

Role of Metered Taxis in the Integrated and Sustainable Public Transportation System in Durban

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Abstract--Since the advent of democracy in 1994, the taxi industry transformation concentrated mainly on the minibus taxi type services such that not much focus was given to the metered taxi industry. The metered taxi industry is also a very important mode of public transport in the context of South Africa's vision of modal integration and integrated, seamless public passenger transport services. Drawing from the research project undertaken, this paper presents the findings of the study of metered taxis in eThekweni Municipality (Durban). Using interviews with key informants as well as secondary data sources, the study investigated issues relating to the status quo of the metered taxi industry in Durban, highlighting existing issues and concerns of all role players and review existing policies and strategies for the metered taxi industry. The main motivation of this research was to contribute to finding solutions that can assist the metered taxi industry to succeed and grow in Durban and hopefully, as metered taxi industry have done in other countries, contributing to the hospitality and tourism industries that will lead to economic growth in Durban and the country as a whole.

Keywords--- Integrated Public Transport, Legislation, Metered Taxi, Regulation.

I. INTRODUCTION

THE metered taxi industry is also a very important mode of public transport, especially in the context of the country's vision of modal integration and seamless public passenger transport services. However, since 1994, the taxi industry transformation has focused mainly on minibus taxis and not transformed the metered taxi industry. The South African metered taxi industry plays a crucial role especially in the context of tourist services which, as a result of the sustained boom in tourism, has continuously experienced an economic boom since 1994 (Department of Transport, Transport Statistics, 1996).

Based on the research conducted, this paper discusses the challenges and opportunities of the metered taxi industry within eThekweni Metropolitan Area (Durban, South Africa). The paper also recommends the necessary operational, regulatory and institutional interventions to transform the

image and service quality of the metered taxi industry in Durban.

II. LEGISLATIVE MANDATE

A. White Paper

The White Paper on Transport Policy (1996) highlights the vision on public transport services to be customer based by insuring that customer services meet the needs of all types of users (pensioners, scholars, tourists, people with disabilities), be accessible within walking distance of less than one kilometer in the urban areas; be affordable – with commuters spending less than 10 percent of their disposable income on transport; be safe, secure, reliable and sustainable [19]. Furthermore, the information should be readily available for assistance and convenient for passengers. Moreover the registration of all public transport operators as formalized commercial entities, bound by the regulations pertaining to their permission to operating issues in terms of approved passenger transport plans takes place effectively and efficiently.

B. Principles of Regulation

Regulation is basically a form of intervention by Government, and the intention is to regulate only where it is essential. Government will apply different forms of regulation to ensure that its vision and objectives are realized - for example if it needs to regulate to ensure that desired services which would not be financially viable are provided [10]. The form of regulation will differ according to circumstances:

C. Regulation of Specific Services Provided Under Contract:

This is the highest form of regulation, in which the authority specifies in detail the service to be provided, and can impose a variety of sanctions if this is not met. This category includes commuter rail services, and tendered public transport services by bus or taxi.

D. Regulation of Monopolies

Government has a role in controlling tariffs, and in setting service and safety standards. Examples of this category are the state airports, the ports, and road and rail concessions.

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E. Regulation of the Operations of Competing Operators

The role of Government will be that of ensuring level playing fields, and regulation for safety, leaving the operator as much freedom as possible to provide customer service as demanded in a competitive environment. In the case of freight transport, regulation will be in the form of the regulation of the quality (including safety) of the service and not economic or entry regulation. In the case of road-based public passenger transport, Government proposes a form of regulated competition, which requires that operators function in a competitive environment, but in a manner this complies with the objectives of Government.

F. Regulation by Contract

This is not an abdication of responsibility by Government, but involves establishing a formal contract with an operator to abide by an agreed set of rules. Instead of investigating and proving individual contraventions, regulation and enforcement by Government involves establishing whether the contract has been adhered to.

III. NATIONAL LAND TRANSPORT ACT 2009

A. Operating Licenses: Types of Vehicles Which May Be Used For Public Transport Services

Despite this Act or any other law operating licenses may only be issued for vehicles designed or lawfully adapted by a registered manufacturer in compliance with the Road Traffic Act, 1989 (Act No. 29 of 1989) [12], [16], according to acceptable safety standards, to carry—

- (a) fewer than nine persons, excluding the driver; or
- (b) 18 persons, excluding the driver; or
- (c) 35 persons, excluding the driver; or
- (d) 46 or more persons, excluding the driver,

Despite this Act or any other law, no vehicle may be used for the operation of a public transport service, except by a foreign carrier as defined in section 1 of the Cross-Border Road Transport Act, 1998 (Act No. 4 of 1998), unless it is a vehicle contemplated in subsection 1 provides otherwise for special categories of vehicles by notice to cater for exceptional cases in rural areas, or exceptional cases in relation to tourist or courtesy services [2].

A midi-bus may be used for the operation of an unscheduled service only where—

- (a) there are no existing scheduled services on the same route or on another route in the same corridor; and
- (b) relevant transport plans allow for its use.

Where a vehicle has been specially adapted to carry wheelchairs, the provisions of this Act regarding vehicle capacity apply, unless prescribed otherwise. No standing passengers may be carried in a metered taxi, minibus or midi-bus.

IV. PUBLIC TRANSPORT STRATEGY AND ACTION PLAN (2007)

A. The Need to Grow the Metered Taxi Market as an Alternative to Car Use

Very few South Africans use “metered taxis” for any trip purposes. According to the National Household Travel Survey of 2003, 1.1 percent of all household members made use of a metered taxi at least once during the survey period. This use was highest in metropolitan areas (1.8 per cent of people) and lowest in rural settlements (0.7 per cent) [11].

Metered taxi services can provide a valuable service especially for tourists, linking them with other public transport modes from their places of accommodation, or from tourist attractions [15]. This applies particularly in the central parts of cities.

The relative absence of metered taxis, particularly “cruising taxis”, in South African cities represents a major gap in the public transport system, particularly in the experienced gained during FIFA World Cup. Cities with similar population of Johannesburg and Cape Town, such as Sydney and Singapore have good metered taxi services.

For example Singapore, with a population of a little over 4 million has over 30 000 metered taxis. (www.Tfl.gov.uk).

Factors which support the growth of metered taxi services in cities around the world include the following:

- vigorous prosecution of “drink-and-drive” offences, including license and vehicle forfeiture to private car users;
- restrictions to public on the supply of parking spaces in parts of urban areas which attract trips such as shopping precincts, major sports centres and universities;
- road pricing and other restrictions on car use, and high charges for parking spaces;
- levies or tolls on the use of road space for car use;
- priority lanes for public transport vehicles such as metered taxis, minibus and buses; and
- demand-based regulation and other forms of regulation and control of metered taxi operators.

B. Current Legislation/Regulations

The principle is that:

- matters relating to regulation of the metered taxi should be the responsibility of the relevant Transport Authority; but
- Guidelines and in some instances policy directives based on the relevant legislation should be given to ease the barriers to entry into this market, facilitate growth of the sector and subsidise, to set minimum safety standards, quality, determination, differentiated tariff structure and to regulate the role of metered taxis to also play a feeder and distribution role for public transport networks

C. Quantity

The transport authority must be responsible for deciding on such matters as the number of metered taxis required in its area (it will be guided in this by research undertaken by the Department, which should include the part that the metered taxi might play in supplementing the urban transport network);

the number and location of ranks; whether or not the taxis will be restricted to picking up at ranks or be allowed to ply for hire; whether each taxi must be restricted to one or more rank(s) or whether it may be allowed to stand at any rank where there is space; the relationship between, and distinguishing characteristics of, the metered taxi on the one hand and the private hire car on the other [4].

The Provincial Regulatory Entity must decide on an application in accordance with the advice it receives from the transport authority [5].

D. Quality

The guidelines should offer advice on such matters as minimum age of vehicle; identification as a metered taxi (colour, decals, identifying number, etc.); minimum specifications for obtaining license; specific standards for metered taxis over and above those of the standard roadworthy test, testing of drivers, including checks on criminal records, but with special emphasis on local knowledge; and issuing of a special drivers permit/license over and above the Professional Drivers Permit; periodic re-testing of both vehicles and drivers; and circumstances in which the planning authority might advise the OLB that an OL should be withdrawn.

E. Tariff structure

The DoT has coordinated the provinces and the Provincial Regulatory Entities in March 2008 with regard to developing a guideline on tariffs for the different types of metered taxi services. The service types range from providing conventional door-to-door metered taxi services to public transport network feeder and distribution services - particularly at night. For the latter, the IRPTN operational plans of the transport authority will address fare integration between public transport and metered taxis through the same electronic payment instrument for both [9].

F. Enforcement

This element has been the weakest link in previous efforts to ensure higher standards. The task of enforcement should ideally be the responsibility of a dedicated section of the traffic police. Their tasks will include both on-the-road and off-the-road checks.

These will be required to ensure that regulations are being adhered to (e.g. that a vehicle being used as a metered taxi does indeed have an OL, and that it is not using a rank to which its OL does not entitle it) and that standards are adhered to, especially in respect of the safety of the vehicle and the driver. The checks may cover any aspect of the legislation or regulations, but will specifically cover calibration and sealing/re-sealing of meters, along with any evidence that the meter seal may have been tampered with.

G. Implementation

In partnership with taxi bodies, motor manufacturers, tourism authorities and other stakeholders, government have incentivized the emergence of metered taxi services during the FIFA World Cup in 2007. The DoT has undertaken the following:

- A 6 month feasibility study (in partnership with relevant municipalities and provinces), including the investigation of incentive schemes and regulation and control measures aimed to foster the emergence of a “cruising metered taxi service” in the core city areas of Johannesburg, Cape Town, eThekweni and Tshwane [6].
- It is also proposed that urban traffic law enforcement strategies (including but not limited to targeting “drunk driving” and prosecution, parking infringements and stopping violations) coupled with business development and marketing strategies – are necessary to assist the emergence of professional metered taxi services as a viable mode. In this regard, the feasibility study will also have to closely involve the Road Traffic Management Corporation,
- Based on the above, prepare an initial draft of legislation/regulations bearing in mind the imminent preparation of the final National Land Transport Act of 2009
- Design and implement a communications/capability building programme for all stakeholders.
- Metered taxis will also provide public transport services on the Integrated Rapid Public Transport Networks based on passenger volumes, demand and issues of subsidized will be considered seriously [8].
- The manner and form of the subsidy will be based on three components viz. capital; operational and passenger component. It is envisaged that this will ensure affordability for the passenger, whilst addressing fleet renewal and cash flow for a viable and sustainable service. From January to March 2008 detailed work has been undertaken to develop models that will inform the basis and mechanisms of implementing subsidies in the metered taxi and minibus taxi industry.
- The development of minimum safety requirements for the vehicle as well as the development of operational requirements.

V. DEFINITION OF A METERED TAXI

Both the National Road Traffic Act and National Land Transport Act of 2009 define a metered taxi as a public transport service operated by means of a motor vehicle which is designed, or lawfully adapted, in compliance with the Road Traffic Act No. 93 of 1996 to carry fewer than 9 seated passengers, including the driver (National Land Transport Act of 2009, p. 7). Furthermore, the distinctive feature of a metered taxi service from other services is that:

- It must be available for hire by hailing, by telephone or any other means;
- May stand for hire at a rank; equipped with a sealed meter, in good working order, for the purpose of determining the fare payable. However, the Act (section 91 also makes provision for the fare to be agreed upon between the driver and the passenger(s) concerned before the journey begins.

As this paper will discuss, the ideals enshrined in the above-mentioned policy and articulated in the legislation are generally still far from being realized with regards to the quality of service and operations of metered taxis in South Africa.

VI. FROM POLICY TO ACTION

A. Challenge Is To Formalise and Include the Metered and Minibus Taxi Industry

The Public Transport Strategy and Action Plan (PTSAP) approved by Cabinet in March 2007:- calls for **Integrated Rapid Public Transport Networks** (IRPTN) in up to 12 major cities by 2014.

- IRPTNs include **Rail** priority corridors and **Bus Rapid Transit** (BRT) networks [7].
- BRT will imitate rail systems by running buses on exclusive lanes. Buses will dock at secure enclosed stations. This needs regulated systems under the control of municipal regulatory entities.
- Rail corridors and BRT will serve as the **trunk** services in IRPTN's
- Rail and bus trunk services will both be served by common **feeder** services in integrated systems
- The intention is for, Trains, BRT trunks and Feeders to have a common electronic fare collection system

In March 2007 the Cabinet of the Republic of South Africa approved the Public Transport Strategy and Action Plan as the country's blue-print for the improvement of the public transport system across all modes. In order to improve access to public transport services, one of the most fundamental proposals of the Strategy is the extended hours of operation up to 16 to 24 hours a day [8].

B. Strategic Approach of 2007 – 2020 – From Basic Commuter Operations to Accelerated Modal Upgrading and Integrated Rapid Public Transport Networks

- 85% of all residents within 1 km of Rapid PT Network by 2020
- Upgraded modal fleet, facilities, stops & stations
- Extended hours of operation (16 - 24 hours)
- Peak frequencies (5 – 10 minutes) - Off peak frequencies (10 – 30 min)
- Full special needs and wheelchair access
- Safe and secure operations monitored by Control Centre
- Electronic fare integration when making transfers [9].
- Integrated feeder services including walking/cycling and taxi networks
- Integration with metered taxi services and long distance intercity services
- Car competitive PT option - enables strict peak period car use management [13].

International experiences from abroad indicates clearly that in order to effectively achieve an integrated, seamless public transport hours of service must be extended, the role of metered taxis is crucial especially during off peak and late night.

With regards to metered taxis, in mid-2008, the National Department of Transport initiated a consultative process for the development of a draft strategy for the transformation and improvement of the metered taxi industry. The draft strategy "sets out the national intention to grow, promote and strengthen the role of metered taxis in the Public Transport

system" (Department of Transport, Draft Metered taxi Implementation Strategy (February 2009).

The strategy outlines reforms across a broad range of areas such as regulation, vehicle standards, driver training and testing, etc., to improve the service quality. At the time of writing this paper, the consultation process has been completed and approved by the Minister of Transport and it is ready to be implemented at provincial and local levels [3].

VII. THE CURRENT SCENARIO IN THE METERED TAXI INDUSTRY OPERATIONS WITHIN ETHEKWINI METROPOLITAN AREA

A. The Local Context

Ethekwini is located on the east coast of South Africa in the province of KwaZulu-Natal and in the Municipality of eThekweni. It is the third largest city in South Africa and the busiest port in Africa. According to the 2011 Community Survey, the population of the eThekweni municipality was 4,568,086 [1].

Durban was originally called Port Natal, and was founded by British settlers. Indian workers were brought in to work the sugar cane plantations, making this one of the largest population centres of Indians in South Africa. Zulu and English are the most common languages in Durban.

Given the above factors and activities within the eThekweni Municipal boundaries, the demand for quality, efficient, attractive and user friendly public transport system is essential to give the visitors and local people a transport service experience that complements the attractions the city offers.

VIII. THE CHALLENGES IN THE METERED TAXI INDUSTRY IN ETHEKWINI AREA

A. The Metered Taxi Licensing

Metered taxi licensing is one of the biggest challenges that have the potential to make or break the successful regulation and improvement of the industry. In terms of the NLTA any passenger transport services provided for a fare or other consideration or reward constitutes a public transport and requires an operating license.

The operating license is granted by the relevant Provincial Regulatory Entity (PRE) previously known as Provincial Public Transport Regulatory Board (PPTRB) or Operating Licensing Board (OLB) following the recommendations from the relevant planning authority (municipality). The vehicle must have a valid roadworthy certificate, a detailed description of the route or routes (or radius for the metered taxis) as well as authorized ranks or terminals, other picking up points and setting down passengers where the vehicle is to be used must be specified to obtain the operating license.

The applicant must obtain a pro-forma application form, completed and be submitted to the Provincial Regulatory Entity (PRE) to make a decision to grant or refuse to grant permission. The municipality recommendations must be taken into consideration as they are the custodians of ranking, loading and holding facilities for public transport services.

However, in practice the metered taxi licensing requirements do not take as stipulated in the Act. In many cases, Provincial Regulatory Entity does not even seek recommendations from municipalities and the transport plans are not being utilized to assess the need and inform the decision-making process.

In view of the current fragmentations (illegal operations, and so on) of the metered taxi industry with the municipality, the eThekweni municipality placed a moratorium on new applications until a public transport operations plan and policy has been developed and finalized. In developing this plan, the municipality has formed a number of task teams including Metered Taxi Task Team. Their primary functions are to investigate supply and demand of the service, see which areas where services are oversaturated and those who lack the service.

Those areas which need new services will be advertised and operators will bid for those services and winning bidder will operate in the area. This plan has been developed and executed and is expected to be completed soon.

Currently the metered taxi within eThekweni municipal boundaries is neither formalized, nor properly licensed. Therefore it is not possible to accurately quantify the extent of the metered taxi industry.

There is no doubt that there are illegal metered taxi operations which do not comply with the legislative prescripts with regard to licensing and ranking facilities.

This has a negative impact on service quality, standards and passengers customer care and compromises passenger safety and security. This also limits the reliability and confidence to the metered taxi industry by potential passengers such as tourists and visitors to the city of Durban.

To sustain the industry and improve the service quality of the users, these challenges need to be addressed as quickly as possible. By so doing the industry will benefit and improve its image and patronage as a result of improved quality service.

B. Illegal Operations

The informal metered taxi operators that do not have permits, who are therefore illegal operators, highlighted the following list of concerns:

- These operators are essentially illegal operators and would like to be incorporated into the formal side of the industry by being issued permits
- The cost of upgrading their vehicles to the required standards for a metered taxi often prevents them from being able to enter the formal market.
- There are no facilities for them in the Inner City area where they mostly operate.
- Their customer profile is generally from the lower income groups and therefore the ability to charge and be paid the same rates as the formal metered taxis limits their potential income.
- One typical example was found in Phoenix where they using a fleet of Mazda's 323 to transport passengers from Phoenix shopping centre to eMaoti Mission area, there is a large amount of these illegal operators.

C. Taximeters

The metered taxi must have "a sealed meter, in good working order, for the purpose of determining the fare payable" (NLTA, 2009). Our consultations have revealed that there appears to be widespread abuse of the meter, including breaking the seal so as to insert a higher rate than that authorised. As indicated above, some 'metered taxis' do not actually have a meter. According to Villar, 2009 the verification of a taximeter will not be reliable unless measurements taken on an actual taxi run are used [18].

IX. NATIONAL AND INTERNATIONAL BEST PRACTICES

In many cities abroad such as Los Angeles, London, etc. - metered taxis are strictly regulated and accredited by means of strict driver training and licensing as well as stringent vehicle licensing. Metered taxi drivers undergo extensive training and assessment in customer care, driving skills as well as city orientations with regards to street names and geographical locations of various places (tourist attractions, etc.) [14] (www.Tfl.gov.uk)

A. The Case study of the City of London

In 2001 the city implemented the Private Hire Vehicles (London) Act, 1998. This Act requires all metered taxi vehicles and drivers to apply and be licensed accordingly as metered taxi operators.

B. Driver Licensing

To be licensed as a metered taxi driver, the driver must meet the following conditions:

- Have detailed knowledge of the city's roads and places of interest and important landmarks within the city;
- Pass the Public Carriage Office (PCO) exam on knowledge of the city including shortest routes to destinations;
- Clean criminal record;
- No serious driving convictions;
- Medically fit;
- Route finding skills; and
- A driving license for 3 years and older.

C. Driver Standards

The metered taxi customer has a very close relationship with the driver unlike, for example, that of the mass transit passenger. Therefore there are many opportunities for the driver to take advantage of the customer. For this reason, the practice internationally is to ensure strict standards for the driver. Requirements include the absence of a criminal record, a sound local knowledge, and in case of complaint, clear identification of the individual within the vehicle. South African practices may be thought to fall short of these standards.

D. Vehicle Licensing and Branding

All metered taxi vehicles are required to have a Public Carriage Office (PCO) license. The vehicle must be roadworthy and undergo regular checks by the PCO. All metered taxis have uniform branding (e.g. black cabs).

E. Fares

The metered taxi fares in London are determined by the Transport Authority (Transport for London) using an agreed cost index based on national average earnings and taxi operating costs. The fares are approved and reviewed as and when required by the Transport Authority Board. This helps to ensure that commuters are not subjected to fare discrimination [17]-[20]

F. Ranking Facilities and Operating Base

Metered taxis in London as well as many other cities around the world can be booked in advanced by telephone, hailed on the street or taken from a designated taxi rank. Legal metered taxis apply to be allocated designated ranks and are also required to submit details of operating base in order to obtain operating permission.

X. NATIONAL PRACTICES FROM OTHER LOCAL CITIES IN SOUTH AFRICA

In most major metropolitan South African cities such as Cape Town, Johannesburg, Durban, Port Elizabeth and others, metered taxis are regulated by the City through the Provincial Regulatory Entity (PRE).

A. Ethekekwini Accreditation Systems

In order to eradicate illegal metered taxi operations, in 2005 the Ethekekwini Transport Authority (ETA) embarked on a process to register and accredit all metered taxis in order for the users, in particular the tourists – to feel safe that the metered taxi industry provides a decent, safe and satisfactory level of service.

The accreditation system introduced a new sticker which grants accreditation for 2 years. The colour of the sticker is changed every two years.

In order for the metered taxis to be accredited and licensed as a metered taxi, the vehicle must meet the following criteria:

- The vehicle must have a valid Certificate of Fitness (CoF);
- The taxi must have a specified operating private base and or designated rank;
- Permanent metered taxi markings on the vehicle – reflecting the name, address and telephone numbers of the owner or operator.
- Permanent fitted or fixed roof light;
- Paintwork must be dent-free; with no rust and the vehicle must be generally clean and tidy;
- Seats should not be torn or dirty;
- Carpets should be clean and hole-free;
- Sealed taximeter for determining the fare and the tariff must be displayed;
- Seat belts must be in working order.

If the taxi meets all these conditions, then it is accredited. Each accredited taxi is assigned a unique identity number which appear prominently on the body of the vehicle to enable users to lodge complaints by identifying the taxi using this unique number.

B. Gauteng Province (Pretoria, Johannesburg and Ekurhuleni Metropolitan)

Gauteng province has had its own successes and challenges with regard to formalization, accreditation and regulation of the metered taxi industry. In view of the oversaturation of the metered taxi industry, the Cities (Johannesburg, Tshwane and Ekurhuleni) decided to put a moratorium on new applications for metered taxis.

This was done to give the cities time to formalize the existing operators and ensure the balance of supply and demand, and thereafter consider new applications if the transport plans and passenger numbers indicate a need for additional metered taxis.

Unfortunately, the Gauteng Provincial Regulatory Entity continued to issue new metered taxi operating licenses without the City's recommendations. This has worsened the saturation of the metered taxi industry. In an endeavor to come up with a best practice for metered taxis, especially with the FIFA 2010 Soccer World Cup in mind, the Gauteng Province implemented a flagship project of metered taxis called the "yellow cabs". The yellow cabs were introduced as a pilot project for the FIFA Soccer Expo that took place in 2007.

The yellow cabs are of semi and luxury quality and offer high quality service. The drivers and vehicles were strictly licensed and accredited to offer a high quality and professional services. These vehicles are strictly monitored in terms of their service quality. Observations of these yellow cabs indicate that to a great extent provide one of the best practices which ideally should set the foundation for the transformation and improvement of the entire metered taxi industry in the country as a whole.

XI. CONCLUSION AND RECOMMENDATIONS

The metered taxi industry has a crucial role to play towards the realization of an integrated public transport service which is available at least for 18 to 24 hours a day. However, there is an urgent need for effective regulation and formalization process to be implemented to eliminate illegal operations and poor service quality to safe guard passenger safety, security and passenger needs.

Registered taxis are common, generally safe and relatively inexpensive. Taxis do not rove and hence need to be called so that one can be fetched from your pick up point. A lot of these will conduct point to point transfers, airport shuttles, and corporate transfers.

REFERENCES

- [1] Community Survey.2011.Website of Statistics South Africa.www.statssa.gov.za. Last accessed in 12 March 2013
- [2] Cross-Border Road Transport Act, 1998 (Act No. 4 of 1998) www.info.gov.za. Last accessed on the 08 March 2013
- [3] Department of Transport (2009) Developing the Metered taxi: An implementation strategy (Draft – February 2009)www.nedlac.org.za Last accessed on 14 February 2013
- [4] Department of Transport, Transport Statistics.1996. Website of Statistics South Africa.www.peeplo.com. Last accessed in 10 February 2013
- [5] eThekwini Integrated Transport Plan 2010. Ethekekwini Municipality,Website of the Ethekekwini Municipality, www.durban.gov.za. Last accessed on 13 February 2013

- [6] FIFA Soccer Expo (2007)
- [7] Fitzroy, F. & Smith, I. (1998). Public transport demand in Freiburg: why did patronage doubles in a decade? *Transport Policy*, 5: 163–173.
- [8] Integrated Rapid Public Transport Networks (2007)
- [9] Lyons, G. (2002). Investigating new technology's evolving role, nature and effects on transport. *Transport Policy*, 9:335–346.
- [10] Maria, A. & Westin, K. (2002). The effects of taxicab deregulation in rural areas of Sweden. *Journal of Transport Geography*, 10:134-144
- [11] National Household Travel Survey of 2003. Website of the National Department of Transport. [www. National Department of Transport.gov.za](http://www.NationalDepartmentofTransport.gov.za)
- [12] National Land Transport Act, Act No. 5 of 2009. National Department of Transport 2009.
- [13] Oduyemi, K.O.K. & Davidson B (1998). The impacts of road traffic management on urban air quality, *The Science of the Total Environment*, 218: 59-66
- [14] Peacock, M. & Kubler, M. (2001).The failure of 'control' in the hospitality Industry. *Hospitality management*, 20:353-365
- [15] Public Transport Strategy and Action Plan .2007.Website of the National Department of Transport. [www. National Department of Transport.gov.za](http://www.NationalDepartmentofTransport.gov.za)
- [16] Road Traffic Act, 1989 (Act No. 29 of Road Traffic Act No. 93 of 1996
- [17] Transport for London Transport Authority.2010.Website of the Transport for London Transport Authority. www.Tfl.gov.uk Last accessed on 25 February 2013
- [18] Villar, J., Otero, A., Otero, J. & Sánchez, L. (2009). Taximeter verification using imprecise data from GPS. *Artificial Intelligence*, 22:250–260
- [19] White Paper on Transport Policy (1996), Department of Transport, RSA
- [20] Yang, H., Fung, C.S., Wong, K.I. & Wong, S.C. (2010). Non-linear pricing of taxi offices. *Transportation Research Part A*, 44: 337-3484.