



Unbeatable Thailand, Unparalleled Opportunities

Thailand's Infrastructure Development Plan and Opportunities

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29 May 2012, Sydney Australia





Outlines

- 1 Overview of Thailand's Infrastructure Development
- 2 Policy Outlook
- 3 Future Challenges



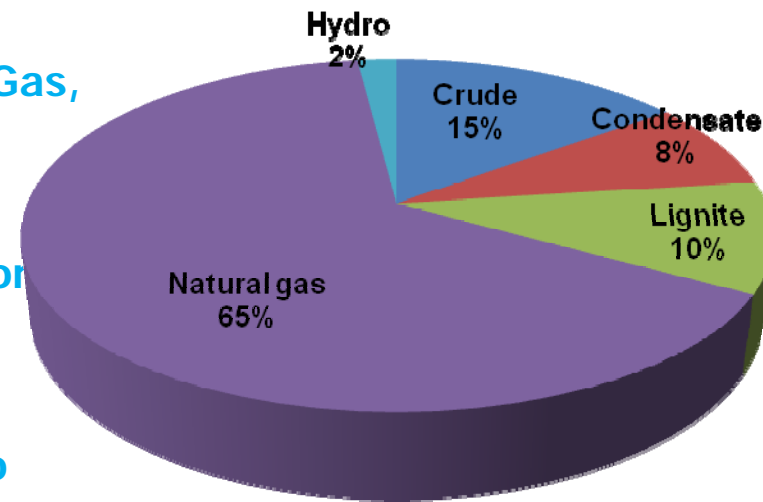


Thailand's Infrastructure : Energy Sector



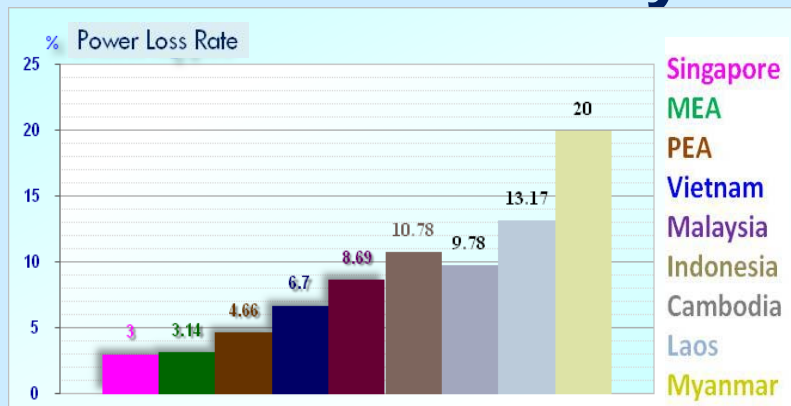
Overview

- In 2010, Thailand's petroleum production consisted of 65% Natural Gas, 15% Crude Oil, and 10% Lignite.
- Thailand's Energy Import accounted for 56% of Energy Demand in 2010.
- 99% of Thai Households had access to Electricity Supply

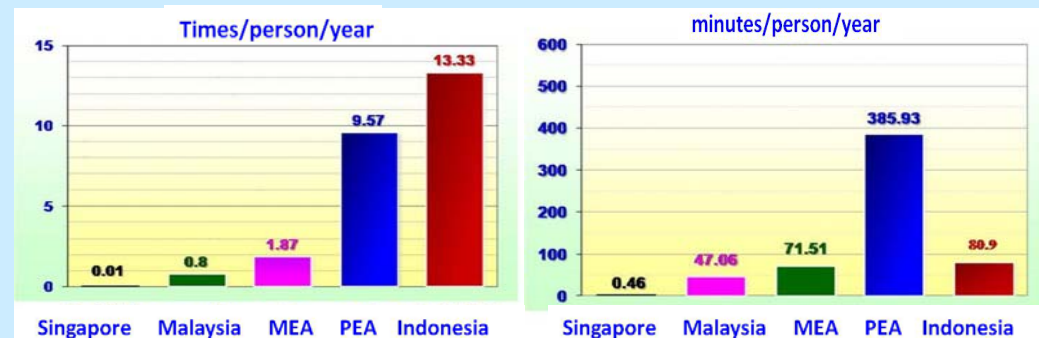


International Comparison on Service Quality

The electrical energy losses in Thailand



The number of interruption frequency in Thailand, compared to other countries





Thailand's Infrastructure : Transportation Sector

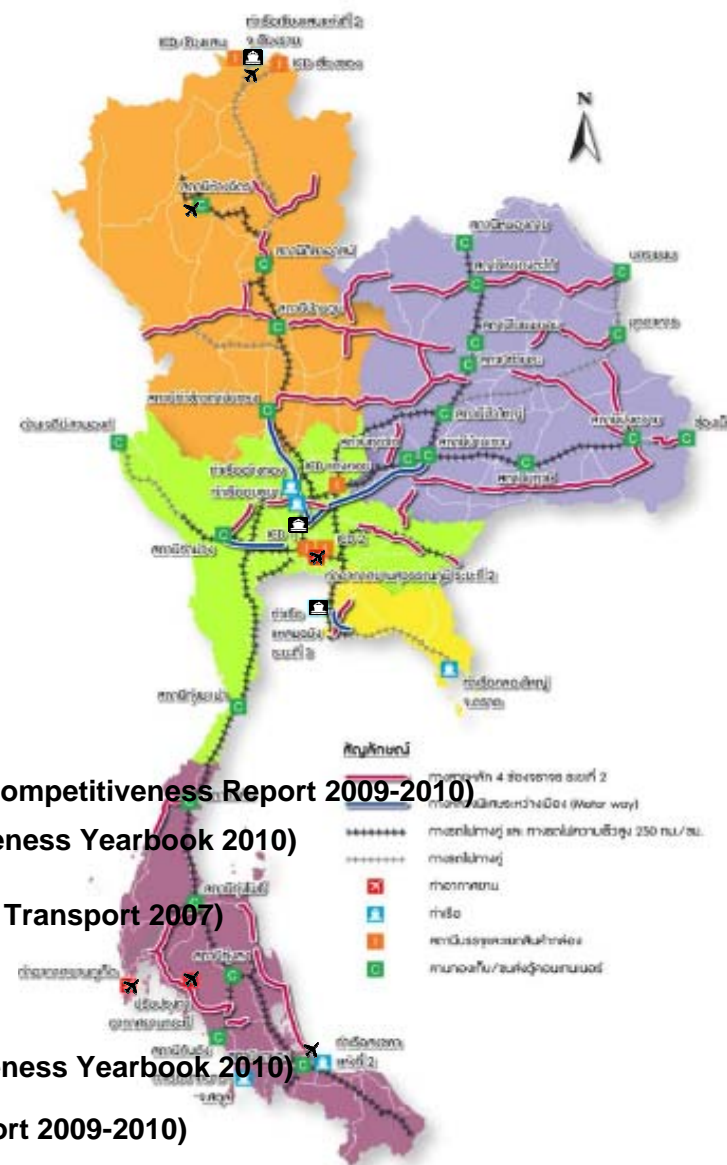


Overview

	Road	National Highway	63,100 km.
		Motorway & Expressway	226 km.
		Rural road	39,254 km.
		Local road	101,845 km.
	Water	Total International Deep Sea Port	6
		- Laem Chabang Port	7.7 M TEU/year
	Rail	Single Track	3,885 km.
		Double and Third Track	234 km.
	Air	Airports	36
		- Suvarnabhumi Airport	45 M ppl/y
		- Don Mueang Airport	36 M ppl/y
		- Phuket Airport	6.5 M ppl/y
		- Chiang Mai Airport	8 M ppl/y

International Comparison

- Expressway Network **rank 33** out of 133 countries (WEF Global Competitiveness Report 2009-2010)
- Road Density 0.13 km. per sq.km **rank 43** (IMD World Competitiveness Yearbook 2010)
- Ship vessels **rank 34** out of the first 35 ranks (Review of Maritime Transport 2007)
- Laem Chabang Port **rank 19** (Review of Maritime Transport 2007)
- Rail Density 0.009 km. per sq.km **rank 42** (IMD World Competitiveness Yearbook 2010)
- Infrastructure Quality **rank 26** (WEF Global Competitiveness Report 2009-2010)
- Airline **rank 13** (WEF Global Competitiveness Report 2009-2010)
- Route Network **rank 2** (WEF Global Competitiveness Report 2009-2010)



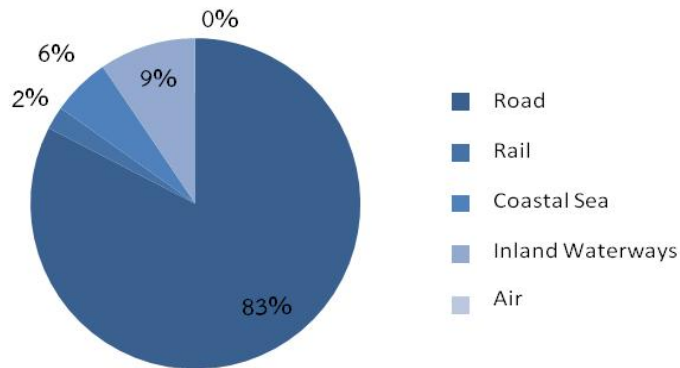


Thailand's Infrastructure : Logistics Sector

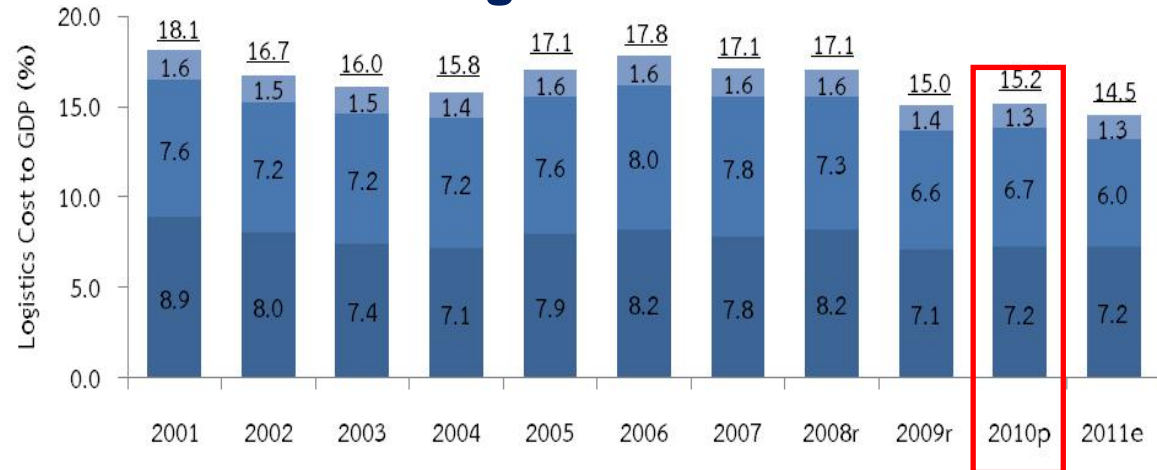


Logistics Situation

Domestic Freight Transport



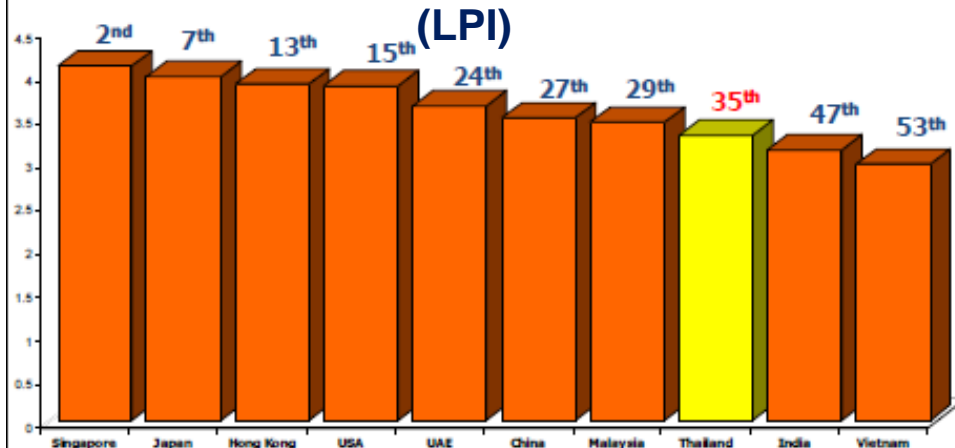
Thailand's Logistics Cost in 2010



■ Logistics Administration Cost to GDP ■ Inventory Holding Cost ■ Transportation Cost to GDP

International Comparison

2010 Logistics Performance Index (LPI)



Country	LPI	Customs	Infrastr ucture	Internat ional shipmen ts	Logistics compete nce	Tracking & tracing	Timeline ss
Singapore	4.09	4.02	4.22	3.86	4.12	4.15	4.23
Japan	3.97	3.79	4.19	3.55	4	4.13	4.26
Hong Kong	3.88	3.83	4	3.67	3.83	3.94	4.04
China	3.49	3.16	3.54	3.31	3.49	3.55	3.91
Malaysia	3.44	3.11	3.5	3.5	3.34	3.32	3.86
Thailand	3.29	3.02	3.16	3.27	3.16	3.41	3.73



Overview



- In 2010: 7.0 million registered land line numbers and 69.7 million registered mobile numbers.
- In 2009: 18.1 million people had internet access.
- Weakness: broadband (2 mbps) service and users are still limited

International Comparison Service Quantity and Quality

Indicators / Countries	USA	UK	China	Singapore	Malaysia	Vietnam	Thailand
1. Main Telephone Line Amount (1,000 numbers)	151,171	33,320	294,383	1,983.9	4,573	16,400	7,008.9
Amount per 100 people	48.70	53.71	21.95	39.00	16.10	18.67	10.14
2. Mobile Cellular Subscribers Amount (1,000 numbers)	278,900	80,799	859,003	7,307.3	34,456	154,000	69,683.1
Amount per 100 people	89.86	130.25	64.04	143.66	121.32	175.30	100.81
3. Internet Users Amount per 100 people	78.00	83.56	28.90	69.00	55.90	26.55	20.10
4. Internet Subscribers Amount (1,000 subscribers)	81,939	19,200	111,522	1,247.2	5,591.8	N.A.	2,295.6
Amount per 100 people	26.63	31.14	8.35	25.22	20.01	N.A.	3.34
5. Broadband Subscribers Amount (1,000 subscribers)	80,698	18,740	103,978	1,170.8	1,671.8	3,214.2	2,295.6
6. Computer^{1/} Computers per 1,000 people	899	811	88	796	311	N.A.	111

Recommendation I.113 of the ITU Standardization Sector defines broadband as a "transmission capacity that is faster than primary rate Integrated Services Digital Network (ISDN) at 1.5 or 2.0 Megabits per second (Mbits)



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Vision : "A happy society with equity, fairness and resilience"

strategy
4 Restructuring of the economy towards quality growth and sustainability

Investment to develop **Science, Technology and Innovation, Infrastructure, and Energy security**

- To create enabling environment for economic restructuring
- To develop infrastructure and logistics system
- To secure power supply adequately



strategy
5 Creation of Regional Connectivity



Sub region

1. Connectivity/Logistics development
2. Supply chain development along economic corridors



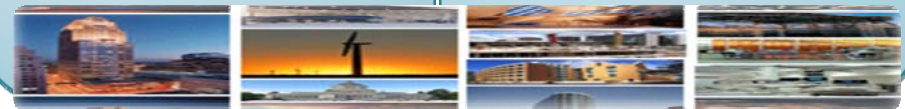
ASEAN

Preparation for ASEAN Community, esp. human capital



Asia-Pacific

To constructively participate in cooperation frameworks



5 Strategies for reconstruction and future development



1. Water Resource Management

- Prevent and mitigate the impacts from big to medium-affected floods and to create confidence, ensure stability, increase income of Thai people

2. Restructuring of the production & service sectors

- Prevent real sector from risks of natural disasters & crises
- Enhance major industries towards sustainable competitiveness

3. Development strategy for new economic areas

- Distribution of economic prosperity of the country & regions
- Develop economic corridor at the sub-regional level
- Create cluster with neighboring countries and Southeast Asia Region (EWEC/NSEC/SEC/GMS)
- Develop border economic zones and border towns
- Enhance connectivity with neighboring countries based on mutual benefits

4. Infrastructure development (2012 – 2020)

- Enhance current transport network (land, air and marine)
- Enhance energy security of the country
- Develop telecommunication infrastructure
- Upgrade public utility infrastructure for industries and people

5. Insurance system development

- Create confidence & awareness of insurance system
- Establish standards and service system of claiming rights for insurers in all sectors
- Reform rules and regulation of insurance system
- Set up an Insurance Pooling Fund

Strategy 1: Water Resource Management



- I. Action Plan of Water Management for the Urgency Period.** The key principle is to reduce or minimize losses and damages due to possible flood in 2012. The action plan will focus on 6 work plans under the Master Plan for Water Resource Management with total budget of 22.6 billion baht or 719 Million USD (from 2012 annual budget) detail as follows;

Work Plan 2012 - 2013	Amount (million Baht)	Amount (million USD)
1. Management of Major Water Reservoirs and Formulation of Water Management	-	-
2. Restoration and Efficiency Improvement of Current and Planned Physical Structures	17,126	544
3. Information Warehouse, Forecasting and Disaster Warning System	4,500	143
4. Response to Specific Area	1,000	32
5. Assigning Water Retention Areas and Recovery Measures	-	-
6. Improving Water Management Institutions	-	-
Total	22,626	719

Strategy 1: Water Resource Management



II. Action Plan of Integrated and Sustainable Flood Mitigation in Chao Phraya River Basin in which the upper, mid and downstream of the river basin is taken into account. The plan will be implement in 2012 and onwards with total amount of the budget at 9.5 billion USD (from Royal Decree on Investment Loan for Water Resource Management and Future Development) detail as follows;

Work Plan 2012 - 2013	Amount (million Baht)	Amount (million USD)
1. Restoration and Conservation of Forest and Ecosystem	60,000	1,905
2. Management of Major Water Reservoirs and Formulation of Water Management	-	-
3. Restoration and Efficiency Improvement of Current and Planned Physical Structures	177,000	5,619
4. Information Warehouse, Forecasting and Disaster Warning System	3,000	95
5. Response to Specific Area	-	-
6. Assigning Water Retention Areas and Recovery Measures	60,000	1,905
7. Improving Water Management Institutions	-	-
8. Creating Understanding, Acceptance, and Participation in Large Scale Flood Management from all Stakeholders.	-	-
Total	300,000	9,524

Strategy 1: Water Resource Management



II. Action Plan of Integrated and Sustainable Flood Mitigation in Chao Phraya River Basin, investment work plan according to specific purpose

	Focus	Amount (million Baht)	Amount (million USD)	Share
Up stream	slowing down the velocity of the current	60,000	1,905	20%
Mid stream	Retention, restoration, and drainage	230,000	7,302	77%
Down stream	Protection, restoration and drainage	7,000	222	2%
Related work	Provide accurate info in timely manner and create consensus among all stakeholders	3,000	95	1%
Total		300,000	9,524	100



Restructuring for preventing real sector from risks of disasters and crises

- ❑ Supporting the business sector, particularly key industries to set up a system that can efficiently prevent, respond and be resilient to disasters and crises.
- ❑ The approach of Business Continuity Management (BCM) shall be applied to minimize risks and maintain operations of industries' supply chains in the crisis

Restructuring for enhancing competitiveness of the production and service sectors towards more advanced technology and higher value creation

- ❑ Continuously promoting eco-industrial town development and environment revival in major industrial areas as well as supporting industrial cluster development
- ❑ Encouraging the development of modern industry based on creativity, local wisdom and innovation
- ❑ Developing enabling factors to promote efficiency and standard and support the application of STI in creating high-value added manufacturing products
- ❑ Encourage and support production linkages between large and local industries and widen industrial development in regions through linkages between SMEs / OTOP entrepreneurs and large industrial companies



GMS Economic Corridors



1. **The land use policy** shall focus on promoting the distribution of economic prosperity of the country and throughout all regions based on the difference in capability of each area
2. **The development of international transport and logistics networks** under the existing and future development plan and integration of the linkages within the sub-region and between sub-regions, as well as the cooperation under the Master Plan on ASEAN Connectivity
3. **Development of Thailand's regions shall be pursued to connect with neighboring countries and Southeast Asia.** The major development schemes include the EWEC, NSEC, and SEC under the GMS Scheme
4. **Development of border economic zones and border towns** shall be undertaken to serve as an economic gateway connecting with neighboring countries.

Strategy 3: Development strategy for new economic areas



GREATER MEKONG SUBREGION ECONOMIC CORRIDORS



Trilateral Exchange in Traffic Right between Thailand – Laos PDR – China and 4th Mekong River Crossover Bridge

Border Economy Development

Deep Sea Port and Dawei Industrial Estate Development



- Thai – Laos – China High-speed Train
- Train connecting sub-region Singapore - Kunming

Hat Yai – Sadao Motorway

Strategy 3: Development strategy for new economic areas



East West Economic Corridor



The Myawady - Kokariek-Thaton road (189 km) – first 18 km road development financed by Thailand.
 - detail design of the 40 km uphill portion completed with Thailand's assistance

Construction of 82 km section of the R11 route in Lao – Thailand's financial assistance costs 1,392 million Baht



Nongkhai - Ta Na Laeng Rail route – Thailand assisted in helping financing 6 km of the route to completion in 2009



3rd Thai-Lao Friendship Bridge at Nakhon Phanom province, construction completed in 2011



Hai Van Tunnel construction completed in 2005



Roads in Thailand – mostly 4 lanes, except Tak -Kalasin -Mukdahan and Mukdahan and borders that are still under expansion to 4 lanes

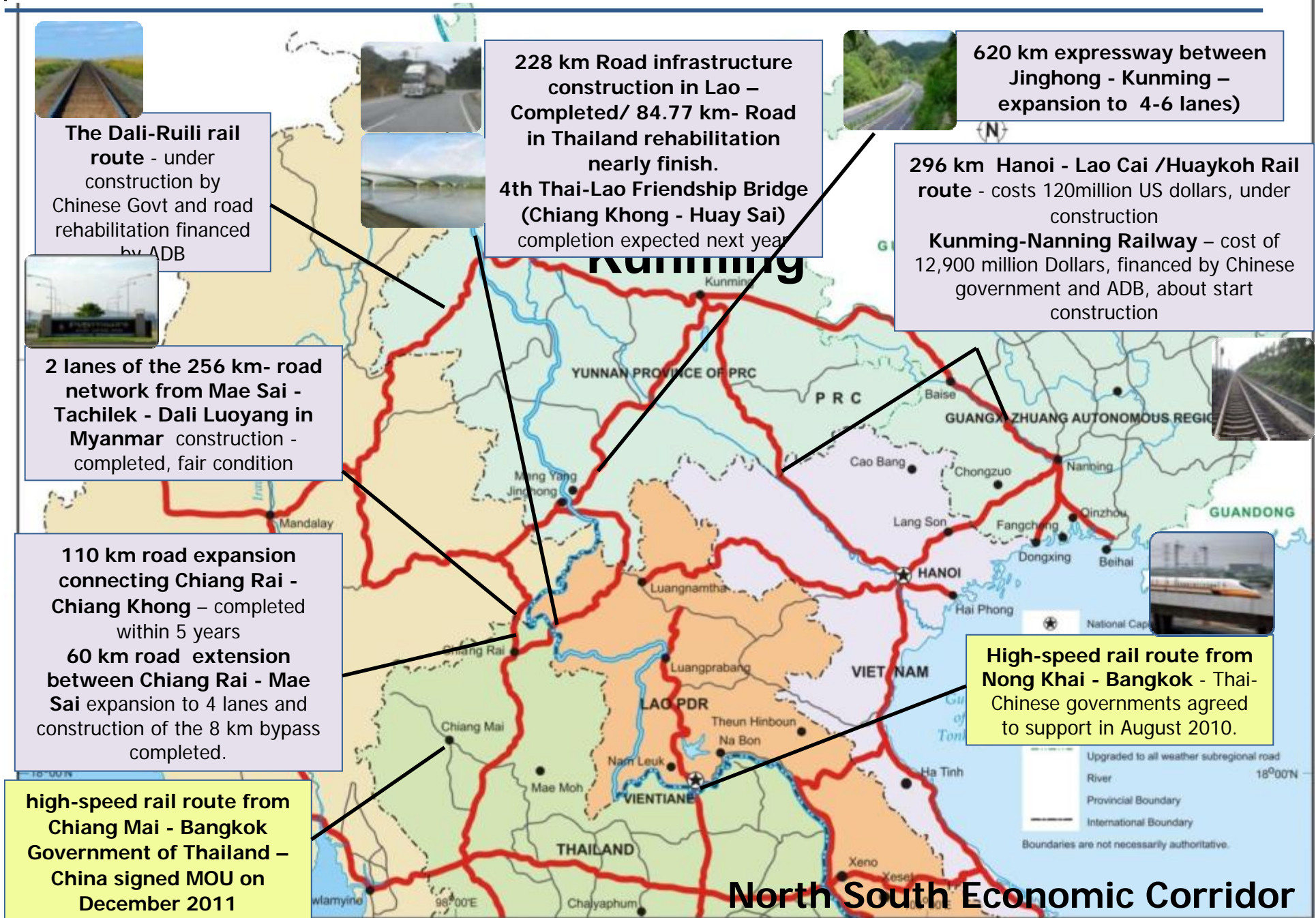


2h Thai-Lao Friendship Bridge construction completed in 2007



Da Nanag Port – Construction completed (5 million tons per annual / 35,000 DWT)

Strategy 3: Development strategy for new economic areas



Strategy 3: Development strategy for new economic areas

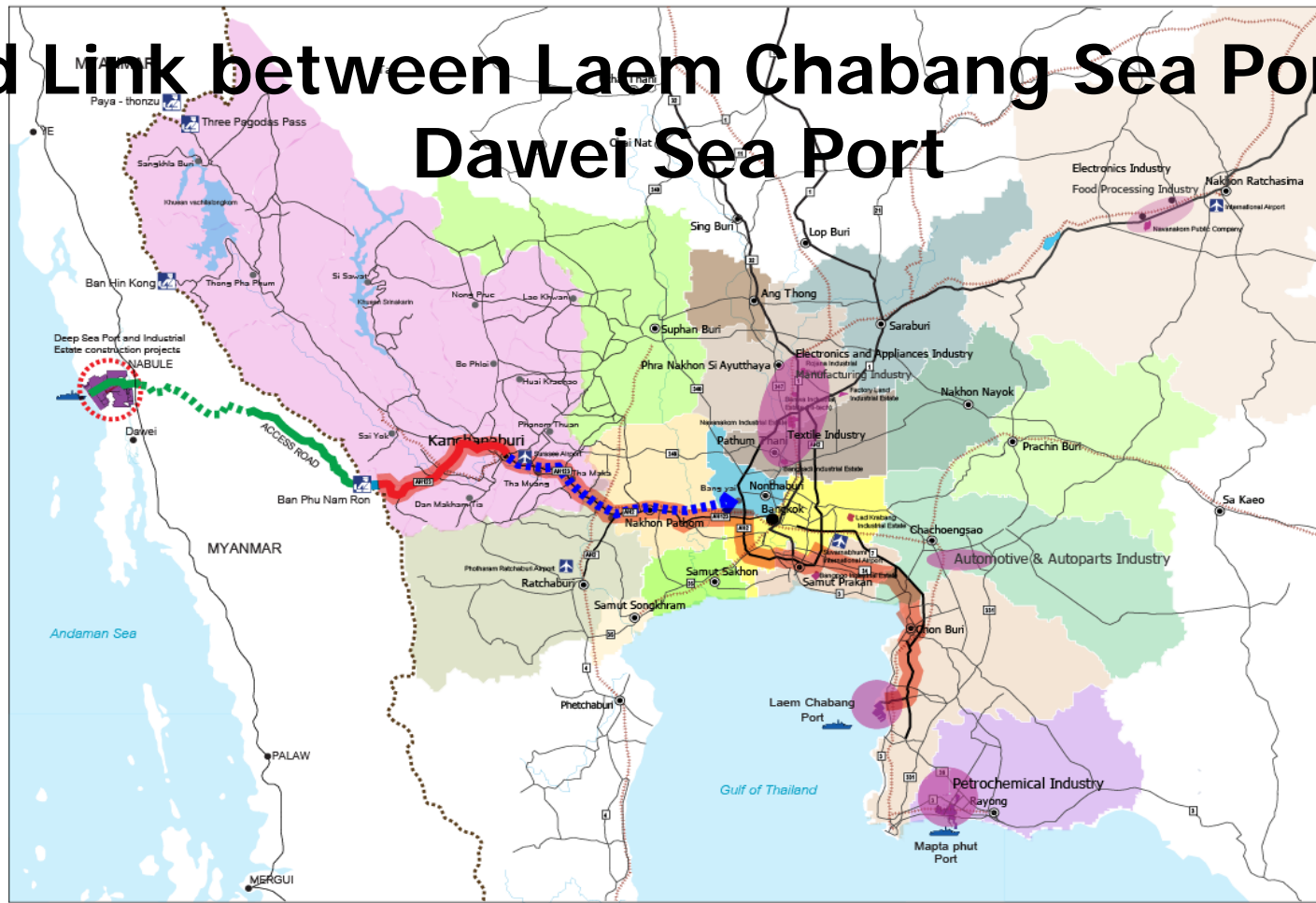


Southern Economic Corridor



Strategy 3: Development strategy for new economic areas

Road Link between Laem Chabang Sea Port and Dawei Sea Port



- - - ACCESS ROAD between Tavoy - Pu Nam Ron
(the middle section is under trail blazing process)
- Road between Pu Nam Ron - Thai-Myanmar border, total length of 4.4 Km. (the last 600 m. under construction)
- Road between Kanchanaburi - Pu Nam Ron, total length of 76 Km. (completed)
- - - Motorway NO.81 between Bangyai - Kanchanaburi, total length of 98 Km. (yet to be constructed)
- Road between Thai-Myanmar border - Pu Nam Ron - Route 323 - Route 4 - Route 338 -
- Western Ring Road - Southern Ring Road - Route 34 - Route 7 connected to Laem Chabang Port
- Border Crossing

Remarks :
Total of 43 border crossings at Kanchanaburi
The distance between NABULE and TAVOY is 34 Km.

ข้อมูลจาก ITD (13 ต.ค. 2553) / กรมทางหลวง
จัดทำโดย สำนักยุทธศาสตร์และวางแผนพัฒนาพื้นที่ / ศศ.ร.ค. 2555



1. Transport Infrastructure Development:

-Development of land transport network to connect main economic zones and cities in the region and neighboring countries including road networks rail networks and mass transit networks within the capital and perimeters.

-Air Transport Infrastructure Development

-Sea Transportation Infrastructure Development

2. Energy Security: New sources of energy, both domestic and international need to be sought and developed, especially through the establishment of collaborations in the area of energy resource development with potential neighboring countries on the west of Thailand (Dawei)

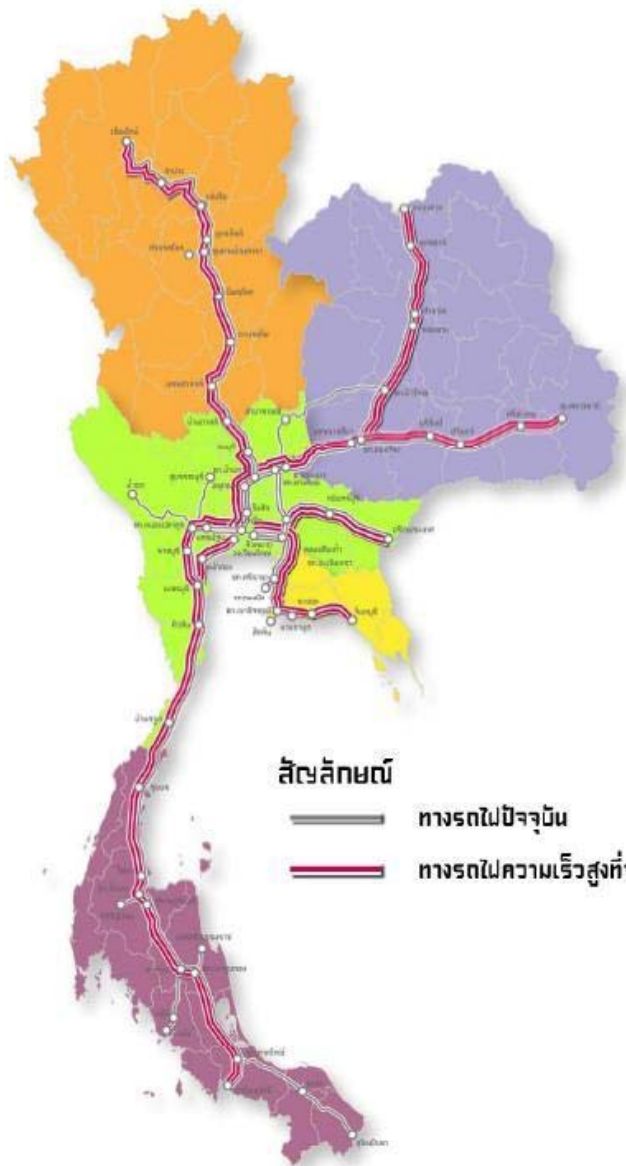
3. Telecommunications Infrastructure Development: to provide high-speed internet services covering all areas in the country, creating more opportunity for the public to get the services. Also, the Government Information Network (GInet) needs to be developed for support large and small and medium enterprises (SMEs) to efficiently utilize it to improve their competitiveness and generate greater income.

4. Public Infrastructure Development: The water supply system in rural areas and economic zones as well as the waste water management system shall be further developed to create efficient and worthwhile utilization resources for the consumption of population and the production and service sectors.

Strategy 4: Infrastructure development (2012 – 2020)



High Speed Train



Route	From	To	Distance (KM)	Amount (Mill. USD)
North	Bang Sue	Chiang MAi	745	7,300
North-East	Bang Sue	Nong Kai	615	3,100
East	Makkasan	Rayong	330	2,300
South	Bang Sue	Huahin	225	2,600

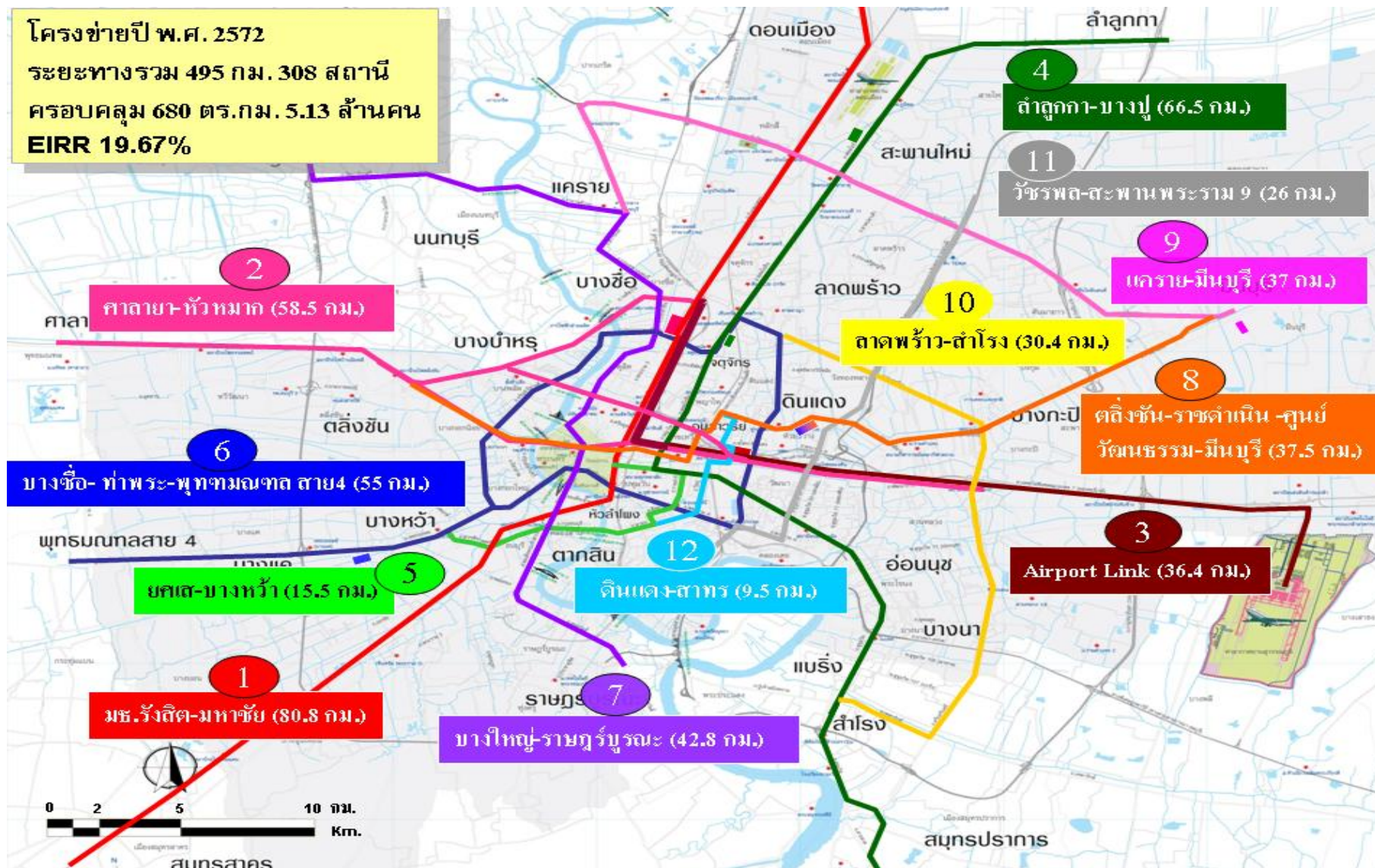


Strategy 4: Infrastructure development (2012 – 2020)



Metropolitan rail system

โครงการปี พ.ศ. 2572
 ระยะทางรวม 495 กม. 308 สถานี
 ครอบคลุม 680 ตร.กม. 5.13 ล้านคน
EIRR 19.67%



Strategy 4: Infrastructure development (2012 – 2020)



Express way between major cities



- ครบ, มีต้นทุนที่ 22 เมษายน 2540
- 13 เส้นทาง
- ระยะทาง 4,150 กิโลเมตร
- ค่าก่อสร้าง 472,360 ล้านบาท (มูลค่าปี 2540)
- ค่าจัดกรรมสิทธิ์ที่ดิน 65,600 ล้านบาท
- ระยะเวลาดำเนินการ 20 ปี (2540 -2560)

โครงข่ายทางหลวงพิเศษที่แล้วเสร็จ และเปิดให้บริการแล้ว



ทางหลวงพิเศษ สาย กรุงเทพฯ - อุบลราชธานี ระยะทาง 82 กม., เปิดให้บริการ ปี 2542

วงแหวนรอบนอก กทม. ด้านตะวันออก ระยะทาง 64 กม., เปิดให้บริการ ปี 2542

แผนพัฒนาทางหลวงพิเศษระหว่างเมือง ช่วงปี 2550 - 2554

ทางหลวงพิเศษระหว่างเมือง หมายเลข 6

สาย น่าน-งัน - สระบุรี - นครราชสีมา



- ลักษณะโครงการ**
- ทางหลวงพิเศษ 1 เส้นทาง ระยะทาง 400 กิโลเมตร
 - จุดตัดทางหลวงพิเศษกับทางหลวงเดิม
 - พื้นที่เวนคืนและจัดหาที่ดินตามเส้นทาง 4-6 ช่องจราจร, ระยะทาง 199 กม.
- สถานะโครงการ**
- ศึกษาความเหมาะสม และผลกระทบสิ่งแวดล้อมเบื้องต้น
 - ศึกษาการสำรวจออกแบบรายละเอียดเบื้องต้น
 - อนุมัติงบประมาณ 500 ล้านบาท

ทางหลวงพิเศษระหว่างเมือง หมายเลข 81

สาย บางใหญ่ - ป่าน้อย - กาญจนบุรี



- ลักษณะโครงการ**
- ทางหลวงพิเศษ 1 เส้นทาง ระยะทาง 400 กิโลเมตร
 - จุดตัดทางหลวงพิเศษกับทางหลวงเดิม
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ทางหลวงพิเศษระหว่างเมือง หมายเลข 7

สาย สระบุรี - พิษณุโลก - มาบตาพุด



- ลักษณะโครงการ**
- ทางหลวงพิเศษ 1 เส้นทาง ระยะทาง 400 กิโลเมตร
 - จุดตัดทางหลวงพิเศษกับทางหลวงเดิม
 - พื้นที่เวนคืนและจัดหาที่ดินตามเส้นทาง 4-6 ช่องจราจร, ระยะทาง 89 กม.
- ช่วงที่ 1 สระบุรี - พิษณุโลก**
- สถานะโครงการ**
- ศึกษาความเหมาะสม และผลกระทบสิ่งแวดล้อมเบื้องต้น
- ช่วงที่ 2 พิษณุโลก - มาบตาพุด**
- สถานะโครงการ**
- อนุมัติงบประมาณ 500 ล้านบาท

ทางหลวงพิเศษระหว่างเมือง หมายเลข 8

สาย นครปฐม - สมุทรสงคราม - ะยา



- ลักษณะโครงการ**
- ทางหลวงพิเศษ 1 เส้นทาง ระยะทาง 400 กิโลเมตร
 - จุดตัดทางหลวงพิเศษกับทางหลวงเดิม
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- อนุมัติงบประมาณ 500 ล้านบาท

ทางหลวงพิเศษระหว่างเมือง หมายเลข 5

สาย น่าน-งัน - นครสวรรค์



- ลักษณะโครงการ**
- ทางหลวงพิเศษ 1 เส้นทาง ระยะทาง 400 กิโลเมตร
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- สถานะโครงการ**
- อนุมัติงบประมาณ 500 ล้านบาท

Strategy 4: Infrastructure development (2012 – 2020)



Dual Track Train

From - To	Distance (KM)	Amount (Mill. USD)
Chachoengsao – Kaeng Khoi	106	360
Lop Buri - Nakhonsawan	118	420
Map Kabao – Thanon Chira Junction	132	370
Thanon Chira Junction - Khonkaen	185	410
Nakhonpathom - Hauhin	165	530
Prachuap Khiri Khan - Chumphon	167	500



Strategy 4: Infrastructure development (2012 – 2020)



Energy Security



New sources of energy, both domestic and international, need to be sought and developed, especially through the collaborations in the area of energy resource development with potential neighboring countries on the west of Thailand (Dawei), aiming at strengthening the nation's energy security

Infrastructure Development



Sector	Amount (Billion Baht)	Amount (Billion USD)	Share (%)
1. Land Transport	1,470	46.7	65
2. Air and Marine Transport	148.5	4.7	6
3. Energy	499.5	15.9	22
4. Telecommunication	35.2	1.1	2
5. Utility	117	3.7	5
Total	2,270	72.1	100



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Thailand's Success Story:



Laem Chabang Seaport

One of Thailand's first initiatives of a large-scale infrastructure project

Today's one of world class seaports

Currently, Thailand's main deep sea port for international freight transportation, with capacity of 7.7 million TEUs

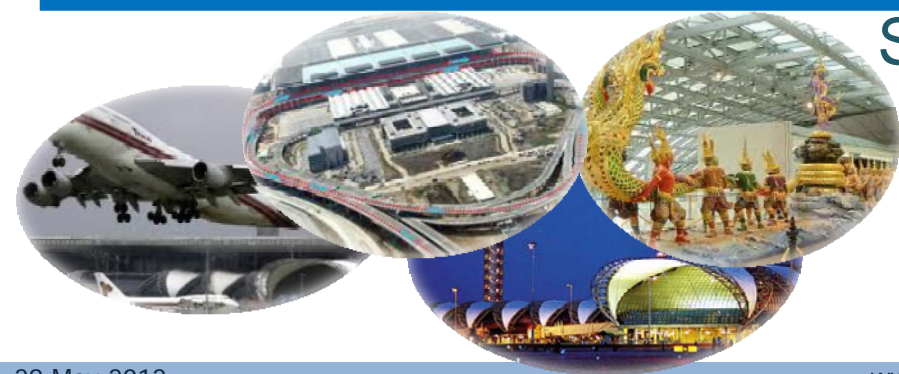


Suvarnabhumi International Airport

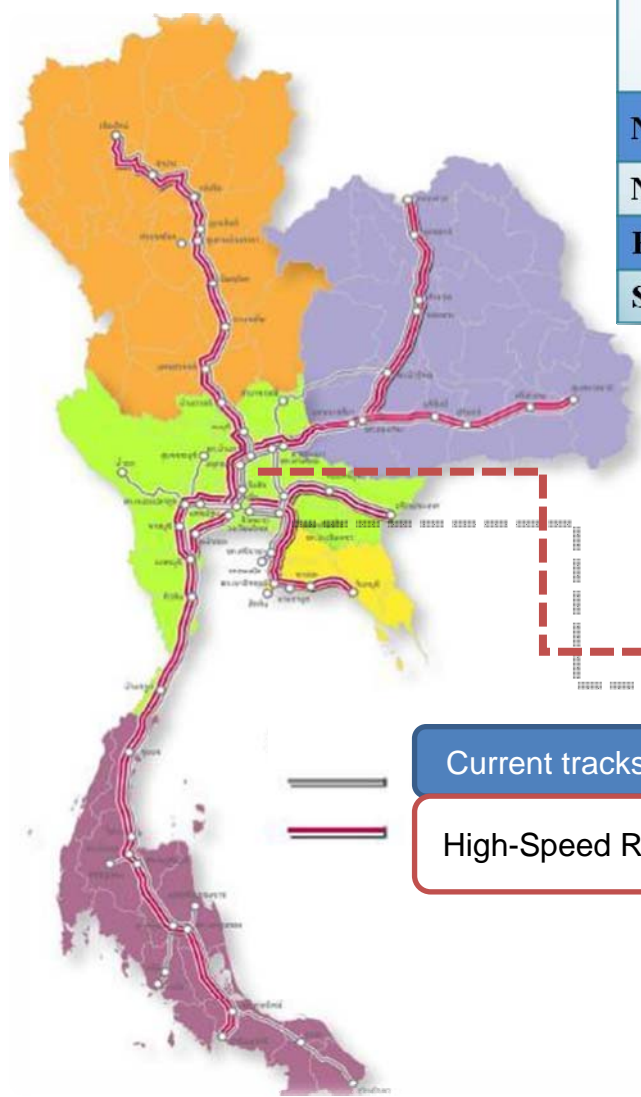
Thailand's Main international airport

Renown World Class Airport

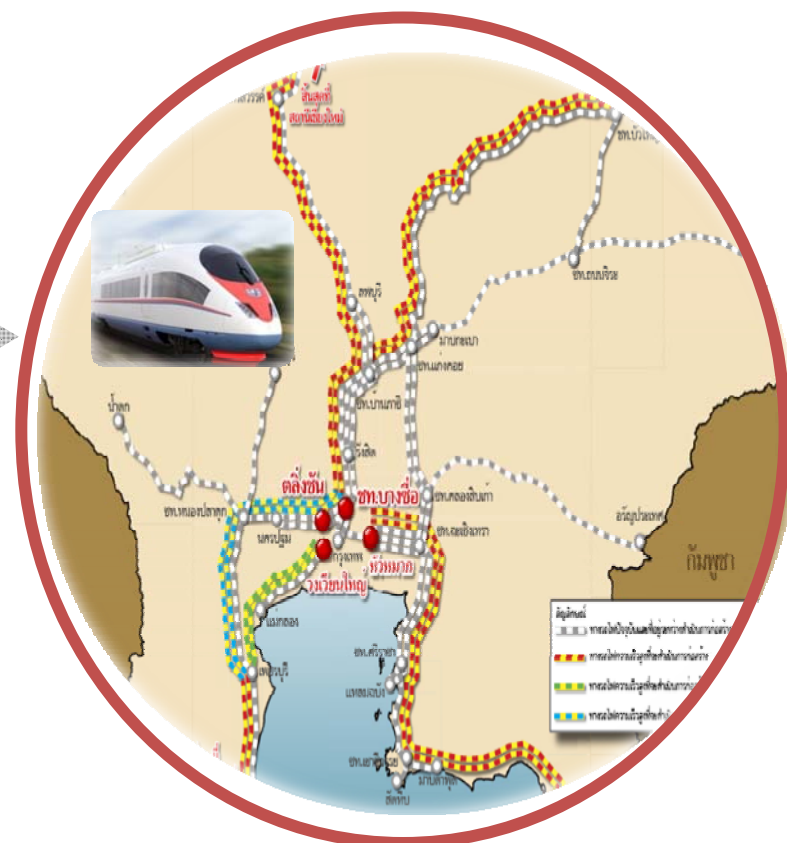
Capacity 45 million passengers & 3 million tons of commodities/year



Future Challenging Project Example: High-Speed Rail Project

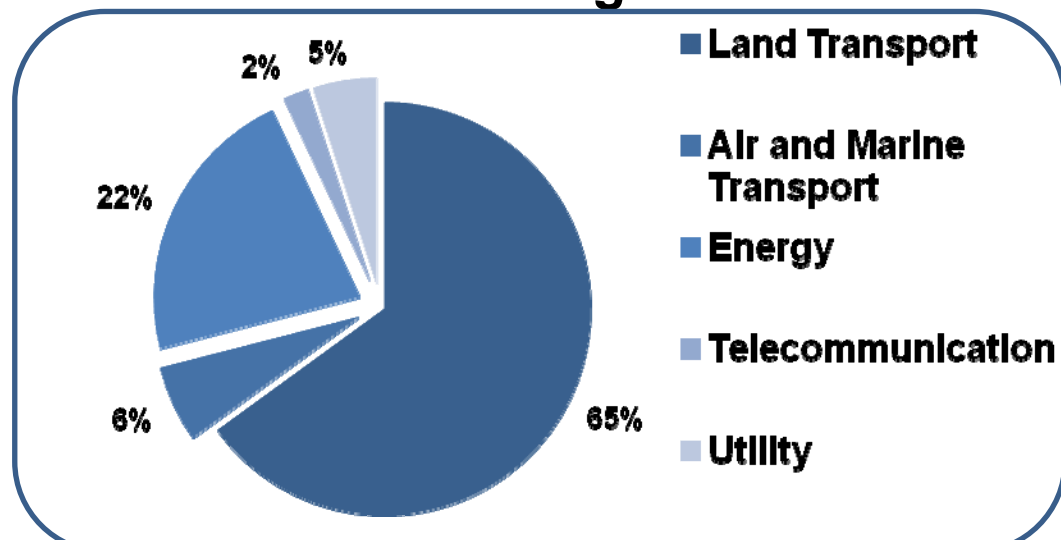


Route	From	To	Distance (KM)	Amount (Mill. USD)
North	BKK	Chiang MAi	745	7,300
North-East	BKK	Nong Kai	615	3,100
East	BKK	Rayong	330	2,300
South	BKK	Huahin	225	2,600





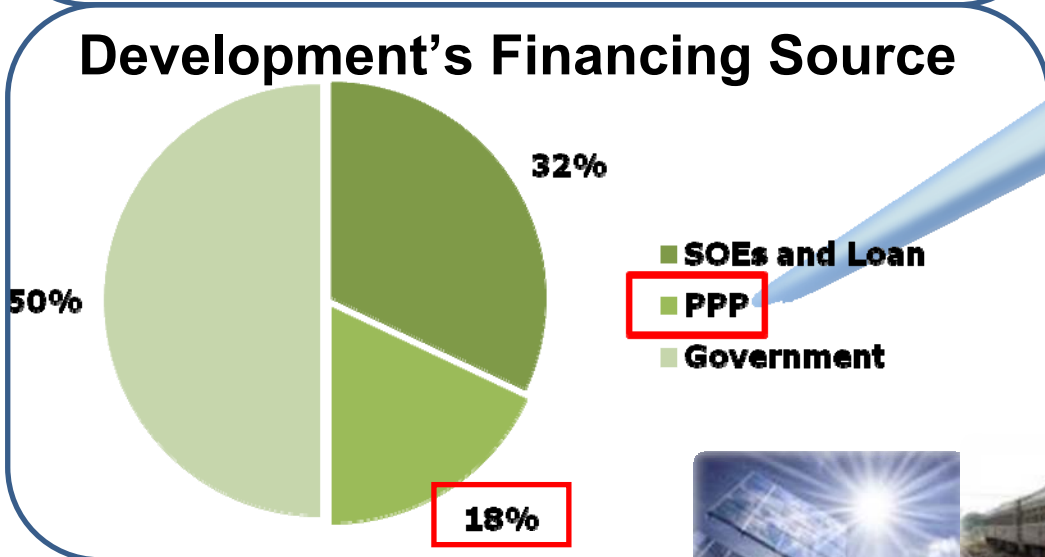
Infrastructure Sector Development's Financing



Total 72,064 million USD



To upgrade administration of government projects and to stimulate the use of a more innovative private sector's technology.





Draft of the new Private Participation in State Undertaking Act with PPP unit

- to promote PPP and eradicate issues arisen from the current PPSU Act including
- Risk Allocation Management
 - More flexible contract structure and renewal
 - Opportunity for unsolicited project proposals

Infrastructure Fund Initiative

- endorsed in principles by Cabinet on 15 Nov. 2011 as a **financial tool to raise funds and investment in infrastructure projects**
- private sectors/state enterprises can mobilize funds to develop infrastructure projects, easing GOVT's budgeting burdens and public debts
- For rail, toll way, electricity, water supply, airport, deep seaport, telecommunication and alternative

Benefits: reduce govt. financial burden 1.5 billion/year



Thank You for Your Kind Attention

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