

PUBLIC TRANSPORT EVOLUTION AND OPERATION IN INDONESIAN MEDIUM SIZED CITIES

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INTRODUCTION

- 1 Most Indonesian cities are faced with serious public transport problems. The problems are including disorganized; over-crowded paratransit business and competition between modes of public transport. This paper deals with these problems in medium sized cities in Indonesia. The stereotypes of public transport operation in medium sized cities are governed by the private paratransit mode, the absence of transit operation (big buses) and the government owned companies. Almost the whole paratransit is fulfilled by the individual private participation. The disorganized of route permit by the municipalities government seems to be one of the other crucial issue. The paratransit routes and the number of fleets are not based on the demand analysis but based on subjective demand prediction and the route permit fee target by the municipality governments. In some cases in medium sized cities the paratransit fleets seem to be over-supplied and the routes do not match with the demand origin-destination patterns. The other situation is the decreasing of unmotorized public transport as a result of both the municipality government policies and competition with the motorized paratransit.
- 2 The terminology of medium sized cities in Indonesia are cities with 200,000 up to 500,000 inhabitants. Cities with more than 1 million inhabitants is defined as a metropolitan city; big cities are cities with 500,000 up to 1 million inhabitants; and small cities are cities with less than 200,000 inhabitants and still fulfill the urban areas criteria. The urban areas criteria should be fulfilled three criteria according to the national statistical center bureau. These criteria are as follows: First, the population density should be more than 5,000 person per square kilometer; Second, percentage of agricultural household is less than 25 % and; Third, the areas should be fulfilled some of the urban facilities such as, paved roads, telecommunication facilities, education and health facilities and business facilities.

THE MODES OF PUBLIC TRANSPORT

3. As in many developing countries, many forms of public transport exist in Indonesia. Although unmotorized public transport has been almost extinct, however in some parts of some cities it still exists, especially in the medium sized cities. The three wheeled pedicab and the house drawn cart are the most common of unmotorized public transport. The big bus, medium-sized bus (30 seat) and small-sized bus (8 - 12 seat), three wheeler car (*bemo*) and passenger car taxi are the common of motorized public transport. However in medium sized cities almost all the motorized public transports are served by paratransit modes of transport.

The Unmotorized Modes of Public Transport

4. The *Becak* (the three wheeled pedicab) is the most common of the unmotorized public transport mode. As a supplementary public transport mode, it is still widely used by the residents. *The Dokar* (house drawn cart) still exists in some medium sized cities in Indonesia, although it is not so popular as the *becak*. However in some cities such as Mataram in Lombok, the *dokar* is still the major mode of unmotorized public transport. A motorized variation of *becak* can be found in some cities in North Sumatra. A *bajaj* (an Indian based motorized pedicab) is only found in Jakarta as the alternative mode after the *becak* has been banned throughout the city. A most recent phenomena in the public transport system is the *ojek* (bicycles and motor cycles taxi). According to the regulation, in fact, the motorcycles are not allowed to be used as a public transport. Almost all the unmotorized modes are operated as taxies without a fixed route.
5. The attitudes towards the *becak* is quite ambivalent. The elite perceived negatively to the *becak*, because it is inhumanely, hampering the smoothness of motorized flow, etc. Some municipal governments also viewed *becaks* negatively, as can be observed from policies about *becaks*: prohibiting its operation completely (Jakarta), and strict control or confinement to designated areas (almost in the metropolitan and big cities). However, people living in many urban villages and the newly developed areas have positively image to the *becak*. *Becak* have a good flexibility of its services, caused for no organization regulates their routes or fares, reliability and the door-to-door service is also considered to be still useful for them. *Becaks* are available in almost medium sized cities in Indonesia (see Soegijoko and Cusset 1988). The phenomena of prohibiting of *becak* is changing to motorcycles *ojek*, particularly in the area where urban bus/minibus service is not well provided. However, the *ojek* is less comfortable than the *becak*.
6. The future of *becak* is unclear, since more municipal governments will follow Jakarta and other big cities policies and there are an effort by the municipalities government to reduce the number of *becak*. However, since the importance of the *becak* is decreasing in the framework of urban transport, the *becak* driver job is getting less

attractive in terms of wage, since its operation location become limited and it has less competitive to urban minibis (JICA, 1989)

7. *Dokar* is not so popular as the *becak* as a mean of public transport. However in very small number, *dokar* still exists in the outskirts of Jakarta. In some cities, *dokar* still exists, particularly in Jogjakarta and Surakarta in Central Java (*Andong* is the local term used in Central Java) and Mataram in Lombok island (*Cidomo* is the local term used in Lombok). *Dokar* can be able hired for a longer journey that can not be done by the *becak*. *Dokars* can also be hired privately or shared with other persons if they have a fix route such as *Cidomo* in Mataram.

The Motorized Modes of Public Transport

8. A motorized modes of public transports are varies from the motorized *becak* in some of North Sumatra Province cities and *bajaj* in Jakarta to the double decker bus and articulated bus (only in Jakarta). However, in medium sized cities almost the motorized public transport is governed by paratransit-minibus operation with the average of capacity of 12 passengers (the local terms is varies such as: *Mikrolet* in Jakarta, *Angkot* in almost all the cities in Indonesia, *Pete-Pete* in Unjung Pandang and *Taksi* in Kalimantan cities). The regulating mechanism is set up by the local government. This mechanism has a same procedure and pattern between the local authorities. However, there still have a small difference, particularly, which department have the right to issue the public transport permit. As mentioned in the paragraf 1, the paratransit routes and the number of fleets are not based on the demand analysis but based on subjective demand prediction and the route permit fee target by the municipality governments. In some cases in medium sized cities the paratransit fleets seem to be over-supplied and the routes do not match with the demand origin-destination patterns. Route definition is based on observation of trip flows, performance in pioneer routes and landuse activities.

THE EVOLUTION OF THE PUBLIC TRANSPORT SERVICE

Background

9. Historically, in early 60's the public transport service in the Indonesian cities consisted the traditional means of transport e.g. *becak* and *dokar* except in the big cities such as Jakarta, Surabaya, Medan and Bandung. Then, in the decade of 70's the motorized public transport came into operation in the medium sized cities especially the minibis. The big bus usually operates by the government owned company (PT.DAMRI) and it is limited only in the big and metropolitan cities. Almost the motorized public transport in the medium sized cities operates by individual private participation. The motorized paratransit competes the traditional unmotorized means

of transport. *Dokar* slowly began to disappear or switched to serve the rural community. However the *becak* were still favorable in the society because of its flexibility and conveniently to the society. However in the decade of 80's this mode of transport began unfavorable in the point of view of the local government policies and replaced by the *ojeck* in the area lack of public transport services.

10. The existence of paratransit (minibus) has occurred in two different cases. First. It is a result of unreliability of the transit system (big bus and medium sized bus) in the big cities and, It is a result of pioneering public transport services in the medium sized cities caused by the absence of government owned company services; or to serve the feeder route that it can not feasible in terms of the demand if serve by the transit system. Fig. 1 and Fig. 2 illustrate the existency of paratransit on the first case and second case consecutively.
- 11 (Soegijoko and Cusset 1988) stated that the emergence of the regular bus service as a result of the government policy, often without consultation of the local authorities, has turned out to be an unfair competition to the minibus system. With such an evolution on the urban public transport service, there are some gain and some loose to the society. For example, the banning and restricting of *becak* operation is one such a case of public loses. This is a result of emergence of the *ojeks*. Again, it is a gain for the public but a loose for the *becak* driver. The introduction of regular buses (big busses) is a gain for the public caused by cheaper fares but a loss to minibus system. Also the operation of minibus is a loose for the traditional modes of transport.

Competition Between and Within Modes

- 12 Ideally, the existence of varying public transport modes could be optimized by an integrated planning of the urban public transport system. However as seen in some of medium sized cities such as Purwokerto (Central Java), and Mataram (Lombok island) the integrated public transport do not exist (Tjahjono 1995).
- 13 The pressure of increasing local tax income by increasing the number of paratransit permit is the other problem arose in the medium-sized cities. It seems that the transportation sector is the "primadona" for the local tax income. In some cases the number of paratransits in particular route already exceed the demand. The competition is not only between the modes of public transport, but also within the same mode. Competition within the same mode has result to deteriorate the service and traffic safety caused by the reckless driver in order to get passengers along the route. In those two cities, the time headway of paratransit in the main route is less than 30 second during the peak hours and the paratransit occupancy is about 40 up to 60 per cent on average (Tjahjono, 1995).

**Fig. 1 - The Evolution of Public Transport in Indonesia
Case 1: the unreliability of regular buses services**

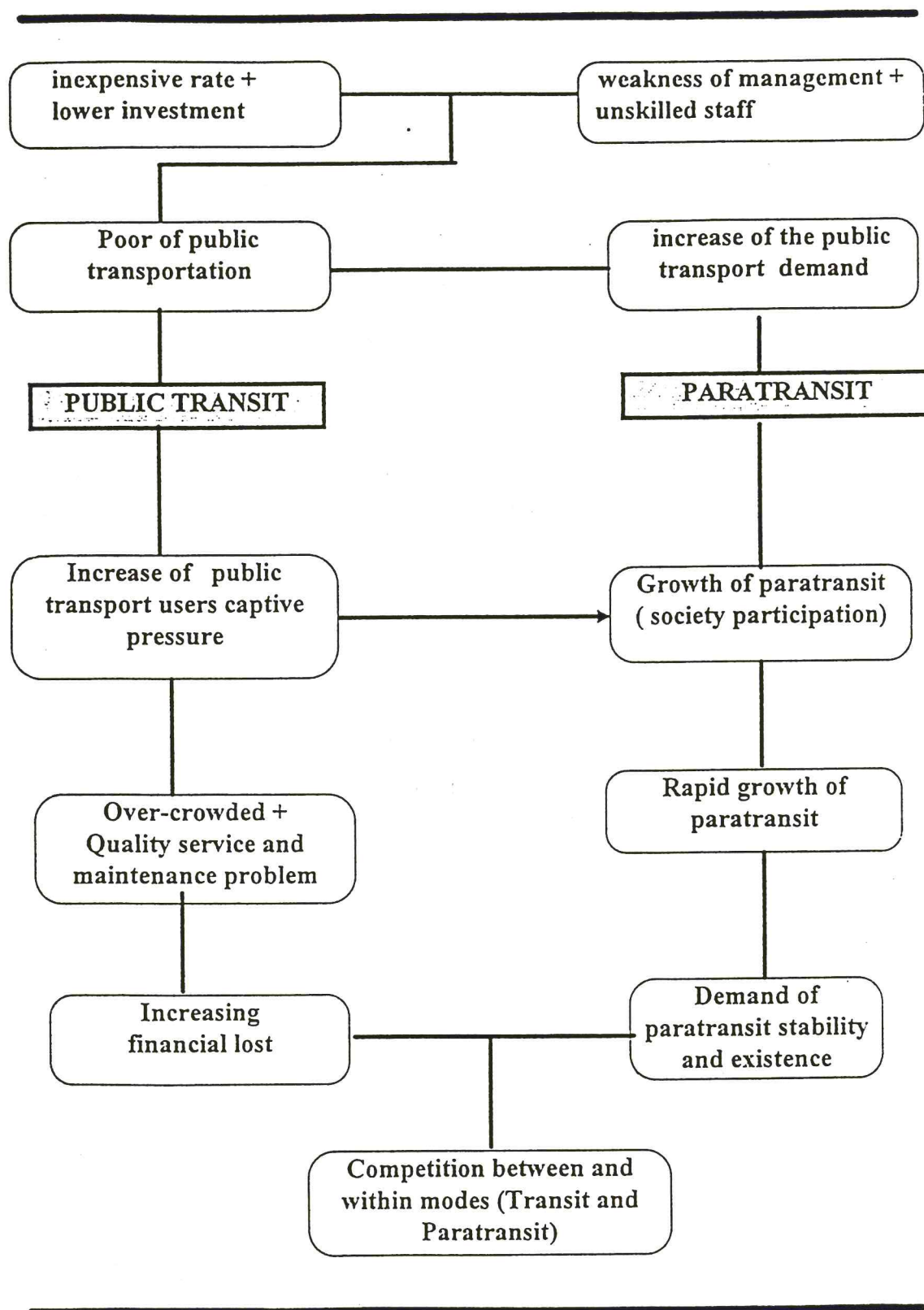
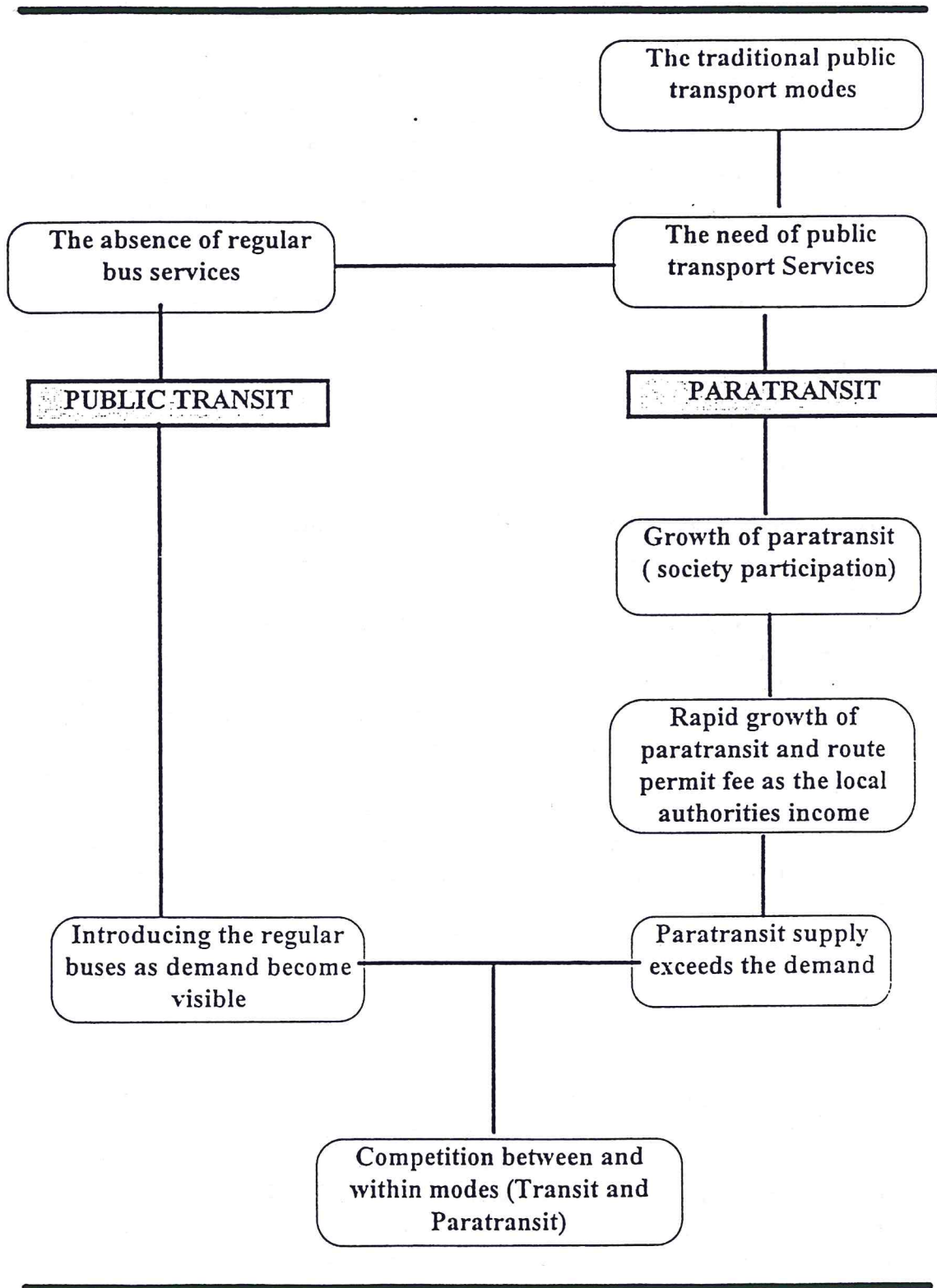


Fig. 2 - The Evolution of Public Transport in Indonesia
Case 2: Paratransit as the pioneering motorized public transport



THE CASE STUDY IN PURWOKERTO AND MATARAM

Purwokerto

- 14 Purwokerto is the administration municipality and capital of Banyumas regency. It is located in the western part of Central Java Province, about 450 kilometer south-east of Jakarta. It is a main city of that region with a population of 205,543 inhabitants with an area of 3,857 hectares. Previously, this city is the major transit city. As same as other cities in Central Java, Purwokerto has a strong city center, where almost all the government building, banks and commercial activities are located. This city has a diamond shape.
- 15 The city bus (minibus) terminals are located in the wetern-part of the city and on the city center. The inter-city bus terminal (*terminal induk*) is located in the south. Almost all the *angkot* (minibus) routes pass the city center and terminate in the city bus terminal (20 routes of 21 number of routes). Obviously, the main west-east corridor particularly from the termina to the city center is over-crowded with this paratransit mode.
- 16 The minibuses operate approximately from 06.00 a.m. to 06.00 p.m. After that, the public transport serves by the *becak* (the number of *becaks* is not available from the statistical figure). Taxis do not yet operate in Purwokerto, however the local authority has a plan to introduce the taxi in order to give an option to the medium-high level income society. In these case there will be a competition between *becak* and taxi or between *angkot* and taxi. The public transport competition in Purwokerto is very strong. The *angkot* is already over supplied (1 *angkot* to serve 764 persons). The average *angkot* passengers is not available in Purwokerto. The other competition is happened in the outskirts of the city between *angkot* and *angkutan desa* (rural public transport) which connected the villages and small towns surrounding the city to the city terminal. The *angkutan desa* has a same type of *angkot*. It is a minibus type of public transport. The *angkot* is not allowed to operate during the evening, enable give the opportunity to the *becak*. However, the *becak* is still allowed to operate during the day with some restriction in the city center. Table 1 shown some important figures of these city.

Mataram

- 17 Mataram is located in the Lombok island east of Bali island as the capital city of West Nusa Tenggara Province. The city and the Lombok island become famous as emerging tourist destinations in Indonesia. The city is a conglomeration of three towns, namely Ampenan in the west as the old harbor of Lombok island, Mataram in the center as the government activities center and Cakranegara in the east as the cultural center. The city has a rectangular shape with the built in area in the center strip from the west to the east, where the north and south parts of the city are still

agricultural land and open space with scattered villages. The population of Mataram is 277,305 inhabitants with an area of 5,775 hectare.

- 18 The bus terminal is located in the eastern-part of the city. It is served for both city-minibus services (*angkot*) and inter-city bus. The other terminal for *angkot* is located in the western-part of the city. There have 7 routes planned by the local authorities and they are only 4 routes actual in operation and almost of the *angkot* is served the Ampenan-Mataram-Cakranegara route (60 %). The average *angkot* passenger in this route is only 4 persons of the capacity of 12 persons. As same as Purwokerto, the competition within the *angkot* is very strong because of the structure of the city network. Taxi is also available in Mataram, however the service is limited to the hotels and the airport services.
- 19 The *angkot* services operate approximately from 06.00 a.m. to 06.00 p.m. after that, it is difficult to get public transport in operation. *Becaks* do not exist in Mataram, but the horse drawn cart of *Cidomo* is available as the unmotorized means of transport. *Cidomo* is banned through the main road of the city. They have a fixed-variable route in the outskirts of the city, particularly in the southern and northern parts of the city. There is a competition between *angkot* and *Cidomo* but is less strong than the competition within mode in Ampenan-Mataram-Cakranegara route. This is possible by the authority regulation, that the *cidomo* is banned from the major roads in the center business district and there are only two corridors where *cidomo* is mixed with *angkot*. However, since the city enjoys the tourist boom, fortunately, *Cidomo* becomes the unique tourist attraction. Table 1 shown some important figures of these city.

CONCLUSION

- 21 The existencies of the unmotorized public transport is unclear in Indonesia particularly for *becak*. This is caused by the authorities who perceived negatively to the *becak* and by the *becak* drivers themselft caused by low wages compared to the other un-skilled or semi-skilled jobs. The number of horse drawn cart is also declinning and will be replaced by the *angkot*, a paratransit minibus mode of transport.
- 22 There is unadequate public transport planning in almost of the medium sized cities in Indonesia. As a result, the number of paratransit tends to be to much and exceed the demand, particular in the major public transport corridors. This is also a result of the permit fee target governed by the local authorities.

- 23 Razionalization of paratransit is needed in order to improve the quality of public transport services. However, this should be planned carefully. The social aspect should be considered as quite a lot of family involved in this business.

Table 1 Cities Characteristic: Purwokerto and Mataram

	Purwokerto	Mataram
Population	205,543	277,305
City area (hectare)	3,857	5,775
Population density per square-km	5.33	5,99
Population growth	0.503 %	3.27
Landuse distribution		
- residential area	44 %	37 %
- business and industry area	23 %	8 %
- public facilities	21 %	6 %
- open space and agriculture	12 %	49 %
Road Length (kilometer)	101,95	280,427
Terminal Facilities		
- airport	none	Yes
- railway station	Yes	None
- intercity Bus Terminal	Yes	Yes
- city bus terminal	Yes	Yes
Public Transport Facilities		
- unmotorized vehicle, becak	available	not available
- horse drawn cart	not available	available
- taxi	not available	available (limited)
- <i>Ojek</i>	?	?
- minibus services	available	available
- regular (big) bus service	not available	not available
Minibus (paratransit service)		
- No of route (as a plan)	22	7
- No of route (as actual in operation)	21	4
- No of paratransit fleets	269	176

Sources : (PT. Pamintori Cipta 1995) and (RTTC Student Report 1994)

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