The Tolling of Existing Roads - The South African Experience

The tolling of existing roads is a particularly challenging concept and today forms part of an ongoing political and public debate in many countries around the world. What makes the South African experience unique is that a number of existing roads have been tolled over the past 30 years.

This report will cover the significant events and lessons learnt that shaped the South African Toll Road Industry over time and how this relates to the tolling of new and existing roads. Areas to be covered include:

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Background
Toll roads were first introduced in South Africa in 1984 and have grown from an initial 27 kilometres to 3 120 kilometres. They currently constitute approximately 16% of the National Road Network (19 704 kilometres) and consist of both Agency funded Toll Roads (1 832 kilometres) and three Public Private Partnerships (1 288 kilometres).

Political and Legal Dynamics
During the 1920’s the need for improved roads and the co-ordination of road development was obvious and various commissions were appointed in this regard; the National Roads Act was promulgated in 1935. The Act made provision for the establishment of a National Roads Board, responsible for inter alia, the formulation and execution of National Road Policy and the establishment of a Road Fund. The latter was funded through a “three pence” customs duty on every gallon of petrol imported.

Since 1935 the National Roads Act was amended on various occasions primarily due to changing Government policies.

In 1982/83 the National Roads Act was amended to allow government to levy tolls; thus in 1984 the first toll road was opened, it being the Tsitsikamma Toll Road, some 27 kilometres in length. This was essentially a new road with some major viaducts.

There are two important stipulations in the Act, which over time has had a positive impact in gaining public support for the tolling of new and existing roads. These are:

➢ Tolls collected can only be spent on the funding, development and operations of toll roads. It does not go to the general fiscus.

The impact thereof is twofold, firstly it gives the public the assurance that their tolls are spent on toll roads only and secondly it prevented Government from levying “excessive” tolls to fund other requirements i.e. to use the tolls as a general tax. However, not all toll roads generated sufficient returns, thus akin to any other business “cross subsidisation of business units” ensures the overall sustainability of the toll road portfolio. This excludes the private toll roads.

The other stipulation which requires some thought is;

➢ The requirement that all toll roads must have an alternative route.

Initially when toll roads are introduced it is a “good sell” idea, but it is not sustainable. In 1996 this requirement was repealed to (i) allow the private sector to participate in the provisioning of a public good as it removed competing routes which reduces toll avoidance and thus project risk and (ii) due to the fact that the economic burden of two routes serving similar origins and destinations cannot be sustained.
Institutional Reform

There are broadly four evolutionary stages in the development of an institutional model that best serves the development of a country’s primary road network.

**Stage 1: No Centralised control**
This stage is categorised by largely uncoordinated development of local roads to serve local needs with little or no ownership of the roads. This was the situation pre 1935 in South Africa.

**Stage 2: Central Government Control – Bureaucratic Approach**
Government assumes responsibility for the major networks and the funding thereof. This phase is characterised by a mix of government bodies having similar responsibilities; often with mixed policy and execution objectives.

**Stage 3: Central Government Control – Commercial Approach**
Government is responsible for the legal framework and policies and there is clear distinction between policy and execution. This stage is characterised by significant input from the private sector in building and maintaining the primary road network.

**Stage 4: Free Market**
Ownership and responsibility for the development, operation and maintenance of the primary road network is transferred (sold) to the private sector. This phase has only partially been implemented by some countries, with the introduction of PPPs. It is unlikely that a country will move to this stage in its entirety.

In brief the South African experience re the development of its primary road network included;

Since 1935 there has been various institutional structures managing the primary road network. These consisted of national and provincial government departments with separate mandates, e.g. national would fund the projects and the provincial authorities would construct the roads. This “divided control” was finally abandoned in 1971 when exclusive power re national roads was granted to an independent body known as the National Transport Commission(NTC).

The South African Roads Board was established in 1988; the powers of the NTC which related to road matters were transferred to the South African Roads Board, an entity focussed on national road matters only.

There is an argument which suggests that for a country’s primary road network, the road sector should become more market orientated than politically driven. It also recognised that the type of institutional structure to carry out this function needs to be carefully considered.

In 1995 the Government, as part of a broader discussion on the restructuring of State Assets endorsed the creation of a commercialised roads agency to provide a more focussed approach regarding the development, management and maintenance of the primary road network.

In 1998 the South African National Roads Agency(SOC) Ltd(SANRAL) was set up by Government. It is a public company wholly owned by the State. Its functions include the management and control of the primary (national) road network, which includes toll roads; its purpose is to fund, develop, maintain and rehabilitate the national road network within the framework of government policy. The governance and management of the Agency is by a board of directors and a chief executive officer respectively.
Toll Road Financing

There is a world-wide challenge to fund the development of new roads and the upgrading and maintenance of existing roads.

Generally there is widespread support for roads to be funded through a dedicated fuel levy. Such was the case in South Africa until the early 1980’s when it became apparent that the fuel levy was needed for other Government expenditure. It was during this time that the South African National Roads Board convinced Government to introduce the User Pay Principle as an additional source of funding for the expansion and maintenance of the primary road network.

The Period Mid-1980s to Mid-1990s

The first toll roads were developed during this period and Government introduced two funding models, (i) The Loan Supportable by Revenue model, and (ii) Public Private Partnerships.

(i) The Loan Supportable by Revenue (LSR) model determines the debt that can be financed by the revenue collected.

The revenue is determined from detailed traffic studies, the toll strategy (position of toll plazas) and the calculated toll tariff.

At the time an acceptable toll tariff was determined to be 75% of the Perceived Benefit, which is measured as the savings in vehicle operating cost and time cost; this in turn is based on the distance and time saved using the toll road as opposed to the alternative route. The 75% was established as the optimum percentage that could be charged before significant traffic diversion occurred. This methodology however, at the time ignored the actual project cost and of course could only be applied if there was an alternative route. Based on these toll tariffs, attraction rates generally exceeded 90% of the corridor traffic.

Any shortfall in funding the toll road was made up by what was known as National Road Fund (NRF) loans which were granted from the National Road Fund to the Toll Road Fund. These were interest free loans and were subordinated to the private sector debt which was raised through the issuing of Government guaranteed bonds.

In order to reduce the social and economic impact of tolling an existing road, the funding model was developed to allow a grace period for capital redemption and interest payments to accrue, for a period of between eight to ten years. This approach thus allowed lower toll tariffs to be levied.

(ii) Public Private Partnerships

Another interesting development in 1986/87 was Government’s first attempt at introducing two Public Private Partnerships. Both projects had to be cancelled due to a successful appeal by opposition political parties on the basis that the toll road legislation did not allow PPPs and in particular did not allow the private sector to collect tolls for its own account. An expensive lesson.

In re-action to this the Roads Board developed a hybrid model to suite the legislation. This model requested the private sector to build and operate the road but not collect the tolls; the private sector had to tender a required cash flow and pay-back period for the construction and maintenance of the road. Thus government retained the revenue (traffic)
risk and guaranteed the private sector a cash flow stream. One such deal was closed in the mid 1990’s and it terminates in 2017.

The Period Mid-1990’s to Date

Four significant policy changes were introduced by Government during this period, (i) a revision to the LSR model, (ii) the re-introduction of Public Private Partnerships, (iii) the acceptance of Unsolicited PPP bids and (iv) the introduction of open road tolling.

(i) A change to LSR Model

During this period the loans from the National Road Fund (NRF) to the Toll Road Fund could no longer be sustained due to the increased financing requirements of the non-tolled roads that had to be funded from the NRF. This meant that toll roads had to be self-funding.

Accordingly, during the late 1990’s the LSR model was amended, requiring the Debt Service Cover Ratio to be greater than one (DSCR > 1) at the commencement of the toll operations period, as opposed to it being greater than one, eight to ten years into the project, as originally required.

Although this approach meant that higher tolls were required, this was mitigated by four factors.

(a) The Motorway Bonus Factor

During the mid-1990s studies were conducted to determine what value a road user attaches to the safety and convenience of travelling on an improved roadway. This benefit was termed the “Motorway Bonus”. It was determined that for light vehicles the Motorway Bonus increased the Perceived Benefit by 70% whereas for heavy vehicle operators it increased the Perceived Benefit by 30%. This indicates that people are prepared to pay a higher toll than originally assumed.

(b) Upgrading of portions of the road pre-tolling

It is important to realise that all roads cannot be tolled and that only those with reasonable traffic volumes (4 000 + vehicles per day, with 12% to 15% heavy vehicles) can be considered. As these roads carry relatively high traffic volumes, portions of the road are often upgraded prior to tolling. This capital injection leads to lower toll tariffs.

(c) Known traffic volumes

The traffic risk is greatly reduced as traffic volumes are established and known which leads to more accurate revenue forecasts and in turn lower project risk. This results in lower toll tariffs.

(d) The introduction of various discounts

The discounts applied are generally, frequency based, time of day and area based; in addition, a monthly usage cap was recently introduced on the Gauteng Freeway Improvement Project (GFIP) which is an urban all electronic tolling project.

(ii) The re-introduction of Public Private Partnerships (PPPs)
During the period 1998 to 2000 three 30 year PPPs, with the private sector taking the revenue risk, were established. These projects are running well and are successful. To date there has been no further PPPs awarded, primarily due to the lack of public and political support for Government policy.

In developing the PPPs SANRAL reviewed and adapted international best practice for local conditions e.g. with respect to legal and financial skills re PPP’s which were not available in SA at the time, international firms were requested to engage with local companies and in doing so transfer the necessary skills. This approach was highly successful.

(iii) Unsolicited PPP Bids

It was also during this time that SANRAL introduced an Unsolicited Bid Policy. Three proposals were received during the early 2000’s of which two were placed on open tender. The one was, however, cancelled by the Minister of Transport due to political pressure and the other is currently being challenged by opposition political parties in the courts.

Unfortunately, these developments have cast doubt on the future of Public Private Partnerships.

(iv) Open Road Tolling

In 2010 SANRAL embarked on the first urban open road tolling project, known as the Gauteng Freeway Improvement Project (GFIP). This entailed the upgrading of 185 kilometres of existing urban freeways. The collection of tolls was delayed for a number of years due to court cases by various resistance movements and political parties, and toll collection only commenced in December 2013. The future of the project remains uncertain as many users are still resisting payment.

Public Opinion

Generally there are five mechanisms that can be used to limit adverse public opinion to tolling:

(i) Alternative routes;
(ii) Major upgrades of the existing road;
(iii) Toll tariffs and discounts;
(iv) Alternative modes of transport;
(v) An informed public.

The best solution is derived when all of the above are applied.

(i) Alternative Routes

The availability of an alternative route of similar distance in a rural environment has been acceptable over the years, the main reason being that the additional travel time was not overly onerous. However, as the maintenance of alternative routes is being neglected there are calls to incorporate alternative routes into the toll road projects, to ensure sustainable maintenance.

In an urban environment alternative routes have a lesser degree of success due to congestion.
Major upgrades of existing roads

This often involved the dualling of an existing road, thereby improving the level of service, the building of interchanges and the introduction of route services. This method has had varied success, with rural toll roads being more successful than urban toll roads.

Toll Tariffs and Discounts

The tariff and discount structures were discussed in paragraph 4 above and it is important to disclose these early in the process.

Alternative modes of transport

With a sound alternative public transport system users have a choice. This alternative public transport systems has the benefit of reducing congestion on both the tolled network and the support road network. The key is to establish an integrated transport network, especially in the urban environment.

An informed public

The customer “demands”;

(a) To be informed;
(b) Value for money;
(c) A competitive advantage;
(d) Choices;
(e) To know the costs.

It could be argued that greater efforts should have been made by the toll industry to inform the public of the benefits of toll roads, from a financing and service viewpoint, and the limitations with respect to alternative forms of financing and infrastructure.

The greatest lesson of all times is the value of communication - people need to know! The public has a voice and if not heard will in all likelihood resort to civil disobedience.

Toll Collection Models

Since the inception of toll roads the operation and maintenance of the toll plazas have been outsourced to private toll road operators. The key services included toll collection and traffic management. The toll system was always supplied by others (system integrators) and procured by SANRAL under separate contract. This approach resulted in dual responsibility, with the parties involved often abdicating responsibility and thus the risk remained with SANRAL.

In 2000 this model was changed to a single point responsibility model whereby the operator assumed the entire operational risk, including that of the toll system. A further fundamental aspect of the new model is that the revenue due is guaranteed by the operator; the number of vehicles processed are independently verified by SANRAL and the revenue payable is based on the verified number. All SANRAL toll roads are operated in this manner.

The operating models applied by the three Concession Companies varies from, own operations to outsourced single point responsibility models.
Corporate Social Investment
Corporate Social Investment (CSI) and broad based black economic empowerment are initiatives that have attracted a great deal of attention since the advent of democracy in SA. The development and maintenance of roads provide for great opportunities to excel in these initiatives and the PPP’s have done excellent work in this arena.

General Matters

Toll Tariff Adjustments
Toll tariffs and the toll tariff adjustments are approved by the Minister of Transport. Toll tariff adjustments are linked to the consumer price index. Pre 1994 toll tariff adjustments were often used for political gain, and hence in some years never got adjusted.

In an attempt to remove political indiscretion from the required annual inflation linked tariff adjustments, SANRAL in 1994 established a principle whereby all toll tariffs are adjusted annually on the 1 March.

This principle was also written into the Concession Contracts; failure to introduce the annual tariff adjustment is a risk borne by Government. A risk which they had to make good (for the Concession Projects) in 2012, 2013 and 2014 as the Minister of Transport delayed the implementation of the annual adjustments.

Government Funding Guarantees
The Government does not guarantee equity funding in the case of the Concessionaires; however, guarantees have been provided to SANRAL and the Concessionaires re Senior Debt (Bonds) on a selective basis.

Light and Heavy Vehicle tariff ratios
This was an interesting change that occurred over time. Initially the light to heavy vehicle tariff ratio was in the order of 1:2. Thus a heavy vehicle paid twice that of a light vehicle, a principle that could not be defended based on how the tariffs were calculated (Refer to 4 above). The main reason for this was that when toll roads were introduced, the South African Roads Board who determined the tariffs had two heavy vehicle operators represented on the Board and always argued against higher heavy vehicle tariffs; however, the ratio is now in the order of 1:4.

Conclusion
From the overview, it will be apparent that despite the difficulties, tolling has on balance been successful in South Africa. The challenge is to get the public to support the strategy and to overcome the current negative political environment. The industry believes there is no realistic alternative if SA is going to continue to have one of the best national road infrastructure systems in the world.

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References: A Future for Roads in South Africa: May 1996 - Department of Transport