

Transport

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Substantial progress has been made towards the JPOI targets in the development of policies, strategies and programmes for the transport sector in South Africa. Transport delivery projects currently underway are comprehensive and address all areas of transportation needs to various levels of detail. Priority areas of intervention include: public transport infrastructure and service delivery; road expansion projects to deliver improved capacity and reduce congestion; and non-motorised transport programmes, rural roads and infrastructure development.

To a large extent the 2010 FIFA World Cup has presented a significant stimulus to the transport sector and service delivery especially with respect to public transport projects. As a result South Africa is witnessing the most significant infrastructure construction and expenditure programme since the early 1980s. However, the public transport focus remains largely on the urban area and substantial work is still required to improve rural access and mobility.

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South Africa's sustainable development vision for transport

Sustainable transport vision for South Africa is underpinned by the social, economical and environmental pillars of sustainable development. It aims to provide an integrated, well-managed, viable and sustainable transport infrastructure meeting national and regional goals into the 21st century, in order to establish a coherent base to promote accessibility and the safe, affordable, reliable movement of people, goods and services.

Transport infrastructure in South Africa will serve as a hub for transport in Southern Africa, promote economic development by removing constraints on latent demand in development corridors, encourage public passenger transport, allow for seamless intermodalism and be structured to ensure environmental sustainability and achievement of international accepted standards.

Source: Drawn from White Paper for Transport Policy

Thematic context

Transport systems form the backbone of South Africa's socio-economic activities by enabling the movement of people and products. Apartheid planning has left a legacy of poorly integrated transport networks, and the majority of citizens live far from places of work. Many people still do not have access to an existing and extensive formal railway and road infrastructure, and live in areas where there is no reliable transport.

South Africa has about 750 000km of roads and approximately 7.2 million licensed South African drivers on the roads. Roads are the principal means of transporting commuters and freight, including minerals. The limit for heavy goods vehicles is substantially higher than around the world. South Africa has the 10th longest rail network in the world and connects with many networks in the sub-Saharan region. Large parts of the network are underutilised with 42% considered as light density (non-core network) and approximately 15% of the network providing no service or decommissioned, closed or leased lines. Even though rail is cheaper, there has over the past thirty years been a substantial reduction in rail freight in favour of road freight. Rural and peri-urban communities have limited access to the rail network. The country has 20 airports of national importance of which 10 are classified as international airports. Africa's busiest airport, O. R. Tambo, has about 9 million departing passengers a year. More than fifty airlines, making around 280 000 aircraft landings and carrying about 33 million passengers a year, move through South Africa's principal airports. South Africa has approximately 4.4million arriving international air passengers a year with less than 1% of total passenger air movement from local and private airfields. However, airports handle less than 1% of the annual national and international freight. There are 18 ports including 8 multi-purpose commercial ports including purpose-built ports for coal and iron ore export. Maritime transport is of significance to South Africa with respect to freight transport but South Africa has no navigable inland water ways. It is estimated that 90 percent of all SADC trade passes through South African ports.

Petroleum products and gas are transported via a pipeline network transporting approximately 17 billion litres of petroleum products per year and 14 million gigajoules of gas, representing 50% of South Africa's consumption. Pipelines servicing the inland regions are old and run at full capacity, and are thus unable to meet the inland demand for liquid fuel, which is also being transported by rail and road. Several new pipeline projects are underway or in the planning stages. South Africa also has an extensive network of pipelines which supply water for agricultural, domestic and industrial uses.

The South African public transport system comprises state-sponsored public bus and rail commuter services. This is supplemented by privately run minibus taxis. Minibus taxis account for 65% of 'public' transport with buses at 20% and rail 15%. Since the 1970's, the majority of commuters switched from the bus and rail modes to minibus taxis given their ease of access and coverage. Given that subsidies apply to state rail and bus services, these travellers (many of whom are poor) do not experience the benefit. Further, the loosely-regulated minibus taxi

industry often relies on poorly maintained, un-roadworthy vehicles and poorly trained drivers. The bulk of relatively affluent commuters rely on private cars for their transport.

JPOI targets

The transport targets 7 (i); 20 (b); 21 (a; b); 35; 47 (c) and 62 (l) outlined in the JPOI can be summarized as follows:

- Build basic rural infrastructure and improve transportation and access to markets, market information and credit for the rural poor for sustainable development;
- Integrate energy considerations, including energy efficiency, affordability and accessibility, into socio-economic programmes;
- Promote an integrated approach to policy-making at the national, regional and local levels for transport services and systems to promote sustainable development;
- Implement transport strategies for sustainable development to improve the affordability and efficiency of transportation, for improved air quality and health;
- Promote investment and partnerships for the development of sustainable energy efficient multi-modal transportation systems;
- Protecting and managing the natural resource base of economic and social development;
- Encourage governments to improve measures and internationally agreed regulations regarding safety, relevant to international maritime transportation and other transboundary movement of radioactive material;
- Enhance the capacities of developing countries to benefit from liberalized trade opportunities;
- Support African efforts to develop affordable transport systems and infrastructure that promote sustainable development and connectivity in Africa.

Progress

Participation in international processes

South Africa is Party to a number of multilateral treaties, conventions and declarations relevant to transport. The African Civil Aviation Commission provides for coordination and cooperation of civil aviation authorities of member states. Maritime agreements include the African Maritime Transport Charter which seeks to harmonise shipping policies, a Trilateral Agreement, as well as ratification of Annexes from the International Convention for the Prevention of Pollution from Ships. There is reported inadequacy of South Africa's port waste reception facilities (PRF) and the requirement for ships to pay the fees for use of these PRFs. DEA has recommended that the

“no-special-fee” system should be introduced in all South African ports, and that this be actively promoted as a standard international requirement.

Within the sub-region, SADC has a Protocol on Transport, Communication and Meteorology to achieve economic growth and development, and trade facilitation via strategic transport corridors which ensure regional connectivity.

Developments in policy framework

There are numerous acts, policies, discussion papers, plans, and reviews that impact on the transport system. JPOI Target 21 focuses on the implementation of an integrated policy making approach for transport services and systems. Policy and guidelines that have been developed on transport at varying levels includes the White Paper on National Transport Planning which contributed towards the integration of transport planning and preceded the enactment of legislation dealing with land transport and allocation of functions within government. Strategic frameworks embody the overarching plans and foundation for land transport and infrastructure. Aspects include: road maintenance and improvements; efficient coordination and service delivery; funding sustainability and labour intensive skills development and job creation. The Draft National Non-Motorised Transport (NMT) Policy outlines the Department of Transport (DoT) objectives for mainstreaming this mode of transport at the provincial and local level. Provinces and municipalities are required to produce integrated five year transport plans.

Actions in response to international and local policy

This section presents some of the key actions that have been undertaken in response to international and local policy aimed at strengthening transport for sustainable development.

Transport Planning

Government endorsed the decision to prepare the *National Transport Master Plan 2050* (NATMAP) which spans from 2005 to 2050. NATMAP responds to JPOI Target 21 in that it facilitates sustainable socio-economic growth and integrated development planning at a macro project scale. NATMAP provides a framework for multimodal transportation systems implementation and monitoring. Key projects that fall under the NATMAP include Gautrain, 2010 FIFA World Cup infrastructure construction programme, Taxi Recapitalisation and the Freight Databank. Planned enhancements to the core network are envisaged which will improve efficiency of the rail network and reduce pressure on the road network.

Rural transport delivery

Rural South Africa is characterised by poor infrastructure, large distances, dispersed demand and low incomes. The Rural Transport Strategy for South Africa (RTSSA) highlights the plight of the rural poor and the need for transport infrastructure and services to catalyse access to social services and poverty alleviation. The strategy promotes coordinated rural nodal and linkage development, and outlines the need for demand-responsive and sustainable rural transport. The RTSSA moves beyond roads and explores sustainable and innovative interventions to address

rural access and mobility. The Department of Transport (DoT) has initiated pilot demonstration projects including the National Freight Logistics Strategy in response to the failure of the freight system, and to target the second economy which is largely rural. The Expanded Public Works Programme (EPWP) is a government initiative focussed on reducing unemployment and enhancing skills development. The focus of the programme has largely been on road construction, thus providing new roads in many rural areas.

Energy efficient and accessible modes of transport

The NMT has highlighted the bicycle as a low-cost and sustainable form of transport via the Shova Kalula Programme. The focus of this programme is on young people and those walking long distances. Rural areas, townships and medium sized cities have been identified as starting points for use of bicycles. At present South Africa is targeting some 800 000 primary and secondary school children that walk more than 3km per day and an estimated 573000 and 472000 urban and rural workers currently walking more than 20 minutes to work each day. Implementation of the subsidy policy pertaining to the programme has proved to be a challenge.

Public commuter transport

The Public Transport Strategy for South Africa aims to radically accelerate the improvement in public transport through modal upgrading and establishment of Integrated Rapid Public Transport Networks (IRPTN) via Priority Rail Corridors and Bus Rapid Transit (BRT) in metropolitan areas. The action plan focuses on incremental implementation of passenger transportation services and fast tracks implementation in the 2010 FIFA World Cup cities. Passenger rail is prioritised to assist with achieving integrated planning. The majority of cities have chosen a Bus Rapid Transit (BRT) system, proven in developing countries worldwide to be the most cost effective and flexible mass mover. This is aimed at achieving congestion and improving the quality of public transport.

Improvements in transport infrastructure

Significant strides have been taken recently in the improvement of urban transport infrastructure. The National Overload Control Strategy (NOCS) is enabling the prevention of overloading through strategically placed weighbridges and the extension of liability for overloading. The economic hub of South Africa is Gauteng where the Gauteng Freeway Improvement Project (GFIP) is intended to address congestion and time spent in traffic. Rail is being used as an alternative for long distance passenger and tourist transport which alleviates road congestion during peak periods. Further, a five-year capital expenditure programme for airports is being rolled out to accommodate new generation aircraft and growing passenger numbers.

In order to improve capacity and efficiency of South Africa's ports, Transnet has initiated a capital investment programme. It is anticipated that improvements including the deepening of Durban harbour and new cranes at Cape Town will address congestion from the inefficiency of the rail system. A deepwater port complex has recently been commissioned for Coega. The industrial development zone is already well-served by transportation networks, a skilled labour

force and utility services, including inter-modal transportation linkages and cost-effective bulk services.

Taxi industry

The taxi industry remains relatively unregulated and taxi fares are not subsidised by the government. Taxis are thus relatively expensive and in many cases are not profitable if replacement of the vehicle is factored into the cost structure. The South African government has a taxi recapitalisation programme (TRP), the key objectives of which are to improve commuter safety and stimulate empowerment through transport. Through the TRP, old taxis are replaced by new roadworthy vehicles.

2010 FIFA World Cup

The 2010 FIFA World Cup has accelerated city transport planning and construction in the host cities and has offered a unique opportunity to significantly upgrade the public and non-motorized transport infrastructure. Associated construction projects are contributing significantly to the provision of additional land based and public transport capacity.

Fuel and energy efficiency

The DMR and the DEA have collaborated in a joint strategy dealing with control of Exhaust Emissions from Road Going Vehicles. Although this primarily has dealt with the removal of lead from petrol and reduced sulphur in diesel, other undesirable components have also been removed from the fuels. The strategy also has a roadmap for government, the oil industry and the vehicle manufacturing industry for achieving improved air quality through the control of vehicle emissions. The National Climate Change Response Strategy further highlights the effect that sectors including transport have on climate change via greenhouse gas emissions. Mitigation measures include addressing emissions from the freight and commercial transport sector and travel demand management initiatives for private cars. The DoT has highlighted the BRT, Gautrain, GFIP, Consolidation of Rail transport, the Taxi Recapitalisation Programme and the NMT programme as initiatives addressing GHG emissions.

Monitoring and evaluation

Monitoring and evaluation of transport related issues is conducted by a range of organisations, including the DoT, dti and Transnet, and reported on in their respective technical and annual reports. Transport is also featuring in the state of environment reports undertaken by national, provincial and local government using indicators such as the modal split of passenger transport and that of freight transport. Supplementary technical information pertaining to transport is provided by Statistics South Africa, Department of Energy and the Development Bank of Southern Africa. The National Household Travel Survey is South Africa's first representative nationwide household travel survey. The Survey provides strategic insight into the travel patterns and transport problems of the people of South Africa. In analysing the survey results, access to transport, affordability of transport and safety are highlighted.

Means of implementation

Capacity-building, education, training and awareness-raising

At the regional level, South Africa participates in capacity building and training initiatives within the Nepad framework. One of the foci of these training programmes is to strengthen the capacity of African countries to implement regional seas conventions and related regional and global programmes of action. At a national level, the country has a number of cooperative relationships with development partners on capacity building, as well as research and development. Cooperation agreements include intelligent transport systems such as electronic toll collection, integrated traffic management and incident detection and emergency response, road infrastructure and automotive research. Science and technology partnerships also include alternative fuels, vehicle production and design and public transport systems specifically buses.

The DoT, South African National Roads Agency Limited and provincial transport authorities offer transport career exhibitions and road shows as a means to attracting young people and skills into the sectors.

Mobilisation of finance

Poorly integrated transport planning and development has left South Africa with a transport system that does not facilitate the easy movement of people and goods. Rapid economic growth since the mid-1990s has placed additional pressure on the country's transport system, notably public transport. However, Government investment in public transport has increased significantly to address these challenges. Funds for infrastructure and transport are obtained from a variety of fragmented sources and distributed to a large number of entities for the implementation and management of transport in South Africa. At present South Africa is under-spending relative to international statistics with respect to road infrastructure, spending 3% rather than 5% of GDP on this purpose. There is considerable debate in South Africa around use of tax and revenue to support investment, as well as the potential opportunities that Public-Private Partnerships (PPP) may offer.

Funding mechanisms in government include the Annual Infrastructure Grant to provinces and the Municipal Infrastructure Grant, 15% of which is allocated for public transport infrastructure. The Municipal Income Grant supplements capital finance for basic municipal infrastructure for poor households, micro enterprises and social institutions. Provinces and municipalities also have their own revenue sources by way of motor vehicle licence fees and road tolls. Provincial taxes and national transfers contribute more than 95% of total provincial revenue.

The Public Transport Infrastructure and Systems Grant (PTIF) provides for accelerated planning and implementation of public and non-motorised transport. PTIF grants provide for transport modes such as bus and rail, as well as integrated urban transport management. The Government has allocated more than R9 billion for municipal transport, precinct upgrading, roads and rail services to directly support 2010. This is on top of wider general investment in public transport

and ports of entry, and investment by other spheres of government and the private sector. Government has further made resolutions on aligning budget for development of rural transport to meet the current Medium Term Expenditure Framework (MTEF) Cycle. The focus is on non-motorised transport projects, coordination of rural transport operations and strengthening of rural freight and logistical services. Transport subsidies are paid in the form of bus subsidies, rail subsidies and special grants, but the amount is not keeping pace with inflation.

At the SADC level, a Protocol on Transport, Communications and Meteorology commits countries to implement road funding policies and harmonised national road user charging systems, as well as harmonised cross-border road user charging systems. A Regional Cross Border Road User Charges Collection Association is contemplated by the SADC countries in order to harmonise Road User Charges in the region.

Technology development, transfer and dissemination

Science, engineering, technology and associated research and development are central to sustainable infrastructure for South Africa. The Department of Science and Technology (DST), dti and DoT promote research and development in the sector. Transport-related research is undertaken by institutions such as the CSIR and is applied by engineering companies and professionals in the practice, design and construction methods in infrastructural projects. The large number of infrastructural projects has necessitated the sourcing of engineering and construction expertise from elsewhere in the world, allowing for a transfer and dissemination of new transport techniques and technologies. There has been significant effort focused on development of electric and hybrid vehicles, notably the 'Joule' which uses 20% of the energy of a normal car.

Participation of major groups

A South African Network of Women in Transport (SANWIT) was officially launched in 2007/2008 and institutionalised as an organisation to empower and mainstream women in transport opportunities. The objective of SANWIT is to support and develop women owned and operated transport enterprises. The Rea Vaya public participation process is cited as an example of participation of major stakeholder groups in the development of a public transport project. Key stakeholders include the taxi and bus industry, scholars, the disabled and unions. The public participation process for Rea Vaya BRT culminated in a Public Transport Summit on 15 August 2009 and the development of a Public Transport Declaration in which 1300 stakeholder voted to uphold the BRT.

Cooperative frameworks and partnerships

NATMAP provides a framework for cooperation and partnership in the transport sector. It provides the platform for roleplayers to proactively address the linkages with transport, energy, environment and sustainability, although the ramifications of these have to date not been explicitly and /or extensively addressed within the NATMAP. The NATMAP Project

Management has decided that a Working Group specifically for Energy and Environment be constituted as soon as possible. Given the extent of the transport sector issues pertaining to energy, environment and sustainability will cut across the entire scope of NATMAP and will play an important role in shaping policy.

Lessons learned and best practices

The *Gautrain Rapid Rail Link* and *Bus Rapid Transit* projects are considered to be examples of best practice in the transport sector.

BRT

Rea Vaya, the BRT in Johannesburg, represents the single largest climate change initiative ever undertaken by the City of Johannesburg replacing poor quality buses and implementing low-sulphur diesel usage. The articulated buses make use of advanced pollution reduction equipment. The City of Johannesburg has estimated an expected saving of 382,940 tons of CO² equivalent emissions as a result of the implementation of the Rea Vaya system by 2010, and by 2020 would save about 1.6 million tons of CO² equivalent emissions. The DoT is assisting 7 other South African cities in planning and implementing similar plans.

Gautrain Rapid Rail Link

The *Gautrain Rapid Rail Link* has catalysed a new and innovative standard for public transport and is facilitating the movement of commuters travelling between the administrative and commercial centres of Gauteng Province. It incorporates 80km of rail and 10 stations opening up access on a north-south axis which once operational will potentially remove large numbers of private vehicles off the roads. The project is multimodal transport and relies on other forms of transport such as taxis, BRT and NMT to support the overall transport network. Other regions of South Africa have selected rail commuter transport projects as the main “flagship” projects. The Moloto Rail Corridor project is one example, and will link rural communities in Mpumalanga with Gauteng.

The ‘Joule’

The locally developed ‘Joule’ is Africa's first all-electric car. This zero-emission vehicle is a six-seater multi-purpose vehicle sets out to provide efficient use of energy and reduction of climate change, using only 20% of the energy needed by a conventional car. Technology which has enabled the development of the vehicle includes the dramatic improvement in lithium ion battery price, life and performance. A further advantage is that the batteries do not make use of heavy metals. It will take approximately seven hours to recharge the car's battery pack for a 200 kilometre driving range, with the two battery packs providing 400 kilometres in total. Independent analysis of Eskom has confirmed that the South African grid has existing capacity for recharging millions of cars at night without affecting its customer base. It is expected that the local content of the Joule will

be more than 50%, and has been designed with the international market in mind. The vehicle is anticipated to become available towards the end of 2010.
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Challenges and opportunities

Despite solid progress in addressing the transport issues outlined in the JPOI, South Africa is still faced with a number of challenges that need to be addressed. In many instances these challenges present opportunities for strengthening transport systems in the country.

Transport legacy

In the past, the transportation sector has been considered to have a poor track record of policy formulation and implementation. The transport sector has also been criticised for ineffectual regulatory enforcement for issues such as overloading, vehicle roadworthiness and licensing which in turn has an impact on commuter safety, condition of roads and access to transportation, and a failure to observe sector responsibilities which may create confusion in implementation phases of new transportation infrastructure. Thus South Africa's transport system has poor integration and connectivity.

Given the large capital cost of infrastructural development it will take time to change this situation. Integrated transport planning and investment in public transport are essential elements for a more efficient transport system. The 2010 FIFA World Cup has served to both elevate public transportation, and has fast-tracked investment plans into this sector. It is now necessary to consolidate these efforts, such as through the RTSSA which also looks at the development of rural rail branch lines or low and light density lines as an opportunity to facilitate penetration into the rural areas.

Maintenance of infrastructure

Substantial disinvestment in road infrastructure since the 1980's combined with rapid increases in traffic volumes as well as deregulation of freighting, have contributed to a decline in safety and quality of the road network. This has serious implications for vehicle emission levels, economic development and safety. The concessioning of portions of national road has assisted in maintaining a portion of the road network. However here is an urgent need for government to continue to invest in maintenance and renewal of transport infrastructure, as there is generally insufficient budget allocation for infrastructure maintenance at all levels of government. The EPWP offers the opportunity to expand job creation and skills development projects in favour of construction and infrastructure maintenance projects.

Technical skills

South Africa is facing a number of challenges with respect to the availability of technical and civil engineering skills required to provide service delivery in infrastructure and transportation, especially at the local level. This presents tertiary education institutions with opportunities to respond to this shortage by encouraging graduates and matriculants into the civil engineering field. Partnerships are needed to ensure appropriate targeting of training, through skills

development and job creation programmes that focus on technology solutions to construction and maintenance of infrastructure.

Research and development

There is very little investment on transport-related research and technology development in South Africa. The current 2% spending of GDP on road infrastructure is less than half what is required for a country at its stage of development. The poor state of infrastructure and inadequately skilled professionals in the infrastructure sector impacts on research and development, and requires urgent focus on the development of new knowledge, engineering technologies and skilled human resources.

Sustainable fuel sources

The transport sector is the most rapidly growing source of greenhouse gas emissions in South Africa, and accounted for about 19% of South Africa's greenhouse gas (GHG) emissions in 2000. Road transport is the highest energy user in the transport sector by mode. There is a need to carry out ongoing review of fuel specifications towards cleaner vehicle technology in order to improve urban air quality in South Africa. The South African industry has embarked on a process of gathering information for future fuel specifications through a multi-stakeholder process based on review of impact of vehicle emissions on air quality.

Coordination

Fragmentation and multiple roleplayers in the transportation sector present a challenge to coordinated planning and implementation, as well as management of funding. This leads to *ad hoc* and unequal implementation of infrastructure projects. It also contributes to a mismatch between economic development and transport capacity. There is a need to align policies, as well as roles and mandates within the transport sector.

Conclusion

Substantial progress has been made towards the JPOI targets in the development of policies, strategies and programmes for the transport sector in South Africa. Transport delivery projects currently underway are comprehensive and address all areas of transportation needs to various levels of detail. Priority areas of intervention include:

- public transport infrastructure and service delivery
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- non-motorised transport programmes, rural roads and infrastructure development.

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