1. Notes on import duties and excise taxes – see associated spreadsheet

Import duties vary by Customs codes set out in Customs Tariff of Thailand. Code applies to new or used vehicles. See Table 1.1.

Table 1.1 – Customs and Excise Department Tax Schedule on Imported Vehicles and Parts

No	Description	Import Duty %	Excise Tax	VAT		
CBU						
8701.02	-Road tractors for semi trailers.	5	0	7		
	Truck tractors & four wheel drive tractors of an engine capacity of not exceeding 1100cc	20	0	7		
8701.90	Other	5	0	7		
	Truck tractors & four wheel drive tractors of an engine capacity of not exceeding 1100cc5	20	0	7		
87.02	**Public transport-type passenger motor vehicles with more than 10 persons including driver**					
8702.01	With compression – ignition internal combustion piston engine (diesel or semi diesel) having 30 seats or more.	40	0	7		
8702.109	With compression – ignition internal combustion piston engine (diesel or semi diesel) having 10 seats but not	40	0	7		

No	Description	Import Duty %	Excise Tax	VAT		
	exceeding 29 seats.					
	Exceeding 10 seats	40	0	7		
8702.901 (doesn't seem to exist in practice)	Other (for example, spark – ignition internal combustion reciprocating piston engine) having 30 seats or more.	48	0	7		
8702.909	Other (for example with compression – ignition internal combustion piston engine (diesel or semi diesel) having 10 seats but not exceeding 29 seats.	40	0	7		
	Exceeding 10 seats	40	0	7		
87.03	**Motor cars and other motor vehicles designed for the transport of persons (other than those of 87.02) including station wagons and racing cars**					
	0-2400cc	80	35 (rate in schedule)	7	(Note actual excise tax has to be calculated from the formula – see below)	
	2401cc – 3000cc	80	41 (rate in schedule))	7		
	3000cc -	80	48 (rate in schedule)	7		
	< 220 HP	80	48 (rate in schedule)	7		
	OPV (Off road passenger	80	29(rate in schedule)	7		

No	Description	Import Duty %	Excise Tax	VAT		
	vehicle)					
87.04	**Motor vehicles for the transport of goods**					
8704.10	Dumpers designed for off highway use	5	0	7		
8704.211 (Include passenger vans such as Rot Too, and standard pickups)	Vans and pickups and similar, with compressions-ignition internal combustion piston engine, GVW not exceeding 5 tonnes	40	3	7		
8704.219	Motor vehicles for the transport of goods (other than those of 8704.211) with compressions-ignition internal combustion piston engine, GVW not exceeding 5 tonnes	40	0	7		
8704.22	Motor vehicles for the transport of goods with compressions-ignition internal combustion piston engine, GVW exceeding 5 tonnes but not exceeding 20 tonnes	40	0	7		
8704.23	Motor vehicles for the transport of goods with compressions-ignition internal combustion piston engine, GVW exceeding 20	40	0	7		

No	Description	Import Duty %	Excise Tax	VAT		
	tonnes					
CKD (summary codes used here only)			**No excise levied at point of sale but for some categories levied at time of assembly**	**VAT**	**Excise Tax**	**VAT**
87.02	Public transport-type passenger motor vehicles with more than 10 persons including driver	20	0	7		
87.04	Motor vehicles for the transport of goods	20	0	7		
87.03	Motor cars etc	30	0	7		
87.04	Motor vehicles for the transport of goods (pickups and vans)	30	0	7		
87.05	**Special purpose vehicles**					
87.06	**Chassis fitted with engines and windshields**					
A	Of 87.01 (truck tractors etc)	10	0	7		
B (note 16 exceptions below)	Of 87.02 (public transport vehicles) and 87.04 motor vehicles for transport of goods)	10	0	7		
C	87.03 87.04 (pickups and vans)	30	0	7	Excise tax levied at point of assembly to make a vehicle using rates above for CBU 87.03 where local parts are	

No	Description	Import Duty %	Excise Tax	VAT		
					used. Formula is used to calculate actual tax rates applied. Interior tax is then levied at 10% of rate of excise tax and then VAT of 7% is levied. Where imported parts are used to build the body, excise tax is very low at this stage.	
D	87.05	20	0	7		
16 exceptions are:						
Radiator		30				
Exhaust pipe		30				
Battery		15				
Front leaf springs		15				
Rear leaf springs		15				
Tyres		20				
Safety glass		10				
Front and rear drum brakes		30				
Starter motor		15				
Exhaust pipe bracket		15				
Battery bracket		20				
Battery cover		20				
Battery harness		20				
Paint		20				
Rear view mirror		10				
Sun visor		30				

No	Description	Import Duty %	Excise Tax	VAT		
84.07	**Engines for cars, pickups, vans, motorcycle, light pick up**	20	0	7		
84.08	**Diesel engines**	15	0	7		
84.08.200-999	Diesel engines for all types of vehicle under Chapter 87, CKD kits	15	0	7		
84.08.200-204	New diesel engines (chapter 87)	15	0	7		
84.08.200-103	Used diesel engines (chapter 87)	15	0	7		
84.09	**Engine parts**	Various rates. Typically 15% or more	0	7		

Notes on Excise taxes

Excise tax is only levied on vehicles and not on spare parts, tyres or engines. Further, excise tax is only levied on luxury items defined for our purposes as as passenger cars or passenger carrying vehicles with less than 10 seats (excluding buses) and comprises those under the Customs Tariff headings 87.03 and 87.02. The rates of excise tax for these categories are the same for CKDs when built up into a vehicle and vary by engine size:

Engine size	Excise tax in schedule (ETR)	Actual rate applied – see formula below
0-2400cc	35%	0.569106
2401cc – 3000cc	41%	0.746812
3000cc -	48%	1.016949
< 220 HP	48%	1.016949
OPV (Off road passenger vehicle)	29%	0.4258443

Any passenger car with an engine rating of greater than 220HP will be charged at the highest excise tax rate, irrespective of engine capacity.

Calculation of actual excise tax rates

The formula applied to calculate excise tax is designed to boost the level of excise tax payable, above the scheduled rate. The Excise Department introduced this formula over 10 years ago when excise tax was introduced

following the abolition of business/ sales tax in order to generate a similar level of revenue as previously collected.

Actual excise tax rate = [CIF+ID] x [(ETR)/(1-(1.1 x ETR))]

Where,
CIF = landed CIF price
ID = Amount of import duty
ETR = Excise tax rate (in schedule)

Interior tax is also levied by the Excise Department at a rate of 10% of the flat rate of excise tax payable.

2.0 Bangkok transport and commercial vehicle industry

The Bangkok Metropolitan Region (BMR) is centred on the City of Bangkok, the nation's capital but also includes five neighbouring provinces. In 2000, the BMR's population was estimated as 11.4M. Per capita Gross Regional Product (GRP) in the BMR is 240% greater than that for the whole country.

The City of Bangkok is governed by the BMA but the main central agencies described above may undertake projects in Bangkok and neighbouring provinces. Bangkok has grown rapidly from being a small compact city located on the eastern bank of the Chao Praya River to a large sprawling urban area covering over 2,000 sq km. Growth was originally to the north and the east. Since the early 1970s there has been an extensive program of bridge and road building that has accelerated urban development to the west. Development is following the major road corridors and the neighbouring provinces (within the BMR) are rapidly suburbanising.

2.1 Transport network

The road network is characterised by the presence of very wide primary roads and small local side streets roads (known as "soi") that run off them. There are few medium-width distributor roads effectively connecting the primary roads. The primary roads, which are extremely congested thus carry local, medium and long distance traffic.

The first urban expressway, a toll road, the First Stage Expressway (FES) opened in 1981. Since that time an extensive series of major road and expressway projects have been completed or are planned including:

- Second Stage Expressway (SES) – toll road;
- Don Muang Tollway (DMT) – toll road;
- Ramintra-Atnarong Expressway (RAE) – toll road;
- Bangkok-Chonburi Highway (BCH) – toll road;

- Bangna-Bangpakong Expressway – toll road;
- Outer Ring Road (ORR) – completed; and
- Many other bridge and distributor road projects.

At present, there are no firm plans to add to the expressway network although various feasibility studies are being undertaken.

About 43% of all person-trips including walk trips are made by private modes. As a result of reliance on only land transport and Government's repeated failure to deal with the incipient causes of congestion and to control land use, Bangkok is well known for its severe traffic congestion which is now experienced over a wide area.

The rail network serving Bangkok is not extensive. It is primarily comprised of an at-grade railway with double track on most alignments. The railway system serves freight, inter-city (and regional) and urban passenger traffic. Water transport services are operated in the Chao Phraya River and two major canals.

Mass Rapid Transit (MRT) has been recommended as part of a suitable transportation system for many years. A subsequent MRT masterplan update called the "Urban Rail Transportation Master Plan (URMAP)" was completed in early 2001. It provides a framework for subsequent studies and implementation of individual projects and programs particularly for urban rail transit developments in the BMR. URMAP's work on developing an optimum MRT network for Bangkok depends critically on the use of existing rail lines and facilities.

Bangkok's first MRT, the US$ 1.7B Bangkok Transit System (BTS), was officially opened on December 5, 1999 by Thailand's King Bhumibol Adulyadej as part of his majesty's 72nd birthday celebrations. BTS consists of two lines totalling 23.5km, has 23 stations and traverses some of Bangkok's busiest streets and activity centres. Present patronage is around 350,000 passengers a day or about 70% of the original forecast.

The second MRT system – the Blue Line subway - is the 20km underground system is being constructed by a private consortium under a concession to the Mass Rapid Transit Authority (MRTA). The system will be open in the August 2004.

A third system is the failed elevated rail and expressway system promoted by Hopewell of Hong Kong. During 2000, two feasibility studies were undertaken (one for OCMLT, the forerunner to OTP, and one for SRT) to recommend how this project should be progressed. No concrete plans exist.

The Master Plan[1] gives priority to upgrading of the existing rail link connecting between central Bangkok and the new airport development (the Second Bangkok International Airport, SBIA, now known as the Suvarnabhumi Airport) located in Bangkok's eastern suburbs, with a later extension to the North West and South West to form the backbone of the MRT network. These URMAP recommended lines make use of the existing rail lines and are shown in red on Figure 5.2. In early 2004, the government was apparently seriously considering giving a commitment to the eastern rail link to serve the airport – a central city terminal with check-in facilities is planned to be located at Makassan.

In late 2003, the government announced that they plan to build a new capital at Nakhon Naiyoke located approximately 60km to the north east of Bangkok. The government has yet to make any concrete announcements about funding, timing and transport linkages.

2.1 Public Transport

Buses are the backbone of the passenger transportation system in Bangkok, accounting for more than 50% of all passenger trips, and 75% of trips during the peak period. Urban bus services are managed by Bangkok Mass Transit Authority (BMTA) which operates a fleet of 3,650 of its own buses and controls the operation of a further 3,400 buses run by sub-contractors as shown in Table 2.1. The BMTA operates a fleet of non-air-conditioned and air-conditioned buses. BMTA has been reducing the number of its own buses that it owns – in 1999 it operated 4,200 of its own buses. There is no evidence that the number of sub-contractor buses are increasing to fill the void. In fact, they may be decreasing. In 1999, BMTA private sub-contractors represented 3,428 buses but data provided by the BMTA Private Bus Association and Club suggests that private buses subcontracted to BMTA represented 2,530 buses in 2003 of which 339 were A/C.

Since the 1997 financial crisis, there has been a growth in the use of air-conditioned vans for point to point commuter services – at first they functioned illegally but now are regulated by the BMTA. In July 2002, there were 5,330 of these vans.

[1] In 2003, the URMAP masterplan was slightly modified and is now called the Development Plan for Bangkok Mass Transit. (BMRT). There are proposals to develop some of BMRT's suburban MRT links as busway instead of rail.

Table 2.1: Composition of BMTA Bus Fleet, January 2004

Type	Engine Make	Non A/C	A/C	Fare
Non A/C – white-green, non-emission controlled "hot bus" (BMTA maintained)	Hino Benz Daewoo	1 80 4		5
Non A/C – cream-red, non-emission controlled "hot bus" (Contractor maintained)	Hino Mitsubishi (Fuso) Isuzu	537 510 538		5
A/C – Blue, Non-emission controlled (Contractor maintained)	Benz Isuzu Hino		295 100 80	6 to 16
Articulated A/C, Non-emission controlled. (Contractor maintained)	Benz		52	6 to 16
Euro 2, A/C - orange (Contractor maintained)	Isuzu Hino Benz		200 200 397	6 to 16
Euro 2, A/C - orange (Contractor maintained)	Isuzu Hino Daewoo		125 125 250	6 to 16
CNG A/C, green-white (BMTA maintained)	Benz MAN (non operational)		38 44	6 to 16
Articulated A/C, Non-emission controlled. (BMTA maintained)	Ecarus		43	6 to 16
A/C, (BMTA maintained), Euro 1?	Benz		30	6 to 16
Sub-total		1670	1979	
Total		**3649**		

Source: BMTA for Jan 2004. GTZ (2003) data for January 2003 show that BMTA own fleet had declined to 3,654.

Table 2.2: Composition of Bangkok Private Bus Fleet

Category	Bus Colour	Number of Buses	Fare (Baht)
Private Subcontractors to BMTA, 1999			
Non-emission controlled A/C	Blue/Cream	446	6 to 16
Non-emission controlled non A/C	Red/Cream	1,550	4.0
Minibus non A/C (to be phased out by 2006)	Green	1,432	3.5
Sub-total BMTA Subcontractor		3,428	
Separately Licensed by LTD, 2004 est.			
Bangkok Microbus Euro I A/C	Purple	863 (around 50% not operating)	20
Songtaew (2 row truck)	Varies	1,550	3.5
Sub-total Separate License		2,413	
Total private		**5,800 operational approx.**	

Source: World Bank and BMTA, 2004

Source: BMTA, 1999 as reported by Parsons (2000) as part of the Bangkok Air Quality Management Project Final Report. Other data provided by the BMTA Private Bus Association and Club suggests that private buses subcontracted to BMTA represented 2,530 buses in 2003 of which 339 were A/C.

Private operators run bus services on most routes under contract to BMTA. Tickets are issued by on-board conductors who are part of a powerful union. Since 1990, there have been various suggestions made that the BMA should take over the operations of BMTA and Cabinet has agreed, but to date no progress has been made on this issue although resistance by BMTA's powerful labour union seems to be the major obstacle.

BMTA is not permitted to operate buses older than 10 years[2]. These are sold on to the private sector. Much of BMTA's maintenance is handled by bus manufacturers – there are a variety of contract types whereby the manufacturers supply buses, operate them and maintain them with maintenance being paid on daily rate per bus.

Various studies have looked at reforms to make the bus system more efficient. The 1999 World Bank study recommended the phased privatisation of the system around BMTA's various zones and associated depots and the introduction of modern, more commercial management practices. The recent 2003 study by the German Agency for Technical Cooperation (GTZ) made similar recommendations. GTZ is presently proposing major bus lanes and /

[2] However, in 2001 BMTA renewed the maintenance contract for an additional three years on 300 10 year old (pre-Euro) Mercedes Benz buses supplied and maintained by Thonburi Automotive Assembly Plant Co Ltd. It is reported that BMTA recently approached Thonburi Automotive Assembly Plant Co Ltd to open discussions with a view to extend them for a further two yearsie to 15 years in total.

or busway development in Bangkok to provide a more economical way of satisfying some of Bangkok's mass transit needs in future.

Inter-city buses operate from three terminals in suburban Bangkok:

- A terminal in the north of Bangkok at Bang Su serving the northern and north-eastern regions of Thailand;
- A terminal in the west serving the southern and western regions; and
- A terminal located in the east at Soi Ekkamai, Sukhumvit Road, serving the eastern region.

Inter-city bus operations are controlled by a State-enterprise, The Transport Co, Ltd. It directly operates 770 buses, most air-conditioned, on the premium routes connecting to Bangkok to the main regional cities. Private sub-contractors operate a further 5,600 buses.

2.2 Urban passenger transport task

The most recent source of comprehensive travel data for Bangkok is the 1995 home interview survey (HIS) conducted by the Urban Transport Data-Base and Model Development (UTDM) Project by consultants, MVA Asia for OCMLT (then OCMRT). This HIS is the source of much of the data presented in this section.

Table 2.3 shows the estimated distribution of daily person trips by mode in Bangkok in 1995. About 2.5 trips per person per day were made including walk trips. The many available public transport modes in Bangkok are shown in the table. Assuming half of the trips made by motorcycle are for private purposes (as opposed to for-hire, taxi-like) and including walk trips about 49% of all trips are made by private modes.

In 1995 it was estimated that despite the very high growth rates in vehicles in Bangkok it is estimated that 44.5% of all households have no vehicle (ie car or motorcycle). A more up to date estimate of the number of trips made by public modes based on published statistics and estimates is shown in Table 2.4 (excluding Bangkok Transit System[3] was not operational at the time). This table shown a similar level of trip making (ie unlinked trips) as shown in Table 2.4

[3] In December 2003, average daily ridership of Bangkok Transit System was 350,000 passengers/ day.

Table 2.3 – Daily Person (Unlinked[4]) Trips by Mode in Bangkok, 1995

Mode	Person Trips x 1000	%
Car Driver	3,821,543	17.7
Car Passenger	1,321,675	6.1
Motorcycle Driver	2,868,278	13.3
Motorcycle Passenger	533,720	2.5
Pickup, Van	1,092,484	5.1
Truck	157,716	0.7
Sub-total, private motorised transport	**9,796,416**	**45.4**
Micro Bus	72,876	0.3
Air Conditioned Bus	521,221	2.4
Red Bus	4,251,209	19.7
Blue Bus /Green Minibus	505,134	2.3
Express Bus	97,349	0.5
Motorcycle Taxi	783,669	3.6
Taxi	174,781	0.8
Tuk-Tuk	342,014	1.6
School Bus	528,422	2.4
Soi Bus	620,364	2.9
Employers Bus	467,299	2.2
Water Transport	295,229	1.4
Train	117,243	0.5
Sub-total, public transport	**8,776,810**	**40.6**
Walk	2,370,041	11.0
Other	668,870	3.1
Total	**21,611,532**	**100.0**

Source: UTDM data base (MVA et al 1996)

[4] Unlinked trips are the trips for individual stages of a journey between origin and destination. Hence, data on ticket sales for each mode are also the equivalent of unlinked trips.

Table 2.4 – Transport Task By Motorised Public Transport Mode in 1998(1)

Mode	Average Speed (km/hr)	Fleet Number	Fare (Baht)	Approx. Daily Passengers
Regular Buses (Blue /Red)	12-13	5,400	2.5-3.5	3,654,000
Air-conditioned Buses	12-13	1,200	6.0-16(2)	521,000
Minibuses	12-3	2,000	2.5	1,200,000
Micro Buses	12-13	850	30.0	73,000
Tuk-Tuks	12-13	7,400	min. 30-60	342,000
Four Wheels (Silor)	12-13	8,500	30-60 negotiated	360,000
Motorcycle Taxis	40	24,000	10 soi, 20+ street, negotiated	784,000
Taxis	12-13	49,000	min. 35(3)	980,000
Chao Phraya River Ferries	13 – 24	152	min 4 - 15	360,000
Canal Ferries	13-24	151	5.0-15.0	43,000
SRT Trains (provincial within BMR)	15-20	NA	2-6	100,000
TOTAL		**98,350**	**NA**	**8,417,000**

(1) By definition, trips on each mode as represented by ticket sales are unlinked trips. Fares are in 1998 Baht. Bus fares have since been revised.
(2) Baht 6.0 for the first 4 km plus approximately 1.0 Baht for every km after that up to a maximum of Baht 16.0.
(3) Taxi fares: minimum 35 Baht, plus 4.5 Baht/km for 2-12 km; plus 5 Baht/km for 12-20 km; and 5.5 Baht/km for greater than 21 km.
Source: Various sources and estimated.

Table 2.5 shows the average trip distances (km) by mode in 1995 – a striking feature of the table is the long trip distances for express bus, microbus and air-conditioned bus services. Most express bus, and all microbuses, are air-conditioned. Thus, these services which are faster and/or relatively comfortable and which have moderate fares (per km) are attractive for wealthier commuters for the longer trips.

Table 2.5 – Trips Distances by Mode of Travel, Bangkok, 1995

Mode of Travel	Average Trip Distance (km)
Car Driver	11.9
Car Passenger	9.9
Motorcycle Driver	7.3
Motorcycle Passenger	5.9
Micro Bus	18.2
Air-conditioned Bus Passenger	17.1
Regular Bus (red)	9.2
Regular Bus (blue or mini)	10.3
Express Bus	21.0
Motorcycle Taxi	2.5
Taxi	8.8

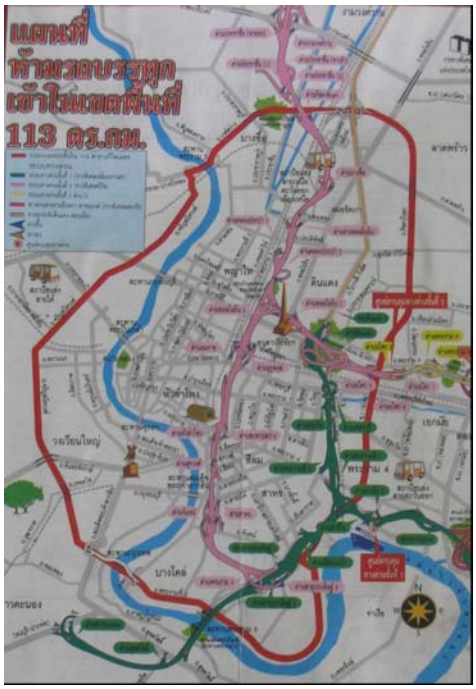
Mode of Travel	Average Trip Distance (km)
Tuk tuk	4.5
Pick-up/van	12.6
School Bus	6.2
Soi Bus	4.9
Employee Bus	17.3

Source: OCMRT (now OTP), Data-Base and Model Development Project.

2.3 Truck ban

Heavy trucks with 10 wheels or more (including three axle vehicles and trucks with trailers) have been restricted from operating in Central Bangkok, the area mainly defined as being within the Middle Ring Road (MRR) for over 20 years as shown in Figure 2.1. They are banned from entering the city between 6am and 9pm every day except public holidays. They are however restricted to certain defined main roads such as expressways and the major highways. The main exceptions to this restriction are concrete trucks and trucks carrying easily damaged farm goods which are permitted to operate on some routes and in sone time periods (mainly between 10am and 3pm). Trucks operated by the State-enterprise truck operator, The Express Transit Organisation, are free from all restrictions.

Figure 2.1 – Truck Ban Map



3.0 Bus and truck industry structure

Commercial fleets are regulated by DLT according to the provisions of the Land Transport Act, 1979 (ie LTA). The principal classifications are made not on vehicle size or power, but on function, and are defined in Table 3.1. Examples of each main vehicle type are shown in Figure 3.1.

Table 3.1 – Commercial Vehicle Categories and No of Operators According to LTA (1979)

Plate type	Function	No in-use registered ir Bangkok, 2002 (est)	No of operators
Bus			
10 plate – yellow	Fixed route bus (urban or inter-city)	15,157	BMTA plus 35 private j-v bus companies for large bus operations. Bangkok Microbus Company has a separate license from DLT. There are also 1,550 song-taew representing around 1,000 owner operators.
20 plate – white	Small vehicle public transport – fixed route	None in Bangkok	NA
30 plate – yellow	Non fixed route buses for international and local tourists	5,418 (according to DLT data on operator licences 2004 there are NFR 8,128 buses of which 7,776 were A/C single deck and 276 were A/C double deck).	1,226 operators
40 plate – white	Private bus – ie for own account	2,320	734 operators
Truck			
70 plate – yellow (could be 71, 72 etc)	Truck for "hire and reward" to 2nd parties - known as non-fixed route trucks in Thailand	25,730 (see Table 9)	1,045 operators
80 or 90 plate – white (could be 81, 82, 91 etc)	Truck for own account transport ie for transport of own goods	50,387	7,525 operators

Note: Of the 1,045 NFR truck operators which are registered in Bangkok some probably operate throughout Thailand. Total NFR truck operators in Thailand are around 1,300. *Note: to be checked.*

Table 3.2 shows that there are 1,045 NFR truck operators with offices in Bangkok (ie City of Bangkok that is also known as the Bangkok Metropolitan Area) and on their licences they operate 41,380 trucks in total which exceeds the number of estimated NFR trucks (25,700) actually in-use. However, DLT's official information on NFR truck registrations approximately equals the number of vehicles which operators have on their licences. According to DLT data from the NFR truck operator licences shown in Table 3.2, of their total registered fleet around 3,000 (about 7%) appear to be long wheel base vehicles with some sort of trailer.

Table 3.2 – No of NFR truck operators in Bangkok

Year – licence renewed	Total NFR Operators	Vehicles						
		Total	Other	Hazardous Goods	Vehicle with Full trailer	Vehicle /Semi-trailer	Vehicle /Long semi-trailer	Trailer (only)
2004	39	1,312	604	118	47	277	0	266
2003	225	6,693	2,702	211	260	2,103	86	1,331
2002	234	6,913	6,907	0	0	0	0	6
2001	206	10,279	10,279	0	0	0	0	0
2000	175	6,485	6,482	0	0	0	3	0
1999	166	9,698	9,447	0	0	0	169	82
Total	**1,045**	**41,380**	**36,421**	**329**	**307**	**2,380**	**258**	**1,685**

Source: DLT data, 2004. These NFR truck operators are believed to operate throughout Thailand and may have trucks registered in other provinces.

Figure 3.1 – Examples of vehicle types under LTA (1979) in Bangkok

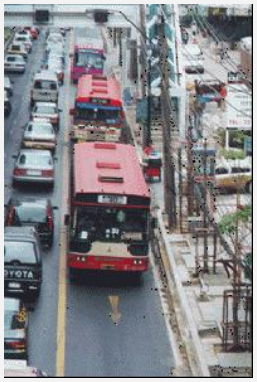
Plate type	Example	Example
Bus		
10 plate – yellow	 BMTA-own non A/C pre-Euro bus	BMTA-own A/C pre-Euro bus
	BMTA sub-contractor non A/C bus	BMTA own Euro 2 bus, A/C
	BMTA sub-contractor green non A/C pre-Euro mini-bus (to be phased out prior to 2007)	A/C Mini-bus pre-Euro of Bangkok Microbus Co.
	Song Taew – truck with 2 passenger benches, operating in outer Bangkok. Some are licensed directly to	Rot Too – passenger van point to point service, regulated by BMTA

Plate type	Example	Example
	BMTA.	
20 plate – white	None in Bangkok	None in Bangkok
30 plate – yellow		
40 plate – white		
Truck		
70 plate – yellow (could be 71, 72 etc)		
80 or 90 plate – white (could be 81, 82, 91 etc)		

Data available from DLT license information shows that the fleet size distribution of the 225 NFR truck operators (ie about 20% of all NFR operators in located in Bangkok) in Bangkok whose license was renewed in 2003 is:

- One operator with more than 400 trucks;
- 2 operators with between 300 and 400 trucks;
- 3 operators with between 200 and 300 trucks;
- 12 operators with between 100 and 200 trucks; and
- 207 operators with between 0 and 100 trucks – 3 operators had zero trucks. This needs to be further clarified.

Analysis of a 16% sample of records produced by DLT's Computer Division on in-use NFR trucks registered in Bangkok in 2002 showed that about 10% of known truck types were medium trucks. This analysis required identifying information on model types which was often incomplete. Where model data were available information on manufacturer's specifications was referred to.

The definition of medium truck varies as follows but generally but leads to a similar result:

- DLT do not have a strict definition – but trucks of 4 and 6 wheels are generally referred to as small to medium trucks. Trucks with 10 wheels or more are defined as large trucks and subject to restrictions from operating in Bangkok;
- The Thailand Automotive Institute and truck manufacturers refer to trucks with a tare weight of between 1 and 5 tons; 5 to 10 tons and more than 10 tons. Generally, trucks with a tare weight of between 1 and 5 tons would have GVW of up to 8 tons and not more than 6 wheels.
- For the purposes of the Diesel Project, trucks with a GVW less than 3.5 tons are referred to as small trucks; those with a GVW of between 3.5 tons and under 8 tons as medium trucks; and those trucks with a GVW of more than 8 tons as large or heavy trucks.

Analysing all records of the in-use NFR data base produced by DLT's Computer Division showed that the age distribution (based on year of first registration) was as follows:

- 14% registered for the first time in 2001 and 2002;
- 32% registered for the first time between 1995 and 2000; and
- 54% registered for the first time before 1995.

Data available from DLT license information shows that the average fleet size of the 7,525 private (own account) truck operators in 2003 was 6.7 trucks – there were no data on the distribution of fleet sizes. Similarly, no information was available on the age distribution but it may be similar to that for NFR trucks.

Analysis of a 7% sample of records from produced by DLT's Computer Division on in-use private (own account) trucks registered in Bangkok in

2002 showed that about 30% of known truck types were medium trucks. As earlier analysis had shown that the private truck data base had not been kept up to date in recent years, our sample of analysed records was drawn from data records of vehicles registered for the first time between 1989 to 1991.

Generally, the information on fleet sizes of the private and NFR truck operators which are both small in general may actually overstate the true fleet size of trucks actually owned by a particular operator. As for the bus sector (eg BMTA and its sub-contractors) many truck operators are believed to sub-contract a high proportion of their operations to other smaller owner/ operators. At a later date, information from the DIESEL project's commercial vehicle surveys will provide more information on the extent of sub-contracting which occurs.

The above information has shown that the NFR truck fleet tends to consist of larger trucks than the private truck fleet. In general, NFR trucks mainly carry out a line haul function between Bangkok and other cities and provinces. Due to restrictions imposed by the truck ban many of these line haul trucks trans-ship their freight at small private terminals and the DLT-owned terminal located to the east of Bangkok just to the west of the Outer Ring Road which facilitates convenient travel to all parts of Thailand. Refer to Figure 3.2. Small and medium size trucks and large numbers of pickups deliver and collect freight from these truck depots to/from destinations in Bangkok as shown in Figure 3.3.

Estimates of vehicle-km performed in 2000 by small (4 wheel), medium (6 wheel) and 10 wheel trucks in Bangkok based on simplified transport modeling carried out for the World Bank's proposed Motorcycle Upgrade Project in 2001 shows that:

- 70% of total small and medium truck-km are performed in the City of Bangkok with the balance being performed in other parts of the region;
- 30% of total heavy truck-km are performed in the City of Bangkok with the balance being performed in other parts of the region; and
- The amount of heavy truck-km performed per day in the BMR in 2000 was 2.7M veh-km and the amount of medium/ light truck-km performed per day in the BMR in 2000 was 3.7M veh-km . *These numbers all need to be checked. In addition, information from vehicle classified counts on various major roads throughout the BMR need to be examined.*

Figure 3.2 – Major Truck Terminal Locations

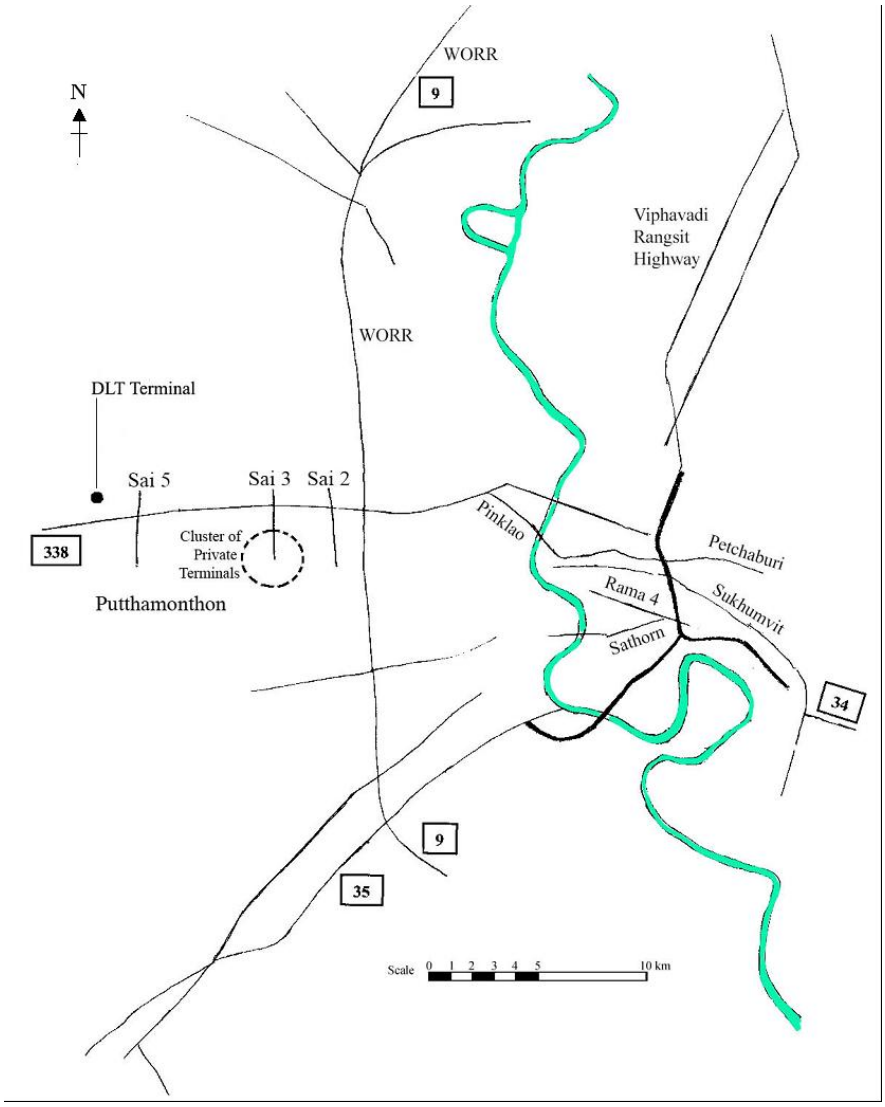


Figure 3.3 – Pickups and Medium Trucks Used for Urban Goods Distribution

	Modified pickup providing own account urban freight function. This vehicles is registered privately, not as an own account 80 plate truck.
	Modified pickup providing own account urban freight function. This vehicles is registered privately, not as an own account 80 plate truck.
	Medium truck providing own account urban freight function. This vehicle is registered privately, not as an own account 80 plate truck, and most likely as a pickup or private car.

4.0 Thailand and BMR Diesel Vehicle Fleet

Thailand's in-use[5] national motor vehicle fleet was about 11.5M in 2001 as shown in Table 4.1 below. Bangkok accounts for about 24% of the nation's registered motor vehicles including 61% of the private car fleet, but only 13% of national motorcycles and 38% of the combined truck and bus registrations. Pick-ups, almost all diesel engine powered, are widely used as a personal vehicles particularly in urban areas. Approximately 28% of all in-use vehicles registered in Bangkok are diesel vehicles. Definitions of some key vehicle types is given in Table 4.2.

Over 1991 to 2001, the national vehicle fleet grew at a rate of 6.2% per annum – that is, the national motor vehicle fleet almost doubled. A high proportion of this growth was due to motorcycles. Private car registrations increased at a rate of 10% per annum in the same period.

Designed to boost domestic production, expand regional vehicle exports and cut foreign trade deficits (vehicles accounted for almost 20% of the dollar value of Thailand's imports in 1992), Thailand had an exhaustive range of vehicle import tariffs and duties that prevailed until the late 1990s.These have been substantially cut.

The one-ton pick-up, Thailand's "national vehicle," represents 21% of the total vehicle market. These vehicles are lightly taxed, are rugged and offer flexibility in passenger and goods transport.

Attractive government incentives, introduced in the early 1990s, have led to the establishment of more than a dozen vehicle assemblers by 1996, with a domestic output in excess of one million vehicles. The Japanese dominate both imports and domestic production joint ventures, accounting for nearly 100% of the commercial vehicle market – although this dominance is now being challenged through new ventures by GM and Ford and other firms.

[5] Through existing manually developed records held by DLT's Statistics section and DLT's records of vehicle taxation payments it is possible to make reasonable estimates of total in-use vehicles by vehicle type. These estimates differ significantly from reported vehicle registrations which do not deduct vehicles no longer in-use, but not officially de-registered. Estimates of in-use vehicles are about half of the cumulative vehicle registration figures.

Table 4.1 – Number of in-use Vehicles by Type, Thailand, 1991 and 2001

Type	1991	2001	% of overall fleet	% growth rate pa	% in Bangkok
Private Cars	669,920	1,767,704	15.4%	10.0	61%
Micro Bus & Passenger Van	409,694	316,053	2.7%	NC	52%
Pick-up & Van	731,619	2,439,413	21.2%	12.8	21%
Taxi	14,338	53,022	0.5%	14.0	100%
Tuk-Tuk	15,171	15,627	0.1%	NS	46%
M/C	3,947,017	6,257,156	54.4%	4.7	13%
Bus	89,193	95,750	0.8%	1.0	21%
Truck	334,724	465,639	4.1%	3.3	17%
Other*	94,968	86,830	0.8%	NC	14%
Total	**6,306,644**	**11,497,194**	**100.0%**	**6.2**	**24%**

Source: DLT * Other includes vehicles such as tractors. Non motorised vehicles excluded. NC means not calculated. Bus and truck fleets further divided into other classifications according to Land Transport Act (1979).

Table 4.2 – Some Definitions of DLT Vehicle Types

Type	Definition
Micro Bus & Passenger Van	Vehicles with width < 2.5M and length < 12M with length of body between rear axle and rear of vehicle not > 2/3 of length between front and rear axles eg cars with 3 passenger compartments/ rows of seats, passenger Song Taew (2 row passenger benches facing each other in rear of vehicle), Rot Too / passenger van with 3 passenger compartments or seats.
Pick-up & Van	Vehicles not for commercial truck transport which is under LTA (1979) with width < 2.5M and length < 12M with length of body between rear axle and rear of vehicle not > 3/5 of length between front and rear axles eg pickup truck, Rot Too for carrying goods.
Non fixed route truck	Vehicles for transporting goods of others
Private truck	Vehicles for transporting own goods (ie own account) with GVW > 1.6 tonnes

Source: DLT's "Number of Vehicles Registered 2002".

Even though in-use vehicles are known to be fewer than registered vehicles, we have only made estimates for in-use vehicles for Thailand in 2001 and for Bangkok in 1999, 2000, 2001 and 2002. Hence, to gain a picture of the relevant sizes of fleets in neighboring provinces in the BMR we need to use DLT's information on registered vehicles as shown in Table 4.3.

This table shows the dominance of Bangkok in the BMR where it accounts for around 80% and up of all key diesel vehicle types. The exception is for private trucks (those with 80 or 90 white plates) where Bangkok only accounts for 58%of all private trucks reflecting Bangkok's lower role as the location for

Bangkok's large, small and medium size enterprises such as factories and other companies requiring their own truck transport.

Table 4.3 – Key Types of Diesel Vehicles Registered in Bangkok & Other Provinces in the BMR, 2002

Type	Bangkok	Pathum Thani	Nonthaburi	Samut Prakan	Nakon Pathom	Samut Sakon	Total BMR
Micro Bus & Passenger Van	387,959	5,713	12,671	7,278	8,237	2,058	423,916
	91.5%	1.3%	3.0%	1.7%	1.9%	0.5%	100.0%
Pick-up & Van	785,892	24,308	24,151	21,673	80,243	13,687	949,954
	82.7%	2.6%	2.5%	2.3%	8.4%	1.4%	100.0%
Total Bus	*32,866*	*1297*	*1151*	*3,464*	*1,392*	*1205*	*41,375*
	79.4%	3.1%	2.8%	8.4%	3.4%	2.9%	100.0%
Fixed Route Bus	20,056	655	567	2,484	1,003	880	25,645
	78.2%	2.6%	2.2%	9.7%	3.9%	3.4%	100.0%
NFR Bus	8,549	499	380	623	102	139	10,292
	83.1%	4.8%	3.7%	6.1%	1.0%	1.4%	100.0%
Private Bus	4,261	143	204	357	287	186	5,438
	78.4%	2.6%	3.8%	6.6%	5.3%	3.4%	100.0%
Small Rural Bus	0	27	187	114	161	246	735
	0.0%	3.7%	25.4%	15.5%	21.9%	33.5%	100.0%
Total Truck	*124,474*	*10,881*	*9,775*	*14,955*	*25,955*	*7,422*	*193,462*
	64.3%	5.6%	5.1%	7.7%	13.4%	3.8%	100.0%
Non fixed route truck	40,985	1,442	785	2,994	1,604	1,235	49,045
	83.6%	2.9%	1.6%	6.1%	3.3%	2.5%	100.0%
Private truck	83,489	9,439	8,990	11,961	24,351	6,187	144,417
	57.8%	6.5%	6.2%	8.3%	16.9%	4.3%	100.0%

Source: DLT's "Number of Vehicles Registered 2002".

The in-use truck fleet consisted of 465,000 vehicles nationally in 2001 having grown by 4.1% pa since 1991. Bangkok accounted for 17% of the national truck fleet. Overall the national truck fleet is old and largely makes use of rebuilt 10 wheel trucks that are not fuel efficient nor environmentally friendly.

At present, less than 10% of the total fleet makes use of articulated or other modern technology vehicles. Although there are economies in operating larger, modern vehicles there are numerous barriers to the introduction of these vehicles including: high capital costs; fragmented ownership (average fleet size per owner is two vehicles); high duties on vehicles and parts; the pattern of road development and congestion in Bangkok; and the truck ban which restricts large truck movement during peak periods. Thailand's truck

fleet is quite inefficient and if there were no barriers to the use of modern, high payload vehicles then the total vehicle fleet might be reduced by considerably and still perform the same transport task.

5.0 Bus and truck building industry

The most common form of new bus manufacture in Thailand involves assembly of imported completely knocked down (CKD) kits (all including chassis with engine). Very few completely built up (CBU) buses or trucks are imported as this incurs a higher tax component. In addition, CBU vehicles require approval for each model type to be imported). In 2003, Customs Data shows no buses with more than 30 seats were imported.

There is some importing of chassis with engines and building of bodies locally. The most common form for new truck supply is a semi knockdown kit (SKD) where a chassis with engine is imported and kit for the cabin is also imported.

Refer Table 5.1 which shows the impact of taxes and duties on the final price of trucks and buses for different methods of assembly in 2004 and in 1994. However, since 1994 the taxes on fully imported trucks and buses (ie CBU) has been reduced significantly.

Thai Hino, Mistubishi and Isuzu dominate the new medium and heavy truck market. Nissan Diesel is also a significant heavy truck maker. Most of the vehicles produced are locally assembled.

Similarly, in the new bus market, the main marques are Thai Hino, Isuzu, Mercedes Benz (Thonburi Automotive Assembly Plant Co Ltd), and Nissan.
Table 5.2 sets out information on details of major new bus and truck assemblers in Thailand.

Table 5.1 – Duties and Taxes Impact on Final Price of New Buses and Trucks, Thailand 1994 and 2004

Public Transport Vehicles			CIF	Import Duty	Sub-total	VAT (at 7%)	Sub-total	Body Value	Sub-total	Excise tax	Interior Tax	Total	Total Tax 2004	Total tax 1994
1	All with more than 10 seats (inc bus)	CKD	100	20	120	8.4	128.4	0	128.4	0	0	128.4	28.4	28.4
1	Pickups & vans inlc Rot Too - engine size less 2400 cc	CKD	100	30	130	9.1	139.1	0	139.1	79.2	7.9	227.1	127.1	99
3	Pickups & vans inlc Rot Too - engine size 2401cc – 3000cc	CKD	100	30	130	9.1	139.1	0	139.1	103.9	10.4	254.5	154.5	121.7
4	Pickups & vans inlc Rot Too - engine size > 3000cc	CKD	100	30	130	9.1	139.1	0	139.1	141.5	14.1	296.2	196.2	121.7
5	Buses	CBU	100	40	140	9.8	149.8	0	149.8	0	0	149.8	49.8	158.4
6	All	Imported Chassis + Local body build	100	10	110	7.7	117.7	100	217.7	0	0	217.7	17.7	NA
Motor Vehicles for Transport of Goods														
7	All with more than 10 seats	CKD	100	20	120	8.4	128.4	0	128.4	0	0	128.4	28.4	28.4
8	Pickups & vans inlc Rot Too - engine size less 2400 cc	Imported Chassis + Local body build	100	30	130	9.1	139.1	100	239.1	136.1	13.6	389.7	189.7	NA
9	Pickups & vans inlc Rot Too - engine size 2401cc – 3000cc	Imported Chassis + Local body build	100	30	130	9.1	139.1	100	239.1	178.6	17.9	436.7	236.7	NA
10	Pickups & vans inlc Rot Too - engine size > 3000cc	Imported Chassis + Local body build	100	30	130	9.1	139.1	100	239.1	243.2	24.3	508.1	308.1	NA
11	Trucks	CBU	100	40	140	9.8	149.8	0	149.8	0	0	149.8	49.8	195.3
12	All	Imported Chassis + Local body build	100	10	110	7.7	117.7	100	217.7	0	0	217.7	17.7	17.7

Note: Assumed body values are illustrative for calculation purposes but only matter where Excise and Interior Tax are levied at time of assembly
Actual excise tax rate = ETR/(1-(1.1 x ETR)); Where excise tax is levied - Interior tax applies at rate of 10% of excise tax
All CBU vehicles require permission to import by model type

Table 5.2 – Availability of New Bus and Truck Chassis, Thailand

Company	Description
Chassis Assemblers	
Cherdchai Industrial Factory Co Ltd – current JV with Volvo	Cherdchai, located in Korat, is a major bus chassis & bus body maker. Has a current JV with Volvo for new chassis made from imported kits. Cherdchai also produce re-manufactured used chassis to an unknown quality.
Tripetch (Isuzu)	Isuzu bus and truck chassis
Thonburi Automotive Assembly Plant Co Ltd	Makes Mercedes Benz bus chassis from imported kits. Also builds bus bodies. Currently also maintains Daewoo buses operated by BMTA, Bangkok, due to original agent Berli Jucker giving up the Daewoo franchise. Also makes truck chassis.
Hino Motors Manufacturing (Thailand) Ltd	Hino bus and truck chassis.
Chassis makes imported as CBU for intercity and rural buses	
Volvo	
Scania	
DAF	
Nissan	
Mercedes	CBU chassis from Brazil

Source: Hino and Thonburi Automotive Assembly Plant Co Ld

Table 5.3 shows that very few new buses are sold each year in Thailand. Over the 10 year period to 1993 to 2002 a total of 6,198 new buses were sold in Thailand of which 5,461 or 88% were heavy buses (with GVW greater than 10 tons). However, this average annual yearly sales of buses (620) represents less than 0.65% of the estimated 95,750 in-use buses in Thailand (see Table 4.1). This is an extremely low percentage – a more realistic percentage based on an average bus life of 20 years would be 5%. More on this subject below.

Table 5.3 – New Bus Sales 1993 to 2002, Thailand

Year	Bus < 10 ton	Bus > 10 Ton	Total Bus	Nissan	Hino	Isuzu	Benz	Daewoo	Other
1993	418	428	846	400	57	140	38	0	211
1994	255	891	1146	19	57	336	0	0	734
1995	56	1670	1726	22	59	613	1628	0	-596
1996	0	609	609	29	59	158	0	0	363
1997	0	554	554	0	59	87	46	0	362
1998	0	577	577	0	59	255	397	0	-134
1999	0	81	81	0	59	41	0	0	-19
2000	0		0	0	59	1	0	0	-60
2001	8	263	271	0	59	20	0	0	192
2002	0	388	388	0	59	106	0	306	-83

Year	Bus < 10 ton	Bus > 10 Ton	Total Bus	Nissan	Hino	Isuzu	Benz	Daewoo	Other
Total	**737**	**5461**	**6198**	**470**	**586**	**1757**	**2109**	**306**	**970**
%	***11.9%***	***88.1%***	***100.0%***	***7.6%***	***9.5%***	***28.3%***	***34.0%***	***4.9%***	***15.7%***

Source: The Thai Automotive Industry Association for total bus production by size and manufacturers for other sales data. In 2003, Customs Data shows no buses with more than 30 seats were imported. Hino data provided as total sales for 10 year period. *Data to be updated.*

Table 5.4 shows total Thailand sales data of pickups, and medium and heavy trucks (and buses, which are a small number). This table shows that 346,098 trucks were sold over the 14 year period 1990 to end 2003 which indicates an average sale of new trucks of around 24,700 trucks pa of which 38.9% were medium trucks.

Table 5.4 - Vehicle Sales (including truck and pickup) data 1990 – 2003, Thailand

Year	Total Vehicles	Pax van & microbus	1 ton pickup	2 - 4 ton tare truck - medium	Truck > 4 ton tare & bus	Total truck & bus > 2 ton	< 1 ton	4 wheel drive / SUV
1990	304,062	6,980	167,613	15,920	32,126	48,046	11,960	3,599
1991	268,560	7,670	155,366	10,312	15,895	26,207	10,200	2,338
1992	362,987	9,924	182,958	12,465	17,549	30,014	14,490	4,160
1993	456,468	11,727	224,388	12,717	15,573	28,290	14,207	3,687
1994	485,678	12,672	258,091	14,139	22,312	36,451	19,564	3,230
1995	571,580	12,425	323,813	16,383	31,766	48,149	16,402	7,420
1996	589,126	12,633	327,663	16,683	31,814	48,497	15,018	12,585
1997	363,156	8,353	188,324	9,021	11,275	20,296	5,642	8,481
1998	144,065	2,792	81,263	2,838	3,756	6,594	2,841	4,275
1999	218,330	4,167	129,904	3,750	3,434	7,184	3,018	7,199
2000	262,189	6,492	151,703	4,655	4,804	9,459	3,780	7,649
2001	296,985	6,582	168,639	3,807	4,398	8,205	2,686	6,371
2002	409,362	8,335	241,266	4,564	5,560	10,124	1,664	21,620
2003	533,176	8,489	309,144	7,366	11,216	18,582	1,478	16,492
			2,910,135					
			Total trucks > 2 ton	**134,620**	**211,478**	**346,098**		
			% of trucks by size	**38.90%**	**61.10%**	**100.00%**		

Source: The Thai Automotive Industry Association

Tripetch (Isuzu) which has an estimated share of the new truck market of over 30% shows that medium sized trucks represent over half of their annual sales. (Isuzu define and medium truck a having a kerb weight of 2 to 3 tonnes say a loaded GVM of 4 to 7 tonnes).

Table 5.5 – Isuzu's Truck Sales 1992 – 2004, Thailand

Year	Large	Medium	Total
1992	5840	7664	13504
1993	5668	7227	12895
1994	6433	8205	14638
1995	8522	8710	17232
1996	9917	8494	18411
1997	3512	5388	8900
1998	1510	1220	2730
1999	853	1798	2651
2000	1469	2313	3782
2001	1543	2228	3771

Year	Large	Medium	Total
2002	2035	2371	4406
2003	3551	4014	7565
2004 (Jan –April)	1461	1243	2704
Total	**52314**	**60875**	**113189**
%	**46.2%**	**53.8%**	**100%**

Source: Tripetch (Isuzu)

The volume of new trucks sales pa of 24,700 is about 5% of the estimated in-use truck fleet which appears consistent with an average truck life of 20 years. The low sales of new buses is due to a large portion of the bus fleet (over 80%) being used in fixed-route urban and inter-city operations, and the low "regulated" fare regime applied by government. As a result Thailand has an extensive and widespread industry for rebuilding buses using old rebuilt chassis, new or imported second hand diesel engines, and building new bus bodies to various qualities.

Supply of new or second hand replacement engines

Customs data for imports in 2003 shows that:

- 34,544 new diesel engines for any type of car, pickup, truck or bus were imported in 2003 of which 22,864 from Japan, 11,431 from UK and the rest from 9 other countries (ie Code: 8408.200-204; New diesel engines for any type of vehicle (chapter 87) – see Table 1.1); and
- 90,462 used diesel engines of which 89,856 were imported from Japan with the rest imported from 18 other countries (ie Code: 8408.200-103; Used diesel engines for any type of vehicle (chapter 87) – see Table 1.1).

It appears possible that a lot of engines are broken down and imported as scrap metal as they may attract a lower duty (3%) that is lower than the normal duty of around 15%. In addition, the declared value may be also set very low. However, apparently it is easier to register an engine with DLT that has been imported whole with Customs Department's paperwork showing the source of the engine.

Second hand used diesel engines for buses, trucks, pickups and boats are widely available in numerous areas in Bangkok. Most are imported from Japan. The emission standards of these engines are not regulated. Some used diesel engines are used for boats and in agricultural purposes and for other applications where emissions are not regulated. DLT and PCD have looked into setting standards on imported used diesel engines but to date they have not worked how an engine emissions standard would be verified. In addition, until emissions from diesel engines in all application are regulated, it is unlikely that it would be possible to regulate an engine standard by end use, at time of import.

Euro 1 engines are now available. It appears that second hand diesel engines for buses can be purchased for around Baht 80,000 to Baht 100,000 or more depending on engine condition.

Bus rebuilding industry

Thailand's bus rebuilding industry appears to be widespread. Many medium sized bus companies (20 buses and up) throughout the country rebuild their own buses including making chassis modifications and building bodies. They may refurbish engines or simply purchase a replacement engine from many shops in numerous districts in Bangkok (eg Pathumwan, Lak Si, Rangsit, and Bang Na). Refer Figure 5.1.

Figure 5.1 – Used Diesel Engines are Widely Available

There are also specialist companies (at least 47) companies in the BMR and nearby balance of the Central Region that build bus and truck bodies and rebuild from old chassis according to information supplied by Hino Thailand.

In the west of the BMR, a major area where buses are rebuilt is at Baan Pong located in Nakon Pathom. According enquires of Thonburi Automotive Assembly Company Ltd some two to three buses per day are produced by the various firms (around 10) in this area. The largest bus rebuilder is Mee Saeng which has two factories in Baan Pong area. They specialise in tourist coaches. Chassis for these coaches are supplied by another local company.

Cherdchai of Korat also rebuilds buses. Chonburi located near to the BMR on the Eastern Seaboard is said to be a centre for bus rebuilding also.

Baan Pong Case Studies

We interviewed three firms in the Baan Pong area.

Company 1 - Act One Limited Partnership 1994

The first body builder we visited at Baan Pong is "Act One Limited Partnership 1994". This is registered under the legal name Cherdchai Baan Pong Depot. There is no connection to the big bus manufacturer, Cherdchai, in Korat. The MD is Mr Pichet Charoenkit 01-8370509; 034-200135-6). Email: chademba2@yahoo.com.

They specialise on building bus bodies for govt clients and their own fleets (ie "40" number plates). They were building around 10 for one government client at the time we visited. Their capacity could be 50 or 60 bus rebuilds per year. Mostly clients provide the chassis and engine. There were engines in the their yard and old chassis at the time of our visit however. They confirmed that the old engines in yard were pre-Euro and cheap (Baht 60,000 +).

They can build a very attractive bus body for a 25 seater bus for Baht 2M whereas a similar body from Thonburi Automotive Assembly Company Ltd would be Bht 3M. Refer Figure 5.2.

Figure 5.2 – 40 plate private bus built by Act One Ltd Partnership

They can build a regular 12M bus body for around Baht 0.9M compared to Thonburi's Baht 1.1M.

While it is unusual for them to buy and old chassis (or new chassis) and build a bus for sale they have done it. All the major companies Hino etc sell new chassis. Most of their clients ask them to upgrade their existing buses ie build new bodies on their chassis. Refer Figure 5.3.

Figure 5.3 – 40 plate private bus being built by Act One Ltd Partnership

Company 2 – Mee Saeng

Mee Saeng is probably the largest firm in the Baan Pong area. Mee Saeng's new factory is the home of a sister company MS Busbody Co Ltd. The old and new company carry out the same activities. We met the younger sister of the Managing Director, Mr Sanchai Suksomcheewin. Her name is Miss Siri. Email: msbusbody@hotmail.com) Tel: 034-286792-3; 01-4031645.

They specialise in building tour bus bodies for clients with existing buses. Rarely do they source engines and chassis. But in their yard was a chassis sourced locally from Baang Pong Paitoon Mechanical Co Ltd. See note for Company 3.

In total their companies build 8 bus bodies a month – the new factory appears very modern as shown in Figure 5.4.

Figure 5.4 – MS Bus Body New Factory

Company 3 - Baang Pong Paitoon Mechanical Co Ltd
We met Mr Paitoon (Tel: 032 201346, 368018) the managing director. The firm advertises themselves at cutting, extending, modifying all types of bus chassis. They have been in existence for 20 years with 16 years at this site. Although they can do anything they appear to specialise in modifying tourist bus/ coach bus chassis.

Apparently, a common practice is to use the front and rear ends of an imported coach chassis (say from Japan). Only the ends are imported. They then take a straight section from an existing Thai registered old chassis and weld it in. This also lengthens the bus and provides more room for luggage.

Some of the advantages of this appear to be cheaper to import the chassis front and rear as less materials/ volume required and also may be classified as junk or similar and attract less import duty. His clients or he buys the front and rear ends of chassis from companies in Lak Si, Pathumwan and other areas as mentioned above.

For old chassis (not imported from Japan) the price can vary from Baht 30,000 to Baht 70,000 etc depending on condition.

The firm can rebuild 7 to 8 chassis a month. Refer Figures 5.5 and 5.6.

But new DLT rule for 50% content (promulgated at end March 2004 but not enforced at the time of the visit in late March 2004) will put him out of business soon. He was not sure when the DLT would rigidly enforce the rule. He will switch to repair.

Figure 5.5 - Front & Rear Coach Chassis Ends Imported From Japan

Figure 5.6 - Front and Rear ends of coach chassis imported from Japan

Paitoon rebuilt coach chassis using front and rear sections from Japan with welded centre section from a Mercedes Benz chassis used in a former BMTA bus

Conclusion

Clearly, the total bus and truck rebuilding and used engine supply industry is very complex and widespread. Each of the three firms visited in Baan Pong specialise in one type of activity.

We are also told that one company in Bangkok specialises in rebuilding bodies for rigid buses (eg for BMTA subcontractors, also known as BMTA's private sector joint venture partners). This company is called Thaksin Charoen Bus Body Co Ltd in Bangkok (Owner Khun Wirasak Tel: 02-4680541).

In the bus sector, the government's own policies on fare regulation appear to have a significant influence on the extent of the rebuilding industry. However, the preference for rebuilt buses cannot solely be explained by these policies as rebuilding is the mainstay of the private bus and tourist coach industries. The attraction appears to be that a bus that looks new can be purchased for two thirds the price of a new bus.

Our understanding is that DLT's system of allowing existing chassis to be used to constantly rebuild vehicles and so avoid new standards (eg for emissions) etc gives implicit support to this practice occurring. This has created a market for old dilapidated chassis which can be purchased for Baht 30,000 and up depending on condition. All that matters however is that the chassis has a number which is currently registered with DLT.

Under the DLT regulation which applied prior to March 28, 2004, only 5% of the original chassis (ie including the chassis no) needed to be present. The new regulation requires 50% of the original chassis to be present. DLT's registration system does not consistently track buses that are rebuilt in this way. This new regulation appears unlikely to improve safety and lead to a fundamental change in the scale of the current bus rebuilding industry.