presentation of Association of African Road Managers and Partners (AGEPAR)**  
**Author and Presenter: Mr. Auguste Nambea (pictured), 2<sup>nd</sup> Vice President of AGEPAR**

The presenter gave a brief presentation on AGEPAR informing that it was an Association of Directors of Public Works or Roads. The association was created in Cote d'Ivoire in September 1995 and has 22 members. The head office is currently based in Cotonou, Benin. The main objective of the association is to develop exchange of experiences and information between members in order to promote development of the road sector. The association finances its activities from member contributions.



#### **4. CLOSING SESSION**

##### **4.1. Remarks by the Deputy Secretary General of the World Roads Congress (PIARC)**



The Deputy Secretary General of PIARC Mr. Franck Charmaison (pictured) gave closing remarks in which he said he was pleased that the institutions such as ARMFA, AGEPAR, SSATP and ASANRA cooperated with PIARC to organise this important seminar. He praised the work done by all in cooperation, especially the local organisers. He indicated that the coming strategic plan for the four years period 2008-2011 was now under preparation, and would include amongst others, issues related to road financing.

##### **4.2. Closing Remarks by the Chairperson of the Tanzania's Roads Fund Board**

Before the official closing of the Seminar by the Guest of Honour, the Chairperson of the Roads Fund Board, Mr. Philip Alfred Magani (pictured) gave remarks. He briefly presented on general overview of the Roads Fund Board: He mentioned four out of twelve functions that are related to roads financing and management as well as the Seminar on Sustainable Road Financing and Investment. Mr. P.A. Magani, also recognized countries that are currently supporting the road maintenance programme financially. Before the Chairperson of the Tanzania's Roads Fund Board welcome the Guest of Honour, he thanked all delegates who attended the seminar, the Sponsors of the seminar, the Organising Committee, the Chairs of the sessions, the Administrator, the Moderator, and the Paper Presenters for their excellent performance and extend our special thanks to institutions and firms that have supported bringing their



people to attend this seminar. Closing Remarks by the Chairperson of the Tanzania's Roads Fund Board are shown in **Appendix 5**.

#### **4.3. Closing Speech by the Guest of Honour**



The closing session was officiated by the Regional Commissioner for Arusha Region, Colonel (retired), Samwel Ndomba (pictured). In his speech, he noted that the timing of the seminar was at the appropriate moment when many countries were facing challenges of inadequate financing for road maintenance and investment. He hoped that the Seminar has strengthened partnerships between countries in exchange and sharing of information and

best practices on matters related to road financing.

The Closing Speech by the Guest of Honour is shown in **Appendix 6**.

### **5. SUMMARY OF RECOMMENDATIONS**

A summary of recommendations from the presentations have been prepared and categorised by the sub-themes as follows:

#### **5.1. Sub-theme 1: The Role of Road Infrastructure in Achieving Millennium Development Goals**

1. Provide Rural Roads Infrastructure for Economic Growth to Create Short and Long-Term Employment Opportunities through Road Maintenance, and Improved Access

#### **5.2. Sub-theme 2: Road Investment Planning and its Management**

2. Execute Public Private Partnerships (PPPs) Projects and Address Realistic Risk Sharing.
3. There should be Clear Legislation and Institutional Set up to Support Implementation of PPPs.
4. Establish Performance-Based Management and Maintenance of Roads (PMMR) and Ensure that it has to be Tailored to Address each Specific Maintenance Needs
5. Road Space be Provided for Different Modes of Transport e.g. Motorised and Non-motorised Transport
6. Develop a Road Management System that Include Analytical Models, Strategy and Optimization based on Country's Characteristics
7. Implement Routine and Periodic Maintenance to keep Road Infrastructure Asset in a Stable Long-term Condition to enable it Play its Role as a Catalyst for Socio-Economic Development.
8. Develop a Road Management System that Include Analytical Models, Strategy and Optimization based on Country's Characteristics



9. Implement Routine and Periodic Maintenance to keep Road Infrastructure Asset in a Stable Long-term Condition to enable it Play its Role as a Catalyst for Socio-Economic Development.
10. Promote Port Infrastructure Projects as a Major Focal Point Investment since it is the Entry and Access Point for All Imports and Exports in the Southern Africa Development Community (SADC)
11. Implement an Asset Management that Integrates Geographical Information Systems; Valuation of Assets in Monetary Terms; Accounting Systems and should be Managed Like Business
12. Implement an Integrated Road Management System (RMS) Encompassing both Information Processing and Human Resources; Determination and Optimization of Economically Warranted Projects, Programmes, Strategies and Budgets if Possible for even Both Development and Maintenance.
13. Implement PPP to Involve Private Sector to Take Part in Economic Development so as to Arrest the Situation that Indicates High Debt Level and Limit on Government Guarantee. Also, for Successful PPP, political Support and Regulatory Approval Authorities are Inevitable
14. Create an enabling Environment for PPPs such as Standard Procurement Provisions to Mitigate the Complex Procurement Process
15. Enhance Capacity of Small local contractors by providing 'Greenhouse contracts' which provide preference of works until they are able to compete with other contractors in the open market
16. Technical Competitive Tendering be applied for the small local contractors i.e. award is made to contractor with the best technical methodology rather than basing on the lowest evaluated bid
17. Development Corridors Involving both the Private and Public Sector on Potential Sectors e.g. Mining, Agriculture, Water be Encouraged
18. PPPs be established for Large Investments in Roads Infrastructure, Especially when Financial Resources are Limited. PPP should have the following criteria: Eliminate any public fund; and Amortize in the worst case at least 50% of investment.

### **5.3. Sub-theme 3: Mechanisms and Modalities for Revenue Collection and its Allocation**

19. Establish a System for Vehicles to pay road user charges on entering a country and using the road network. Payment method should be simplified either be by Cash, Debit/Credit cards or by Coupons. Collection method be by a Government department, a Commercial Bank or by a Private company.
20. Implement and Finance Self-Help Community Projects that could Facilitate Improved Access, hence Improved Economic Activities in the Communities and Eventually Sustainable Development
21. Encourage Small Communities to Establish Community Business Organization for Capacity Building and Sustainability as well as Capacity Building of Local Authorities Staff



22. For Sustainable Financing, Assess the Road Network Life Cycle Costs that Include Replacement Cost; Maintenance Cost; Administrative (Overhead); Cost and Cost of Capital
23. Consider Implementing Tolling for Infrastructure Development where Applicable as Fuel Levy is not Adequate for Road Maintenance
24. Introduce High Occupancy Vehicle (HOV), High Occupancy Tolling (HOT) Lanes and Congestion Pricing as another Source of Revenue for Road Infrastructure Development
25. Apply Good Communication Strategy in Road Management Organization (RMO) by Addressing Clear Objectives; Target Market; Tailor the Message to Suit the Targeted Market; Sell the Benefit and Not the Features as well as Use Appropriate Terminology
26. Apply Effective Communication Strategy as an ongoing process.
27. Road Projects that involve Communities contributing resources (money, materials or labour) be established so that a sense of ownership is instilled and poverty is reduced.
28. Adopt good communication strategies by: Having clear objectives; Knowing your target market; Tailoring the message to your target; Selling benefits and not features; Using appropriate terminologies; Using local people and language; and be consistent.
29. Use different methods of communications to get information to the public through the use of newsletters, regular meetings with stakeholders, Annual reports, websites, billboards, TVs, Radio, and sponsoring relevant events.
30. Independent Technical and Financial Audits be conducted and findings made available to the public.

#### **5.4. Sub-theme 4: Policies, Legislation and Reforms in Road Financing and Management**

31. The Public should be informed on the disbursements to Road Agencies on a quarterly basis through public media e.g. Newspapers
32. Road Agencies Annual Work Plan must be approved by the Roads Fund Board. Once it is approved, it is recommended that it can be changed only once during the mid-year review and approved by adopted procedures with clear audit trails.
33. Punitive measures should be applied for Road Agencies that are non-compliant to the procedures regarding utilisation of Roads Fund.
34. There is a need for Countries that do not get adequate funding for roads from their Government's consolidated budgets, to establish them and have their revenue from fees for service provided by the roads.
35. Annual Performance Agreements should be signed between the Roads Fund Board and the Road Agencies. The agreement should indicate the funds to be disbursed to the Road Agency and have a works programme for utilising the same. The agreement should also include punitive measures to those who are non-compliant.
36. Mechanisms should be put in place to adjust the tariffs for road user charges so that they meet the demands of funding for road maintenance and development.

37. Revenues collected should be channelled directly to Roads Fund accounts instead of passing through the Ministry of Finance.
38. Road Agencies need to move towards a network management approach rather than considering maintenance and development separately.

## 5.5. Sub-theme 5: Cross Cutting Issues

39. Address knowledge gaps that PIARC, gTKP and other institutions could assist to fill in. These Include: Knowledge Exchange mechanisms, Documentation and exchange of case studies; Guidelines/ manuals for managers; Training and education materials; Seminars & workshops; and Study tours

## 6. EVALUATION OF THE MEETING

To obtain feed back from the delegates, an evaluation form was sent to the delegates by e-mail after the Seminar. The form used was a standard one, normally used for Seminars organised by PIARC. A total of 14 forms were completed by the delegates. The following is a summary of the results:

		Respondents	Outstanding	Very good	Good	Fair	Poor	Mean Score*
1	Overall impression of the Seminar	30	3	24	3	0	0	4.00
2	Methodology used in the Seminar	29	2	19	8	0	0	3.79
3	Quality of Presentations	30	0	21	9	0	0	3.70
4	Quality of discussions	30	2	13	11	3	1	3.37
5	Pre-Seminar information	30	4	15	8	3	0	3.67
6	Host coordination	30	8	14	6	2	0	3.93
7	Seminar venue:							
	◊ Meals	30	3	13	10	3	1	3.30
	◊ Seminar Facilities	30	2	11	14	3	0	3.40
8	Seminar Programme	30	1	16	13	0	0	3.60
9	Field trip to Makuyuni – Ngorongoro road	18	4	9	4	1	0	3.89
10	Hotel:							
	◊ Ngurdoto Mt. Lodge	18	4	9	4	1	0	3.89
	◊ Impala	5	0	3	1	1	0	3.40
	◊ Eland	3	0	0	2	1	0	2.67
	◊ City Link	1	0	1	0	0	0	4.00
	◊ Hotel not mentioned	1		1				4.00
11	Seminar Cocktail	26	2	18	6	0	0	3.85
12	Seminar Dinner	26	2	15	7	2	0	3.65
13.	Meeting objective being met	23	Yes = 22	No = 1				

Outstanding = 5; Very good = 4; Good = 3; Fair = 2; Poor = 1

\* Rounded to whole number

The results show that the Overall impression of the Seminar was **VERY GOOD**. Other ratings also scored **VERY GOOD** except for Quality of discussions, Meals, Seminar Facilities, Hotels Impala & Eland that got a score of **GOOD**.

#### **Other comments from the delegates:**

The delegates were also requested to provide descriptive views on various matters regarding the Seminar. The comments are summarised below:

#### **Best aspects of the seminar**

- ◇ Brought experts together from different geographical places.
- ◇ Learned from other countries experiences on road financing aspect.
- ◇ Local issues were well presented and discussed.
- ◇ Organisation was outstanding.
- ◇ Interactions between experts from different countries.
- ◇ Presentation on PPPs, Performance based road management and maintenance, and Governance in Transport sector by gTKP.
- ◇ Discussions on alternative sources of road maintenance funds.
- ◇ Quality of presentations.
- ◇ The organisation and relevant contents.
- ◇ Communication and coordination was commendable.
- ◇ The Public relations function played a commendable role.
- ◇ All staff managing the Seminar Secretariat did a wonderful job to ensure our pleasant stay in Tanzania.
- ◇ Got together fellow road engineers in Africa.

#### **Seminar responding to the preoccupations of your country**

- ◇ Seminar did respond as inadequacy of funds is a problem faced by many countries.
- ◇ Did not respond to preoccupations of some countries e.g. Italy.
- ◇ The seminar was an eye opener to some countries such as Uganda, which is in the process of establishing a Roads Fund.
- ◇ The challenge is to gain political acceptance back home and to apply the knowledge effectively.

#### **Objectives of the seminar being attained**

- ◇ Objectives were attained. A follow up should be made on the way forward otherwise what was learnt would be useless.
- ◇ Yes, because maintenance and relevant solutions for problems of different African countries have been discussed in an exhaustive way.
- ◇ Given the various themes and topics there under, the objectives were fully met.

#### **Suggestions or ideas for follow-up of the seminar**

- ◇ Information from the seminar should be placed in the internet including PIARC's website as soon as is possible.
- ◇ Follow up seminars should be held to share upcoming experiences.
- ◇ Decision makers including Politicians should be invited to such Seminars.

- ◇ Too many presentations in a day and little time for discussions.
- ◇ Such Seminars be held bi-annually.
- ◇ Oversight function especially on the part of the legislature should be emphasized so as to ensure positive results from the Executive and agencies there under.
- ◇ There is a need to involve academic institutions in such seminars.

#### **Areas to improve in future seminars**

- ◇ More time be allocated for discussions.
- ◇ Language interpretation should be improved.
- ◇ Remote control of computers and equipment used for presentations should be availed.
- ◇ Venue should preferably be in a city centre to save on transport costs and time.
- ◇ Have lesser presentations.
- ◇ Schedules should end at 1630 hours instead of 1800 hours or more.
- ◇ Consider having more affordable hotels for accommodation as many with low incomes could not afford staying at Ngurdoto Mt. Lodge.
- ◇ Presentations should focus on solutions.
- ◇ Presenters should strictly abide with the allocated times provided for them.
- ◇ Lack of recreational activities at Ngurdoto Mt. Lodge. Consider taking people to downtown Arusha for socialisation purposes.
- ◇ Organise seminar balls/dances in addition to the field trips.
- ◇ Include group works to force discussions.
- ◇ Traffic safety which is a big challenge to Africa should be discussed.
- ◇ Coordinate different papers in order to avoid some overlapping which show different dates and conclusions.
- ◇ Harmonisation of interests and active participation of both English and French speaking countries.

#### **Other remarks from participants**

- ◇ Ngorongoro crater is one of the most impressive places I have ever visited.
- ◇ Arusha as a venue and the organisers were fabulous.
- ◇ Guides to field trips should be people who are knowledgeable about what is shown.
- ◇ Bags provided were too small to accommodate all seminar materials.
- ◇ Papers should be ready earlier to enable proper serial binding of the same.
- ◇ Documents needing translation be done well before the Seminar.
- ◇ Invitations be sent early enough to enable participants prepare themselves appropriately.
- ◇ Hotel Impala charged a rate of US \$ 65, higher than rates provided in the Seminar brochure.
- ◇ Hotel Impala staff need to be trained on hospitality management.
- ◇ More research is needed to establish proper financing for SSA roads since present regime of sources are inadequate.
- ◇ African countries need to take charge of their road networks and be less dependent on external institutions.
- ◇ There is a need to establish clear priority between maintenance and construction to optimise available inadequate funds.
- ◇ Presentations should be thoroughly researched as some of them left out a lot of information.

◇ Some delegates look forward to returning to Tanzania.

## **7. SUMMARY OF THE SEMINAR**

Summary of the International Seminar on Road Financing and Investment that was held at Ngurdoto Mountain Lodge in Arusha, Tanzania, from 16<sup>th</sup> – 20<sup>th</sup> April, 2007 is presented in **Appendix 7**.

## Appendix 1: List of Participants

### **FINAL LIST OF PARTICIPANTS FOR THE INTERNATIONAL SEMINAR ON SUSTAINABLE ROAD FINANCING AND INVESTMENT HELD AT ARUSHA, TANZANIA FROM 16 - 20 APRIL 2007**

S/N	COUNTRY	FULL NAME	Job Title	INSTITUTION
1	Australia	Kathryn Martin	Asset Management Planning & Raling Manager	Main Roads Western Flustrolies
2	Australia	Mark Jonathan Thriscutt	Independent Road Management Consultant	Independent Consultant
3	Belgium	Tony Dufays	Regional Director	International Association of Public Transport (UITP)
4	Brazil	Fernando de Melo e Silva	Pavement Management Engineer	Michigan LTAP, Michigan Tech Transportation Institute, Michigan Technology University, Houghton
5	Burundi	Chantal Baringuvu	Directeur Général	Fonds Routier National
6	Cameroon	Antoine Ondo	Attache Secretariat General De La Presidence De La Republique Du Cameroun/ Membre Du Comite De Gestion Du Fonds Routier	Presidence De La Republique Du Cameroun, Fonds Routier Du Cameroun
7	Cameroon	Jerome Obi Eta	Engineer	African Roads Maintenance Funds Association (ARMFA)
8	Cameroon	Mustapha Benmaamar	Sr.Transport Policy Advisor	SSATP, Transport Sector, Africa
9	Cameroon	Samuel Nengue	Director General	Road Fund of Cameroon
10	Central African Republic	Auguste Nambea	Directeur Général de l'Equipement	Ministère de l'Equipement et Désenclavement
11	Central African Republic	Marie Claire Bitouanga	Directeur Général	Fonds d'Entretien Routier
12	Cote D'Ivoire	Adrien Kouakou Konan	Superviseur Travaux	AGEROUTE
13	Cote D'Ivoire	Eric Landry Kouakou	Secretary	Union Africaine des Transports Publics (UATP) - African Association of Public Transport
14	Cote D'Ivoire	Joseph Assafoua Aka	Secrétariat Général	Union Africaine des Transports Publics (UATP) - African Association of Public Transport
15	Cote D'Ivoire	Philippe Attey	General Manager	SOTRA
16	Cote D'Ivoire	Venance Kaudio Kanga	Directeur Financier et Compatble	AGEROUTE
17	Cote D'Ivoire	Zoro Fofana		Union Africaine des Transports Publics (UATP) - African Association of Public Transport
18	Denmark	Jan Kildebogaard	Senior Transport Consultant	CONSIA Consultants
19	Ethiopia	Alemayehu Teferi Woldehana	Head, Plan and Program Department	Ethiopia Road Fund
20	Ethiopia	Rashid Mohammed Abdulwahid	Director General	Ethiopia Road Fund

S/N	COUNTRY	FULL NAME	Job Title	INSTITUTION
21	Finland	Jani Saarinen	Executive Director	Rakli - The Finnish Association of Building Owners and Construction Clients
22	France	Daphnée Benayoun	Project Engineer / Transport Economist	Louis Berger SAS
23	France	Franck Bernard Charmaison	Deputy Secretary General	Association mondiale de la Route/World Road Association (PIARC)
24	France	Toussaint Aguy Lorougnon	Technical Advisor	Association mondiale de la Route/World Road Association
25	Germany	Charles Teye Amoatey	Research Assistant	University of Stuttgart
26	Germany	Gunter Zietlow (Dr.)	Consultant	German Development Organization (GTZ)
27	Ghana	Christian Tetteh Sottie	Board Member	Ghana Road Fund
28	Ghana	Daniel Augustus Amoah	Board Member	Ghana Road Fund
29	Ghana	George Afful Aidoo	Acting Director	Ghana Road Fund
30	Ghana	Kwesi Fosu Gyabaa	Board Member	Ghana Road Fund
31	Ghana	Mohammed Salifu	Board Member	Ghana Road Fund
32	Hungary	Joszeff Palfavi	Research Director	Institute for Transport Sciences
33	Italy	Ing. Massimo Marconi	Head of Design Department	Stretto di Messina S.P.A
34	Japan	Takaaki Nambu	Executive Director	Hanshin Expressway Company Ltd.
35	Kenya	Alfred Charles Juma	Chairman	Kenya Roads Board
36	Kenya	Frank Nyakeya Nyangaga	Executive Director	Kenya Roads Board
37	Kenya	Margaret Mwikali Muinde	Financial Analyst	Kenya Roads Board
38	Kenya	Nzuki Solomon Mwanja	Regional Trade Policy Specialist	USAID/East Africa
39	Kenya	Thomas Bundi Mpuria	Data Administrator	Kenya Roads Board
40	Malawi	Auda A. L. Msiska	Chief Accountant	National Roads Authority
41	Malawi	Benjamin Chilaka Kapoteza	Technical Director	National Roads Authority
42	Namibia	Johny M. Smith	Business Development Executive	Walvis Bay Corridor Group (WBCG)
43	Namibia	Juma Hassan Iddi	Regional Engineer	Roads Authority of Namibia
44	Namibia	Sophia BeleteTekie	RMS Manager	Roads Authority of Namibia
45	Netherlands	Bregtje Ilonka Bax	Junior Consultant	ECORYS Finance
46	Netherlands	Geert Fuchs	Project Director Asset Management (Member PIARC TC 1.2)	DHV BV
47	Netherlands	Hendrik Pieter Arnold Van Veen	Finance Manager	Interbeton BV
48	Netherlands	Michiel Jan Modijefsky	Junior Consultant	ECORYS Transport
49	Nigeria	Babatunde Sikiru Kafaru	Programme & Monitoring Specialist	Lagos Metropolitan Area Transport Authority (LAMATA)
50	Nigeria	Lawyer Edema	President	Edema Investment
51	Nigeria	Moroof Olawale Agoro	Senior Road Specialist	Lagos Metropolitan Area Transport Authority (LAMATA)
52	Nigeria	Ramon Olayinka Oriola	Management Accounts Specialist	Lagos Metropolitan Area Transport Authority (LAMATA)
53	Norway	James Oyugi Odeck	Senior Research Economist/Professor	Norwegian Public Roads Administration
54	Norway	Kjell Levik	Director of International Affairs	Norwegian Public Roads Administration



S/N	COUNTRY	FULL NAME	Job Title	INSTITUTION
55	Norway	Kjersti Billehaug	Project Manager PPP Program	Norwegian Public Roads Administration
56	Norway	Sigrun Sørensen	Chief Engineer, International Affairs	Norwegian Public Roads Administration
57	Phillipines	Charles Martin Melhuish	Governance Theme Leader	global Transport Knowledge Partnership
58	Rwanda	Smak Kaombwe	CDC Project Manager	Rwandese Development Bank (BRD)
59	Senegal	Ousmane Thiam	President	CETUD
60	South Africa	Hazel Edith Shelton	Attorney	ASHIRA
61	South Africa	Jacobus Johannes Smit	Engineering Services National Executive	The South African National Roads Agency Ltd
62	South Africa	Nyikiwa Nico Rikhotso	Deputy Director: Infrastructure Finance	Department of Transport
63	South Africa	Paul C. Lombard	Director	AFRICON
64	South Africa	Peter Judd Drower Copley	Transport Specialist	Development Bank of Southern Africa (DBSA)
65	Spain	Gerardo Gavilanes	Director for Economic Consultancy	Ministry of Fomento (Transport)
66	Sweden	Gunnar Tunkrans	Deputy Head of Operations Management, Head Office	Swedish Road Administration
67	Sweden	Gunilla Tunkrans	(Accompanying person for Mr. Tunkrans)	
68	Switzerland	Anthony John Pearce	Director General	International Road Federation
69	Switzerland	Hans Schaller - Siebenmann	Head of Division	Swiss Federal Roads Authority
70	Switzerland	Karin Schaller - Siebenmann	(Accompanying person for Mr. Schaller)	
71	Tanzania	A. N. Mcharo	Board Member	Roads Fund Board
72	Tanzania	Abisai Ntele Temba	Director of Policy & Planning	Ministry of Infrastructure Development
73	Tanzania	Addo Abedi	Chief Executive Officer	Tanzania National Roads Agency (TANROADS)
74	Tanzania	Ali Dazuke Mkunza	Head Research, Consultancy and Publications Department	National Institute of Transport
75	Tanzania	Aloyce Mwamanga	Board Member	Roads Fund Board
76	Tanzania	Anastas Kaswala Selemani	Director of Road Transport	Surface and Marine Transport Regulatory Authority (SUMATRA)
77	Tanzania	Arnold Justin Maeda	Manager, Project Preparation	Tanzania National Roads Agency (TANROADS)
78	Tanzania	Asteria Mlambo	Coodinator Dar Rapid	Dar es Salaam City Council
79	Tanzania	Asuka Tsuboike	Assistant Resident Representative	Japanese International Cooperation Agency (JICA)
80	Tanzania	August Byabato	Zonal Manager- Lake	
81	Tanzania	Augustine Mwageni	Chief Accountant	
82	Tanzania	Aunyisa Boniface Meena	Senior Transport Planner	Ministry of Infrastructure Development
83	Tanzania	Beate Eide Riisnes	Engineer	Norwegian Public Roads Administration
84	Tanzania	Beda Barnos Labule	Municipal Engineer	Dodoma Municipal Council
85	Tanzania	Bencolias Tinkaligaile	Senior Transport Economist	Tanzania National Roads Agency (TANROADS)
86	Tanzania	Benjamin Michael Maziku	Municipal Engineer	Kinondoni Municipal Council
87	Tanzania	Bennett Mchunguzi Bankobeza	Senior Relationship Manager	CRDB Bank Limited
88	Tanzania	Bernard Leonard Mantoga	Senior Economist	Ministry of Infrastructure Development

S/N	COUNTRY	FULL NAME	Job Title	INSTITUTION
89	Tanzania	Boniface Charles Muhegi	Registrar	Contractors Registration Board
90	Tanzania	Bwanakheri Omar Hassan	Executive Director	Zanzibar Roads Fund Board
91	Tanzania	Charles Kisala Kaira	Technical Advisor, Strategic Planning & Sector Coordination	Ministry of Infrastructure Development
92	Tanzania	Charles Rumisha Massawe	Planning and Monitoring Engineer	Roads Fund Board
93	Tanzania	Christopher Chamo Luhanyula	AAS	Regional Secretariat, Mwanza Region
94	Tanzania	Clement Paul Mworio	Executive Director	Tanzania Civil Engineering Contractors Association
95	Tanzania	Cosmas Sheka	Senior Procurement Engineer	Tanzania National Roads Agency (TANROADS)
96	Tanzania	David Alfred Mfinanga	Lecturer	University of Dar es Salaam
97	Tanzania	Davis Ben Shemangale	Engineer	Prime Minister's Office - Regional Administration and Local Government (PMO-RALG)
98	Tanzania	Deogratius Damian Mugishagwe	Technical Director	Howard Humphreys Consulting Engineers
99	Tanzania	Edward Mhina	Seminar Moderator	
100	Tanzania	Edwin Tibaimuka Mujwahuzi	Assistant Director	Ministry of Infrastructure Development
101	Tanzania	Elias E. M. Baruti		Local Authority Pensions Fund (LAPF)
102	Tanzania	Elifadhili Elineema Mgonja	Director of Studies	National Institute of Transport
103	Tanzania	Elisifa Kinasha	Operations Manager	Tanzania Social Action Fund (TASAF)
104	Tanzania	Elizabeth Bwire	Director of Finance & Administration	Tanzania National Roads Agency (TANROADS)
105	Tanzania	Emmanuel Kanjara Ndyamukana	Regional Secretariat Engineer	Regional Administrative Secretary Office Kagera Region
106	Tanzania	Emmanuel Raphael	Head of Institute	Appropriate Technology Training Institute
107	Tanzania	Fanuel Mbonde	Board Member	Roads Fund Board
108	Tanzania	Felister Clement Kalatula	Tutor	National Institute of Transport
109	Tanzania	Feya Malekela	Manager Safety and Environment	Tanzania National Roads Agency (TANROADS)
110	Tanzania	Francis Marmo	Regional Manager	Tanzania National Roads Agency (TANROADS)
111	Tanzania	Frank Anthony Mshanga	Roads Engineer	Arusha Municipal Council
112	Tanzania	Gabriel Migire	Economist	Ministry of Infrastructure Development
113	Tanzania	Gilbert Godfried Mwoga	Engineer	Prime Minister's Office - Regional Administration and Local Government (PMO-RALG)
114	Tanzania	Gilbert Kinyero		Tanzania National Roads Agency (TANROADS)
115	Tanzania	Saidi Anasi Tamba	Senior Tutor	National Institute of Transport
116	Tanzania	Hagai Bishanga	Manager	Tanzania Transportation Technology Transfer (TanT2) Centre
117	Tanzania	Hillary Stephen Lyimo	Engineer	Prime Minister's Office - Regional Administration and Local Government (PMO-RALG)
118	Tanzania	Hussein Ally Mombo	Instructor	Appropriate Technology Training Institute
119	Tanzania	Hussein Migoda Mataka	Board Member	Road Fund Board Zanzibar

S/N	COUNTRY	FULL NAME	Job Title	INSTITUTION
120	Tanzania	Isaya A. Kirway	Senior Maintenance Engineer Trunk Roads	Ministry of Infrastructure Development
121	Tanzania	Jacob D. Shibiliti (Hon.)	Board Member	Roads Fund Board
122	Tanzania	Johnson Las Nyingi	Economist	Prime Minister's Office - Regional Administration and Local Government (PMO-RALG)
123	Tanzania	Josam Raphael Mlaki	Managing Director	Southern Link Ltd; Contractor
124	Tanzania	Joseph Lwiza	Maintenance Programming Manager	Tanzania National Roads Agency (TANROADS)
125	Tanzania	Joseph O. Haule	Roads Fund Manager	Roads Fund Board
126	Tanzania	Josephine Mwankusye	Senior Social Scientist	Tanzania National Roads Agency (TANROADS)
127	Tanzania	Julius Ndyamukama	Regional Manager - Dar es Salaam region	Tanzania National Roads Agency (TANROADS)
128	Tanzania	Justin Moshi	Senior Engineer	Ministry of Infrastructure Development
129	Tanzania	Kenan Komba	Chief Legal Counsel	Tanzania National Roads Agency (TANROADS)
130	Tanzania	Kenfas Mahenge	Senior Projects Engineer	Tanzania National Roads Agency (TANROADS)
131	Tanzania	Kesogukewe M. I. M Msita	Executive Secretary	National Construction Council
132	Tanzania	Robert F. Lyimo	Lecturer	National Institute of Transport
133	Tanzania	Leo John Ngowi	Tutor	National Institute of Transport
134	Tanzania	Light Chobya	Senior Engineer	Tanzania Transportation Technology Transfer (TanT2) Centre
135	Tanzania	Lucian Henry Kilewo	Acting Regional Manager – Arusha region	Tanzania National Roads Agency (TANROADS)
136	Tanzania	Mohamed Mussa Mkwata	Engineer – RAS	Regional Secretariat, Dodoma Region
137	Tanzania	Mustafa Akunaay	Board Member	Roads Fund Board
138	Tanzania	Nagea Hamisi	District Engineer	Ngorongoro District Council, Arusha region, Tanzania
139	Tanzania	Niels Hendrik Kofoed	TA-Roads	Prime Minister's Office - Regional Administration and Local Government (PMO-RALG)
140	Tanzania	Nuru Ngeleja Kateti	Relationship Manager	CRDB Bank Limited
141	Tanzania	Patrick Mfugale	Board Member	Roads Fund Board
142	Tanzania	Philip Magani	Chairman	Roads Fund Board
143	Tanzania	Ramadhani Mlinga (Dr.)	Chief Executive Officer	Public Procurement Regulatory Authority
144	Tanzania	Rashid Sellemani Kalimbaga	Senior Engineer	Ministry of Infrastructure Development
145	Tanzania	Richard Henry Ruyango	District Engineer	Magu District Council, Mwanza region
146	Tanzania	Rickson P. Lema	District Engineer	Karatu District Council, Arusha region
147	Tanzania	Ronald Lwakatare	Planning and Monitoring Engineer	Roads Fund Board
148	Tanzania	Rose Moye Masenga	Roads Fund Accountant	Roads Fund Board
149	Tanzania	Roselyne R. Mariki	Seminar Administrator	
150	Tanzania	Saidi Ali Khamis	Chairman	Zanzibar Roads Fund Board
151	Tanzania	Salum Sassilo	Senior Project Engineer	Tanzania National Roads Agency (TANROADS)
152	Tanzania	Samwel Ndewelo Jackson	Principal Engineer	Ministry of Infrastructure Development
153	Tanzania	Severin Tirubuza Rwegumisa	Assistant Director, Standards & Specs.	Ministry of Infrastructure Development

S/N	COUNTRY	FULL NAME	Job Title	INSTITUTION
154	Tanzania	Shaban Said Shindano	Assistant Chief Fund Accountant	Zanzibar Roads Fund Board
155	Tanzania	Simon Innocent Mgani	Senior Projects Engineer	Tanzania National Roads Agency (TANROADS)
156	Tanzania	Solanus M. Nyimbi	Director of Local Governments	Prime Minister's Office - Regional Administration and Local Government (PMO-RALG)
157	Tanzania	Stanley M. Kayabu	Infrastructure Co-ordinator	UNDP, UN - Millenium Villages Project, Mbola Cluster
158	Tanzania	Ven Kayamba Ndyamukama	Director of Road Maintenance	Tanzania National Roads Agency (TANROADS)
159	Tanzania	Wilbert Sylivester Dede	Regional Secretariat Engineer	Regional Secretariat, Tanga Region
160	Tanzania	William Elias Shila	Zonal Manager- Coast	Tanzania National Roads Agency (TANROADS)
161	Tanzania	Willy Anwel Kamwela	Marketing Officer	CRDB Bank Limited
162	Tanzania	Zacharia Theobald Mareng	Associate Director	Inter - Consult Ltd
163	Togo	Assoulian Kordsina Tchamsi	Director General	Fonds D'entretien Routier
164	Tunisia	Bamory Traore	Ingenieur En Chief Des Transports	Banque Africaine De Developpement
165	Uganda	David S. Luyimbazi	Senior Project Engineer	Road Agency Formation Unit
166	Uganda	James Okiror	Senior Project Engineer	Road Agency Formation Unit, Ministry of Works and Transport
167	Uganda	James Abraham Byandala	Member of Parliament (Hon. Eng.)	Parliament of Uganda
168	Uganda	Lokodo Simon Look	Member of Parliament	Parliament of Uganda
169	Uganda	Michael Moses Odongo	Assistant Commissioner	Ministry of Works and Transport
170	Uganda	Nathan Byanyima	Member of Parliament	Parliament of Uganda
171	Uganda	Patrick Amuriat Oboi (MP)	Member of Parliament	Parliament of Uganda
172	Uganda	Paul Ouma	Clerk Assistant	Parliament of Uganda
173	Uganda	Peter Omolo	Member of Parliament	Parliament of Uganda
174	Uganda	Robert Bellarmine Okudi	Principal Economist/Secretary To Road Fund Task Force	Ministry of Finance, Planning and Economic Development
175	Uganda	Sarah Nansubuga Nyombi	Member of Parliament	Parliament of Uganda
176	Uganda	Wilfred Okello	Principal Engineer	Ministry of Works and Transport
177	Uganda	Willy Emmanuel Musumba	Principal Engineer	Ministry of Works and Transport
178	United Kingdom	Adam Andreski	Manager Infrastructure Development	I. T. Transport
179	United Kingdom	Catherine Michelle Stansbury	Project Director, Anti-Corruption Systems	Transparency International (UK)
180	United Kingdom	Fred Amonya	Transport Consultant	Scott Wilson
181	United Kingdom	Stephen Paul Robert Vincent	Governance Specialist	global Transport Knowledge Partnership
182	USA	Sherri Yalon Alston	Director, Transportation Policy Studies	Federal Highway Administration
183	Zambia	Henry Munachonga Chipewo	Board Member	National Road Fund Agency
184	Zambia	Judith Mulongoti	Director	National Road Fund Agency

<b>S/N</b>	<b>COUNTRY</b>	<b>FULL NAME</b>	<b>Job Title</b>	<b>INSTITUTION</b>
185	Zambia	Oliver Makungu	Road Engineer	National Road Fund Agency
186	Zambia	Stephen Nyamkuwa Mwale	Accountant	National Road Fund Agency
187	Zimbabwe	Francis Taurayi Hwekwete	Chief Executive Officer	Zimbabwe National Road Administration (ZINARA) Road Fund

## **Appendix 2: Seminar Programme**

### **INTERNATIONAL SEMINAR ON SUSTAINABLE ROAD FINANCING & INVESTMENT**

#### **PROGRAM - Monday 16 April 2007**

**08.00** Registration at Ngurdoto Mt. Lodge

(Session Chair: Sherri Alston, Chair of The World Road Association (AIPCR/PIARC) Technical Committee 1.2)

**Session 1: Mechanisms and Modalities for Revenue Collection and its Allocation (one paper only. NB: Other papers in the same subtheme presented on Thursday 19<sup>th</sup> April 2007)**

**09.00** *The Harmonization of Cross-Border Road User Charges in the SADC Region* **Paul Lombard**

**09.20** Discussions

**Session 2: Policies, Legislation and Reforms in Road Financing and Management**

**09.30** *Best Practices in Managing Road Funds* **Frank Nyangaga**

**09.50** *Status of Road Sub-Sector Reforms in Sub-Saharan Africa* **Addo Abedi**

**10.10** Discussions

**Session 3: The Role of Road Infrastructure in Achieving Millennium Development Goals**

**10.30** *Estimating the Impact of Rural Road Investments on Socio-Economic Developments* **Paul Lombard**

**10.50** Discussions

**11.00** (Tea Break)

(Session Chair: Mr. Philip A. Magani, Tanzania Road Fund Board Chairman)

**Session 4: Road Investment Planning and its Management**

**11.30** *IRF experience on road financing and investment worldwide* **Anthony Pearce**

**11.50** *History of Road Finance and Investment in Japan* **Takaaki Nambu**

**12.10** *The importance of infrastructure investments in the urban agglomerations cities of Africa* **Aka Assafou**

**12.30** *Transport infrastructure and the transport supply chain* **Tony Dufays**

**12.50** Discussions

**13.30** (Lunch Break)

(Session Chair: Mr. Anthony Pearce, Director General of International Road Federation (IRF))

**Session 5: Road Investment Planning and its Management (Cont..)**

**14.30** *Road Investment for Sustainability of Network and Domestic Contractors* **Adam Andreski**

**14.50** *Roads in the Marketplace, A Search for Sustainable Growth Engines for Sub-Saharan Africa* **Fred Amonya**

**15.30** *Development Corridors: Emphasizing Economic Function to Accelerate Infrastructure Development* **Smak Kaombwe**

**15.50** Discussions

- 16.30** (Tea break)
- 17.00** Presentation on PIARC by Chair of the PIARC TC1.2 **Sherri Alston**
- 17.20** Discussions
- 18.00** (Welcome Cocktail at Ngurdoto Mt. Lodge)

## **Tuesday 17 April 2007**

- 08.00** Welcome Address by President of ARMFA and Chairman of the Organizing Committee **Joseph Haule**
- 08.05** Remarks by the Chairman of the Roads Fund Board, Tanzania **Philip A. Magani**
- 08.15** Speech by the Chief Guest, Minister for Infrastructure Development, of the United Republic of Tanzania **Hon. Andrew Chenge (MP)**
- 08.45** Vote of Thanks by the Chair of The World Road Association (AIPCR/PIARC), Technical Committee 1.2 **Sherri Alston**
- 08.50** Key Note Address by Sr. Transport Policy Advisor, SSATP, Transport Sector, AFRICA **Mustafa Benmaamar**
- 09.00** (Group photo) & Visit to the exhibitors by the Chief Guest

(Session Chair : Mr. Adam Andreski, Manager Infrastructure Development, I. T. Transport, UK )

### **Session 6: Performance Based Contracting**

- 09.15** *Performance Based Road Management & Maintenance - Experiences Worldwide* **Gunter Zietlow**
- 10.15** Discussions
- 11.00** (Tea Break)

(Session Chair : Mr. Ousmane Thiam, President of African Association of Public Transport (UATP) & President of Conseil Exécutif des Transports Urbains de Dakar (CETUD))

### **Session 7: Road Investment Planning and its Management (Cont..)**

- 11.30** *Application of the Performance Assessment Model (PAM) now renamed Road Network Evaluation Model (RONET) as a decision support tool for road management – Ugandan Experience* **David Luyimbazi**
- 12.00** *Road soft GIS, A Transportation Asset Management Solutions for Counties and Cities in Michigan and It's Application to Agencies in Africa* **Fernando de Melo e Silva**
- Challenges in Financing Road Maintenance in Sub-Saharan Africa* **Addo Abedi**
- 12.30** *Road Asset Valuation & Management - Case Study Finland* **Jani Saarinen**
- 13.00** Discussions
- 13.30** (Lunch break)

(Session Chair: Judith Mulongoti, Director, National Road Fund Agency, Zambia)

- 14.30** *The Walvis Bay Corridor Group Experience* **Johnny M. Smith**
- 15.00** *Sustainable Asset Management System in the Context of the Namibian Road Sector Reform - A Model for Africa & Beyond* **Sophia - Belete Tekie**
- 15.30** Discussions
- 15.50** (Tea Break)



<b>16.10</b>	<i>Presentation of ASANRA by Chief Executive Officer of TANROADS</i>	<b>Addo Abedi</b>
<b>16.30</b>	<i>Presentation of SSATP by Sr. Transport Policy Advisor, SSATP, Transport Sector, AFRICA</i>	<b>Mustapha Benmaamar</b>
<b>16.50</b>	Discussions	
<b>17.10</b>	<i>Presentation on the Technical Field Visit</i>	<b>Arnold Maeda</b>

## **Wednesday 18 April 2007: Field trip & Arusha town tour**

Technical visit to the Arusha – Makuyuni – Ngorongoro Road. Thereafter a visit to Arusha Town.

## **Thursday 19 April 2007**

(Session Chair: Mr. Samuel Nengue, Director General, Road Fund of Cameroon)

### **Session 8: Road Investment Planning and its Management (Cont..)**

<b>08.30</b>	<i>Public - Private Partnership as a Viable Alternative of Road Financing under Public Budgetary Constraints</i>	<b>Massimo Marconi</b>
<b>09.00</b>	<i>Public Private Partnerships in South Africa</i>	<b>J. J. Smit</b>
<b>09.30</b>	Discussions	

### **Session 9: Mechanisms and Modalities for Revenue Collection and its Allocation**

<b>10.00</b>	<i>Financing Community Roads – TASAF Experience</i>	<b>Elisifa Kinasha</b>
<b>10.30</b>	<i>Sustainable Road Financing in Developing Countries: A Pragmatic Cost - Revenue Model</i>	<b>Charles Amoatey</b>
<b>11.00</b>	Discussions	
<b>11.30</b>	(Tea Break)	

(Session Chair: Sarah Nansubuga Nyombi, Member of Parliament, Uganda)

### **Session 10: Mechanisms and Modalities for Revenue Collection and its Allocation (Cont..)**

<b>11.50</b>	<i>The Evolution of Road Funding in South Africa - within it's SADC Context</i>	<b>Peter Copley</b>
<b>12.20</b>	<i>Road Tolls and Road Pricing: Innovative Methods to Charge for the Use of Road Systems</i>	<b>Daphnée Benayoun</b>
<b>12.50</b>	<i>Developing Effective Communication Strategies for Organisations Funding &amp; Managing of Roads</i>	<b>Mark Thriscutt</b>
<b>13.20</b>	Discussions	
<b>13.50</b>	(Lunch Break)	

(Session Chair: Dr. Mohammed Salifu, Ghana Road Fund Board Member and Lecturer at Kwame Nkrumah University of Science & Technology, Ghana)

### **Session 11: Cross Cutting Issues/ Good Governance**

<b>14.50</b>	<i>Round Table Discussion on Governance in Road Transport: by Charles Melhuish, Governance Theme Leader &amp; Stephen Vincent, Governance Specialist</i>	
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	<b>global Transport Knowledge Partnership (gTKP), UK</b>	
<b>16.50</b>	(Tea)	
<b>17.10</b>	Presentation on ARMFA by ARMFA Coordinator	<b>Jerome Obi Eta</b>
<b>17.20</b>	Discussions	
<b>18.30</b>	Seminar Dinner at Ngurdoto Mountain Lodge	

## **Friday 20 April 2007**

(Session Chair: Mr. Alfred Charles Juma, Kenya Roads Board Chairman)

### **Session 12: Cross Cutting Issues/ Good Governance (Cont..)**

<b>08.30</b>	<i>Project Anti-Corruption System (PACS) for Construction Projects</i>	<b>Catherine Stansbury</b>
<b>09.00</b>	<i>Good Governance and Integrity through Institutional Capacity Building - Some Experiences &amp; Strategies</i>	<b>James Odeck</b>
<b>09.30</b>	Discussions	
<b>10.00</b>	Presentation on AGEPAR by 2 <sup>nd</sup> Vice President of AGEPAR	<b>Auguste Nambea</b>
<b>10.20</b>	Discussions	
<b>10.30</b>	(Tea Break)	
<b>11.00</b>	Seminar Recommendations	<b>Rapporteurs</b>
<b>12.00</b>	Remarks by President of ARMFA and Chairman Organizing Committee	<b>Joseph Haule</b>
<b>12.10</b>	Remarks by Deputy Secretary General of The World Road Association (AIPCR/PIARC)	<b>Franck Charmaison</b>
<b>12.20</b>	Closing Remarks by Chairman of Roads Fund Board Tanzania	<b>Philip A. Magani</b>
<b>12.30</b>	Closing Address and Official Closing of the Seminar	<b>Col. (retired) Samwel Ndomba</b>
<b>13.00</b>	(Lunch)	
<b>14.00</b>	Departures	

### **Appendix 3: Opening Speech by Tanzania's Minister for Infrastructure**

#### **WELCOMING ADDRESS BY THE MINISTER FOR INFRASTRUCTURE DEVELOPMENT HON. ANDREW JOHN CHENGE (MP), AT THE INTERNATIONAL SEMINAR ON ROAD FINANCING AND INVESTMENT AT NGURDOTO MOUNTAIN LODGE ARUSHA, 16<sup>th</sup> APRIL 2007**

Honourable Chairperson of the Roads Fund Board Mr. Philip Magani;  
President of ARMFA and Chairperson of the Organising Committee Mr. Joseph Haule;  
Representative of PIARC Madame Sherri Alston;  
Representatives of AGEPAR and ASANRA;  
Distinguished Guests;  
Ladies and Gentlemen.

1. It gives me great pleasure to be here this morning, and I wish to first express my heartfelt gratitude to the Organizers of this seminar for extending an invitation to me to preside over the official opening ceremony of this very important workshop.
2. On behalf of the Government of Tanzania, and on behalf of all the citizens, this country feels greatly honoured to host this International Seminar on Road Financing and Investment.
3. Transport infrastructure is a pre-requisite for any viable economic development of a country. An efficient transport infrastructure is necessary for any country to compete effectively in today's economy. This is true of developed as well developing countries. While most sub-Saharan African countries have the basic building blocks of a transport infrastructure, this infrastructure is far from efficient.
4. After independence, the common adage among African countries was "*we must run while others are walking.*" What sub-Saharan Africa really needs now is not to *run* but rather to *leapfrog* into the 21st century. In the transport sector this leapfrogging is achievable if proper sector reforms are put into place. There is a lot to be done if Africa is to *leapfrog*. To solve the transport sector problem in sub-Saharan Africa, major issues, potential solutions and their policy implications need to be addressed.
5. It is now established that the first key factor that contributed to the rapid economic transformation of emerging economies is infrastructure development. These countries invested heavily in basic infrastructure, including roads, schools, water, sanitation, irrigation, clinics, telecommunications, and energy.
6. Infrastructure services include the provision, operation, and maintenance of the physical facilities of the infrastructure. Poor infrastructure is a critical barrier to accelerating growth and welfare improvement in Africa. A study done in Uganda, for example, indicates that transport costs add the equivalent of an 80% tax on clothing exports.

Infrastructure is also a key component of the investment climate, reducing the costs of doing business and enabling people's access to markets. Infrastructure is therefore regarded as a key lever for development. It cuts across all sectors of activity and contributes to improve public welfare through services provision to the population and therefore it largely contributes to the achievement of millennium goals, especially concerning water supply, but also in the domains of education and health. This contribution to welfare has also an indirect impact: it gives credibility to the institutions in place and therefore reinforces political stability.

7. Beyond contributing to the public welfare, an appropriate level of infrastructure also attracts private investment in the other areas of the economy and thereby further supports the development of the country. The World Bank World Report on the Investment Climate identifies infrastructure lack as one of the main disincentives to investment. Studies also indicate that, differences in infrastructure would account for up to one third of the difference in output per worker in Asia; a similar story would hold true for Africa.
8. Ladies and Gentlemen, in developing countries the central role of the roads sector is the proper initiative towards poverty reduction. It has been shown in the case of Tanzania, that there is a marked decline in income for households far away (more than 5 km) from a good road. The potential for higher welfare is with households that are closer to a good road than for those who are far away. It is important to note that the distance from a household to the nearest good road provides also a measure of physical integration in the national market for crops, a key source of income for the rural economy. Thus, the further the household lies from a good road, the less likely it is to get access to markets, including the labour market. Remoteness is expected to affect economic activity, and thus income, exacerbating the incidence of poverty.
9. Poor roads and the resultant inadequate rural transport would, therefore, limit the facilitating role of transport in both production and consumption activities. The link and impact lies in the fact that improved transportation leads to improved accessibility to economic opportunities by reducing transport costs. It also ensures increased agricultural productivity, opens up room for participation in non-agricultural activities through time saving effect, eases accessibility to education and health services, and it links the rural sector to the rest of the economy. Maintenance works in the rural areas have proven to be a source of income and distribution of wealth. In the case of urban areas, the quality of transportation and other types of infrastructure appear to play a significant role in the reduction of inflation because transportation costs have been found to be a significant component in total costs of foodstuff affecting the survival of the urban dwellers.
10. Ladies and Gentlemen; In Tanzania we have a big poverty problem. Our problem is that half the population are living below the poverty line of less than a dollar a day. Our economies and particularly that of Tanzania under the National Strategy for Growth and Reduction of Poverty are expected to grow rapidly in the medium term to about 8%

annually. This requires due attention should be paid to institutional and fiscal arrangements required for our countries to be able to invest and perform road maintenance on a sustainable basis. Maintenance must be planned before major repair works become a necessity, thus minimising the overall necessary budget (preventive maintenance). We have been informed here by the Chairman of the Tanzania Roads Fund Board the current budget meet about only 40% of the requirements. I presume this is the state of affairs for most our countries in Africa. Clearly this budget spent on maintenance is not sufficient. This demonstrates that current budgets should be doubled in order to meet road demands properly. In economic terms, this means that a substantial amount of money would be needed annually to ensure a safe and high quality road network

11. A study done by the World Bank in 1988 indicate that failure to maintain roads is tantamount to an act of disinvestment, for it implies the sacrifice of past investments in roads." The study identified that the losses in the value of infrastructure in Africa in the 1970s/1980s of the order of \$45 billion could have been averted by preventive maintenance expenditure of only \$12 billion.
12. Ladies and Gentlemen worldwide experience shows that maintenance comes first. It must take precedence over investment in upgrading or new infrastructure and equipment. The basic rule is to build infrastructure to appropriate standards that can be affordably maintained. This means using the minimum realistic standards to satisfy demand while giving priority to maintenance. Putting maintenance first helps identify an affordable network that satisfies the countries' economy and facilitates delivery of essential services to the rural and urban poor. It is a common misconception amongst members of the general public that roads, once built, will last forever. We know that this is not the case. All roads need a certain level of maintenance to be able to withstand the daily demands of modern traffic and to extend their lifetime as long as possible. Timely and appropriate maintenance is even more important today as construction costs rise and government agencies fiercely compete for funds. But, human nature being what it is, road maintenance has long been the least glamorous and most easily forgotten operation. Politicians are notoriously unimpressed with maintenance, and few red ribbons are cut to celebrate the successful completion of maintenance projects. Yet road maintenance is crucial to the safety of a road network, to its profitability, and to the overall economy. Overused, poorly maintained, inadequately lit and badly sign-posted roads are, in the first place, a safety hazard. Many accidents could have been prevented, if roads would have been adequate to user demand. Poor maintenance has social costs. Roads, like any piece of real estate, are an asset. Assets must be maintained to avoid greater costs to the economy brought about by the need or eventual reconstruction. Road maintenance is an essential part of any country's transport infrastructure programme and vital to the economy. Poor road maintenance has a negative impact on the economy.
13. So Ladies and Gentlemen I urge you to come up with innovative approached of funding for road maintenance including least cost solutions of maintenance activities and technologies so as to optimize the meagre resources available. The government drive

towards restructuring, as you all know, has not spared the transport sector. Roads are no longer a social service to be funded exclusively by the Government but are an economic good to be paid for. We look forward to see private entrepreneurs build and operate roads and bridges that will be specified by the government under "Build operate and transfer" (BOT) or Public Private Partnership schemes. The government is currently working out the rules for such investments, but if I can jump the gun, as it were, and give you some of the relevant objectives of our transport policy:

- i. Promote private sector investment and where necessary compliment public investment,
- ii. Provide incentive and conducive legislation for investors,
- iii. Involve communities in construction and maintenance of rural transport infrastructure,
- iv. Expand infrastructure and services to areas not covered by the existing transport system,
- v. Enhance privatisation and commercialisation, and eliminate monopoly tendencies,
- vi. Improve standards of infrastructure,
- vii. Establish enabling environment for creativity and innovation.
- viii. Involve road-users in management of TANROADS ,
- ix. Strengthening community- based organisations in managing rural roads,
- x. Establish social action funds from government and donor sources for promotion of rural travel and transport,
- xi. Strengthen road users associations at national, regional and District levels, who should be proportionately represented on Road Fund Boards,
- xii. Ensure local capacity participation in designing, supervising and executing road works,
- xiii. Enhancing availability and utilisation of road construction equipment.
- xiv. Promote labour intensive technologies for construction and maintenance of lightly trafficked rural roads.

The list is by no means exhaustive, but what I am trying to say is that the government is committed to the promotion of a strong private-public partnership in the ownership of road transport infrastructure. Indeed if Vision 2025 is to be achieved we have no other option, but to harness all available resources. This meeting should come up with recommendations on how best to do it.

14. The challenge is to meet increased funding for investment to the sector when the traditional sources of funding - especially those from direct budget allocations - are under increasing pressure from competing end uses. Ways have had to be found in nearly all regions to improve resource inflows, through various forms of off- budget financing, and to improve the effectiveness in the management of these funds. A number of countries such as Sweden, UK, Finland and New Zealand - started to lead the way towards commercializing road management, managing roads as the big business that they indeed are. Not all of these experiences may be directly transferable to developing countries. However, it is in the areas of revamping road sector institutional arrangements and of creating new sources of sector funding that tap directly into user demands for increased expenditure that the new approach

to management has really started to take off in the last decade or so, particularly in Sub-Saharan Africa and I wish to thank SSATP for pioneering change in Africa where I am Told there are a number of such institutions which have been established.

15. This meeting has come about at the right moment. The progressive transfer of the management, operation and maintenance of transport networks to the private sector has a number of advantages, which may not be entirely obvious at first sight. For instance, it tends to result in higher productivity and improved service quality, leading to lower costs and reduced public deficits. The state remains the owner of the infrastructure having ceded the operation and management to the entrepreneurs. The example of the Maputo corridor and the Platinum Toll Road in South Africa are examples to be emulated. Our countries should embrace the corridor concept in order to attract more investments and manage resources effectively. I am glad to note that experiences on Walvis Bay Corridor will be presented in this -seminar. Tanzania will have to adopt this kind of initiative if we are to make great strides in this area.
16. As countries around the world attract an ever- increasing amount of foreign private investment in infrastructure, Tanzania lags behind. At a time when resources devoted to foreign aid worldwide are stagnating, the significance of co- financing increases. The Government wishes to reaffirm its commitment to continue to pursue economic and structural reforms and to liberalise further the economy with the ultimate goal of attaining high rates of economic growth in the country for the betterment of the majority of our people. The Government is also committed to promote the private sector as the engine of economic growth. The achievement of sustained high rates of growth leading to economic prosperity is a medium and long-term objective that requires not only the determination and commitment, but a co-operative partnership between the Government and the private sector. In this partnership, the Government is committed to play a major role in providing support to the development, expansion and reforms of the roads sector. Evidence is mounting that government programs work better and are sustainable when they seek the participation of potential users, and when they tap the communities reservoir of social capital rather than working against it. It is therefore our expectation that the partners who have assembled us here will play a leading role in mobilising road users and investors to join in this crusade so that we can realise the "good road for this century".
17. Ladies and Gentlemen let me turn to the problem of corruption in the construction sector. I am glad to learn that good governance is one of the sub themes and there is a paper by Transparency International on Systems for Combating Corruption in the Construction sector. In Tanzania the third phase government commissioned a study which was popularly known as the 'Warioba report' which you have probably heard about. According to this report the construction sector is one of the most corrupt sectors of the economy. Because of corruption and negligence, variations in contract sums in the Integrated Roads Project; project for 24 projects rose from Tsh. 61 billion to Tsh. 97.5 billion (an average of 58.7%). Twelve contracts recorded an increase of 150% on top of original contract sums. This amount of money spent was enough to construct more than one and a half times the number of kilometres that were constructed. Corrupt tendencies in the construction industry start at the



tendering stage right through up to actual construction stage. At the tendering stage corruption starts by providing advance information to some consultants or contractors on work opportunities going to be advertised, leaking information on cost estimates, and criteria to be used in the evaluation of tenders. In the evaluation stage the actual process of evaluating tenders is not transparent and sometimes is skewed to favour somebody. During the construction stage, corruption appears in approving variation orders and certifying poor quality of work. Another area that is also prone to corruption is in the area of compensation of property to allow for construction of roads. Evaluators collude with property owners to exaggerate the value of the properties to be compensated for their own benefits. I will be happy to receive recommendations from your deliberations on the systems that are going to be proposed by Transparency International.

- 18 This gathering here of distinguished personalities and experts will certainly give us the direction of what our future should be as far as the road sector is concerned. In this meeting, the discussions will be focused on promotion and dissemination of knowledge on road financing and investment in the context of poverty reduction, application of existing knowledge and mainstreaming of good practices thereby promoting appropriate solutions to fill the gaps and meet those needs.

We at the Ministry will continue to support this kind of a partnership demonstrated here today by the partners who organized this seminar and because we know that it is through such kind of partnership the work of the government becomes easier and the management and financing of roads becomes sustainable.

- 19 Before I conclude Ladies and Gentlemen, let me leave you with food for thought. In your deliberations, you may wish to ask yourselves the following questions:

- i. Has a comparison been made of the distribution of public spending per capita on basic services- health, education, extension, and transport across regions, including rural/ urban with the level of poverty?
- ii. Has the effectiveness and efficiency of public spending on transport been assessed?
- iii. Has the participation of the private sector and the priorities for its development been assessed?
- iv. Are sectoral and structural policies and programs aimed at poverty reduction coordinated? Are donor poverty programs coordinated?
- v. Has a priority list of policies and expenditure programs that need to be coordinated been identified and how can these be effectively implemented?
- vi. Do transport sector regulations and policies minimize opportunities for corruption?
- vii. Are duties and taxes applied to the transport sector highly regressive?
- viii. Are non-motorized forms of transport (for example, bicycles) taxed excessively? Do government regulations support the means of transport used by the poor?
- ix. Are standards applied in the transport sector (for example, rural road design

standards) appropriate to the country's circumstances? What would be the consequences of adopting lower road standards for rural roads with low traffic volumes?

You may wish also to consider the following strategies targeting alleviation of poverty:

On Growth-oriented strategies you may consider:

- Removing critical infrastructure bottlenecks (port expansion, highway upgrading, opening up of the rural roads etc.).
- Encouraging production and trade by logistics improvements, facilitation, corridor improvement etc.
- Improving sector efficiency through commercialization, private sector development and regulatory reform.

Regarding Poverty-targeted strategies you may wish to consider:

- Providing all-season motorized passability in rural areas.
- Enabling entry of affordable services for the urban poor (for example, through well designed liberalization).
- Protecting NMT (for example, through physical investment and microcredit).
- Promoting road safety.

On provision or improvement of rural access roads to a standard that provides for basic, all-season passability by motorized vehicles you may wish to consider:

- Provision for the use of intermediate means of transport, through technical assistance and microcredit programs and, where appropriate, accommodation in the design of new/ upgraded transport infrastructure.
- Integration (or coordination) of improvements in physical access with other rural interventions such as those involving schools, health clinics, and agricultural extension programs.
- Incorporation of community consultation and participation in decision making for local transport investments and maintenance, and the establishment of extension services to provide the necessary technical advice and training, with support for the development of rural community funds.

And lastly on developing financial discipline by implementation of feasible, sector-based, financial and cost recovery policies:

- Establishing road maintenance funding mechanisms that are insulated from political influence (for example, a road fund or agency managed by an independent road board);
- Strengthening of institutional, technical, and management capacity of the road agencies particularly of Local Governments and
- Developing small and medium-size enterprises to manage and execute maintenance and minor upgrading of rural roads. Which is synonymous with the length men systems which was very popular in the past.

20      Lastly but not least, Ladies and Gentlemen, I would like to remind you that you are in one of

the most beautiful countries in Africa. We are one of the leading tourist destinations and there is a National Park just outside this hotel. When the weather is good you can easily view Mount Kilimanjaro from this hotel. I hope that some of you will find time to visit one of our National Parks and view the game.

- 21 Let me again thank you all for inviting me to open this seminar. and with those few remarks, I now have the honour to declare the meeting on Road Financing and Investment formally opened, and to wish you every success in your deliberations.

**Thank you for your kind attention.**

## **Appendix 4: Declaration of Accra**

### **On the mechanisms of collecting road fund resources, negotiations for revising and widening road tariffs, and technical auditing of road funds**

We the Road Fund Managers, members of the African Road Maintenance Funds Association (ARMFA), meeting in our 5<sup>th</sup> annual general assembly and technical workshop in Accra, Ghana from the 27<sup>th</sup> to the 30<sup>th</sup> of September 2006 to consider the importance and the role of the collection of road user charges (RUC), widening of road tariffs and the audits of road funds in the maintenance of roads;

**Recognisant** of the importance of roads in socio-economic development of our respective countries, particularly in the fight against poverty;

**Guided** by the Libreville Charter in which we pledged to commercialise the road by putting in place second generation road funds in our respective countries;

**Concerned** about the shortage of revenues to cover road maintenance needs, the inefficient collection of the existing road fund resources and their utilisation, the lack of negotiation strategies for revising and widening road tariffs;

**Mindful** of the necessity to increase and diversify the sources of revenues in order to fully cover maintenance needs of the existing road networks;

**Have noted** the experiences of some member countries in the putting in place of coherent mechanisms for collecting resources and adjusting road tariffs;

Hereby **commit** ourselves to implement the following objectives, strategies and targets to reach and consolidate the objectives of second generation Road Funds in the financing of road maintenance:

1. Stay the course on “second generation” principles and restructure all road funds according to principles of second generation set out below by 2008:
  - Sound legal basis – separate road fund administration, clear rules and regulations.
  - Strong oversight – broad based private/public board.
  - Agency which is a purchaser not a provider of road maintenance services.
  - Increase revenues by the institution of road user charges related to road use and channeled directly to the Road Fund bank account without passing through the treasury.
  - Adopt sound financial management systems, lean efficient administrative structure.
  - Carry out regular independent technical and financial audits.

2. Reinforce the commercialisation of the road by diversifying revenue sources and capture road tolls, vehicle license fees and other charges related to road use by 2008.

3. Mobilize road users and stakeholders more effectively in order to influence decision-making. Develop a dissemination and Communication strategy to rally partners and use the media to trigger political will by 2007.

4. Implement recommendations of technical audits reports and contribute to improving the efficiency of road management practices by 2008.

5. Establish regional focus groups, in 2006, to report on progress on the collection mechanisms, Negotiation and Public Relations strategies, Audits (value for money) and other regional issues related to road maintenance financing as follows:

- ECOWAS – pilot BENIN
- CEMAC (plus Burundi) – pilot CAMEROON
- EAC (plus Rwanda) – pilot KENYA
- SADC – pilot ZAMBIA

Done in Accra, the 29<sup>th</sup> September, 2006

For the Delegates,

The President of ARMFA

## **Appendix 5: Closing Remarks by Chairperson of Tanzania's Roads Fund Board**

### **CLOSING REMARKS BY THE CHAIRPERSON OF THE ROADS FUND BOARD MR. PHILIP ALFRED MAGANI AT THE INTERNATIONAL SEMINAR ON ROAD FINANCING AND INVESTMENT – NGURDOTO MOUNTAIN LODGE ARUSHA , 20<sup>TH</sup> APRIL , 2007**

Our Guest of Honour; Col. Samwel Ndomba,  
Regional Commissioner for Arusha region;  
President of ARMFA and Chairperson of the Organising Committee Mr. Joseph Haule;  
Deputy Secretary General of PIARC, Mr. Franck Charmaison;  
Chairperson of PIARC Technical Committee TC 1.2, Madame Sherri Alston;  
Representatives of AGEPAR, ASANRA, and SSATP;  
Distinguished Guests;  
Ladies and Gentlemen.

I would like to take this opportunity to thank you Guest of Honour, for accepting our invitation to come and officially close this seminar on Sustainable Road Financing and Investment. Your presence here today is a clear indication of the importance you attach to the roads sub-sector.

That you have been able to afford us your time to accommodate our meeting in your extremely busy and tight schedule, shows your keen interest, in the development of this very important sector of our economy – the Roads Sector.

Mr. Regional Commissioner, we say 'Karibu Sana'.

**Honourable Guest of Honour**, my task at this ceremony is a simple one, and that is to invite you to address and officially close this seminar, which has been organised by the Ministry of Infrastructure Development, of the United Republic of Tanzania in collaboration with The World Road Association (PIARC), through its Technical Committee on Financing Road System Investment (TC 1.2), African Road Maintenance Funds Association (ARMFA), Association of African Road Managers and Partners (AGEPAR), The Association of Southern Africa National Roads Agencies (ASANRA), and The Sub-Saharan Africa Transport Policy Program (SSATP). However, before I do so, allow me to briefly present to you a general overview of the Roads Fund Board.

The Road Tolls (Amendment) Act No. 2 that was enacted in 1998 gives the Roads Fund Board twelve functions. For the purpose of this Seminar, I will mention only four of these functions:

- (a) to advise the Roads Minister on new sources of road tolls, adjustment of rates of existing road tolls and on regulations for collection of road tolls for the purpose of ensuring adequate and stable flow of funds to road operations;
- (b) to ensure full collection, and transfer of collected roads tolls to the Fund's account;
- (c) to disburse funds from the Fund to TANROADS, local authorities and other agencies;
- (d) to monitor the use of the funds disbursed to TANROADS, local authorities or other agencies for the purpose of the objectives of the Fund;



**Honourable Guest of Honour**, in accordance with the establishing Act, the Roads Fund has the following sources of money:-

- all monies collected as road tolls imposed on diesel and petrol,
  - transit fees
  - heavy vehicle licences
  - vehicle overloading fees
  - any other source at the rate or rates to be determined by Parliament from time to time.
- the proceeds from the above sources are deposited in the account of the Fund. Estimates for financial year 2006/2007, if all is well, will get us Tshs. 85.693 billion equivalent to United States dollar 65.9 million.

It is estimated that a total of Tshs. 221 billion or USD 170 million, is required to meet annual maintenance costs of our road network. But, as stated above, our total collection for this year is estimated at USD 65.9 million only, leaving a huge gap of USD 104.1 million; in other words, we are only able to meet 39% of the amount required for a sustainable road maintenance programme. This is a big gap, which requires our immediate attention, to look for ways of raising funds to close up the gap.

**Honourable Guest of Honour**, at this juncture, I wish to recognise a few countries that have shown interest and indeed are currently supporting the road maintenance programme financially: e.g. EU, Denmark through DANIDA, Norway through NORAD, and the World Bank. We are very grateful to them for their support and I hope they will continue extending their support to this very important sector, in the economic development of our country.

Since currently, the major contributor to the Fund is the fuel levy, accounting for 95% of the contributions; it is obvious that any changes in this area would have a dramatic effect on the level of collection. Here I would like to commend measures taken by the Government recently, especially the installation of flow meters at points of entry (Dar es Salaam and Tanga), have begun to show some positive results. If we can improve compliance and if Government can be persuaded to revisit exemptions with a view to drastically reducing the list of those beneficiaries, the level of levy collections will go a long way towards meeting the demand of the Fund.

This seminar has come up with suggestions and recommendations on how to address the issue of inadequate financing for roads and it is my hope that we will follow them up to ensure that the roads sector in our respective countries, play its part in stimulating economic growth.

May I also say that when the idea of establishing Road Funds was mooted, it was purely focusing road maintenance per se. Perhaps this was because it originated from the developed countries where their main concerns were maintenance of existing roads network rather than development of new roads. Unfortunately, in Africa, the existing network is still inadequate. There is therefore need for both maintenance of the existing limited network and indeed expansion of the network to open up the countries for economic development. I know some countries in the Sub-Sahara Region of Africa are already moving in this direction.

I would like to commend those governments in Africa that have embraced new ideas of establishing a road user charge and a Road Fund to manage the accrued funds. I hope this trend will be emulated by those countries that have not yet established such a facility.

Establishment of Road Funds is the way forward and should be accepted by all African countries.

At this point and time, I wish to recognise the presence of six Members of Parliament from Uganda, and Board Members from Zanzibar, Kenya, Zambia, and Ghana.

Before I welcome you to address and officially, close this seminar, I would like to take this opportunity, to thank all delegates who have attended this seminar. In addition, I would like to thank the Sponsors of the seminar, the Organising Committee, the Chairs of the sessions, the Administrator, the Moderator, and the Paper Presenters for their excellent performance and extend our special thanks to institutions and firms that have supported bringing their people to attend this seminar. We hope you will bear with us for any shortcomings that may have occurred in the preparations and possibly other logistics during the seminar.

With these few remarks, I now have the honour and pleasure of inviting the Regional Commissioner, our Chief Guest, to address and formally close this Seminar.

Thank you for your attention.

## **Appendix 6: Closing Speech by the Regional Commissioner for Arusha, Tanzania**

### **SEMINAR CLOSING SPEECH**

**By Colonel (Retired) Samwel Ndomba, Regional Commissioner for Arusha**

**Ngurdoto Mountain Lodge, Arusha, Tanzania**

**20<sup>th</sup> April 2007**

Honourable Chairperson of the Roads Fund Board Mr. Philip Magani;  
President of ARMFA and Chairperson of the Organising Committee Mr. Joseph Haule;  
Deputy Secretary General of PIARC, Mr. Franck Charmaison;  
Chairperson of PIARC Technical Committee TC 1.2, Madame Sherri Alston;  
Representatives of AGEPAR, ASANRA, and SSATP;  
Distinguished Guests;  
Ladies and Gentlemen.

I feel honoured by this unique opportunity to be with you to officiate the closing session of the “International Seminar on Sustainable Road Financing and Investment”. The seminar is the fundamental outcome of an initiative taken by the World Road Association through its Technical Committee on Financing Road System Investment. I commend management of the Association for working very hard with other institutions namely The African Road Maintenance Funds Association (ARMFA), The Association of African Road Managers and Partners (AGEPAR), The Association of Southern Africa National Roads Agencies (ASANRA), and The Sub-Saharan Africa Transport Policy Program (SSATP) to ensure that the conference is held as planned.

**Ladies and Gentlemen,**

May I take this opportunity to thank the World Road Association for choosing Arusha to be the venue of this important seminar. I hope you have enjoyed during your short stay in Arusha, you have found Arusha a pleasant place with jovial and kind people.

**Ladies and Gentlemen,**

I have been informed that this seminar has brought together 196 delegates from 39 countries. The delegates include road sector policy and decision makers, development partners, practitioners, consultants, researchers, academia, road users and other interested parties. At this juncture, I wish to recognise the presence of six Members of Parliament from Uganda. I understand that this occasion has taken precedence of your other important tasks and tight schedules. I therefore take this opportunity to thank you all for coming and participating in this seminar.

**Ladies and Gentlemen,**

I am sure that for the whole period of five days you have been able to give consideration to the broader issues significant to our nation’s prosperity as well as understanding specific opportunities

and challenges that is likely to encounter in the future. I must say that high level of interest has been shown by you. I believe that you have achieved the intended objectives of this seminar.

**Ladies and Gentlemen,**

A number of participants, distinguished guests, the Government in general, and myself have remarked that this seminar has been very well timed. The interest and focus you have brought to the theme shows clearly to be relevant topical issue. It has been conducted at a moment when Tanzania is embarking on extensive undertaking to improve its road network as a matter of priority. In this endeavour, we are enhancing efforts to increase funding for maintenance of our roads through the Roads Fund, which is part of the strategies in our Transport Sector Investment Programme (TSIP). We are doing this because we are sure that our economic growth depends heavily on an improved road network.

As we improve and rehabilitate our roads, we also recognise the importance of ensuring that we preserve the investment incurred by doing adequate maintenance. Having learnt from the past mistakes where we built and rehabilitated roads without adequately maintaining them and thus leading us into the viscous circle of build – rehabilitate - no maintenance –rehabilitate, we consider maintenance as a prerequisite in the whole agenda of road infrastructure management.

**Ladies and Gentlemen,**

In order to achieve this we have established and supported a dedicated fund for financing road maintenance. As it is for other developing countries and for other socio-economic sectors, available funds are always in shortfall and always the road sector has to compete with other sectors in getting the share of the national cake. It is estimated that our maintenance funds can only cover about 35% of the needs. This is a big challenge not only to Tanzania but also to many countries represented in this seminar.

**Ladies and Gentlemen,**

I have been informed that you held a field visit on 18<sup>th</sup> April where you saw the recently upgraded Makuyuni – Ngorongoro road. I am glad to hear that some of you had the opportunity to see Ngorongoro National Park, Meserani Snake Park, and the Masai museum. When you get back home don't forget to tell your friends, colleagues or neighbours of the beautiful things you saw and encourage them to come see the same for themselves.

**Ladies and Gentlemen,**

I hope that the partnership we have been able to develop for the success of this seminar will be maintained and nurtured. The importance of strengthening partnerships in exchange and sharing of information and best practices has a significant contribution in the process of tackling the problem of not having sustainable financing for roads.

**Ladies and Gentlemen,**

Finally but not least, it will be unfair if I don't recognize the efforts and efficiency embedded and shown by those involved in one way or another to support, organise, and participate in the Seminar.

Without their dedication and commitment, the outcome of the Seminar would not have been as fruitful as it has been.

**Ladies and Gentlemen,**

With these few remarks I wish you all a safe journey on your way back to your respective countries. It now gives me great pleasure to declare that the International Seminar on Sustainable Road Financing and Investment is officially closed.

**Thank you for your attention**

## Appendix 7: Seminar Summary Sheet

1 PIARC Technical Committee	Financing Road System Investment (TC 1.2)
2 Host country	TANZANIA
3 Seminar title	International Seminar on Sustainable Road Financing and Investment
4 Seminar venue	Ngurdoto Mountain Lodge, Arusha, Tanzania
5 Seminar dates	16 <sup>th</sup> – 20 <sup>th</sup> April 2007
6 Number of speakers from lower middle income and low income countries	15
7 Number of speakers from upper middle income countries	-
8 Number of speakers from high income countries	20
9 Number of participants (exclusive speakers) from lower middle income and low income countries	135
10 Number of participants (exclusive speakers) from upper middle income countries	-
11 Number of participants (exclusive speakers) from high income countries	17
12 Total participants (sum of Q6-Q11)	187
13 Total participants from host country	92
14 Number of lower middle income and low income countries represented	20
15 Number of upper middle income countries represented	-
16 Number of high income countries Represented	17
17 Was a PIARC Technical Committee meeting held the same week?	Yes, on the 15 <sup>th</sup> April 2007
18 Was the seminar held in connection with another non-PIARC event? If yes, which event and organisation?	No
19 Duration of the seminar, incl. field visit. Was a field visit organised?	Duration was five days including, one day for a field visit on 18 <sup>th</sup> April, 2007
20 Participants fees – (Currency)	<ol style="list-style-type: none"> <li>1. Countries with GNI &lt; \$3,466, \$400 and \$450 for late registration.</li> <li>2. Countries with GNI &gt; \$3,466, \$500 and \$550 for late registration</li> </ol> NB. Deadline was 15 <sup>th</sup> March 2007 for normal fees.