A Study on Development of Local Public Transport Policy:
The Case of Tricycles and “Habal-habal”
in Davao City, Philippines

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Abstract

In developing countries like Thailand, Indonesia, Malaysia and Vietnam, motorcycles are part of the essential mode of transportation. In the case of the Philippines, motorcycle propelled public transport in the form of tricycles and/or “habal-habal”, also known in other countries as “motorcycle taxi” exists. The study illustrates the history and policy approach on rationalizing the informal transport services at the national and local level in the case of tricycles and “habal-habal”. The Philippine planning and policy system has two levels: national and local. At the national level, the study describes the development of local transport policy by integrating national policies (Land Transportation and Traffic Code, Public Service Act and the Local Government Code of 1991) and responses to related issues (congestion, etc) in devolving the government’s regulatory policy approach to the presence of tricycles. The study also illustrates the role of national transport related policies in the emergence of informal public transport such as “habal-habal” and open-can tricycles. Davao City, as a new and highly urbanizing area in the region of Mindanao was chosen as study site since it has a wide variation of motorcycle-propelled public transportation. Tricycles in the Philippines is legally classified as motor vehicle composed of a motorcycle fitted with a single wheel side- car or a motorcycle with a two- wheel cab operated to render transport to a general public for a fee. In Davao City, it can be found in the form of side-cab, center-cab and open cab. The latter, due to safety reason is considered illegal. Moreover, an emerging mode in the form motorcycle taxi mode known as “habal-habal” can also be found. The study described and classified the different types of motorcycle-propelled vehicles according to design, passenger loading capacity and legitimacy of operations. The local policy process review indicates that factors considered in policy development. This involved the presence of national policy guidelines, experience from the implementation of previous local policy as well as public inputs among others. Likewise, the local policy on tricycles were reviewed and further segregated according to its consequences such as its effect in local government/income generation, transportation service level, safety, congestion and environment. The former showed the issues and gaps in policy implementation while the latter present the importance of relating policies to local urban transport planning and management as well as local needs.
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Chapter 1

Introduction

1.1 Background

In cities of developed nations, a good land transportation mix generally exist, that is, the presence of motorcycles, private vehicles and a good range of public transport system notably buses in different sizes, choices in trains and monorails as well as the presence of pedestrian and non-motorized lanes. On the other hand, especially with that of the public transportation, the opposite seems to be happening in most cities of developing countries, particularly in Southeast Asia. The lack of common or traditional forms of public transport network and infrastructure such as mass public transportation is usually substituted with other innovative modes of public transportation.

The case of the Philippines in Southeast Asia is not an exception. Aside from the usual buses and taxis, it is a country where all modes of imaginable means of motorized public transport seems to ply the roads as exemplified by the presence of jeepneys, multicabs, megataxis, tricycles and “habal-habal”. The latter two, is another innovation out of the motorcycle in the late fifties and the present times, respectively. In fact, the jeepneys and tricycles has always been part of the Philippine’s urban landscape.

In the face of transport advancement coupled with increasing technological as well as environmental concerns and drive towards sustainable transportation, the presence of these indigenous motorized transportation modes in the transport hierarchy of most developing nations still remains. Approaches on how to view and integrate these modes in the transport planning process have been subject of discussion and research of most planners and scholars.

The tricycles of the Philippines as well as the other indigenous public transportation found in other Southeast Asian countries, like Thailand’s “tuktuks” and Indonesia’s “bajaj” are private sector operated and has been recognized as local public transportation mode. These modes are vehicles innovated out of motorcycles or scooters. At present, in developing countries of Southeast Asia, there is a significant share of motorcycles units as shown in Figure 1.1.
While figures on the number of motorcycles used as public transport mode or innovated as vehicles for use of passengers has been limited, related studies [1, 9, 19, 47, 3, 6] have indicated their presence and has qualitatively defined its role as paratransit and/or as gap fillers in the public transportation hierarchy of most developing nations. Moreover, related literature describing and characterizing the presence of this unique mode of transportation according to its physical, operating, demand, organizational and management features have been initiated by the Organization for Economic Cooperation and Development (OECD) since the early seventies. [1]. Based from the International Development for Rural Construction (IDRC) project definition, the term low-cost transport (LCT) modes as the usual means of movement among low-income people is used [1]. In the concept of paratransit – modes, tricycles and its variation was included in modes that offer a variety of urban and inter-urban services to meet commuters’ needs by having combination of fixed, variable or negotiated fares, routes and schedules that is not quite a conventional public transit nor a private motor vehicle [2,3,6]. Furthermore, it is collectively referred to as intermediate public transport (IPT)- or modes, which has transitional features and stressed the need for it to be classified and included in traffic survey and transport planning of cities [47]. A global overview of the presence of these indigenous modes and the adopted term informal transport is used to reflect its unsanctioned features- that is to some degree, lack the official and proper credentials such as certification requirements for public transport in terms of vehicle standards or permits [3].
These related studies have noted that the reason why such modes remain if not continued to increase is due to its socioeconomic consequences. That is, economic, as a source of employment for the driver and as well as the income it provides in the process of its operation. It emerged out of the need to provide mobility as well as an efficient alternative mode for a community with infrastructure limitation such as presence of well-developed roads.

Nonetheless, most cities in developing nations suffer related urban and transportation issues such as traffic congestion, decrease safety, worsening environment and poor and insufficient public transport services. These are attributed to the deficiencies in various aspects of policy setting, planning and financing, implementation and management not only of the transportation system but also of the overall urban development. Most of these studies provided the macro scenarios in policy setting and in most cases, policy response is done on a per issue level.

In the case of the Philippines, the policy-making process is done at (1) national and (2) local level (local government unit). This policy development is characterized as reactionary- that is reactive to the issue that was raised.

To date, in the transportation sector, the Philippines enjoy a high level of public transportation services compared to other developing cities. This high number of road-based public transportation can also be attributed to the presence of indigenous motorized vehicles. At the local level, emergence of indigenous modes, which are informal and illegal, can also be observed such as open-cab tricycles and motorcycle taxis. However, this high level of public transportation is not free from problems associated with aggressive competition and over-supply such as congestion as well as air and noise pollution especially in the case of Metro Manila, the national capital region of the Philippines. In fact, even at the national level, policy response has been enacted regarding these issues.

For instance, as a response to the growing issue of air pollution as exemplified in related studies with the World Health Organization (WHO), World Bank (WB) and Asian Development Bank (ADB), the Philippine government enacted the Clean Air Act of 1999. A feature of this policy affecting the public transport sector is the provision that motor vehicle used for public transportation should passed the emission standards set by the government by having certificate of conformity (COC) [2]. This indicates the complete and detailed description of motor vehicle and the engine, emission control system, fuel feed system and other particulars by the Department of Environment and Natural Resources (DENR).

Likewise, in the issue of lack of public transportation, the government introduces enabling policies that rationalized private transit and paratransit services as well as promoting entrepreneurial services thru fare liberalization.

The regulation of tricycles as a public mode is devolved at the local level. The local government faces dilemma on their regulation as new variations of motorcycle-propelled vehicles used for public transport as well as the presence of related issues that has been emerging especially in the urbanized areas of the Philippines.

Ideally, in developing local transport policy, the end objectives of urban transport planning such as mobility, congestion-free [33], accessibility, safety, sustainability, equity [39], quality, efficiency, environmental quality, technological capability and a balance community [51] are considered.

There has been limited empirical study on the role of policy in the emergence, elimination and regulation of informal public transportation. However, there is a suggested
normative policy framework for informal transport [3]. Moreover, on how transport related policy regarding informal transport at local level respond to these end objectives of urban transport planning. These local transport policies are regulation of vehicles used as public transport such as the operation of motorcycle-propelled vehicles that are enacted by policy makers within the city or municipal (local level).

Understanding local level policies in developing nations, which support and/or restrict the operations of local and indigenous public transport like tricycles from the local government unit’s perspectives has been limited. The assumption is this paper, is that indigenous public transport like the motorcycle-propelled vehicles in the case of tricycles and its variations emerged, prior to the development of policies that governed them and that these policies developed are comprehensive and considered the urban transport planning principles to avoid further urban transport issues such as pollution and congestion.

A study on the development of local transport related policies is important since issues such as air pollution, decreasing public transport service level, safety among others are first felt at the local level. The structural factors causing problems and inequities concerning transport and traffic condition maybe related to urban and transport policies have been noted [4]. Considering the lessons of transport policy development at local level can provide a significant contribution in addressing the basic building blocks in planning and in so doing, this research hopes to “nip the bud” of transport related problems in developing nations such as the Philippines.

1.2 Motorcycle-propelled Public Transport: Related Problems and Issues

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 [5]. 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 [6].

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 [7].

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 [8]. 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 [9]. The use of motorcycle-based public transport has raised concerns related to the worsening environment, safety and traffic congestion. The immediate issue is
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 [10].

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 neighborhood. 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 [11].

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 [12]. 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 [15].

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 [16]. 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 [17].
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 [18].

![Chart showing registered number of private and for hire motorized vehicles in the Philippines, 2000](image)

Figure 1.2 Registered Number of Private and For Hire Motorized Vehicles in the Philippines, 2000[19]
1.3 The Study Area

The Republic of the Philippines is an archipelago consisting of 7,107 islands lying in the tropical western Pacific Ocean about 100 kilometers southeast of mainland Asia. It is the only predominantly Catholic nation in Asia. Given this nature, transportation and communication plays a vital role in the nation’s economic development. The length of national road is 29,761 kilometers; with roads classified as 56 percent arterial and 44 percent secondary. There is a unique blend of Asia and the West in its culture since Spain and the United States were both previous colonizers of the nation. It has 300,000km² of land area and has a population of 82,841,518 as of 2000. This makes the Philippine ranked no.13th and no.70th in the world in terms of population and land area. The government of the Philippines is loosely patterned after the American System and is organized as a representative republic. For administrative convenience, all provinces are grouped into 16 regions. It is divided into three (3) major groups, Luzon (Region I-V plus National Capital Region (NCR) and Cordillera Administrative Region or CAR), Visayas (VI to VIII) and Mindanao (IX to XIII
or CARAGA known as the Cagayan-Agusan region and the Autonomous Region of Muslim Mindanao) [22].

In the early 1990s, Mindanao gained significant attention when it was envisioned to be the gateway of Mindanao to East Asian Growth Area (EAGA), an Asian strategy envisioned to accelerate economic development in identified areas [23]. Among these regions in Mindanao islands, Region 11 showed a significant 30 percent increase from 1991 figure to 2001 in motor vehicle registration as shown in Figure 1.3.2.

Moreover, in 2000, Region 11 also showed a high number of tricycles per capita at one tricycle per 150 persons (Table 1.3.1).

The hierarchy of local government units (LGUs) starts with the province as the primary unit. There are 79 provinces as of 2002. These are further subdivided into cities and municipalities, which are in turn composed of barangays. Among the top ten most populous cities in the Philippines [25], Davao City, the gateway in the South is selected as the study area for this research. In 2002, Mindanao News featured that Davao City’s regulation on tricycle operators is considered by Zamboanga City’s (Southwestern Mindanao) and Las Pinas as their model for introducing certain amendments in their own city ordinance [26].

Figure 1.3.2 Registered Number of Motor Vehicles per Region, 1991 and 2001[24]
Table 1.3.1 Tricycle Per Capita in the Philippines [27]

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
<th>For Hire MC/TC</th>
<th>Tricycle per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCR</td>
<td>9,932,560</td>
<td>183,681</td>
<td>54.08</td>
</tr>
<tr>
<td>CAR</td>
<td>1,365,560</td>
<td>14,518</td>
<td>94.06</td>
</tr>
<tr>
<td>I</td>
<td>4,200,478</td>
<td>65,062</td>
<td>64.56</td>
</tr>
<tr>
<td>II</td>
<td>2,813,159</td>
<td>54,770</td>
<td>51.36</td>
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<td>III</td>
<td>8,030,945</td>
<td>121,883</td>
<td>65.89</td>
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<tr>
<td>IV</td>
<td>11,793,655</td>
<td>126,855</td>
<td>92.97</td>
</tr>
<tr>
<td>V</td>
<td>4,674,855</td>
<td>30,292</td>
<td>154.33</td>
</tr>
<tr>
<td>VI</td>
<td>6,208,733</td>
<td>50,121</td>
<td>123.87</td>
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<td>VII</td>
<td>5,701,064</td>
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<tr>
<td>VIII</td>
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<td>157.38</td>
</tr>
<tr>
<td>X</td>
<td>2,747,585</td>
<td>14,091</td>
<td>194.99</td>
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<td>XI</td>
<td>5,189,335</td>
<td>34,236</td>
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<tr>
<td>XIII</td>
<td>2,095,367</td>
<td>6,816</td>
<td>307.42</td>
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<tr>
<td>Grand Total</td>
<td>71,957,702</td>
<td>794,499</td>
<td>90.57</td>
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The City of Davao

The City of Davao (Figure 1.3.1) is also considered as one of the world’s largest cities in terms of land area at 2,500 square kilometers and is located on the west central part of Southern Mindanao. Davao is approximately 94 588-statute miles southeast of Manila and 241 statute miles to Cebu City and is the region 11’s administrative center as well as one of the hubs of economic activity in the island of Mindanao [28].

According to the City Competitiveness Report (1998), the City of Davao is relatively young in form and structure and one is of a highly urbanizing city in the Mindanao region [29]. Davao City is considered in Davao Integrated Development Program or DIDP (2003) as one of national growth center next to Metro Manila within the context of national spatial development [30]. Moreover, the city has an increasing trend of motor vehicle as shown in Figure 5 and has the highest motor vehicle density in Region 11 at 51 vehicles per kilometer of road.
Various types of public transport vehicles can likewise be observed as presented in Figure 1.3.3. This includes the Land Transportation and Franchising Board regulated buses, taxis, mega-taxis (FX), public utility jeepney (PUJ), multi-cabs, and auto calesa. On the other hand, the City government of Davao is in-charge of regulating or controlling tricyboats (pedicabs with boat engine attached to it), trisikads (also known as pedicab or bicycle with attached side-cab), and tricycles in different designs (such as those with side-cab, center cab and open-cab) as well as habal-habal (motorcycle taxis). Among these modes, only the operation of tricycles has guidelines for its local government regulation set from the national level. Tricycles as well as many variations of these modes can be observed and this is one of the bases in choosing the study area.
From this study area, motorcycle-propelled vehicles in the form of tricycles (Figure 1.3.5) and habal-habal (Figure 1.3.6) are characterized based from its operation. The evolution of policy development related to its regulation is reviewed. It examines how the local government responded to their emergence and how local policies were utilized to regulate their operation. A checklist is prepared and compared whether or not these enacted policies took into consideration the end objectives of urban transportation planning principles in terms of mobility, accessibility, equity, safety and environmental protection. A comparison between the Metro Manila Ordinance before and after the devolution (1990 and 1996-97) as well as the DOTC national guidelines (1992) and the City of Davao ordinances (1992 and 1994) using the checklist prepared was also done.
1.4 Objectives

The study aims to illustrate the history and policy approach on rationalizing the informal transport services in developing countries such as the Philippines. The other objective is to determine the bases of local transport policy development and their relationship with the end-objectives of urban transport planning. The study traces the development of indigenous transport in the form of local public transport like motorcycle-propelled (tricycles and its variations) vehicles and assesses government response.

Specifically using Davao Study as the case study area, the research study aims to:

1. Describe the local public transportation-motorcycle-propelled vehicles;
2. Illustrate the transport policy development at the national level and at the local level by identifying the period of emergence of tricycles and its variations as well as the local government response and;
3. Examine whether the local transport policy developed, considered the end objectives of the principles of urban transportation planning objectives.

1.5 The Methodology and Analytical Framework

The study employs a qualitative approach in an attempt to explore the range of issues available in understanding the development of transport policy covering local public transport system in the Philippines. This qualitative approach uses descriptive research to describe the existing situation regarding the motorcycle-propelled vehicles available in the study area. It utilizes the historical nature of document analysis in order to trace the evolution of policies covering motorcycle-propelled vehicles from the national level to the local level using a twenty-year period (1980-2002).

The nature of this study entails the gathering of policies enacted and related documents concerning the operations of motorcycle-propelled vehicles at the (1) national and (2) local level. The basic data of this research is obtained from published documents of government agencies such as Department of Transportation and Communication (DOTC), National Statistical Coordination Board (NCSB) the regional offices of Land Transportation Office (LTO), Department of Public Works and Highways (DPWH), Land Transportation and Franchising Board (LTFRB) as well as the local government unit agencies such as City Government of Davao and enforcement agencies such as the Philippine National Police (PNP)-Davao City and Traffic Management Group. Minutes of the Meetings and Resolutions are likewise obtained. This is further supplemented by information obtained from in-depth unstructured interviews with the key informants composed of selected officials and city administrators at the national and local level as well as tricycle and habal-habal owners/drivers and residential association heads. They are: Mr. Deo Leo Manalo, Engr. Segundo Palacia and Lemar Enriquez of DOTC, Ms. Josephine Manalaysay, Executive Director of Partnership for Clean Air, Atty. Gomer Dy of the Land Transportation Office of Region 11, Councilor Danny Dayanhirang, Chair of the Committee of Energy and Transportation, Mr. Luis Jacinto of City Planning Office, Atty. Santos Torrena of the City Legal office, all of the City Government of Davao and Col. Mario Premacio and Col.
Celedenio Tibayan, local traffic enforcers in Davao City. The data gathered were then carefully examined using documentary analysis that is a feature of descriptive research. Given the limitation of reviewing the content and nature of the local policy developed concerning motorcycle-propelled public transportation mode, statistical method is not used.

Likewise, at the local level (Davao City), the study reviews the policies regarding the regulation of tricycles. This section of the study employs content analysis using the case study feature of descriptive research. With the implementation of the Local Government Code of 1991, transportation sector is one of the devolve functions allowing the local city council to draft guidelines and other regulations related to tricycles. Local government has to conform by the guidelines set by the national agency. In the case of Davao City, the City Council or the elected policy makers at the local level was tasked to draft and enact local policies concerning motorcycle-propelled public transport. It should be made clear, however that the intent of this research was not to discredit the City Council involved in the drafting of local transport policies but to determine the history and policy approach regarding the emergence of indigenous public transportation as well as check whether or not these local transport policies responded to the urban planning principles in addressing the issues of congestion, pollution, safety, equitability and mobility.

Mobility, accessibility, equity, safety and environmental protection are chosen as the attributes used in categorizing the content of the local transport policy. The other identified attributes such as congestion free and balance community can belong to mobility and environmental protection, respectively. Quality can be equated with safety and so is efficiency with mobility.

The study follows the framework described in the following illustration:

![Analytical Framework](image)

Figure 1.5 Analytical Framework

The basis of how local transport policies were developed and implemented is likewise reviewed. Among the possible basis of these policies include: the Public Service Act, the
Land Transportation and Traffic Code of 1964 and the Local Government Code of 1991, Comprehensive Development Plan of Davao City, Transportation and Traffic Management Plan for Davao City Final Report and studies from Japan International Cooperation Agency (JICA) which included the Davao City Land Use Cum Transport Planning Study and Davao Integrated Development Project (DIDP). It is also possible that certain interest groups or private organizations such as Partnership for Clean Air, Tricycles Operator and Driver Association of the Philippines (TODAPHIL) influenced some of the transport policies that were enacted. Hence, they are also considered in the review.

Moreover, ocular visits to the different terminals in the barangays and residential areas as well as field observations of the motorcycle-propelled vehicles were done to profile the different variations of this mode. Unstructured interviews with the driver/operator as well as their passengers were also conducted in July 2003 in different baranggays representing the three (3) districts of Davao City.

1.6 Research Structure

The paper presents six chapters as shown in Figure 9. Chapter 1 provides the introductory context on the issues, motivations, research questions and scope as well as outline of the study. This research is an attempt to provide insights on the local level process of developing transport policy. Likewise, it presents the rationale and limitations of the methodology adopted in this paper. Central to the approach is the analytical framework that is presented in Figure 1.5.

Chapter 2 examines the theoretical background on the issues and problems on the use of motorcycle-propelled vehicles as public transport. Chapter 3 reviews the cases of motorcycle-propelled public transportation in selected developing nations as well as expound on the need for this kind of study. Chapter 4 focused on the relevant studies of motorcycle-propelled public transport in the Philippines.

Chapter 5 presents the case of motorcycle-propelled public transportation in Davao City. The operating characteristics of motorcycle-propelled public transportation found in the City of Davao are described. Answers to the question presented on why habal-habal are used as public transport was discussed in this part. The process of local policy development in the city was also described. A review using the end-objectives of urban transport with regards to the development of local transport policy on motorcycle-propelled public transportation is likewise shown. The local policies developed were reviewed and compared by providing a checklist on the relation of local policy development and urban transport planning objectives in order to observe if there were mismatches or gaps.

Chapter 6 provides a brief overview of the study and summary of the major findings based from the analysis. Important policy implications are highlighted. Suggestions are made for further research to answer further questions raised by the study.
Figure 1.6. Research Structure
Chapter 2

Urban Transport Planning: Concepts and Emerging Issues

Urban transportation planning is designed to meet the end objective of addressing transport problems in terms of traffic movement, public transport, pedestrian, environment and parking [33]. This process includes all vehicle services designed to transport passengers on local and regional routes. These services include: private and public buses; trolleybuses; vanpools; jitneys’ demand response services; heavy and light rail; commuter rail and automated guide-way transit. While public transport use is strongly influenced by external factors such as composition of the population and car ownership [34], its utmost objective is to provide personal mobility and freedom as well as help in relieving traffic congestion. Ideally, it is also the immediate means of helping protect our environment and conserve energy. Developed countries seem to attain this objective but a gap seems to happen in developing countries of Southeast Asia. In fact, the dilemma being faced by planners is how to effectively address the problems of the poor without restricting the economic growth of the cities [35]. Reconciling equity considerations with development is the end goal of transport system in many developing cities where the urban poor represent the majority of the population.

Thru the years, there have been various studies in the complex nature of transport and traffic systems in developing countries. The choices concerning modal mix for a city depends on several social, economic, environmental and technological issues [36,37] as well as the structural changes [38,39]. In fact, proposals that transportation decisions can be made using one or more of the following methods: master plans, systems approach, behavioral theories, group decisions and adaptive decisions have been recommended [40].

Despite these developments, the issue in developing countries remains the same, that is congestion, deteriorating environmental conditions, safety and security and declining transport for the poor. In the light of these topics, the related concepts and issues are discussed in the next section.
2.1 Mobility and Modal split

Traditional transport planning concepts defined the modal split as the share of daily trips made using each mode. The key issue is to provide the balance between modes and how the division changes over time. On the other hand, the number of trips made per person per day measures mobility.

Generally, there is low mobility with low income. Modal splits present large variations and three main groups may be formed: cities with predominantly non-motorized trips (like Beijing), cities where public transport accounts for the majority of trips (Buenos Aires) and cities where motorized private modes play a big role. The latter, can be divided according to the type of private motorized transport they have: Hanoi for example is mainly on motorcycles while in Buenos Aires, Caracas, San Paulo and Pretoria, car mode is more predominant [41]. In some cases, this private motorized transport belonged to the informal transport for it can double as a public transport, in the case of the paratransit modes [42].

2.2 Accessibility and Infrastructure

The important role that road infrastructure conditions play both for motorized and non-motorized modes cannot be downgraded. A wide variety of vehicles especially those that are innovated in terms of technology and capacity to adopt as public transport can be observed in most developing countries. It is thus important to note that road conditions are examined in the framework of this discussion. Road conditions may be examined through the type of surface and the total road area as well as the road width available. How this road infrastructure is used by the different transport mode is an important aspect to look at.

Another indirect measure of the positive effects of transportation system is the ease of which people get to their desired destinations. This is accessibility that is represented by the number (quantitative) and the nature (qualitative) of the destinations reached by a person. Corollary indirect measure is the density of the infrastructure and transport supply that impacts on travel conditions: pavements for pedestrians, public transport lines for captive users, roads for people with access to private motorized vehicles [43].

2.3 Congestion and Environmental Nuisance

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 [44].
2.4 Level of Service

One of the main objectives of developing public transport system is improving the level of service in terms of comfort, safety, and frequency in service as well as providing a reasonable and affordable fare for the public. This can pertain to how local government assures the quality of the vehicle used for public transportation.

2.5 Equity and Employment

In most developing nation, local public transport is equated with informal transportation. And one of the most likely reasons suggested why it prevails in most cities of developing countries is the fact that they continue to become an affordable mode for the urban poor populace. They remain to be a sound alternative for those who cannot access a reasonable ride to its destination. More so, it also provides additional income and employment for those who do not have a job.

2.6 Urban Transport Planning End-objectives vis-à-vis Local Public Transport Policy Development

Mobility and modal split is an important consideration in reviewing public transport policy developed at the local level for this provides an insight of how a certain mode, for instance in the case of motorcycle-propelled vehicles is viewed from the policy makers perspective. In the case of the Philippines, there was an indication that the wide variations of available low-cost public transport system might explain why motorcycles are not a popular mode for personal mobility [45]. Understanding the process of local transport policy development concerning tricycles might yield some useful insights as well as validate its role in the transportation hierarchy.

Infrastructure and accessibility is another given concept that explains why some public transportation gap exist and why innovative modes evolved. Thus, reviewing local transport policy can provide insights on how the public sector integrates the evolution of different modes with the type of available infrastructure. Moreover, one can understand the premium placed by the local policy makers on infrastructure and accessibility such as the link of one mode to another.

At present, air pollution has become associated with most cities of developing nations. This can be attributed to a number of factors, such as increasing number of motor vehicles that are not all well maintained. Determining if this issue has been considered in developing local transport policy can provide an insight on how proactive the local government is.

Reviewing local transport policy can also show how local government ensured a public transportation acceptable level of service. Understanding local level regulation can indicate how policy makers respond when given better public transport alternatives.

Indigenous modes of public transport continue to prevail in most cities of developing nations and this is attributed to the fact that they are affordable by all the sectors of the
society. They are private sector initiated and can adapt to the needs of the passengers. Understanding how local government responds to this may proved useful in future developments in the area.
Chapter 3

Low-cost Transport, Paratransit, Intermediate Public Transportation and Informal Transportation

In many developing countries of Asia, light motor vehicles based on scooters and motorcycles such as Philippine “tricycles”, Thailand’s “tuktuk”, Indonesia’s “helicak” and Cambodia’s “moto-dub” have been playing important role in the public transport system. While policy attention is being given to the improvement of public transportation such as bus and rail transit system, the fact still remains that motorcycles or motorcycle-based light motor vehicle are being used as a public transport. Based from available literature, this part of the study reviews and summarizes the different classifications where the motorcycle-propelled public transportation has been included.

3.1 Low-cost Transport

The term low-cost transport (LCT) is used based from their comparative study of the unique types of transportation found in five cities of Asia (Bandung and Yogyakarta in Indonesia, Manila in Philippines, Chang-Mai in Thailand and Istanbul in Turkey). Low-cost transport (LCT) modes which includes the Bajaj (Indonesia), Jeepneys (Manila), Tuktuk (Chiang-mai) are describe as the usual means of movement among low-income people and these modes have many things in common such as affordable rates, low energy requirement, labor intensive application and small area of coverage. It has gained significant amount of popularity as a means of transport and source of employment since they are operating in cities with different macro environment backgrounds and with different passenger capacities, operating ranges, service patterns, and regulatory frameworks. Moreover, interview with local transport officials of the five cities considered LCT as useful form of public transport and source of livelihood for the poor [46].
3.2 Motorized Intermediate Public Transport

In order to explain the presence of the public transport alternatives found in developing countries of most cities in Asia, the historical development of public transportation in Southeast Asian cities based from the preliminary studies and many papers from the 1970s was reviewed [47]. These “alternative” public transport modes included the “tuktuk” of Thailand, the “bajaj” of Indonesia, “lambretto” of Cambodia and the “jeepneys” and “tricycles” of the Philippines. The collective term, motorized intermediate public transport (IPT) was used to describe these modes. This is a categorization wherein characteristics of these modes where analyzed with regard to their organization, technology, service and utilization of service as having intermediate features. Moreover, this paper emphasized the growing need for urban transportation planning to consider IPTs in urban transport planning for various reasons such as its elimination and/or regulation. It is intermediate in the sense that these modes will eventually, be phased-out and replaced by modern or mass based public transport [47].

3.3 Paratransit

Paratransit, in this study, included the non-motorized public transportation such as the “pedicabs”. These are bicycles with attached side-cab used for public transportation and are also called as “trisikads” as well as innovations in motorized vehicles like jeepneys and tricycles. A description and summary of the physical characteristics of paratransit found in developing countries of Asia is made. The latter consist mainly of a mixture of motorized vehicles of various sizes and engine capacity. It primarily focused on the physical and operating aspects of paratransit and showed that its significant feature is that of its flexibility and availability for door-to-door service. Table 3.3.1 provided the summary of the physical characteristics of paratransit found in some developing countries [48].
Examples of Motorcycle-propelled Vehicles Used as Public Transport in Asia:

Figure 3.3.1 “Bajaj” of Jakarta, Indonesia [49]

Figure 3.3.2 “Tuktuk” of Bangkok, Thailand [50]
Table 3.3.1 Physical Characteristics of Paratransit Modes in Some Developing Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Modes</th>
<th>Length (m)</th>
<th>Width (m)</th>
<th>Extra Capacity (kg.)</th>
<th>Engine Capacity (cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>Mishuk</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a</td>
<td>50-80</td>
</tr>
<tr>
<td></td>
<td>Autorickshaw</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a</td>
<td>125-150</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Becak</td>
<td>2.25</td>
<td>1.00</td>
<td>30</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Andong</td>
<td>3.50</td>
<td>1.50</td>
<td>100</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Ojek</td>
<td>1.60</td>
<td>0.80</td>
<td>15</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Bajaj</td>
<td>2.50</td>
<td>1.20</td>
<td>30</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Bemo</td>
<td>2.90</td>
<td>1.25</td>
<td>30</td>
<td>360</td>
</tr>
<tr>
<td></td>
<td>Opelet (small)</td>
<td>3.80</td>
<td>1.80</td>
<td>70</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>Opelet (large)</td>
<td>4.15</td>
<td>1.25</td>
<td>80</td>
<td>1500</td>
</tr>
<tr>
<td>Philippine</td>
<td>Jeepney</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a</td>
<td>60-90hp</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Auto-rickshaw</td>
<td>n.a</td>
<td>n.a.</td>
<td>n.a</td>
<td>150-200</td>
</tr>
<tr>
<td>Sri-Lanka</td>
<td>Auto/3 wheeler</td>
<td>n.a</td>
<td>n.a.</td>
<td>n.a</td>
<td>150-200</td>
</tr>
<tr>
<td>Thailand</td>
<td>Motorcycle taxi</td>
<td>1.7-1.8</td>
<td>0.4-0.5</td>
<td>n.a.</td>
<td>80-150</td>
</tr>
<tr>
<td></td>
<td>Samlor</td>
<td>2.6</td>
<td>1.25</td>
<td>n.a.</td>
<td>360</td>
</tr>
<tr>
<td></td>
<td>Silor</td>
<td>n.a</td>
<td>n.a.</td>
<td>n.a.</td>
<td>550</td>
</tr>
<tr>
<td></td>
<td>Pick-up</td>
<td>4.9</td>
<td>1.7</td>
<td>n.a.</td>
<td>1000-1200</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Xelam</td>
<td>n.a</td>
<td>n.a.</td>
<td>n.a.</td>
<td>125</td>
</tr>
</tbody>
</table>

Table 3.3.1 shows that at least 44% of the paratransit found in selected parts of Asia, are motorcycle-based. This includes mishuk, autorickshaw, three-wheelers, ojek, motorcycle taxis, bajaj and xelam that are found as land-based public transport in Bangladesh, Pakistan, Sri-lanka, Indonesia, Thailand and Vietnam.

Moreover, there has been a comprehensive discussion on paratransit in the United States as well as those in developing countries [3,6]. Paratransit was aptly described as “as a service that is not quite full public transit and that has some of the convenience features of private vehicle operation” [6]. It is smaller in scale than the real transit, utilizing smaller vehicles and can be legal or illegal as defined by local rules and regulations. These are common in most developing countries, where the standard of living is lower, with high population density and where available cheap labor provided a unique array of transport modes bridging the gap between public bus and private automobiles. Bajaj, tuktuk and tricycle were classified as motorcycle-based light motor vehicles [51].

3.4 Informal Transportation in Developing Nations

There has been a comprehensive discussion on the informal transportation and paratransits in developing nations [3]. Informal public transport is described as a sector made up of comparatively small passenger-carrying vehicles. The classes are partly known on the basis of whether vehicles are motorized or non-motorized and
generally ply fixed routes and only make minor detours off of fixed paths. This is summarized in table 3.4.1.

Motorcycles and the three-wheeled innovation were sub-classified to belong to the Class IV and were described as the smallest motorized modes. They belong to the next to lowest rung of informal transport and operate like the taxi that rely on comparatively slow, light-weight vehicles that provide lower quality services than exclusive-ride taxis at cheaper fares. In contrast to large vehicle services, they generally complement rather than compete with formal bus and rail systems. This includes the three-wheelers that accommodate 2-4 passengers, such as Bangkok’s Tuktuks, named for their loud two-stroke engines, Manila’s motorized tricycles, and Jakarta’s bajaj [52].

Table 3.4.1 Classification of Informal Paratransit Vehicles

<table>
<thead>
<tr>
<th>Class</th>
<th>Service</th>
<th>Features</th>
<th>Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Routes</td>
<td>Schedules</td>
<td>Capacity</td>
</tr>
<tr>
<td>I. Conventional Bus</td>
<td>Fixed</td>
<td>Fixed</td>
<td>25-60</td>
</tr>
<tr>
<td>II. Minibus/jitney</td>
<td>Fixed</td>
<td>Semi-fixed</td>
<td>12-24</td>
</tr>
<tr>
<td>III. Microbus/ Pick-up</td>
<td>Fixed</td>
<td>Semi-fixed</td>
<td>4-11</td>
</tr>
<tr>
<td>IV. 3wheeler/ Motorcycle</td>
<td>Variable</td>
<td>Variable</td>
<td>1-4</td>
</tr>
<tr>
<td>V. Pedicabs/horse cart</td>
<td>Variable</td>
<td>Variable</td>
<td>1-6</td>
</tr>
</tbody>
</table>

The attributes of informal public transportation, which includes, entrepreneurial, small and aging vehicles, low performance services and competitive, niche markets are discussed. The normative framework for rationalizing and enhancing informal transport services were drawn from this attributes. A thorough discussion on the possible government policy response: acceptance, recognition, regulation and prohibition were discussed [53].

Emergence of Motorcycles as Public Transportation

Another fast growing mode in most cities of developing nations were the motorcycle –taxis otherwise known as “ojeks” in Indonesia, “rubjang” in Thailand, “okada” in Nigeria, “moto-conchos” in Dominican Republic and “moto-dub” in Cambodia and are classified similarly with the three-wheelers. A summary of available case studies of motorcycle taxi operations in Bangkok, Thailand (Figure 3.4.2) [54] and Jakarta, Indonesia (3.4.2) is found in table 3.4.2 [55].
Table 3.4.2 shows that use of motorcycle as a public transport mode started earlier in Bangkok and was initiated by local naval officials in residential areas. On the other hand in Jakarta, the active campaign against “becak”, a non-motorized public transport mode (bicycle with attached side-cab) was one of the points raised as well as the deficiencies in infrastructure.

Examples of Motorcycle Taxis in Bangkok, Thailand and Jakarta, Indonesia

Figure 3.4.1. The “Rubjang” of Bangkok [56]

Figure 14: “Ojek” Terminal in Indonesia [57]
Table 3.4.2. Comparison of Motorcycle taxi Operations in Southeast Asian Case Studies

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Bangkok, Thailand</th>
<th>Jakarta, Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Rubjang</td>
<td>Ojeks</td>
</tr>
<tr>
<td>Period of emergence</td>
<td>1980’s</td>
<td>1994</td>
</tr>
<tr>
<td>History</td>
<td>Initiated by low ranking naval officers in the naval housing (affordability, safety)</td>
<td>Appeared when the crackdown against “becak” intensified.</td>
</tr>
<tr>
<td>Transport Role</td>
<td>Feeder mode and short-haul journeys</td>
<td></td>
</tr>
<tr>
<td>Road Description</td>
<td>Narrow alleyways</td>
<td>Poor road network (with many discontinuous links); narrow roads</td>
</tr>
<tr>
<td>Description of other modes</td>
<td>Infrequent tuktuk transport system</td>
<td>Spotty bus services</td>
</tr>
<tr>
<td>Service Coverage</td>
<td>Residential entrances; Main roads; Active Centers; Inter-modal points</td>
<td>Bus depots; train stations; shopping plazas; residential areas</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>Territorial</td>
<td>Independent</td>
</tr>
<tr>
<td>Organizational system</td>
<td>“win”-”soi” corner 18-25 members</td>
<td>Operator and drivers arrangements 4-5 members</td>
</tr>
<tr>
<td>No. of passengers</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Type of service</td>
<td>Door to door</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.4.2 also showed that both cities showed that local officials tolerated the use of motorcycles as public transport mode. Policies governing their operations are those that are compulsory under the national level such as the registration coverage and the use of helmet. Unlike Jakarta, there is an internal policy among the organization members in Bangkok such as the strict enforcement on use of helmets and jackets.
Table 3.4.3 Comparison on Policy Responses on the Emergence of Motorcycle-taxis in Bangkok and Jakarta, Indonesia

<table>
<thead>
<tr>
<th>On Policies</th>
<th>Bangkok, Thailand</th>
<th>Jakarta, Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Coverage</td>
<td>Land Transportation Act – registered as private vehicle</td>
<td>No government regulation or control regarding its operation as public transportation mode</td>
</tr>
<tr>
<td>Regulation as Public Transportation</td>
<td>Use of helmet.</td>
<td>Use of helmet for drivers and passengers Banned from thoroughfares and toll roads.</td>
</tr>
<tr>
<td>Applicable part of national transport policy coverage</td>
<td>Use of helmet.</td>
<td>Use of helmet for drivers and passengers Banned from thoroughfares and toll roads.</td>
</tr>
<tr>
<td>Internal Operational Policies</td>
<td>“Win”-motorcycle groups: use of helmet use of jacket</td>
<td>Micro-enterprise where 2-4 person is involved in the motorcycle taxi operations: Vehicle maintenance Business management</td>
</tr>
<tr>
<td>Transportation Cooperatives</td>
<td>Structured</td>
<td>Less Structured</td>
</tr>
</tbody>
</table>

**Operational Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Bangkok, Thailand</th>
<th>Jakarta, Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare</td>
<td>Fixed: $0.45-0.60* Out of territory: negotiable</td>
<td>Negotiable Average: $0.17-0.22**</td>
</tr>
<tr>
<td>Average Distance Range</td>
<td>1-2 km</td>
<td>2.1-5.3 km</td>
</tr>
<tr>
<td>Type of motorcycles used</td>
<td>Small and low-powered 80-110cc</td>
<td>Small and low-powered</td>
</tr>
<tr>
<td>Design</td>
<td>No reported innovations</td>
<td>No reported innovations</td>
</tr>
</tbody>
</table>

Note: * Based from 1992 exchange rate of $1.00=25 Baht  
** Based from 1999 exchange rate of $1.00=1,881 Rupiah
Table 3.4.4 Motorcycle-taxi Driver’s Financial Performance

<table>
<thead>
<tr>
<th></th>
<th>Bangkok, Thailand</th>
<th>Jakarta, Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Revenue</td>
<td>287</td>
<td>126.24</td>
</tr>
<tr>
<td>Total Cost</td>
<td>182</td>
<td>45.83</td>
</tr>
<tr>
<td>Gasoline</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Loans</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>Jacket Rental</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Win Fee</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Others (such as insurance, etc.)</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Earnings</td>
<td>105</td>
<td>80.41</td>
</tr>
</tbody>
</table>

Note: * Based from 1992 exchange rate of $1.00=25 Baht
** Based from 1999 exchange rate of $ 1.00=1,881 Rupiah

The case studies also indicated the advantages of motorcycle taxis in terms of transport service level, employment generation and equity. It is a fast and efficient mode where there is flexibility in operations. It has the ability maneuvering on stalled traffic as well as travel on unpaved/rough roads. Likewise, it is a source of employment for the driver and/or additional income for drivers/operators. It is equitable in a sense that it can provide access and cheap alternative mode for passengers.

On the other hand, the issues concerning this mode are on safety and environment. In Bangkok, Thailand its noise has become an issue for pedestrians [58].

3.5 Chapter Summary and Research Gaps

In summary, this chapter presents descriptive studies related to motorcycle-based light motor vehicle used as public transportation in selected developing countries. Bajaj, tuktuk, lambretto, tricycles, mishuk, auorickshaw, xelam and motorcycle taxis are some of the identified motorcycle-based light vehicles found in developing nations of South and Southeast Asia.

Categories such as low-cost, paratransit, intermediate motorized public transport and informal public transportation depending on where these modes belong have been previously provided [1,47,48,3,6].

It is low-cost transport since it is the usual means of movement of low-income people. It has affordable rates, low energy requirements, and labor intensive. It usually has small area of coverage [59].

It is an intermediate motorized transportation in a sense that it has intermediate features in the absence of modern or mass-based public transportation [60].

It is considered a paratransit mode of transportation utilizing small vehicles for public transport with the convenient features of private vehicles [61] that are physically small with length (meters) from 1.7 to 2.5 and width (meters), 80 to 1.2
and have extra capacity (kilograms) of 15 to 30. It used the engine capacity of scooter or a motorcycle ranging from 50-150 cc. Identified advantage is that it is affordable, has low energy requirements, flexible and can be used for door-to-door services as well as provide employment [62].

It is called informal public transportation that can be used as a complimentary mode and common in areas with lower standard of living, high density and availability of cheap labor. It is basically an unsanctioned mode in the absence of regulations covering their operations. The attributes associated to these modes include: entrepreneurial, small, aging vehicles, low performance services and competitive niche markets. They have internal organizational structure as a means to self-regulate and promote efficiency. It is labor intensive and can provide employment opportunities. It has small area of coverage and the main issues raised in its operation are that of safety and environmental hazards [63].

In essence, these related studies have recognized the role played by motorcycle-propelled vehicles in the public transportation hierarchy. That is, they are paratransit and/or gap-fillers. Most of their operation such as the motorcycle taxis of Indonesia and Thailand are considered informal transport sector. They are not covered by the regulations of for-hire vehicles. Moreover, even in Thailand, the Land Traffic Department imposed a ban for new “tuktuks” and even created LPG conversion program to address pollution issue but its population is said to remain constant. Cervero (2000) suggested a normative framework (ranging from acceptance to elimination) for rationalizing and enhancing informal transport services [64].

There has been limited attempt to trace how motorcycle-propelled vehicles especially in the case of Philippines tricycles as an accepted public transportation mode and as well as determine which between the mode and/or the policy emerged first and factors considered in local level policy development. Moreover, it is also important that informal transportation is distinguished from illegal transportation modes.

Understanding local level policy development covering the motorcycle-propelled vehicles can provide insights on how other cities of developing nations can cope with the presence of informal transportation sector. Likewise, identifying factors essential in designing successful local-level enabling policies and programs governing private paratransit services might prove useful in future urban development planning.
Chapter 4

Motorcycle-propelled Public Transport in the Philippines

In the Philippines just like its neighboring Southeast Asian Countries like Thailand and Indonesia, the case of motorcycle-based vehicles used as public transport is also common. In fact, the tricycle, a unique Philippine designed transport innovation has been in existence as early as the 1950s. A tricycle is “a motor vehicle composed of a motorcycle fitted with a single-wheel side car or a motorcycle with a two-wheel cab operated to render transport services to the general public for a fee”[65]. It is the Philippine’s version of Thailand’s “tuktuk” and Indonesia’s “bajaj”. And unlike its two counterparts, which were based on scooter engines, the tricycles operate on utilitarian type of motorcycles mostly made of Japanese brand. Moreover, the Philippine transport system has institutionalized their role in the transportation hierarchy by providing the structural mechanism for the local government to regulate their operations. Figure 4.1 shows the standard type of tricycle (motorcycle with attached side-cab) popularly found in various parts of the Philippines. The following section traces and reviews the beginnings of tricycles as well as the related studies concerning their operations.

4.1 History of Philippine Tricycles

The tricycle began appearing in the late 50’s replacing the “pedicabs”. A “pedicabs” is basically a bicycle attached to a carriage made of tin or galvanized iron. Motorcycle replaced the bicycle in the design of “pedicabs” making it speed faster. Since then, it has become a regular fixture in the Philippine urban and rural land based transportation system. Tricycles in various regions showed features unique to its locality and that variations mainly occur in the number and position of passenger seats. The most popular and the standard type remains to be the one with attached side-cab that can seat up to two adults and one child (refer to figure 4.1). In fact, it has been called Manila’s mini taxi and that even in1979, they accounted for 8 percent of all motorized vehicle trips in the capital [66].

Tricycle is one unique form of motorcycle-based vehicles since it only attached a side- cab to a motorcycle and that no other alterations were made to the unit’s design and engine. Variations are applied to attached cab by altering its design and sitting capacity. Like the jeepneys (another popular public transportation mode in the Philippines) in the 70’s, the motorized tricycles were first licensed by the Board of Transportation. They operated on
local roads with neighboring areas of Manila offering local trips and feeder connections to stage buses and jitneys. They were removed from main roads (except when no alternatives existed) since they did not mix well with other vehicles. This is because tricycles have lower acceleration and speed capabilities (cruising 20kph and maximum speed of 35 kph) and have been cited as the cause of traffic delays and congestion. It was also argued that tricycles exposed their drivers and passengers to safety hazards as they afforded little protection in the case of accidents.

Figure 4.1 Philippine Tricycles

4.2 Issues and Problems on the Use of Tricycles as Local Public Transportation

Tricycles remain to be one of the most popular and accessible modes of public transportation in the Philippines. It is the only public transportation whose operation was devolved to the local government units since it is widely used for intra city/municipality local travel among the motorized land-based transportation mode. It is known as the most convenient means in traveling around the metropolis’ narrow roads and even substitute for taxis in the provinces. However, issues and problems on the use and operations of tricycles as local public transportation remain.

Traffic Congestion

In Metro Manila, it has been reported that tricycle operations has been a factor in the worsening traffic situation in the metropolis. In other parts of the Philippines, there was observation that it is not road construction nor road accidents that cause the slow moving drive along the highway, but tricycles that can not be overtaken since the vehicle on both sides has tricycles [67]. This was attributed to tricycle drivers’ habitual violations of traffic rules, particularly on the law’s prohibition to ply along major roads. Even the leaders of the Tricycle Operators and Drivers Association of the Philippines (TODA) admitted that that
their members needed to undergo training because many of those apprehended were undisciplined [68].

Local governments, tend to have different responses on how to handle this issue. For example, in Dagupan City in the northern part of Luzon, the City Government forged a Memorandum of Agreement with the United Tricycle Operators and Drivers Association (UTODA) for the implementation of a color-coding scheme to have a workable traffic decongestion program that would benefit commuters, operators and drivers of motorized tricycle units for hire. Mayor Benjamin S. Lim, the city mayor even noted that under this program, an increase in the income of the drivers is assured as well as the promotion of convenience, mobility and order for the public. Only motorized tricycle units for hire, which bear stickers issued by the city government, shall be governed by the color-coding scheme which is regulated as follows: Red stickers bearing numbers 7001 to 7500 prohibit its holders from moving about the city streets on Mondays; blue stickers with nos. 7501 to 8000, Tuesdays; green, 8001 to 8500, Wednesdays; orange, 8501 to 81000, Thursdays; yellow, 81001-81099; and 82100 to 82279, on Fridays. However, all tricycles are free to move in the city streets on Saturdays and Sundays [69].

Moreover, “colorum” or illegal vehicles are also associated with the increasing traffic disorder as illegal tricycles clogged the city streets. In the City of Marikina, the city mayor issued a warning on the penalty that is imposed to commuters who ride colorum tricycles. Information dissemination was done by putting up posters and billboards to inform the public on the crackdown against colorum tricycles. A penalty of PhP 300, 500 and 1500 ($ 5.45, $9.09 and $27.27) [70] and cancellation of driver’s license, respectively both for the commuters and drivers is applied in the strict enforcement of Ordinance 266 Series of 2000 on ban against colorum tricycles. If the violators cannot pay the fine, then donation of blood or community service for three hours is imposed. Likewise, the city government also searched for the cleanest and most organized tricycle terminal in the city [71].

Noise Pollution

Noise is another issue associated with tricycles. Since they are allowed to ply on baranggay roads or neighborhood streets, they tend to disturb the quiet community of homeowners. In Quezon City, an anti-noise pollution bill was filed with the aim of reducing the noise coming from tricycles by having all the units install a muffler or a silencer to minimize the noise and that it should pass the noise pollution test before allowing to ply the roads. The penalty for violators of the bill is amount of Php 500 ($9.09) and could be jailed for 10 days upon the court’s discretion [72].

Health and Environment

Another major issue in the operation of tricycles is the danger it poses to health and the environment due to emissions. In Metro Manila, air quality data indicates that the major cause of poor and air quality deterioration is the pollution from mobile sources. Vehicles generate dangerous pollutants such as TSP, PM10, and lead [73]. In South Asia, emissions from the large and growing number of two-three wheel vehicles are major source of pollution and the units mostly operate on two-stroke engines [74]. In terms of technical design, the tricycles in the Philippines described as a three wheeled vehicle with two-stroke engines
equipped with a side-cab used to carry passengers or other materials [75] is no different. It is however similar to the tuktuks of Thailand. The major difference that the latter was developed and improved to run on liquefied petroleum gas (LPG), a cleaner automotive fuel than gasoline and later compressed natural gas (CNG), a type of fuel that reduces particulate matter and hydrocarbon emissions [76]. There are two types of motorcycle engines that can be used as tricycles: the two-stroke engines and the four stroke engines.

In the Philippines, 75 percent of registered motorcycles/tricycles are gasoline-fed two-strokes based engines [77]. Gasoline fueled vehicles are the primary source of lead and significant contributor of nitrogen oxides (Nox), carbon monoxides (CO), and hydrocarbons (HC) [78]. Majority of tricycles used two stroke motorcycle engines since four stroke distributors do not allow motorcycles to be converted as tricycles. In the result of the preliminary survey on related study on Metro Manila, the data indicated that all models are two-stroke engines and the average unit age is five years old [79]. Two-stroke engines typically have lower fuel efficiency than four stroke engine with as much as 15-40 percent of the fuel-air mixture emitted through the exhaust port. The exhaust contains high level of unburned gasoline and lubricant, which increases hydrocarbon emission and fine particulate matter. These are responsible for serious health effects including heart diseases, respiratory diseases and premature mortality. Fine particulate matters are more harmful since they occur near ground level where people live [80]. Table 4.2 presents the associated health effects of motor vehicles particularly motorcycle and tricycle emissions.

Table 4.2. Some Identified Health Effects

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Some Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons</td>
<td>Lung damage, lung cancer, asthma, coughing, fatigue</td>
</tr>
<tr>
<td>Particulate Matter</td>
<td>Respiratory disease, lung damage, premature death</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Dizziness, headaches, slow reflexes, fatigue, death</td>
</tr>
<tr>
<td>Nitrogen Oxides</td>
<td>Acute respiratory illness, bronchitis, pneumonia</td>
</tr>
<tr>
<td>Benzene</td>
<td>Cancer, respiratory diseases, birth defects, death</td>
</tr>
<tr>
<td>Lead</td>
<td>Impair learning ability, affects kidney and blood chemistry</td>
</tr>
</tbody>
</table>

Safety and Security

Due to design and speed limitations compared with other motorized vehicles, there are contentions that tricycles are susceptible to accident. In 2002, motorcycle and tricycle related accidents comprised 12% of the total vehicular accidents [81]. However, the seriousness of accident involving tricycles plying on provincial roads cannot be taken for granted as highlighted in news reports. Such as, in Laguna, southern part of Metro Manila, one died and four others were seriously wounded in a road mishap involving tricycles [82]. In the Ilocos, Luzon’s northern part, road accidents killed five and injured two more, one involving a tricycle that was sideswiped by a bus on national highway and the other involved a motorcycle bumped by a southward car [83].

Related issue associated with safety is the security of the commuters on the use of tricycles. In some cases, commuters take the tricycles rather than use pedestrians since it is
safer and less vulnerable to physical attack. However, related study noted that security problems have a different incidence. Public transport passengers are generally known to be more prone to physical attack than private vehicle users. This may occur after dark as part of robbery or in the case of women, sexual assault. This is said to be most common in low-income settlements controlled by gangs or in the absence of police [84].

Economic and Livelihood Aspects

The 1992 DOTC national survey, which found that tricycle drivers work on an average of 11 hours daily, 6 days a week with an average net earnings of $3.00 a day. This provided a net income of about $72 per month. The average net earnings and cost of living as well as average daily trips for each tricycle varies per region. For instance in Metro Manila, tricycles account for 13% of the total 17.8 million daily trips and 27% of the total 3.6 million daily vehicle trips according JICA-funded Metro Manila Urban Transportation Integration Study in 1996. The majority of tricycle sector (drivers, constructors, etc.) belongs to the lower income group and gives employment to an estimated 350,000 persons [85]. And just like any other developing countries, the Philippine has to cope with the unemployment rates. The tricycle business is another way to promote employment opportunities to the lower income group.

Related studies on Tricycles

There have been some few attempts on studying the issue of Philippine tricycles. In 1992, a tricycle study [86] showed some relevant findings on the operating characteristics and vehicle utilization per region. First, inquiries were made on the total number of tricycles \( N_x \) for all routes patronizing the principal business centers (e.g. market places, bus terminals, airports, piers) and that sampling interval \( K_x \) for the region, is \( K_x = N_x/100 \) rounded to the nearest integer and that 100 is the total number of tricycles sampled in the region. On the other hand observing all the vehicles in the queue and taking note of all the plate number determined the colorum units.

The national survey results indicated that tricycle drivers work on an average of 11 hours daily, 6 days a week and that there is one driver for every tricycle unit. Three fourths of the respondents showed that they belong to the boundary scheme meaning there exist an owner/operator-driver relationship and that fixed boundary scheme is the predominant arrangement. The average kilometer posted was 53.1 kilometers daily. Majority of the drivers (at 46%) responded that they ply on relatively good roads.

In addition, the national survey also found out that a tricycle driver’s average net income per day is about $3.00. This variable cost (boundary, fuel, oil, tires and tubes, battery and others) shouldered by the driver is already accounted for. The average computed operation cost of each region for each tricycle units is $219.44[87] per month [88], this is 28 percent of the total income per year and the breakdown is provided in figure 4.2.1.
On the average, the operator earned annual gross revenue of approximately $741.13 or around $2.50 per day, minus the fixed expenses (which includes overhead cost, registration fees, common carrier’s tax (CCT) and insurance, the net income on a daily basis roughly amounted to $1.70.

Further, the computation on the return on investment (ROI) showed that with the assume economic life of five years and that the net annual cash inflow for five years that is then equal to the annual net income, the internal rate of return (IRR) on investment on a cash basis is 7.58% and on installment basis, the minimum period for capital recovery is 8 years. This will yield an IRR of only 1.06%.

On the other hand, the survey also showed the estimated number of colorum units or private motorcycle/tricycle used as tricycle units or for hire vehicles. Colorum or illegal operations are those operators/drivers who were unable to secure a valid certificate or permit to operate as public transport. This means that vehicles are registered as utility or personal service vehicles. It can also be vehicles with expired permits resulting from the failure of the owner to renew his provisional authority on time. In some cases, they are out of registered route operation and may have permit/rental authority through which the holder of franchise for several vehicle rents our to leases out unfilled slots not being taken by his or her own units. Figure 4.2.2 shows the estimated number of colorum tricycle units based from the survey.
Based from this findings, the study recommended some policy changes such as (1) limiting and controlling tricycle units in the route by reviving route measured capacity for stricter regulatory policy for franchising; (2) strict implementation of traffic rules and encouraging operators to secure franchise in order to minimize the presence of colorum units; (3) giving incentives to automotive assemblers by relaxing some important regulations on second hand engines for reconditioning purposes; (4) strengthening the formation of cooperatives to avail of the privileges due to a cooperatives and (5) strict implementation of improvement in the system of collecting CCT.

The year that the DOTC tricycle study was completed, the provisions of the Local Government Code of 1991 were implemented and the regulations on the operation of the tricycle sector were devolved to the local government units.

With regards to air pollution, a study have shown the difficulty of jeepney and tricycle sector to comply with the Clean Air Act of 1999 due to the disparity of existing support package and operational components [88].

Moreover, another on-going related study by the UP National Center for Transportation Studies (2003-present) with the goal of developing standards for local motorcycle/tricycle sector in terms of vehicle design specifically, converting motorcycle for tricycle use, developing test procedure for local tricycles and determining the effects of various unleaded fuel-oil mixtures for 2-stroke and 4-stroke vehicles is being conducted. Part of this study was a survey in Metro Manila to determine the type of passengers as well as their expectations on the tricycle design. The preliminary results of this survey showed that the type of passengers that normally patronized the use of tricycles came from the 18 to 25-age bracket. This indicates that either they are in college or are new additions to the work.
force. Most of the respondents/passengers are women, single and belonging to a household size with 4 to 5 members. More than two-thirds do not own a car. The income profile showed that tricycles are patronized by passengers from different income ranges but mostly coming from middle-income families. As regards trip characteristics, responses indicated that majority are captive market of this mode with slightly more than half taking this mode for more than four times in any given week. And the reasons given for taking this mode were accessibility and availability [89].

The least cited reasons for the choice of mode were convenience and low-cost. In Manila, there is only one standard design and the survey results indicated that some have expressed preference over other designs that were shown in the pictures and the reasons cited were the need for provision of more leg room as well as easier entrance and more seating space. Passengers also favor sitting in the side cab rather than the back of the tricycle and that the main reasons were comfort and safety. Smoke, noise and wind were the three issues raised as primary concerns for comfort in riding tricycles with the former as the most bothersome [90].

It should be noted that this study focused only on the standard type tricycles found in Metro Manila and did not take into account the other variations such as those existing in Davao City. It would be interesting to determine the preference of passengers already using the other variations of tricycle.

Aside from the different variation of tricycles (Figure 4.2.3) that can be observed in city and/or secondary roads, their growing number alone (Figure 4.2.4)) necessitated for the enactment of policies. A review of the national policies that attempted to address these issues is now in order.
Tricycle in Manila, National Capital Region

Center-cab type Tricycle and Its Other use

Tricycle in Leyte (Visayas Region)

Sky-lab in Monkayo, Davao del Sur (Mindanao Region)

Figure 4.2.3 Different Types of Motorcycle-propelled Vehicles in the Philippines
4.3 National Policies on the Operation of Tricycles

Policy and planning in the Philippines, including transport-related ones, was traditionally highly centralized. The first formal law on land transportation in the Philippines was enacted in February 1912, which regulated motor vehicles and provided for the regulation and licensing of public utility transportation operators. An Automobile Section was also created as the main implementing agency. In 1932, Act No. 3045 was passed into law, which compiled and incorporated all laws governing motor vehicles. It also renamed Automobile Section into Automobile Division. The latter became a separate agency in 1947 under a new name called Motor Vehicles Office. The Congress enacted in 1964 Republic Act (RA) No. 4136, otherwise known as Land Transportation and Traffic Code, which provided for the compilation of laws relative to land transportation and creation of the Land Transportation Commission (LTC) that replaced the Motor Vehicles Office. The LTC established various regional offices throughout the country in order to effectively carry out its functions. In 1979, the LTC was renamed as Bureau of Land Transportation (BLT) and became directly under the Ministry of Transportation and Communication (MOTC).

From 1980 to 1981, a number of administrative orders from the BLT were created that has direct effect on tricycle operations. For instance, Administrative Order No.3 [92] defined tricycles as a “classification of motorcycle in the form of non-conventional motorcycle engine where in the registration is based on piston or cubic centimeter displacement”. This was followed by Executive Orders coming from the Board of Transportation (BOT), then the agency in-charged of land based public transportation for hire, which disseminated inspection checklist on tricycles [93]. This is done for record keeping.
purposes. Months after the distribution of this circular, another directive, this time from the MOTC on marking the sidecars of tricycles for hire were issued [94]. This was to aid the public and law enforcers in physically identifying the unit.

A few years after, the Bureau was again changed into a separate Land Transportation Commission in 1985 [95]. After the People Power Revolution in 1986, a number of major transport-related reforms were implemented at the executive level. Most of them pertained to reorganization of transport agencies and redefining of their powers over transport utilities. Executive Order Number 125 abolished Land Transportation Commission (LTC) and created Land Transportation Office (LTO) and transferred franchising and regulatory functions to Land Transportation Franchising and Regulatory Board (LTFRB). The LTO is in-charge of all vehicle registration and issuance of licenses. Registration of vehicles is according to type of use: private, for hire (or use for public land transportation), government, diplomatic and tax exempt. It is further classified according to vehicle specifications that include the cars, utility vehicles, sports utility vehicles, trucks, buses, motorcycles/mopeds/tricycles and trailers. During this period, “for-hire vehicles” are defined as registered motor vehicles whose classification are covered by certificates of public convenience or special permits issued by the BOT and are subject under the provisions of the Public Service Act [96]. Under the “for-hire” type of vehicles classification, motorcycles or tricycles (with side-cars) for hire is defined as those “which operate within the territorial limit of a city or municipality except along the national highway”[97]. However, the issuance of franchises and other applications for land transport operators is vested to the LTFRB, including decisions on fare rates [98]. The power to regulate and grant franchise is based on LTFRB functions to prescribe and regulate routes of service, economically viable capacities and zone of areas of operation of public land transportation services provided by motorized tricycles in accordance with the public land transportation development plans and programs approved by the DOTC as well as issue, amend revise or cancel Certificates of Public Convenience [99].

The only related directives held by the LTFRB on tricycles based from records happened in the first two years since the reorganization and these were the schedule of rates for motorized tricycle for Butuan City [100] and Koronadal, South Cotabato [101]. Fare increase during this period was based upon the local government’s municipal/city council’s request. A year after, LTFRB circular reducing the requirements for tricycle applications in line with the nationwide rationalization of tricycles, which include (1) proof of citizenship and (2) proof of unit ownership was issued [102].

In 1990, the Metro Manila Council (MMC) [103] enacted ordinance that prohibits pedicabs and tricycles from operating along highways and major thoroughfares within Metro Manila and limiting their operations within tertiary roads and within subdivisions since they are causing congestion as well as that they are accident prone because of its design and speed limitations [104]. A week after, a resolution by DOTC was provided requesting MMC to review this ordinance on regulations of the operation of tricycles and pedicabs within Metro Manila by including the tricycle regulatory units (TRU) of local government units, tricycle operators and driver’s association (TODAS) and baranggay officials in the process [105]. DOTC recognized the effort of the local government units in limiting the operation of tricycles within tertiary streets. This Metro Manila Council request became DOTC basis when they drafted the guidelines for devolving the regulation of tricycles to local government units in 1992.
The enactment of the Local Government Code in 1991 devolved some of the functions vested to the LTFRB to the local governments. The Code has also mandated the decentralization or transfer of some governmental powers from central to local government. Among the powers covered by decentralization include the power to tax and the regulation of motorcycle-propelled public transportation.

By July 1992, the DOTC issued guidelines to implement the devolution of LTFRB franchising authority over tricycles-for-hire to local governments. These guidelines specifically defined tricycle for hire as “a motor vehicle composed of motorcycle fitted with a single-wheel side car or motorcycle with two-wheel cab operated to render transport services to the general public for a fee”[106]. An Aide Memoire [107] was likewise disseminated regarding the retention and authority by LTO to register motorized tricycles
since the registration and licensing function is covered by this agency. Moreover, they are empowered at anytime to examine and inspect whether motorcycles are registered, unsightly, unsafe, improperly marked or equipped or otherwise unfit to be operated. LTO is also the central repository and custodian of all records.

On the other hand, the guidelines became the local governments’ basis for issuing Motorized Tricycle Operator’s Permit or MTOP and other regulations pertaining to its operation. The national policy on devolution provided the power for local government units (LGUs) to regulate the operation of tricycles for hire. The devolution on tricycle operations was carried out since the tricycles are only allowed to operate within local government’s administrative jurisdiction. Due to their proximity to the situation, this positioned them to achieve the objectives desired by the law making body. This enables them to address the issues better than the national government [108]. Moreover, Figure 4.3.1 shows that when the tricycle operations were devolved to local government, an increase in the number of registered vehicles can be observed.

The issues previously outlined were in effect transferred to local governments discretion on appropriate responses. However, despite devolution, local governments must also take into account certain national policies that affect the regulation of motorcycle-propelled vehicles or tricycles for hire. A good example of this is the recent enactment of the Clean Air Act of 1999.

The Clean Air Act is a landmark legislation that sought to improve the nation’s air quality especially in highly urbanized areas. While this national policy has positive intentions to create a pollution-free environment, its implementation became another issue especially for the tricycle operators and drivers. Tricycles are covered under Section 22 of the Clean Air Act, which concerns the regulation of all motor vehicles and engines wherein "no motor vehicle registration shall be issued unless such motor vehicle passes the emission testing requirement promulgated in accordance with this Act" is stated. This basically means that all motor vehicles should undertake vehicle emission test. Licenses will not be issued to vehicles emitting hydrocarbon (HC) higher than the tolerable level. Emission tests on tricycles showed that the average HC was at 6,000 ppm or 10 times over the acceptable standards. Provisions for tricycle emissions and corresponding standards are still lacking in the Clean Air Act [109]. Moreover, the cost of emission test at PhP 300 ($5.45) per vehicle where the failure to pass the test carried a penalty of PhP 1,000 ($18) per vehicle for the first offense and PhP 3,000 ($54.54) and PhP 5,000 ($90.9) for the second offense respectively is reported to be oppressive especially for tricycle drivers [110]. In January 2003, when the legislation came into effect requiring drivers to convert engines with cleaner emissions, the tricycle sector staged a protest against the provisions of the Clean Air Act affecting their sector by converging near the Malacanang (Office of the President). This has even become an international news item [111].
The institutional structure that describes the regulation for motor vehicles, including motorcycle-propelled transport utilities in the Philippines is shown in figure 4.3.2.

The present set-up of motor vehicle registration and regulation structure in the Philippines is provided in figure 4.3.2. This national registration is based from the Land Transportation and Traffic Code. To date, all vehicles are registered at the Land Transportation Office (LTO) and are classified according to use: (1) private, (2) for-hire, (3) government and (4) diplomatic. Moreover, they are sub-classified according to body configuration: weigh, cubic displacement, number of cylinder and type of fuel used. As part of bureaucratic reorganization in 1986-87, franchising and regulatory functions were given to the Land Transportation and Franchising Board (LTFRB). This is primarily an economic regulation and policies that governed public transport service is based from the Public Service Act. Public Service Act states that the consumer is protected and that the public transport service is safe, efficient and affordable. The LTFRB regulates all motor vehicle used for public transportation such as buses, mini-buses, jeepneys of public utility vehicles, taxis and megataxis. Prior to Local Government Code of 1991, the tricycles were also covered by the LTFRB. However, unlike the other motor vehicles used for public transport whose operations are usually inter-city or inter-municipality, the tricycles have been limited.
to a certain areas. Compared with the jeepneys or other high occupancy vehicle (HOV), tricycles operate on short-distance travel. When the devolution took place in 1992, only the regulation of tricycle operations was transferred to the local government units (LGU).

In an interview with Engr. Palancia, Chief of Policy Section of the DOTC, he noted that there is a lack of follow-up on how national policies devolved are interpreted at local level such as the case of tricycle regulation. He noted that the DOTC guidelines developed for local government units to adopt were based from their experience in Metro Manila and issues encountered by the LTFRB.

4.4 Chapter Summary

These section summarizes the major points and identify the important turning point on how tricycles was institutionalized in the Philippine land-based public transport system.

Tricycle History and Description

Tricycle evolved almost at the same time when the jeepneys emerged. It was considered to be an upgraded version of pedicabs or trisikads that suggest that even before, the prevailing culture is not associated with walking or bicycling modes.

The case of tricycles also shows an example of indigenous public transportation innovation at the local level as exemplified with the variations in design found in the different regions. Moreover, the history of tricycle operations illustrates how the national government took advantage of this emerging mode by legitimizing (thru including it in for hire classification of the national transport policy) in land-based public transportation.

Issues and Problems on the Use of Tricycles as Public Transportation

Due to design and speed limitations (20-35 kph maximum), tricycle operation was considered a factor in the worsening traffic condition in Metro Manila. This was attributed to tricycle driver’s habitual violations of traffic rules. In this case, the local transport policy must include strict provisions on apprehending erring drivers.

“Colorum” tricycles or those units registered for private use but operates as for hire are another issue. The development of national policy on devolving the regulation of tricycle operation improved this aspect since the guidelines on tricycle regulation encourage that prior for the franchise to be accepted, it must first be registered at local level.

A recent issue associated with tricycle operation is the danger that it poses to health and environment due to its emission. Moreover, safety and security concerns as well the economic aspects of this mode were the other issues raised. The devolution of transport policy development might enable to control this issue at the local level.
Related Studies on Philippine Tricycles

There have been few studies that covered tricycle operations in the Philippines. The studies did not provide much information on the variants of this mode and how the Philippine government took advantage of these variations.

In 1992, the DOTC national survey on tricycles identified that 35% colorum units in 1990 and this findings suggest the importance of encouraging operators and drivers to register their units. Moreover, it also estimated that 78% of tricycle annual expenses is spent on repair and maintenance per day. This study suggests the importance of vehicle maintenance as well as the need to reassess the design of tricycle units for public transport.

Transport Policy Development on Tricycles

Classification of tricycles as motorcycles (registration based on piston or cubic centimeter displacement) were initiated in the 1980s for record keeping purposes and eventually to physically determines its use as public transport. However, the centralized system of regulating the operation did not initially worked as seen in sharp increase of registered number of tricycles from 1985 to 1986. The liberalization of public transport sector and the creation of separate unit (LTFRB) in charge of the regulation have improved the process of registration and have actually provided income-generating activities for the community. The devolution of the regulation of tricycle operation to local government units in 1992 has sustained this but how local government units interpreted and used this power with regards to tricycle operations differs. Moreover, variants of tricycle design observed in different parts of the country.
Chapter 5.
Local Policy Development in Davao City: The Case of Tricycles and “Habal-habal”

The national scenario showed the issues and problems confronting the use of motorcycle-propelled public transportation in the Philippines. The review of national policies established that the responses to the issues raised were eventually transferred to the local government by virtue of decentralization. This chapter serves as the case study to confirm the issues that were raised at the national level and determine other concerns at local level as well as local government’s responses on the regulation of tricycle operation. This chapter describes the motorcycle-propelled public transportation found in Davao City and traced the origin of emergence of other variations of tricycles used as local public transportation. This part shows the local policy development process in Davao City in order to recognize its link with the presence of other tricycle variants. Moreover, this part of the study also reviews the enacted local policies with regards to tricycles and its variants in the context of general urban planning objectives.

In Davao City, almost all types of available land-based public transport can be observed. It is composed of various modes such as buses, taxis, public utility jeepneys, multicabs, tricycles, tricyboats and trisikads. Buses come in air-con and non-aircon form and serve inter and intra provincial routes. Taxis are primarily for door-to-door service. Public utility jeepneys are public transport developed out of the army jeeps left by the Americans after the World War 2. It was extended to around two meters with seats facing each other from front to back and can seat 10 to 12 passengers. Multi-cabs are recent innovation similar to jeepneys but smaller in size and can accommodate 8 to 10 passengers. Both serve majority of medium to long haul trips in Davao City. Tricycles, as previously defined are motorcycles with sidecars and in Davao City can be seen in different forms and lengths. They provide local access service and loading capacity less than jeepneys. Triciboats, on the other hand, are an improved version of the trisikad (bicycle with side-cars) with attached general-purpose engine making it looks like an inferior type of tricycles. Trisikads are non-motorized form of tricycles. Tricycles and trisikads are not allowed to operate along major arterial and rather provide service only along neighborhood roads, or in special cases where secondary roads are not serviced by the PUJs. Triciboats were eventually banned from its operation as local public transport.

Figure 5 shows the trend of the registered number of motor vehicles in Davao City [112].
Figure 5 indicates that public utility jeepneys are the most common form of transportation in Davao City. This is closely followed by the motorcycle and motorcycle-propelled transportation mode. With decentralization in place since 1992, the city government has the power to regulate tricycle operations and other modes that only operate within the city such as trisikads. Liberalization of public utilities is part of the government’s thrust during this period to provide the public’s necessities. It is important for the city government to provide low-cost public transportation and accessibility to its constituents. The use of motorcycle-propelled vehicles particularly tricycles provides alternative means of transportation that is also cheap and widely available locally. The city or municipal government covers the regulation of the operation of this local transportation mode. It is assumed that this local public transport policy is integrated with the rest of the development plans of the city/municipality as well as took into account the principles of urban planning end objectives.

The City Government of Davao designed the Comprehensive Development Plan (1996-2021) that addresses among other things, local transport problems and issues. Aside from this, a number of transport related studies were also conducted for Davao City by other institutions like JICA, DPWH and UP NCTS Foundation. Some of these studies include:

1. Davao City Urban Transportation Cum Land Use Study (DCUTLUS) of DOTC funded by JICA;
2. Regional Cities Development Project of DPWH
3. Davao Integrated Development Program (DIDP) funded by JICA
4. Comprehensive Development Plan of Davao City:
5. Transportation and Traffic Management Plan for Davao City
These studies presented the necessary points to meet the transportation concerns of Davao City in relation to its urbanization and development. The first comprehensive land use and transportation study, the DCCLUTS, provided the framework and mechanisms for the short-term and medium-term plan for the city including the development vision and framework for the city in the next twenty (20) years. It has even identified the various sector plans in support of the development plan. DPWH Project identified congested intersections in the 1980s and proposed an integrated bus terminal system that was presently adopted. A significant transportation recommendation is the development of a rail-based mass transit system that is later supported by the DIDP study. The in-house (local government-initiated) comprehensive development plan likewise acknowledged the findings of previous studies and has also indicated thru its situational analysis the issues that they are facing concerning transportation. These include the following:

a) Lack of transport services especially in the rural areas. This is an inaccessibility issue brought about by poor road condition and road availability.

b) Traffic congestion especially found in the central business district (CBD) that can be attributed to concentration of urban population as well as high vehicle ownership.

Development of appropriate policies to address these issues becomes imperative to the local government. The proliferation of indigenous public transportation modes such as the motorcycle-propelled ones, tricycles and its variations can be observed in Davao City given that there are limitations to address the public transportation needs of some areas as well as the concentration of commercial areas in the central business district.

5.1 The Motorcycle-propelled Public Transport in Davao City

At present there are four (4) types of motorcycle-propelled vehicles used for public transportation in Davao City. These are (1) standard-type tricycle; (2) center-cab tricycle or also referred as motor cab; (3) open-cab tricycle and (4) habal-habal or motorcycle taxis. Of the four, only the standard-type and the center-cab type of tricycles are considered legitimate under the law since their franchise is covered by local policy. The other two, open-cab tricycle and habal-habal although considered illegal are allowed by local traffic enforcers on maximum tolerance [113]. The next part describes the operating characteristics of tricycles and other variations including habal-habal.

5.1.1. The Standard and the Center-cab Types of Tricycles in Davao City: Description and Operating Characteristics

Initially, Davao City has the standard-design type of tricycles (figure 5.1.1a) following its popularity in other parts of the country. When the function to regulate tricycles was devolved in 1991, DOTC guidelines were disseminated among local governments. In the
case of Davao City, the City Council immediately enacted a policy based from the guidelines covering the regulation of tricycles. This was referred to as Davao City Franchising Ordinance [114]. In 1994, the center-cab type of tricycle (figure 5.1.1b) emerged. This type of tricycle deviates from the traditional standard-type since the design allows more passengers (maximum of 10 persons). Motorcycle is located in the middle and made to appear like a small public utility jeepneys (PUJs). Passengers sit facing each other unlike the standard type where in passengers sit besides each other. The motorcycle engine used is the 125-175 cc type.

a. Side-cab type of tricycle

b. Center-cab type of tricycles

Figure 5.1.1 Tricycles in Davao City
Table 5.1.1 summarizes the comparative description and operating characteristics of standard and center-cab types of tricycles.

Table 5.1.1 Comparative Description of Standard Types and Center-cab Types of Tricycles

<table>
<thead>
<tr>
<th>Description</th>
<th>Tricycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name Tricycles</td>
<td>Standard-Design</td>
</tr>
<tr>
<td></td>
<td>Center-cab-Design</td>
</tr>
<tr>
<td>Period of Emergence</td>
<td>Late 50’s</td>
</tr>
<tr>
<td></td>
<td>1994</td>
</tr>
<tr>
<td>Backgrounder</td>
<td>Replaced “pedicabs”</td>
</tr>
<tr>
<td></td>
<td>Change in design to carry more</td>
</tr>
<tr>
<td></td>
<td>passengers and looks like a</td>
</tr>
<tr>
<td></td>
<td>Mini-jeepney</td>
</tr>
<tr>
<td>Type of Motorcycle used</td>
<td>Small and low-powered</td>
</tr>
<tr>
<td></td>
<td>Utility Motorcycles</td>
</tr>
<tr>
<td></td>
<td>80-110,125,175cc</td>
</tr>
<tr>
<td>Design Innovations</td>
<td>Motorcycles with attached</td>
</tr>
<tr>
<td></td>
<td>steel covered roof side-cab</td>
</tr>
<tr>
<td></td>
<td>Motorcycle is in the centre</td>
</tr>
<tr>
<td></td>
<td>and attached side cab is</td>
</tr>
<tr>
<td></td>
<td>designed like a mini-jeep</td>
</tr>
<tr>
<td>Role in Transport System</td>
<td>Feeder mode/short-haul journey</td>
</tr>
<tr>
<td>Service Coverage</td>
<td>Residential areas</td>
</tr>
<tr>
<td></td>
<td>Residential areas/market place;</td>
</tr>
<tr>
<td></td>
<td>mostly in District 2</td>
</tr>
<tr>
<td>Road Description</td>
<td>Concrete/paved/asphalted roads</td>
</tr>
<tr>
<td></td>
<td>Concrete/paved/asphalted roads</td>
</tr>
<tr>
<td></td>
<td>and some uphill</td>
</tr>
<tr>
<td>Average Distance per trip</td>
<td>1-5km</td>
</tr>
<tr>
<td></td>
<td>1-5km</td>
</tr>
<tr>
<td>Other modes in Service Area</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Jeepneys</td>
</tr>
</tbody>
</table>

Note: Based from field observation and personal interviews with tricycle drivers and operators. List of service coverage was provided the MTH Regulation Division of the City Government of Davao, July 2003.

It is a legally accepted local public mode since it was also the year that the previous policy (Ordinance 516) was repealed by the City Council. Ideally, the definition of *tricycle-for-hire* follows that of the guidelines such as it is a “motor vehicle composed of a motorcycle fitted with a single wheel side car or a motorcycle with a two-wheel cab operated to render transport services to the general public for a fee”. The present policy, Ordinance No.1692: “Davao City Tricycle for Hire (TFH) Franchising Regulatory Board” defined *motorized tricycles-for-hire* as “motor vehicle composed of a motorcycle fitted with a single wheel side cab or with a center cab operated to render service to the general public for a fee.” This indicates how local government accommodates the emergence of other variants of tricycles.

As shown in table 5.1.1, standard-type of tricycles are mostly found in residential areas where no other public modes ply while the center-cab type can be seen competing with jeepneys in secondary roads leading to market place. This can be explained by the fact that
the policy provision allow exceptions if there were no other alternative routes to be used and there is a demand that the other modes cannot accommodate.

Figure 5.1.2 shows the more detailed distribution of two legally accepted types of motorcycle-propelled public transport in Davao City. Davao City is consisted of three (3) districts and 180 baranggays [115].

Figure 5.1.2. Distribution of the Tricycles in Davao City (based from Davao City MTH Franchising Division Data, 2002)

District 1 consists of the administrative districts of Poblacion or city proper and Talomo. It has the most number of inhabitants and contains the most urbanized areas of the city. Based from the list of approved motorized routes, side-cab types are dominant in residential areas and have no other competing modes except for private vehicle and occasional pedicabs. The center-cab type tricycle terminals are located in two baranggays (Matina-Matina Aplaya, Matina-Matina Pangi Km.9) near the national highway.

District 2 covers Agdao, Buhangin, Bunawan and Paquibato. Agdao and Buhangin lie along the coastlines within the immediate periphery of the city proper. This is also the district where the Davao International Airport is located. Majority of the tricycles found in this district are the center-cab type. Terminals are mostly located in market place going to residential areas and can be seen sharing the roads with other modes of transport like jeepneys.

District 3 has Baguio, Calinan, Marilog, Toril and Tugbok and predominantly considered as rural. Side-cab type is the majority of tricycles found in this districts and they are mostly connecting the “poblacion” or the baranggay center to the other baranggays and residential areas.
5.1.2. The Case of Open-cab Type of Tricycles and the Emergence of Habal-habal

There are other types of motorcycle-propelled public transportation that can also be observed in some areas of Davao City. These are the open-cab type of tricycles and the habal-habal. Both are considered illegal by the city government.

The Open-cab Tricycles

Open-cab tricycles (figure 5.1.3) are the motorized version of the trisikads. Sometimes also referred to as trisikads or a make shift tricycle [116]. It has motorcycles with attached side-cab. It is often without a roof, hence the name open-cab. In some instance, improvised roof like picnic umbrella large enough to shield the sun’s ray and protect passengers from the rainy weather is used. They normally ply in residential areas and carry two to three passengers.

Based from the interviews, drivers/operators initially used trisikads to transport passengers from the residential entrance to their homes. Eventually, they tried to improve their units by adding general engine or engine used in pump boats, thus, triciboats emerged. However, a ban was imposed against it and eventually driver/operators shifted to owning motorcycles. This was the case in Green Meadow Subdivision, Mintal, a middle-class residential area in District 3. In an interview with a passenger in Green Meadows Subdivision, he indicated the convenience that the presence of tricycles provides within the neighbourhood especially since his house is far from the entrance of the subdivision (around 3km). He mentioned that tricycle and trisikad operations are helpful since instead of walking after a hard days work and after the traffic encountered in the city proper, a short distance tricycle ride to one’s home is already a relief. The shift from trisikad to tricycle is also a welcome change since its speed is faster.
a. Open-cab Tricycles

b. Terminal of Open-cab type of tricycles in Green Meadows Subdivision, Tugbok, Davao City
Note: Terminal name indicates that open-cab tricycles are former trisikad owner/drivers

Figure 5.1.3 Open-cab Tricycles in Davao City
### Table 5.1.2 Comparative Description of the Open-cab Type of Tricycles and the Habal-habal

<table>
<thead>
<tr>
<th>Description</th>
<th>Other Variations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tricycle-based</td>
</tr>
<tr>
<td>Local Name</td>
<td>Open-cab</td>
</tr>
<tr>
<td>Period of Emergence</td>
<td>1999</td>
</tr>
<tr>
<td>Backgrounder</td>
<td>Emerged when the campaign against “tricyboat” was launched</td>
</tr>
<tr>
<td>Type of Motorcycle used</td>
<td>Utility motorcycles: 100,125-155 cc (Japanese brand like Honda, Suzuki etc)</td>
</tr>
<tr>
<td>Design Innovations</td>
<td>It has a side-cab/carrier with plastic roof and uses less iron compared with standard tricycles. Design is similar with trisikads/tricyboats. Sometimes, without roofing or otherwise, improvised by using big umbrella (beach/picnic type) Extended seats, extra shock absorber at the back</td>
</tr>
<tr>
<td>Role in Transport System</td>
<td>Feeder mode/like ordinary tricycles</td>
</tr>
<tr>
<td>Service Coverage</td>
<td>Mostly rural residential areas</td>
</tr>
<tr>
<td>Road Description</td>
<td>Rough/unpaved roads Poor road network</td>
</tr>
<tr>
<td>Average Distance per trip</td>
<td>1-3</td>
</tr>
<tr>
<td>Other modes in Service Area</td>
<td>Habal-habal, standard type tricycles and jeepneys Jeepneys</td>
</tr>
<tr>
<td>Operating hours</td>
<td>Early morning and late evening when there are few or no police</td>
</tr>
</tbody>
</table>

The Emergence of “Habal-habal”

“Habal-habal” is a local term for motorcycle taxis or motorcycle “for hire” which means “sitting close to each other”. Habal-habal passengers, who usually range from two to three persons, sit behind the driver, close to each other, thus the term.

According to interviews with local officials [117], habal-habal or motorcycle taxis emerged in 1999 when Davao City actively campaigned against “motorized triskad” or “tricyboats.” The motorized triskad is a pedicab or bicycle with attached side-cab plus a boat or general-purpose engine attached to it. It is faster than the ordinary pedicab, without gears and with only a plate of metal attached to it as brake. In 1997, the City Council passed a resolution to accept this mode as a pro-poor alternative for public transportation in residential areas. The City mayor vetoed this since based from its legal department’s consultation with
The mode of transportation does not meet the requirements of Public Service Conveyance of stability, safety and durability. Moreover, LTFRB or any agency cannot devolve any regulation of motorized vehicles if it is not covered by the policy.

Tricycle is considered illegal and the Traffic Management Group (TMG) was tasked to enforce policy on confiscating the trisikad units in 1999. They were able to confiscate more than a thousand. The TMG encountered resistance as well as pleas and request for alternative mode of livelihood. In response, the TMG encouraged motorized trisikad owners and drivers to shift to tricycles. At the same time, from the market side, a number of motorcycle dealers found business opportunity and started promoting and providing easy-to-own motorcycle package. Since the cost of owning motorcycles initially became lower than the one time cost of general engines, trisikads, they eventually invested on motorcycles. The cost of tricycle is about $216-$272 while the down payment for motorcycles is around $72-$94 and staggered payments were allowed on a 24-month basis. This credit line system made the motorcycle ownership affordable to the drivers/operators. Converting motorcycles into either side-cab type or centre-cab types require additional expenses, the owners and drivers of new motorcycles eventually decided to use their motorcycles to get passengers especially in the rural areas. Initially, they are mostly found in rural areas that are normally not serviced even by jeepneys because of poor roads. However, with the growing traffic problem in the city proper, they soon found the opportunity to serve in most business establishments, in malls and other public places soliciting passengers. Habal-habal found in the city proper normally gets passengers who live in rural areas and considered the unit as a faster mode to reach his/her destination since they can weave through traffic. They are also be found in areas where road infrastructure is not fully develop and are not conveniently passable to other public transportation particularly those barangays in District 3. In an interview with driver and passenger, they confirmed that there’s a “suki” (Filipino term for patronage) system. This means personal agreement with one another. Atty. Dy of LTO also confirmed the same case on the origin of habal-habal in other parts of Mindanao. He mentioned that in some rural areas, the operation started within community members as a personal arrangement. For example, motorcycle owners have already made prior arrangement to the person concerned like waiting after school or office hours.

In the absence of policy regarding its operation, local enforcers are employing “maximum tolerance”. Moreover, local enforcers also had a hard time identifying the habal-habal drivers. One experience is that when they tried to apprehend the habal-habal driver in the act of getting a passenger in one commercial centre, even the passengers connived with drivers and telling that they are relatives or family members just requesting a lift [119].
Moreover, apprehensions on habal-habal are usually caused by not following the national regulation on using helmet when riding motorcycles. TMG also provided the apprehension data (Figure 5.1.5). Despite lack of safety precautions normally observed in the city streets, apprehensions involving habal-habal are among the lowest in the city.

In an interview conducted with local enforcers [120] the operations of open-cab type of tricycles and habal-habal in Davao City are tolerated at the “maximum level”. The reason given is that, one; there is actually no standard design on tricycles. Acceptance of vehicle as a public transportation is based from the three (3) requirements for public service conveyance that includes stability, safety and durability, the open-cab type does not satisfy safety especially in times of bad weather. Two, open-cab types are normally found in secondary roads of residential areas of more rural in nature. As such this are normally tolerated since they are not causing any traffic. And three, most of the traffic enforcers are concentrated in the city proper or urbanized centers [121].
The interviews [122] conducted with local officials also indicated that “habal-habal” are not at present causing any problem in the city and are actually solving mobility issue by being able to service those areas that are not passable to ordinary motor vehicles. The shift from motorized “trisikads” to habal-habal is more encouraged since the latter is registered as motorcycle.

5.1.3. A Summary on the Operating Characteristic of the Four Types of Motorcycle-propelled Public Transportation

Table 10 is the comparative summary of the organizational set-up and operating characteristics of the four types of motorcycle-propelled vehicles found in Davao City.
Table 5.1.3 Operating Characteristics of Tricycles vs. Motorcycle-taxis in Davao City

<table>
<thead>
<tr>
<th>Operating Characteristics</th>
<th>Tricycles</th>
<th>Motorcycle-taxi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard-type</td>
<td>Center-cab</td>
</tr>
<tr>
<td><strong>Organizational Structure</strong></td>
<td>Territorial</td>
<td>Territorial</td>
</tr>
<tr>
<td><strong>Organizational System</strong></td>
<td>Mixed</td>
<td>Mixed Operator/driver associations per terminal</td>
</tr>
<tr>
<td><strong>Operator/driver ratio</strong></td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td><strong>Average vehicle per Terminal</strong></td>
<td>5-15</td>
<td>5-15</td>
</tr>
<tr>
<td><strong>Existing Internal Policies on Operations</strong></td>
<td>Internal support group/ Shifting policy</td>
<td>Internal support group/shifting policy</td>
</tr>
<tr>
<td><strong>Fare/passenger (Ave. in $)</strong></td>
<td>$0.072</td>
<td>$0.072</td>
</tr>
<tr>
<td><strong>Carrying Capacity (Driver and Passenger)</strong></td>
<td>2-5; Two to three passengers in the side-cab and one to two more at the back of the driver are possible</td>
<td>1-10; the passengers are seated face-to-face; can accommodate 6-7 persons.</td>
</tr>
<tr>
<td><strong>Type of service</strong></td>
<td>Door-to-door</td>
<td></td>
</tr>
<tr>
<td><strong>Operating hours</strong></td>
<td>Available from 6am to 12 pm</td>
<td>Available from 5am then around 9pm</td>
</tr>
<tr>
<td><strong>Earnings/day</strong></td>
<td>$3.45-$5.45</td>
<td>$3.45-$5.45</td>
</tr>
</tbody>
</table>

The standard-type and center cab tricycle operation have already established their role in secondary and neighborhood streets. Even if center-cab tricycles have higher capacity than the side-cab tricycles, the earnings are more or less the same since the number of trips they made is fewer than the side-cab tricycles. Nonetheless, they serve as low cost gap-fillers or feeder modes from one’s home to the nearest terminal (jeepney terminal in most cases). Open-cab tricycles and habal-habal operation emerged when a policy against tricyboat,
another local mode was banned from city streets. The shift from tricyboat to open-cab tricycles is the most feasible move for a driver since motorcycles can be purchased using credit line. They can also rent a tricycle from it owners at Php 80.00 ($1.45) a day and earn from Php 200.00 ($3.63) to 300.00 ($5.45) per day. The main problem faced by open-cab and habal-habal drivers was that their franchises could not be granted since their units are not following the “standard tricycles”. They brave the main roads in late hours of the night and before sunrise since it is during these hours that there are less police to catch them. If caught by police and stripped of their license to drive is tantamount to losing their livelihood. Further, this is also the cause on why local enforcers tolerated their presence. As Col. Tibayan (2003) has stressed “It is difficult to apprehend them when they come asking you how to feed their family? Besides, it is better, at least, unlike the tricyboat, it is registered at national level”[123].

5.1.4. Tricycles and its Variations: Its role and policy implications

The description and operating characteristics of the four types of motorcycle-propelled vehicles identified in Davao City reveals the following:

1. The presence of side-cab or standard types and open-cab of tricycles in most residential areas (especially in district 3) indicates a good relationship of tricycle operator/drivers association with the homeowners` association. This also indicates the ability of tricycle business to reach more individual families compared with higher passenger-occupancy transport units. The homeowners` preference for motorized modes also indicates that even within residential areas, the culture of walking and cycling is not encouraged.

2. The data that showed that most center-cab tricycles are found in competition with public utility vehicles (district 2) indicates that they full-fill a certain gap in the absence of other public transportation mode. Moreover, this also showed the role of urban planning in urban development especially in the case of district 2 where center-cab tricycles are mostly found in market areas to residential areas. The dispersed location of service access centres from residential communities demand more travel activities. Another factor to consider is the cost of units; motorcycle-propelled vehicles are more affordable than other motorized modes like public utility jeepneys or mini-buses.

3. The emergence of habal-habal is attributed to the unequal development of areas. The presence of underdeveloped roads in some areas, especially in District 3 of Davao City provides opportunity for habal-habal to service these areas. Moreover, the personal nature of arrangements of habal-habal drivers with their passengers as well as the motorcycle advantage with the growing traffic congestion in the urban centre of the city is another factor to consider in the growth of this mode.

Moreover, with these observations, it is important for the City of Davao to consider the different physical and operating characteristics of these modes as well as the supporting
infrastructure in their urban transport policies. This is particularly true in the case of centre-cab tricycles and habal-habal where the design is altered to fit more passengers without considering its effect in its engine.

5.2 Local Transport Policy Development in Davao City

This section discusses the local transport policy responses of the city government with regards to the case of motorcycle-propelled public transportation in Davao City. This presents a brief overview of the city government and agencies related to transport sector as well as the local policy development process.

5-2.1. The City Government of Davao and the Local Policy Development Process

The present government in-charge of the local affairs and day-to-day management of the City of Davao is composed of the elected City Mayor, elected Vice-mayor, the members of the city administrative office as well as 25 Sangguniang Panlungsod (City Council) elected members representing the three (3) major districts and 180 baranggays. The City Council consists of the elected local officials mandated to draft local policies in the form of ordinances concerning their political districts. The members meet every Monday to discuss issues and possible policies needed. Either new policy is proposed or old policies were subject to amendments or otherwise repealed depending on the needs. Ordinances enacted by the Council are subject to the Mayor’s approval. In the case of the transport sector, this is exemplified when the City Mayor vetoed the Ordinance on triciboat operations. The City Council also formed among themselves Committees that conduct preliminary hearings or discussion in responding to various basic social issues such as peace and order, environment, livelihood, shelter, education and social services, infrastructure and the committee on energy, transportation and communication among others. The issues on local public transportation are referred to this committee.

The present Philippine local policy development process is actually reflective of the national policy development process. Figure 5.2.1 presents the policy making process at national and local level. The regulation of motorcycle-propelled public transportation, specifically the tricycles was devolved by virtue of Local Government of 1991 to local government units. The franchising and regulation of tricycles were transferred from the LTFRB to the City Government. Moreover, it also authorized to administer and make appropriate policies on local traffic management. In the case of tricycles, the City Council must technically take into consideration the other local issues surrounding its operation for public transportation.
Under the existing set-up, the formulation and implementation of transport related policies are distributed between local and national agencies exemplified by the matrix in Table 5.2.1.
Table 5.2.1 Agencies Involved in Transport-related Issues

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>CITY</th>
<th>DPWH</th>
<th>LTFRB</th>
<th>LTO</th>
<th>PNP</th>
<th>PRIVATE SECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Roads</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Traffic Engineering</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Regulations on Road Use</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Public Transport Financing &amp; Regulations</td>
<td>X*</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Public Transport Terminals</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Public Transport Operations</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Vehicle Registration</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Traffic Education</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Enforcement</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Tricycles only

Under this matrix, the function of the City Government is limited to roads, traffic engineering, regulations of road use and public transport terminals. It is responsible for the city roads and traffic management through its law making power. The Land Transportation Office (LTO) registers all motor vehicles, issues driver’s licenses, and issues rules and regulations pertaining to these functions. Road and traffic engineering functions are shared with DPWH. LTFRB is responsible for franchising of transport, except tricycles, which have been devolved to the local government. The LTFRB also issues rules and regulations pertaining to the operation of public transport. The Philippine National Police (PNP) is the arm of the city government in enforcing its city ordinances. Traffic personnel of the PNP are deputized by the LTO in enforcing traffic rules and regulations [124].

Based from available records, the City Government of Davao, it was in 1948 that the city traffic ordinance was created. Historically, this was also the period of the rebuilding process after World War II. This was only revised in 1973 and was patterned after the Land Transportation and Traffic Code enacted in 1964. This revised Ordinance No. 78 has provisions on tricycle where in it states that private motorcycles of motor wheel attachments should not be used “for hire” under any circumstances and should not solicit payments. However, the system for registration and regulation during this period is still centralized and there were no available data regarding this.

With the observance of traffic in the urban center located in District 1, the City Mayor created the Traffic Management and Control Board (TCMB) in 1988. This was also the year that Davao City is experiencing a relatively good economic growth as it is being promoted as
the gateway of Mindanao in the East Asian region. Two years after, an operator of trisikad, requested the city council for permit to operate in a residential area. This prompted the City Council to create ordinance regarding this mode since non-motorized modes are not covered by any national transport policy. This was the initial experience of the city council to regulate local transport.

By 1991, regulation of tricycle operations was devolved to the local government units. A guideline on the regulation of tricycle operations was disseminated in 1992. Soon after, the City Council of Davao City enacted local transport policy on tricycle operations. Ordinance No. 516 set the guidelines and regulations for tricycle operations. Most of the provisions were based from the guidelines. Organizational and political issue was raised upon the implementation of this policy. The ordinance vested the authority of franchising to the Office of the City Mayor. The City Mayor in turn directed the Office of the Treasurer to handle the franchising and regulatory functions of tricycle operations. The technical capability of this office was questioned in receiving applications for tricycle operation. The growth of tricycle operations also caused some congestion problem, as there were no clear policy provisions on its regulation and person in charge. After two years, in order to respond to this issue, the City Council repealed the previous ordinance and replaced it with Ordinance No.1692: Davao City Franchising and Regulatory Code. The content is a response from the issues raised as well as the policies of the Traffic Code on administrative penalties regarding violations of traffic rules and regulations.

Table 5.2.2 shows the transport related policies enacted by the City Council of Davao City. A review of this transport related policy development shows its reactionary nature. This observation confirms the need for local transport policy to consider the effect or possible repercussions of each policy prior to its implementation. An example to illustrate this point is the case of eliminating triciboat operation. The policy on the elimination of this mode did not mention any provision on alternative cash-based income-generating activities for the triciboat owners/drivers affected by the policy. This local policy against triciboat, provided an impetus for an alternative mode such as open-cab to emerged.

Moreover, the physical description and nature of operation of motorcycle-propelled vehicle vis-à-vis the road infrastructure should be considered in ensuring that the public transport service is affordable, safe and efficient. Habal-habal is an accepted transportation mode in rural districts of Davao City in the absence of alternative traditional public transportation due to the nature of road system. This can be accepted as an intermediate mode by the local government but its operation should be limited and policy on helmet used and overloading should strictly be implemented.
<table>
<thead>
<tr>
<th>Year</th>
<th>Local Policy No.</th>
<th>Title</th>
<th>Identified Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>Ordinance No.9</td>
<td>Traffic Ordinance of the City of Davao</td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>Ordinance No.778</td>
<td>Revised Traffic Ordinance</td>
<td>1964 Traffic Code</td>
</tr>
<tr>
<td>1988</td>
<td>Executive Order No.15</td>
<td>Creation of Traffic Management and Control Board (TMCB)</td>
<td>Observation</td>
</tr>
<tr>
<td>1990</td>
<td>Ordinance No.52</td>
<td>Legalizing the Operation of Pedicabs (trisikads)Within Davao City</td>
<td>Request from operator</td>
</tr>
<tr>
<td>1994</td>
<td>Ordinance No. 1692</td>
<td>Davao City TFH Franchising and Regulatory Code Of 1993</td>
<td>Experience in Implementing Ordinance No.516</td>
</tr>
<tr>
<td>1994</td>
<td>Executive Order No.43</td>
<td>Creation of TMCB, expansion of its membership Composition and adoption of better Traffic Management</td>
<td>Political</td>
</tr>
<tr>
<td>1994</td>
<td>Resolution 789</td>
<td>Operation “Hapsay Dalan”</td>
<td>Experience</td>
</tr>
<tr>
<td>1995</td>
<td>Executive Order No. 21</td>
<td>Reconstitution of the Davao City TMCB</td>
<td>Political</td>
</tr>
<tr>
<td>1996</td>
<td>Resolution No. 101105</td>
<td>Comprehensive Development Plan of Davao City</td>
<td>Studies</td>
</tr>
<tr>
<td>1997</td>
<td>Resolution No.13439 Ordinance No. 5184</td>
<td>Motorized “Trisikad” Licensing and Regulatory Board</td>
<td>Request and Observations</td>
</tr>
<tr>
<td>1998</td>
<td>Resolution No.13870</td>
<td>Acceptance of the City Mayor’s decision to veto Motorized “Trisikad” Licensing and Regulatory Board</td>
<td>City Mayor’s Legal Department</td>
</tr>
<tr>
<td>2000</td>
<td>Ordinance 108</td>
<td>Implementation of the Public Utility Rerouting Scheme for the City of Davao</td>
<td>Studies</td>
</tr>
<tr>
<td>2001</td>
<td>Resolution No.0176-01</td>
<td>Strict Implementation of Ordinance No.52 Series of 1990 Relative to the Operation of Trisikads in Main Thoroughfares of the city</td>
<td>Observation</td>
</tr>
<tr>
<td>2001</td>
<td>Executive Order No.31</td>
<td>Reconstituting the TMCB</td>
<td>Political</td>
</tr>
</tbody>
</table>

Note: **TFH** –Tricycle for Hire  
**Hapsay Dalan** – means “good traffic” in local dialect  
**Trisikad** – bicycle with attached side car (also known as pedicabs)  
**Motorized Trisikad** – like a trisikad attached with a small boat or general purpose engine
There are no provisions in the local transport related policies developed in Davao City to consider the infrastructure development for non-motorized transportation. Table 5.2.2 provides an overview that policy discussion on public transport is more oriented towards motorized transportation. There were no discussion or ordinances on how to improve or promote non-motorized transportation except for the trisikads, which was requested by an operator in the residential area.

In order to provide a comprehensive description of policies developed, a comparison of these policies developed regarding tricycle operations vis-à-vis the end objectives of urban transportation planning since it was devolved is provided in the next section.

5.3. Comparison of Local Transport Policy in Davao City and Metro Manila vis-à-vis the End Objectives of the Urban Transportation Planning Principles:

Tracing the development of tricycle regulations from the initiatives of national capital region (MMC Tricycle Ordinance) in 1990 to the national policy (Local Government Code of 1991, DOTC Guidelines) and comparing it with the ordinances of Davao City (a local level case study) and the Metro Manila ordinances provides an overview on what was considered in the policy development and how local policy improvement indicates some difference in responding to issues.

Prior to the devolution in 1991, franchising and regulations are held at the national level, the LTFRB. While this structure showed an improvement in the registration number of tricycles used for public transport, the proliferation of this mode made Metro Manila vulnerable to the issues associated with this mode. Primary issue at that time is the observance that pedicabs and tricycle operation along major thoroughfares slows down the flow of traffic as well as poses unnecessary risk and danger to the lives of concerned individuals. The Metro Manila Council, then the policy making body of the Metro Manila Authority (MMA)[125] an organization mandated by Executive Order No.392 to deliver basic urban service such as traffic management, public safety, land use, planning etc enacted Ordinance No.6: Prohibiting Pedicabs and Tricycles from Operating Along Highways and Major Thoroughfares within Metro Manila and Limiting Their Operations to Tertiary Roads within Subdivisions. Primary issue responded by this policy is that of congestion.

This was adopted by the DOTC when it created guidelines upon the devolution of tricycle regulation at the local level. Since Davao City, is considered in Mindanao as well in the national spatial development plan as next to Metro Manila (DIDP, 2000), local level policy response regarding tricycle operations is expected to counter expected issues such as congestion as well as other related urban issues.

Identifying priorities in local transport development can provide additional inputs for a comprehensive local transport policy.

Table 5.3 gives an overview of how policy developments consider the end-objectives of urban transportation planning.
Table 5.3 Comparative Review of Metro Manila and Davao City’s Local Transport Policies vis-à-vis Urban Transportation Planning Objectives (1990-1994)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility:</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Zones within the City</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special permit to other areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Color Code per zone</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Taxi-like Operation with approved zones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Rules of Entry</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fare Rates</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Franchising Fee</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Insurance</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Driver’s License</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Load Limit</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Display of Permit</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Administrative Penalties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Protection</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Anti-smoke</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Belching</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Anti-noise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

66
In 1990, the pressing issue in Metro Manila regarding tricycle operation is that of congestion. This has since then been recognized at the national level. To date, the pressing issue in Metro Manila is that of air pollution and tricycles has been identified as one of the primary mobile source [126].

From table 5.3, it can be observed that the national guideline is particular in responding to safety, efficiency and affordability, which is embedded in the Public Service Act of 1936. The City Council of Davao City initially adopted this guideline in 1992. After two years, issues were raised, particular in the process as well as other observable urban issues such as that of noise and pollution. The City Council improved and adopted the Ordinance 1692 or the Davao City Franchising and Regulatory Code. As shown in table 15, the latter ordinance is stricter (in terms of administrative penalties such as violations of traffic rules and regulations) and more comprehensive as it take consideration of environmental factors.

To date, Davao City is not encountering much issue concerning tricycle operations except for those other emerging motorcycle-propelled like the open-cab and habal-habal operations. Interview conducted with the six (6) tricycle drivers/operators who are leaders in their respective terminals indicated that they tried to follow the regulations imposed on them since not following it will mean at least a day lost of income since the cost of penalty is around PhP 150 to 300 per violation. Moreover, in terms of their unit creating noise and emitting smoke, they tried to avoid this, since they do not want their passengers (regular customers) and the residential area where they operate to be inconvenience or complain if they have such problems with their units. This in a way showed how important a comprehensive local transport policy in averting urban transport problems.

On the other hand, the MMDA Regulation in 1996 and 1997 concern remains the same as the last time (1990), that of congestion. This shows how reactionary it is to the pressing issue of congestion. To date, another pressing issue regarding tricycle operations in Metro Manila is that of air pollution.

5-3.1 Issues and Responses of the City of Davao on Tricycle Operation: Assessing Ordinance No.1692

The following presents an in-depth review on the content of the policy on TFH Franchising and Regulatory Code of 1993:

The Planning and Regulatory Aspects

Motorcycle-propelled Vehicle Design

The Code specifically defined a *motorcycle-for-hire* as a motor vehicle composed of a motorcycle fitted with a *single wheeled side cab* or with a *center cab* operated to render service to the general public for a fee*. According to local city official [127], the initial policy was amended to include the center-cab type of tricycles. Aside from this, there are no other technical specifications to define a tricycle.

This means the type of motorcycle that should be used as well as the physical attributes considered in the design of the side-cabs are missing. The case of open-cabs type of

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tricycle is considered a tricycle but it did not passed the standard-type of tricycles-side-cabs or center cab with full coverage. The city official further based their acceptance of standard design, which happens to be the most popular type of tricycles on the three test of public service conveyance; (1) stability; (2) safety; (3) durability. The open-cab type of tricycles did not satisfy this for a passenger is inconvenience without the side panels of the popular type of tricycles. Even at the national level, especially at the LTO where all motor vehicles are registered, there are no design or engine specifications as to what is allowed as tricycles. Tricycles operate using motorcycle and motorcycle as a vehicle unit can only accommodate a specific load. In the case of standard tricycles, 250kg is the maximum load capacity on a 30-60 kilometer per hour motorable path. This is equal to around three to four person. More than this load can have serious technical effect on its engine such as causing pollution.

The national level definition by LTO also did not show any consideration in this aspect too. The LTO data classification of motorized tricycles of for hire refers to motorcycles/tricycles (with sidecars) for-hire which operate within the territorial limit of a city or municipality except along the national highway”. This shows that the distinction is based on its use of road space.

Anti-smoke Belching

The local policy does not indicate any policy on the acceptable level of emission but the policy include any provision on making sure that the vehicle is smoke-free or environment friendly. In Sec.29 on Administrative Penalties, driving a MTH emitting excessive smoke carries a penalty of PhP 50, 100,150 for first, second and third offense, respectively. Moreover, at present, there is a national policy that covers this issue, which is the Clean Air Act of 1991. The Clean Air Act specifies under section 22 “no motor vehicle registration shall be issued unless such motor vehicle passes the emission testing requirement promulgated in accordance with this Act”. The Implementing Rules and Regulation also stipulates that carbon monoxide emission of in-use motorcycles (two and four-stroke) should not exceed 6% of the engine's total exhaust volume during idle state. Moreover, even the national policy does not have clear standards for tricycles in particular. The law has “approval-type” standards for motorcycles but it does not contain “in-use standards.” Approval-type standards are those that govern new models about to be introduced in the market. These are essentially emission-control regulations through vehicle design.

Noise Control Policy

Driving tricycles without horn or with horns making startling sound as well as driving a tricycles with open mufflers or making unnecessary noise are part of the city offenses that carry the same amount of penalty as in the poor emission results.

Road Safety and Worthiness

Davao City local ordinance did not include the physical check up of the unit as part of its requirement prior to giving franchising permit. It only request for a picture of the tricycle. It does have financial (same amount for each offense) and administrative penalties for tricycles for the following offenses related to road safety and worthiness:
Driving tricycles-
Without proper headlight, taillight, stop lights and plate lights;
Broken windshield or without windshield wiper
Red light forwarded or ahead of motor vehicles
Without adequate of sufficient brakes, safety devices or accessories
Operating unsafe, unsightly or dilapidated motor vehicle
Inappropriate driver’s license
Failure to show or surrender driver’s license
Operating MTH loaded with soil, sand gravel, stones and the like without canvass covering.

Violation of numbers 1-5 would mean that the apprehended tricycles before resuming operation shall be inspected to verify if the defects has been corrected before releasing the plates, driver’s license or other papers confiscated. On the other hand, for those with invalid license or not carrying one’s driver’ license, the driver is charged with PhP 50 ($0.90). But those charged of not securing driver’s license, operating a MTH with delinquent or suspended or invalid registration has a PhP300 ($5.45). A driver under the influence of liquor or narcotics is also fined with PhP 200 ($3.63) to PhP 500 ($9.09).

On Coverage and Restrictions/Access Points of Tricycle Operations

The policy is clear on the coverage and restriction of tricycle operation such as:
Routes and Service Areas

Prohibition on national highways utilized by 4-wheel vehicles greater than 4-tons and where normal speed exceeds 50kph. However, the policy provided a provision that the Motorized Tricycle for Hire (MTH) Board can exempt if there is no alternative route. The data showed that they exempted at least three (3) routes in District 2 and allowed tricycle operations along national roads. The issue in this exception is that in future, they can be the cause of traffic and that the city government may encounter problems in correcting this in the future.

Integration /Network and Competition with other Modes

The local policy does not specify that the tricycles integrate with other modes such as connecting with jeepneys or buses. But it is clear that they are allowed to operate like a taxi within specified zones [130]. However, they are not allowed to load or unload passengers within a prohibited zone and at intersections as well solicit passengers at street corners.
Terminals

The ordinance does not specify any provisions about tricycle terminal. However, included in the application for franchising is that the applicant/operator should present, sketch of zonal location of proposed route as well as the sketch of the location of the garage.
Road Space Allocation

Tricycles are not allowed in national highways except when there is no alternative route. Tricycles are relegated to secondary roads and residential streets. There are no provisions on which side of the road is more preferred for its operation given that it is still a motorized mode despite its speed limitations as well as the fact that even in residential areas, they occupy road space that the community members can use for walking.

Speed Limit

A tricycle speeding over 30km/hour is considered an offense in Section 25 of its administrative policy. There were no data to show if this is being followed or not. However, tricycle driver interview revealed that in residential areas, this is not an issue but in the case of center-cab tricycles allowed to drive in national road, they tend to increase their speed to cope with public utilities speed.

Level of Service

This section checks whether the ordinance has provision to respond to issue of passenger safety, comfort, convenience as well as reliability and regularity. Aside from assuring that there are penalties, should the unit is found to violate policy on the vehicle roadworthiness, the ordinance is also clear that the driving under the influence of alcohol is offensive. Hence, this local policy ensured the safety of passengers.

On Market Entry

One of the significant changes of the present local policy with the one developed in 1992, was the organizational change by creating the MTH Board. Unlike in Ordinance 516, where the City Mayor has the power to create the city franchising division, article 2. Section 4 created the MTH Franchising and Regulatory Board that is composed of the (1) Board that included the City Mayor, City Administrator, City Legal Officer or Hearing Officer and support staff and an (2) Advisory Committee composed of NGOs, student representative, riding public (from the media). The Board is also divided into two divisions: (1) MTH Franchising Division and (2) MTH Regulatory Division, wherein both are supported with technical and evaluation staff, legal staff and an enforcement staff. This composition assured applicants of fair assessment in the granting of motorized tricycle operator’s permit (MTOP) as well as fare rates. Moreover, this structure also assure the public that there is a process and public issues as heard as the Board is composed of individuals coming from different background. The Board also assured the public that those granted franchise have valid registration papers from the LTO as well as common carrier’s insurance.

Fare Rates

Rates are also established at a level that provides the operator or reasonable return of profit while providing low-cost transportation to general public. Students discount as
authorized by LTFRB is also adopted. Moreover, the policy also indicates that a table of fare is to be posted at the tricycle terminal as well as in the vehicle. This system assured that the fare is affordable by the common public.

Franchise Fee

Franchise fee was increased from PhP 500 in 1992 to PhP 700 in the 1993 MTH Franchising and Regulatory Board. It also has a special permit fee of PhP 50.00 for operators intending to bring their unit outside the route for personal use.

Moreover, the franchising fees indicate that the MTH Board is encouraging that the tricycle driver/operators form cooperatives.

Table 5.3.1.1. Tricycle for Hire Franchising Fees

<table>
<thead>
<tr>
<th>Franchise and Accessory Fees</th>
<th>Amount</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Annual Franchise Fee/Supervisory Fee</td>
<td>PhP 700 ($12.72) for 5 units plus PhP 25.00 ($0.45) /unit for every added</td>
<td>Held every 3 years</td>
</tr>
<tr>
<td>2. Filing Fee</td>
<td>PhP 500 ($9.09)</td>
<td>Upon application, based on number of units</td>
</tr>
<tr>
<td>3. Fare Adjustment Fee for Fare Increase</td>
<td></td>
<td>Accrue upon approval of fare increase and collected with annual franchise fee</td>
</tr>
<tr>
<td>4. Filing Fee for Amendment of MTOP</td>
<td>PhP 700 ($12.72) per line</td>
<td>Upon application</td>
</tr>
<tr>
<td>5. Confirmation Fee</td>
<td>PhP 10 ($0.18)</td>
<td></td>
</tr>
<tr>
<td>6. Filing Fee for Opening or Closure of Service Routes</td>
<td>PhP 700 ($12.72)</td>
<td></td>
</tr>
</tbody>
</table>

As previously mentioned, this ordinance took effect in 1994, due to the absence available disaggregate data per year, the following straightforward computation is made to provide a very rough estimate on the possible revenue generated from the tricycle operations. The data provided by the MTH Franchising Division showed that there are 2,224 Operators and 2,534 units. Since there is an almost 1:1 owner/unit ratio, it is assumed that each operator paid for the full amount:

Using the 1994 US$ Exchange rate of US$1.00=PhP27.7, the total contribution of tricycle business (franchise fee) for Davao City is estimated at PhP 2,768,740 (US$ 99,955) or 0.7% of the local revenue collection of PhP 391,111,139 (US$14,119,535.7) [131].
Table 5.3.1.2 Computations on Estimated Revenue of MTH Franchising Division, Davao City

<table>
<thead>
<tr>
<th>Details</th>
<th>Amount in PhP and US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supervisory Fee</td>
<td>2224 units x PhP 700</td>
</tr>
<tr>
<td>2. Filing Fee</td>
<td>2224 units x PhP 500</td>
</tr>
<tr>
<td>3. Confirmation Fee</td>
<td>2224 units x PhP 10</td>
</tr>
<tr>
<td>4. Opening of Routes</td>
<td>111 routes x PhP 700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>PhP 2,768,740 ($ 50,340.72)</strong></td>
</tr>
</tbody>
</table>

Interviews made acknowledged the benefit that the city receives from the devolution process is that it provides additional income for the city while providing employment opportunities [129].

The present Ordinance 1692 illustrates Davao City’s policy approach on local transport policy by defining tricycles, justifying in this case, the presence of center-cab units as well as the organizational structure answerable to the possible issues raised in the operation of tricycles.

At present motorcycles/tricycles categories has the lowest percentage of vehicles involved in traffic accidents (Table 5.2.1.3).

Table 5.2.1.3 Type of Vehicles Involved in Traffic Accidents in Davao City 2000-2001

<table>
<thead>
<tr>
<th>Type of Vehicle</th>
<th>2000</th>
<th></th>
<th>2001</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Registered Units</td>
<td>Involved in Accidents</td>
<td>%</td>
<td>Registered Units</td>
</tr>
<tr>
<td>Bicycles/Trisikads</td>
<td>Unavailable</td>
<td>105</td>
<td>Unavailable</td>
<td>56</td>
</tr>
<tr>
<td>Motorcycles/Tricycles</td>
<td>18,427</td>
<td>511</td>
<td>2.77</td>
<td>21,685</td>
</tr>
<tr>
<td>Cars</td>
<td>14,609</td>
<td>2,681</td>
<td>18.35</td>
<td>15,291</td>
</tr>
<tr>
<td>Buses</td>
<td>651</td>
<td>174</td>
<td>26.73</td>
<td>755</td>
</tr>
<tr>
<td>Trucks</td>
<td>8,442</td>
<td>627</td>
<td>7.43</td>
<td>8,119</td>
</tr>
<tr>
<td>Trailers</td>
<td>868</td>
<td>0</td>
<td>0.00</td>
<td>876</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72,863</td>
<td>8,320</td>
<td>11.42</td>
<td>79,665</td>
</tr>
</tbody>
</table>
5.4. Tricycles and its Variants and Local Public Transport Policy: Summary and Policy Implications

The study area, Davao City showed that there are a variety of motorcycle-propelled vehicles used as public transportation. The field observation and key informant interviews determined four (4) types of motorcycle-propelled vehicles. This are described and categorized into two different types and on three different bases. One, by technical design: (1) habal-habal and (2) tricycles. The tricycles can be also be sub-classified according to the design of the attached carrier: (1) side-cab, or also known as the standard type which happens to be the most popular one; (2) center-cab and the (3) open-cab. Two, in terms of capacity: (1) habal-habal and side-cab and open-cab type tricycles are low-capacity motorcycle-based public transportation and (2) center-cab tricycles are the high-capacity types. And three, based from the legitimacy of the operations. The standard-type and center-cab type tricycles are the only ones covered under the ordinance. This makes the other two types, the habal-habal and the open-cab tricycles technically, informal.

At the local level, the importance of developing and implementing local transport policy with regards to tricycles was illustrated on how limiting tricycle operations in residential areas (tertiary roads) provides homeowners a safe and affordable feeder-modes. Even if the distance is not far (1-3km), it provides the much-needed comfort that a passenger could feel since the Philippines has a predominantly warm weather. The presence of tricycle operations in most residential subdivisions (characterized as gated communities) indicates that there exist a positive relationship between the tricycle operators and residential owners. Moreover, the policy prevents congestion and accident in main thoroughfares and busy urban centers.

The study also traced the development of informal transport sector in the case of open-cab tricycles and habal-habal. The study confirms that informal transportation emerged in the absence of formal ones because of the unequal development in the areas. Moreover, the study revealed that aside from this, informal transport modes that are “tolerated at the maximum” level by local enforcers also evolved when there is a policy banning another public transport mode not accepted as motorized transport at the national level. The case study further indicates the preference of local officials, local enforcers and residential areas to encourage motorized public transportation rather than non-motorized modes.

On the other hand, the review of the content of the ordinance revealed the comprehensiveness of its scope on the operation of tricycles compared with the original guidelines used. The ordinance also showed the important role associated with tricycles, that is livelihood and income generating activities as well as providing basic transportation services to the riding public. The City of Davao improved the local transport policy and responded well to the issue confronting the operations of the tricycles. As previously mentioned, tricycles has been part of the urban landscape. It is thus important that the local level policy is comprehensive enough to cover issues that might arise regarding its operation or possible emergence of other indigenous modes. The present policy of Davao City was able to respond to the end objectives of urban transportation planning.

However, the ordinance on tricycle operations failed to show the basic information about the unit’s technical specifications that can have various effects on the way it is used as a public transportation. The local public transport policy is also silent on further plans to improve this mode of public transportation.
Chapter 6

Summary, Conclusion and Recommendations

6.1 Summary

This study is about understanding how developing nations like the Philippines provide policy response to the emergence of indigenous public transport modes like the tricycles. This study describes the history and general policy approach taken by the Philippines concerning the operations of tricycles. Specifically, it traces the development of public transport policy and identifies the factors in the emergence of other indigenous public transport like the motorcycle-propelled vehicles at local level. Moreover, it examines whether the policy response considered the end-objectives of the urban transportation planning principles.

Studying public transport policy development at local level is chosen since the presence of indigenous public transport mode as well as related issues is initially felt at the local level. Different local government units have varying background and approaches in addressing transport related issues. The high number of motorcycle units in developing nations and the innovations made out of it is a consideration for this study especially in the case of the Philippines. Moreover, Davao City was chosen as the case study site since it is one of the most populous in the Philippines as well as a newly urbanizing area in region 11 in the island of Mindanao. It also has the highest tricycle per capita in the region.

The study utilizes qualitative approach using descriptive research by case study method using document analysis, site observation and key informants’ interview. This was done since the nature of the research entails tracing the history of local public transport policy and the emergence of tricycles and its variants.

The study also presents the concepts and emerging issues in urban transportation planning particularly in the presence of motorcycle-propelled vehicles in the transportation hierarchy. It also discusses the concept of integration with other modes to provide more access and balance system despite the infrastructure gaps. It further highlights the importance of a proactive local transport policy concerning issues of safety, health and environment, service level, mobility and accessibility.

Related literature on motorcycle-propelled public transportation covers the case of Thailand’s tuktuk, Indonesia’s bajaj and other motorcycle-based light motor vehicles as well as the motorcycle taxis found in most developing nations. The studies provide descriptive
categories on where to include these indigenous motorized public transport modes. Low-cost, intermediate motorized transport, paratransit and informal transport sector owing to the unsanctioned, affordable, small-scale and privately operated nature of the modes were the concepts used. Studies also illustrated that most of this type of transport system have internal organizational structure as a means to self-regulate and promote efficiency.

Moreover, related studies also assert that these modes are more common in developing countries where the standard of living is lower and where there is high density and available cheap labor. However, the main issues raised in its operation are health, safety and environmental protection. Most of the studies have been limited to describing the modes and did not cover the government’s policy response regarding its operation. Consideration of these modes to the urban transportation planning has been proposed in order to justify its regulation and/or elimination.

The history of tricycle operations illustrates how the national government took advantage of this mode by legitimizing its presence in the land based public transport system of the Philippines. The process of policy development at national and local level provides insights on dealing with issues such as congestion. The presence of local policy regulating tricycle operations has encouraged tricycle registration as well as directly responds to issues concerning its operations.

The case of policy development in Davao City regarding tricycles and its variants as well as the emergence of habal-habal presents the coping mechanism of the city to the issue of public transportation gaps and inaccessibility caused by poor road condition and unequal development. This local public transportation in the form of side-cab tricycles, center-cab tricycles, open-cab tricycles and habal-habal were collectively called motorcycle-propelled vehicles since they all operate using motorcycles. They were further classified in terms of their design, passenger-loading capacity and legitimacy of operations. The development of local transport policy concerning tricycle operations was also traced and revealed that the local transport policy in the form of ordinance was repealed after the implementation of old ordinance. National guidelines and experience in the implementation were the main consideration in policy improvement. Likewise, the comparative review of the policies covering the regulation of tricycle operations before and after the devolution showed some policy gaps in responding to the end-objectives of urban transportation planning principles. The comprehensiveness of the present Davao City Ordinance 1692 on tricycle regulation was also presented and the comparison of the past and present ordinance showed that past ordinance in Metro Manila only considered the issue at that moment which is congestion. On the other hand the present content Davao City ordinance showed an urban-transport planning pro-active approach to policy development with the presence of organizational structure as well as strict administrative penalties for ordinance violations.

6.2 Conclusion

This paper presents how the indigenous public transportation, in particular, the case of tricycles, evolved from being an informal transportation in the fifties to legitimate land-based public transportation mode of the present.
In other countries, indigenous public transportation, especially motorcycle propelled ones such as motorcycle-taxis are considered as an informal transport (that is unsanctioned by policies) which compete for space with other modes. Their emergence is attributed to public demands in areas where there is underdeveloped road network and poor road hierarchies as well as the poor performance of traditional modes like bus. There had been calls for policy regulation or elimination regarding the operation of this mode. There seems to be vacuum in understanding policy options taken by the government of developing countries where these modes are observed. This paper tried to fulfill that gap by studying the development of local public transport policy in the case of Philippine tricycles and its emerging variants.

Unlike other developing nations, the Philippine have shown that regulation on tricycle operations has been in placed since the 1980s. The Philippine transport system took advantage of the emergence of this mode by legitimizing its operation. There was no consideration of banning this mode. In policy development at national level concerning its operation, issues on its operation was considered such as the congestion that it could cause when it is allowed to ply national roads. This is an important consideration that prompted national policy to regulate its operation to tertiary and residential roads. Due to the short-distance nature of its trips, their role as feeder modes between residential areas and terminals were thus validated. This also indicates that location of most service access centers from residential communities is more dispersed creating demand for motorized travel.

Moreover, this short-distance nature of trips made by tricycle was also the factor why it is the only mode that the transportation sector gave to local government units upon the implementation of the Local Government Code. The provision that local government can allowed tricycle to operate on national roads in the absence of alternative modes routes indicates that the success or prevalence of issues associated with local transport modes like tricycle as well as possible emergence of other variations of this mode is dependent on how local government respond and integrate this with the urban transportation system of the area.

The case study in Davao City on the development of local transport policy provided valuable insights on the types of public transportation locally available and the local government responses to other emerging public transportation innovation. Moreover, it described the policy development process at the local level with regards to public transport (motorcycle-propelled vehicles) and determined whether the local policy enacted considered the end-objectives of the urban transport planning principles. The major findings in the study area is as follows:

**Tricycles and its Variations**

Despite the acknowledgement of tricycles as a local public transportation mode in the Philippines, a variety of motorcycle-propelled public transportation is seen in Davao City. These were categorized according three (3) different basis of classification. One, based on **vehicle design**: (1) Tricycles – motorcycles with attached carriers, but further sub-classified based on the location of the carrier as (1) side-cab tricycles or standard design that is more popular in the Philippines where the attached covered carrier is at the side; (2) center-cab tricycles where the motorcycle is in the center and design is similar to small jeepneys; (3) open-cab tricycles has similar design with the side-cab minus the metallic cover or often times used improvised beach
umbrellas as roof cover; and (2) Habal-habal or motorcycle taxis which uses the motorcycle itself to carry passengers and the seats are extended at the back and has extras shock absorber.

Two, based on loading capacity: since side-cab and open-cab tricycles as well as habal-habal can sit between 2-4 passengers, this can be considered as (1) low capacity and (2) high capacity description for the center-cab tricycles.

And three, based on the legitimacy of its operation. Only the standard and center-cab tricycles satisfy this description since it is covered by the ordinance.

Moreover, from this description and the operating characteristics of motorcycle-propelled vehicles in Davao City, the study concludes with the following points:

- The presence of tricycle operations in most residential areas shows that there exist a good relationship between the tricycle/drivers’ association and the residential owners. This also indicates that even at the residential areas (subdivisions or baraggay level), non-motorized policy integration such walking and cycling in road network is not given ample consideration.

- The emergence of other variants of tricycles like the open-cab models and habal-habal confirms the infrastructure deficiency especially in terms of developed roads and the lack of alternative or more formal mode of transportation in the city.

- Moreover, the existence of another policy such as local government ban on an inferior mode such as the triciboat as well as credit line facility provided by motorized dealers caused the shift to informal motorized mode is a factor in the emergence of other variations such as open cab tricycles.

- The description of local policy process also indicates the necessary points in the enactment of local policy concerning indigenous motorized public transport. This is shown in (1) presence of national policy guidelines, (2) experience from the implementation of previous ordinance and the (3) public inputs (such as letter of request) among others.

- In policy development of local transport policy, it is important that the effects of such policies to the drivers/operators are considered (as exemplified in the case of triciboat operations).

- A comparison of the development of local level regulation showed the importance of providing comprehensive national guidelines that integrate the urban transportation planning principles. It shows that if local government can “nip the bud”, further urban transport issues can be avoided. This is illustrated in Davao City wherein; it tried to integrate environmental protection in the ordinance even before the implementation of the Clean Air Act of 1999.

- The study also indicates the importance of consistency in the interpretation of national and local level policies and development plans. Given the infrastructure gap in road developments, the role of emerging modes such as habal-habal must be considered in policy making. Moreover, implementation of national policy on motorcycle use such as the use of helmets and penalties on overloading vehicles must be strictly implemented.

Understanding the development of transport policy development at local level provide some inputs in how to address the basic building blocks of planning as well as
provide the initial steps towards developing a sociological approach in transport planning assessment.

The study provided a case study by reviewing policy development on understanding how a developing country like the Philippines respond to the emergence of indigenous motorized public transportation. The case of Philippine tricycles showed another perspective on policy responses regarding the initial presence of informal transportation by taking advantage of its contribution to the economy as well as regulating its operation. On the other hand, considering the presence of “habal-habal” or motorcycle taxis, the government can consider developing local transport policy by first determining if it is an informal or an illegal transport mode. Informal transport emerged because there is a need and there are no provisions such as safety, health and environment being violated. Illegal public transport are those units that clearly violate national policies such as those of the public service act.

Moreover, this study contributes to the informal transport literature in general. The case of motorcycle propelled public transportation in the Philippines illustrates how the initially informal transportation mode borne out of ingenuity can be regulated. This regulation however, should take into account the principles of urban objectives.

6.3 Recommendations

Based from the case study, a national guideline that incorporates urban transport planning principles such as mobility, accessibility, equity, safety and environmental protection on local public transportation (tricycles and trisikads) policy can be recommended. Tricycle unit design and engine standards should be incorporated.

The national government should also consider assessing the role of other indigenous modes that emerged such as tricycle variations and habal-habal vis-à-vis land based public transportation developments.

Some Policy Insights

Understanding the development of local public transportation policy reveals some valuable insights in possible policy recommendations particularly in the presence of informal public transport modes found in most cities of developing countries.

- There are only two options in the emergence of indigenous public transportation modes: (1) regulation or (2) elimination.

  If regulation is considered, all the issues associated with regards to its operation should be taken into account. This should consider the end objectives of urban transportation planning such as mobility, accessibility, equity, safety and environmental protection.

  The Philippines took this option with the presence of a nationally guided local transport policy concerning its operation. However, there are some issues associated with tricycle operations such as congestion and air pollution. This can be attributed to the gaps
in policy such as the presence of standard tricycle unit design (body and engine configuration).

Moreover, policy implementations at national and local level must be ensured.

In the case of the option of elimination, the government should consider other available public transport options that will ensure safe, efficient and affordable local public transport system for the passengers. Moreover, it should also consider alternative livelihood or employment for the affected sector.

Suggestions for Further Study:

It would be very useful to further expand and explore the other dimensions of this paper, the following research recommendation for further studies is proposed:

- Quantitative assessment on how local transport policy responds to the urban transportation planning principles. This can be made by gathering local transport policies developed by different local government units, assessing and then verifying by survey to the local government units, indigenous public transport operators/drivers and passengers as well as non-passengers.
- Sociological study on the equitability and sustainability of local public transport modes in developing countries can also be explored.
- A sociological inquiry on assessing indigenous public transport modes by assessing sociological factors vis-à-vis the urban transportation planning principles can also be made in order to determine the possibility of planning informal public transportation system in developing countries.
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