

# Chaos and Disruptions as the Challenge to Urban Transportation in Tanzania

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**Abstract:** Transportation is a key to the economy and production; it makes mobility more accessible and enhances the social and economic interactions. On the other hand, the increase of urban population, pollution and other negative impacts directly compromise the existing transportation systems and endanger the future transportation systems in developing countries. This paper examines chaos as the challenge facing urban transportation in Tanzania cities and provides some suggestions to reduce the existing problem. This has been done by looking at the design and plan of the Tanzania cities, coordination of transportation systems and car dependency. Environmental and social impacts which include congestions, air pollution, traffic accidents and energy consumption have been described. Suggestions for addressing the challenges facing urban transportation in developed countries like Tanzania have been examined by adopting the holistic approach. Such approach has shown to be effective in solving the challenges facing urban transportation in the cities of developing countries such as improving public transport, provision of off-street parking, enforcement of traffic laws and regulations and restrict car use. Moreover, approaches to alleviate challenges facing urban transportation should be designed for specific cities and urban transport planners must understand that models and solutions used for cities in the developed countries may not be applicable to cities of developing countries.

**Key words:** Chaos, disruptions, transport system, rural-urban, Tanzania.

## 1. Introduction

Urban transportation is the major challenges in both developed and developing countries since it interlinks with most (if not all) sectors of the urban setting. Per a World Bank study, the challenges of urban transport have been associated with globalization, urbanization, fiscal decentralization and economic transition. The growth of the population and density of the buildings in the cities only add further to the difficulties of traffic and plague to endless congestion, grave air pollution, alarming accident rates and lengthy travel time to work [1].

The population of many cities in Tanzania has grown to the extent that cannot be controlled easily in recent years, and this increase is expected to continue in the foreseeable future. Fast-growing cities in Tanzania such as Dar es Salaam, Mbeya, Mwanza, Arusha and others have nurtured business and

industries, which have resulted in creating jobs and higher income to migrants from rural areas. Thus, this increase has changed the morphology of the cities and enlarged the challenges in the urban transport systems, have resulted in congestion and delays in both passenger and products from the different places to reach the market; high level of pollution, fatalities and injuries have been increased [2]. Statistical report shows that about 70 percent of vehicles registered in Tanzania remains in the growing cities [3].

Dar es Salaam Rapid Transit (DART) indicates that about 4 billion Tanzanian Shillings lost every day in the city due to challenges associated with urban transportation. Road traffic accidents (RTAs) in Tanzania cities are estimated on average to cause 3400 deaths per annum and about 20000 serious injuries [4]. Furthermore, over 50 percent of car user's fatalities die pre-hospitals in the first hour succumb and in the following, four hours at the hospital due to urban transport problems occurring in major cities of Tanzania.

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The purpose of this paper is to examine the challenges facing urban transportation in Tanzania, using a holistic approach which considers the relationship of land management and transportation as a dynamic system involving other factors other than congestions.

## 2. Literature Review

Urban transport is the movement of people and goods within urban areas using the technologies such as buses and trains. The challenges of urban transportation occurring in the urban cities are the result of globalization, urbanization, fiscal decentralization and economic transition. The notable challenges facing urban transport include, long commuting, traffic congestion and parking difficulties, the inadequacy of public transport, difficulties for non-motorized transport, loss of public space, accident and safety, environmental impacts and energy consumption, land consumption and freight distributions. Location of the cities comprises different levels of accommodation and concentration of economic activity, which is pronounced to be among the complex structures that are supported by transportation systems [5].

When the city is large consists of complex structures, and the potential of disruption is very high if this complexity is not well managed. The notable urban transportation problems arise when transportation infrastructures due to various reasons that cannot meet the requirement of the demand for urban mobility. This is the major challenge to the transportation systems and inefficiency of the systems [6].

Transportation is the hub most growing cities to enhance productivity and control the economy; hence effective and efficiency measures must be employed before the changes have resulted in severe damage because the movement of labour, consumers and freight from origin to destination depends on the effectiveness of the transportation systems. Most of

the theories addressing the challenges facing urban transport have been developed by economists basing on the income growth.

## 3. Urban Transportation in Tanzania

Urban transport in Tanzania is predominantly a road based, motorized and non- motorized. Other modes include rail and water based, which is not yet developed. Tanzania has a national transport policy since (2003) [7] regulated by different authorities (Ministry of communication and transport, the ministry of finance controlling motor vehicle registration, regional road administration and planning commission), although little attention is given to urban transport issues.

The policy manages the urban roads and other infrastructure, road services, traffic flow and management, and land- use planning and transport for disadvantaged groups. However, pedestrians and non-motorized are not considered during the implementation of policies. It is necessary to consider this group because often are the losers in the struggle for available space and have no power to influence the urban transport policies.



Fig. 1 Tanzania map.

Recently, the stakeholders and authorities involving transportation planning have combined effort towards building way out of congestion by increasing road width in urban cities. Although stakeholders of transport do recognize some challenges with traffic congestion, and the impact that poor land use planning has on the traffic flow and congestion yet they must decide to proceed with implementation of widening most of the roads in cities of Tanzania.

It is estimated that most daily trips in urban cities like Dar-es-Salaam are using public transport (61%), while only (10%) take private cars and the remainders are through walking and bicycling. However, public transport which serves many people is not given any attention in Tanzania.

There is a new policy in Tanzania currently being under the assistant of the Department for International Development (DFID) which supports the technical assistance program within the ministry of transport. Under this program, more attention has been given to public transport, Bus Rapid Transit (BRT).

#### 4. Main Causes of Disruptions in Tanzania

Tanzania is among the developing countries with rapid urbanization and fast-growing cities. A study indicating the changing of the morphology of many Tanzania cities gives an overview of the challenges of urban transportation in Tanzania.

The problem of chaos and disruptions in cities of Tanzania is argued to be caused by behaviour of drivers/users of the roads, road/vehicle conditions, population growth, the design of the cities and limited flow capacity [8].

##### 4.1. Vehicular Growth

Statistical data available in the Tanzania Revenue Authority (TRA) in the department of vehicle registration indicate that the growth rates of vehicles have reached 15 percent during the year 2016. The growth rates in the cities like Dar-es-Salaam for the past 20 years were 8 percent while in the other urban,

city was 2 percent. The number of vehicles in the country is estimated to be 1.5 million, 80 percent are in urban cities. Dar-es-Salaam constitutes many the vehicles with 70 percent while the remaining vehicles are in the other cities.

Dar-es-Salaam with 5 million of Tanzania populations is estimated that there are 40 vehicles in every 1000 people with 1800 square km. The problem is not the number of vehicles in the country but the concentration of the vehicles in few selected cities, particularly in the urban cities. Therefore, in the absence of an adequate and efficient public transport system, many the private and mixed transit modes have entered and will continue to enter the market to meet the travel demand. The increase of the vehicle, city results into acute congestion and delays, serious accidents, high energy consumption and intense pollution.

**Table 1: Dar-es-Salaam Estimated number of Trips per day per mode in 2016.**

Mode	Number of vehicles	Average distance travelled	Percentage
Dala Dalas	8000	10 km	61%
Walking >500 m	-	2 km	24%
Passenger cars	130,000	15 km	15%
Bicycles	200,000	5 km	2%
Motorcycles	40,000	10 km	2
Total	378,000		100%

The traffic jam is caused mainly by the 130,000 (and rapidly increasing) passenger cars which satisfy only 15% of transport demand.

##### 4.2. Parking Difficulties

It is pronounced to be another reason associated with chaos and disruption. Roadside and unlawful parking are common features in Tanzania, especially in the CBD which forces some people to park in roadside, thus why the road becomes even narrower [9]. The ineffective regulation of parking has accelerated to worsen the situation. In the CBD, vehicles spend a lot of time in a parking which has increased demand of



**Fig. 2** Kariakoo Business Street, Dar es Salaam.

land consumption. Even when the parking facilities are provided, but the demand for parking is very high since there is an increase in motorization [9-15].

### *5.3 High Frequency of Accidents in Tanzania Urban Centres*

Urban environment is the most prone area of motor accidents; it is estimated that on average in Tanzania, about 3400 deaths occur for each year and 20000 serious injuries in the major cities of Tanzania (Tanzania Traffic Police Force). The situation has been contributed by undue concentration of vehicles in urban areas, traffic mix and resultant flow conflicts. Most of these accidents happen due to the general impatience and ill-tempered nature of road users and the conflict between motorcycle, pedestrians and other users of road transport in the cities.

### *5.4 Existing Infrastructures*

The road space in Tanzania is insufficient. Most of major roads and junction in Tanzania are crowded with parking vehicles, roadside hawkers and pavement dwellers. Thus, the roads for moving vehicles become much narrower resulting to chaos and disruption in cities. Currently, in Tanzania, the inner-city rail service operates only in Dar es-Salaam. Other urban cities use a bus and other non-motorized as a means of transport. Most of the roads are not in good conditions



**Fig. 4** Urban road infrastructure.

and the buses carrying passengers in the urban cities are not specifically designed for urban conditions. The buses (Daladala) operating in urban cities of Tanzania are overcrowded, unreliable, not safe and involve long waiting. Overcrowding in the public transport is pronounced to be one of the reasons for passengers to shift to personalized transport.

One of the other challenges in Dar Es Salaam was its lack of resilience against the effects of climate change such as flooding.

## **5. Possible Solutions for the Urban Transportation Problems in Tanzania**

Many studies on the urban transportation problem have not managed to capture the multifaceted nature, and the challenges occur in the urban transport. Some studies have tried to stipulate the wide range of urban transport problems but the extent, and their scopes have neglected its relation to other transport challenges.

The following specific measures are also suggested.

- Improve sector coordination. There must be one authority with a mandate and power to coordinate the urban transport systems. So far, Dar es Salaam Urban Transport Authority (Duta) is the only authority tabled to as the future of coordinating the urban transport systems. However, the form and function of DUTA

are not well described to stakeholders to whether the road and traffic infrastructures will be included or excluded from the DUTAs mandate; the financing of DUTA; and the relationship between DUTA and other sectors which are currently having some responsibilities will be brought under the mandate of DUTA.

- Construction, Improvement and frequent maintenance of drainage systems. Inadequate and blockage of drains result in occasional flooding of roads during rainy seasons. These affect traffic flows and reduce the life span of a road as a result of development of potholes on the roads. It usually observed in most city centres of Tanzania that drainage systems were not very effective, especially during rain seasons. The construction, improvement and frequent maintenance of drainage systems will support the span of the road as well as reduce problems associated with poor drainage systems.

- Provision of off-street parking facilities per the design of the city. Lack of off-street parking may result in on-street parking which narrow the existing roads and leading to obstruction of traffic flows. The off-street parking space should be provided along the road where the concentrations of activities are high.

- Provision of traffic light at major junction of the cities. Larger volumes of the traffic are observed during the peak hours almost in every outstanding road of the cities in Tanzania. Other roads should be provided with "STOP" sign at appropriate arm junctions, and others should be managed by traffic wardens accordingly. In addition, all roads in Tanzania cities should be provided with road signs whenever there is no sign.

- Restricted car use: It should be noted here that the goal is not to ban all car sales and stop citizens from buying these vehicles but rather to rationalize the use of cars (e.g. Use them only when strictly necessary, while using public transport, bicycles and walking for most of the trips). In a city where the poor do not use cars excessively, road's building and road

improvements to relieve congestion are very regressive. By restricting the car use and emphasize the non-motorized to take advantage it takes up very scarce government resources leaving the needs of the poor unattended.

- Regular maintenance of roads in cities. The road maintenance agencies should be well funded to carry out their duties. The government must pay attention during the rehabilitation of the major roads. Furthermore, whenever there is the largest concentration of pedestrian's complete separation of vehicles should be encouraged to reduce pedestrians-vehicular conflicts in the cities. This can be achieved by creating barriers such as underpasses and overhead foot bridge.

- Intensive studies of Transportation problems: There has not been any comprehensive transportation study for many urban centres in Tanzania. Thus, the volumes of traffic along many urban routes of cities are not known. A time series data on the various components of urban traffic is important to city planners interested in future transportation planning.

## 6. Conclusion and Recommendation

The challenges of the chaos and disruptions in urban transport cannot be solved without clear coordination of stakeholders together with suitable policies. Urban area, whether big cities, cities or town has grown and will continue to expand, but the demand has always exceeded the level of service provided. The deteriorating of public transport forces people to shift to personalized transports, which are not safe, fuel-inefficient, increase traffic congestion and increase pollutions.

In Tanzania, it shows clearly that multitude of stakeholders both (formal and informal), layers of geographical inversions and competencies and the intersection between policy formulation, regulation, service provision and service user, reveals a high level of complexity, contradiction and overlaps. Although there are many stakeholders with some level of

responsibility towards ensuring a functioning of the urban transport system, there is no clear institution that coordinates or is accountable for engage in the whole process of the urban transport problem because of the overall inefficiency in rendering the service.

This paper has examined the nature, type and causes of chaos and disruptions of urban transportation in Tanzania cities and has made some possible suggestions to reduce the problems. However, urban transportation remains to be challenging phenomena recurs in many urban centres, combined efforts should be to adopt “Best Practices” which has shown to be effective in tackling the transportation problems in developing countries like Tanzania. It is suggested that approaches that are efficient and flexible is one needed by developing countries to alleviate the transportation problems occurring in various urban cities, and the finest way is for every city to develop its own version and models to examine the challenges facing transportation systems.

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