Institutional Development for a Sustainable Road Sector Strategy
Findings from a Study of 4 SSATP Countries

Gerhard P. Metschies, Consultant
gerhard.metschies@gmx.de - www.metschies.com
1. Study Objectives
   - Review of the Institutional Framework under which road funds and road agencies operate in SSA
   - Assessing of Changes in the Road Institutions and their impact on improving road maintenance
   - Providing of Guidelines for Road Institutions (lessons learned, best practices, recommendations)

2. Study Investigation Area
   - Cote d'Ivoire, Mozambique, Tanzania, Zambia

3. Study Execution Approach
   - Situation analysis
   - Issues Identification
   - Strategies for issues
   - Consultation workshops
   - Programme Management
   - Finalised Strategies

4. General Overview on the Roads Institutional Issue

Road Supply Chain

- President / Prime Minister
- Minister of Finance
- Ministries of Transport, Works, Local Government
- Boards of the Road Agencies
  - [Regulations for the Transport Sector]
- Road Fund Agency
- Agency for National Roads
- Transp., Veh. and Road Safety Agency
- Agency for Rural Roads
  - (or regional Offices of Road Agency)
- MDG Target Group
- Rural Population
- Private Transport Companies
  - (Buses and rural Pickups)

Note: The yellow chain link (Agency for Rural Roads) has been identified to the most problematic one in the institutional reform process.
Three Crucial Parts of were identified during the review on Road Institutions and their Institutional Links:

- (1) Internal Performance of Agencies for National Roads and Road Funds
- (2) External Institution Links to the Board and the Minister (1st golden Chain Link)
- (3) Special Case of Rural Roads (2nd golden Chain Link)
(1) Finding No. 1

Road Institution Reforms are welcome and Road Maintenance by Contract is General Practice

As for the execution of road maintenance (whose improvement is the primary goal the reorganisation process the road institutions) it has been found that the transition to contract maintenance (contrary to the former government owned force account work) has been successfully implemented in

- AGEROUTE (Cote d’Ivoire)
- National Road Administration ANE (Mozambique)
- TANROADS (Tanzania)
- Road Development Agency (Zambia)

Zambia Times 5 Oct. 2005
(1) Finding No. 2

Institutional Reforms advance at very different Speed Levels
(not only between different countries but also within one country)

- Mozambique: Road Fund
  ANE (National Roads Administration)
- Tanzania: TANROADS (Tanzania National Roads Agency)
  PORALG (Prime Ministers Office for Regional Administration and Local Government)
- Zambia: NRFA (National Road Fund Agency)
  RDA (Road Development Agency)
  RTSA (Road Transport and Safety Agency)
- Cote d’Ivoire: AGEROUTE (Road Agency)
  Fonds Routier (Road Fund)

- The newly formed institutions (mostly Road Funds) may adapt new procedures more easily than the traditional existing institutions (mostly of the Road Agencies).
- Rural Road Agencies seem to be the most problematic road institutions in all 4 countries.
- Best organisational Performance was found with the Road Fund in Zambia and the Road Agency in Tanzania.
(1) Finding No. 3

**Annual Reports of Road Agencies differ considerably**

Due to commercialisation road organisations differ by their basic reporting requirements. In the former ministerial structure no annual reports were required and even some newly restructured organisations lack this basic controlling instrument.

<table>
<thead>
<tr>
<th>Road Institution (e.g. Zambia)</th>
<th>Personnel (e.g. Zambia)</th>
<th>Main Tasks</th>
<th>Key Benchmark Figures</th>
<th>Reporting Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Fund</td>
<td>11</td>
<td>Revenue Acquisition and Donor Management</td>
<td>US $ received from Fuel Levy, Vehicle Licenses; Requirements for Road Maintenance</td>
<td>Revenues Report</td>
</tr>
<tr>
<td>National Road Agency</td>
<td></td>
<td>Administration of National Roads</td>
<td>km of Roads in technically good Condition</td>
<td>Expenditures Report</td>
</tr>
<tr>
<td>Old Structure</td>
<td>1.072</td>
<td>Road Maintenance and Road Asset Management*</td>
<td>Road Asset Value maintained or increased (?)</td>
<td>Balance Sheet of Road Assets (?)*</td>
</tr>
<tr>
<td>New Structure</td>
<td>278</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Roads Organisation</td>
<td>NA</td>
<td>Road Access to Rural Markets</td>
<td>Number and Quantity of Rural Markets which are reachable at all Weather</td>
<td>Report on Access to Rural Markets</td>
</tr>
<tr>
<td>Transportation and Safety Agency</td>
<td>137 (87 new)</td>
<td>Vehicle and Driver Licensing, Technical Inspection and Safety</td>
<td>Number and Kind of registered, licenced and inspected Vehicles; Number of Accidents</td>
<td>Revenues Report on Vehicle Taxation</td>
</tr>
</tbody>
</table>
Finding No. 4

**Weak Point of the Reporting System - LOSS of ASSET CAPITAL**

Why ASSET MANAGEMENT is needed, if well-timed maintenance is missing, e.g. for asphalt roads:

<table>
<thead>
<tr>
<th>Road Maintenance Type</th>
<th>Requirement</th>
<th>Annual Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Maintenance</td>
<td>permanent and yearly</td>
<td>c. 2.000 - 5.000 US $ per km</td>
</tr>
<tr>
<td>(Pothole Pitching)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodic Maintenance</td>
<td>every 8 - 10 years</td>
<td>c. 50.000 - 90.000 US $ per km</td>
</tr>
<tr>
<td>(Wearing Course Renewal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>only if Periodic Maintenance was not done in Time</td>
<td>c.150.000 – 250.000 US $ per km</td>
</tr>
<tr>
<td>(Wearing Course Renewal + Base Course Renewal + Drainage)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Main Conclusion:** REHABILITATION indicates the loss of asset capital (due to the neglected well-timed maintenance). Final Success (and deficiencies) of the Road Reform can be verified only in the field.
Finding No. 5

**Target and Focus for Reform has to be improved**

- The road sector is the last transport sub-sector which is undergoing an institutional reform (compared with all the other neighbouring transport infrastructure institutions like railways, airports, airlines, ports, …)
- The institutional change in the road sector is urgent and inevitable (in view of the billions of $ road are the biggest investment of the whole infrastructure sector)
- Transition from State Administration to private Company Management is possible in different Stages

**Commercialisation of Infrastructure at the Institutional Level**

- From State Ownership to Private Ownership -

<table>
<thead>
<tr>
<th>Transport Sector</th>
<th>Ministerial Administration</th>
<th>Parastatal Service</th>
<th>Commercial Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline</td>
<td>less common</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>Airport</td>
<td>less common</td>
<td>common</td>
<td>less common</td>
</tr>
<tr>
<td>Ports</td>
<td>less common</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>Railways</td>
<td>less common</td>
<td>common</td>
<td>common</td>
</tr>
<tr>
<td>Bus</td>
<td>less common</td>
<td>less common</td>
<td>common</td>
</tr>
<tr>
<td>Roads</td>
<td>common</td>
<td>common</td>
<td>less common</td>
</tr>
</tbody>
</table>

| Ownership        | 100% state owned          | 100% state owned   | Limited (LTD)        | Share Company |
|                  |                           | (state majority)   | (state minority)     |
| Balance Sheet    | not required              | limited to Service Organisations | incl. Road Asset | incl. Road Asset |

| Taxation         | Tax free                  | no VAT             | VAT                  | VAT                  |
| Staff Salaries   | State                     | State or Privat Sector | Private Sector | Private Sector |

(Difference in taxation and staff salary level verified in the 4 countries study)
Finding No. 6

**Missing Data Base for Commercialisation of Road Sector**

- The Revenue base of the Road Agencies (**number of registered vehicles** and motor fuel used for transport) are to be permanently monitored.
- The **capital value of the road network** and its development has to be closely watched and its financial maintenance requirements adjusted accordingly.
- The **mapped roads** network of the country and its traffic load (as vehicles per day) as well as the condition of the roads require permanent monitoring.
- **Prices of Transportation and Roads** must be monitored (passenger and goods transport on different categories of roads, incl. time series of prices).
- **Data on rural markets** and its all-weather access incl. transport times and rural vehicles are to be assessed.
- **Annual publication** of a county-wide reports with comprehensive economic and social transport data covering **Road Provision and Road Usage**

Up to now a data monitoring of the sector is missing, although in some countries a real transport explosion takes place.
Finding No. 7

‘Regulation’ for Road Transport Market Strategy is missing

Options for Regulator Institutions:

♦ Existing Ministries and Boards

Critical voices concerning the regulation of the road transport market (guidance and vision) have been heard in all 4 countries:

‘rather burden than asset’ (Tanzania)
‘maybe useless’ (Mozambique)
‘overpaid and overstuffed’ (Zambia)
‘without influence’ (Cote d’Ivoire)

♦ New Regulation Board

Special Regulation Boards exist in different infrastructure sectors of SSATP Countries, like in Zambia the Energy Regulation Board and the Water and Sewage Regulation Council. Experience with NWASCO Water Regulation may serve as a role model for road transport also (www.zambia-water.org.zm/nwasco/reform.pdf).

♦ Existing Road Fund

The outstanding performance of the Zambian National Road Fund Agency NRFA must be seen as a result of his role as leading force in the road sector (initiating reviews of ROADSIP II, Provision of an Institutional Reform Coordinator, …).

Discussion Point: The Role of Road Funds as Regulators in the Road and Transport Sector
Finding No. 8 - Reforms in Infrastructure Sectors proved to be successful

**Keys to Success:**

Regulation, Commercialisation, Pre-Paid Financing

The **Cell Phone** Sector and the **Water Supply** Sector indicate that reforms and success in infrastructure service provision are possible, if they are managed by private organisations (supervised by the Regulator).

**Road service provision** may follow this model example also. The Road Fund (mostly financed with fuel taxes) may assume this regulatory role as he is best suited for his task already supervising the crucial part sufficient revenues.

**Filling Stations achieving pre-paid financing of infrastructure sub-sectors**

<table>
<thead>
<tr>
<th>Infrastructure Regulation e.g. in Zambia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
</tr>
<tr>
<td><img src="image1.png" alt="Energy Regulation Board" /></td>
</tr>
</tbody>
</table>
Finding No. 9 – Rural Roads – Stepchild in Road Organisations

Unsolved Rural Road issues have been found during the study at:
- PORALG (Tanzania)
- ANE (Mozambique)
- RDA (Zambia)

◆ Rural Roads have to provide access to the traditional sector of the economy. In SSA the majority of the population still live in the subsistence economy and form the target group of the MDGs (see FAO Map).

◆ The 3 last chain links above show the factors for any solution:
  - Rural Roads Offices operational in the regions
  - Private transporters / traders entering rural areas
  - Rural population using transport access provided

◆ The Transition from subsistence to cash-crop economy therefore is the general goal for the rural sector of SSA governments.
Finding No. 10  Rural Roads contribute to MDG Success

Poverty Reduction in Rural Areas
with Increase of Production by Using better Seeds

- **Investments** (Seeds, Fertilizer, ...)
- **Transport** to and from Rural Markets

Conclusion:
- **Special Seeds** may increase production 3 to 9 times
- **Transport to and from Rural Markets** (although 15-20% of sales price) must be secured by all means to avoiding loss of harvest.

<table>
<thead>
<tr>
<th>Seed Usability</th>
<th>Name</th>
<th>Yield [ t / ha]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>GV 412</td>
<td>4.5 - 6.0</td>
</tr>
<tr>
<td>Medium</td>
<td>MM 604</td>
<td>5.0 - 7.5</td>
</tr>
<tr>
<td>Full Season</td>
<td>MM 752</td>
<td>7.5 - 9.0</td>
</tr>
</tbody>
</table>

Yield without special seed is about 1 t/ha only, but good seeds enable an yield increase of up to 9 t/ha. Smallholder Subsistence Farmers cultivate c. 1 ha.

<table>
<thead>
<tr>
<th>Input Prices per ton</th>
<th>Maize Seed (Medium) in Ndola 1450 US $</th>
<th>Fertilizer (Comp'D) in Ndola 500 US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Prices per ton</td>
<td>Maize Sales Price 220 US $</td>
<td>Wheat Sales Price 340 US $</td>
</tr>
</tbody>
</table>

Note: PLANT THE SEED YOU KNOW
Source: AMIC 2005 / Zambia
Finding No. 11: Access to Rural Markets – A Task of different Stakeholders

<table>
<thead>
<tr>
<th></th>
<th>Farm-to-Market Tracks</th>
<th>Highway-to-Market Roads</th>
<th>Provincial / National Highways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aver. Distance</td>
<td>0 - 15 km</td>
<td>0 - 90 km</td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>Farmers (non classified tracks)</td>
<td>Province / State</td>
<td>State</td>
</tr>
<tr>
<td>Caretaker</td>
<td>Marketing Board</td>
<td>Rural Roads Office</td>
<td>Roads Agency</td>
</tr>
</tbody>
</table>

Weekly Rural Market directly at Highway (Butare-Cyangugu / Rwanda). No special Highway-to-Market Road necessary.
Finding No. 12: Main Bottleneck of Rural Transport
- Lack of Bridges and Culverts

A) Road Agencies in SSA may have 2 different mission goals of service provision:
- Facilitating 24 h Transport on asphalted National Road Network
- Facilitating an all-weather access on earth and gravel roads to all Rural Markets of the country

B) In Rural Areas providing sufficient numbers of bridges and water crossings may be more important than the quality of individual rural roads and tracks.

Rural Roads Strategy in SSA may need a Review.
## Main Recommendations:

<table>
<thead>
<tr>
<th>Road Institution</th>
<th>Suggested Program (ToR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road Agency</strong></td>
<td>Continuation of Institutional Development towards commercial Road Asset Management</td>
</tr>
<tr>
<td></td>
<td>Secure well-timed Periodic Maintenance to prevent costly Road Rehabilitation</td>
</tr>
<tr>
<td></td>
<td>Promote Board Reform</td>
</tr>
<tr>
<td><strong>Road Fund</strong></td>
<td>Extend the field of responsibility to a FULL Road Transport Regulator balancing economic and social goals</td>
</tr>
<tr>
<td></td>
<td>Secure Autonomy of the Road Fund in the Management and the Employment of experienced Professionals</td>
</tr>
<tr>
<td></td>
<td>Procure annually a Roads Provider Report and a Road User Report</td>
</tr>
<tr>
<td><strong>Rural Roads</strong></td>
<td>Setup of decentralised Rural Road Offices</td>
</tr>
<tr>
<td></td>
<td>Accept Priority Settings from Marketing Boards for increased cash-crop production</td>
</tr>
<tr>
<td></td>
<td>Construction of Bridges and Culverts for all-weather access to Rural Markets</td>
</tr>
</tbody>
</table>

Secure juristic and legal framework for implementation
Our Roads, Our Future – but **No Future without better Roads.**

Roads Poster of Zambian Ministry of Works & Supply. Truck stuck on Earth Roads in Eastern Congo.