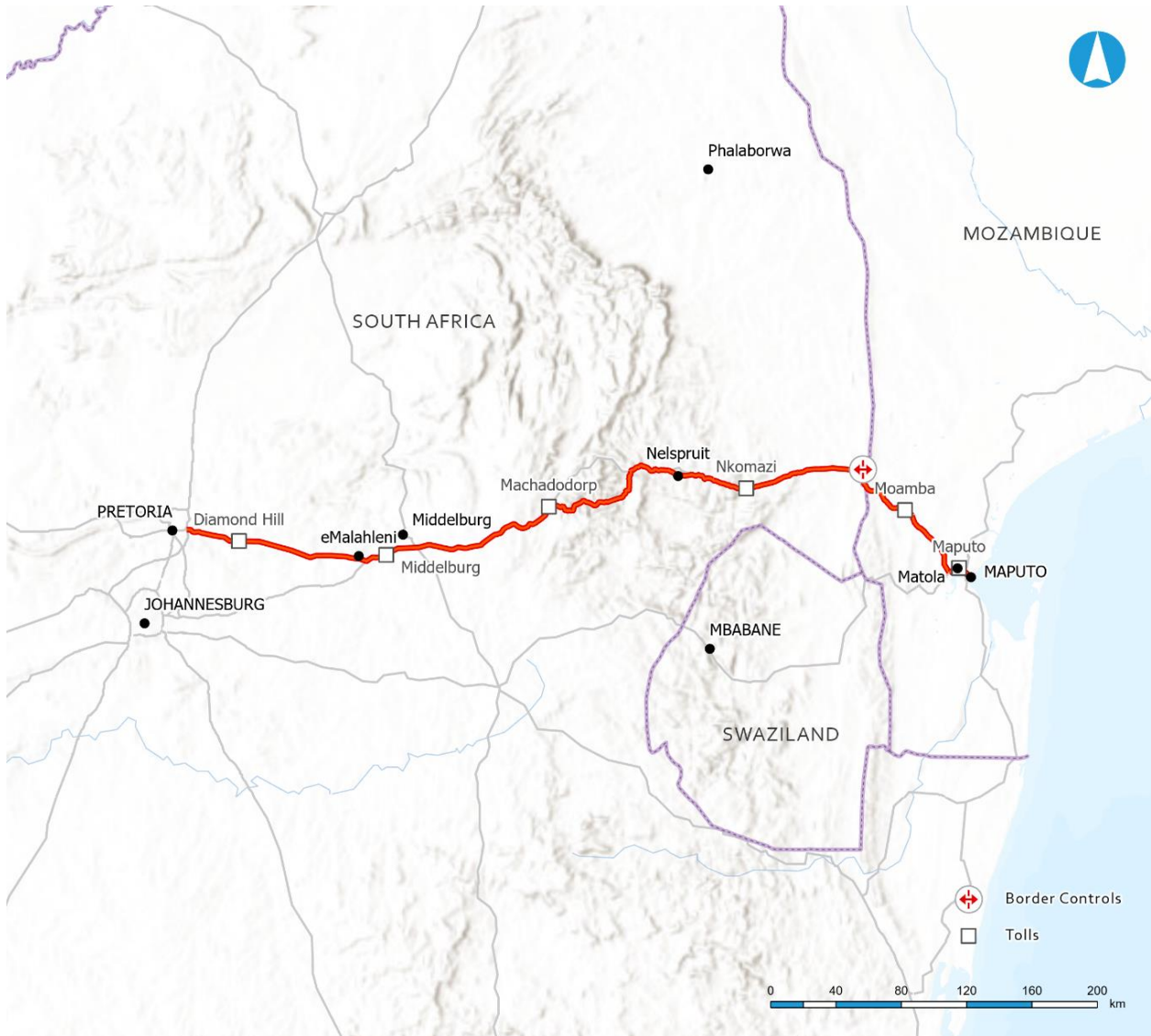


N4 Toll Route (South Africa – Mozambique)



Source: Ramboll

Location	Pretoria, South Africa – Maputo, Mozambique
Sector	Transportation & Logistics
Procuring Authorities	Government of the Republic of South Africa, Government of Mozambique
Project Company	Trans African Concessions Pty Ltd. (TRAC)
Contract Obligations	Design, Build/Rehabilitate, Finance, Maintain, Operate and Transfer
Financial Closure Year	1997
Capital Value	ZAR 3 billion (USD 660 million – 1997 value)
Start of Operations	August 2000
Contract Period (years)	30
Key Facts	No governmental subsidies, 100% Project Finance

Project highlights

The N4 Toll Route is a brownfield toll road concession of 630 km running from Pretoria, South Africa's administrative capital, to Maputo, the capital of Mozambique and a deep-sea port on the Indian Ocean. The project was structured as a Public-Private Partnership (PPP) between the governments of South Africa and Mozambique and a private consortium for a 30-year period. It was the first cross-border transport PPP project in Sub-Saharan Africa and the first brownfield PPP in South Africa of this scale.

The N4 is one of the most important trade routes in the region, running across South Africa from Botswana to Mozambique. It runs through some of the most industrialised areas in South Africa, including processing, mining and smelting industries located in the cities of Johannesburg and Pretoria. Moreover, the western section of the N4 forms part of the Trans-Kalahari Corridor, a road network spanning approximately 1,900 kilometres (km) across South Africa, Botswana and Namibia. The corridor starts in Pretoria and goes to the Port of Walvis Bay on the Atlantic Ocean in Namibia.

The rehabilitation of the N4 was the key project of the Maputo Development Corridor (MDC) program. The purpose of the programme was to stimulate and facilitate trade and investment in three key economic regions – Gauteng and Mpumalanga (South Africa) and Maputo (Mozambique) – and connect them to the Port of Maputo.

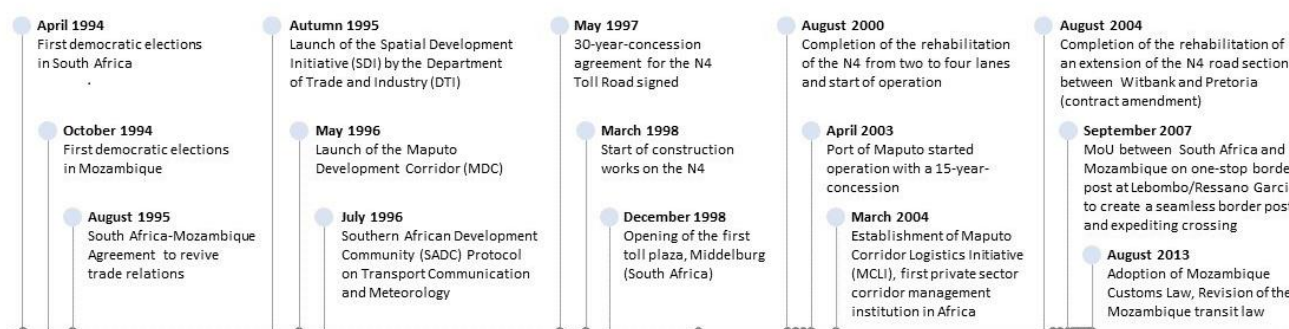
The MDC was also incorporated under a broader Spatial Development Initiative (SDI) between the Governments of South Africa and Mozambique implemented in 1995. The SDI was a short-term investment strategy aiming to unlock inherent economic potential in specific spatial locations in Southern Africa. The SDI policy used public resources to leverage private investments in regions with a high potential for economic growth.

The N4 Toll Route contract with the private consortium Trans African Concessions (TRAC) was based on a Build-Operate-Transfer (BOT) model with a capital value of ZAR 3 billion (USD 660 million, 1997 value). The project was financed through 20% equity and 80% debt finance negotiated by the concessionaire. TRAC assumed full traffic and demand risk. Revenue generated through the collection of tolls must fully cover operational expenditure and debt obligations, but both governments jointly agreed to guarantee the debt finance.

The rehabilitation and tolling of the N4 is considered a major success and demonstrates the power of political cooperation between neighbouring countries and the benefits of a PPP in the right context. The N4 is still the only cross-border toll concession ever completed in Sub-Saharan Africa.

This case study was drafted based primarily on inputs received from literature review and interviews with representatives from Macquarie Group South Africa and Trans African Concessions (TRAC).

Timeline¹



Development

The policy and planning setting

The political situation of both South Africa and Mozambique in the mid-1990s (post-apartheid) were characterised by years of unfavourable political conditions leading to the decay of the Maputo Corridor. This key transport route connected South Africa's industrial heartland to the deep-sea Port of Maputo. The corridor was an integral part of the Southern African transport network, and a prime route for landlocked South African provinces to access the ocean.

South Africa faced significant challenges of reducing road infrastructure backlogs and Mozambique faced severe infrastructural problems as a result of the Civil War which had raged from 1977 to 1992. Neither country was able to provide the immense financial resources to invest in the failing infrastructure, but each wanted to foster more vital transport and trade links.

The value of political stability in the region was first noted after both post-apartheid South Africa and post-civil war Mozambique held their first democratic elections in 1994 (the Heads of State at the time were Presidents Nelson Mandela and Joaquim Alberto Chissano). The stability allowed the South African Development Community (SADC)² and the Government of South Africa to promote new initiatives focusing on economic development, trade and regionalisation and with the specific objective of (re-)establishing the development axis between Tshwane (then Pretoria) in Gauteng and the Port of Maputo.

In 1995, the Governments of Mozambique and South Africa established a new cooperation framework agreement and the Spatial Development Initiative (SDI) strategy. South Africa was the key driver for the SDI and had a strong economic interest in the development of its neighbour, Mozambique; the economic strength of both countries was very unbalanced. In 1997, Mozambique's GDP was USD 2 billion, compared to USD 130 billion in South Africa.

The official purpose of the SDI was to promote regional development and macro-regional economic integration (due to an unequal pattern of spatial development during Apartheid) and to re-establish trade and investment ties to rebuild the two economies by creating globally competitive spatial entities, new

¹ SSATP (2014). Available at <http://documents.worldbank.org/curated/en/419461468202146203/Reviving-trade-routes-evidence-from-the-Maputo-corridor>

² SADC has 16 Member States, namely; Angola, Botswana, Comoros, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.

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investment, infrastructural development and job creation.³ For this purpose, an SDI Unit was created within the Development Bank of South Africa (DBSA).

One crucial component of the SDI was to involve the private sector in the process because both governments faced financial constraints and were not able to finance this critical infrastructure without private sector participation. According to SDI paradigm, "the SDI aim to facilitate the creation of viable new jobs, as potential investment opportunities, identified through the process, are taken up by the private sector." Therefore, Partnerships Private Partnerships (PPP) became an integral part of the SDI policy.

Thus, DBSA provided funds to support rebuilding transport infrastructure that had been destroyed or neglected during the apartheid era. As part of this, approximately USD 8 billion was allocated to the Maputo Development Corridor (MDC), under the first SDI between the Governments of South Africa and Mozambique, which was launched officially in May 1996.⁴

The MDC comprises five integral components:⁵

- Rehabilitation of the N4 through a toll road concession
- Rehabilitation and dredging of the Port of Maputo (15 years BOT concession since 2003, extended to 2033)
- Establishment of an autonomous company to manage, operate and maintain the southern Mozambique rail network (Maputo Corridor Railway)
- One-stop border post at Ressano Garcia (Mozambique)/Komatipoort (South Africa), and
- further industrial investment projects such as Mozambique Aluminium Smelter (Mozal), Maputo Iron and Steel project, and the Pande-Temane Natural Gas Pipeline.

Because the MDC, and particularly the rehabilitation of the N4, was primarily seen as a transport initiative, the early development of the project as a PPP was led by the South African Department of Transport (DOT).

Challenges and opportunities addressed by the project

There were several objectives associated with the project, including to:

- foster trade between South Africa and Mozambique to broaden economic activity, empowerment and development of communities within both countries,
- facilitate regional and global trade through direct access to the Port of Maputo,
- foster regional integration,
- balance regional disparities,
- reduce the transport cost by improving the efficiency of roads,
- further develop exporting industries in the region.

The N4 Toll Route has facilitated the development of other infrastructure projects in the Maputo Development Corridor, such as the Maputo Port and the establishment of the Mozal aluminium smelter.

Perceived long-term benefits

Delivery of the N4 Toll Route under the SDI has developed the N4 into a major component of South Africa's connection with the global marketplace due to it being the shortest link to an export port for its

³ Taylor (2000). Available at: http://www.dpru.uct.ac.za/sites/default/files/image_tool/images/36/DPRU%20WP00-044.pdf

⁴ Söderbaum (2012). Available at: <https://www.routledgehandbooks.com/doi/10.4324/9781315613499.ch3>

⁵ UNSSOC (2012). Available at: https://www.esc-pau.fr/ppp/documents/featured_projects/south_africa_and_mozambique.pdf

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industrial land-locked region of Gauteng. The N4 also allows hundreds of thousands of Mozambicans the possibility to access work and opportunities in South Africa.

The project has also facilitated the development of communities situated along the route. Specific contractual conditions included the obligation for TRAC to sub-contract 20% of the work to historically disadvantaged communities in South Africa and 40% to those in Mozambique. Approximately 5,700 jobs were created during the initial phase, with construction workers receiving training on the job. In total about 12,000 casual, temporary and permanent jobs have been created by the project.⁶

TRAC also developed three training centres along the route as a part of the company's integrated community participation program. Over 20,000 members of the local communities were trained through various programs, including literacy and HIV awareness.

Procuring and Financing

Procurement process

The Public-Private Partnership process required a private sector partner to enter a contractual agreement with the two governments. A competitive bidding process was used to engage various consortia to select the private operator. The fast-track approach for quickening the pace of implementation allowed the N4 project to move from the Requests for Proposal stage to the selection of bidders in eight months, starting in March 1996. There was no request for expressions of interest; DoT prequalified five potential bidders and invited them to submit initial bids.

In July 1996, the South African Department of Transport (DoT) and the Department of Roads and Bridges (DNEP) in Mozambique entered into a Protocol Agreement to establish an Implementing Authority for the preparation of the concession contract documents and to initiate the tender process. The idea was to have one government counterpart for the private operator, to simplify and streamline contract negotiations, construction oversight, and progress reporting.

DoT also created the South African National Road Agency Limited (SANRAL) and the Mozambican DNEP created the Administração Nacional de Estradas (ANE), which serve as the government authorities providing management of the N4.

In October 1996, the private consortium Trans African Concessions (TRAC) was named the preferred bidder. In May 1997, the concession agreement was signed by TRAC and the Governments of South Africa and Mozambique, represented by their respective national roads' agencies, SANRAL and ANE.

By December 1997, TRAC reached financial close and had raised the capital expenditure required for the construction phase with a total R 1.5 billion (about USD 330 million, 1997 value). In March 1998 the construction work started. The whole process from tender invitations to financial close was concluded between March 1996 and June 1998; it was unusually fast for a project of this scale.

Contractual Model

As mentioned above, the BOT concession for the N4 was signed in May 1997 by Trans African Concessions (TRAC), a privately-owned company which was established in 1997. TRAC was created as a special purpose vehicle (SPV) by Bouygues Group and two South African construction companies Basil Read and Stocks & Stocks. By signing the concession agreement, TRAC agreed to design, construct, rehabilitate

⁶ Rogerson (2001).

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and finance the government-owned road assets in exchange for the right to operate it for 30 years. The contract stipulates that TRAC has the right to charge and collect tolls from users of the N4. Tolls paid on the N4 are used to operate, maintain and expand the road. The roles and obligations of the various parties involved in the concession agreement are clearly defined in the contract. It differs from conventional contracts in that it primarily makes use of performance specifications⁷ (rather than design specifications) for pavement quality.

Once the concession period expires in 2028, control and management of all assets covered by the concession will be returned to the two governments under a hand back plan, which is contractually determined. The hand back plan requires TRAC to return the road in a condition that meets prescribed engineering standards with a certain remaining design life. The road condition will be evaluated based upon inspections over the last three years of the concession period.⁸

Additionally, important to the SDI strategy, bids were required to include socio-economic benefits to enable the empowerment of communities along the N4 through social and entrepreneurial development, employment generation, job training and skills transfer, especially in construction works.⁹ Examples of how TRAC included these benefits are described in the *Development* section.

Infrastructure financing

The concession value for the N4 was estimated to be worth approximately R 3 billion (about USD 660 million, 1997 value) with a total of R 1.5 billion (about USD 330 million, 1997 value) allocated for the initial 3.5 years construction phase required to be negotiated at financial close. The private consortium entirely financed the project. The financing plan consisted of a combination of 20% equity finance by the private consortium and 80% debt finance from primarily South African banks. A breakdown of the initial financing structure at financial close is provided in Table 1. The project was implemented without government subsidies however the two governments have provided support through jointly guaranteeing the debt in case of TRAC's inability to service the loan.¹⁰

This structure has been made possible by a balanced risk allocation:

Risk Mitigation

- Demand risk and traffic volume: Through assuming full traffic risk TRAC faced demand and user-payment risk in Mozambique. Traffic volumes in Mozambique were not as high as forecast and disadvantaged communities were unable and unwilling to pay high toll fees. To mitigate this risk, TRAC cross-subsidised the Mozambican part of the road with higher revenues from more affluent South African users. It also provided substantial discounts to local users and public transport services on both sides of the border. On the other hand, the road facilitated further private sector investment in Mozambique, which in turn raised traffic volumes.
- Financial risk/currency risk: Due to the cross-border nature of the project with two different currencies (the South African Rand and the Mozambican Metical), the project faces currency risk. The project's debt has been structured in Rand, and the revenues are granted in Rand and Mozambican Metical. Due to this fact, TRAC has to handle currency fluctuations. Consequently,

⁷ See Reference Guide for Output Specifications (2019). Available at: <https://www.qihub.org/infrastructure-output-specifications/>

⁸ UNDP (2012). Available at: https://www.esc-pau.fr/ppp/documents/featured_projects/south_africa_and_mozambique.pdf

⁹ World Bank Group (2014). Available at <http://documents.worldbank.org/curated/en/306311468027639111/Building-integrated-markets-within-the-East-African-Community-EAC-opportunities-in-Public-Private-Partnership-PPP-approaches-to-the-regions-infrastructure-needs>

¹⁰ ibid

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the depreciation of the Metical against the Rand with its substantial fluctuations has led to significant toll increases in Mozambique (up to 25%) in 2006 and (up to 40%) in 2016.

- Refinancing: Due to a positive track record, established traffic volumes and stable market conditions, TRAC was able to refinance the project in 2006. This reduced TRAC's financial risk, because the funds were used to refinance existing debt on more attractive terms and also allowed the concessionaire to begin expansion work earlier than anticipated. It was the largest refinancing of an infrastructure project ever in South Africa.¹¹

¹¹ African Infrastructure Investment Managers (AIIM). Available at: <https://aiimafrika.com/>

Table 1. TRAC initial financing structure (1997)

TRAC's Initial Financing Structure		Value
Equity (20%)		R 331 million (USD 73 million, 1997 value)
Sponsors (construction companies) Bouygues (France) Basil Read (South Africa) Stocks & Stocks (South Africa)	40% owner of TRAC 100% owner of SBB (contractor consortium for design and construction)	R 132 million (USD 29 million, 1997 value)
Non-sponsor equity 60% South African Infrastructure Fund (SAIF) (SA) Rand Merchant Bank (SA) Commonwealth Development Corporation (CDC Group) (UK) South African Mutual Life Assurance Society (SA) Momentum Metropolitan Life Limited (SA) Sanlam Asset Management (SA) SCDM (Moz)		R 199 million (USD 44 million, 1997 value)
Debt (80%)		R 1.324 billion (USD 292 million, 1997 value)
*excluding other equity investor who also provided debt ABSA Corporate and Merchant Bank (SA) Development Bank of Southern Africa (SA) First National Bank (SA) Mine Employees' Pension funds (SA) Nedcor Bank/Netbank since 2005 (SA) Standard Corporate and Merchant Bank (SA) Loan maturities between 15–20 years		
Total financing initial capital cost		R 1.665 billion (USD 365 million, 1997 value)

Source: Adapted from South African National Treasury (2001), USD Figures rounded

Management

Political and operational coordination

The project set-up and the contracting structure are illustrated in Figure 1.

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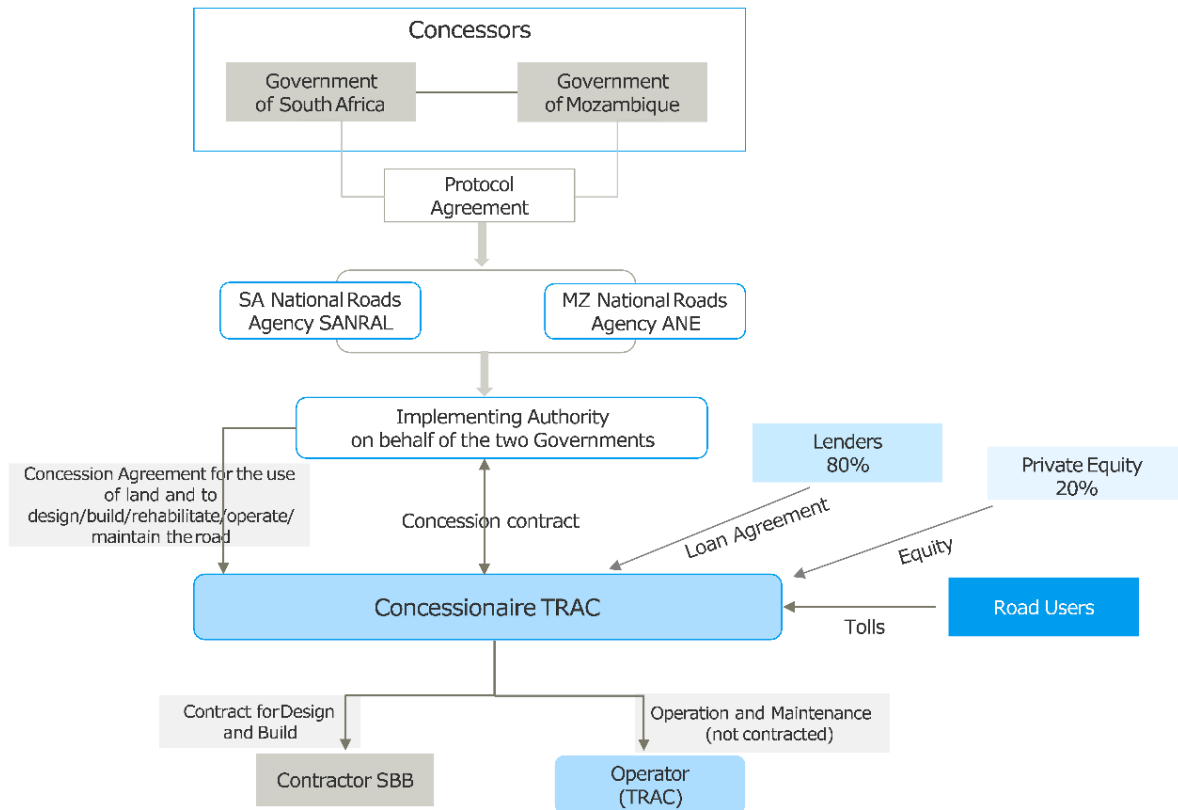


Figure 1: Overview of the N4 toll road concession structure, source: Ramboll, adopted from SSATP (2014)

The three construction companies Bouygues, Basil Read and Stocks & Stocks played a leading role in the concession structure. By the time the concession agreement was signed in May 1997, TRAC was 40% owned by these three companies. TRAC hired SBB consortium to undertake design and construction works, 100% owned by Bouygues, Basil Read and Stocks & Stocks (joint venture). TRAC took responsibilities of the operator to handle the operations and maintenance work itself. Labour and sub-contractors were sourced from both South Africa and Mozambique.¹²

Tariffs:

According to the concession agreement, the tariffs are set jointly by SANRAL, ANE and the concessionaire and can only be increased annually in line with the Consumer Prices Index (CPI). Tariff increases cannot, therefore, compensate losses due to a decline in transport volume or increases in building materials or construction prices. SANRAL and ANE manage the expenditure and assure the proper use of funds.

The type of vehicle being driven determines toll prices on the N4. There are four categories of vehicles listed for the purpose of toll pricing:

1. Light Vehicles (no heavy axles),
2. Medium Heavy Vehicles (at least one heavy axle),
3. Large Heavy Vehicles (three to four axles).

¹² SSATP 82014). Available at <http://documents.worldbank.org/curated/en/419461468202146203/Reviving-trade-routes-evidence-from-the-Maputo-corridor>

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The tolls are collected at six main toll plazas and four ramp plazas. Two toll plazas are located in Mozambique, the rest are in South Africa.

The concession was initially based on 0.20 Rand per km for a light vehicle and 0.50 Rand/ km for heavy vehicles. Toll increases varied between South Africa and Mozambique, due to the exchange rate fluctuation between the South African Rand and the Mozambique Metical.¹³

The toll road (electronic tolling effective from 2012) is supplied by a high-quality monitoring system, as well as an effective load control system in place to prevent overloaded vehicles accelerating deterioration of the road. There are also set of six traffic-control centres, each equipped with a scale capable of weighing long trucks in one operation. Three mobile units can be dispatched to any of eleven lay-bys situated on alternative routes surrounding the N4 as well as a network of measuring Weigh-in-motion devices (WIM) on the road.¹⁴

Public Perception:

An integral part of SDI projects was the fast-track approach allowed by DoT for quicker implementation resulting in the preclusion of serious engagement of stakeholders outside of the financial sector. The speed with which the transaction was driven also resulted in bids being requested before Mozambique even had a legal framework in place for toll roads. Furthermore, bids were requested before the Implementing Authority was established. SADC also had no real role to play.¹⁵

Most South African and Mozambican local officials were not consulted about many details of the project, including the toll tariff framework. The lack of participation of provincial and local government communities led to limited communication about the project which resulted in opposition of tolls. Local companies complained about negative impacts on their business and local residents complained that placing tolls on the N4 would separate them from schools, jobs and shopping opportunities. On the Mozambican side, the lack of participation in the project's structuring phase led to very little compensation during the land acquisition and a lack of job creation led to resistance from the affected people and other interested groups.¹⁶

As a result, the concessionaire to agree to reduce tariffs for regular users and to begin providing services, such as 24 hour-road patrols to assist motorists, to justify the cost to local commuters. The South African Government has continually shown strong support for the toll road and attempted to appease residents adversely affected by the project. It was criticised that user fees increase the burden for the poor and disadvantaged, especially in Mozambique, leading to an elaborate scheme of cross-subsidisation from South African to Mozambican user fees with the provision of discounts to commuters and residents. To further convince road users and justify the reason for toll increments, efficient services are delivered including a 24-hour helpline and constant security patrol on the road.¹⁷

Another barrier was the delay of the rehabilitation of the Maputo port, which only started operating in 2003. This had a negative impact on the traffic flow on the N4, with enormous implications for the short-term financial success of the project. However, traffic demand steadily increased over the years, showing an acceptance of this PPP.

Harmonisation of rules, standards and procedures

The implementation of safety standards and the development of a one-stop border post improved the efficiency of the N4. Innovative technologies, such as the implementation of a load control mechanism

¹³ UNDP (2012). Available at: <https://www.readkong.com/page/south-africa-and-mozambique-the-n4-toll-road-4175946>

¹⁴ ibid

¹⁵ World Bank Group (2014).

¹⁶ Söderbaum (2012). Available at: <https://www.routledgehandbooks.com/doi/10.4324/9781315613499.ch3>

¹⁷ Ibid.

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and satellite tracking system, an electronic (automatic) tolling system and the Cross-Border Road Safety Management, led to significantly increased road safety.

- One-stop border post: To facilitate easy access and the flow of goods and people between South Africa and Mozambique, a single border facility has been developed at Komatipoort/Ressano Garcia. This facility reduces cross-border bottlenecks by providing a one-stop border control procedure. There is also an additional custom facility on the Mozambican side speed customs clearing, limit paperwork, improve security control, and in general facilitate trade and optimize the Maputo Corridor's freight transportation capacity. The project has been spearheaded by the Mozambique Customs Department which reports to the Minister of Finance.¹⁸
- Load control: In order to prevent rapid road deterioration, TRAC assisted the two governments in establishing axle load control measures. In 2002 Load Control Centres (LCC) were established. In 2007 SANRAL and TRAC implemented further advanced load control measures at the Traffic Control Centres (TCC) to screen heavy vehicles and satellite tracking Weigh-in-motion devices (WIM) on the road.

Electronic tolling system: The tolling system exists in both countries, and its rules are harmonised between the two countries.¹⁹ In 2012, the High Court and Constitutional Courts (highest in South Africa on constitutional matters) endorsed SANRAL's approach to implement e-tolling on Gauteng freeways despite intense public agitations and protests against introduction. Furthermore, camera systems were installed at toll booths to prevent corruption, which increased customer satisfaction.

- Road Safety Management system TIDS (Traffic Incident Data System): TRAC was instrumental in the development of the system, which has now been adopted by other toll concessions in Europe.

¹⁸ UNDP 2012

¹⁹ The main Mozambican legislation governing private toll roads is Decree No 31/86 July 16.

Conclusions

- **Public benefits** – project benefits must be clearly identified and quantified for all parties. The project has not only benefited the two countries but has also fostered trades among other neighbouring countries such as Namibia and Botswana. The road has also facilitated further private sector investment in transport infrastructure.
- **Public perception** – As with any toll road, where the project company is collecting revenues directly from the user, stakeholder participation is essential. In the case of the N4 Toll Route, it was difficult to persuade the local people to pay tolls for an existing road. The fast-track approach as an integral part of the SDI policy which allowed the N4 project to move from the Requests for Proposal stage to the selection of bidders in eight months, ignored serious engagement with stakeholders outside of the financial sector. That led to rising opposition against the toll road. Efficient and in-depth stakeholder management is crucial for the success of a PPP. Extensive communication activities should be effectively targeted at stakeholders to increase project visibility and community awareness.
- **Socio-economic development and knowledge transfer:** The project fostered regional integration and balanced historically regional disparities. With specific contractual conditions, the concessionaire was obliged to subcontract a share of local small companies in both countries, including training on the job for the construction workers. Also, an integrated community participation program was obliged to train the local communities on various programs, including literacy and HIV awareness (20,000 residents were trained).
- **Contract provisions** – A detailed contract that focuses on performance (not design) specifications and outlines specific responsibilities that helped the parties to avoid conflict.
- **Risk assessment and burden of risks** – Identifying risk early and allocating it fairly will help ensure the viability of the project. For the N4 Toll Route the financial and demand risk were fully allocated to the concessionaire.
 - **Financial risk:** Project was implemented without government subsidies, but the two governments jointly guaranteed the project debts.
 - **User payment risk:** User pay principle was perceived to be unconstitutional (especially in Mozambique); tolls were introduced for the first time in Mozambique. Cross-subsidisation and substantial discounts for regular Mozambican users helped to reduce the user payment risk. The road facilitated further private sector investment in less-favoured areas (especially Mozambique), which in turn raised traffic volumes.
 - The N4 strongly benefited due to the fact, that the South African portion of the road accounted for more than 80% of the total project length, was already a functioned, established road, so revenues could be generated quickly.
- **Strong governance mechanism**
 - The N4 Toll Route is indeed a cross-border project, but much of the speed with which it was implemented is attributable to the fact that it was developed and managed in style of a single, national project, heavily driven by the South African DoT. Nevertheless, the project is considered a significant success and demonstrates the power of political cooperation between neighbouring countries and the benefits of a PPP. The N4 is still the only cross-border toll concession ever completed in Sub-Saharan-Africa.
 - Strong government commitment, support and regulatory framework, and policy actions developed for the N4 project were effective in accelerating delivery of the project.
- **Multi-sector approach** – The project demonstrates a political will for economic cooperation between neighbouring countries South Africa and Mozambique. It was developed in taking a regional, multi-sector approach to transport.

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