

A PPP “PARADIGM” FOR OVERLOAD CONTROL ON TRADE CORRIDORS IN AFRICA

J BOSMAN and M D’ANGELO*

Namela Consulting (Pty) Ltd, P O Box 73267, Lynnwood Ridge. 0040

Tel: 012 3491886; johan@namela.co.za

* Namela Consulting (Pty) Ltd, P O Box 73267, Lynnwood Ridge. 0040

Tel: 012 3491886; marco@namela.co.za

ABSTRACT

The integration and spatial development on the African continent is promoted through initiatives that enhance interconnectivity and facilitate trade by focusing on transport corridors. The speed of freight movement along these corridors is crucial to the competitiveness of most African economies, especially those that are landlocked. The speed is affected by the throughput time at ports and border posts and also by the condition of the transport infrastructure. Overloading of heavy vehicles can cause considerable damage to road infrastructure which in turn affects the speed at which freight moves along these corridors. A corridor can link several economic centres, countries and ports and co-ordination and harmonisation of overload control among the countries along the corridor could become a bureaucratic nightmare.

The paper briefly describes the routes along the main trade corridors in Southern Africa. It then demonstrates how the private sector can get involved in overload control on the roads along these corridors in terms of the recommendations in the SSATP’s Working Paper No 90. The paper also proposes a regional overload control network for the Southern Africa trade corridors and provides a “first order” estimate of the benefit/cost ratio of such a network. The functions of a Special Purpose Vehicle (SPV) for overload control at SADC level and a possible concept of the agreements between the SPV, the private sector service provider and the financial institution(s) is also proposed.

1 BACKGROUND

The economic competitiveness of several countries in Sub-Saharan Africa, especially those that are landlocked, depends to a large degree on the existence and efficiency of trade corridors. African Union programmes, such as NEPAD, and the regional economic communities (RECs) encourage interconnectivity and trade facilitation by focusing on transport corridors to promote integration and spatial development on the continent. Development agencies such as the World Bank and African Development Bank as well as the European Union are also increasingly funding corridor interventions (Adzibgey, Kunaka and Mitiku, 2007).

Trade corridors have existed since the Silk Road era and earlier and are more than just transportation infrastructure. Arnold, Olivier and Arvis (2005) provided a definition of a corridor, based on infrastructural provisions and functions. From a physical perspective, they maintain that a corridor is defined as a collection of routes constructed from the transport networks of adjoining countries and bounded by gateways. Corridors can at

times be multi-modal and include multiple border crossings. From an economic perspective they state that the function of a corridor is to promote both internal and external trade by providing more efficient transport and logistics services.

According to them the primary reason for designating routes as part of a corridor is to focus attention on improving not only the routes but also the quality of transport and other logistic services in the corridor. The quality is measured in terms of transit time and cost for shipment of goods along the corridor.

The aim of the paper is to illustrate how the recommendations on overload control in the SSATP's Working Paper No 90 can be applied to the main trade corridors in Southern Africa. The main trade corridors are described and the rationale of overload control (OLC) along these corridors is highlighted. The paper also describes how a Special Purpose Vehicle can be used to introduce private sector involvement in overload control on a regional level along the SADC trade corridors.

2 REGIONAL CONTEXT OF THE MAIN TRADE CORRIDORS IN SOUTHERN AFRICA

In Southern Africa the North-South Corridor is the busiest regional trade corridor. Other corridors, such as the Maputo, Trans-Kalahari, Nacala, Beira and Dar es Salaam corridors, interconnect with the North-South corridor. Short descriptions of these corridors, as well as the Trans-Cunene and Trans-Caprivi corridors, are contained in this section of the paper. (These corridors are shown schematically on Figure 1.)

1.1 North-South Corridor

The North South Corridor is a joint COMESA-EAC-SADC initiative that connects Botswana, the DRC, Malawi, Mozambique, South Africa, Zambia and Zimbabwe and also interlinks with the Trans-Kalahari, Beira, Lobito, Dar es Salaam and Nacala corridors. It is the main transport route to supply the landlocked countries of Zimbabwe, Zambia and the Democratic Republic of Congo (Curtis, 2009). The corridor consists of two main legs:

- one leg stretches from Durban through Johannesburg to Zimbabwe (or Francistown in Botswana) onto Lusaka and from there to Lubumbashi and Kolwezi in the DRC; and
- the second leg takes off from Harare, through Tete in Mozambique and on to Blantyre in Malawi.

The length of this corridor from Durban via Zimbabwe to Lubumbashi (and Kolwezi) is approximately 2,700 km (3,000 km to Kolwezi). Via Botswana the relative distances are approximately 200 km longer. The "spur"-link from Harare via Tete to Blantyre is approximately 450 km long.

1.2 Maputo Corridor

The Maputo Corridor connects the industrial areas of Gauteng, Mpumalanga and Limpopo provinces in South Africa with Maputo in Mozambique. This is the most competitive and shortest access to the sea for these provinces. The central pillar of the Maputo Corridor is the N4 toll road. The distance from Maputo to Pretoria is approximately 560 km. The metropolitan cities of Johannesburg and Ekurhuleni are connected to the Maputo Corridor via national road N12 which connects to the N4 near Witbank (an approximate distance of

590 km). The corridor also links to the Trans-Kalahari Corridor at Pretoria. The N4/E4 provides a world-class connection from South Africa's western border with Botswana via Pretoria to Maputo. This is a distance of approximately 840 km (Maputo Corridor Logistics Initiative, 2011).

1.3 Trans-Kalahari Corridor

The Trans-Kalahari Corridor comprises a tarred road linking the Port of Walvis Bay with Botswana and South Africa. The corridor stretches over approximately 1,900 km along Walvis Bay-Windhoek-Gaborone-Johannesburg/Pretoria. The Trans-Kalahari Corridor is complemented by the Maputo Corridor on the east coast of Africa, thus forming a transport corridor over the entire breadth of southern Africa (Walvis Bay Corridor Group, 2011).

1.4 Trans-Cunene Corridor

The Trans-Cunene Corridor links the Port of Walvis Bay with southern Angola up to Lubango, over a distance of approximately 1,400 km. The Angolan Government is currently planning nationwide road rehabilitations which will include the Lubango-Santa Clara leg. (Walvis Bay Corridor Group, 2011).

1.5 Trans-Caprivi Corridor

The Trans-Caprivi Corridor links the Port of Walvis Bay with Zambia, the southern Democratic Republic of Congo (DRC) and Zimbabwe. The corridor runs via the former Caprivi Strip in north-eastern Namibia and enters Zambia via the Katima Mulilo bridge, which was completed in 2004. The distance from Walvis Bay to Lusaka is approximately 2,050 km long and is becoming another main supply route to Zambia and the DRC. (Walvis Bay Corridor Group, 2011)

1.6 Beira Corridor

Mozambique's Beira Corridor constitutes the main transport access link between the port of Beira and the interior of the country as well as to the neighbouring landlocked Zimbabwe, Zambia and Malawi. As an important gateway for cargo transport in the region, an extensive refurbishment of the corridor infrastructure was undertaken in the 1980's and 1990's. However, the improvements have not been maintained, and the port and its access constitute a major bottleneck for regional transport and trade. A rehabilitation of the transport infrastructure of the Beira Corridor, including the rehabilitation of the Sena railway line and the restoration of the Beira port access channel to its original design characteristics is currently underway. The length of the road-based corridor from Beira to Lusaka via Harare is approximately 920 km. (European Union Africa, 2011)

1.7 Nacala Corridor

The Nacala Corridor starts at the Nacala Port in Mozambique and ends in Lusaka, a distance of approximately 1,700 km. Since 1998 the corridor has been promoted as the main import and export route for Malawi, but due to infrastructure problems related to flood damage and failure to upgrade and maintain some sections of the railway line, the majority of Malawi's imports and exports are still routed through Beira and the North-South Corridors.

The road infrastructure along the corridor is in the process of being upgraded as part of the Nacala Road Corridor Project which covers about 1,033 km of road in Zambia, Malawi and Mozambique and two one-stop border posts. (African Development Bank, 2010)

1.8 Dar es Salaam Corridor

The Dar es Salaam Corridor, from the port of Dar es Salaam to Lusaka is also a main supply route for Zambia and the DRC. The key infrastructure along the corridor of approximately 1,900 km includes the port, the TAZARA railway line and the TANZAM highway. Given the infrastructure and management problems encountered on this corridor, continuing efforts are applied to make it more efficient.

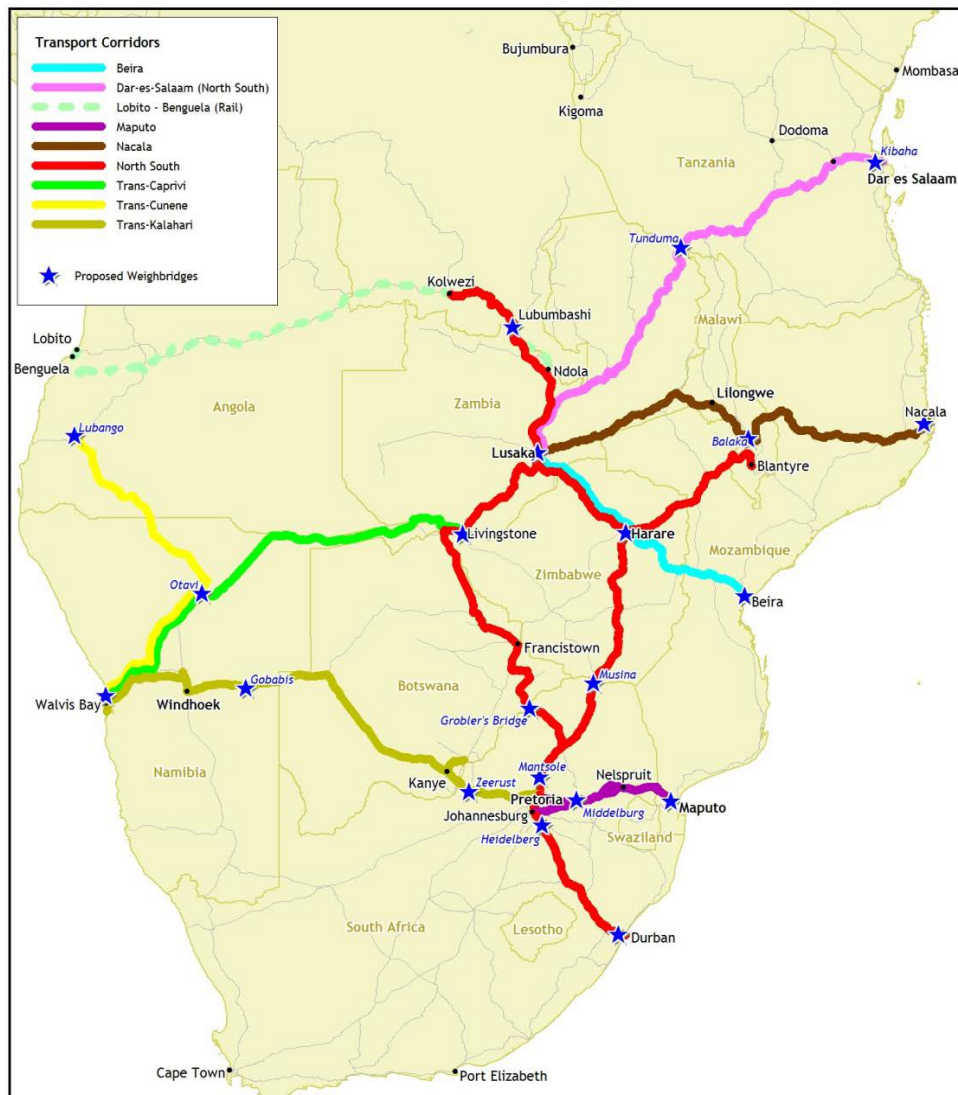


Figure 1: Main Trade/Freight Corridors in Southern Africa.

2 RATIONALE OF OVERLOAD CONTROL ON THE TRADE CORRIDORS

The performance of a corridor can be evaluated from two main perspectives:

- An infrastructure perspective, which considers the physical capacity of links and nodes in a corridor and their utilization; and
- A perspective of the quality of the services provided for goods moving on the various routes.

The performance is measured in terms of average time and cost for transport units moving along a particular corridor. (Curtis, 2009).

Curtis (2009) highlights a variety of problems along African transport/trade corridors, such as border delays, vehicle break-downs and poor infrastructure. The latter is in most cases due to the lack of maintenance. In the case of road infrastructure, overloaded heavy vehicles contribute significantly to poor road conditions. These problems (poor infrastructure and border delays) contribute to transport costs that are higher in the SADC region than in other parts of the world.

In the highly competitive environment in which road transport operators have to function, their prime concern is to minimize the cost per ton-km of haulage. Thus, there is a trend towards the use of larger and heavier vehicles, which, as a result of improvements in road transport technology, tend to have a capacity rating in excess of legal load limits. From the transporter's view, the larger the vehicle and the more heavily it can be loaded, the more cost efficient the transport operation will be. The axle and vehicle load limits contained in the law therefore appear to be a constraint upon the efficiency of the transport operator. Overloading therefore appears to be very desirable and profitable to some transport operators.

The results from a study done for the National Road Administration of Mozambique that were published in 2007 confirm this trend among road transport operators (National Road Administration of Mozambique [ANE], 2007). It was found that 30 percent of the heavy vehicles weighed were overloaded above the tolerance limit. These overloaded vehicles were typically overloaded by 34 percent. Overloading is also an issue on the North-South Corridor. Before the Cross-Border Overloading Control System, initiated by FESARTA, at the Groblersbrug/Martins Drift border, the Francistown route was considered the "overloading route" since overload control was lax. Blatant overloaders made big profits on this route although it was 200 km longer than through Zimbabwe. (Curtis, 2009).

The most economic and efficient control of overloading would be through self-regulation. SADC, in conjunction with RTMS, FESARTA and TMSA, recently announced that they intend to launch a Road Transport Management /Self-regulation System along the North-South Corridor towards the end of 2011. Although this is a step in the right direction, it will probably still be a long way before effective self-regulation is fully operational along all the main trade corridors in Southern Africa. Therefore a more realistic solution to the overloading problem at this stage seems to be a comprehensive and effective law enforcement programme, consisting of a network of strategically located weighbridges. When self-regulation becomes fully operational, the overload control functions of the weighbridges will reduce considerably, but they can then be transformed to operate as Traffic Management Centres (TMCs). (Proposed TMC functions are listed in Section 4.)

In terms of Article 6.6 (Loads on Vehicles) of the SADC Protocol on Transport, Communications and Meteorology member states are required to develop and implement regional overload control strategies that would coordinate overload control activities.

Unfortunately there has been rather limited success at regional level with the implementation of a harmonized framework for overload control management in the region. The challenges that arise from the absence of such a harmonized framework for overload control management are most apparent along regional transport corridors (Pinard, 2010).

The limited success in the implementation of the SADC requirements on overload control suggests that “business-as-usual” will not ensure efficient implementation of overload control measures. Pinard, (2010) stated that the traditional approaches to overload control have generally not worked and indications are that they are unlikely to work in future. He is therefore of the opinion that the approaches towards overload control on a regional basis should be rethought.

In an attempt to improve the success rate of overload control initiatives Pinard, (2010) recommended certain changes in the institutional and financing arrangements for overload control in Eastern and Southern Africa. In this regard he recommended the establishment of a Special Purpose Vehicle (SPV) to plan and implement overload control on a regional level as well as private sector involvement in the management and operations of overload control.

3 IMPLEMENTATION OF RECOMMENDED INSTITUTIONAL AND FINANCING ARRANGEMENTS FOR OVERLOAD CONTROL ON THE SADC TRADE CORRIDORS

The implementation of the recommended changes in the institutional and financing arrangements regarding overload control on the SADC trade corridors is discussed in this section of the paper. Some suggestions regarding the functions and funding of the SPV as well as the involvement of the private sector are proposed. A “first order” regional overload control network for the main SADC trade corridors is also suggested and costed..

a. Special Purpose Vehicle (SPV)

Overload control is not necessarily the highest priority on SADC’s agenda of transport matters and the establishment of a Special Purpose Vehicle to co-ordinate and plan overload control can ensure that it is promoted on a regional level. The SPV can play a prominent role in SADC’s “*Infrastructure Development Master Plan*” that will deal with the region’s estimated R 700 billion backlog in infrastructure. The SPV can also prevent the duplication of scarce resources in the region. It is recommended that the SPV should fall under the SADC Secretariat in Botswana, (Pinard, 2010).

The authors are of the opinion that a dedicated Overload Control Fund should be established to ensure financial continuity in the financing of future overload control operations by the private sector through the SPV.

It is therefore suggested that the SPV’s functions should include the following:

- Co-ordinating the overload control activities on the main trade corridors;
- Organising audits to determine the status and efficiency of overload control activities on the main trade corridors;
- Compiling requests for proposals (RFPs) for the planning, design, implementation (including financing) and operation of overload control facilities on a PPP-basis;

- Preparing the TORs of the performance contracts for private sector involvement in overload control activities. These should include a penalty/bonus clause;
- Assisting in the negotiations with financiers, such as the International Finance Corporation, to lend money to the preferred private sector service provider(s); and
- Playing a watchdog and oversight role in terms of the overload control projects that are built and managed by the private sector.

b. Private Sector Involvement

Some of the functions/disciplines at a weighbridge, such as facilities management, electronic, computer and mechanical systems and traffic signalling systems are not core functions of the typical transport department/road authority, and the private sector is probably better equipped to provide these services.

Pinard, (2010) therefore recommends that the ideal private sector option would be a “hybrid” between a management contract and a concession contract. In such an option the private sector would provide the capital finance as well as the working and maintenance capital. This contract will not generate sufficient revenues to cover the concessionaire’s investment and operating costs, plus an acceptable rate of return and the government will have to buy the services from the concessionaire at a predetermined monthly price over a period of (say) 15 to 20 years.

The private sector will finance the project by way of a private loan by a financier on terms and condition to be agreed by all parties involved. The private sector service provider will then be responsible for the design, construction, operation and maintenance of the overload control facilities.

The private sector service provider will render its services under a concession from the SPV. A bilateral agreement between the two parties will spell out the details of the services and the responsibilities of both parties. The SPV will be required to guarantee a cession of the right of the private service provider in terms of the concession agreement to the financier as security for the loan (trilateral agreement). These proposed agreements are shown schematically on Figure 2. (The private service provider will probably enter into separate bilateral agreements with the different countries in which it will build, manage and operate weighbridges.)

As overloading abates over time, the contract between the private sector and the SPV could provide for a broader range of traffic related services to be undertaken at the weighbridge site. These services can include:

- roadworthiness of vehicles;
- truck and driver licence inspections;
- driver fitness and competence;

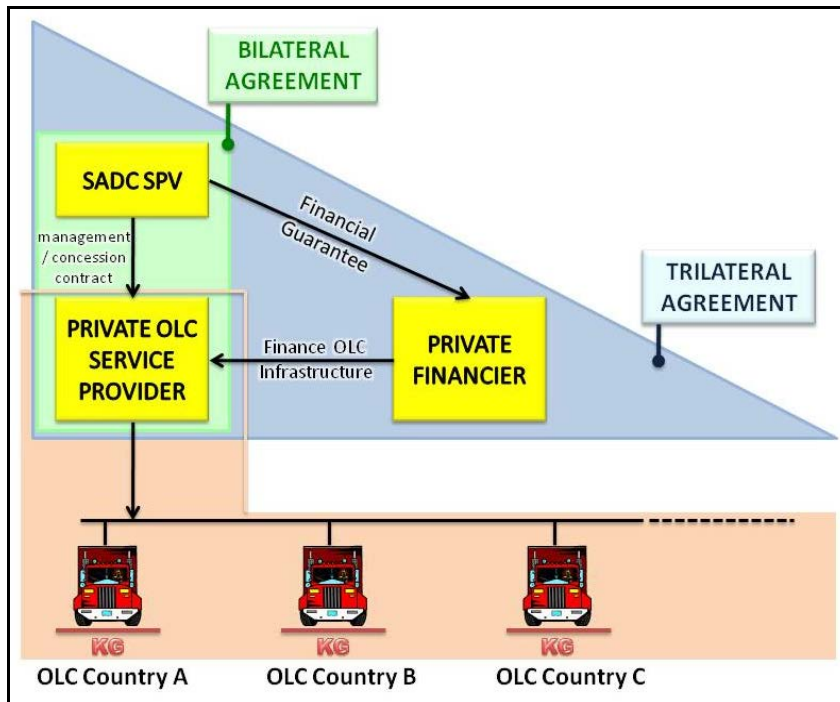


Figure 2: Proposed Agreements between SPV, Private Sector and Financial Institution

- crime prevention;
- traffic data collection; and
- other aspects of road traffic safety, such as speeding and driving under the influence of alcohol and monitoring of the self-regulation system (if implemented)

c. A “First Order” Regional Overload Control Network for SADC

In order to establish the financial/economic viability of a SADC overload control initiative based on the SSATP recommendations, a “first order” regional weighbridge network consisting of 21 weighbridges (shown on Figure 1) was identified. The Overload Control Index (OLCI) of this network was estimated at 2.25, indicating that the network is economically and financially viable over its 20 year design life.

It was assumed that the private sector service provider (PSSP) borrows the money to build these weighbridges at 12 percent interest and that he agreed with the SPV on a 12 percent profit. It was then calculated that the SPV has to pay the PSSP approximately R 15 billion for capital, operational and maintenance costs plus R 2 billion profit over 20 years. The saving in road damage over the 20 years amounts to approximately R 20 billion which represents a benefit/cost ratio of 1.2.

The final location of these weighbridges as well as the financial/economic analysis will have to be refined using the latest heavy vehicle counts and taking into consideration local operational and maintenance costs before a decision is taken to proceed with private sector involvement. Strategic and local factors which can influence the weighbridge locations should also be taken into account. This exercise should only be done after the SADC member states approved of the proposed regional overload control scheme.

d. General

Overload control involves various players, both public and private. In this particular case the road authorities and/or transport departments of the countries involved are key stakeholders. Without their consent the SPV/PPP overload control concept will not be viable. If some of these countries decide not to participate, the regional overload problem cannot not be properly resolved.

An extensive awareness campaign among the member states to emphasise the rationale and advantages of effective overload control on a regional basis would be required to ensure their full support and financial commitment to the SPV/PPP concept.

4 CONCLUSION

The authors have investigated, but by no means refined, the application of the recommendations contained in the SSATP Guidelines on Vehicle Overload Control on the trade corridors in Southern Africa. At this stage the application is of a “first order” nature, but the authors suggest that overload control with private sector involvement on a regional basis is viable on these corridors. The concept requires further refinement, especially on the economic and financial viability of private sector involvement, as well as the establishment of the SPV and a dedicated overload control fund. We are of the opinion that the concept is a defensible one which could contribute towards successful and economically viable overload control in the region.

The advantages of SPV/Private sector approach to overload control in the SADC region are that:

- the implementation of overload control will be put on a “commercial” footing;
- it will promote continuity in the financing of overload control operations since the government will now be bound contractually to remunerate the private sector service provider; and
- it will enable financiers, such as banks, to become partners in the financing of overload control initiatives. Their involvement will encourage financial discipline and improve the establishment of long term sustainability of overload control projects.

5 RECOMMENDATIONS

It is recommended that the SADC Secretariat invite the Road Authorities/Agencies and the departments responsible for roads and traffic law enforcement in the region to a workshop to discuss the advantages and disadvantages of the proposed SPV/PPP concept of regional overload control as recommended in the SSATP guidelines document. If the outcome of such a workshop is in favour of the proposed concept and the member states commit themselves to the successful implementation thereof, the secretariat can then consider the appointment of consultants to assist them with the establishment of the SPV and the Overload Control Fund and the formulation of the Request for Proposals to appoint a private sector overload control service provider.

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