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Executive Summary

Strategy Plan of the Ministry of Transport 2006-2011

1. Overview

Transport sector is essential to the economy. While transportation itself serves as a channel for moving of freight, passenger, and service, which are the demand of the manufacturing sector, its development is also a driver for economic development. The present government emphasizes the development of the transport sector. Growing possibility of energy crisis and increases in oil price have made the government focus on pushing the reform of the transport sector to ensure greater efficiency. Also, the government aims at providing the transportation which is safe and accessible; and which contributes to enhanced national security, have the least impact on the society and environment, and drives the economy, trades, and services of Thailand. In order to develop the transport sector towards the desired direction, it is important to have appropriate strategies.

The report on the Strategy of the Ministry of Transport (MOT) is developed based on multi-dimensional data and analysis. This includes the review of existing situation of the transport sector and brainstorming sessions of stakeholders in the sector. The sessions were divided into Agenda-Based Seminars, which is held for policy-level personnel; Area-Based Seminars; and finally, Function-Based Seminar, of which the participants were representatives from governmental agencies and state-owned-enterprises. The brainstorming sessions incorporated several agendas including strategic issues and indicators. Thus, the strategies and indicators are developed on the basis of complete participation from the stakeholders at every step, i.e. input and output review. This report aims at presenting the guidelines for the administration of MOT, which is responsible for the development and management of the transportation system. The timeframe of the presented strategy plan is FYs 2004-2011. However, the vision, mission, and strategies provided in this report are for FY 2006 onwards. (This is because the strategies for FY 2005 was incorporated in the budget request proposal.) The strategies presented in this report are revised using the existing strategies for FY 2004-2005. Apart from strategies for developing the transportation, the report also incorporates necessary projects/plans to respond to each strategy, including the concerned agencies. Also, it represents the development of Key Performance Indicators (KPI) which can help indicate the success of strategy implementation.

2. Existing Situation of the Transport Sector

2.1 Review of the Existing Situation of the Transport Sector

The review of the existing situation of the transport sector is the summary of the details in the Transportation Master Plan 2004-2006, presented through managerial perspectives. The review reflects the performance of the transport sector in the following dimensions.

Sufficiency of Infrastructure

(1) Road Network: Road transport network of Thailand tends to be extensive; it covers not only from north to south from east to west. Besides supporting inter-regional transport of the country, it also but also links to neighboring countries.

(2) Rail Network: Rail network currently extends to approximately 4,300 km, including around 270 km of double track, and covers all regions of the country. In the future, the State Railway of Thailand plans to extend another 4 lines, which are: (1) ***The Northeastern Line*** from Bua Yai Station to Roi Et, Mukdahan, and Nakhon Phanom (2) ***The Northern Line*** from Den Chai Station to Phayao and Chiang Rai, with link to China (3) ***The Western Line*** from Phitsanulok to Tak, and reaching Mae Sot District connecting to Myanmar and (4) ***The Southern Line*** from Khiri Ratthanikhom Station at Surat Thani, passing Phangnga and reaching Takua Pa District of Phangnga. **The railway network of Thailand runs north to south, while having lines connecting the central region with the eastern/ northeastern region, with Bangkok as its center. The network still lacks east-west lines which will become more important in the future when ASEAN Free Trade Area with neighboring countries is adopted.**

(3) Inland Water Transport Network: Currently, inland water transport mainly handles freights. The Chao Praya river is the major waterway for moving goods, with high volume of transport ranging only in the central region - from Bangkok to Nakhon Sawan. In other rivers, there is very few freight transportation. **The inland water transport network (river) of the country mostly carries goods with high level of shipping occurs only between Bangkok and Nakhon Sawan in the Chao Phraya river. However, it does not link to the sea or coastal area.** Transportation of passengers in the urban area, especially Bangkok, is done through fixed route boats in some canals and major rivers. In the future, if intermodal transport center is widespread in the urban area, the demand for water (river) transportation will increase.

(4) Airport network: Thailand's current air transport is comprised of 36 airports, which can be classified into 5 international and 30 domestic ones. **In 2006, the new Bangkok international airport, Suvarnabhumi, will be opened. The current routes flying into Don Muang airport will consequently be shifted to Suvarnabhumi, relieving the congestion of the former airport and increasing the potential for the latter to become the hub of aviation in the region. Overall, the airport network in Thailand is fairly sufficient. It can respond to the demand for domestic travel while supporting the linkage of demand for intra-Indochina travel. However, the amount of domestic transport of freight and passengers in some routes is not sufficient to support some airports while maintaining their cost-effectiveness. Thus, the airports in some provinces to which flights are terminated are not fully utilized. Thus, it may be necessary to consider business positioning for some airports to encourage more utilization.**

Service and Capacity

(1) Mobility of Urban Traffic

The Second Master Plan for Traffic and Transportation System Development analyzes the traffic and transportation situation in Bangkok and vicinity and indicates that **the demand for transport in the future will rise from 17.1 million people-trip/day in 2000 to 21.4 million people-trip/day in 2006**.

Besides, studies revealed that average speed on Bangkok and vicinity road net work in rush hours in 2006 will decrease from 2000, when average speed of the whole area is around 24.75 km/h. When compared to vicinity, Bangkok has the lowest speed, which is around 19.77 km/h. The average speed in the downtown of Bangkok is 10-15 km/h, and the average speed of the total area will decrease to 20.86 km/h. The above estimation is based on the assumption that road network constructions and improvement are done in accordance with the plans of concerned agencies. However, if this is not the case, the 2006 average speed of the total area will be reduced to only 16.00 km/h, and Bangkok will remain the area with the lowest speed of all, which is only 6-10 km/h.

Increasing amount of traffic and transportation has been caused by **rising number of private cars more than the expansion of public transport**. Underinvestment in public transport system results in insufficient development of mass transportation. Also, this prevents the delivering of services which can be an option for people. Besides, lacking of traffic plan which is in compliance with urban plan/ development causes inefficient road network. This is particularly the case for Bangkok, where there is no street to combine the traffic and at the same time distribute and distributing the traffic to support flow between main roads, express ways, and lanes. This causes super block and an increase in journey time. According to the data of URMAP project, **it is obvious that despite of public transport development projects in Bangkok, most journeys rely on private cars which is an inefficient transport mode. (This is different from most big cities around the**

world where most journeys are rely on public transportation services.) Therefore, it is necessary to adopt demand management approach, and to integrate urban plan with transportation system development on a systematic and concrete basis. This is especially important for large provinces which tend to become centers for economic activities and trades in their regions.

(2) Transportation Market Structure and Trend

In the past, moving of goods was mainly done by trucks more than other modes of mass transportation, e.g. rail or water transport. The proportion of truck transport is, thus, higher than the others. In MOT's Transportation Master Plan 1999-2006, the targets for the transportation of passengers and freight were established. When comparing to domestic transportation situation in 2001, it is found that the market share of road freight transport tended to increase from the targeted 87.5% to 90.0%, which is not in accordance with the direction indicated in the plan. Rail freight transport also failed to achieve the target; its market share reduced from 3.3% to 2%. The market share of inland waterway transport increased from 3.5% to 4% while that of oil pipeline transport rose from 2.7% to 3%. Moreover, there was a tendency for increasing coastal transport as its market share increased from 2.5% to 5 %.

Domestic passenger transport in 2001 was substantially higher than the estimate in the Transportation Master Plan 1999-2006. 56.789 million passengers traveled by rail while the target was set at only 42.77 million. This is also the case for air transport in 2001, where 7.267 million passengers traveled by air while only 6.595 passengers were estimated. Almost every mode of freight transport in 2001, however, was lower than the estimate. Only the amount of coastal transport was considerably higher than expected. This low amount of freight transport may result from economic factors as the Thai economy slowed down in 2001.

From the market structure of domestic freight transport in 2001, road transport accounted for almost 90% of all freight transport within the country, or 400.24 million tons. This is followed by coastal, river, and rail transport which accounted for 19.66, 17.83, and 8.78 million tons respectively. The volume of pipeline transport, of which the target was set at 15 million tons, was actually half of the estimate or only 7.5 million tons.

International freight transport by every mode in 2001 was higher than the target. This resulted from the expansion of import and export volumes since 2000. There was an enormous growth in export freight volume in 2000 with an increase of 18.8%. Import volume picked up drastically in 2001 with a rise of 23.4% while the targeted growth in the Transportation Master Plan 1999-2006 was set at only 9.6%. From the market structure of Thailand international freight transport in 2001, maritime transport was the major mode

accounting for 158.227 million tons, followed by land transport which accounted for 6.9 million tons, and air transport of which the volume was 1.342 million tons.

As a result of great increase in import-export volume, the amount of cargo handled at the country's 2 major ports, was also higher than the estimate. Bangkok Port handled 1,069,560 TEU of containerized cargo, which was slightly higher than the expected 1,000,000 TEU. This is due to the government policy to reduce its cargo throughput to 1,000,000 TEU so as to relieve cargo traffic and promote the use of Laem Chabang Port instead. This resulted in an overflow of cargo throughput at Laem Chabang Port where increasing amount of cargo was handled. From 2001 estimated volume of 1,556,000 TEU, the actual throughput was 2,312,439 TEU. The increasing volume of cargo resulted in congestion in Laem Chabang Port and sluggish cargo traffic to the port, both by rail and truck. Another limitation lied in SRT's Lad Krabang ICD, with its only 600,000 TEU capacity/year. This may cause congestion to cargo transport to Laem Chabang, which increases the cost of transport, and probably leads to modal shift from rail to road.

As for airport utilization, it is obvious that international air freight still moves around Bangkok airport, and the amount freight transport directly from regional airports is scarce. Freight transport at regional airports represents only 5-6% of the amount handled at Bangkok airport. This resulted from limited capacity of regional airports. Also, their infrastructure does not support international transport. For instance, a large commercial airplane cannot land at regional airports because of their runway weight bearing capacity. Therefore, only small amount of cargo is handled at regional airports, causing Bangkok airport to handle almost all international freight.

The government has realized this issue and pushed ahead open the construction of Suvarnabhumi airport to relieve the congestion at Bangkok airport. After the first phase of construction, which is to be completed in 2006, the airport will be opened with the capacity of 45 million passengers and 3 million tons of freight. This can relieve the problem of freight transport in the short and medium terms. In the future, when the expansion of the airport is completed, it will be able to cope with 100 million passengers and 6.4 million tons of freight per year. This can solve the problem in the long run, and may render the new airport an aviation hub in Asia.

The situation of Thailand transportation system when studied both in terms of its infrastructure, and services and capacity, important issues on the transport sector can be summarized as follows:

(1) The development of transportation infrastructure and services are not carried out on the basis of intermodal, or even intramodal, integration. Moreover, lacking of collaboration among the agencies concerned in the business process to design a holistic plan results in excessive investment on the infrastructure of some modes, and underinvestment in others.

(2) The present market structure of the sector shows significant difference and imbalance in market share of each sector and types of goods being transported. Therefore, merely improving the capacity of the undeveloped modes, e.g. inland water or rail transport, is not sufficient. Instead, it is necessary to rely more on intermodal transport as it will enhance the potential of the whole transportation system.

(3) The development of transportation is not planned in accordance with the urban planning, causing the country to bear high cost in relieving traffic problems and alleviating the congestion in the urban area.

(4) Management is an essential factor for appropriate transportation development. This is particularly the case for the arrangement for modal shift, from private cars to public transport. Besides, effective management also contributes to an increase in passenger and freight capacity of major ports and airports. Delay in capacity enhancement in both of them may prevent Thailand from utilizing its geographical advantage.

Macro-Consequences from the Performance of the Transport Sector

(1) Energy Consumption Profile of Thailand and Its Transport Sector

According to the energy consumption of Thailand economic sectors during 1999-2001, the transport sector accounted for 37-38% of total consumption, which is the highest when comparing to other sectors. In 2001, the transport sector consumed 18,632 ktoe while the manufacturing (industry) sector consumed only 32-34%, followed by commercial and domestic sectors of which the consumption was at 21-22%. As for oil, which Thailand needs to import, the transport sector remained the largest oil consuming sector with a continuously increasing rate, from 60.81% in 1999 to 62.64% in 2000, and 66.51% or 22,776 million litre in 2001. This is followed by the industrial sector and agricultural sector, of which the consumption in 2001 accounted for 13.19% and 9.62% respectively. According to the above profile, the transport sector represents 34% of total energy usage, while consuming 66% of oil used in the country. This shows that energy consumption of the transport sector is an urgent issue which needs to be resolved. In addition, as Thailand needs to rely on imported energy, **the above energy consumption will cause Thai manufacturing and service sector to have cost disadvantage.**

(2) Safety of Transportation System

Safety of transportation system is an essential factor which contributes to national economic and social development. Since Thailand had National Economic and Social Development Plans, the transportation system, comprising of road, rail, waterway, and air

transport, has been growing rapidly. This is especially the case for road and air modes. Rail and maritime transport, however, has seen little growth. Road transport, both for passenger and freight, accounts for the largest proportion of all modes. Meanwhile, the highest rate of accident lies in road transport.

According to 1996 Asia-Pacific road accident statistics, which present fatality rate per 100,000 populations, Thailand is listed in top ranks. However, when comparing death tolls per 10,000 registered vehicles, Thailand is listed among the middle ranks. This is because the country has high number of registered vehicles when comparing to other countries in the region.

Rail Accident:

The number of rail accidents occurred over 1997-2001 and the number recorded over FY 1992-2002 are different. This may be due to the use of different timeframe, which are the period of calendar year and fiscal year respectively. Rail accident fatalities are very low. Most of death tolls are due to trespass, e.g. level-crossing accidents. Very few accidents are caused by or defective train operation system or derailment. Level-crossing accidents usually occur at minor or private roads where signaling equipment or fence is not installed. On the other hand, almost all level-crossings on highways are well-equipped with signal and fence.

Maritime Accident:

Only small number of maritime accidents occurring in inland waterway and coastal transport is reported. According to the statistics from Waterways Transport Inspection Division, major causes of maritime accident are bad weather and vicious storms. Besides, accidents may be caused by the engine and the control of vessels. Recklessness of passengers may also be another cause. Currently, tourist boats or cruise ships are mostly equipped with lifesaving equipment specified by the regulations of the Marine Department.

Air Accident:

With the best control and management system, including careful selection of pilots and regular fuselage inspection, air accidents are usually caused by uncontrollable factors.

(3) Transportation Generated Environmental Impact

Low standard of safety and environment quality is caused by ineffective enforcement of safety and environment measures. Lacking of public awareness on the impacts of transportation on safety and environment also leads to lack of serious cooperation and

violation of regulations. Land transport causes dust pollution and carbon monoxide emission. According to Thailand State of the Environment Report 2000 by the Office of Environmental Policy and Planning, Ministry of Science, Technology and Environment, in 1998 the transport was a contributor of CO emission, accounting for 35.6%. In addition, according to the Air Quality Monitoring Report 1999 by Pollution Control Department, the level of dust in Bangkok tended to decrease since 1996. However, it remained higher than the level specified by the standard. The level of CO tended to reduce until 1998 but rebounded again in 1999. According to the report by the Ministry of Natural Resources and Environment, roadside air pollution in Bangkok is caused by vehicular emission, especially nitrogen oxide and ozone, of which the level monitored at air quality monitoring stations in Bangkok is usually high than the standard level. This is also the case in vicinity area, e.g. Samut Prakan. In the future, other large provinces in the country will also fall into this trend.

As for noise pollution, according to the Thailand State of Environment Report 1997 by the Office of Environmental Policy and Planning, and Thailand State of Pollution Report 1997-1999 by Pollution Control Department, it is mainly caused by traffic, especially in Bangkok and major provinces in each region where there is traffic congestion. According to the ambient noise in Bangkok monitored in 2000, the noise level mostly exceeded the standard every day. In regional provinces, the equivalent sound level 24 hours (Leq 24 hr.) does not exceed the standard. However, in some provinces, i.e. Chiang Mai, Khon Kaen, and Saraburi, the Leq 24 hr. tends to rise above the standard level.

Resources and Resource Allocation for Developing on Transport Sector

(1) Analysis of Budget Expenditures Classified by Programs

When considering government budget expenditures classified by programs during the period of the Sixth – Ninth National Economic And Social Development Plans, it is obvious that **the government realized the importance of human resource development. Budget allocation of 21.29%, the highest of the total budget, was allocated to Education.** This is followed by Maintenance of Internal Peace and Order, and General Services, which equally accounted for 13.6% of the total budget. **Transportation and Communication, whether categorized into mission or strategy, is always considered one of economic sectors. Its budget allocation was in the fifth rank, with an average of 7% of the total budget. When comparing to the budget allocated to other economic sectors, agriculture and industry, Transport and Communication is the most outstanding due to the highest proportion of budget allocated.**

However, the amount of budget allocated to the transportation and communication sector depends on economic situation and objectives for national development. The proportion of budget allocated to this sector increased from 5.4% of the total budget during

the Sixth Plan, to 8.5% and 8.0% for the period of the Seventh and Eighth Plan. The proportion was in accordance with the plans for national development. During the Ninth Plan, the budget for the sector **accounted for 5.6%, which is in line with the strategy to ensure sustainable development of the nation**. Moreover, from the macro perspective, **the present value of expenditure provided for the transportation and communication sector as a percentage for GDP in 1987-2004 is equivalent to only 1.36% per annum.**

In addition, **the expansion of each sector reveals that the government tended to focus on developing new sectors which would become solutions to the country's problems and lead to sustainable development. These sectors are natural resources and environment, and science and technology, which have experienced fairly high expansion.** The growth rate of the transport and communication sector is relatively low. However, its expansion is greater than average. In other words, it is higher than the total expenditure growth. This shows that the government still realizes the significance of this sector to the development of the country.

(2) Analysis Of Budget Expenditures Classified by Economic Services

When considering the budget expenditures for the transport and communication sector, which is classified by programmes, the structure of expenditures is different from that of the total budget. The highest proportion of budget was allocated to investment activities, accounting for an average of 76.24% of the transport and communication expenditures over 1988-2004. This is followed by subsidies and personnel expenditures which represented 8.58% and 8.07% of the transport and communication expenditures. When classified by functions, development expenditures totaled 63.23%, while non-development expenditures accounted for 36.77% of the transport and communication expenditures. When classified into capital and current expenditures, the proportion is 86.28% and 13.72% of the transport and communication expenditures respectively.

According to the structure of expenditures in the transport and communication sector, some important trends can be concluded as follows:

(1) The amount of "subsidies" tends to increase. This is dependent on the financial status of the State Enterprises which provide public services, both in terms of freight and passenger transport. In this case, their financial performance tends to deteriorate.

(2) Capital expenditures tend to decrease. This may result from 2 factors. First, the government delegates the authority to local governments, who would be responsible for the maintenance and development of transportation infrastructure, as well as the service provision. Second, the government may focus on the development of other sectors.

(3) Current expenditures and non-development expenditures tend to increase. Meanwhile, the government policy for good governance leads to growing needs to develop a performance evaluation system to ensure efficient and effective budget allocation for both expenditures.

2.2 Key Issues of Transport Sector from Stakeholder Brainstorming Sessions

The summary of key issues presented in this section derive from the seminars organized both in Bangkok and Trat (on January 16, 13-21, and 23-25, 2004). The seminars were divided into Agenda-Based, or policy level session; Area-Based or CEO session of which the participants were provincial governors; Modal-Based, which was held for representatives from each mode; and finally, Function-Based seminar, with representatives from agencies under MOT and the Office of Transport and Traffic Policy and Planning.

Key issues presented here are classified by types of transport - passenger and freight, and the natures of issues. Although the seminar documents include detailed analysis classified by market structure, consisting of urban transportation, domestic transportation, and international transportation, key issues from each market share similar characteristics. Therefore, in this section they are classified by modes of transport and subdivided into freight and passenger transport.

Key Considerations	Workshop on January 16, 13-21, 23-25, 2004					
	Key Issues and Problems of Land Transport		Key Issues and Problems of Maritime Transport		Key Issues and Problems of Air Transport	
	Freight	Passenger	Freight	Passenger	Freight	Passenger
1. Contribution from transportation system to strengthening of economy and trades	- Limitation to develop logistics service or business due to ineffective enforcement of the laws regulating freight truck transport - Limitation to become the hub of freight movement in Indochina region due to lack of harmonized standards and laws relevant to cross-border freight transport, and neighboring countries' inappropriate transport infrastructure and standards - Needs to develop distribution centers, as well as bonded warehouse and ICD to encourage international road freight transport - Necessity to adjust custom laws and procedures to support the expansion of cross-border trade - High economic cost of road transport; destructive competition due to the high number of operators; high proportion of empty trips; and ten-wheeled truck weight limit. - Insufficient investment in pipeline network, causing inconsistent support for pipeline infrastructure investment; road infrastructure is more extensive, resulting in lower cost of transport.	- Limitation in negotiation on and drafting of laws relevant to cross-border passenger (and freight) transport, especially in the case of Malaysia - Needs to revise and improve laws to be in compliance with international Conventions (to render Thailand in becoming the hub of transport in the region)	- Lack of flexibility in regulations on export and multimodal transportation, preventing exporters from gaining competitive advantage - Limitation in management and share of responsibility between Laem Chabang and Khlong Toey ports results in limited capacity and congestion in major ports for international transport - Limited capacity of Thai maritime fleet and related business; insufficient maritime personnel, both in terms of quantity and quality - Needs to develop ICD and CFS/CY in the area where cross-border freight movement takes place; necessity to adjust custom laws and procedures to support the expansion of cross-border trade - Government policy to promote export causes imbalance import-export volume; demand for export container is higher than import, many exporters have to import empty container, causing higher cost. - Limitation in inland water freight transport; needs of regular dredging for navigating channel, as well as intermodal and international maritime transportation - Thailand has less power to negotiate with liners, who set high freight charge, surcharges, and other additional charge, e.g. insurance, installation of container inspection equipment. However, though freight charge tends to increase, exporters with bulk freight can negotiate to some extent.	- Needs to plan for the development of tourist ports in accordance with area-based strategies.	- Lack of holistic planning for air freight transport - Delay of Suvarnabhumi opening causing Thailand to lose competitiveness to be the hub of air freight transport in Asia - Air transport operators have to bear the cost of office relocation to Suvarnabhum, where rental fee is expected to increase. Setting appropriate airport fees will help the airport to compete with other airports in the region.	- Low utilization of airports of Department of Air Transport - Lack of holistic planning for air freight transport - Delay of Suvarnabhumi opening causing Thailand to lose competitiveness to become the hub of air freight transport in Asia - Lack of economic regulatory system for passenger transport, resulting in an increased price competition. - Competitiveness of Suvarnabhumi, due to especially its higher fees than competing airports in the region. There is a need for more facilities for passenger traveling in group

Key Considerations	Workshop on January 16, 13-21, 23-25, 2004					
	Key Issues and Problems of Land Transport		Key Issues and Problems of Maritime Transport		Key Issues and Problems of Air Transport	
	Freight	Passenger	Freight	Passenger	Freight	Passenger
2. Safety of transportation system and its contribution to national security	- Legal issue – many non-registered trucks compete with registered ones; truck registration is not classified by types of freight, resulting in risk in cargo movement. - Enforcement of law, safety regulation, and unity of regulating agencies. - Improvement of safety infrastructure through improving efficiency of present infrastructure	- Danger in public transport due to the competence of drivers; public vehicles are substandard; insufficient traffic signs and signals, redundancy of passenger safety regulators - Passenger terminals and train station needs strict safety measures. - Enforcement of laws to regulate and control the behavior of vehicle users.	- Needs to develop freight safety and national security measure in compliance with holistic security plan of the country	- High amount of substandard ships; insufficient lifesaving equipment in the vehicle; quality of boat driver/ staff; outdated radio communication; risk of accident and danger to life and property of passengers	- Needs to develop freight safety and national security measure in compliance with holistic security plan of the country - Cargo service at Don Muang airport is not operated on a systematic groun and inconvenient; there are many claims and losses. It is also inefficient because the cargo storage area is not sufficient.	- Needs to develop freight safety and national security measure in compliance with holistic security plan of the country
3. Mobility of and accessibility to public transport	- Lack of effective measure causing modal shift - Level-playing field for rail transport which has cost disadvantage - Inefficient management of distribution center, e.g. truck terminal; lack of holistic planning for developing distribution centers in regional area	- Quality of public transport is a significant limitation; lack of systematic public service subsidies - Lack of management system to encourage intermodal public transport in the urban area, e.g. intermodal ticketing - The effort to solve the problems relies on supply-side management approach, which is not a sustainable solution and leads to problem of traffic mobility both in Bangkok and major provinces.	- Lat Krabang ICD is congested due to increasing volume of freight to be containerized there; rising trucks deteriorate the road condition, causing sluggish traffic and making freight miss its shipping schedule. Higher maintenance cost and operating expenses for operator are incurred. - Existing ports are not improved to respond to demand, e.g. Chiang San and Songkla ports which lack feeder to move goods from the south to Lam Chabang port. Exporters thus turn to foreign ports (e.g. Penang Port of Malaysia). Lam Chabang is not used to its full capacity. - Lack of intermodal freight transport in the form of logistics or supply chain	- Lack of physical linkage to other modes of public transport; lack of management system which contributes to intermodal passenger transport in urban area - Probably needs private participation in public water transport to increase efficiency in competition and provide options for passengers - Substandard infrastructure of water transport, especially terminals; insufficient facilities at ports, e.g. passenger room, boat driver room	- Needs for IT system to improve custom procedure and increase freight throughput of the airport - Domestic airports do not meet standards, lacking facilities and causing congestion at Don Muang airport, where Thai Airways monopolizes freight movement between domestic airports; international freight transport has too many stages.	- Preparation for open air transport; currently, airport, air bridges, and landing/departing timeslot are monopolized by Thai Airways. Redundant flight routes cause disadvantage to small airlines; lack of personnel preparation for the expansion of transport - Needs for IT system to improve custom and immigration procedure to facilitate passengers and reduce time spent

Key Considerations	Workshop on January 16, 13-21, 23-25, 2004					
	Key Issues and Problems of Land Transport		Key Issues and Problems of Maritime Transport		Key Issues and Problems of Air Transport	
	Freight	Passenger	Freight	Passenger	Freight	Passenger
4. Social and environmental impacts of transportation system	- Enforcement of laws which control car emission - Violation of 26-ton weight limit resulting in increase in oil truck transport; lenient law leading to traffic congestion in Bangkok and social and environmental impact. - Lack of laws and instruments to support cost accountability for the damage done to environment and public property, e.g. tax system, penalty charge	- Lack of integration between urban and transport planning, resulting in tendency for private car transport which causes environmental and social impact in the urban area - Lack of integration between urban and transport planning also leads to inefficient land usage	- Needs for control of emission from ports and commercial ships	- Needs for control of emission from passenger piers.		
5. Transportation system management	- Outdated custom law requiring reporting procedure at every step of mode charge causes inconvenient rail-sea cargo transport and inconvenient intermodal transportation - Lack of economic regulatory system to encourage appropriate competition or subsidization for freight transport, which is significant to the economy (e.g. rail freight grant) - Needs to develop laws and regulations on intermodal transport - State Enterprises business and organization restructuring is needed to enhance level-playing field and ensure efficiency in cargo transport; needs of guidelines for access charge system or allocation of maintenance cost for transport infrastructure	- Lack of systematic management for subsidization for public service or Public Service Obligation: PSO - Lack of management system for intermodal transport - Limitation in holistic planning of traffic and safety between central and local authorities - State Enterprises business and organization restructuring is needed to enhance level-playing field and ensure efficiency in passenger transport - Public awareness and knowledge management on sustainable transportation and its social and environmental impacts of the public	- Thai regulations for fleet operators are under the supervision of many ministries and departments, requiring great amount of documents, e.g. registration of Thai fleet, or permission for port call - Needs for revision and adjustment of laws and regulations on port activities - Needs to develop laws and regulations on intermodal transport - Data on export, transport, and regulations on custom procedure, are scattered among agencies, of which IT system is separately developed. Exporters face difficulty in integrating the data for efficient and up to date production and export planning.	- Lack of systematic management for subsidization for public service or Public Service Obligation: PSO - urban transportation - Lack of management system for intermodal transport - urban transportation		- Ineffective business management or planning of airports under the Department of Air Transport (former Department of Aviation) causing low utilization of the infrastructure - Lack of holistic air transport management causing limited competitiveness when compared to other countries - Consideration for appropriateness and methods for subsidization of (some) air transport activities - Limitation to encourage general aviation services

2.3 Conclusions of Key Issues And Problems of the Transport Sector

From the review of existing situation of the transport sector in terms of (1) infrastructure sufficiency (2) market structure and performance (3) consequences or impacts from transport sector development and (4) allocation of government resource for developing the sector, and key issues derived from stakeholder brainstorming sessions, strategic issues of Thailand transport sector can be summarized as follows:

(1) In terms of infrastructure sufficiency, current road and air transport network, as well as related plans, will enhance the capacity to support increasing demand of the two modes. However, the provincial clusters still demanded road and air transport infrastructure development. Key considerations for the two modes of transport are: (1) prioritization of investment activities and (2) maximum utilization of existing infrastructure. On the contrary, infrastructure of maritime and rail is relatively insufficient, causing limitation to both intramodal and intermodal transportation. Key considerations here are: (1) capacity building for maritime and rail sector and (2) development by focusing on infrastructure which enhances intermodal transport.

(2) In terms of the market structure and performance of the transport sector, it can be seen that past investment resources are not evenly allocated to each mode; road transport is usually the focus of investment. Later, heavier investment budget is allocated to air transport in order to enhance the potential to become the aviation hub. This results in:

1) In case of domestic market, road transport occupies the largest market share in freight and passenger transport. Such market structure causes inappropriate freight movement, especially bulky freight (of which the ratio of value per volume is low). Besides, ineffective law enforcement over the past period results in pricing competition among operators, finally leads to destructive competition. Though pricing competition renders short-term benefits to operators in manufacturing factor or consumers, when law enforcement is ineffective, such competition causes long-term economic and social costs instead.

In addition, such market structure and competition prevents the development services in the form of logistics service or intermodal transport.

2) In case of urban transportation market, especially passenger movement, private car holds the largest market share. Public transport, both by road and rail modes, still hold low market share. Moreover, the service quality, as well as the financial situation of public transport sectors, are deteriorating. The latter is due to lack of appropriate subsidization system. This trend shows that, in order to encourage modal shift and alleviate traffic problems, it is necessary to have long-term plan and effective motivation.

3) In case of international transportation market, maritime is the major mode while air transport volume is expanding continuously. However, inefficient management is still an obstacle to the expansion of major ports and airports of the country. Therefore, Thailand may miss the opportunity to become the transportation hub.

4) Lack of intermodal transport causes the tendency for a decrease of efficiency of the sector, preventing the sector from sustainable development.

(3) In terms of consequences of the market structure of the sector, it is clear that current market structure causes inefficient energy consumption with damage, to life and property. The environmental impacts is the result of lack of proper regulatory scheme. These consequences result in the country bearing the costs in the long run. Also, they cause economic inefficiency, as well as social costs which come from risks of life and property loss.

(4) According to the analysis of government resource allocation, especially in terms of budget expenditures provided for the transport and communication sector, subsidies, as well as current and non-development expenditures, tend to increase. At present, capital expenditures tend to decrease. With the above trend of resource allocation, and the focus of good governance, it is important that MOT develop a performance evaluation or monitoring system for agencies under its regulation. This is to ensure efficiency and value for money in budget utilization.

(5) The key issues derived from the stakeholders from 3 modes of transport show that important management issues are: (1) ineffective safety regulation; (2) lack of unified economic regulatory function; (3) lack of systematic management of PSO subsidization; (4) lack of integrated plan of both intramodal and intermodal agencies; and (5) lack of integration between urban plan, strategic cluster plan, and infrastructure and transport plan; problem solving and developing of the sector thus tend to rely on supply side management approach.

(6) The demands of local authorities and provincial clusters mostly relate to the improvement, expansion, or development of infrastructure and transport services, in order to support the strategies for commerce, industry and/or tourism. MOT needs to prioritize different demands in agreement to national strategies and condition of each area. The framework for development of strategic clusters as set by the government may be used as guidelines for MOT in setting priority for the above matters. The government framework is as follows:

1) Bordering provinces should formulate strategies to enhance ECS (Economic Cooperation Strategies) and border security. Also, the strategies for solving problems of migrant labors, human trafficking, and drug smuggling should be devised. The development of infrastructure and transport in these provinces is significant and contributes to the competitiveness of the country. MOT is recommended to consider the condition of these areas and the neighboring countries. In addition, custom procedure management, facility provision, e.g. ICD or CFS/CY, or bonded warehouse, would be taken into consideration when consider problem saving and national security issues.

2) For the provinces with potentials, to become a distribution center, infrastructure should be developed in support of intermodal transport. This may be in terms of a transportation center which facilitates intermodal cargo movement. The development should be responsive to transport demand of bordering provinces and of provinces indicated to be Free Trade Area

3) Provinces which are prepared to be Free Trade Area should concentrate on marketing and export. This can be done through coordination with Ministry of Commerce. The infrastructure and transportation in these provinces should be developed in line with provinces which are distribution center.

4) For provinces which have outstanding cultural features, industry and tourism area should be separated so as to conserve historic or cultural sites. Development of infrastructure and transportation in these provinces should be made on the basis of sufficiency while producing greater care for natural and tourism resources.

3. Government policy on transport sector development

In order to design 2006-2011 strategy plan for MOT, it is strictly necessary to review government policy for country's development. Moreover, to ensure policy continuity, it is also essential to review policy indicated in Transportation Master Plan 1999-2006 of MOT, and the Second Master Plan for Traffic and Transportation System Development (2004-2006), which are directly related to development of the sector. The policy synthesized from the above documents will serve as guidelines for developing strategic objectives of MOT, and the strategies that MOT needs to develop to achieve objectives and vision in the end.

3.1 National Agenda And National Strategies for Development

The present government has set the direction for administration through national agenda and national strategies, which serve as key drivers for the development of Thailand and a framework for annual budgetary allocation. National agenda and strategies are as follows:

National Agenda

- Poverty eradication and income distribution
- Thailand competitiveness enhancement
- Social capital development
- Sustainable development

National Strategies

(1) Strategy for Thailand competitiveness enhancement

(2) Strategy for social development, poverty eradication, and life quality of life enhancement

(3) Strategy for sustainable development of Thailand

(4) Strategy for national security, foreign affairs and justice

(5) Strategy for the nation's good governance

3.2 Objectives And Policy Framework in the Transportation Master Plan of Ministry of Transport (1999-2006)

Transportation Master Plan prepared by MOT is set for the period of 1999-2006. The objectives and policy framework, which are the basis for formulation of strategies and measures for each mode of transport, can be summarized as follows:

Main Objectives of Transportation Master Plan of Ministry of Transport (1999-2006)

(1) To develop human resources and society, as well as to enhance quality of life by ensuring transport safety; reduce environmental impact from transportation, expand infrastructure and transport services to ensure efficient intermodal transportation; and ensure extensive and convenient public accessibility to the services on the basis of reasonable charge

(2) To develop the economy by enhancing capacity of transport sector to be responsive to increasing demand; increasing efficiency and quality of services; developing intermodal, and especially mass transport; encouraging private sector participation in

transportation development; enhancing the efficiency and capacity of transportation-related industry and services to ensure the country's competitiveness; and developing transportation infrastructure to link with other countries so as to enhance Thailand's capacity to become regional economic center

Policy Framework of the Transportation Master Plan of Ministry of Transport (1999-2006)

(1) Increasing transportation safety by reducing the number of accidents through measures, e.g. improvement of road infrastructure to meet international standards, and improvement of level-crossings

(2) Decreasing transportation-generated environmental impacts to enhance the quality of life

(3) Developing efficient intermodal transportation system and promoting mass transportation; ensuring public transport accessibility and reducing journey time

(4) Encouraging competition in the transport sector to provide options for users by implementing Public Service Obligation (PSO) scheme in the services provided for low-income users, as well as focusing on free market mechanism in transport services

(5) Ensuring sufficient infrastructure and transportation system in the regional and rural area by arranging intermodal transport services and implementing PSO scheme to ensure service accessibility for low-income people

(6) Promoting mass transportation system usage, both in freight and passenger movement, to change the development trend of transport sector, increase efficiency, and strengthen the sector

(7) Developing the efficiency and adjusting the roles of government agencies which are responsible for transportation system, including its planning and implementation; increasing private sector participation in the transport sector while government agencies focusing on regulation of the activities

(8) Setting transportation tax, fee, and tariff in accordance with market mechanism to enhance the competitiveness of private sector; and implementing PSO scheme in the services provided for low-income users, where transport tariff rate is controlled by government policy

(9) Promoting transportation system connecting links with neighboring countries and supporting Thailand to become the regional economic and transport center by enhancing the efficiency of transportation system and benefiting geographical leverage.

(10) Developing transportation network with a proactive approach to ensure that it leads to appropriate land usage. This can be done by simultaneously developing infrastructure and together with transport system in agreement with urban area development.

3.3 Objectives and Policy Framework of the Second Master Plan for Traffic and Transportation System Development (2001-2006)

The Second Master Plan for Traffic and Transportation System Development (2001-2006) was prepared on the basis of continuity with the First Plan (2001-2006) because several projects implemented under the First Plan was still under operation. These include the plans that had been approved, but needed adjustment to be responsive to the economic crisis which affects the development of the traffic and transportation system. The Second Plan was an integration of the evaluation of performance and investment activities, and the overview of the effort to solve transportation problems over the timeframe of the First Plan.

Main Objectives of the Second Master Plan for Traffic and Transportation System Development (2001-2006)

(1) Sufficient and rational investment in infrastructure: by formulating careful and reasonable investment policy on the construction of infrastructure; prioritizing investment projects to ensure efficient, responsive, and sufficient budget utilization

(2) Enhancing the efficiency of existing infrastructure to encourage maximum utilization: by developing services and linking modes of public transport, designing the major and minor road network to solve the problem of insufficient road infrastructure

(3) Encouraging local participation: to enhance the capacity of local authorities and people and ensure their participation in the development of local and national transportation system, in accordance with the Decentralization Act B.E. 2542. This will ensure that investment in each project is truly responsive to the needs of the locality. Also, it will raise public awareness on safety and environment impacts caused by transportation.

(4) Enhancing the quality of life: by ensuring road safety, environmental concern, and sustainable development

(5) Developing transportation system in order to encourage Thailand competitiveness: This is to motivate investment and can be done through development of traffic mobility, and the preparation for expanding international trades

Policy Framework of the Second Master Plan for Traffic and Transportation System Development (2001-2006)

(1) Unity of the agency : by clarifying the roles of the agency (OTP) as a policy-level agency, responsible for formulating policy and coordinating for the efficient and sustainable development of traffic and transportation system

(2) Alignment of development direction: by enhancing integration of transportation development plan with other plans to ensure sustainable development which is responsive to the country's direction

(3) Public transportation: by promoting public transportation system as the major system of the country

(4) Efficiency of management: by promoting the development of service accessibility and quality

(5) Efficiency of infrastructure: by promoting the improvement of existing infrastructure and development of extensive network to enhance its efficiency

(6) Demand management: by formulating measures to manage the demand for traveling

(7) Quality of life: by formulating measures on safety and environment so as to ensure balance of transportation system and quality of life.

(8) Legal framework: by striving for the amendment of laws/regulations to ensure they are in line with to one another, and contribute to the development direction of the sector

(9) Public participation: by promoting the capacity building for local authorities and people through their participation in planning and monitoring, and fund mobilizing, as well as their corporation in alleviating traffic problems

(10) Traffic system: by designing the traffic system and network usage (including rail traffic) to ensure maximum efficiency

The strategies of the Second Master Plan for Traffic and Transportation System Development (2001-2006) was mainly developed based on the objectives and policy framework. The measures indicated in the Plan are divided into measures for Bangkok, inter-urban transport, regional major provinces, bordering provinces and by the key characteristics of transport issues in each area.

3.4 Conclusion on Government Policy for the Development of the Transport Sector

According to review of key policies of the two Master Plans and national strategies, it is found that policies are completely aligned with one another. It can be concluded that **national strategies can be used as guidelines for formulating strategies for the transport sector or for the administration of MOT for the period of 2006-2011.** As the present budgetary allocation is based on strategic approach, it is extremely necessary that, in the context of present administration, national strategies are to be used as guiding principles.

The objectives and policy framework for the development of the transport sector indicated in both Master Plans, are used to formulate the strategic objectives, which are the key milestones to achieving vision of sector development over the period of 2006-2011.

4. Formulation of Strategies for the Development of Transport Sector

Strategic plan of MOT which will be used as the administrative framework for the period of 2006-2011 consist of: vision, mission, strategic objectives, and strategies. The principles for developing strategic plan are as follows:

(1) It is recommended that vision and mission of MOT which was identified in 2003 remain as it is. This is because key issues of the sector have not changed; the present problems are the same as those occurred over the period when the vision and mission were formulated. In addition, the present vision and mission were developed through participatory approach, in which the management of MOT comprises government offices and State enterprises under MOT agencies took part. Therefore, it is not necessity to amend the vision and mission.

(2) Key content which needs to be adjusted is **"approach to achieve the vision"**, which comprises :

1) **Identifying strategic objectives**: These objectives are key milestones to achieving the vision (Mostly they are qualitative goals and may not be easy to understand the meaning and the way to achieve the goal.)

2) **Formulating strategies to develop the transport sector**: This is based on national strategies and developed from strategies of MOT over FY 2004-2005

3) **Defining strategic plan management**: This is done by designing a performance evaluation system, including Key Performance Indicators: KPI which reflect each strategy. This is to ensure that MOT is equipped with tool to monitor and assess its strategic execution.

4.1 Strategic Objectives to Develop Transport Sector for the Strategic Plan of the Ministry of Transport 2006-2011:

Over the past decade, the direction of the development of Thailand transport sector tends to change. This can be seen from the policies set out in MOT's Transportation Master Plan 1999-2006, as well as the Second Master Plan for Traffic and Transportation System Development (2001-2006). Moreover, the review of the existing situation reflects current issues and limitations of the sector. Meanwhile, government focuses on holistic administration, of which is the government's basis for formulating strategies, plans, and projects, as well as allocating budget resources. Therefore, **direction for the development of transport sector over the period of 2006-2011 needs to be responsive to management challenges, which consist of**:

- Enhancing Thailand competitiveness and energy strategies
- Increasing focus on social capital to the equal level of commercial cost
- Focusing on regulation of government activities
- Emphasizing intermodal transportation development
- Development become in order to hub of regional transportation
- Focusing on safety in transportation system
- Focusing on the development of transportation which corresponds to national security strategies
- Developing transportation system which is responsive to and is the basis for area-based strategies

Based on the brainstorming sessions and the analysis of existing situation of the transport sector by stakeholders at every level of the sector, development challenges are synthesized. From these challenges, the conceptual framework for the sector development is formed. This framework will be used for developing the sector. Through the integration of all the above data, 3 strategic objectives are identified.

(1) The development to enhance Thailand competitiveness: The transport sector development must support and enhance the competitiveness of the country. This is in terms of the transportation which enhances cost competition but does not incur social cost or cause economic loss. In addition, transportation must contribute to competitive position of the country, e.g. the development of infrastructure to render Thailand a sub-regional or regional hub of transportation.

(2) The development to enhance the efficiency of the transport sector: Transport sector development must utilize resources efficiently. Transport services must provide users with options which are efficient, both from the perspective of users and government sector.

(3) The development on the basis of good governance: In order to regulate or set out a framework for sector development, both for nation's competitiveness and sector's efficiency, it is necessary to rely on transparent governance. This will play important roles in the formulation the regulatory framework, which ultimately ensures legitimate transport services and does not bring in social burden. Besides, good governance also covers government expenditure for the development of infrastructure, or the subsidization for social public services. It ensures justifiable and efficient budgetary allocation.

The above 3 strategic objectives are identified on the basis of sustainable development and they are complementary to one another. Over the past, before the formulation of transportation master plans, both MOT's Transportation Master Plan (1999-2006) and Second Master Plan for Traffic and Transportation System Development (2001-2006), strategic objectives had not been clearly identified. This resulted in partial or unequal development of infrastructure and services, which prevents sustainable development. Moreover, each objective is divided into 2 aspects - social and commercial. This is because transportation is considered an economic infrastructure. Its development therefore needs to take into account the balance of fundamental public service development, and the commercial competition of services in the segment or market where it is possible.

4.2 SWOT Analysis of Agencies under Ministry of Transport

SWOT Analysis was based on the data from the review of the existing situation of transport sector, and stakeholder brainstorming seminars. Then SWOT diagram was formulated and raised for adjustment and modification before it was approved by representatives from agencies under MOT during the meeting on April 29-30, 2004. The conclusion of the SWOT diagram is as follows:

Opportunities	Strengths
• Expanding economy, trade, and tourism leads to demand for development of transport sector, both in terms of its infrastructure and services • Vision and policy of government sector focus on the enhancement of Thailand's position as regional transportation and economic hub • Economic recovery allows MOT to have resources for developing organization and the sector • Focus on transport sector reform in order to enhance Thailand competitiveness tends to help MOT gain government support, both in terms of budget allocation and enforcement of laws which encourage the development of the sector • Geographical advantage is the country's unique competitive advantage, which supports development to become the transportation hub of Asia • Bureaucratic reform tend to ensure better coordination and increasing efficiency • Transport innovation or technology development results in opportunities for developing modes of transport, especially intermodal transportation • Sub-regional cooperation is an important factor to help Thailand become the regional transportation hub	• The human resources of MOT possess wide and unrivalled experience, consisting of direct experience and experience from working in the agencies under MOT • Coverage of service area of the agencies under MOT can be used as units of development and strategic implementation

Threats	Weakness
• Neighboring countries also aim at developing and positioning as transportation hub. • Obstacles to establish effective regulating agency cause the delay of the transport sector development. • Limited knowledge and understanding in development of sustainable transport causes inefficient, high-cost (in terms of economic and social cost), and delayed in development. Public and political sectors do not possess proper perception. • Insufficient government budget, limitation to private fund mobilization, and restrictions on private sector participation in infrastructure and service development render the development dependent solely on government expenditure. • Policies and efforts aim at organization restructuring are fragmented and not with real motivation. • Redundant roles of government agencies • Policies and decision-making are not aligned, resulting in inefficient investment and development of the transport sector. Also, the development tends to be based on supply side management approach. • Lack of legal regime related to economic regulation • Lack of understanding of the principles and proper methods of public service subsidization • Ineffective enforcement of laws related to safe transportation, lack of cooperation and awareness of concerned parties	• It is not clear whether the organization structure supports the execution of strategies. • Regulations, bureaucratic procedure, and organizational culture cause delay, inflexibility, and obstacles to result-based management • Inflexibility in human resource and organization management causes limitation to the use of result-based management • Lack of systematic coordination and linkage of databases, both among the agencies under MOT, and with other government entities, prevent the development of database used for performance monitoring and evaluation. • Lack of effective monitoring and evaluating agency. • Inefficient management and services of government agencies • Lack of central agency who coordinates the regulating activities causes inconsistent and ineffective regulation. • Insufficient human resource quality and continuous turnover • Many studies conducted are not implemented.

4.3 Vision And Mission of the Ministry of Transport for FY 2006-2011

Vision of the Ministry

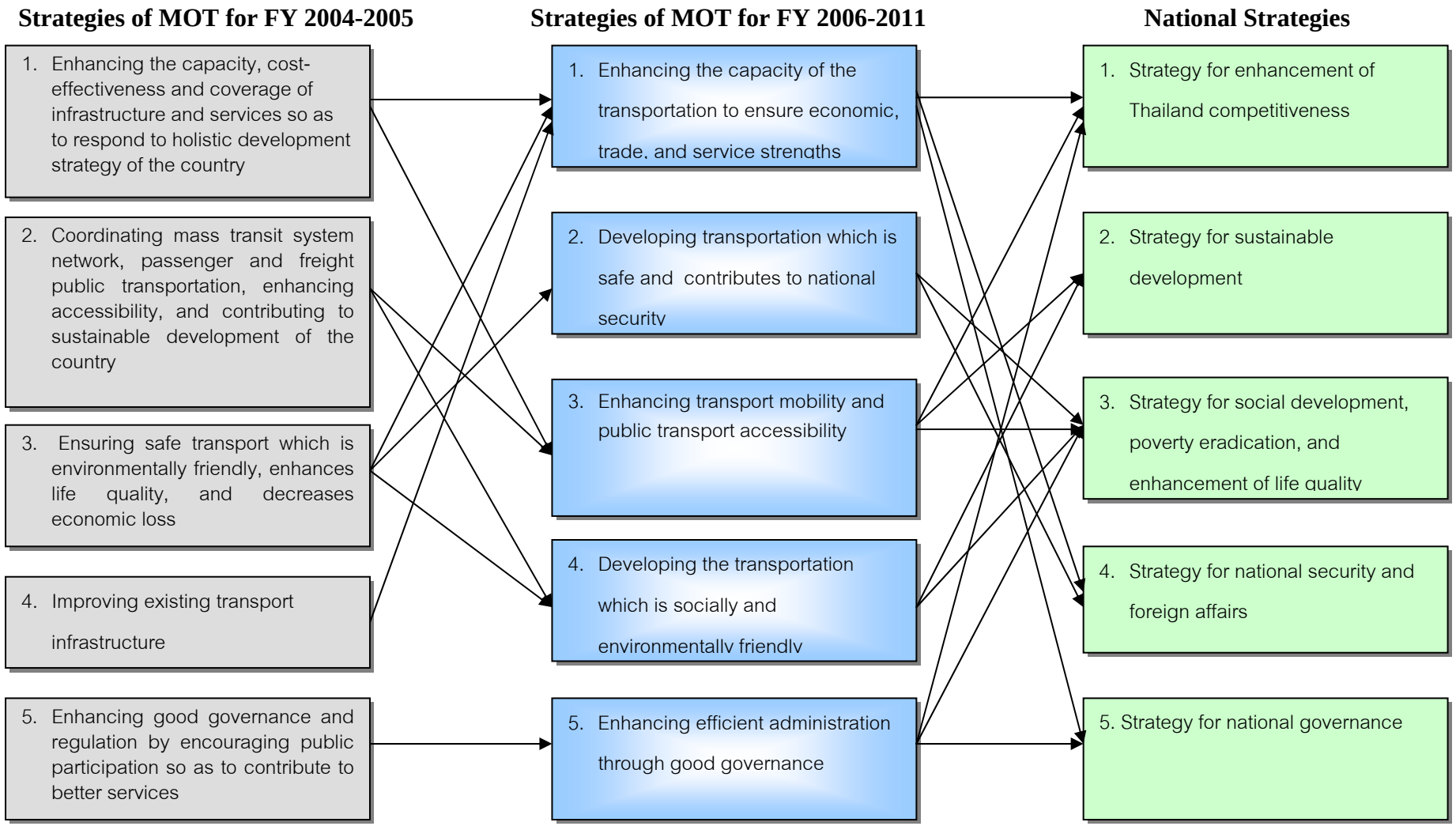
The Ministry commits to develop traffic and transportation system by ensuring its convenience, safety, efficiency, transparency, and accessibility to all people; to develop intermodal transportation among all modes of transport so as to enhance capacity of the country and to contribute to Thailand position as transportation hub of the region.

Mission of the Ministry

The Ministry develops its system, mechanism, and human resources, as well as formulates policy for development, construction, and regulation of land, maritime, and air transport, to ensure sufficient, efficient, extensive, cost-effective and equitable services.

4.4 Recommended Strategies for Development of Transport Sector for FY 2006-2011

In order to achieve the above 3 strategic objectives and vision, the strategies for development of transport sector, on which the administration of the Ministry of Transport will be based, are developed on the basis of continuity from 2004-2005 strategies. In addition, recommended 2006-2011 strategies were approved in the meetings on April 29-30, 2004 and May 12, 2004, of which participants were the management of agencies under MOT and Office of Transport and Traffic Policy and Planning (OTP) respectively. The following map presents alignment among national strategies, strategies of MOT for FY 2004-2005, and strategies of MOT for FY 2006-2011, including the focus (over the period of 2006-2011) of each strategy.


Strategies of MOT for FY 2004-2005
1. Enhancing the capacity, cost-effectiveness and coverage of infrastructure and services so as to respond to holistic development strategy of the country
2. Coordinating mass transit system network, passenger and freight public transportation, enhancing accessibility, and contributing to sustainable development of the country
3. Ensuring safe transport which is environmentally friendly, enhances life quality, and decreases economic loss
4. Improving existing transport infrastructure
5. Enhancing good governance and regulation by encouraging public participation so as to contribute to better services
Strategies of MOT for FY 2006-2011
1. Enhancing the capacity of the transportation to ensure economic, trade, and service strengths
2. Developing transportation which is safe and contributes to national security
3. Enhancing transport mobility and public transport accessibility
4. Developing the transportation which is socially and environmentally friendly
5. Enhancing efficient administration through good governance
National Strategies
1. Strategy for enhancement of Thailand competitiveness
2. Strategy for sustainable development
3. Strategy for social development, poverty eradication, and enhancement of life quality
4. Strategy for national security and foreign affairs
5. Strategy for national governance

4.5 Recommended Programs/Plans Strategy Implementation

The programs/plans which respond to the 5 strategies proposed are developed by synthesizing the framework of programs/plans of agencies under MOT, both government agencies and State Enterprises, which need financial support from the government. Besides, the framework of programs/plans proposed by provincial clusters to respond to area-based strategies, including programs/plans recommended by the Consultant, are also integrated to ensure the complete and responsive programs/plans for MOT's strategy implementation. In addition, the Consultant provides recommendations on measures to support key strategies so that programs/plans can be clearly grouped. The following table indicates the alignment of 5 strategies, their measures, and recommended programs/plans to respond to strategies. The responsible agencies are presented in Table1.

4.6 Conclusion: Strategic diagram of Ministry of Transport for FY 2006-2011

Mission	**The Ministry develops its system, mechanism, and human resources, as well as formulates the policy for the development, construction, and regulation of land, maritime, and air transport, to ensure sufficient, efficient, extensive, cost-effective and equitable services.**
Vision	**The Ministry commits to develop traffic and transportation system by ensuring its convenience, safety, efficiency, transparency, and accessibility to all people; to develop intermodal transportation among all modes of transport so as to enhance capacity of the country and to contribute to Thailand position as transportation hub of the region.**
Strategic Objectives	(1) **To enhance Thailand competitiveness** (2) **To enhance efficiency of transport sector** (3) **To develop on basis of good governance** **The above objectives cover both commercial and social services.**
Strategies/Measures	**(1) Enhancing capacity of transportation to ensure economic, trade, and service strengths** **(1.1)** Ensuring development of infrastructure and encouraging international freight and passenger transport, with Thailand as hub of Asia **(1.2)** Harmonizing transport standards, including infrastructure and services, of the country with those of neighboring countries, and developing a regulatory system, together with regulation process which encourage development of international transportation business and which correspond to the covenant in which Thailand is a member country **(1.3)** Formulating strategy for international cooperation by utilizing ASEAN agreements and taking into account the holistic development of Thailand's transportation system

(1.4) Enhancing efficiency in competitive markets

(1.5) Encouraging development of logistics or supply chain transport services

(1.6) Devising holistic plan for each mode of transport sector.

(1.7) Developing based on holistic approach to respond to trade and tourism strategies of provincial clusters

(2) Developing transportation which is safe and contributes to national security

(2.1) Arranging for safety center and designing a holistic plan for safety with local authorities

(2.2) Development and maintenance of transportation infrastructure

(2.3) Law enforcement

(2.4) Developing on the basis of holistic safety and security plan

(3) Enhancing transport mobility and public transport accessibility

(3.1) Encouraging intermodal transportation

(3.2) Providing options of and accessibility to public urban transportation system

(3.3) Developing transportation system to increase mobility

(4) Developing the transportation which is socially and environmentally friendly

(4.1) Encouraging development of transportation infrastructure which has decreased impacts on the society and environment

(4.2) Encouraging development of transportation modes which have decreased impacts on the society and environment

(4.3) Promoting efficient energy usage in transport sector

(4.4) Using cost allocation scheme which is appropriate for environmental cost incurred and public asset utilization

(4.5) Developing the transportation which guides land usage and is responsive to urban plan

(5) Enhancing efficient administration through good governance

(5.1) Strengthening economic and safety regulatory functions

(5.2) Arranging for level-playing field in each mode of transport

(5.3) Ensuring transparency and efficiency in public service subsidization in transport sector

(5.4) Developing a performance evaluation system by linking evaluation at the organization level with those at department, division, section and individual level.

(5.5) Monitoring of the performance of State Enterprises under MOT

5. Strategy Implementation

5.1 Administration Approach through Strategic Budgetary Allocation

The administration approach of present government focuses on the principle of responsibility for the performance. Key Performance Indicators (KPI) are developed to monitor and assess the effectiveness and efficiency of resource utilization in the execution of plans. In the Strategy Plan of Ministry of Transport 2006-2011, the Consultant also sets out key performance indicators to reflect effectiveness of strategy implementation.

5.2 Development of KPIs and Performance Management System for MOT Strategy Plan Management

5.2.1 Development of KPI

Key Performance Indicators recommended in this report reflect the implementation of strategies. They are output indicators, which are used to evaluate output, outcome, or impact of the execution. Taking into account the role of MOT as the plan manager, this type of indicator is thus recommended. This is because its performance should be measured through the output, outcome, and impact of plan execution more than input or process stages. The latter types, input and process indicators, are recommended for the agencies responsible for the implementation of plans. These indicators, however, should be related to the output of MOT.

Linking KPIs of MOT and its agencies' contributes to the holistic performance management system for MOT. This linkage is not restricted to agencies within MOT, but can also be done with area-based KPIs. However, in order to adopt this, it is necessary to invest for better information technology system. Most importantly, standard data format needs to be created to enable data sharing among agencies within and outside MOT

The following table presents the KPIs for strategy implementation. These are divided into 2 period: long-term KPIs, which MOT is recommended to develop, and short-term KPIs. Some long-term KPIs are not ready to use because the data related has never been collected. Short-term KPIs are recommended as substitutes for long-term KPIs and are now used by the agencies under MOT. Therefore, short-term KPIs enable MOT to promptly begin the monitoring and evaluation system of strategy implementation.

Strategies of the Ministry	Short-term KPI	Long-term KPI	Remark
Enhancing the capacity of the transportation to ensure economic, trade, and service strengths	1.1 Actual number of freight and passenger (maritime air rail and road services)	1.1 Actual Number of freight and passenger (maritime air rail and road services)	
	N/A	1.2 Punctuality of freight transport per unit (ton-kilometer)	
	N/A	1.3 Cost of freight transport per unit	
	1.4 Increasing length of highway and rail system	1.4 Increasing length of highway, rail, and waterway system	
Developing transportation which is safe and contributes to national security	2.1 Number of death and injury from land transport	2.1 Ratio of death and injury from land transport per unit of travel and the valuation of damaged property per year	
	2.2 Number of accident from commercial air transport	2.2 Number of accident from commercial air transport	
	2.3 Number of accident from rail transport	2.3 Ratio of accident from rail transport per unit of travel	
	2.4 Number of accident from maritime transport	2.4 Number of accident from maritime transport	
	2.5 Percentage of formulation/execution of security plan	2.5 Percentage of formulation/execution of security plan	
Enhancing transport mobility and public transport accessibility	3.1 Percentage of length of improved network comparing to target length in annual fiscal year	3.1 Percentage of length of network which is in serviceable condition	
	3.2 Percentage of length of maintained network comparing to target length in annual fiscal year	3.2 Percentage of bridges which is in serviceable condition	
	3.3 Percentage of track kilometers which is in serviceable condition	3.3 Percentage of track kilometers which is in serviceable condition	
	N/A	3.4 Percentage of rail bridge which is in serviceable condition	
	3.5 Percentage of length of maintained waterway comparing to target length in annual fiscal year	3.5 Percentage of length of maintained waterway comparing to target length in annual fiscal year	

Strategies of the Ministry	Short-term KPI	Long-term KPI	Remark
	3.6 Average speed on Bangkok road network during rush hour	3.6 Roadway Congestion Index in Bangkok and vicinity and major provinces in regional area	
	3.7 Number of public transport passengers in Bangkok and vicinity (road, water way, rail, and electric train)	3.7 Number of public transport passengers in Bangkok and vicinity and major provinces in the region	
	3.8 Number of domestic interurban public transport passengers (road, rail)	3.8 Number of domestic interurban public transport passengers (road, rail)	
	3.9 Time length for international arrival and departure at airport when passing through internal system	3.9 Passenger transfer time at station	
	3.10 Percentage of customer satisfaction towards public transportation system in Bangkok and vicinity	3.10 Percentage of customer satisfaction towards public transportation system in Bangkok and vicinity and major provinces in the regions	
Developing the transportation which is socially and environmentally friendly	4.1 Percentage of vehicles which meet the standard of vehicle inspection	4.1 Percentage of vehicles which pass the standard of vehicle inspection	
	N/A	4.2 Percentage of number of times (road-generated) air pollution is detected at the level higher than standard	
	N/A	4.3 Percentage of number of times (road-generated) noise pollution is detected at the level higher than standard	
	N/A	4.4 Percentage of number of times waterborne noise pollution is detected at the level higher than standard	
	N/A	4.5 The quality of environment in port area passes the standard set by government agencies.	
Enhancing efficient administration through good governance	5.1 percentage of customer satisfaction	5.1 Level of completion of quality assurance standard	
	N/A	5.2 Level of completion of response to public opinion	

The explanation of KPIs, their definition and responsible agencies, are presented in Annex 2 and 3 of the Final Report on Strategic Plan of the Ministry of Transport 2006-2011. The level of responsibility for KPIs is dependent on the types of KPI, monitoring or evaluating KPI. In Annex 2, the duties and responsibility of KPI Owning agencies need to perform is incorporated. These comprise gathering and processing of the data required. In the case where Non-KPI owning agency needs to utilize the details of KPI of other agency, the data required will be supported by the KPI own in agency.

5.2.2 Target Setting Methodology

Currently there is a limitation to establishing target because the data collected by agencies under MOT is not in standard data format. In addition, each agency uses different method in setting performance target; most of them set their target on the basis of expected resource allocation, or on their overall existing capacity. Target setting is an extremely important step. In addition, it is necessary to adopt some psychological guidelines and change management principle while setting target. If the target is set at an unachievable level, it will not motivate the agencies to enter the performance management system. On the contrary, if the target is unrealistically low, it will not contribute to the performance monitoring and evaluation, or overall development.

For this study, the Consultant aims at having the process of strategic plan management initiated. This is done through performance management system, monitoring and evaluation of results, and building of database support of monitoring and evaluation. The targets presented in Table 2 are set based on the in methodology:

(1) Setting target based on the data acquired from the agencies under MOT. This is the target set in accordance with achievable plans of the agencies.

(2) Setting target based on holistic principle. This is used in case where there are government holistic plans or other plans approved by the government, e.g. holistic plan for safety, holistic plan for security, or plan for development of Bangkok public transport system through rail transit.

(3) Setting target based on psychological guidelines. For instance, the number of accident in all modes of transport, except road, should be set at “0”.

(4) Progressing Target Setting: Self Improvement. Maximum target for KPIs which reflect the completeness of performance or development is set at 100%. This can be set on a continuously progressive basis by using additional step of progress in each year or indicating a specific timeframe within which the agencies must achieve 100% target.

(5) Setting target based on common principles. This is to support good governance principle set by the Office of Public Sector Development Commission e.g. level of satisfaction of customer

5.3 Recommendations on Mechanism for MOT Strategy Plan Management

(1) The guidelines for management of the Strategic Plan for Ministry of Transport 2006-2011 consists of:

1) Decentralizing the authority on program/plan management to the responsible agencies (The table is presented in Annex 1.)

2) Developing a central system for monitoring and evaluating progress on strategic implementation and execution of MOT plans

(2) MOT is recommended to indicate duties and responsibilities of a center which is to monitor and evaluate progress of strategy implementation, or to monitor, evaluate, analyze, and then report progress of KPI target achievement. The Consultant recommends that OTP is a suitable agency to be responsible for this task. OTP may formulate mechanisms for coordination with KPI owning agencies to ensure linking and sharing of information.

(3) As there are many agencies under jurisdiction of MOT, the Ministry is recommended to form a committee to monitor and evaluate Ministry's strategy implementation. During the first stage, the Consultant recommends that "the Committee on Productivity Enhancement" of MOT should function as monitoring and evaluating committee. The agency who monitors and evaluates the progress of strategy implementation should function as the secretary of the monitoring and evaluating committee.

(4) After monitoring and evaluating committee revises the recommended KPIs in this report, it is advised that the committee set a framework for developing KPIs of agencies under MOT. The KPIs of these agencies must be linked to KPIs of the Ministry in the following terms: (1) direct link by using the KPIs of the agencies as the Ministry's KPIs, or (2) link by integrating the target, and (3) link by shared responsibility

When strategies and KPIs to monitor and evaluate the strategy implementation are developed, on a fair basis, the performance and causes that render the agencies unable to achieve some KPIs should be taken into consideration. This should be done before organization restructuring. Currently, current structure is based on cluster.