

ASEAN/Asian HIGHWAY STANDARD

Classification	Description	Pavement Type
Primary	Access controlled motorway	Asphalt or cement concrete
Class I	4 or more lanes highway	Asphalt or cement concrete
Class II	2 lanes	Asphalt or cement concrete
Class III	2 lanes (narrow)	Double bituminous treatment

Ministerial Understanding on the Development of the ASEAN Highways Network Project (Signed at Hanoi, Sept. 1999)

Adopted

- ASEAN Highways Network
- Road Design Standard
- Development Strategy

<u>Phase</u>	<u>Year</u>	<u>Technical Target</u>
Stage 1	2000	Completed network and ASEAN routes
Stage 2	2004	<ul style="list-style-type: none">- Road Sign installed- All ASEAN routes → at least Class III- Missing link → construction- Operational designated cross border point
Stage 3	2020	<ul style="list-style-type: none">- ASEAN routes be Class I/PrimaryClass II for non-arterial routes

Compaction of Embankment



Compaction of Subgrade



Compacted Subgrade



Subbase Course

Seal Coating Application



Base Course Compaction

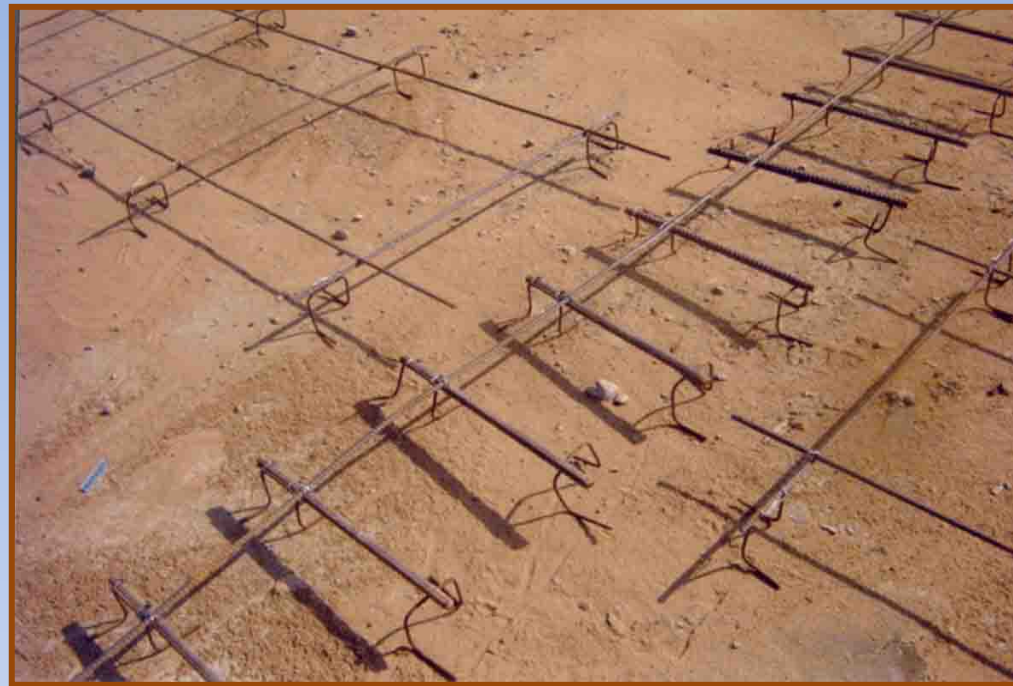


Bituminous Road



Placing Asphalt Concrete

Tie bars and Dowel bars



Placing Plain Concrete by Slip form paver



Cutting Joints



Sealed Joint

Achievements in Road Sector



Nyaung Oo – Myingyan Road



Pathein – Monywa Highway



Pyimanar - Yamethin Road



Meiktila – Taunggyi Road

Major Projects coming



Yangon- Mandalay New Express Way



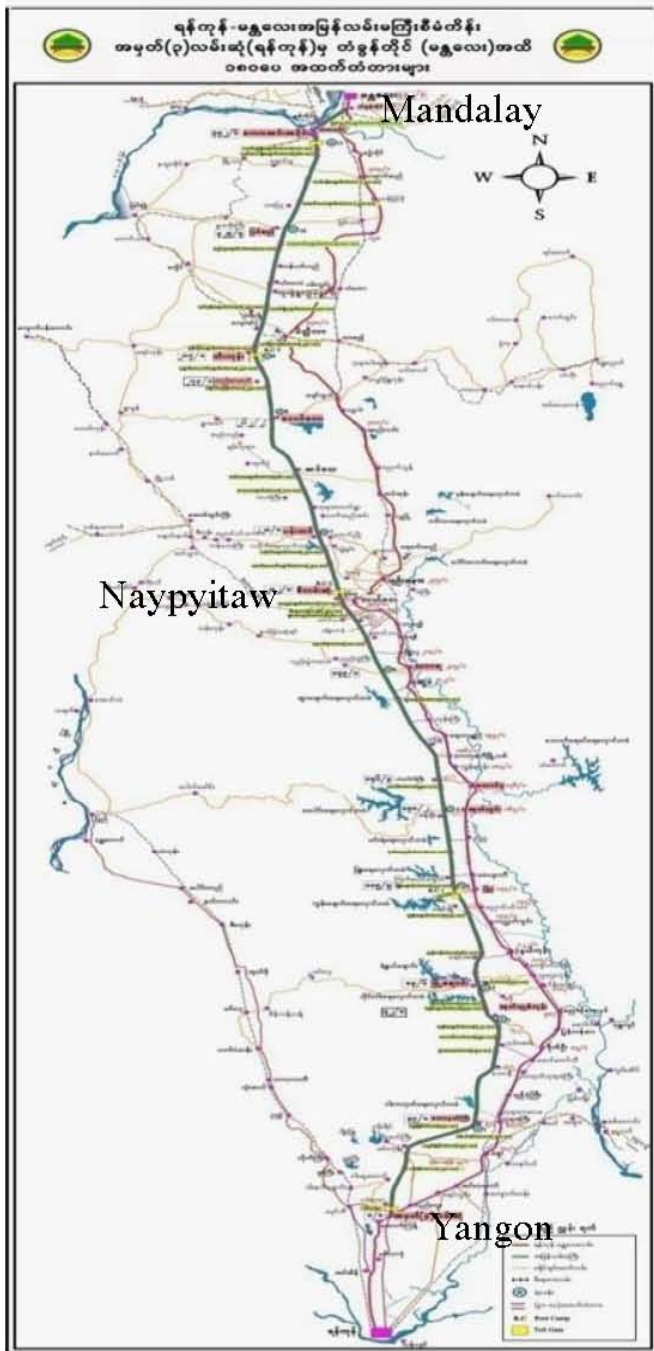
Concrete Road

Started on 10.10.2005

- **Opened to public**
- On (25.3.2009) for Yangon – Nay Pyi Taw portion
- On (29.12.2010) for Nay Pyi Taw – Sakainn portion
- On (23.12.2011) for Sakainn – Tadaoo – Tagonedine

366 mile 3 furlong long and 100ft (8 lanes x 12.5 ft) wide

- **Would like to upgrade to Asphalt Concrete for improving service year .**



Yangon-Mandalay Expressway (Rigid pavement) Project Data

S.N	Particular	Construction Period	Length (km)	Opened to Public
1	Yangon - Naypyitaw	10/2005 – 3/2009	323.4	25-3-2009
2	Naypyitaw - Sakainn	7/2008 – 12/2010	241	29-12-2010
3	Sakainn – Tadaoo - Tagonedine	1/2011 – 12/2011	21.8	23-12-2011
Total Length			586.2	

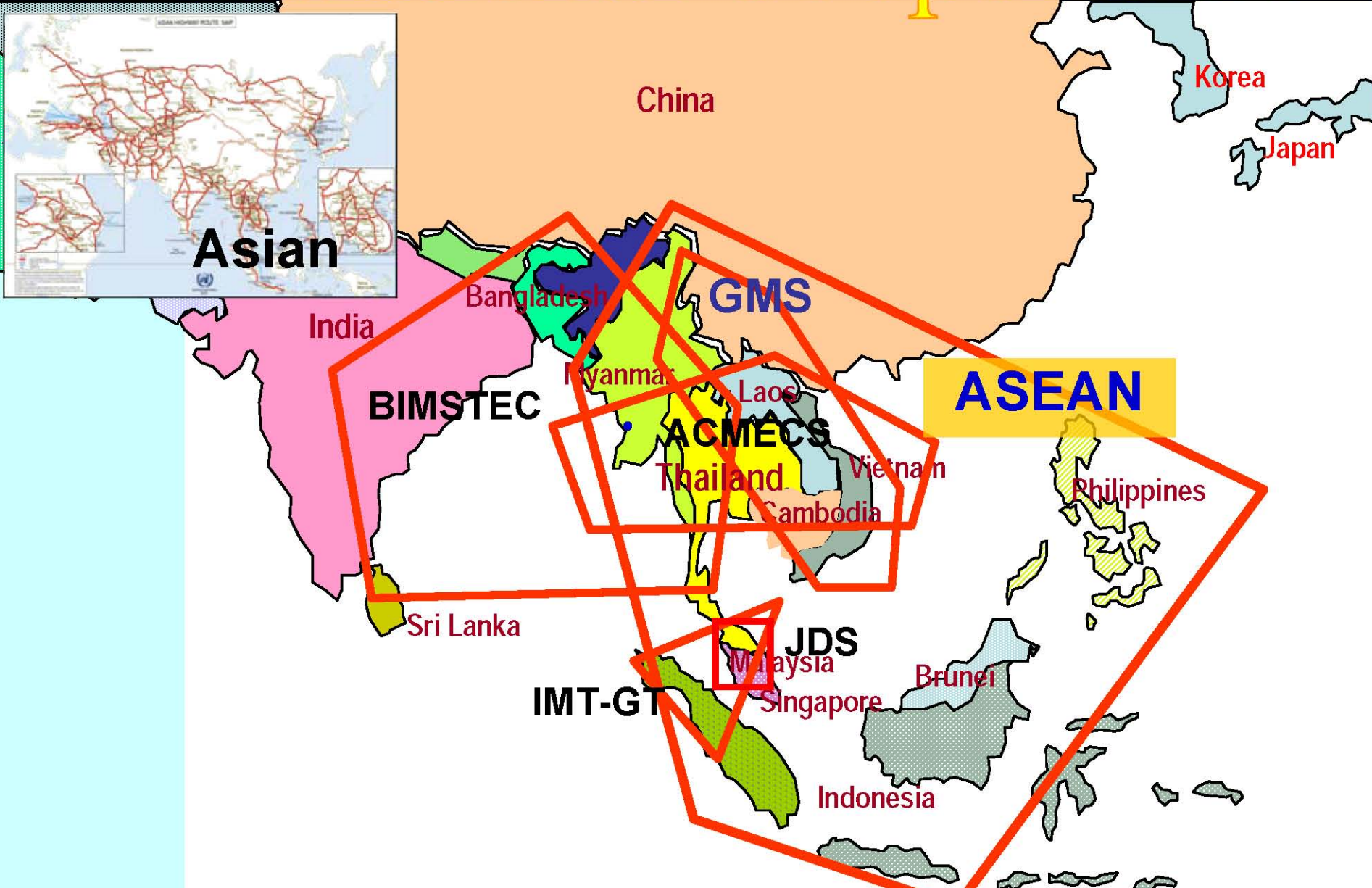
Total Project Cost	1291.345 billion in kyats
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- To improve Asphalt wearing course
- To install road safety furniture such as guardrails and barriers
- To set up the Intelligent Transport System

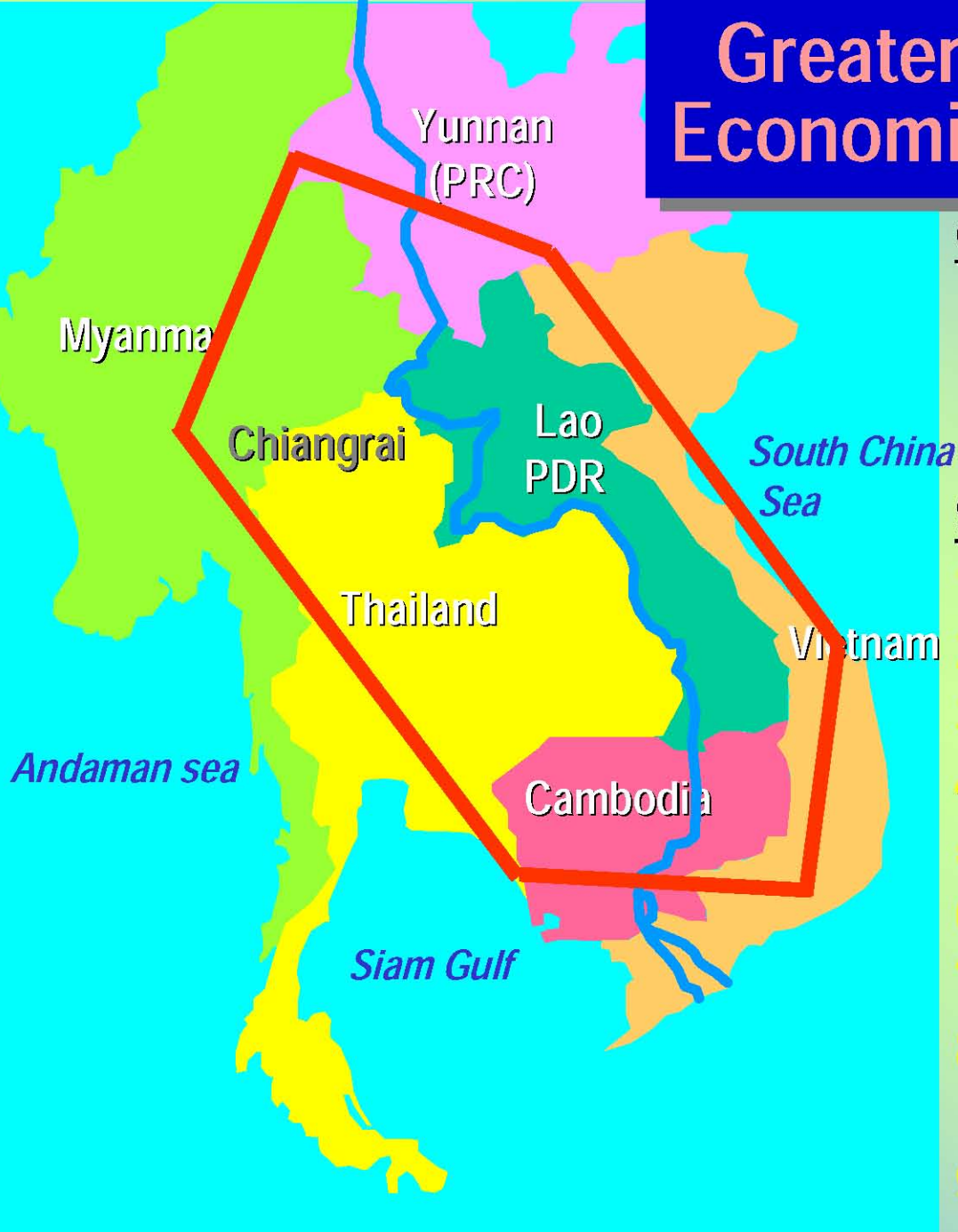
Yangon-Mandalay Expressway (586.2km)



International Cooperation



Greater Mekong Subregion Economic Cooperation (GMS)

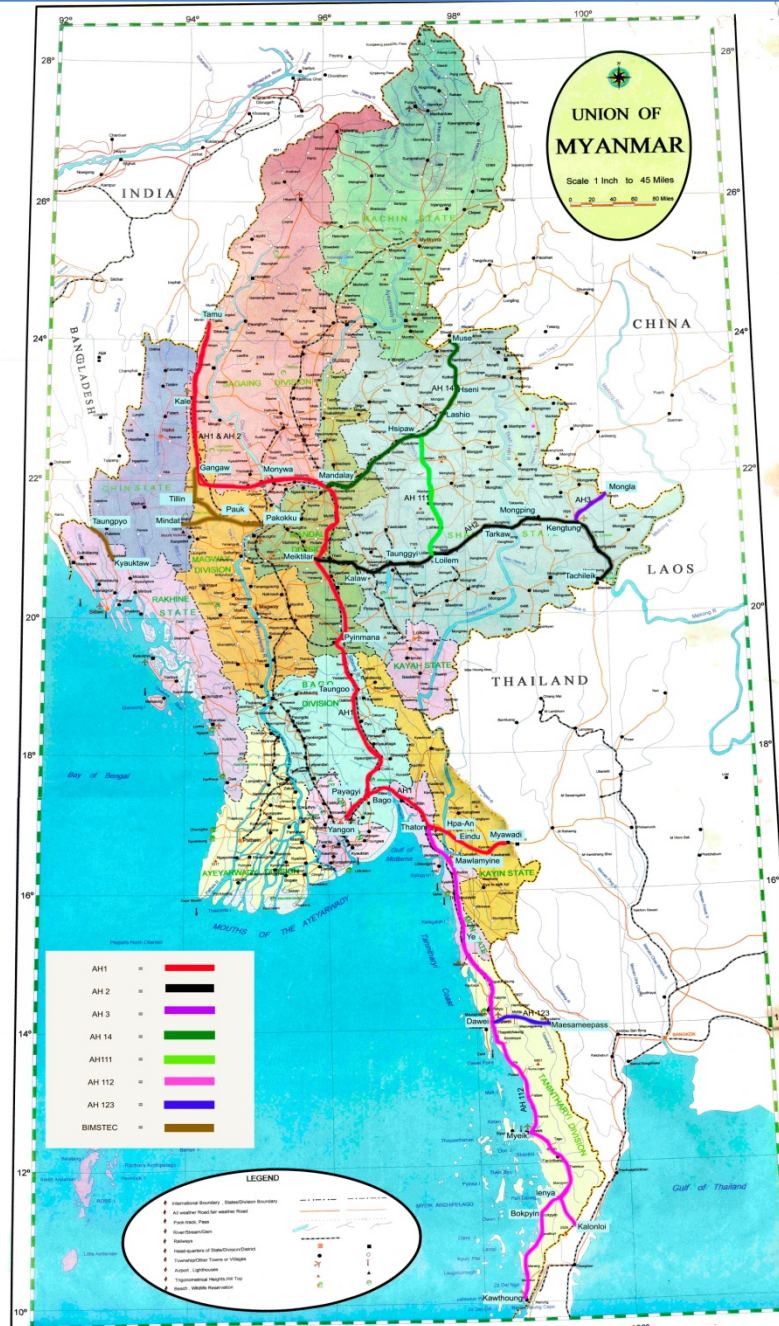


Goal: To promote socio-econ. development by strengthening economic linkages

9 Sectors:

- 1. Transport**
- 2. Energy**
- 3. Agriculture**
- 4. Environment**
- 5. HRD**
- 6. Urban Development**
- 7. Tourism**
- 8. Transport & Trade Facilitation**
- 9. ICT**

Status of Asia & Asian Highway in Myanmar



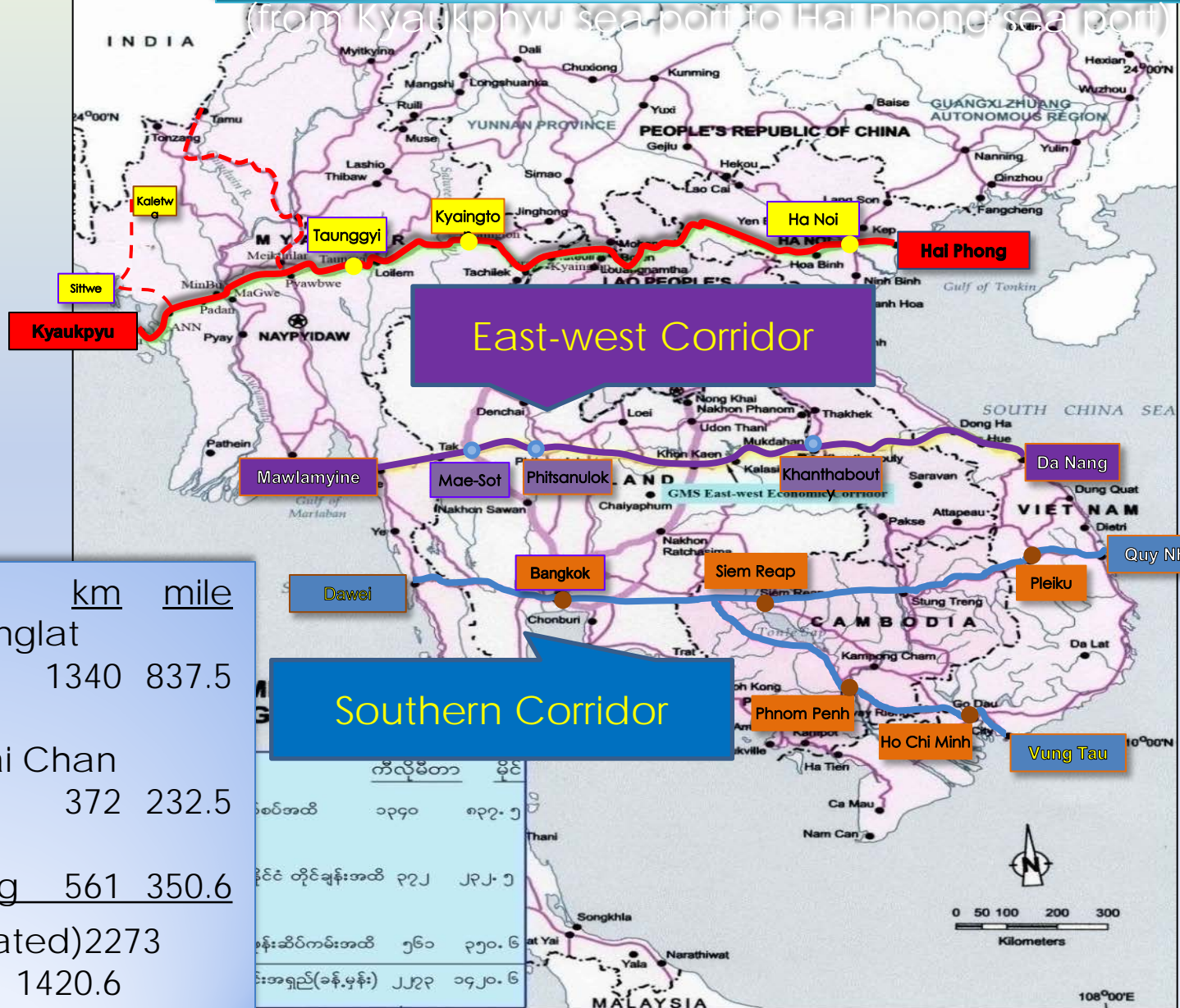
New GMS corridors

Future GMS Corridors



Myanmar-Laos-Vietnam Trilateral East-West Corridor

(from Kyaukphyu sea port to Hai Phong sea port)



<u>Myanmar</u>	km	mile
Kyaukphyu to Kyainglat		
Border	1340	837.5
<u>Laos</u>		
Border bridge to Tai Chan (Vietnam)	372	232.5
<u>Vietnam</u>		
Border to Hai Phong	561	350.6
Total length (estimated)	2273	
	1420.6	

Connectivity with China

Ruili, China to Kyaukphyu, Myanmar Corridor

- A**, Ruili to Hsipaw 240 km
- B**, Namkhan to Hsipaw 182 km
- K**, Hsipaw to YM ExWay 192 km
- E**, YM ExWay to Padan 265 km
- D**, PyinOolwin to Padan 377 km
- K1**, Padan to Kyauksauk 155 km
- K1**, Padan to YM ExWay 148 km

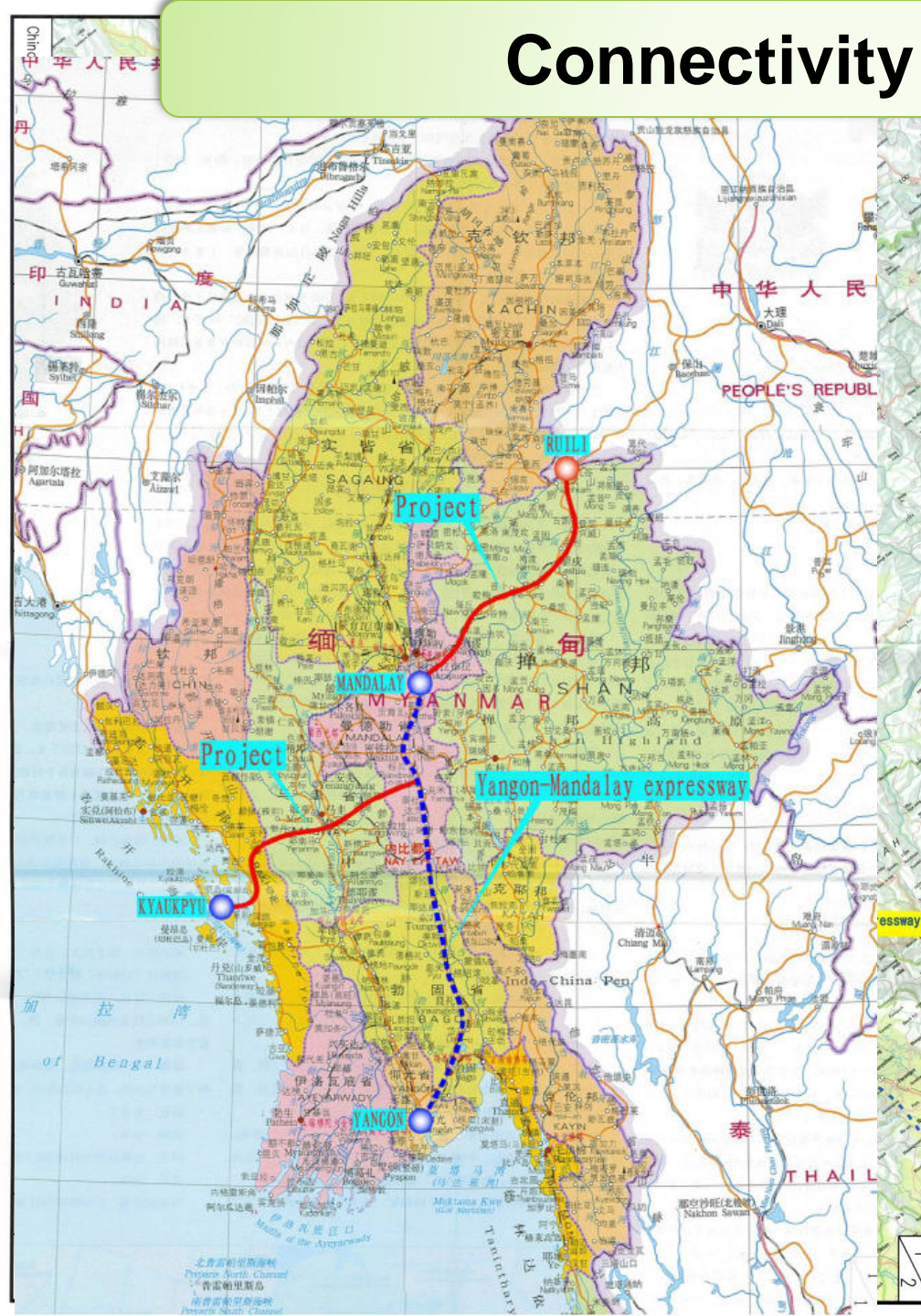
Proposed by Myanmar side

B+K+E+K1 794 km

Proposed by China side

A+K+ExWay+K1 900 km

(ExWay- 165 km)



INDIA

CHINA

MOREH (INDIA) /
TAMU (MYANMAR)



Financing Portion:

- Thailand
- India
- Myanmar

Thailand - Myanmar - India

Transport Linkages

Ministerial Meeting

23 December 2003

New Delhi



1360 km

TRANSBORDER CORRIDOR LINK TO THAILAND



In Tanintharyi Region, road link between Dawei SEZ and Phunamron, the border village of Thailand (132 km) will be implemented under the guidance of Government of Myanmar and Thailand..



NOTE: * DETAILED DESIGN OF THE "KANCHANABURI - BANGYAI" MOTORWAY COMPLETED BY THE THAI DEPARTMENT OF HIGHWAYS, MINISTRY OF TRANSPORT.

Brief History of B.O.T Road

- Partnering Bodies - Public Works of Ministry of Construction and Local Private Companies
- Established in - 1996
- First BOT Road - Mandalay-Lashio-Nankham Road
- First Partnering Local Companies - (1) Asia World Company
(2) Diamond Palace Company

Achievements and Recent Experiences

- Quantity of local companies - 28 nos.
conducting BOT Road
- Number of BOT Road - 60 nos.
- BOT Road Length - 5511.2 kilometers (3444/5 miles)
- Road Length % of PW's - 14 % of Public Works Total Road
- States and Regions with BOT Road - 12 states and regions out of 14
except Kayah and Chin states due to low traffic volume

BOT Regulations for International Companies

- Contract Period
 - 60 years (from the start of Operating Period until the end of Transfer Period)

- Upgrading of Road and related facilities
 - Road to be upgraded until bituminous road with stipulated standards within 3 years Construction Period depending on the traffic volume
 - Bridges along the road to be upgraded until R.C bridges of 75 ton loading bearing capacity

BOT Regulations for International Companies

- Start BOT Toll Rate
 - After the Contractor received Final Completion Certificate from the Client, the Contractor can collect toll according to specified B.O.T. rate.
- Performance Guarantee
 - the Company has to pay 1 % of the investment and which will be returned back on attaining the Completion Certificate

BOT Regulations for International Companies

- Tax on the toll collected payable to the State by BOT Companies
 - ❖ First 3 years (3 years) - Exempted
 - ❖ From 4th until 18th year (15 years) - 10 % of total toll collected
 - ❖ From 19th until 33rd year (15 years) - 15% of total toll collected
 - ❖ From 34th until 48th year (15 years) - 20% of total toll collected
 - ❖ From 49th until 60th year (12 years) - 30% of total toll collected

- Beyond 60 years period - the Company can extend contract for 5 years period each time until 3 times

Present Conditions

- Most of travel way width are still 12 ft.
- Some percent of road infrastructure are damaged.
- Lack to install the standard road furniture.
(Retaining wall, Drainge , Road sign & etc;)
- Currently, emphasize on pavement and bridge due to limited budget.

Required Technology

- Development of Cement Foamed-Asphalt Stabilization Technology.
- Slope Protection Technology.
- Pavement Preservation & Re-Construction.
- Micro surfacing technique.
- Cement stabilization of Roads.

Myanmar's Strengths, Constraints, Opportunities And Risks

Strengths

1. Strong commitment to reform
2. Large youthful population, providing a low-cost labor force attractive to foreign investment
3. Rich supply of natural resources-land, water, gas, minerals
4. Abundant agricultural resources to be exploited for productivity improvement
5. Tourism potential

Constraints

1. Weak macroeconomic management and lack of experience with market mechanisms
2. Limited fiscal resource mobilization
3. Underdeveloped financial sector
4. Inadequate infrastructure, particularly in transport, electricity access and Telecommunications
5. Low education and health achievement
6. Limited economic diversification

Opportunities

1. Strategic location
2. Potential of renewable energy
3. Potential for investment in a range of sectors

Risks

1. Risks from economic reform and liberalization
2. Risks from climate change
3. Pollution from economic activities
4. Tension from internal ethnic conflicts

Transportation Sector Working Group With Japan

Sr. No	Financial Institutions/ Organizations	Proposed Project	Area	Duration	Proposed Amount (in million US\$)	Loan/ Grant/TA	Minstry /Department	Priorities List	Aims	Expected Outcome
1	Japan	Bridge Maintenance and Mangement System	Nay pyi tau	2014-2015	15.00	Grant	Public Works, Minstry of Construction	High	to maintain major bridges over 20 years life and make the systematic preventive maintenance of bridges	improvement in management and maintenance technology
2	Japan	Ayeyarwaddy Bridge (Hinthada)	Ayeyarwaddy	2016-1017	230.00	Grant	Public Works, Minstry of Construction	High	to connect the road network in Yangon,Bagon and Ayeyarwaddy region	Development for all round sectors in Yangon,Bago and Ayeyarwaddy region
3	Japan	Yangon-Thilawa Bridge	Yangon	2016-2012	110.00	ODA Loan	Public Works, Minstry of Construction	High	to get smooth transportation between Yangon and Thilawa SEZ	Rapid development in Yangon region
4	Japan	Technical Corporation Plan(scholarship/program) Road and Bridge Design Construction Training Program both local and Abroad	Naypyitaw Yangon	2014-2016	10.00	Grant	Public Works, Minstry of Construction	High	to broaden the knowledge and improve high tech design skills	to upgrade the capacity building of road and bridge engineers
5	Japan	Upgrading Thuwunna Training Center	Yangon	2014-2016	4.50	Grant	Public Works, Minstry of Construction	High	to establish the modernized training center	to utilize modernized facilities and techniques
6	Japan	Road Maintenance and Management System	Naypyitaw	2014-2016	30.00	Grant	Public Works, Minstry of Construction	High	to develop road maintainence, management and database system	to maintain the existing riad standard
7	Japan	Road,Bridge and Tunnelling Reserch Centre	Naypyitaw	2014-2016	30.00	Grant	Public Works, Minstry of Construction	High	to establish the modernized research centre	Impovement of research in related fields
8	Japan	Thakata Bridge (New)	Yagon	2014-2016	10.00	Grant	Public Works, Minstry of Construction	High	to facilitate the smooth transportation in Yangon	Reduction in traffic congestion

T/A, Grant & Loan Collaboration with Japan

No	Particular	Amount (million)	
		US(\$)	Japan(¥)
1	T/A for Road	14.00	
2	Grant for Road	1559.00	136.50
3	Grant for Bridge	25.74	
4	Loan for Road		9480.34
5	Loan for Bridge	659.00	
	Total	2257.74	9616.84

Successful Joint Venture Works Between Myanmar & Japan

- 1) Chiyoda – Public Works (CPW)**
- 2) J & M SS (JFE & Myanmar Steel Solution)**

Future Joint Venture Works Between Myanmar & Japan

- 1) IHI Co., Ltd (Japan) & Public Works (Myanmar)**

CONCLUSION

Current Issues

- ❖ **To upgrade and rehabilitate insufficient infrastructure capacity for the economic development .**
- ❖ **To have Financial & Technical assistance from friendship countries for infrastructure development.**
- ❖ **To promote of skilled, capacity building for human resources and research institution of infrastructure development.**



- ❖ Public Works is trying to construct the road network to reach every township across Myanmar and contributes in promoting poverty reduction, development and communication.
- ❖ Public Works is implementing and rehabilitation of new and existing roads and bridges across the country to travel smoothly in all weather conditions which in turn promotes health, education, socio-economic and transportation sector of urban, rural and border areas within the limitation of budgets.
- ❖ Public works welcome Local and Foreign developers who would like to invest in road and bridge sectors according to current BOT schemes or PPP System.



Thank you for your attention

