



THE FUNCTIONALITY OF TRICYCLE REGULATION UNIT OF TUGUEGARAO CITY

DR. CHONA PAJARILLO AGUSTIN, Faculty Member and Thesis Adviser, College of Business, Entrepreneurship and Accountancy, Cagayan State University, Andrews Campus, Tuguegarao City, Cagayan, Philippines

NINA CRIZTI ZEA A. COSTALES, Student-Researcher, Bachelor of Science in Legal Management, Cagayan State University, Andrews Campus, Tuguegarao City, Cagayan, Philippines

MARALYN M. GADINGAN, Student-Researcher, Bachelor of Science in Legal Management, Cagayan State University, Andrews Campus, Tuguegarao City, Cagayan, Philippines

LHEA MAE M. FRANCISCO, Student-Researcher, Bachelor of Science in Legal Management, Cagayan State University, Andrews Campus, Tuguegarao City, Cagayan, Philippines

ELVIE P. FRONDA, Student-Researcher, Bachelor of Science in Legal Management, Cagayan State University, Andrews Campus, Tuguegarao City, Cagayan, Philippines

Abstract: *This inquiry is focused on the functionality of Tricycle Regulation Unit (TRU) of Tuguegarao City particularly its powers and functions vis-à-vis compliance of tricycle drivers and/or operators with existing city ordinances covering public safety and security. Framed in the investigation is the concept of efficiency in governance, social responsibility, and discipline. The descriptive-quantitative research was employed to feature-out the efficiency of TRU on its mandates to ensure public safety and order. Findings of this study include TRU's efficiency in the issuance of the franchise license, maintaining data base and resolving complaints and grievances. However, TRU office is relatively undermanned that haste in covering all their tasks leads the staff to getting less humanely tactful in dealing with violations. Relatively, better staffing as recommended in this study would make TRU more responsive to closely monitoring the transfer of ownership of franchise license, and the difficulties among tricycle drivers/operators in complying with the rules and regulations*

Keywords: *Traffic regulation unit, colorum, franchise, tricycle operators, reckless driving, TODA, tricycle fare, rules and regulations*

INTRODUCTION

In Asian cities, motorcycles account for about half the vehicle fleet and up to 75% in some cities of developing nations such as Hanoi, Vietnam. The effect is that some low income



cities can demonstrate very high levels of personal mobility and while it offer greater speed and flexibility of movement; it can undermine the development of public transport services such as bus services (Gwilliam, 2000). The motorcycle, as a means of mobility has become an issue for urban transport planners and has been expressed that such activities do not fit well with regular urban operations in built-up districts (Grava, 2002).

In Bangladesh, Indonesia, Thailand and the Philippines, light motor vehicles based on scooters or motorcycles such as baby taxis, bajaj, tuk-tuk and tricycles respectively can be observed. Particularly in the case of the Philippines, motorcycle-propelled vehicles in the form of tricycles has gained wide acceptance as a legitimate form of public transport in most areas rather than the use of motorcycles for personal mobility. The most likely reason of attributing this to cheap conversion of motorcycles into public transportation has been previously offered (Barter, 1999). While it is a valid mode for transportation and accessibility, it is not however, technically designed for public transportation. Motorcycles were first conceived in the late 1800s as an improvement of bicycles (Barter, 1999). In the Philippines, an innovation of this, the tricycles were used as a motorized replacement of “pedicabs” or bicycles with attached sidecars in the 1950s (Rimmer, 2005). The use of motorcycle-based public transport has raised concerns related to the worsening environment, safety and traffic congestion. The immediate issue is 4 that they are considered dirty and dangerous. Studies have shown that motorcycles and tricycles cover up to 75 percent of the vehicle fleet in most countries in Asia. And 85 percent of these used 2-stroke engines, which can emit up to 70% of total hydrocarbons, 40% of total carbon monoxide, and a substantial amount of particulate matter (Rimmer, 2005).

In the Philippines, the Asian Development Bank affiliated organization; Partnership for Clean Air (2003) reported that emission test on tricycles showed that the average hydrocarbon was at 6,000 ppm or 10 times the acceptable standards. Tricycles are the cheapest and often quickest motorized transport in the neighbourhood. Their design varies from province to province depending on the topography of the area and it is composed of motorcycle fitted with a sidecar to accommodate local passengers.

The motorcycle is made only for two passengers and loading seven passengers or more technically puts extreme pressure on its engines. Motorcycles either have 2-stroke or 4-stroke engines. Majority of the units used for motorcycles are 2-stroke because 4-stroke



distributors do not allow motorcycles to be converted to tricycles. The earlier 2-stroke engines typically have lower fuel efficiency to engines, with as much as 15-40 percent of the fuel-air mixture emitted through the exhaust port. The exhaust contains a high level of unburned gasoline and lubricants that increases hydrocarbon emissions and fine particulate matter. They are responsible for serious health effects including heart diseases, respiratory diseases and premature mortality. Fine particulate are more harmful because this occurs near ground level where people live (Manalaysay, 2003).

Likewise, study in Dhaka, Bangladesh where three baby taxis from four to seven years old were randomly selected for mechanical inspection found evidence of considerable unauthorized repairs and modifications. It has been noted that the combination of inadequate and or improper maintenance and repairs could contribute to the poor mechanical state of many vehicles in South Asia (Kojima et al, 2002). In the case of the Philippines, the survey by the Philippine Information Agency or PIA (2001) indicated that over half of the public utility vehicle owners/drivers do regular checks on their vehicles [13]. Moreover, it has been argued that while new motorcycle technology can reduce pollution, the new technology does not deal with the problem of high average age and low replacement rate of vehicles currently in use especially of those used as public transportation [14]. Nor does technology deal with the safety problem. Compulsory use of helmets could reduce deaths and injury substantially but enforcement has been difficult even in Vietnam where the problem is most prevalent.

Noise pollution is another issue associated with tricycles as indicated in the preference of some residential areas in Laguna, Philippines on pedicabs, or non-motorized public transportation as feeder modes from residential areas to terminals (Guillen, 2000). In New Delhi, India, on the other hand, it was observed that the application of conventional urban transportation planning where the traditional urban transportation models to handle a homogenous mix of passengers cars, trucks and buses all moving at the same speed was used but failed to include how these compete for space with increasing two and three-wheel motorized transportation offering low-cost alternative to the city's overcrowded street (Mohon, 2002). It was also suggested that the significant role of small and diverse, including motorcycles and various vehicles used in public transport and in taxi-like service developed in Southeast Asian cities was a response to poor road networks and poor road hierarchies



(Cervero, 2000).

Moreover, despite the related issues, given the high number of registered tricycles for public transport in the Philippines as shown figure 2, no less than the Philippine President Gloria Macapagal-Arroyo (2003) provided a good description of this vehicle when she compared these modes with the saying that “small is beautiful”. The size of the tricycle is small but they are part and parcel of the Philippine economy by providing safe and secured transport service as well as employment across the archipelago at anytime (Arroyo, 2002).

In most cities of developing countries, traffic jam and congestion have become part of an ordinary urban living. A related issue to this is that air pollution has already reached high levels, exceeding the recommended limits set by World Health Organization (WHO). Studies noted that 75% of Asia`s vehicle fleet is comprised of motorcycles and tricycles and that 85% of these modes, used 2-stroke vehicles. Up to 70% of total hydrocarbons, 40% of total carbon monoxide, and a substantial amount of particulate matter are emitted by this mode (Arroyo, 2002).

As to the study conducted by the Department of Mechanical Engineering, RIT, Islampur, India, a cycle or cycle rickshaw is a small-scale local means of transport. Cycle rickshaw are human-powered, a type of tricycle designed to carry passengers in addition to the driver. Tricycles are used primarily for commercial transportation. Various locally made configurations of bicycle or tricycle are available. In an eco-sensitive zone where motor vehicles are banned, man-pulled cycles are still one of the major forms of transport there. One of the major problems faced by the available bicycle or tricycle is its less efficiency or mechanical advantage. Many researches are carried out for improving efficiency of drive mechanism of bicycle, tricycle or like vehicles.

There are many patented and experimental work available to optimize performance of drive mechanism of bicycle, tricycle or like vehicles. Also some research articles are published in journal with same objectives. Some researcher focuses on reducing the force required to apply on pedal to propel the cycle. Besides this, some researcher focuses on increasing the number of rotations of rear wheel of cycle by keeping the force required to apply on pedal as it is. With these two broad views, we can understand that force required to apply on pedal and number of rotations of rear wheel are two most important parameters that affects the performance of drive mechanism of cycle.



Different kinds of experimental studies have been performed by researchers related to driving mechanism of bicycle, tricycle or like vehicles. Many changes have been done in conventional drive mechanism in order to optimize operating performance. In some cases conventional sprocket-chain drive mechanism is replaced by new mechanism e.g. bevel gear and rotating shaft drive mechanism. An individual idea or any possible combination of different ideas can be used, in order to optimize operating performance of driving mechanism for cycle. The velocity ratio of mechanism, torque generated at drive side, pedal-crank length, chain drive efficiency, chairing shape are some important parameters used to optimize performance of drive mechanism of cycle. Also the efficiency of the bicycle chain drive depends on the chain operation as it engages and departs from the sprockets on the high-tension part of the drive.

Tricycles are considered one of the most popular modes of transportation in the Philippines, due to their accessibility and capability to drop off passengers at almost any point. However, passengers that ride in the tricycle are subject to awkward postures and motions that cause discomfort according to different service. The aim of this research was to use different methods of ergonomic assessment evaluate the factor that contributes to discomfort of passengers during three (3) phases: while entering, riding and exiting a tricycle.

Over the years, the tricycle sector has become a major social policy concern due to the worsening traffic accidents involving tricycles, acceleration of colorum, or illegal units. From a management perspective, the operation of the sector has become a major challenge due to the absence of established planning standards and best practices.

Comfortability is one of the main aspects in the field of Ergonomics and thriving application of this study is on public utility vehicles where most of the population is affected. There have been many published studies that dealt with improving vehicles in an ergonomic approach. Certain of which are Landicho's and Navarro's improvement on the driver's workstation area in jeepneys and motorized tricycles respectively. Previous studies only considered the welfare of the drivers and neglected the passengers.

There are different categories of department formed within Tuguegarao City, each has distinct set of priorities to attend. Every department has different rules and regulations, powers and functions. A department is there to maintain the status quo, to protect property, vested rights and established relationships. It is the skeleton of our society; it controls what



we do, when we do it and how we do it. If we choose to break the department's rules and regulations, then we are punished. An ordered society cannot exist without some departments with some sort of legal system even if it is just one simple rule.

The Tricycle Regulation Unit (TRU) under the Office of the Mayor is hereby tasked to implement the provisions of the City Ordinance No. 08-2013, headed by a Chief as designated by the Mayor. The TRU was given powers and functions to perform such as: (1) to implement the provisions of the Tricycle Ordinance; (2) to receive, process and review applications for considerations of the City Franchising Board; (3) to conduct "seminar" to all drivers and operators on traffic rules and regulations before the release of approved or renewed franchise; (4) to receive and record all daily traffic violations and complaints against tricycle drivers and operators and submit the same to the Office of the Chairman of the Tuguegarao City Franchising Board and Office of the Mayor; (5) to recommend to the Board the suspension, cancellation and revocation of a franchise from an operator who violated any provisions of this ordinance for the third offense within the period of six months; (6) to submit reports and other data needed by the Sangguniang Panlungsod and the office of the Mayor relevant to the operation of tricycles; (7) to maintain an effective record management/system to include information of the operators and drivers personal data of tricycles inventory and substantial data of tricycles operations; (8) to established an adjudication section to handle complaints and grievances; and (9) to perform such other function as may be required by law, ordinances and orders.

Trike, tricy or tricycles in Tuguegarao are the foremost means of public transportation around the City of the 7,867 active motorized tricycles for hire operating within the territorial jurisdiction of Tuguegarao City. It is the policy of Tuguegarao City Government to ensure the safety, comfort and well-being of the general public using tricycles as a mode of transportation. It is also the responsibility of Local Government Unit (LGU) Tuguegarao City through the Tricycle Regulation Unit (TRU) to instil discipline and impose sanctions to the erring and impulsive drivers in the city. The growing numbers of the tricycle in the City vis-a-vis growing complexities of the modern society, show that it is a big help to the students, employees and other commuters and the visitors. As such, the tricycle drivers and/or operators should represent and set as impression to the Tuguegaraenos and visitors.

The very aim of the Tricycle Regulation Unit (TRU) is to seek and meet the highest transport



safety standards for the satisfied and comfortable public tricycle users, and it is their duty to ensure effective regulation of tricycles for safe, comfortable and satisfied riding public using tricycle.

These are the violations that usually violated by the tricycle drivers and/or operators: (a) overcharging, (b) overloading, (c) refusal to convey passengers, (d) reckless driving, (e) discourteous and arrogance, (f) no trash bin, (g) drivers under the influence of alcohol/smoking, and (h) colorum.

Rules and regulations of a department or unit play an essential role in a community for it serve as basis if conflict will arise. If there will be any problem that may occur between the concern parties, the concerned department should be the first agency to settle disputes as it is their primordial duty to assist peace and order in terms of transportation. Under the City Ordinance No. 08-2013 provides the rules and regulations that all operators or drivers of motorized tricycle for hire must comply. While it is true that there are a total of nineteen (19) listed rules and regulations in the ordinance but only few of them are being complied by the tricycle drivers and operators.

These are the rules and regulation of the Tricycle Regulation Unit of Tuguegarao City. (1) Only Filipino Citizens who are bonafide residents of Tuguegarao City and corporations, partnerships, cooperatives and associations with Filipino equity whose principal offices are based in Tuguegarao City are qualified to be operators of tricycles for hire; (2) The driver and operator of a tricycle shall at all times operate and maintain a roadworthy, dependable and highly reliable tricycle unit in such a way as to ensure the passenger's safe arrival to their destination; (3) No tricycles for hire shall be allowed to operate within the territorial jurisdiction of Tuguegarao City without having first complied with the following -- Registration with TRU for current year, Motor Registration with the Land Transportation Office Tuguegarao City for the current year, issuance of the Tricycle operator's Permit of Franchise, Annual Safety Inspection Certificate by TRU and Issuance of the Mayor's Permit; (4) All tricycles for hire that will register with the TRU for the current year and the issuance of Mayor's Permit and TOP or franchise shall be in accordance with a schedule and shall be based on the ending of plate number; (5) No Motorized tricycle shall be allowed to carry passengers or goods more than it is designed for, that the passenger capacity shall be limited to six including the driver; (6) The prescribed fare rate as provided for in the existing City



Ordinance of Tuguegarao City shall be strictly enforced during the period from 5:00 AM to 9:00 PM. Thereafter, passenger fares may be subject to agreement between the driver and the passenger; (7) The Fare Matrix shall be displayed conspicuously inside the tricycle fronting the passenger; (8) Operations shall employ only driver's with professional driver's licence issued by the Land Transportation Office (LTO); (9) No driver of a tricycle for hire shall refuse to convey passengers to and from their destination. A tricycle not conveying a passenger shall put up a "PRIVATE" sign in front of the tricycle so that the public may know; (10) Tricycle drivers must always be tidy and neat in appearance when conveying passengers to impress the dignity and importance of their chosen occupation. Wearing of *short pants*, *"sandos"*, *sleeveless*, *slippers* while driving their tricycles shall not be allowed; tricycle drivers shall wear shirt, with or without collar and a long pants and shoes while operating tricycles for hire units; (11) Tricycle drivers shall at all times be courteous, respectful and law-abiding and observant of existing traffic rules and regulations; (12) No tricycle driver shall be allowed to operate and drive a motorized tricycle while under the influence of prohibited drugs and/or liquor or with mere alcoholic breath; (13) Smoking while driving a tricycle with or without passenger is strictly prohibited including passengers; (14) All tricycle units whose plate numbers end in 1 and 2 are not allowed to operate on Mondays, 3 and 4 on Tuesdays, 5 and 6 on Wednesday, 7 and 8 on Thursdays and 9 and 0 on Friday from 7:00 AM to 6:00 PM; (15) No tricycle unit shall be allowed to travel without the proper coding. All tricycle units shall comply with the color coding scheme corresponding to the last digits of their plate numbers; (16) Tricycles coming from the other municipalities are prohibited to operate and convey passengers within the city's jurisdiction except to convey passengers from the municipality where they come from up to the terminal designated for them provided they secure a Mayor's Permit upon payment of P300.00 annually as permit fee; (17) All tricycles are required to provide a gallon size trash-bin inside the sidecar; (18) Sidecar windshields must be free from unauthorized stickers and paintings or decorations that will obstruct the outside view of the passenger; and (19) Any driver/operator or person misrepresenting a copy of a document during application or renewal of franchise before the TRU or the Board, such as but not limited to fake license, identification card, or permit, fake OR/CR or stickers, or spurious Barangay Clearance shall be administratively and criminally liable.

In Axalan and Landicho's (2008) study, it turned out that the dimension of the workstation of



the driver is not measured to the 5th-9th percentile. They found that the driver's hand score on the steering wheel is three and on the shifting gear is four, and the action of reaching backward was proven to be unnecessary, and it was verified that it exceeded the allowable shoulder abduction of 30 degrees-the current design for jeepneys used for public transportation exposed its drivers to ergonomic risks and unnecessary tasks.

The same with the other two researcher's study, Navarro et.al. (2001) considered the workstation of the driver-but this time, of a tricycle. The three stated that: tricycle drivers spend an average time of 11 hours in a day. Based on the proponents, observation, tricycle drivers has a tendency to sit on the tank so that it can accommodate more passengers. Ideally the design of the motorcycles allows only one(1) passengers at the back of the tricycle driver, however the usual practice is to accommodate one (1) or two (2) more passengers at the back for additional income.

The three researchers made a survey on the working conditions of the tricycle drivers. This is supported by **Rapid Upper Limb Assessment (RULA)** and the Anthropometric measurements of the tricycle drivers. They then determined the right measurement for the proposed design using the **Quality Function Development (QFD)**. The voice of the customers and the technical aspects of designing an ergonomic motorcycles for the tricycle drivers were considered. Several factors were evaluated in designing the ergonomic motorcycle, such as the motorcycle movement and control, occupant safety and access. Then the prototype was created and subjected to several **ergonomic and feasibility testing**. Another survey was conducted and the RULA analysis was made. The result of the survey and the RULA analysis was compared to the previous results.

The researchers' initial survey showed that tricycle drivers experienced pain on the wrists or hands, feet and lower back. The assessment of the working posture of the tricycle drivers had shown that present working posture is not appropriate and should be changed. Based from the result of the comparison of measurements, some parts of the motorcycle did not fit at least 95% of the population.

These two researchers already had found literature that improvement in ergonomic design was indeed needed. Salvendy (1997) showed that work-related musculoskeletal disorders (WMSDs) affect several million workers. These disorders were cumulative trauma of the upper extremity (WUEDs) which meant it developed gradually over periods of time as a



result of repeated stresses and that there were categories of biomechanical risk factors for development of WUEDs (Armstrong, Radurin, et. Al., 1986)

The research of Axalan and Landicho (2008) and the research of Navarro, et. Al. (2001), which were both about the highly vehicles for commuting here in the Philippines, were aligned when it is categorized as to what were this subject of improvement in the chosen vehicle. The studies were about the driver of a vehicle and did not consider the passenger's welfare. And, there were no ergonomic studies yet on the overall design of a motorized tricycle including its sidecar or passenger cabin.

This study would then be the continuation of the above mentioned researches wherein it was not only the motorcycle part of the motorized tricycle that would be analysed but the entire vehicle. This study also influenced the personal experiences of the researches wherein physical pain was evident.

There are researches which show that even in a vehicle, where almost of the whole body of a person is actually static, there are injuries that may happen. One of these is McLay, Wilder & Molloy's (1996) study which is the mechanisms of spinal injury in vehicle accidents, the biomechanics of balance, response to sudden loads, and impact and vibration are shown to influence the nature of trauma. They conducted a simulation of the occupant's motion for this research. And, the other studies were already stated in section 3 of this chapter- Salvendy's (1997), and Armstrong, Radurin, Hansen & Kennedy's (1986) works.

In the industry, efforts to improve workplace safety have focused on the reduction of "objective" risks. Most of the methodologies used for this purpose are essentially quantitative. However, workers do not use quantitative risk analysis when evaluating their occupational risks. They tend to do just the opposite- that is, they do it subjectively, which originates differentiated risk perceptions. Individual risk perception, as well as the subjective evaluation of the occupational environment, might also be important to workers behaviour toward risk consequently, will probably influence objective risk and safety.

The recent burgeoning growth in the commercial tricycle also known as "Keke NAPEP" in Nigeria could generally be attributed to its inherent advantages of door-to-door service, manoeuvrability during traffic congestion, ability to travel on poor roads, and ease of responsiveness to demand. In this way, much of the academic has been dissipated by transport geographers on the traffic relevance of the tricycle, especially as a commercial



means of providing mobility. However, the mutuality related essence of transport and employment that led to the popularity of the tricycle in the most cities in Nigeria is fast extending to multidimensional problems of economy, politics and social malaise. The objective in this study, therefore, is to find out these other underlying political, economic and social factors overshadowing the mobility relevance of the tricycle as a transport business in Osogbo metropolis. It is also aimed to articulating the future lessons for a developing economy as Nigeria and evolves a policy option. A total of 500 questionnaires were applied on the commercial tricycle riders in a field survey. The survey used of Osun State and Osogbo mainly. This involve the use of probabilistic sampling method with random techniques to pick 500 respondents from Osogbo metropolis and some other parts of Osun State as well. My critical discovery in this study is that, about 61.6 percent of our respondents agreed that they are engaged in “Keke NAPEP” business having abandoned their various trades as artisans, not because of the prospect of buoyant economy but because daily income is sure and almost certain. This is dangerous for developing economy like that of Nigeria from all indications. The general prediction in this study is that by 2020, the Nigeria’s productive economy would have declined to ridiculous extent as employment generation, technical education, and self-reliant job growth would have been trapped by the “Keke NAPEP” economy. Again the study shows that “Keke NAPEP Unions” are becoming second arms of political parties, forming strong pressure influences and “stated groups”, which can be motivated by politicians to attain political gains. They could also, in turn disrupt societal piece of dumped after use. On social hazards, this study confirms an increasing rate of accidents and kidnappings with the use of tricycles on our roads. To correct these anomalies and secure a socio-political and economic future for the country as a developing nation, there is the need for the country to lift itself from the impending shrunk of productive economy, attain a better height of political behaviour, and rescue something out of the present downward slope of our social ethics; the study therefore recommends a total ban or a restriction on the use of commercial tricycles as one of the crucial steps to be taken.

The researchers chose this study in order to know how efficient and effective the Tricycle Regulation Unit in promoting and implementing its rules and regulations. It includes processing for the issuance of franchise licence, maintenance of safe record keeping, review



of the extent of violation by tricycle drivers and/or operators, and establishment of adjudication section to handle complaints and grievances. On the other hand, specific provisions of the rules and regulations that by all means should be complied with by tricycle drivers and/or operators include among others; (1) the recipient of the franchise licence should be a bonafide resident of Tuguegarao; (2) that drivers and/or operators is duty-bound to maintain vehicles roadworthiness; and (3) impersonation on the propriety holding of franchise licence.

STATEMENT OF THE PROBLEM

The study assessed the Functionality of the Tricycle Regulation Unit of Tuguegarao City. Specifically, the study answered the following questions:

1. To what extent is the efficiency of the Tricycle Regulation Unit (TRU) in terms of performing its powers and functions?
2. What violations do tricycle drivers and/or operators commit based on existing rules and regulations and as covered for by powers and functions of the TRU?
3. What difficulty does TRU experienced in the implementation of the rules and regulations?
4. What difficulty do tricycle drivers experienced on their compliance to the requirements of rules and regulations?

CONCEPTUAL FRAMEWORK

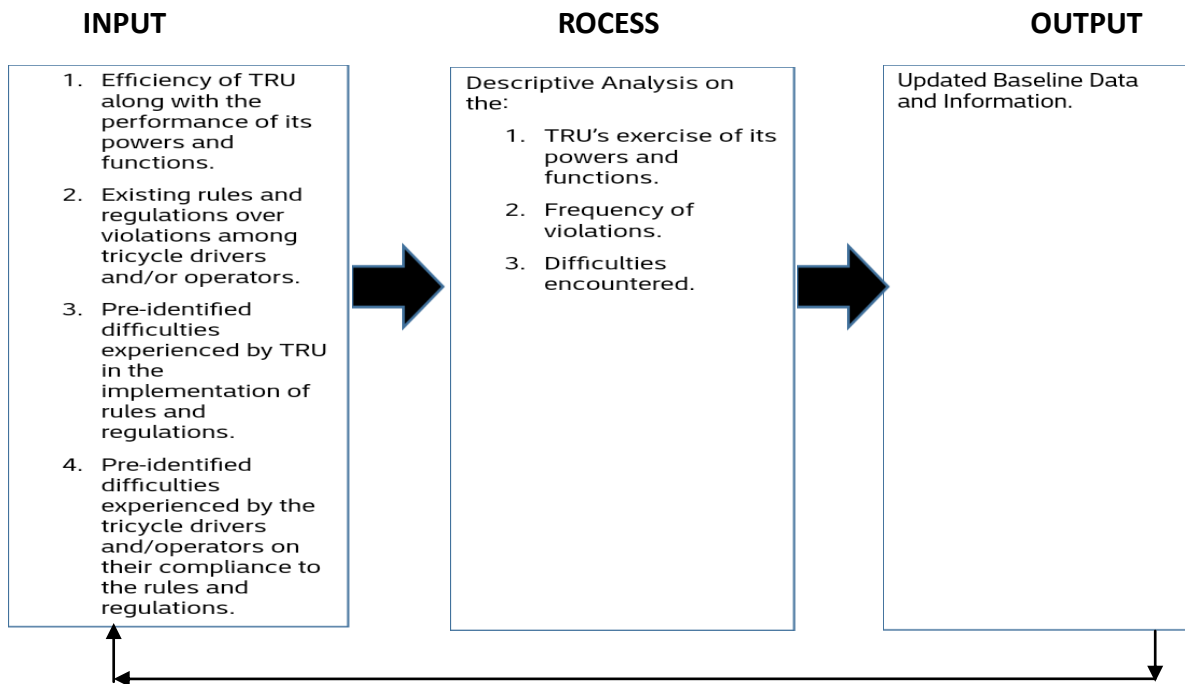
The City of Tuguegarao is a growing metropolitan urban area in the province of Cagayan. As it grows in terms of businesses, there is a need for promotive rules and regulations and regular, serious, and strict implementation of these local ordinances that would in certain way contribute to the peace and order situation in the City periphery. In so far as rules and regulations for the operation of public utility vehicles, particularly tricycles, the Tricycle Regulation Unit is the mandated by the Franchise Regulatory Board to exercise certain powers and functions.

Specifically, areas of concern of the powers and functions promulgated by the TRU include processing for the issuance of franchise licence, maintenance of safe record keeping, review of the extent of violation by tricycle drivers and/or operators, and establishment of adjudication section to handle complaints and grievances. On the other hand, specific provisions of the rules and regulations that by all means should be complied with by tricycle



drivers and/or operators include among others; (1) the recipient of the franchise licence should be a bonafide resident of Tuguegarao; (2) that drivers and/or operators is duty-bound to maintain vehicles roadworthiness; and (3) impersonation on the propriety holding of franchise licence.

PARADIGM OF THE STUDY



DATA GATHERING PROCEDURE

In administering this study, these are the following steps that the researchers have conducted:

1. A focus group interview with the Head of TRU;
2. Floating of questionnaires to the tricycle drivers and/or operators, tricycle commuters/ passengers and traffic enforcers; and
3. The data gathered were summarized by the researchers.

The major instrument used in this study was the questionnaire, particularly a checklist. Questionnaires was used, primarily because it was the main method of data collection and easy to administer. The questionnaire has 5 parts. Part I is the efficiency of TRU along with the performance of its powers and functions, Part II is the violations among tricycle drivers and/or operators against the existing rules and regulations, Part III is the difficulties experienced by TRU in the implementation of rules and regulations, Part IV is the difficulties experienced by the tricycle drivers and/or operators on their compliance to the rules and



regulations and Part V is the violations experienced by the tricycle commuters/passengers. The indicators involve in the questionnaire was based on the City Ordinance No. 08-2017 also known as the Tuguegarao City Tricycle Ordinance 2013.

DATA ANALYSIS / STATISTICAL TOOLS

The researchers employed weighted mean for data analysis. The weighted mean was used to determine the efficiency of TRU in performing its powers and functions with the following nominal range that will define the interpretation of data:

Numerical Value	Nominal Ronger	Adjectival Description
4	3.25 – 4.00	Very Efficient (VE)
3	2.50 – 3.24	Efficient (E)
2	1.75 – 2.49	Less Efficient (LE)
1	1.75 – 2.49	Not Efficient (NE)

The weighted mean was used to determine how extent the violations among tricycle drivers and/or operator against existing rules and regulations with the following nominal range that will define the interpretation of data:

Numerical Value	Nominal Ronger	Adjectival Description
5	4.20 – 5.00	Very Great Extent (VGE)
4	3.40 – 4.19	Great Extent (GE)
3	2.60 – 3.39	Moderate Extent (ME)
2	1.80 – 2.59	Low Extent (LE)
1	1.00 – 1.79	Very Low Extent (VLE)

The weighted mean was used to determine the difficulties experienced by TRU in the implementation of rules and regulations with the following nominal range that will define the interpretation of data:

Numerical Value	Nominal Ronger	Adjectival Description
4	3.25 – 4.00	Strongly Agree (SA)
3	2.50 – 3.24	Agree (A)
2	1.75 – 2.49	Disagree (D)
1	1.75 – 2.49	Strongly Disagree (SD)

The weighted mean was used to determine the difficulties experienced by tricycle drivers and/or operators on their compliance to rules and regulations with the following nominal range that will define the interpretation of data:



Numerical Value	Nominal Ranger	Adjectival Description
4	3.25 – 4.00	Strongly Agree (SA)
3	2.50 – 3.24	Agree (A)
2	1.75 – 2.49	Disagree (D)
1	1.75 – 2.49	Strongly Disagree (SD)

The weighted was used to determine the violations experienced by the tricycle commuters/passengers in connection of how TRU monitors certain violations with the following nominal range that will define the interpretation of data:

Numerical Value	Nominal Ranger	Adjectival Description
4	3.25 – 4.00	Strongly Agree (SA)
3	2.50 – 3.24	Agree (A)
2	1.75 – 2.49	Disagree (D)
1	1.75 – 2.49	Strongly Disagree (SD)

RESULTS AND DISCUSSIONS

Part I: Efficiency of Tricycle Regulation Unit (TRU) along with the performance of its powers and functions.

Table 1. Processing for the issuance of franchise license

Powers and Functions	WM	AD
TRU requires the applicants of franchise license to comply with:		
a. Proof of Registration/Ownership of Unit	3.72	Very Efficient
b. Barangay Certification that he or she is a bonafide resident	3.56	Very Efficient
c. Certified photocopy of Certificate of Registration from LTO Tuguegarao City	3.91	Very Efficient
d. Community Tax Certificate (CEDULA)	3.91	Very Efficient
e. 4 Stroke Engine	4.00	Very Efficient
f. Photo picture of Tricycle, I.D picture of the operator and driver (2x2) for new applicants	3.91	Very Efficient
g. TODA Certification	3.82	Very Efficient
h. Safety Inspection Certificate issued by the TRU	3.82	Very Efficient
i. COMELEC Certification or Voter's I.D	4.00	Very Efficient
Grand Weighted Mean	3.85	Very Efficient

Legend:

3.25 – 4.00 – Very Efficient (VE)

2.50 – 3.24 – Efficient (E)

1.75 – 2.49 – Less Efficient (LE)

1.00 – 1.74 – Not Efficient (NE)

Table 1 shows the efficiency of Tricycle Regulation Unit along with the performance of its powers and functions regarding the *processing for the issuance of franchise license*. It is gleaned on table that TRU is *very efficient* on its functions and powers in letting the applicant have full compliance on all the necessary requirements for the issuance of



franchise license, particularly; (a) *Engine Stroke*, (b) *COMELEC Certification or Voter's I.D.*, (c) *certified photocopy of the Certificate of Registration from LTO*, (d) *community Tax Certificate (CEDULA)*, (e) *Photo picture of Tricycle and I.D picture of the operator and driver (2x2) for new applicants*, (f) *TODA Certification*, (g) *Safety Inspection Certificate issued by the TRU*, (h) *Proof of Registration/Ownership of Unit*, and (i) *Barangay Certification that he or she is a bonafide resident*, as shown by a grand weighted mean of 3.85. These findings imply that TRU is considering full and serious compliance on the necessary legal documentary requirements which applicants must comply with purposely to ensure the legality and authenticity of the applicant's personality and the vehicle's physical identity.

Table 2. Maintenance of safe record keeping

Powers and Functions	WM	AD
TRU maintains its records through:		
a. data based	3.29	Very Efficient
b. hard copy	3.63	Very Efficient
Grand Weighted Mean	3.46	Very Efficient

Legend:

3.25 – 4.00 – Very Efficient (VE)

2.50 – 3.24 – Efficient (E)

1.75 – 2.49 – Less Efficient (LE)

1.00 – 1.74 – Not Efficient (NE)

Table 2 shows the efficiency of TRU along with the performance of its powers and functions regarding to the ***maintenance of safe record keeping***. With the data collected from the respondents, TRU is observed to be ***very efficient*** in keeping records specifically *hard copy* and *data based* in the computer system, as indicated by their individual weighted means of 3.63 and 3.29, respectively. These findings mean that TRU maintains a dependable filing system that allows credence as well as quick or immediate access of personal profile and other pieces of information relevant to knowing the personal and vehicle's physical identity. This finding would also infer that TRU can save much time, effort and able to avoid delaying in issuance of franchise license.

Table 3. Establishment of adjudication section to handle complaints and grievances

Powers and Functions	WM	AD
TRU conducts:		
a. confrontation with the violators	2.91	Efficient
b. adjudication of complaints with the violators	3.21	Efficient
c. deliberation for the final decision for the sanction of violators	3.07	Efficient
Grand Weighted Mean	3.06	Efficient



Legend:

3.25 – 4.00 – Very Efficient (VE)

2.50 – 3.24 – Efficient (E)

1.75 – 2.49 – Less Efficient (LE)

1.00 – 1.74 – Not Efficient (NE)

Table 3 shows the efficiency of TRU with the exercise of its powers and functions in regard to the **establishment of adjudication section** to handle complaints and grievances. With the data collected, TRU is **efficient** in establishing adjudications to handle complaints and grievances between the complainants and the violators: (a) *adjudication of complaints with the violators*, (b) *deliberation for the final decision for the sanction of violators*, and (c) *confrontation with the violators*, as indicated by a grand weighted mean of 3.06. These findings only imply that TRU is conscious of appropriate legal and methodical procedures resolving complaints and grievances that arises between the complainant and the perpetrator. Furthermore, it is signified in this finding that TRU is concensious over the authority or functions and powers it delegates to a committee that handles the generation of constructive interventions to the causes of violations.

Part II: Violations among Tricycle Drivers and/or Operators against existing rules and regulations.

Table 4. Holder of the franchise licence

No .	Violations on Existing Rules and Regulations	WM	AD
1	Tricycle drivers and operators in coordinating change of ownership over the franchise license	4.50	Very High Extent
2	Non-compliance of tricycle drivers and operators for the:		
	a. proper placement of body number and route rights	5.00	Very High Extent
	b. change of motor	2.00	Low Extent
	c. printing of attachment of sticker for the vehicle routes	4.50	Very High Extent
	d. on the body up and rear carriers	3.00	Moderate Extent
Grand Weighted Mean		3.80	High Extent

Legend: 4.20 – 5.00- Very High Extent (VHE)

3.40 – 4.19- High Extent (HE)

2.60 – 3.39- Moderate Extent (ME)

1. 80 – 2.59- Low Extent (LE)

1.00 – 1.79- Very Low Extent (VLE)

Table 4 shows the violations among tricycle driver and/or operators against existing rules and regulations particularly along **holder of franchise license**. The data on table reveal that tricycle drivers and/or operators violate to a **very great extent** the coordination to TRU



authorities regarding the change of ownership over the franchise license, as shown by a weighted mean of 4.50. This finding specifically point out a problem on the negligence of tricycle drivers and/or operators in regard to who it should be held liable when there is change of ownership on the issued franchise license. Moreover, it is also noticed that tricycle drivers and/or operators are prone to committing violations to a **very great extent** for the non-compliance particularly on: (a) proper placement of body number and route rights, and (b) printing of attachment of sticker for the vehicle routes, as revealed by their individual weighted mean of 5.00 and 4.50, respectively. This finding would reveal the realities in the street that there are numerous cases of tricycle units that are not properly identified due to the absence or improper placement/printing of vehicle's registration number and the corresponding printed name of barangay for the route right identity. This means further that TRU is has yet this aspect to be given priority attention as it subsumed mean negligible but potential cases of "colorum". However, it is observed on table that tricycle drivers and/or operators are compliant to the policy on the *change of motor*, shown by a weighted mean of 2.00 with an adjectival description of **low extent**. This finding simply means the tricycle drivers and/or operators are consciously bounded and aware over the issue of "colorum" which would mean greater amount of obligatory financial fine imposed against them when violated

Table 5. Vehicles' roadworthiness

No.	Violations on Existing Rules and Regulations	WM	AD
1	Roadworthy and dependability of the vehicle	4.50	Very High Extent
2	Registration of the vehicle	5.00	Very High Extent
Grand Weighted Mean		4.75	Very High Extent

Legend: 4.20 – 5.00- Very High Extent (VHE) 3.40 – 4.19- High Extent (HE)
2.60 – 3.39- Moderate Extent (ME) 1. 80 – 2.59- Low Extent (LE)
1.00 – 1.79- Very Low Extent (VLE)

Table 5 shows the violations among tricycle driver and/or operators against Existing Rules and Regulations particularly on vehicles' roadworthiness. The table shows that the tricycle drivers and/or operators violate to a **very high extent** the basic requirements of *roadworthiness and dependability of vehicle* and the *registration of the vehicle*, as shown by their grand weighted mean of 4.75. This is factually true based on the observation conducted by the researchers on the physical condition of tricycle body and assembly. A result of investigation made by the researcher also uncovered other realities like, when the



applicant-tricycle drivers and/or operators are already granted the franchise license, this situation would already make them contented for having now the right to ply on the streets of the City. Something worse scenario to happen next is a case of negligence or inability to maintain appreciable public presentability of their tricycle unit. This finding specifically points out a problem on security of the passengers or commuters as well as serious liability of driver-operators. It implies further that TRU is suggested an action to curb the severance of this critical situation.

Part III: Difficulties Experienced by TRU in the Implementation of Rules and Regulations.

Table 6 shows the difficulties experienced by the TRU with regard to the implementation of rules and regulations. The data on the table indicates that respondents **strongly agree** to the difficulties experienced by TRU especially on: (a) *lack of personnel to manage the monitoring of violations among tricycle drivers/operator*, and (b) *office personnel are not available to monitor on Saturday and Sunday as well as holidays*, with a common weighted mean of 4.00. These findings point out about the dilemma of TRU regarding to their management in monitoring such violations. It means that much perhaps of their desire to perform efficiently the practice and exercise of their powers and functions, these structural problems remain to be gray areas for serious attention by the TRU.

Relatively, respondents also **agreed** that TRU also encounter the difficulties in the implementation of rules and regulations as caused by the fact that this agency's (a) *office staff are constraints by their age*, (b) *lack the necessary modern facilities*, and (c) *inactive to upload information in the social media*, with a common mean of 3.00. These findings reveal that TRU needs to revisit its Unit's organizational current staffing pattern and requisition to the DBM for the additional job items needed to perform certain job functions inclusive on as to who handles in flexi time the Saturday and Sunday monitoring.

Table 6. Difficulties Experienced by TRU in the Implementation of Rules and Regulation

No.	Difficulties Experienced by TRU	WM	AD
1	Lack of personnel to manage the monitoring of violations among tricycle drivers/operators	4.00	Strongly Agree
2	Office staff are constraints by their age	3.00	Agree
3	Office personnel are not available to monitor on Saturday and Sunday and holidays	4.00	Strongly Agree
4	Lack the necessary modern facilities	3.00	Agree
5	Inactive to upload information in the social media	3.00	Agree
Grand Weighted Mean		3.40	Strongly Agree



Legend:

3.25 – 4.00 – Strongly Agree (SA)

2.50 – 3.24 – Agree (A)

1.75 – 2.49 – Disagree (D)

1.00– 1.74 – Strongly Disagree (SD)

Part IV: Difficulties Experienced by Tricycle Drivers and/or Operators on their Compliance to Rules and Regulations.

Table 7. Difficulties of tricycle drivers and/or operators in their compliance to the rules and regulations of TRU

No.	Difficulties Experienced by Tricycle Drivers and/or Operators	WM	AD
1	Tricycle drivers are on contract basis with real operators/ owners.	2.50	Agree
2	Tricycle drivers lack necessary orientations on traffic rules and regulations	2.51	Agree
3	Refusal to attend seminars conducted by TRU	2.16	Disagree
4	Tricycle drivers when confronted are not being heard by their reasons or explanation for having committed or not having committed violations	3.13	Agree
Grand Weighted Mean		2.58	Agree

Legend:

3.25 – 4.00 – Strongly Agree (SA)

2.50 – 3.24 – Agree (A)

1.75 – 2.49 – Disagree (D)

1.00– 1.74 – Strongly Disagree (SD)

Table 7 shows the difficulties of tricycle drivers and/or operators in their compliance to the rules and regulations of TRU. Based on the data gathered respondents **agree** that *tricycle drivers when confronted are not being heard by their reasons or explanation for having committed or not having committed violations* with the weighted mean of 3.13. This finding mean that TRU personnel on field need to be evaluated in terms of their performance on the observance of the due process of law in respect to the investigation of alleged violations committed by the TRU subjects. Furthermore, the respondents also **agree** that *tricycle drivers lack necessary orientations on traffic rules and regulations* with the weighted mean of 2.51. This finding concludes that not all tricycle drivers and/or operators have the same number of years operating a tricycle unit. There are also young and new applicants who are not familiar with the rules and regulations. In the researcher’s interview this young drivers and/or operators are the ones that are not familiar and the old tricycle drivers and/or operators are the ones compliant to the rules and regulations.

Moreover, the respondents likewise **agree** that *tricycle drivers are on contract basis only*



with real operators/owners, with the weighted means 2.50. This finding points out the fact that tricycle drivers and/or operators had the difficulty of complying the rules and regulations because they are limited of money to settle immediately the problems they depend on the real operators/owners. As the researchers found out in the interview, at times the tricycle drivers who are on contract basis are not being oriented with the rules and regulations because it is the real owners/operators attending the seminars. The respondents also **agreed** that TRU personnel are observed to be less efficient over the specific applications of traffic rules and regulations. This finding infers that inclusive to the orientation program for TRU personnel for the familiarization of specific traffic rules, a need for a resource person from LTO be made available for purposes of generating the factual information pertaining technicalities of violations. Nevertheless, it is noticed that respondents **disagree** that tricycle drivers and/or operator refuse to attend seminars. This finding implies that tricycle drivers and/or operators are attending seminars to be familiar with the rules and regulation and it is in fact a requirement for the release of renewed franchise license.

Part V. Violations Experienced by the Tricycle Commuters/ Passengers

Table 8. Review of the extent of violation by tricycle drivers and/or operators

Powers and Functions	WM	AD
TRU has a committee tasked to perform responsibility to review the extent of violation by tricycle drivers and/or operators:		
a. Overcharging	1.26	Strongly Disagree
b. Overloading	1.67	Strongly Disagree
c. Refusal to Convey passenger	1.25	Strongly Disagree
d. Reckless Driving	2.41	Disagree
e. Discourteous or Arrogance	2.37	Disagree
f. No trash bin	3.02	Agree
g. Drivers under the influence of alcohol/smoking	2.97	Agree
h. Colorum	3.38	Strongly Agree
Grand Weighted Mean	2.29	Disagree

Legend:

3.25 – 4.00 – Strongly Agree (SA)

2.50 – 3.24 – Agree (A)

1.75 – 2.49 – Disagree (D)

1.00– 1.74 – Strongly Disagree (SD)

Table 8 shows the efficiency of TRU of its powers and functions in connection to the violations experienced by the tricycle commuters/passengers. Based on the data gathered,



the respondents **strongly agree** that TRU is strict in monitoring the violations that can be committed by the tricycle drivers and/or operators particularly in *colorum*, with a weighted mean of 3.38. This finding reveals that TRU is kept abreast of most tricycle units issued with franchise license to be legally plying on the street. On the other hand, the respondents **strongly disagree** that TRU is strict in monitoring the violations that are committed by the tricycle drivers and/or operators specifically: (a) *overloading*, (b) *overcharging*, and (c) *refusal to convey passengers* with their individual weighted mean of 1.67, 1.26, and 1.25, respectively. These findings imply the attitude of the tricycle drivers and/or operators take advantage with the tricycle commuters/ passengers to have overload and contributes risky travel to their respective destinations.

SUMMARY OF FINDINGS

This section presents the general findings of the research based on the specific statements of the problem, to wit:

1. In regard to TRU's exercise and practice of its powers and functions it is a general finding in this study that said agency is consciously and conscientiously particular over the compliance of tricycle drivers and/or operators on the basic documentary requirements for the issuance of the franchise license. Relatively, TRU is likewise highly dependable in terms of data and information access covering applicant's personal and vehicle's physical identity. Moreover, it is a general finding that TRU regularly monitors the nature and gravity of violations committed by the tricycle drivers and/or operators. Finally, TRU has institutionalize appropriate legal and methodical procedures resolving complaints and grievances not only according to the due process of law but also in a way to come up with constructive interventions.
2. In regard to the violations among the tricycle drivers and/or operators against rules and regulations, it is a general finding of this study that the aforementioned subjects have strong tendency to be negligent as to what circumstances it may come and as to who is finally held liable when there is transfer of ownership on the issued franchise license. Relatively, it is noticed that there is a large number of cases of tricycle units which are not properly identified due to the absence or improper placement/printing of vehicle's registration number and the corresponding printed name of barangay for the route right identity. Lastly, it is a finding that after a number of years from the



issuance of franchise license tricycle drivers and/or operators seem to be unmindful on the roadworthiness and dependability of vehicle (that appears to be their violation) due to several factors which include inability of the operator to finance on regular basis the cost of tear and wear (depreciation) of the tricycle unit.

3. It is likewise a general finding of this research that TRU experiences structural or institutional problems relative to the efficient performance of its powers and functions particularly along monitoring all violations in the field due to some constraints in the existing manpower of the agency. Corollary to this is a difficulty on additional staff being fielded on Saturdays and Sundays.
4. It is a general finding of this study that the TRU personnel are less responsive and less officially conscious over the due process of law specifically in respect to the humane manner in the investigation of alleged violations committed by tricycle drivers and/or operators. One very deliberate justifying circumstance making tricycle drivers prone to commission of violations would exist in the fact that some are young or new drivers who lack yet complete awareness on the rules and regulations. Lastly, the tricycle driver's difficulty rests in the fact that they are economically constraints due to most cases of them are on a "boundary basis."
5. Finally, it is a general finding that TRU is strictly negating colorum tricycle units to operate yet they lack as to the protection of passengers in connection to the violations committed by tricycle drivers and/operators.

CONCLUSION

TRU follows its institutional mandates on the proper issuance of the franchise license, on the safe record keeping, and on technical monitoring of the nature and gravity of the violations. The inability of tricycle drivers and/or operators to abide by the rules and regulations of TRU is grounded by a reality that, i.e., transfer of ownership entails delay and expenditure on their part. The difficulty of the TRU in its optimum compliance of efficiently performing its powers and functions is constraints by internal organizational staffing problem. While TRU has clear rules and regulations and powers and functions, a humane requirement of their practice to investigate requires further appropriateness in the practice of manners and procedures of investigations. While the TRU is exceptionally disallowing the presence of



colorum, it is also a case that this agency is yet deficient in protecting passengers due to some cases of overloading, overcharging and refusal to convey passengers.

RECOMMENDATION

1. It is suggested that TRU closely monitor the transfer of ownership on franchise license and liberalize the requirements of paper processing and making the processing time done in few minutes only as per predetermined in anti-red tape act.
2. TRU is suggested to improve the staffing pattern.
3. While TRU has mandated powers and functions to punish the culprits the rules and regulations, it is still a standing policy for its personnel to observe ethical manners and procedures that would be instrumental to the constructive investigation and the provisions of intervention.
4. Regular orientation to remind the tricycle drivers and/or operators of the adverse or negative consequences of their violations on overloading, overcharging and refusal to convey passengers.

REFERENCES

1. Abdulkadir, B.H. (2012). Design and Fabrication of Motorized Prototype Tricycle for the Disable Persons.
2. About Land Transportation and Franchising Board, October 2003.
3. "An Ordinance Establishing the Guidelines, Standards, Rules and Regulations for the Operation of Tricycles Operator's Permit, Implementing the Devolution of LTFRB's Franchising of Tricycles-for-hire to the City Government Pursuant to the Local Government Code of 1991 (RA 7160), Fixing the Rates and Providing Penalties Thereof, Resolution no. 2706, Ordinance No. 516, City of Davao, 1992.
4. Arroyo, G., Speech on 1st Tricycle Operators and Drivers Association of the Philippines (TODAPHIL) Summit. Quezon City, 2002.
5. Barter, P. An International Comparative perspective on Urban transport and Urban Form in Pacific Asia: The Challenge of Rapid Motorisation in Dense Cities. Doctoral Dissertation, Murdoch University, Australia, 1999.
6. Cabanatuan City: Tricycle Capital of the Philippines
7. Capulong, Willie, (1994) Tricycle are Here to Stay, Panorama.
8. City Ordinance No. 08-2013.



9. Computed based on 2002 NTCS survey that found each tricycle is used by an average of 1.3 drivers in Standards Development for the total Motorcycle/tricycle sector, December 2003
10. Color Coding for Dagupan City Tricycles”, June 17, 2003
11. Development of Drive Cycle and Emission Concentration Models for In-Use Tricycles in Metro Manila.
12. DOTC guidelines on tricycles, August 1992
13. “Fernando to commuters: Don’t ride colorum tricycles”, February 15, 2002
14. Gamboa B., “Trikes have no place in the highway”, May 28, 2003.
15. Grava, S., Urban Transportation System: Choices for Communities, Mc Grawhill, United State of America, 2002.
16. Guidelines to Implement the devolution of LTFRB’s Franchising Authority Over Tricycles for hire to Local Government Unit Pursuant to the Local Government Code (RA 7160), GOCC, July 1992
17. Hire Division, Davao City, 2003.
18. History of Land Transportation Office, October 2003.
19. “Inspection Checklist on For Hire Tricycles” Memorandum Circular No. 33, Board of Transportation, July 6, 1981.
20. Inspection and Maintenance and Roadworthiness of Vehicles.
21. Iwata, S., “Development and Sustainability of Public Transportation in Southeast Asian Cities.” Journal of the Eastern Asia Society for Transportation Studies, Vol. 1, Number 2, pp. 547-564, October 1995.
22. Land Transportation Offices and Franchising Board Region II and Motorized Tricycle for Stricter Guidelines for Metro Tricycles Set”, May 17, 2003.
23. LTFRB Manual, Department of Transportation and Communication, 1987.
24. Local Motorcycle/Tricycle Sector”, 3rd Quarter Progress Report, December 2003.
25. Manalaysay, J., The Tricycle Environment, Working Paper, Manila, 2002.
26. Motorized Tricycle Transportation Business in Catanduanes.
27. Mukhtar, Assessment of Tricycle as a Tool of Poverty Allevation.
28. “Numbering of Sidecars of Motorized Tricycle Administrative Order No. 5, October 5, 1981.



29. Navarro, J. (2001). Ergonomically Improving the Motorcycle Utilize in the Philippine's Tricycles.
30. Overall Improvement for the design of Motorized Tricycle in the Philippines- An Ergonomic Study.
31. Pangilinan, Azucena R., (1997) The Major Aspects of Tricycle Business in Cabanatuan City 1976-1977. Thesis, Araullo, Lyceum Graduate School
32. "Prohibiting tricycles to operate on major thoroughfares in Metro Manila" Ordinance No. 6 Metro Manila Council, December 14, 1990.
33. Shimazaki, T. and Rahman, M. "Physical Characteristics of Paratransit in Developing Countries of Asia. Journal of Advance Transportation, Vol. 30, Number 2, pp. 5-24, 1996.
34. "Sticker Guidelines for Metro Tricycles Set," May 17, 2003.
35. Study of Drive Mechanisms of Bicycle, Tricycles of like Vehicles to Optimize Operating Performance- A Review.
36. The Political Economy of Tricycle Transportation Business in Osogbo Metropolis: Lessons for a Developing Economy.
37. Thomson, J.M., Great Cities and their Traffic, Victor Gallanz, London, 1997.
38. Traditional and Modern Transport in Jakarta, December 21, 2003.
39. "Tricycle Protest Gridlocks Manila", January 6, 2003
40. Unknown Neighbourhood menace: Tricycle Emission, October 3, 2003
41. UP National Center for Transportation Studies, "Standards Development for the Local Motorcycle/Tricycle Sector", 3rd Quarter Progress Report, December 2003
42. UP NCTS Foundation, Transportation and Traffic Management Plan for Davao City Final Report. 2000.