Latest Developments and Way Forwards of Myanmar's Infrastructure

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Italy

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- Energy and Electricity Sector
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Profile of Myanmar

Population

- 52 Million (2015)

Area

- 676578 km^2
  - 936 km (East – West)
  - 2051 km (North – South)

Road Length

- 140910 km (March 2015)

Number of registered vehicles

- 4310112 (April 2014)

Neighboring Countries

- Bangladesh, India, China, Laos, Thailand

"Introduction"

Myanmar Development Trends

- On the new path of becoming democratic nation
- An active integration international and regional community
- Opening doors and inviting investment as essential for development of the nation and the people
- Myanmar is planning to open up for
  - Social Infrastructure Investment
  - Physical (Technical Infrastructure)
  - Industrial Investments

  systematically utilizing its existing comparative advantages

Institutional Framework for Myanmar Electricity & Energy

Petroleum & Electricity Geothermal	MINISTRY OF ELECTRICITY & ENERGY
Coal	MINISTRY OF MINERAL RESOURCE & ENVIRONMENTAL CONSERVATION
Energy Efficiency and Conservation	MINISTRY OF INDUSTRY
Renewable Energy (Solar, Wind, Mini/ Micro Hydropower, Biomass, Bio-fuels, Biogas)	MINISTRY OF EDUCATION (Leader)
	MINISTRY OF AGRICULTURE , LIVESTOVES AND IRRIGATION
	MINISTRY OF ELECTRICITY AND ENERGY
	MINISTRY OF MINERAL RESOURCE & ENVIRONMENTAL CONSERVATION
	MYANMAR ENGINEERING SOCIETY & RENEWABLE ENERGY ASSOCIATION MYANMAR
Civilian Nuclear Energy	MINISTRY OF EDUCATION

Status of Electricity Supply in 2015 -2016

Electrification in 2015-2016						
Electrified Towns	Rural Electrification			Electrified Household		
	Total Nos. of Villages	Electrified Villages	%	Total Household (Million)	Electrified Household (Million)	%
422	63,860	30,350	48%	10.877	3.70	34%

Transmission Line and Substation in 2015-2016				
Voltage (kV)	Transmission Line		Substation	
	Nos. of Line	Line Length (mile)	Nos. of Substation	Capacity (MVA)
230	59	2,603.51	46	5,865
132	40	1,366.68	36	2,193.5
66	166	3,034.62	140	2,622.1
Total	**265**	**7,004.81**	**222**	**10,680.6**

Status of Electricity Supply in 2015 -2016

Installed Capacity of Power Plant in 2015-2016					
Type of Plant	Coal	Hydro	Gas	Diesel	Total
Capacity (MW)	120	3,185	1,829	101	5,235
Energy Mix by Capacity	2%	61%	35%	2%	100%

Power Generation in 2015-2016					
Type of Plant	Coal	Hydro	Gas	Diesel	Total
Generation (GWh)	-	9398.98	6517.75	55.23	15,971.96
Energy Mix by Generation	-	58.85%	40.80%	0.35%	100%

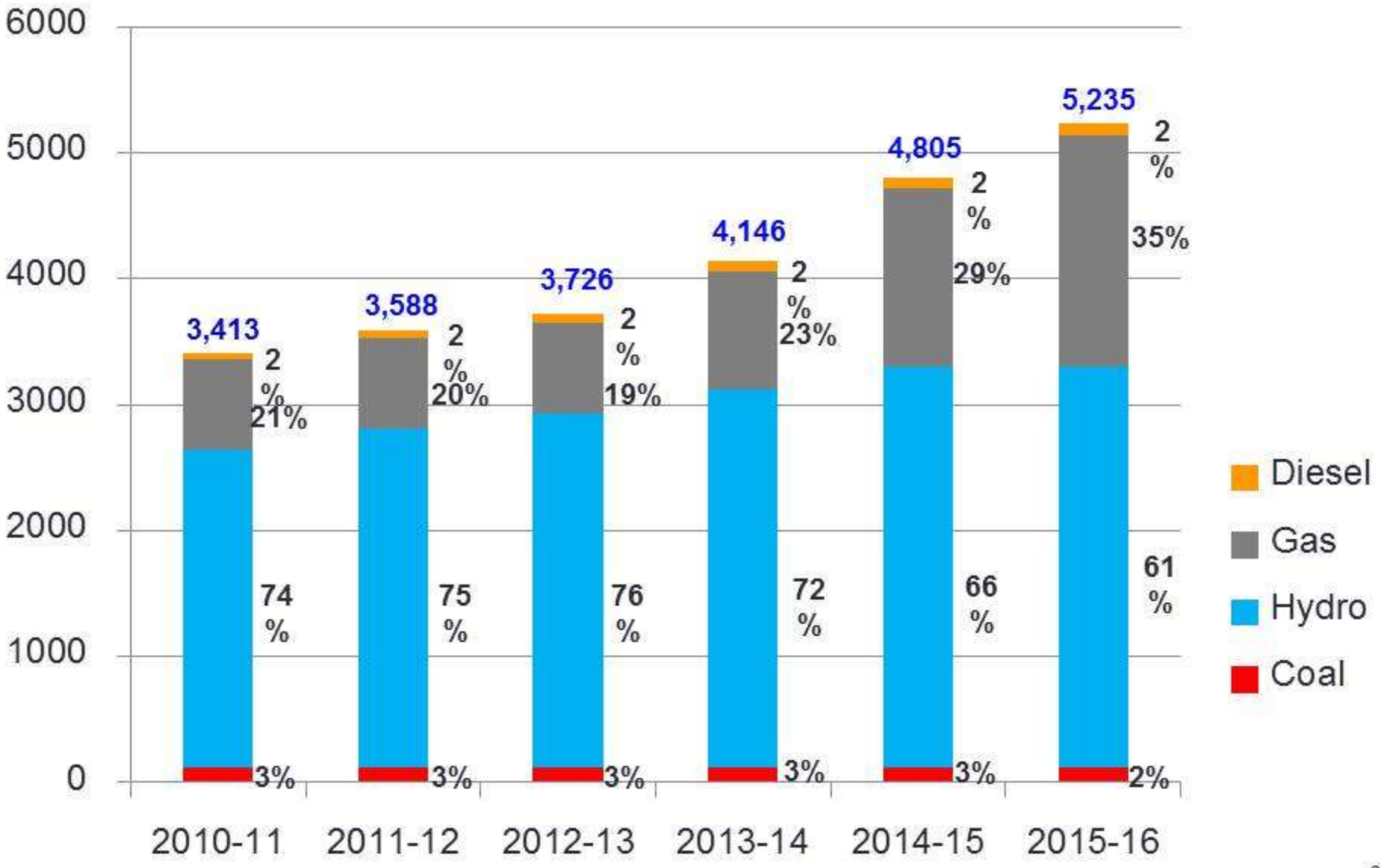
Electricity Consumption in 2015-2016						
Type of Use	Industrial	Residential	Commercial	Others	Total	Per Capita Consumption
kWh Million	4,120.768	6,674.658	2,506.079	248.762	13,550.267	263kWh/year
Percentage	30.41%	49.26%	18.49%	1.84%	100%	

Electricity Tariff and Subsidy

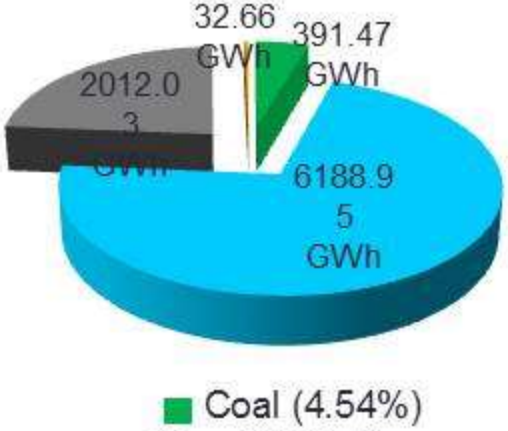
Block Rate Tariff		Avg. Selling Price	Cost of Generation, Transmission & Distribution		Avg. Cost of Overall	Subsidies
Residential		71.10	**Hydro Power Station**		93.67	22.57
up to 100kWh	35		MOEE	18.51		
from 101kWh to 200kWh	40		Privates	52.84		
from 201kWh and above	50		**Natural Gas Power Station**			
Industrial & Commercial			MOEE	161.09		
up to 500kWh	75		Privates	142.27		
501kWh to 10,000kWh	100		**Coal Fired Power Station**			
10,001kWh to 50,000kWh	125		Privates	105.54		
50,001kWh to 200,000kWh	150		Transmission	3.00		
200,001kWh to 300,000kWh	125		Distribution	5.18		
300,001kWh and above	100					

Remarks; Above calculation is base upon the Revenue and Expenditure Budget Estimation for fiscal year 2016-2017.

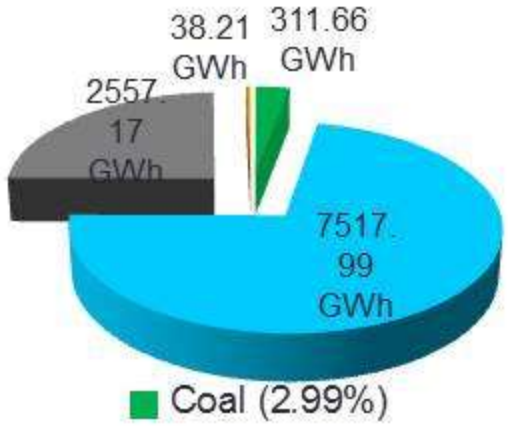
Energy Mix by Capacity of Power Plant



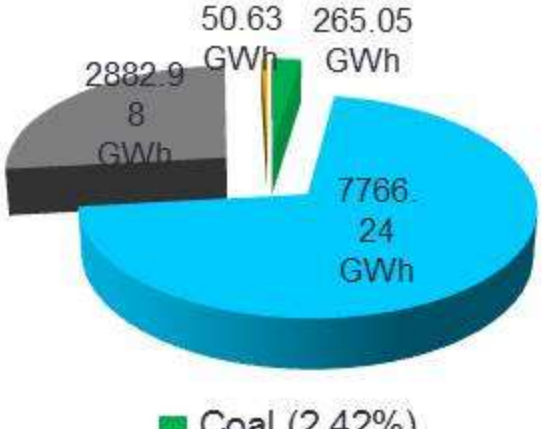
Power Generation



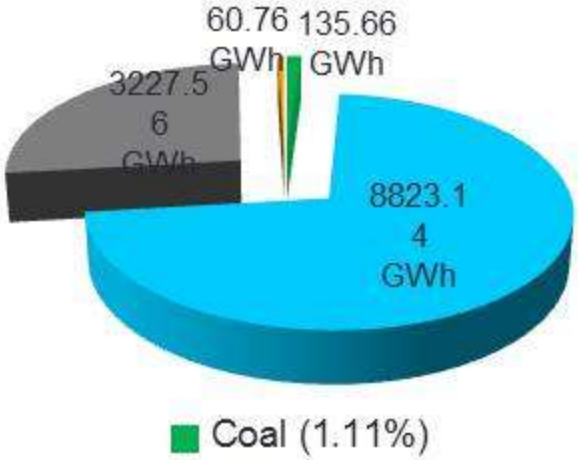
Year 2010-11 (8,625.11GWh)



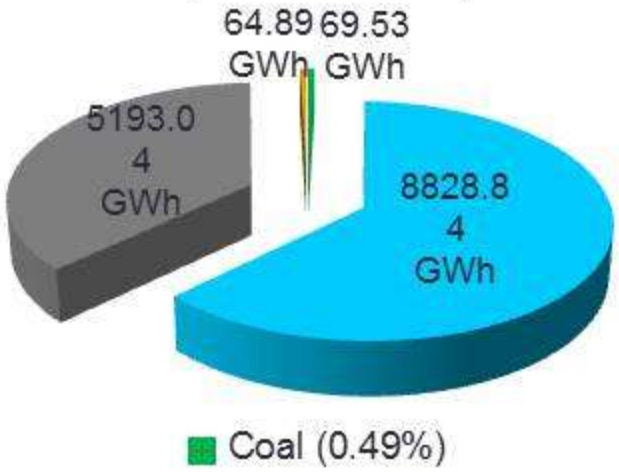
Year 2011-12 (10,425.03GWh)



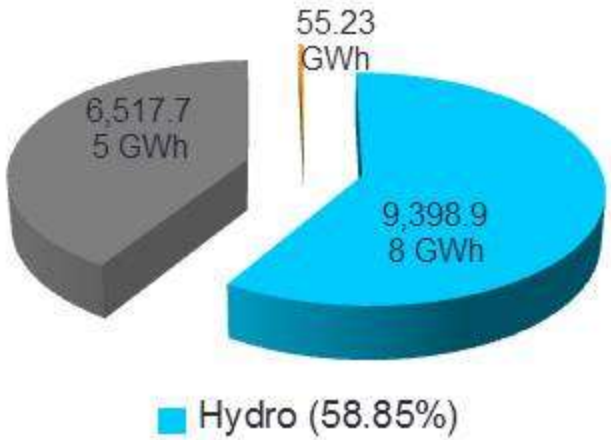
Year 2012-13 (10,964.90GWh)



Year 2013-14 (12,247.12GWh)



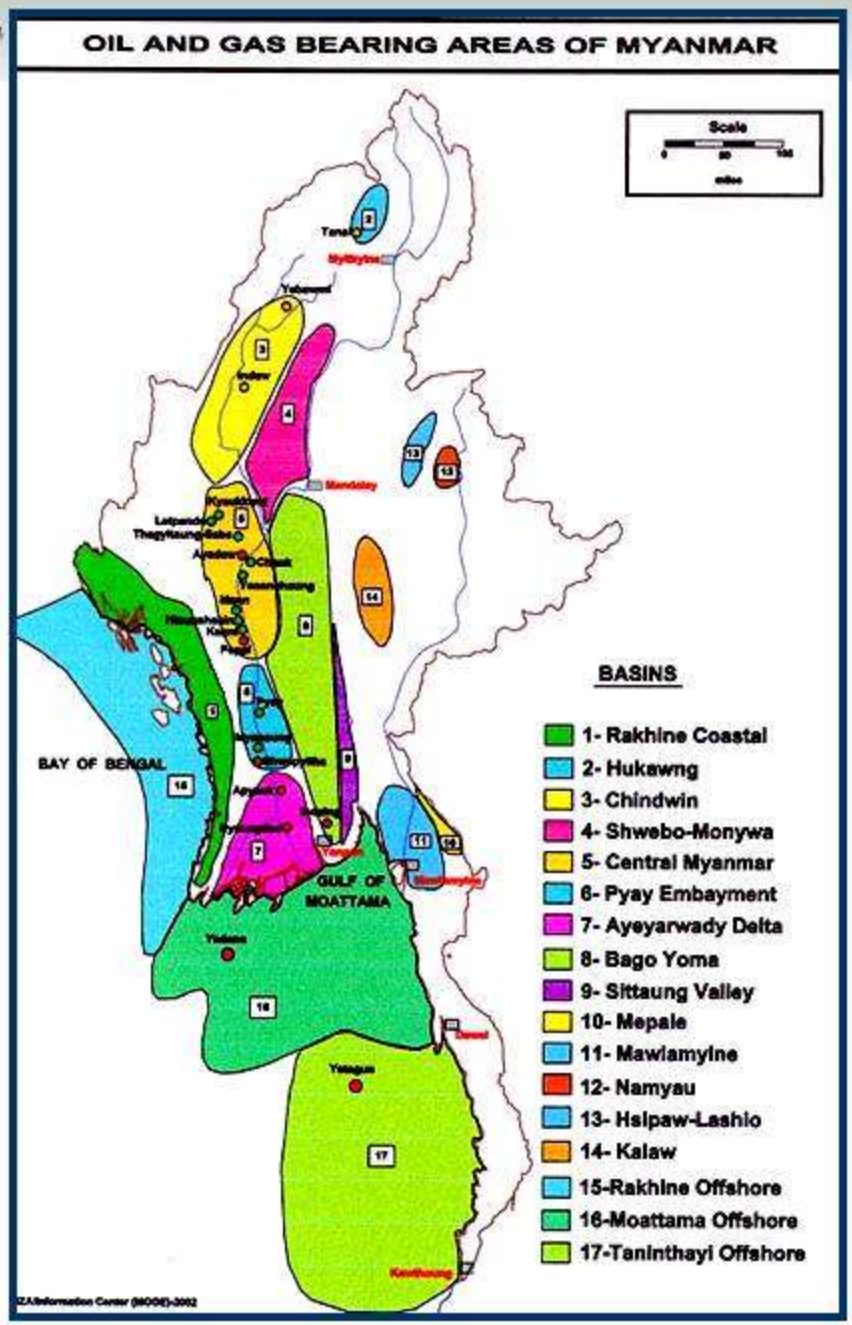
Year 2014-15 (14,156.30GWh)



Year 2015-16 (15,971.96GWh)

Sedimentary Basins of Myanmar

- A total of 17 sedimentary basins have been identified to date, of which;
- 3 Onshore Tertiary basins (Central, Pyay & Ayeyarwady Delta) are producing oil and gas
- 3 Offshore Tertiary basins (Moattama, Rakhine & Tanintharyi Offshore) are producing gas and condensate
- 8 onshore Tertiary frontier basins need further exploration
- 3 onshore Pre-Tertiary basins are secondary Targets.



Blocks on Production Sharing Basis

TYPES OF BLOCKS

- PSC BLOCKS (PSC)
- EXPLORATION / PRODUCTION BLOCKS (EP)
- IMPROVED PETROLEUM RECOVERY BLOCKS (IOR)
- REACTIVATION OF SUSPENDED FIELDS (RSF)
- MOGE RESERVED BLOCKS (MOGE)

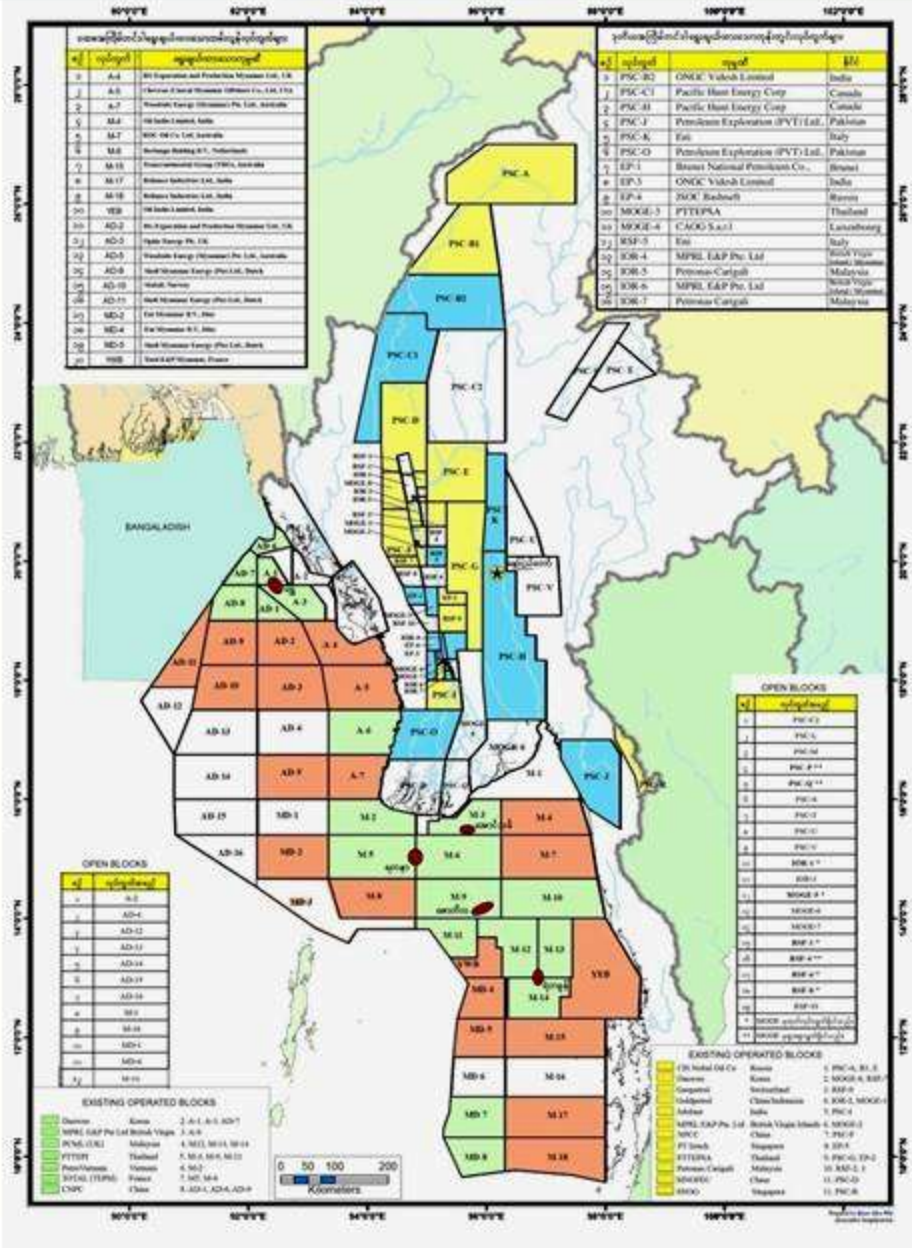
Total 104 Blocks (Onshore + Offshore)

53 Blocks (Onshore)

51 Blocks (Offshore)

Type of Contract:

Mainly Production Sharing Contract (PSC)



Daily Oil and Gas Production, Export and Domestic Use

Oil

- inland - 7000 bbls
- Offshore - 5000 bbls

(Condensate)

Total - 12,000 bbls

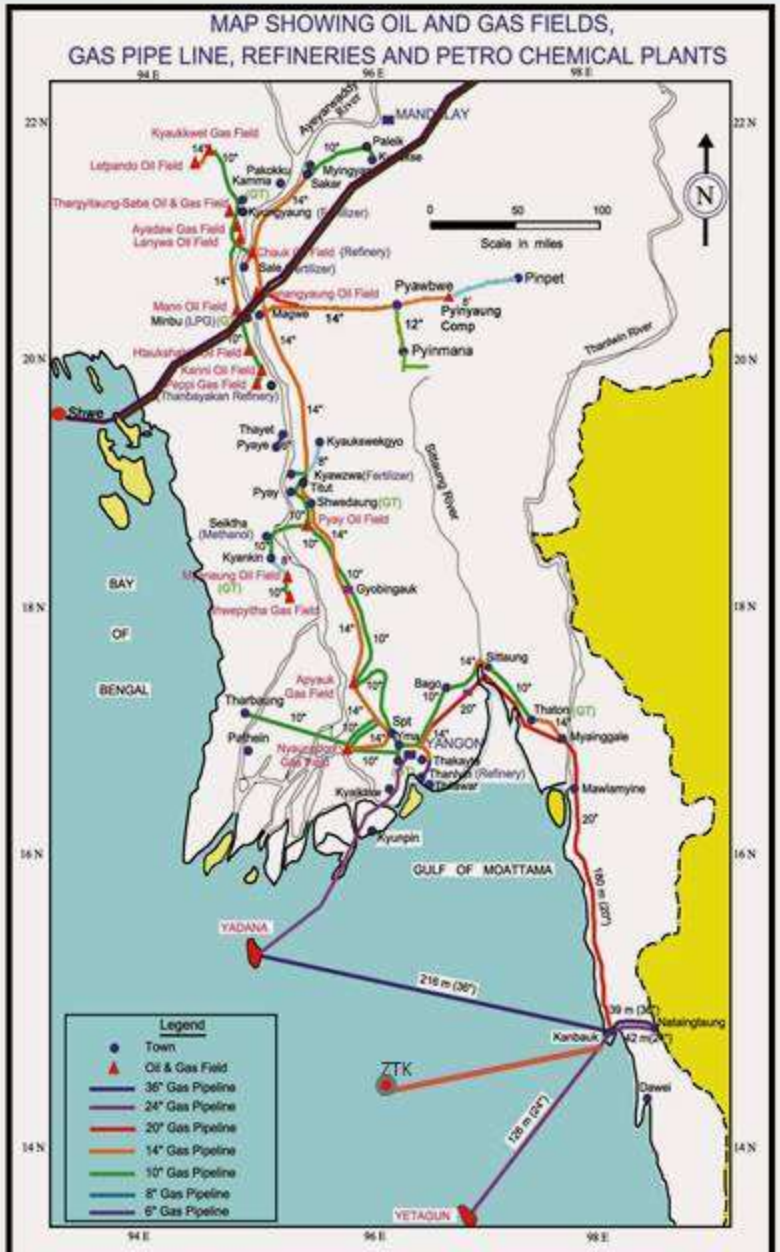
Gas

- inland - 50 MMscfd
- Offshore - 1.80 Bscfd

Total - 1.85 Bscfd

- Export to Thailand - 1.05 Bscfd
- Export to China - 400 MMscfd
- Domestic use - 400 MMscfd

Gas Distribution



Onshore - 50 MMCFD

(CNG Stations, Petrochemical Plants)

Offshore - 1850 MMCF

YADANA - 850 MMCFD

650 MMCFD Export

200 MMCFD Domestic

(YGN area GT & GEG, Shwetaung Mag)

YETAGUN - 200 MMCFD Export

ZAWTIKA - 300 MMCFD

200 MMCFD Export

100 MMCFD Domestic

(KBK,Mawlamying,Thaton,YGN)

SHWE - 500 MMCFD

400 Export

100 Domestic

(KPU,YNG,Myingyan,KSE)

Oil & Gas Pipeline Grid

- About 2549 miles of onshore gas pipeline were constructed by MOGE pipeline team.
- Pipeline sizes are varying from 6" to 30".
  - Main Trunk Line: 20" to 30"
  - Spur Lines: 6", 8" , 10“, 14”

CNG / NGV Converting Program

- Initiated in Myanmar since 1986.
- 1986 – August 2004 :
  - 5 CNG Refueling Stations -
    - 2 in Yangon City
    - 2 in Yenangyaung Field
    - 1 in Chauk Field
  - 587 NGVs (Converted from petrol buses)
- CNG / NGV Programme was reactivated in August 2004 and Widely used in 2005.
- As at 2016 :
  - 46 CNG Refueling Stations in Myanmar-
    - 41 in Yangon City
    - 2 in Mandalay City
    - 2 in Yenangyaung Oil Field
    - 1 in Chauk Oil Field
  - About 28299 NGVs

(Converted from both petrol / diesel vehicles)

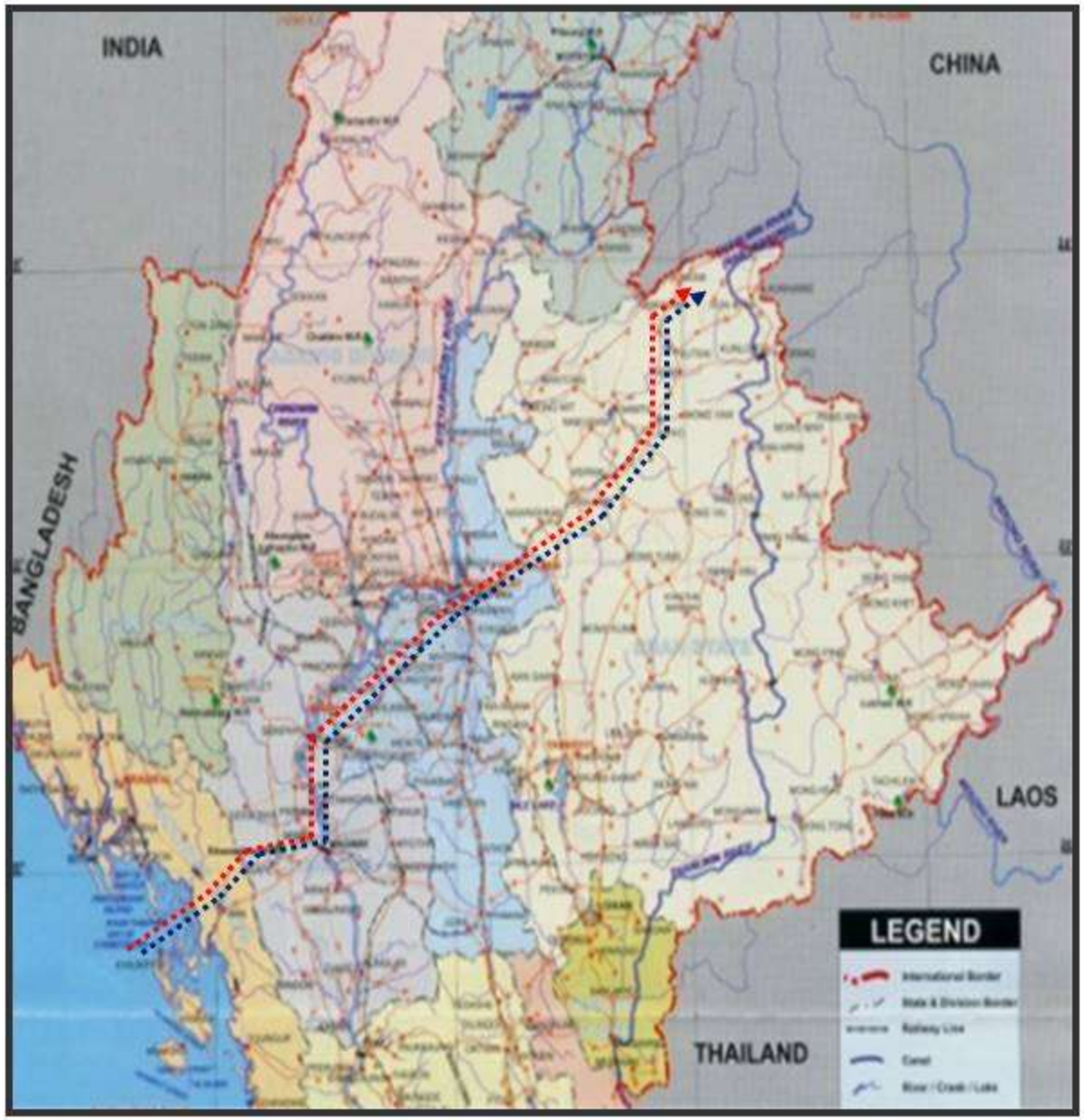
South East Asia Oil and Gas Pipeline Project

Oil Pipeline

Length : 760 km
Dia : 32”
Cost : 2.45 billion US$

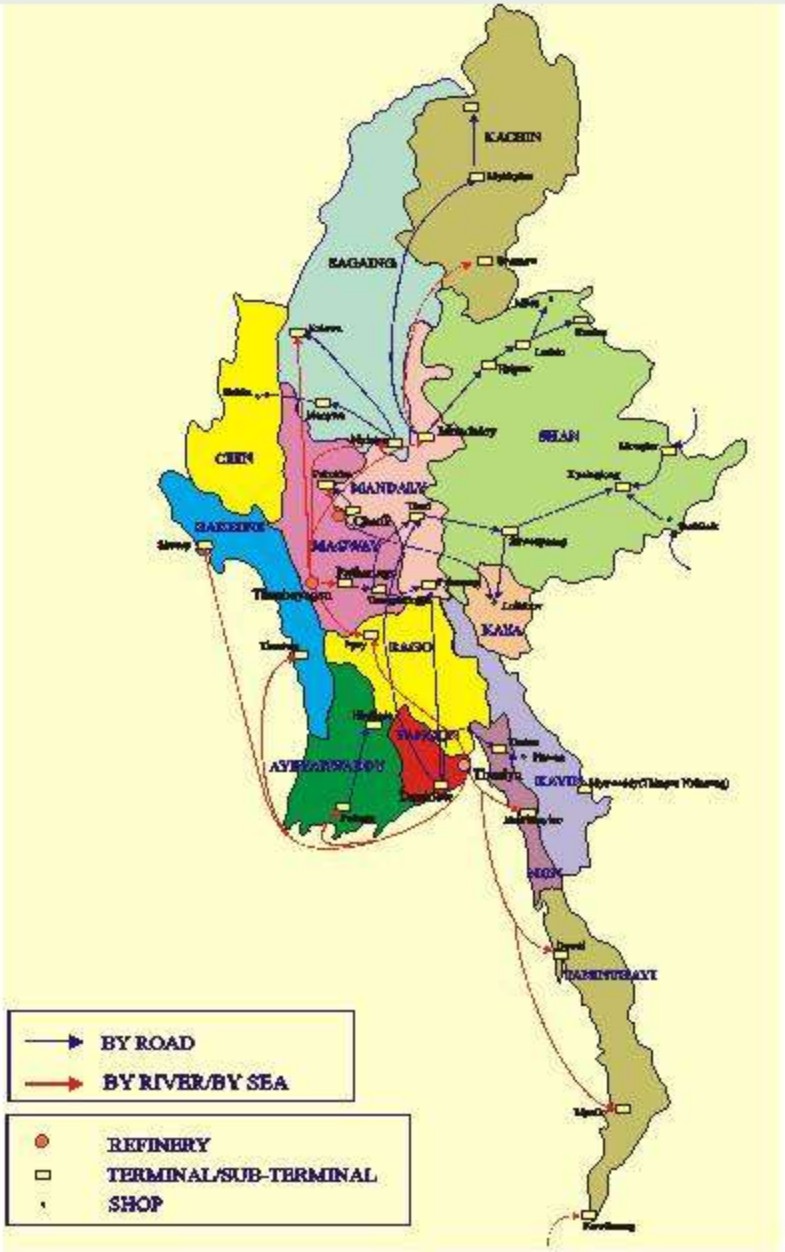
Gas Pipeline

Length : 782 km
Dia : 40”
Cost : 2.146 billion US$



Petroleum Downstream Sector

- ✓ *3 Refineries: (51,000 BOPD)*
  - ❖ *Thanlyin, Thabayarkan and Chauk*
- ✓ *3 LPG Plants: (50 mmcfd)*
  - ❖ *Kungchaung, Minbu and Nyaungdon*
- ✓ *5 Fertilizer Plants: (2,012 MTD)*
  - ❖ *Sale, Kungchaung, Kyawzwa, Myaungtagar, Kangyidont*
- ✓ *Petroleum Products Distribution*
  - ❖ *fully privatized since 2010 and 1915 stations are permitted for distribution*
  - ❖ *12 fuel stations for government sector*
  - ❖ *Storage - 6 licenses*
  - ❖ *Transportation (Banker -15)*
  - ❖ *ATF - 13*



LNG Concept

- In Myanmar, LNG is one of option for future gas supply to fulfill the domestic needs. Due to the gas shortage in power sector, LNE is more feasible for short term and long term in process for power supply.
- Since two existing out of 4 offshore projects are being decline, we consider to encourage domestic requirement supply by LNG till to produce from new discoveries in Myanmar offshore areas.
- That's why we are now invited LOEI and making process for LNG tender soon in line with international standard.
- All technical and commercial are assisted by World Bank.

Way Forwards for Petroleum Sector

- Unconventional and conventional prospects:
- Supply based for Petroleum operations
- Integrate Infrastructure: Pipeline, Plants and Refineries
- JV process for onshore drilling and seismic, pipe-laying, refinery, fertilizer, LPG plants and associated area
- JV process for LNG Business
- Natural gas basis industries are key role in future.
  (mainly depends on newly discoveries in offshore)
- Trading, Marketing and Distribution of Petroleum Products
- Enhancing Capacity Building in the people of Myanmar

Administrative Organizations in Transport and Logistics

Ministry of Transport and Communications

Ministry of Construction

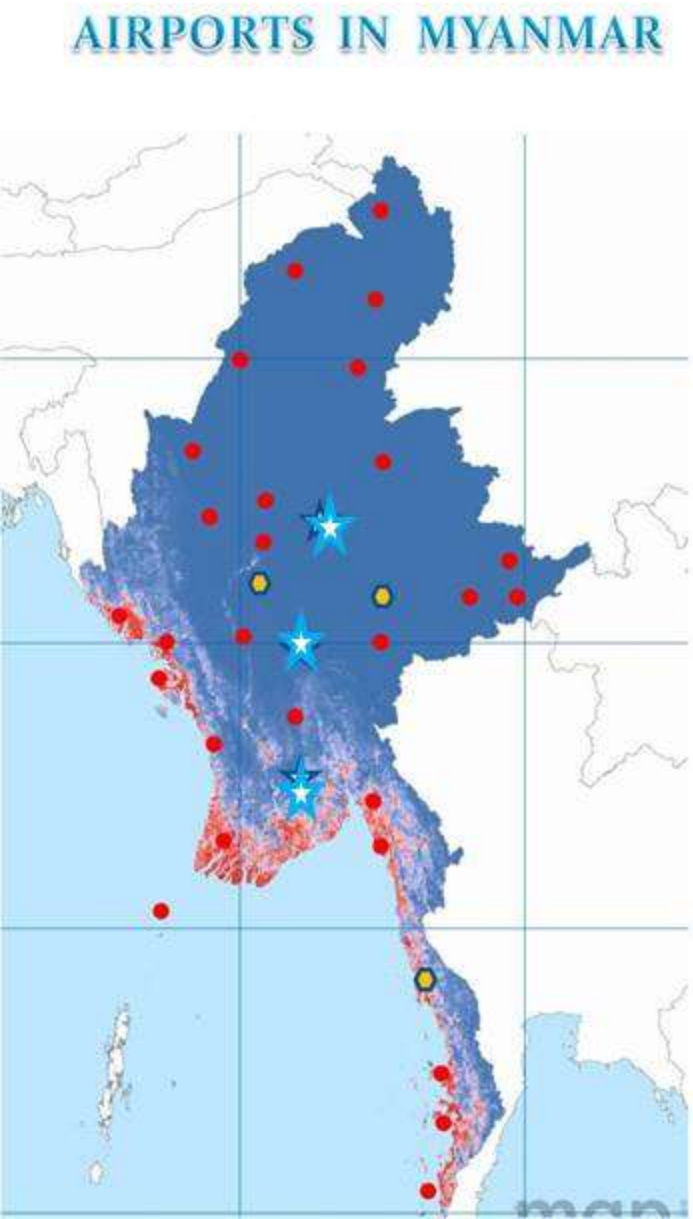
Air Transport, Water Transport, Rail Transport, Land Transport

Roads/ Bridges/Airfields

Infrastructure Update

- Myanmar's transport system lags behind ASEAN
- $45-60 billion investments needs (2016-2030)
- Selected initiatives could, by 2030:
  - Reduce transport costs by 30%
  - Raise GDP by 13%
  - Provide basic road access to 10 million people
  - Save 40,000 lives

Air Transport



- **34** airports are operational
  - International Airport
    - Yangon, Mandalay, NayPyiTaw
- International Airlines - 27 Airlines (MNA, MAI)
- Domestic Airlines - 11 Airlines
  - Myanmar National Airlines (MNA)
  - Air Bagan
  - Yangon Airways
  - Air Mandalay
  - Asian Wings
  - Air KBZ
  - Mann Yatanapon Airlines
  - Shwe Myanmar Airlines

Air Passenger Traffic (Yangon Airport)

No	Period	Passenger (Arrival)	Passenger (Departure)	Total (in Millions)
1.	2001	781,316	759,676	1.54
2.	2002	1,341,585	1,330,202	2.67
3.	2003	1,178,211	1,182,974	2.36
4.	2004	1,284,380	1,285,280	2.57
5.	2005	1,326,856	1,318,241	2.65
6.	2006	1,322,383	1,322,731	2.65
7.	2007	1,471,475	1,462,611	2.93
8.	2008	1,144,317	1,145,612	2.29
9.	2009	1,305,493	1,588,684	2.89
10.	2010	1,588,235	1,562,584	3.15
11.	2011	1,530,263	1,536,837	3.07
12.	2012	1,770,339	1,792,213	3.56
13.	2013	1,884,190	1,919,756	3.80
14.	2014	2,196,581	2,187,651	4.38
15.	2015	2,343,290	2,322,569	4.67

Rail Transport (Mass Transit)

Myanma Railways Network

(as of 31th October 2016)

Divided into **11 Divisions**

Employment strength – 19466

Single Route	5405.285 km
Double Route	705.196 km
Total Route Length	6110.481 km
Total Track Length	**7942.372 km**

Bridges	12103 Nos
Tunnels	12 Nos
Railway Stations	960 Nos

1000 mm gauge (Narrow gauge)

The longest mass transit network in ASEAN

25

Rail Transport

Railways Service

- Myanma Railways' operate an average of 432 trains per day. 190 inter-city passenger trains, 221 Yangon Circular & Suburban trains and 21 freight trains. The number of trains by type is as follows:

Train Type	Nos of Train per day As on March 2016
Passenger Trains	
Express	40
Mail & Others	62
Mixed	60
Rail Bus	28
Total	190
Yangon Circular & Suburban Trains	221
Freight Trains	21
Total Trains	**432**

Rail Transport

Passenger Traffic

In Millions

Classification	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Main	34.102	31.227	23.577	21.716	19.603	15.893
Suburban	33.548	32.993	30.240	31.144	28.383	25.126
Total	67.650	64.220	53.817	53.190	47.986	42.042
Passenger/ Day	0.190	0.18	0.15	0.15	0.13	0.16
Passenger Mile	3,328.72	3,092.70	2,365.90	2,226.00	2,108.70	1946.980

Rail Transport

Freight Traffic

In Millions

Classification	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Ton Carried	3.40	3.58	2.84	2.47	2.28	1.983
Ton /Day	0.009	0.010	0.008	0.007	0.006	0.005
Ton Miles	697.84	721.86	601.90	513.22	507.91	475.620
Average Lead Miles/Ton	205	202	212	208	221	239.849

Share of Domestic Passenger & Freight Transport

Modes of Transport	Passenger		Freight	
	1990	2015	1990	2015
Road	51%	86%	61%	90%
Rail	44%	10%	14%	1.5 – 5 %
Water	3%	2%	25%	5%
Air	2%	2%		

Source: CTS, MYT-Plan, ADB

- Myanma Railway's share of the passenger and freight market was big in 25 years ago.
- At present, MR does not have major share of the market in any corridor except Mandalay-Myitkyina (where roads are not well-developed yet)

Rail Transport (Ongoing Projects by External Assistance)

- Project Period 2017 to 2023 (7 Years)
- On going Phase 1: Yangon-Toungoo (267 km)
  - *Activities to Implement*
    - Detailed Design is underway by JICA's grant aid,
    - The selection of Construction Management Consulting Firm is under process.

After completion of the project, trains running time will be not more than 8 hours with maximum operation speed 100 km/h

The Yangon Circular Railway Line Upgrading Project (47 km) by Japan ODA Loan of USS 207.8 million

- Project Period
  - 2016 to 2021 (6 Years)
- *Activities to Implement*
  - Basic Design is underway
  - Consulting Firm is under process

After completion of project, travel time of passenger trains will reduce from 135 minutes to 75 minutes

Rail Transport

Cargo services

Passenger cum Cargo services

- IWT has taken passenger / cargo transportation and ferry service.
- IWT has 6 divisions in the country to provide better services.
- IWT's fleet composition (311 Nos)

Powered Craft	172
Dumb barges	128
Station Pontoons	31

Navigable Waterways

- Ayeyarwaddy River - 1534 km
- Chindwin River - 730 km
- Thanlwin and rivers in Mon State - 380 km
- Rivers in Ayeyarwaddy Delta - 2404 km
- Rivers in Rakhine State - 1602 km

Total - 6650 km

Passenger cum Cargo Services

Ro-Ro Operation

Towing Vessel

Tourism Vessels and Cargo Services

Port Infrastructure

For Seaborne and Coastal Trade,

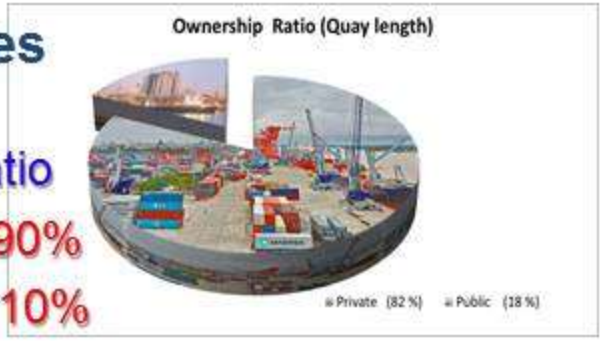
- 9 Ports along the coastline
- ICD – 3 Depots

International Wharves in Yangon Port

Yangon Inner Harbour Area - 24 wharves

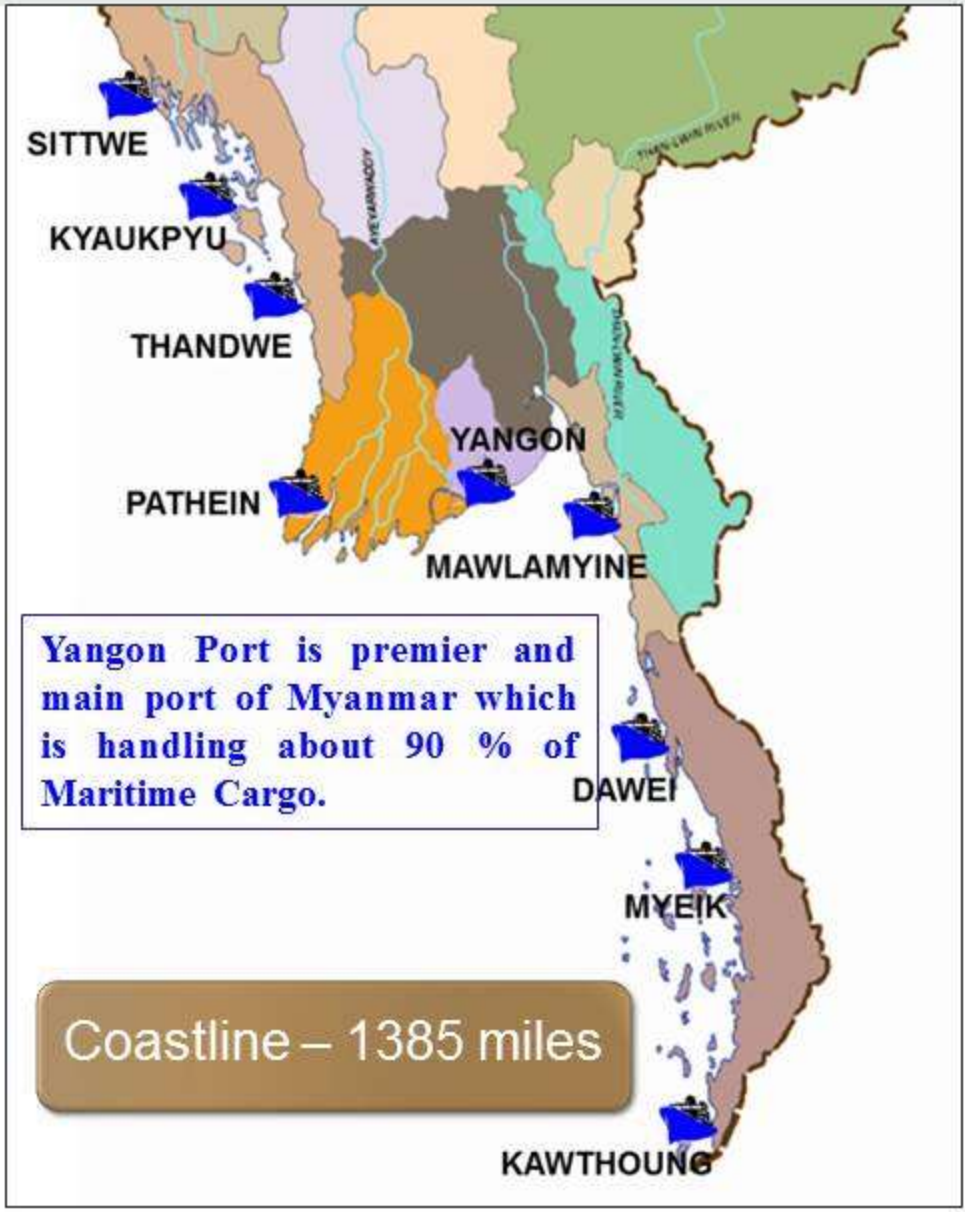
Thilawa Area - 10 wharves

Total wharves - 34



Ownership Ratio

- Private - 90%
- Public - 10%



Handling by Water Transport

Cargo Handling

Fiscal Year	Import		Export		Total (Thousand Tons)		
	International	Coastal	International	Coastal	International	Coastal	Total
2013-2014	17.0	1.1	9.6	1.6	26.6	2.7	29.3
2014-2015	12.4	0.8	7.0	1.4	19.4	2.2	21.6
2015-2016	9.8	0.4	2.0	0.3	11.8	0.7	12.5

Container Handling

Fiscal Year	Import (TEU)	Export (TEU)	Total (TEU)	Total (Thousand Tons)
2013- 2014	310822	306347	617169	7.636202
2014-2015	267742	267072	534814	6.507114
2015-2016	392000	382000	774000	9.2845

Source: MPA Jan , 2016

National Transport Master Plan

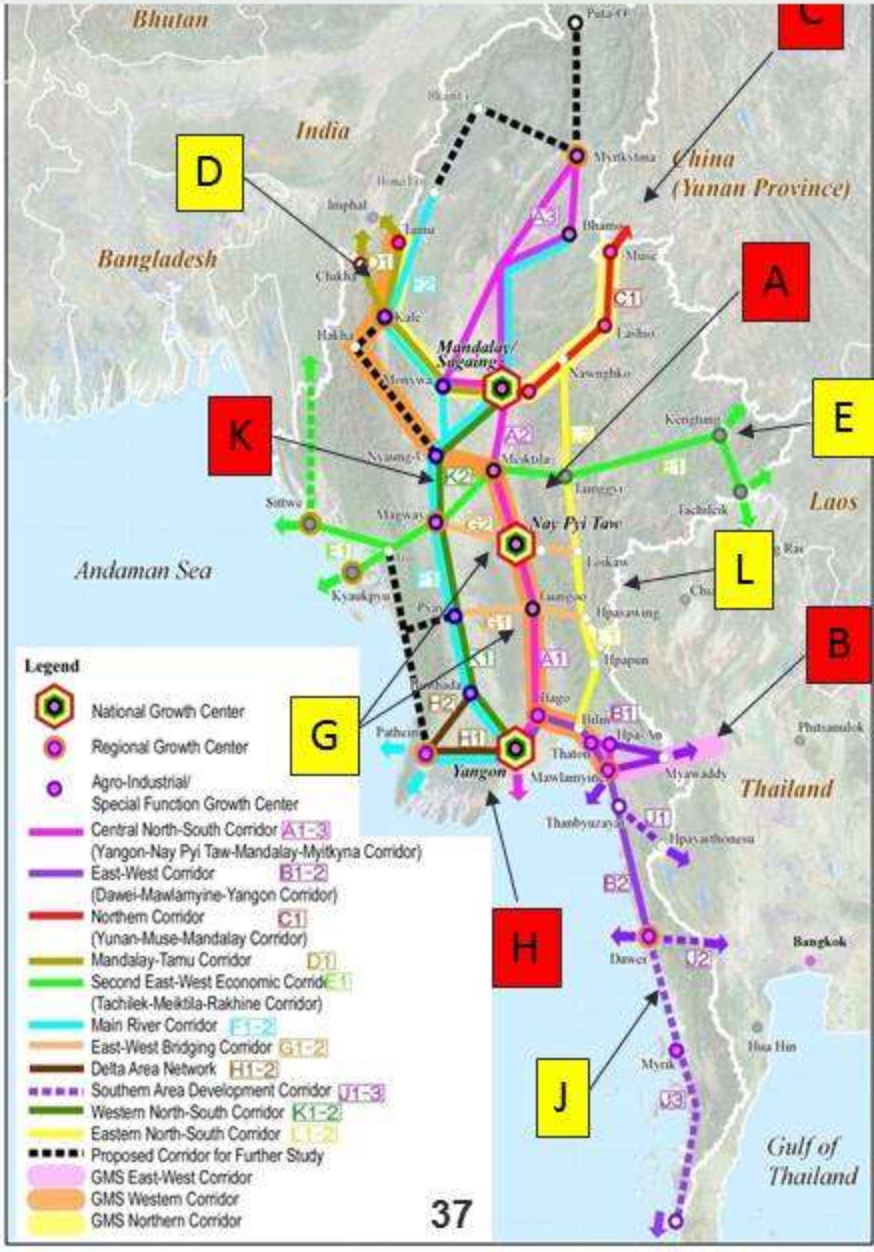
- The processes for the formulation of Master Plan started in December, 2012 and completed in 2014 by the assistance of JICA.
- MOTC serves as a focal point for coordination and cooperation with various Ministries in implementing the Master Plan.
- According to the Master Plan, priority projects will be implemented.

Corridor based Development Approach

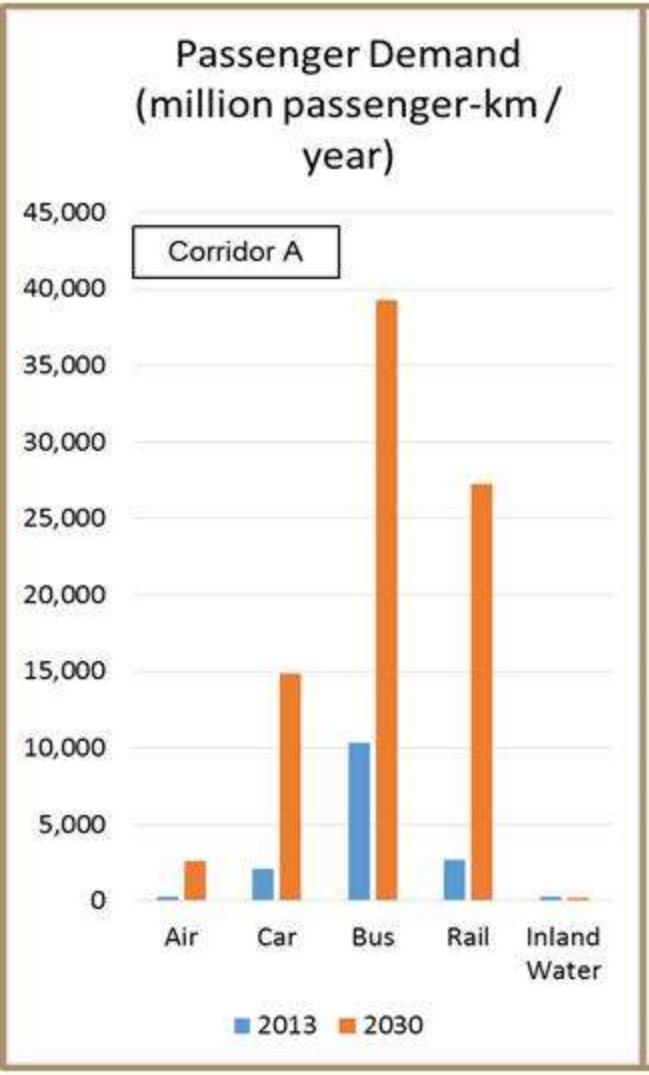
10 Major Corridors

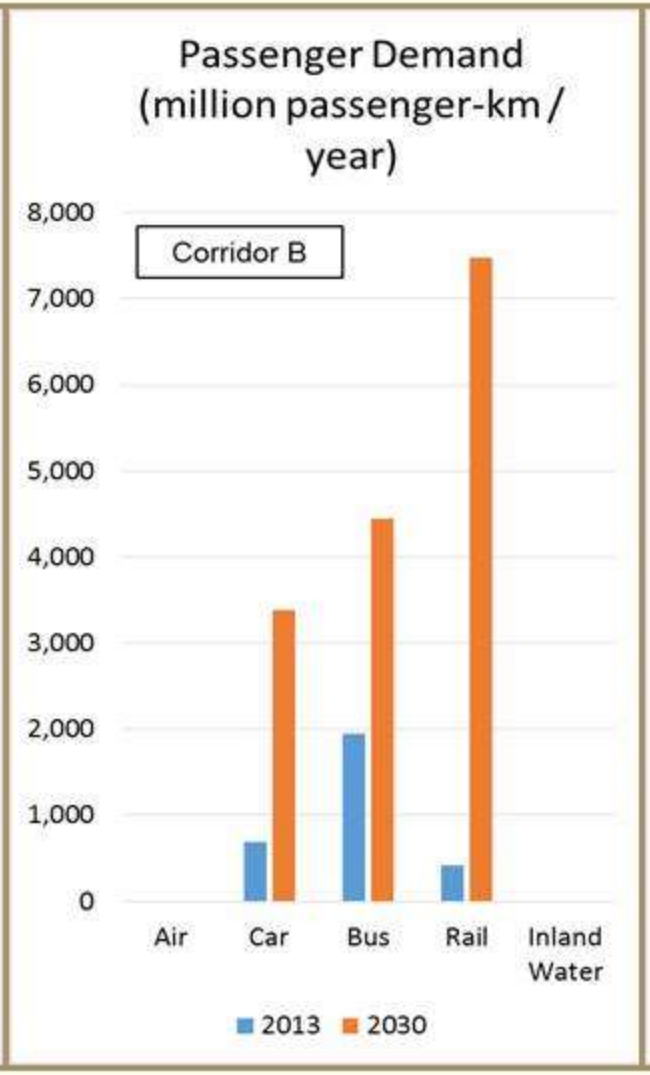
- **A Central North-South Corridor**
- **B East - West Corridor**
- **C Northern Corridor**
- D Mandalay - Tamu Corridor
- E Second East - West Corridor
- G East - West Bridging Corridor
- H Delta Area Network
- J Southern Area Development Corridor
- **K Western North-South Corridor**
- L Eastern North - South Corridor

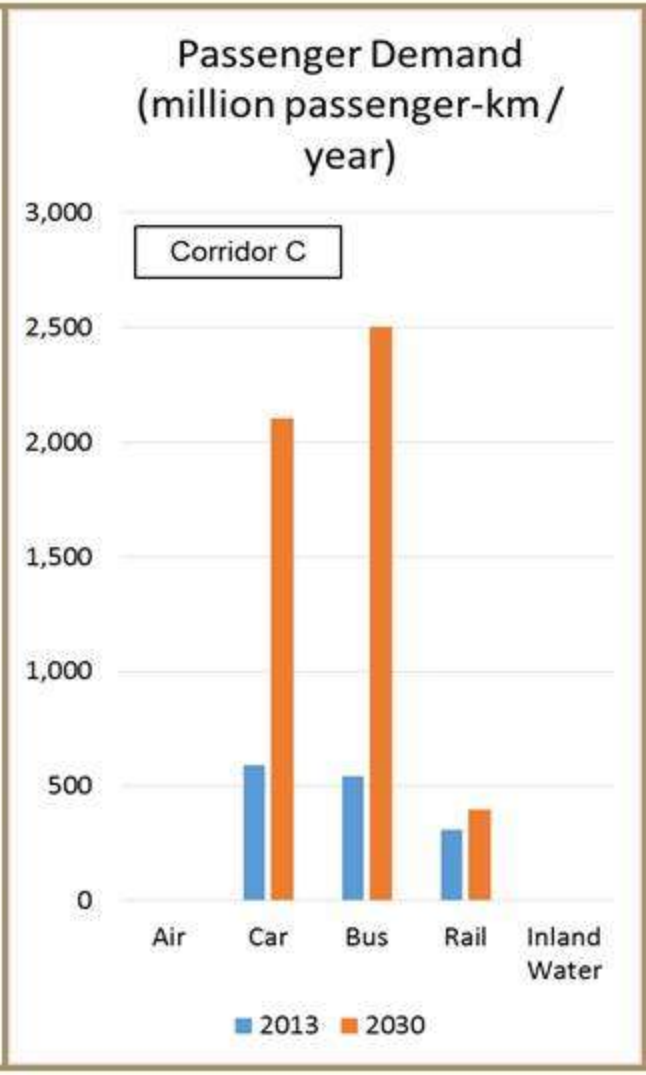
Priority corridors for urgent investment



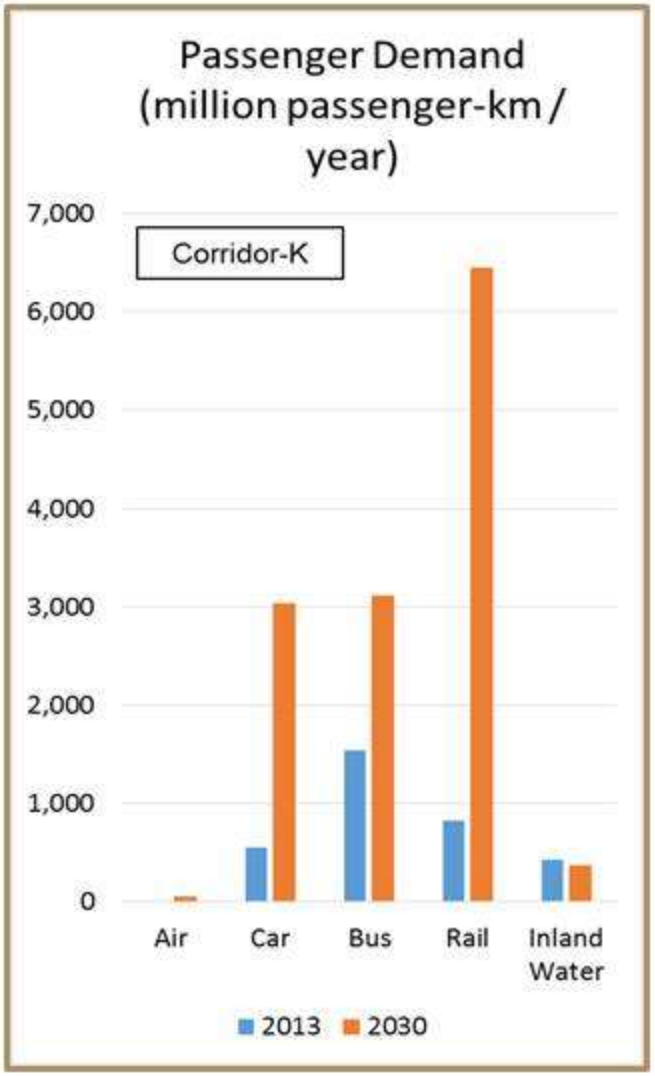
Transport Demand – Passenger Movement

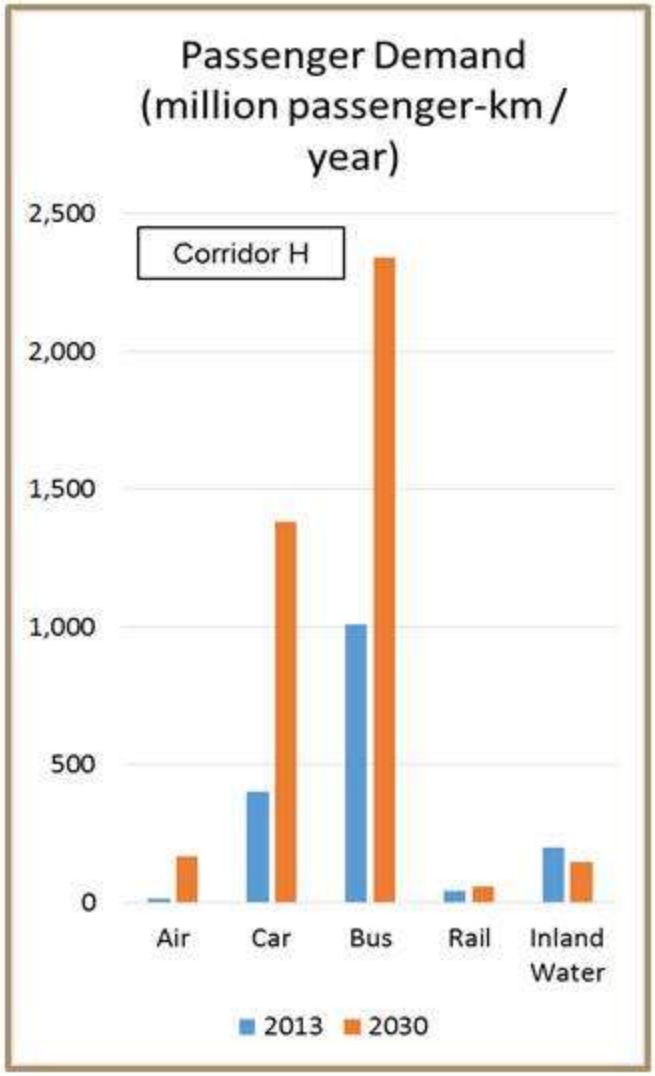




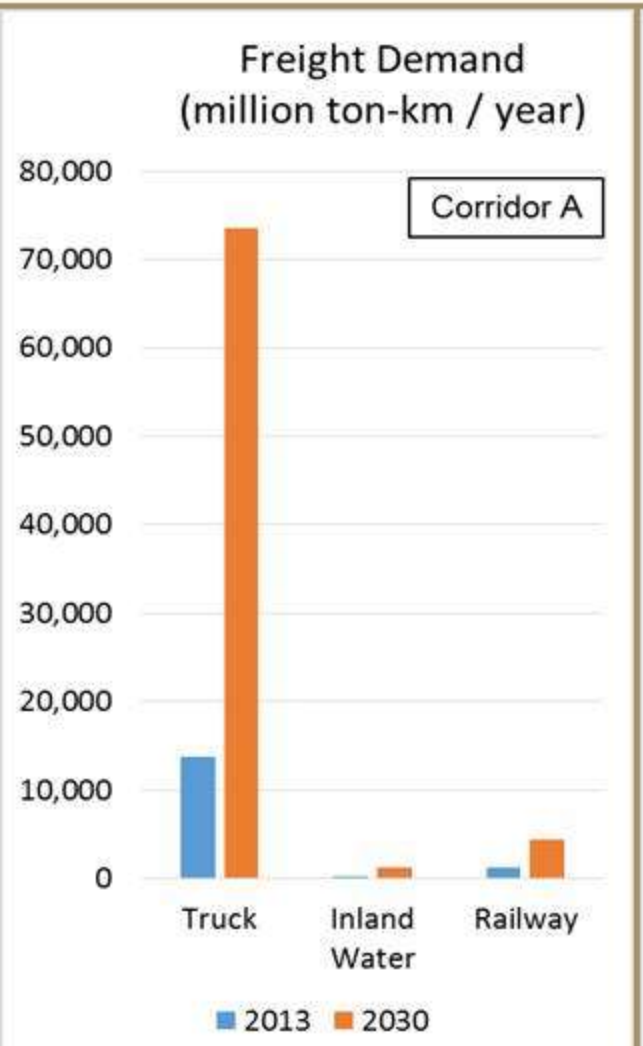


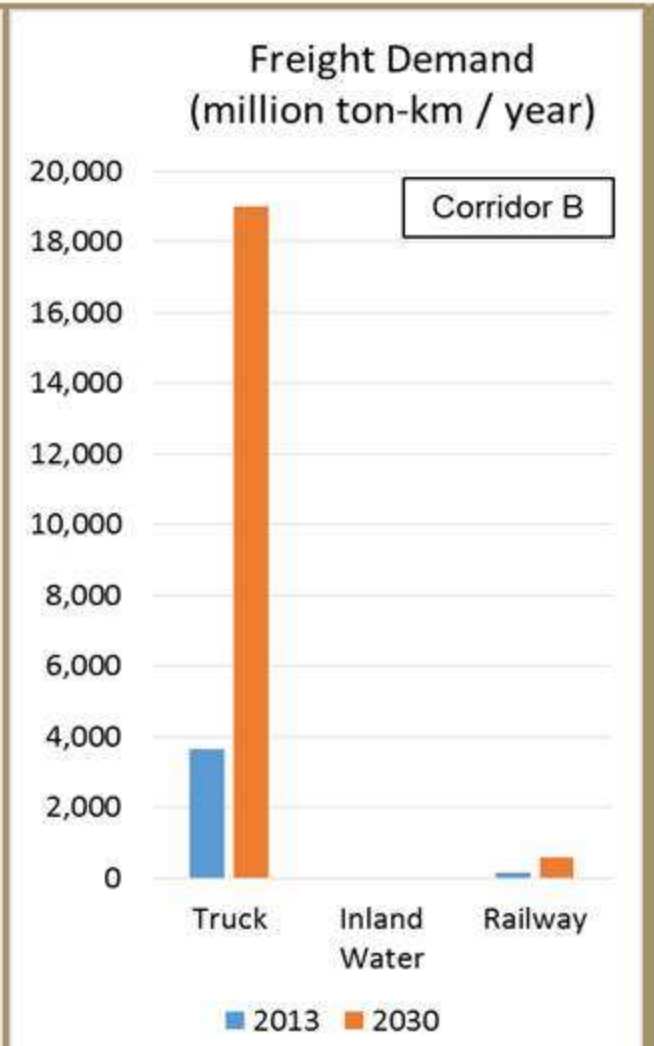
Transport Demand – Passenger Movement (cont'd)

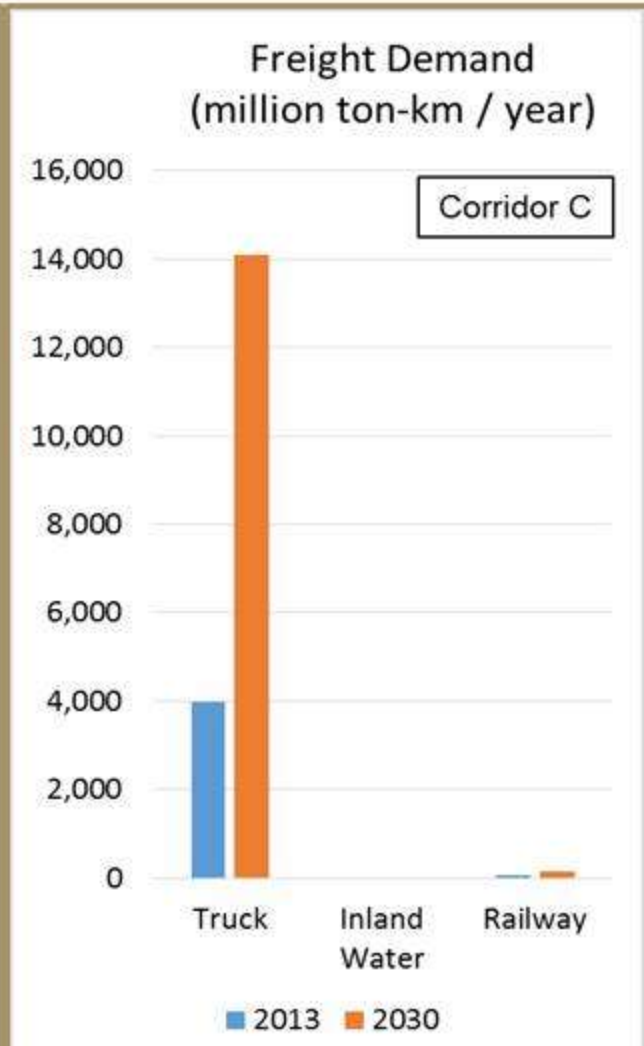




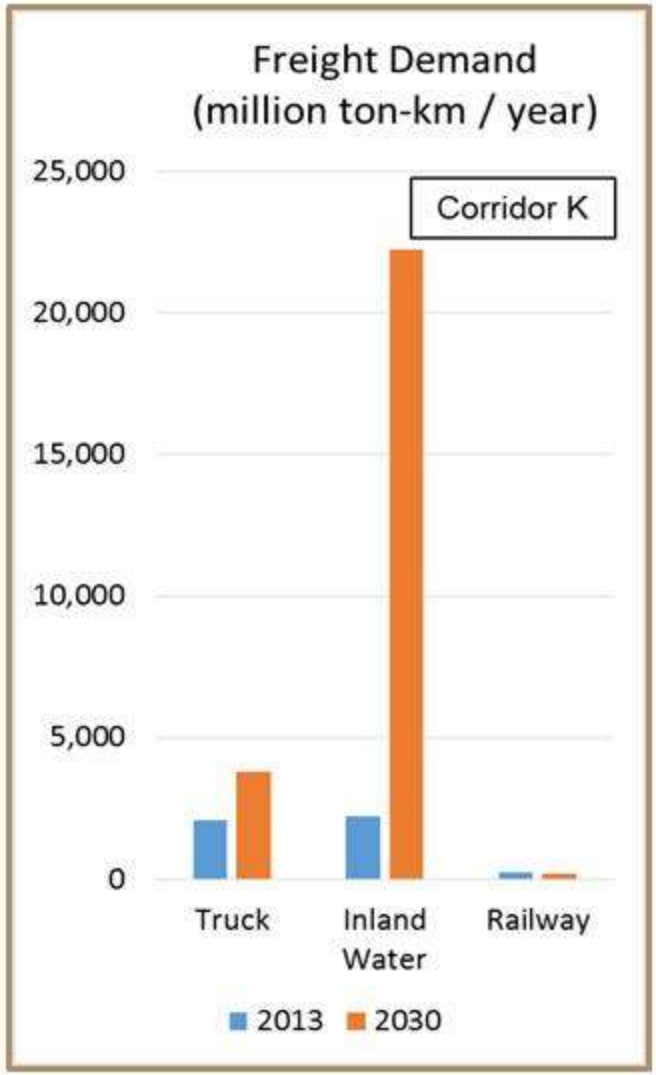
Transport Demand – Freight Movement on Corridors

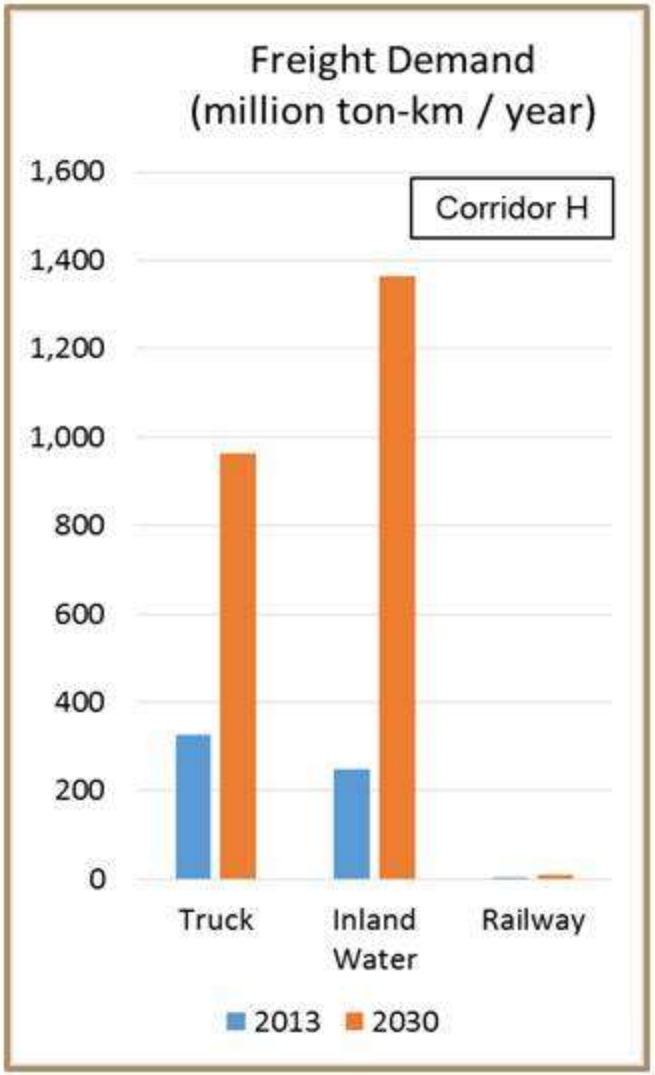






Transport Demand – Freight Movement on Corridors (cont'd)





Priority Projects and Actions on Corridor A

Rail Sector

On-going:

- ✓ Yangon – Mandalay Railway Improvement Project (F/S completed in 2014 → E/N, L/A, D/D in 2014/2015, JICA Loan)
- ✓ The Project for Installation of Operation Control Centre System and Safety Equipment (2014~on-going, JICA Grant Aid)
- ✓ Railway Maintenance Capacity Improvement (on-going, JICA TA)
- ✓ Yangon Station Area Development (in-going by MR/MRT)
- ✓ Yangon Circular Railway Line Upgrading Project (F/S 2014.4~on-going, JICA)

To be implemented:

- ❖ Dry Ports (Yangon and Mandalay area)
- ❖ Rehabilitation and Modernization (Myohaung – Myitkyina)
- ❖ Rehabilitation and Modernization (Bago – Mawlamyine)
- ❖ Rehabilitation and Modernization (Yangon – Pyay)

Priority Projects and Actions on Corridor A (cont'd)

Maritime Sector

- Thilawa Port Development (on-going)
- EDI System (Port-MIS) Installation (2014/2017)
- Bathymetry survey between the Yangon port area and the mouth of Yangon River (proposed survey in 2014/2015)
- Yangon Port access channel improvement
- Yangon Port Development Master Plan

Inland Water Sector

- Dala Jetty Rehabilitation (on-going, JICA)
- Mandalay Port Development (F/S completed in 2014, JICA)
- Yangon – Mandalay navigation channel improvement
- Ayeyarwady Delta navigation channel improvement

Civil Aviation Sector

- Hanthawaddy International Airport (HIA) Development (on-going)
- Yangon International Airport improvement (on-going)
- Coordination with PW (expressway connection to HIA) and MR (rail connection to HIA)

Priority Projects and Actions on Corridor B

Rail Sector

1. Bago – Mawlamyine Railway Rehabilitation and Modernization

Road Sector

1. Road and bridge improvement/replacement projects along the East-West and in the Southern Corridor (Preparatory Survey, on-going, JICA)
   - Gyaing (Kawkareik bridge)
   - Don Tha Mi and Naung Lon bridge
   - Gyaing (Zarthapyib bridge)
   - Atran bridge

Maritime Sector

1. Mawlamyine port improvement

Inland Water Sector

1. N/A

Civil Aviation Sector

1. Mawlamyine Airport Improvement (modernization)

Priority Projects and Actions on Corridor C

Rail Sector

1. N/A

Road Sector

1. New Goattwin Viaduct
2. Mandalay – Lashio – Muse road improvement

Inland Water Sector

1. Mandalay Port Improvement (F/S completed in 2014)
2. Bathymetry survey along the Ayeyawaddy River from Mandalay to Bhamo (proposed study in 2015/2016)
3. Mandalay Port construction
4. Bamo Port construction

Civil Aviation Sector

1. Lashio Airport Improvement (modernization)

Priority Projects and Actions on Corridor H

Rail Sector

1. Yangon – Pathein Railway Line upgrading

Road Sector

1. Yangon – Pathein road improvement
2. Hinthata bridge construction
3. New Hlaing river bridge construction
4. Thetkal bridge construction

Inland Water Sector

1. Ayeyarwady Delta channel improvement
2. Ayeyarwady Delta navigation safety improvement

Civil Aviation Sector

1. Pathein Airport Improvement (minor improvement)

Priority Projects and Actions on Corridor K

Rail Sector

1. Yangon – Pyay Rehabilitation and Modernization

Road Sector

1. Yangon – Pyay – Mandalay road improvement

Inland Water Sector

1. Bathymetry survey between the Yangon port area the Mandalay Port
2. Bathymetry survey between the Mandalay Port and Kale Port
3. Mandalay Port construction
4. Yangon – Mandalay channel and navigation improvement
5. Pakkokku Port construction
6. Magway Port construction

Maritime Sector / Inland Water Sector

1. Yangon port capacity expansion (including channel improvement)

Civil Aviation Sector

1. Nyaung U Airport (upgrade to Int'l) → Alternative: Pakokku Airport

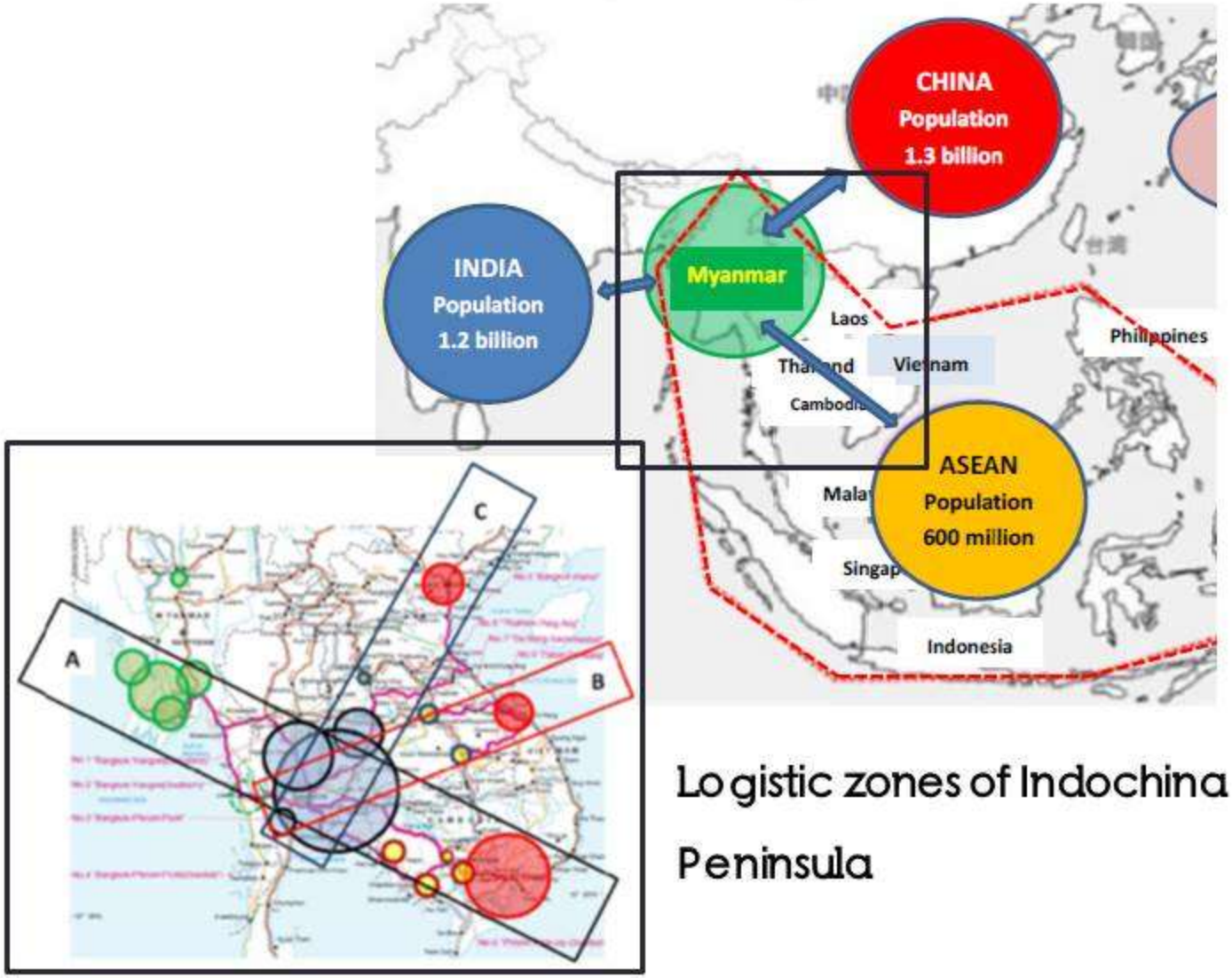
Proposed Projects

➢ Road Sector	(48) Projects
➢ Rail Sector	(14) Projects
➢ Maritime Sector	(15) Projects
➢ Inland Water Transport Sector	(33) Projects
➢ Air Sector	(32) Projects
Total	(142) Projects

- JICA estimates (29,271) Billion Kyats for trunk line projects and (18,797) Billion Kyats for Urban and Rural Transport Development totally (48,068) Billion Kyats to be used.
- MOTC is now preparing to implement the prioritized projects with private investment, ODA Loans and state budget.

LOGISTICS AND CONNECTIVITY

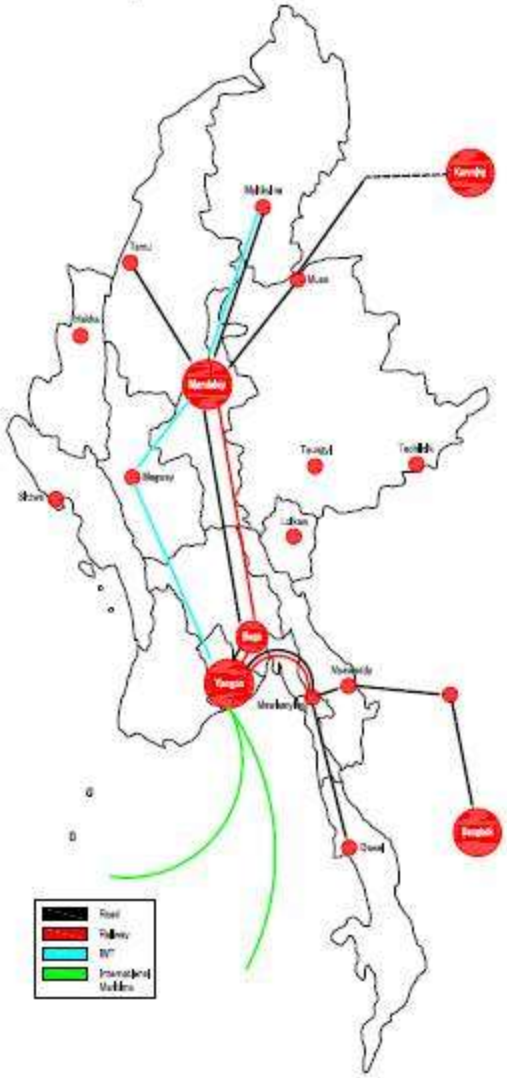
Logistics: Local Connectivity to Regional Connectivity



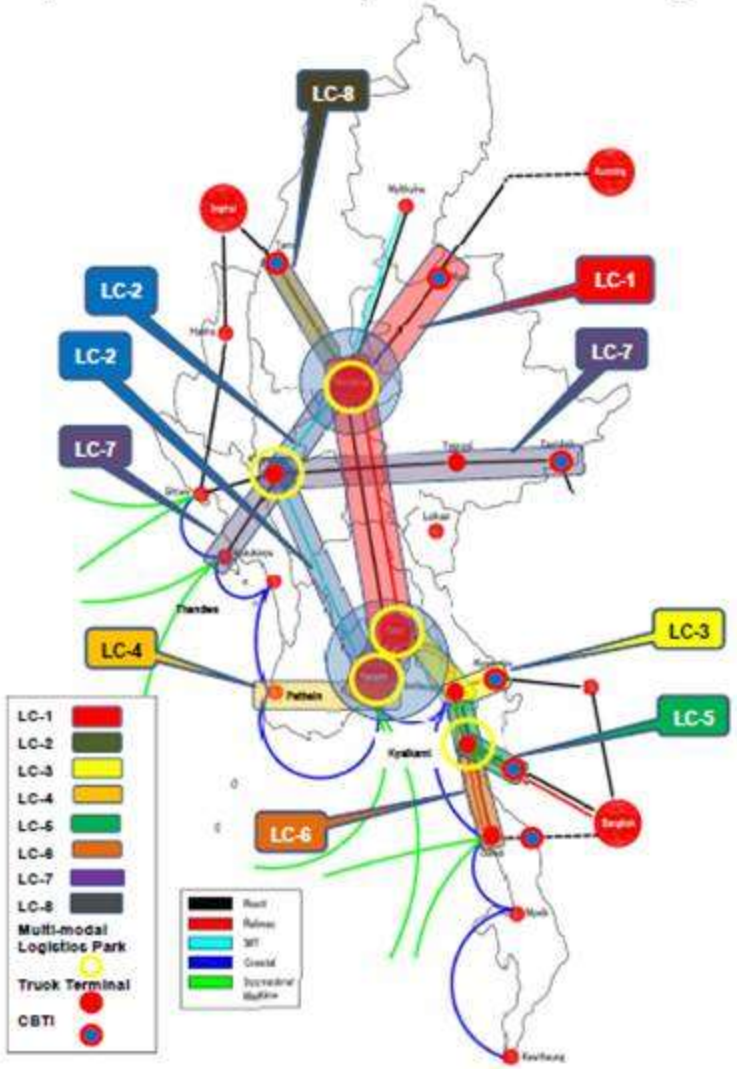
Logistic zones of Indochina Peninsula

Cargo Transport

2016 Present Major Cargo Transport Links



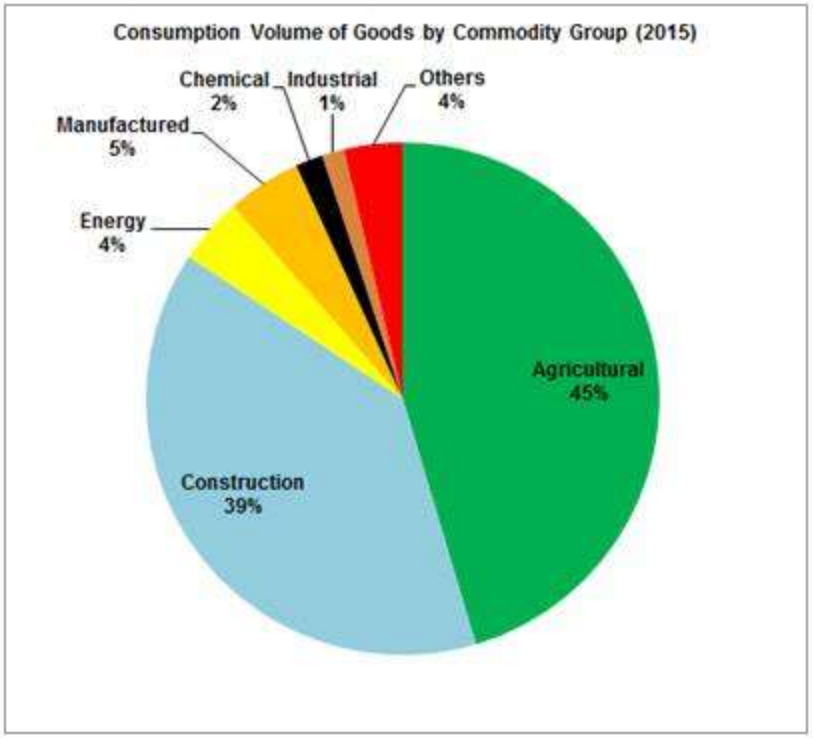
2030 Logistics Corridors (with Development Order)



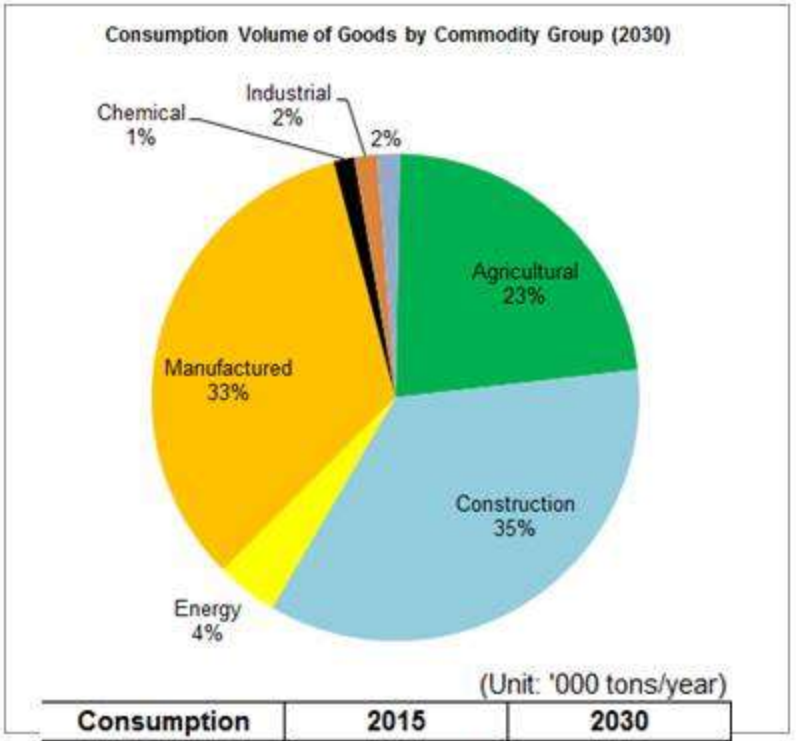
Current and Future Cargo Flow Volume

- **Current and Future Consumption Volume of Goods**

2015



2030



(Unit: '000 tons/year)

Consumption	2015	2030
Agricultural	60,800	89,300
Construction	52,200	137,500
Energy	5,600	15,700
Manufactured	6,200	130,300
Chemical	2,300	5,300
Industrial	1,900	5,900
Others	4,900	5,800
Total Volume	133,900	389,800

Consumption Volume

2015 134 million tons

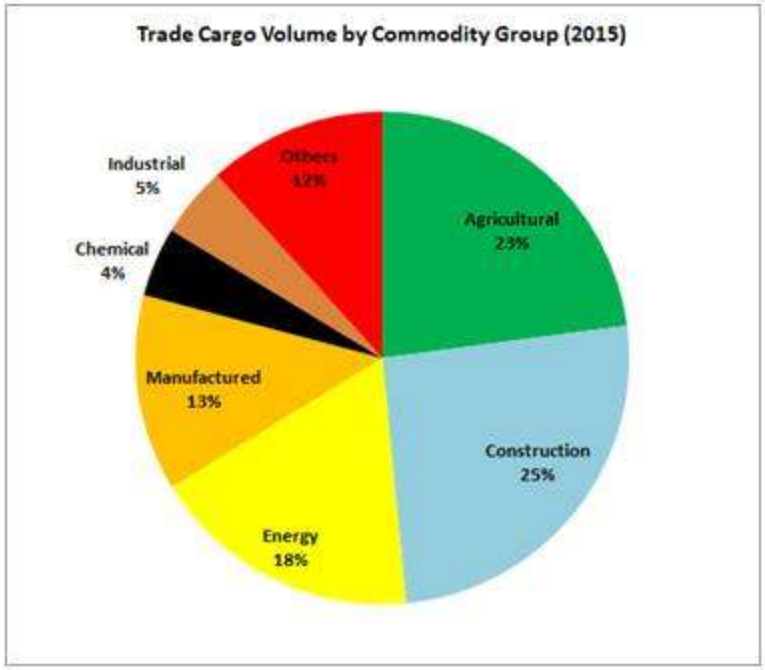
2030 390 million tons

(around 2.9 times of 2015 AAGR 7.4%)

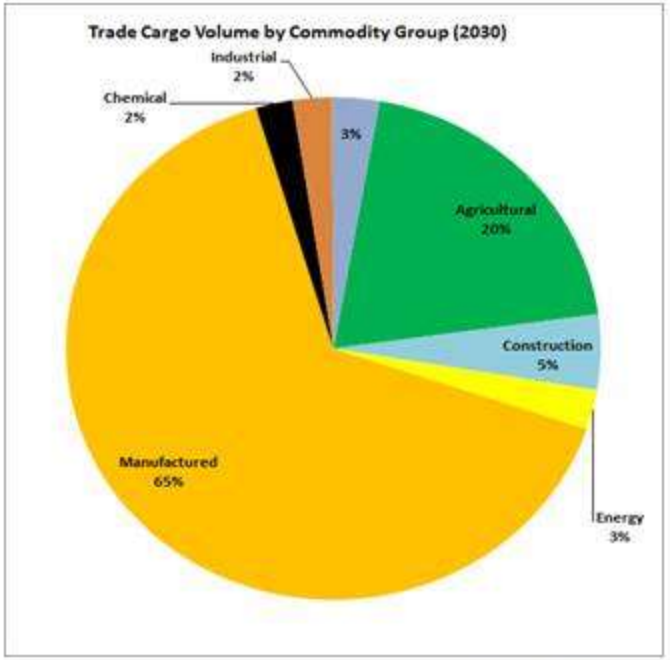
Current and Future Cargo Flow Volume

- **Current and Future Trade Cargo Volume**

2015



2030



(Unit: '000 tons/year)

Consumption	2015	2030
Agricultural	8,200	34,800
Construction	9,200	8,400
Energy	6,400	4,400
Manufactured	4,600	113,000
Chemical	1,600	3,800
Industrial	1,700	4,100
Others	4,200	5,000
Total Volume	35,900	173,500

Trade Volume

2015 36 mill. tons container 1.0 mill. TEU

2030 173 mill. Tons – 7.4 mill. TEU (around 4.8 times of 2015, container 7.4 times

Ministry of Construction

UNION MINISTER

PERMANENT SECRETARY

DIRECTOR GENERALS for

Vision

- International standard road network contributing towards regional connectivity with ASEAN and other neighboring countries as well as balanced and sustainable development of Myanmar.
- Safe and sustainable building construction sector and construction administration.
- Balanced and sustainable urban and regional system throughout the nation and Adequate housing with improved living standards for the people of Myanmar
- To achieve international standard road and bridge connectivity with ASEAN and other neighboring countries and to improve the internal road network in Myanmar.
- To lead and guide the building construction sector towards safe and green development.
- To upgrade the urban system contributing towards balanced and sustainable development of the nation.
- To provide better living and provide adequate housing for the people of Myanmar.

Mission

To meet the current road network of Myanmar to the international standards as in neighboring countries, and aimed to develop the Union road network in States and Regions for the smooth transport.

Responsibilities Of Ministry of Construction (MOC)

- Under the guidelines of the Government of the Republic of the Union of Myanmar, Ministry of Construction, to ensure all round development and progress has undertaken the task of new roads, housings and bridges construction and construction the Infrastructures of Social, Economic, Administrative, Industrial, Transportation, Health and Educational Establishments.

Strategy

- The project will be carried out by the following steps
  1. Implementation of the project by Government Budget.
  2. Among these projects, some of the possible ones have to be carried out by Public Private Partnership (PPP) Program.
  3. Implementation of the project by the Grant/ Loan with the help of international organization such as JICA, ADB,WB, KOICA, TICA.
  4. Enacting road user tax law for the purpose of road/ bridge maintenance jobs.
- The ministry of construction have already drawn 30 years project plan which have 6 numbers of project and each of the projects have five years life from 2001 to 2030. In 2011 at the period of the former government, the above project was concluded and amended into 20 years project plan which have 4 numbers of project and each of the projects have five years life. At the age of the current government, this project was redrawn into three numbers of 5 years project plan in accordance with the Economic Publicity of the State by analyzing and negotiating with the fact of Parliament's pact, with the fact included in Arterial Road Network (drawn by help of Korea), with the fact included in National Transport Network Master Plan (drawn by the help of Japan).

Project Proposal of Road and Bridge for First (5) Years Plan of MOC

No	Region/State	Project Proposal		Remark
		Length of Road (km)	No of Bridges	
1.	Kachin State	1116	23	
2.	Kayah State	156	-	
3.	Kayin State	575	29	
4.	Chin State	1206	5	
5.	Sagaing Region	2036	116	
6.	Thanintharyi Region	480	109	
7.	Bago Region	588	8	
8.	Magwe Region	119	1	
9.	Mandalay Region	959	6	
10.	Mon State	366	-	
11.	Rakhine State	620	24	
12.	Yangon Region	226	3	
13.	Shan State	2440	55	
14.	Ayeyarwady	185	-	
	Total	11072	379	

Regional Development Project Plan

No	Project Name	Current Condition	Loan/Grant Aid
1.	Pone-Taung-Pone-Nya Tunnel Project	F.S Finished	Korea Loan
2.	Watalone Tunnel	F.S Finished	Japan Loan
3.	Yangon Inner Ring Road Project 53km.	Pre F.S Finished	Japan Companies by BOT
4.	Yangon Outer Ring Road Project 129 km	F.S Finished	By the help of MILT Japan
5.	Nayokekaung Taung- Pathein Road Project	F.S Finished	
6.	Ayeyarwady Bridge (Thayet-Aunglan) Project	F.S Finished	Korea Loan
7.	Ayeyarwady Bridge (Hinthada-Taryawal) Project	F.S Finished	Japan Loan
8.	Watayar-Yangon Bridge Project	F.S Finished	Korea Loan

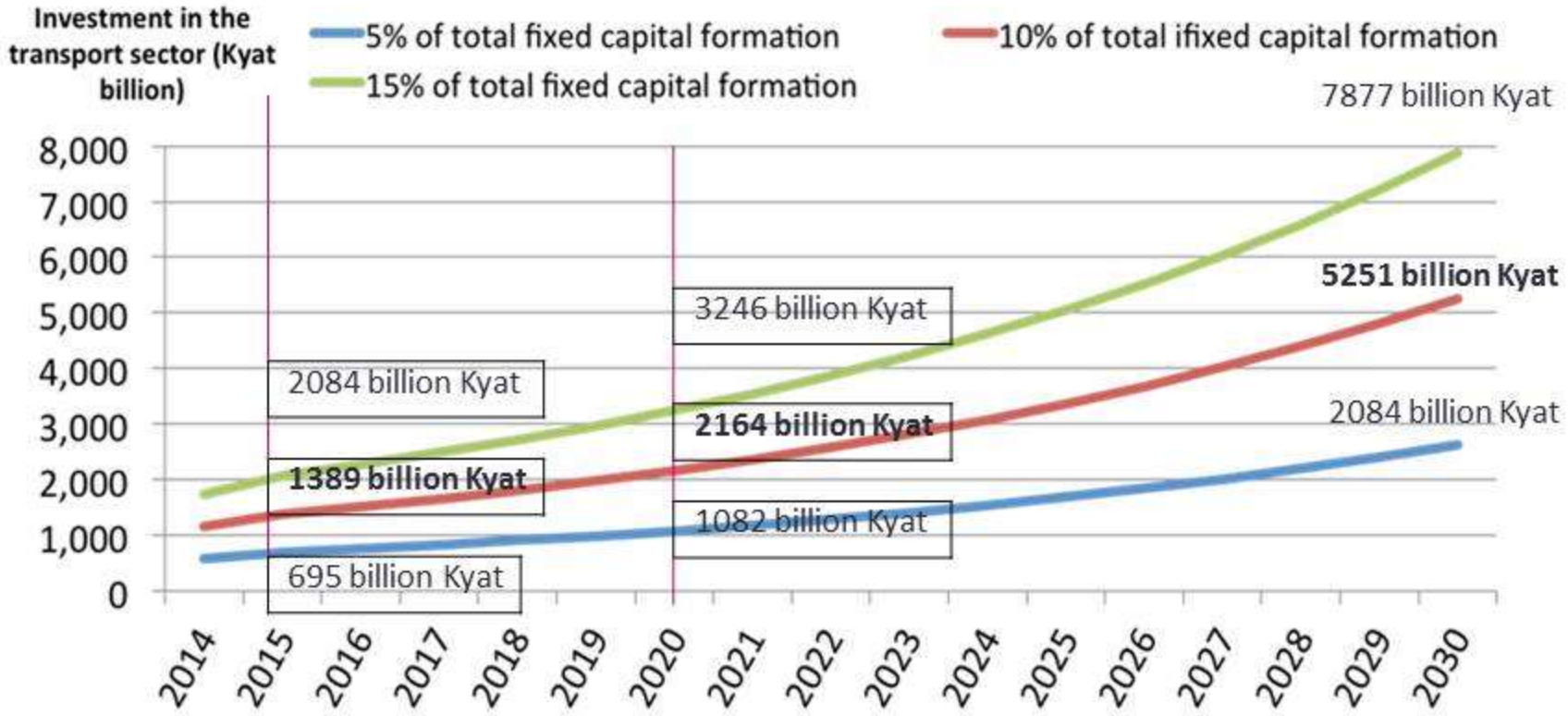
Regional Development Project Plan

No	Project Name	Current Condition	Loan/Grant Aid
9.	Bago Bridge No (4) Yangon Project	Pre F.S Finished	
10.	Sittaung Bridge (Kyaikto) Project	Pre F.S Finished	
11.	Chindwin Bridge (Thamati-Pinma)	F.S Finished	
12.	Goke Htike	F.S Finished	Oriental Highway B.O.T
13.	Pulonetonetone Bridge	Pre F.S Finished	
14.	Thamote-Lot Lot Bridge	F.S Finished	

Ring Road Project

No	Project Name	Region/ State
1.	Thaton By Pass Road	Mon State
2.	Kyaikto By Pass Road	Mon State
3.	Meiktila By Pass Road	Mandalay Region
4.	Mandalay By Pass Road	Mandalay Region
5.	Bago By Pass Road	Bago Region
6.	Waw By Pass Road	Bago Region
7.	Shwe Bo By Pass Road	Saigaing Region
8.	Muse By Pass Road	Shan State
9.	Hseni By Pass Road	Shan State
10.	Nawnghkio By Pass Road	Shan State
11.	Taunggyi-Hopone By Pass Road	Shan State
12.	Keng Tung By Pass Road	Shan State

Impact on the Government



- Investment expenditure in the transport sector

  Scenario Fixed Capital Formation x (three levels: 5%, 10% and 15%)

- Accumulated investment amount from 2014 to 2030 (16 years):
  - 24 trillion kyat (5%)
  - 48 trillion kyat (10%)
  - 72 trillion kyat (15%)

Road Sector Development

Road Sector Development

Achievements in Road Sector

Pathein – Monywa Highway

Yangon – Mandalay Expressway

Minbu – Ann Highway

Dala – Twantay Access Road

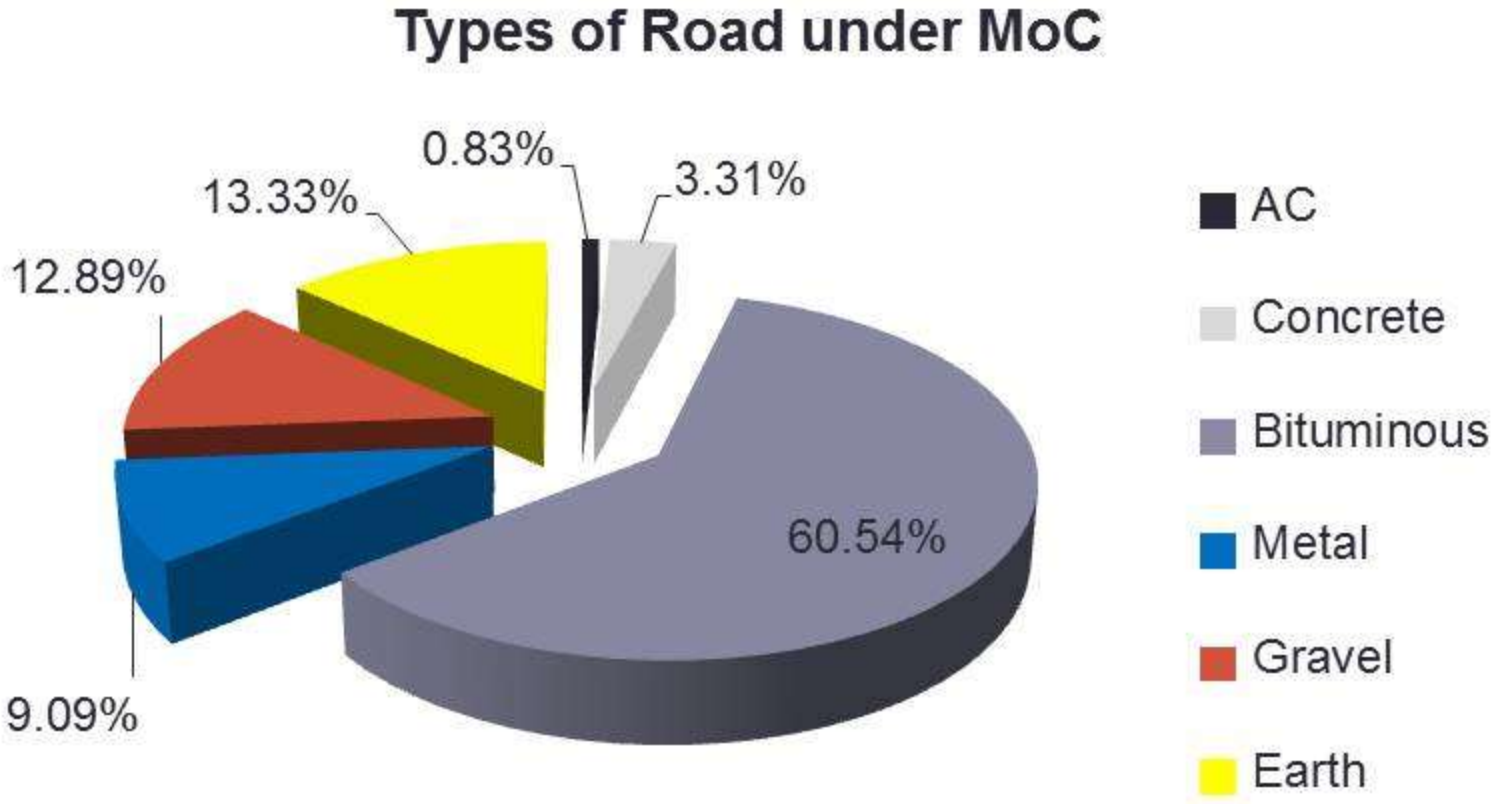
Road Network Policy

1. To make all Asian highways, ASEAN highways and bridges in Myanmar will have to meet the standard of ASEAN class III at the least.
2. To upgrade nationwide all union highways and bridges as paved roads.
3. To widen all roads to cope with their increase in traffic into lane widths of 12ft, 18ft,24ft, 48ft, 72ft and so on.
4. To plan and build highways in Myanmar with the concept of 5 North-South ways in the vertical and 7 East-West ways in the horizontal on the basis.
5. To implement the infrastructure development of the projects by using not only the nation budgets but also the Grants/ Loans from international donors under PPP schemes & B.O.T systems.

Road Data in States and Regions under MoC (as of March 2016)

No	Region/ State	AC	Concrete	Bitumen			Metal	Gravel	Earth	Total
				Up to 12'	Up to 22'	Over 24'				
1.	Kachin	-	28.566	584.494	275.902	226.113	461.077	905.256	1087.514	3568.922
2.	Kayar	-		484.915	136.090	14.585	33.595	63.469	218.569	951.223
3.	Kayin	-	1.207	559.951	225.509	210.723	44.559	419.636	503.121	1964.706
4.	Chin	-	1.207	595.860	13.478	11.064	450.214	288.274	610.344	1970.441
5.	Sagaing	-	163.650	1451.427	586.204	367.333	886.044	758.705	473.348	4686.711
6.	Tanintharyi	95.957	70.811	240.396	726.619	64.776	94.951	111.447	102.998	1507.955
7.	Bago	-	19.413	735.470	460.976	479.283	194.529	79.160	74.332	2043.163
8.	Magway	-	0.604	1472.047	1459.172	98.371	225.811	253.069	19.916	3528.990
9.	Mandalay	-	48.783	635.188	1016.502	615.976	13.780	57.333	48.683	2436.245
10.	Mon	-	0.604	326.898	272.080	337.359	-	11.869	1.811	950.620
11.	Yakhine	16.093	123.618	951.726	77.047	13.679	433.014	167.171	121.103	1903.451
12.	Yangon	-	268.157	198.855	356.369	167.674	-	4.225	31.181	1026.461
13.	Shan(South)	-	0.805	2268.270	541.041	131.262	117.884	317.544	481.496	3858.302
14.	Shan(North)	131.162	-	1766.255	180.247	395.396	458.361	987.031	1163.455	5081.907
15.	Shan(East)	-	24.542	647.560	181.152	99.176	246.028	361.599	233.355	1793.412
16.	Ayeyarwady	-	43.050	1002.420	805.678	151.982	81.574	418.631	314.224	2817.559
17.	Naypyitaw	-	78.254	92.537	114.465	88.313	-	100.081	0.805	474.455
18.	Y-M Exway	100.383	489.241	-	-	-	-	-	-	589.624
	Grand Total	**343.595**	**1362.512**	**14014.269**	**7428.531**	**3473.065**	**3741.421**	**5304.500**	**5486.255**	**41154.147**

Classification by Surface Type of Road (as of March 2016)



2013 - Paved Ratio : 47.8 %
2014 - Paved Ratio : 53.2 %
2015 - Paved Ratio : 60.0 %
2016 – Paved Ratio 64.28%

Here Paved refers only to AC, Concrete and Bituminous only

Total Road Mileage in Myanmar (as of March 2015) [in km]

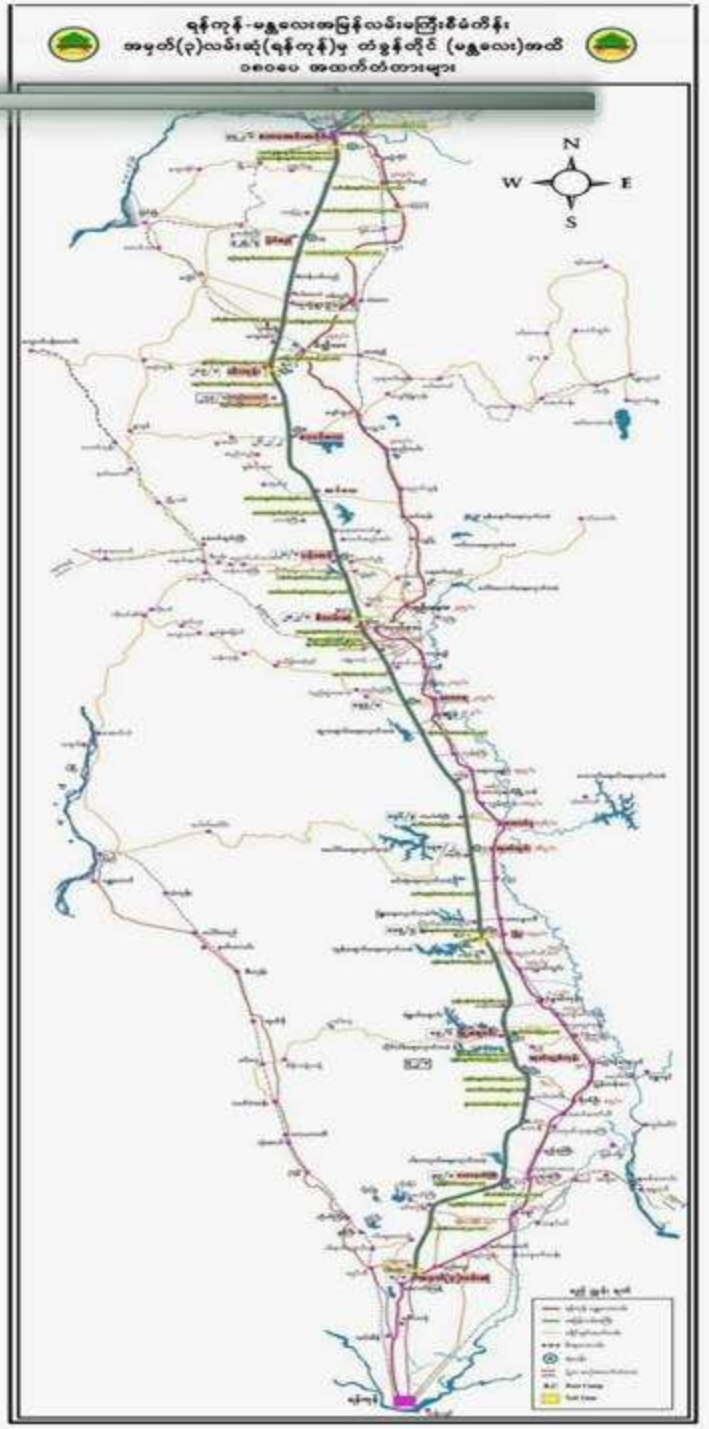
No.	Organization	Concrete	Bitumen	Metal	Gravel	Earth	Mule	Total
1	Ministry of Construction							
	Highways	784.43	13980.43	1501.68	2146.4	1934.28	-	20347.28
	Others	432.70	9008.76	2812.05	2817.48	4895.39	259.70	20226.08
		1217.13	22989.25	4313.73	4963.88	6829.67	259.70	40573.36
2	Ministry of Progress of Border Areas	-	893.36	5782.30	-	8167.12	-	14842.78
3	Ministry of Livestock, Fisheries and Rural Development	705.68	3025.89	11806.63	-	50062.91	-	65601.11
4	Ministry of Defense	393.47	703.97	1340.95	170.59	8722.31	-	11330.29
5	Ministry of Electricity & Energy	92.34	88.50	542.13	97.97	303.15	-	1124.10
	City Development Committees							
6	Yangon	1916.27	1440.52	-	-	1121.48	-	4478.27
7	Mandalay	39.14	753.67	121.74	-	237.4	-	1151.95
8	Naypyitaw	770.83	204.93	98.41	556.69	176.47	-	1807.33
	Grand Total	5134.86	30100.10	24005.89	5789.13	75620.51	259.7	**140910.19**

Yangon – Mandalay Highway

Payagyi - Thahton Section

Yangon - Mandalay Expressway

S. N	Section	Construction Period	Length (km)	Service 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	



Yangon – Mandalay Expressway

Yangon – Mandalay Expressway (Final Phase)

Asian Highways

Newly Proposed Distances

AH1 ~ 1577.358 km
(Myawaddy – Yangon – Mandalay – Tamu)

AH2 ~ 804.269 km
(w/o including overlapping distance with AH1)
(Tachileik – Meikhtila – Tamu)

AH3 ~ 90.123 km
(Mongla – KyaingTong)

AH14 ~ 460.272 km
(Muse - Mandalay)

Approximate total length of roads inside Myanmar – 2932 km

Road Network ~ 143000 km
32 countries

ASEAN Highway Network

23 Routes ,

Length 36,000 km

7 Routes in Myanmar :
AH1, AH2 , AH3 , AH14 . AH111 , AH112 , AH123

Classification of ASEAN/ Asian Highways Standard

Primary

4 or more lanes with asphalt/ cement concrete pavement with Access Control (Motorway)

Class I

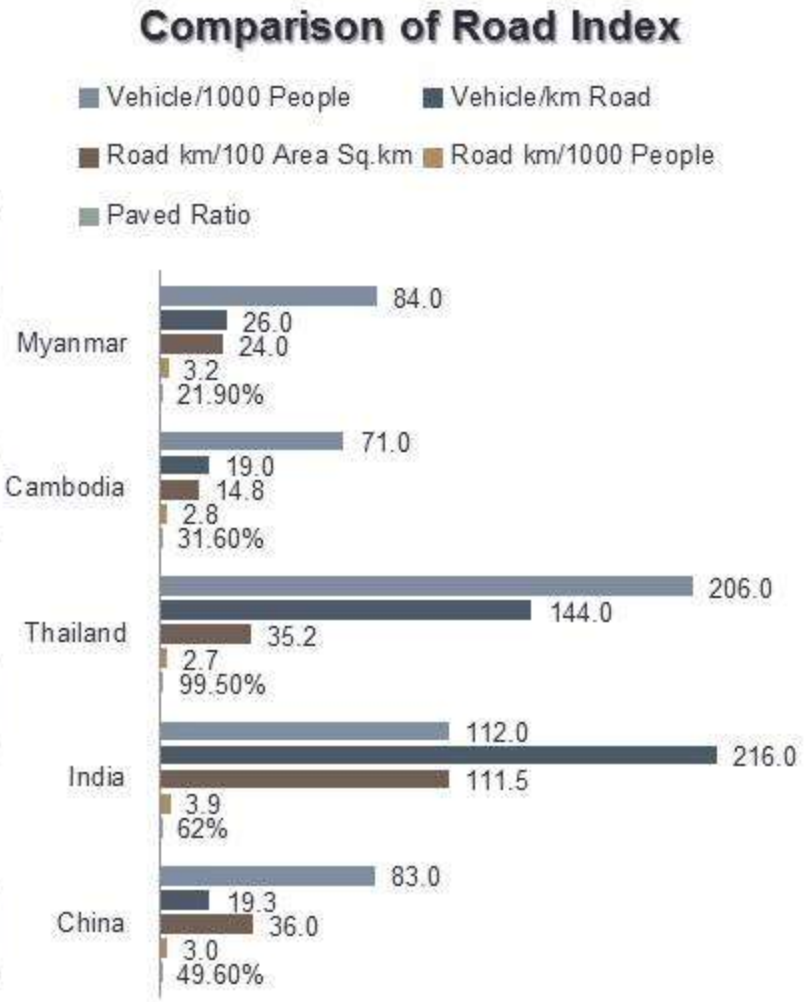
4 or more lanes with asphalt/ cement concrete pavement

Class II

2 lanes with asphalt/ cement concrete pavement

Class III

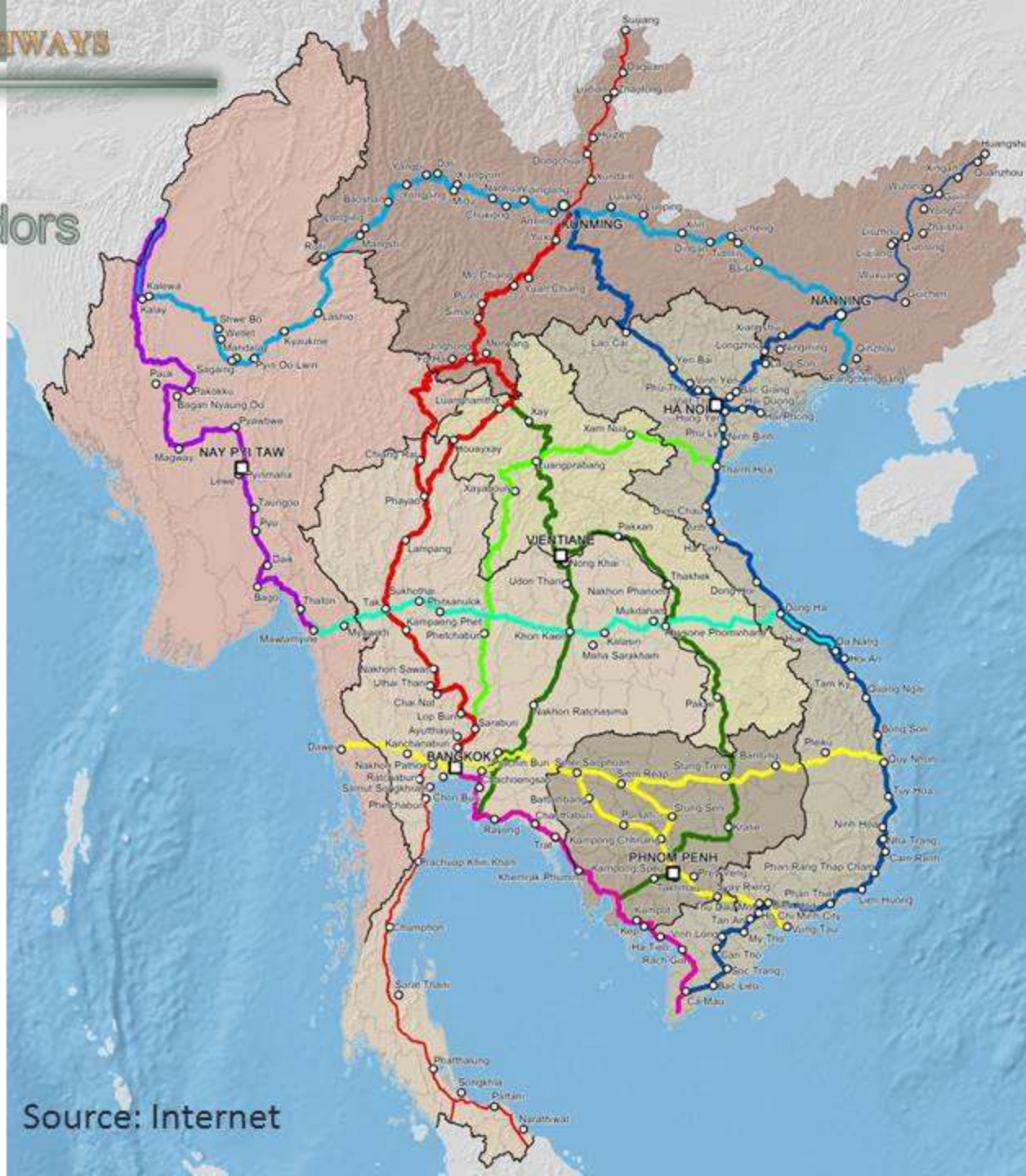
2 lanes with double bituminous treatment pavement



GMS Economic Corridors

- North - South EC
- Northern EC
- North Western EC
- East - West EC
- Southern EC

- North Eastern EC
- Eastern EC
- Central EC
- Southern Coastal EC



Source: Internet

GMS East – West Economic Corridor in Myanmar

East West Economic Corridor (အသစ် နှင့် အဟောင်း) လမ်းကြောင်းပြပုံ

Private Sector Participation in Road

Build – Operate – Transfer (BOT)

Public – Private Partnership (PPP)

- **Partnering Bodies** - Ministry of Construction and Local Private Companies Established in- 1996
- **First BOT Road** - Mandalay-Lashio-Muse-Nankham Road (480.2 km)
- **First Partnering Local Companies** - (1) Diamond Palace Company (293.9 km)
  - (2) (Asia World) Oriental Highway Company (216.3 km)

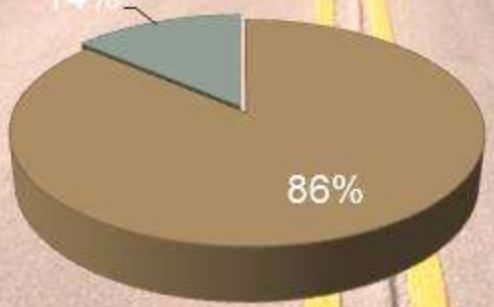
Under BOT scheme (as of 29th September 2016)

Number of local companies – **26** companies

Number of roads – **64** roads

Total length of BOT roads – **3308 mile 3.5 furlongs (5324.41 km)**

MIC permit – **60 roads**

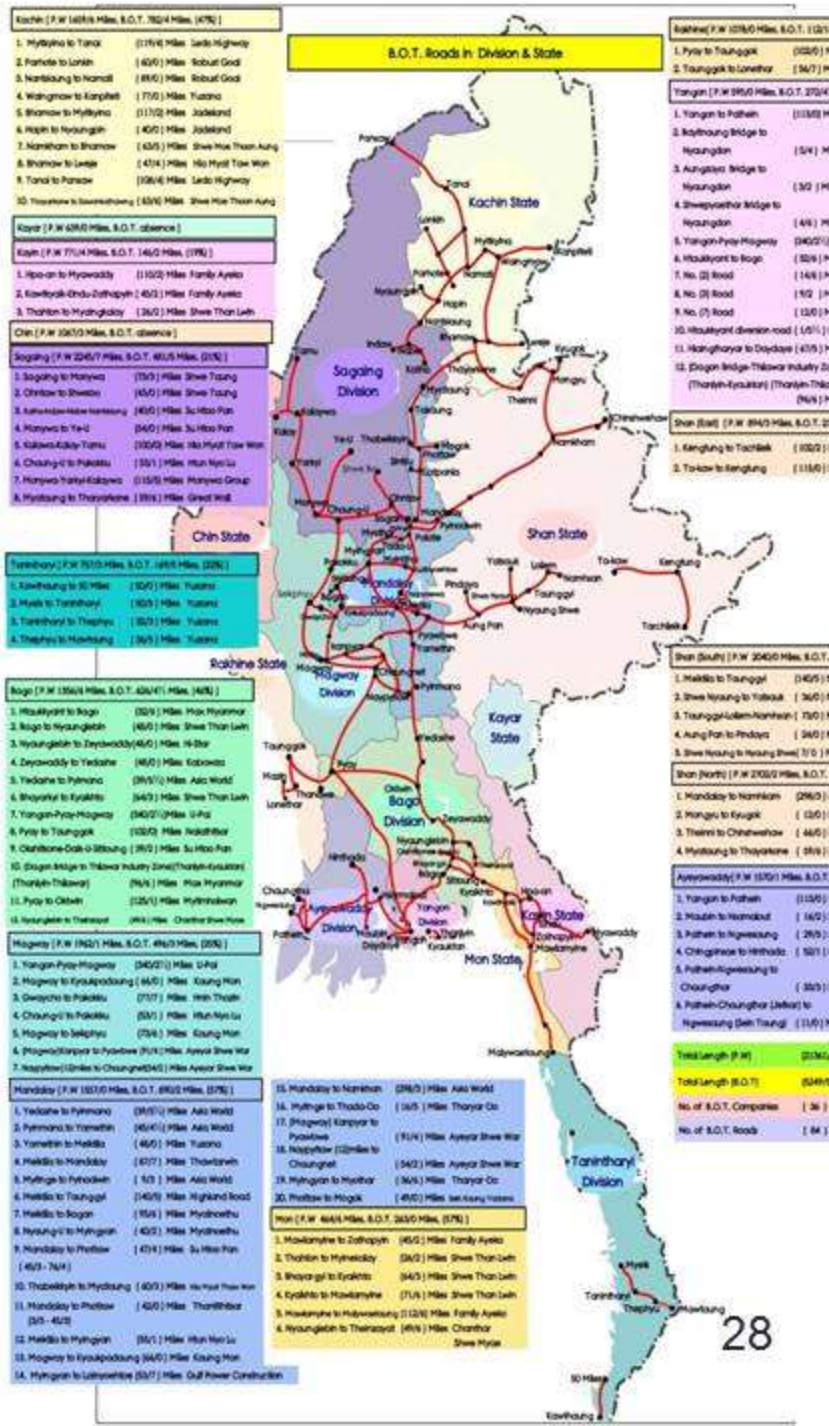


Roads managed by MoC (exclude BOT)

List of BOT in States/ Regions

(28) Local Companies

Kachin	• 302/2 mi	(15 %)
Mon	• 161/1 mi	(14 %)
Kayin	• 161/2 mi	(14 %)
Kayah &Chin	• No BOT Miles	
Sagaing	• 324/2 mi	(11 %)
Tanintharyi	• 169/5 mi	(20 %)
Bago	• 462/3.5 mi	(34 %)
Magway	• 367/7 mi	(18 %)
Mandalay	• 666/4mi	(46 %)
Rhakine	• 112/2 mi	(10 %)
Yangon	• 266/4 mi	(44 %)
Shan (East)	• 102/2 mi	(4 %)
Shan (South)	• 203/4 mi	(6 %)
Shan (North)	• 329/2 mi	(24 %)
Ayeyarwaddy	• 146/4 mi	(11 %)



Arterial Road Network Development

Current

Center to Center Connection

Multimodal Transport Connectivity

International Linkage

Hierarchical Road Network Development

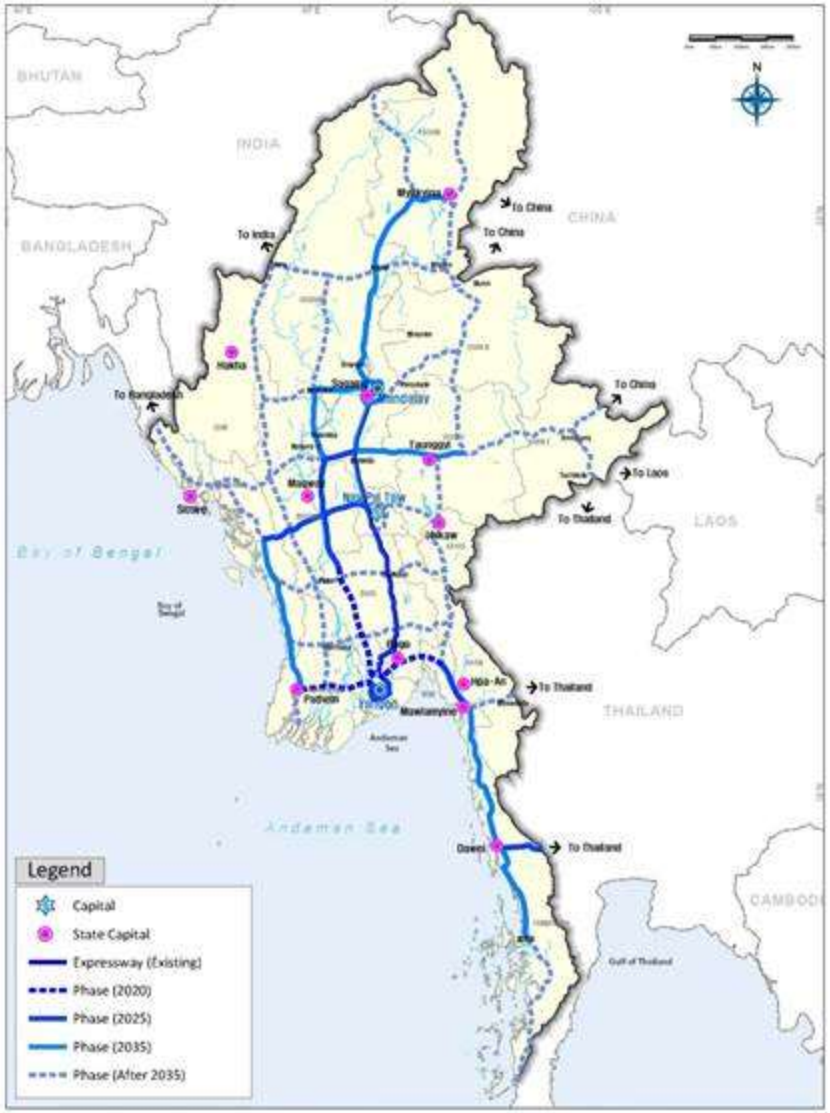
Topographical Consideration

Road Class	Length
Expressway	9,470km
Main Arterial	13,224km
Sub Arterial	11,684km
Total	34,378km

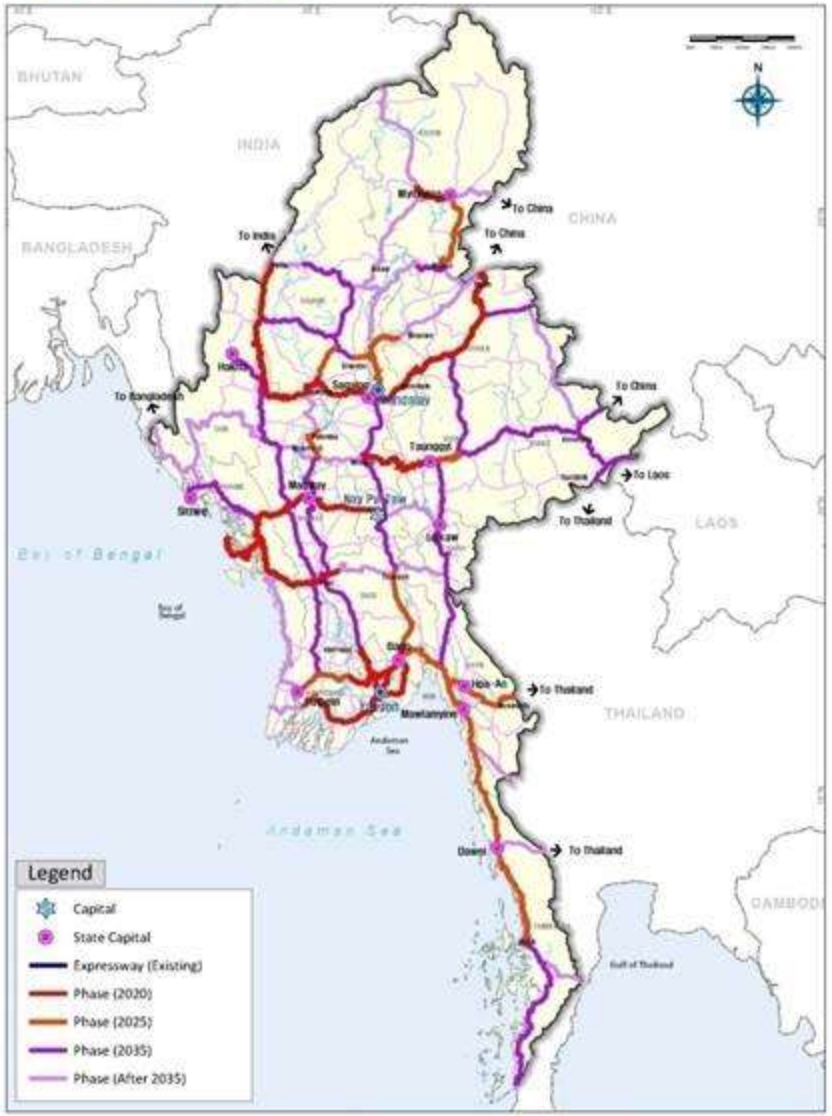
Proposal

Phased Development

Expressway

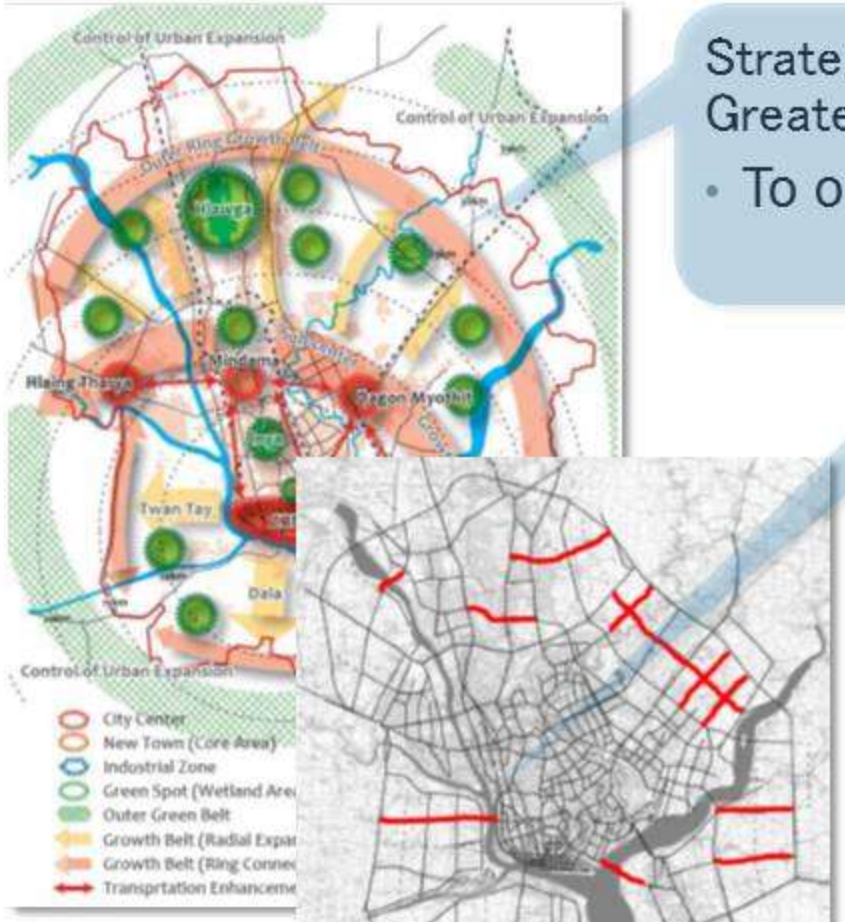


Arterial Road



Ring Roads

JICA-assisted projects formulated 2 Master Plans



Strategic Urban Development Plan of the Greater Yangon (SUDP) recommends

- To outspread urban function

Comprehensive Urban Transport Plan of the Greater Yangon (YUTRA) recommends

- Priority railway/roadway development projects based on SUDP

Bridge Sector Development

Bridge Sector Development

Achievements in Bridge Sector

Ayeyarwaddy Bridge (Pakokku)

Bayintnaung Bridge

Pathein Bridge

Yadanar Theinkha Bridge

Bridge Constructed by Department of Bridge

Sr	State / Division	180 Feet and above Length Bridges
1	Kachin State	33
2	Kayah State	8
3	Kayin State	18
4	Chin State	4
5	Sagaing Division	54
6	Tanintharyi	23
7	Bago Division	41
8	Magwe Division	57
9	Manadalay Division	24
10	Mon State	9
11	Rakhine State	49
12	Yangon Division	38
13	Shan State (East)	8
14	Shan State (South)	10
15	Shan State (North)	16
16	Ayeyarwady Division	98
17	NayPyiTaw	6
	Total	496

Ayeyarwaddy Bridge (Yadanarpon)

Thanlwin Bridge (Chaung Sone)

Image of New Gyaing (Kawkareik) Bridge

Image of New Gyaing (Zathapyin) Bridge

Image of New Attayan Bridge

Bago River Bridge

Goat Twin Bridge to be Implemented by PPP Scheme at Mandalay-Lashio-Muse Road

Elevated Highway

- Location - Yangon Region
- Total Length -(20.5) km
- Current Condition -F/S was done by Yooshin Engineering Company (Korea)

ELEVATED HIGHWAY

Background

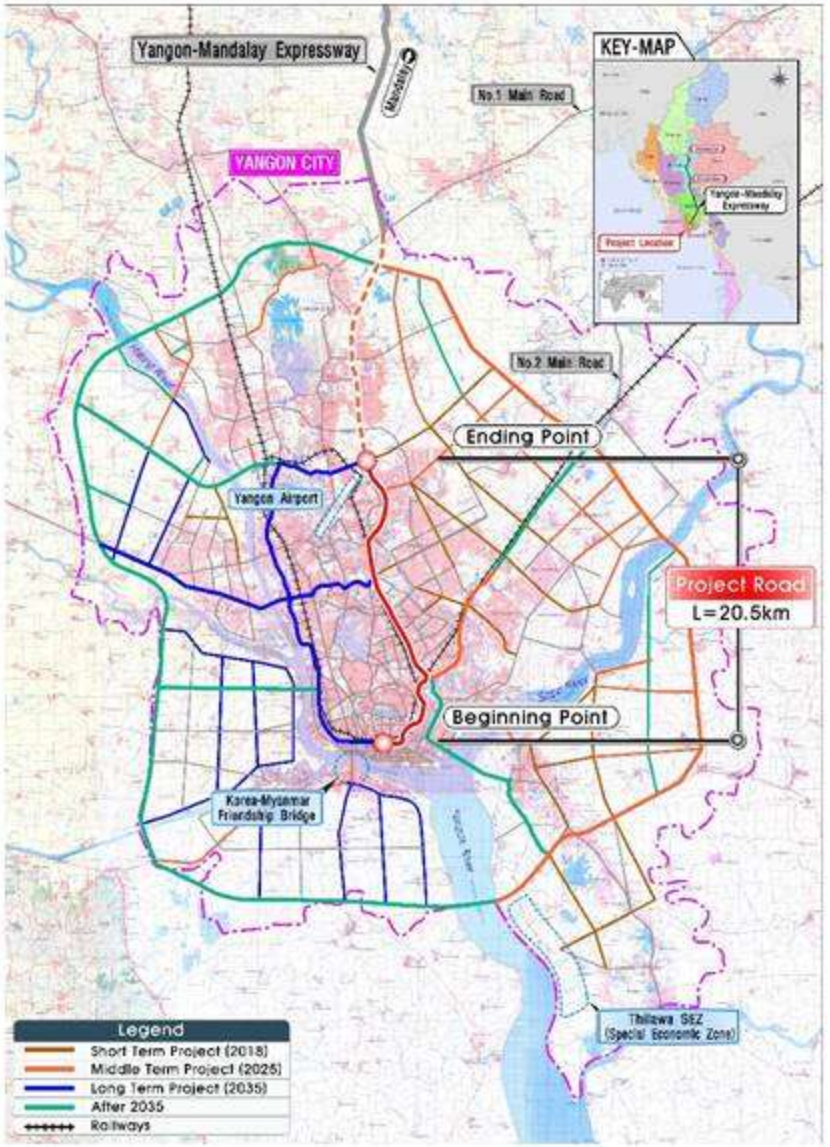
1) Current Situation
   - Urban Inner Ring Road (YUTRA, 2014) (Part of the Inner Ring Road)
2) Key Effect
   - · Improvement of Travel Speed on Main Arterial Roads
     ⇨ Provision of Solutions for Traffic Congestion
   - · Directly connected from CBD to the Yangon-Mandalay Expressway
   - · Beginning : Inner Ring Road Development in Yangon
3) Project Description
   - Project Name : Urban Expressway Development in Yangon
   - Client : Ministry of Construction
   - Management : Yangon City Development Committee(YCDC)
   - Business Concept : PPP (BOT or BTO)
   - **Project Budget (Est.) : US$ 620Mil.**
4) Construction Description
   - **Length : 20.5 km (1st Phase)** Lane : 4 (Width = 18.0 m)
   - Toll Plaza : 3 EA Up-Down Ramp : 15 EA

ELEVATED HIGHWAY

Location Map

· Location Map

· Project Road

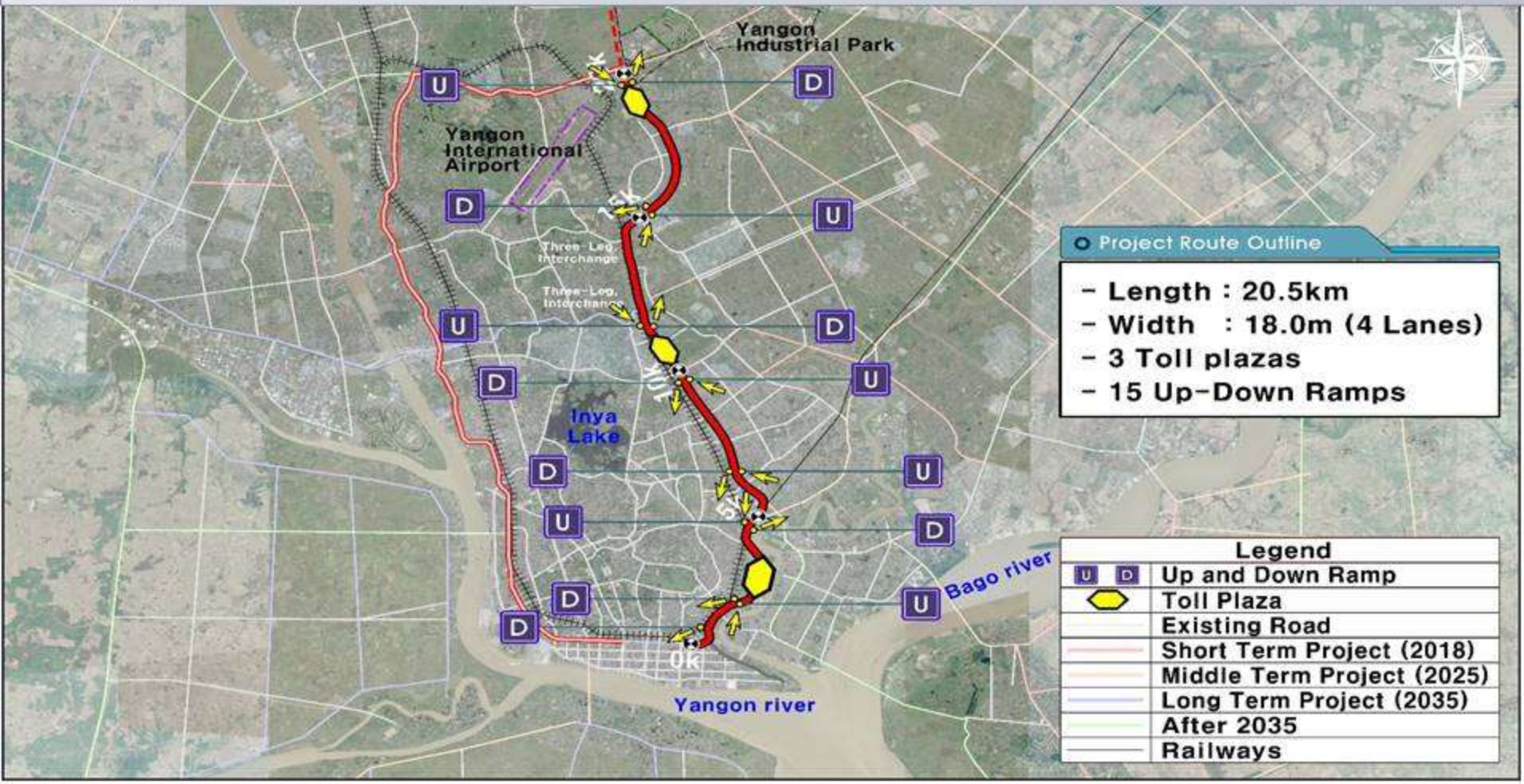


- The optimal route was chosen with consideration for priority major arterial roads and with review of wide area road network

ELEVATED HIGHWAY

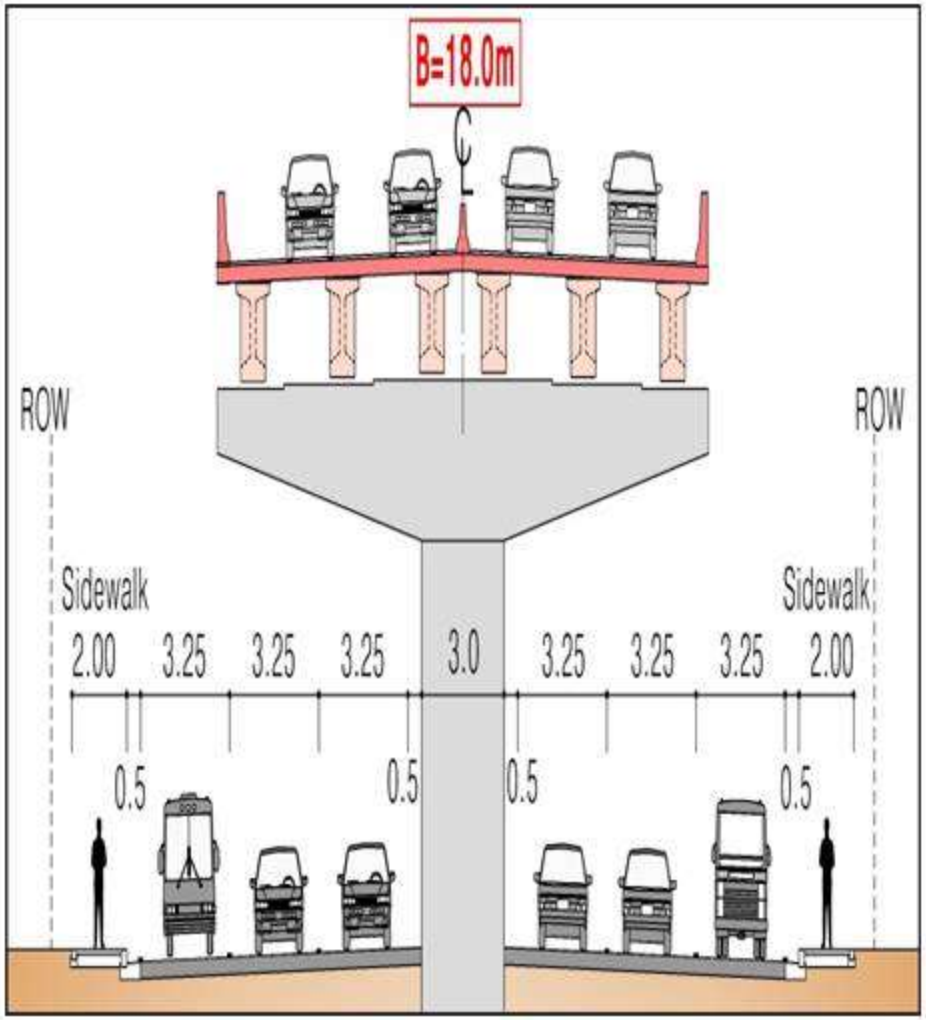
Phase (1)

Project Route Plan

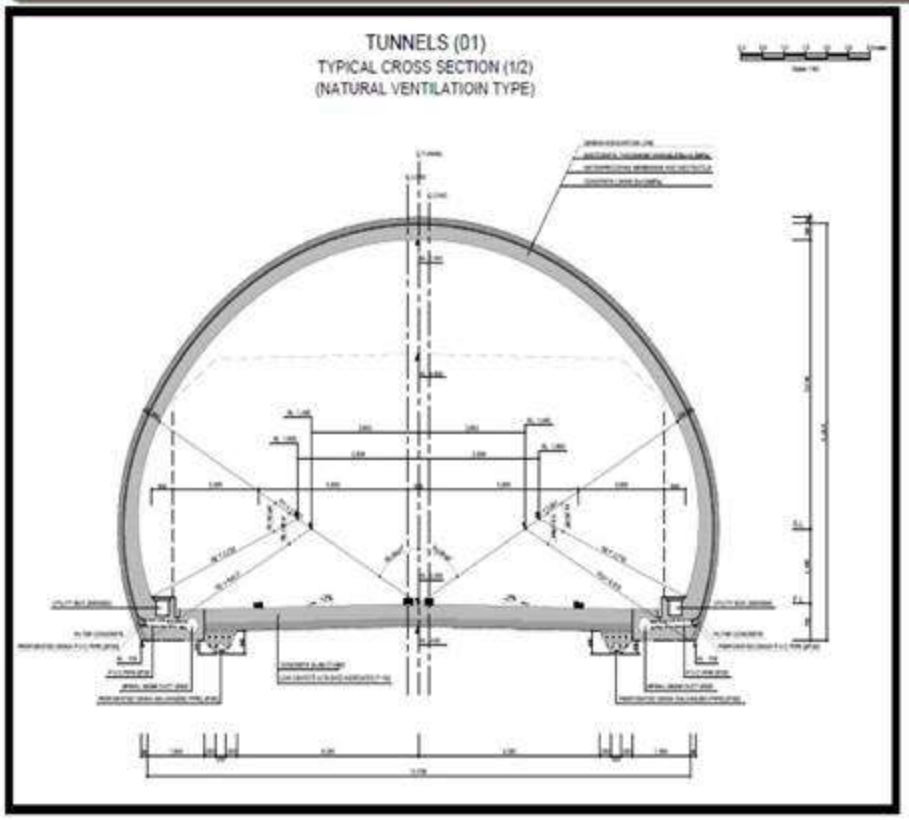


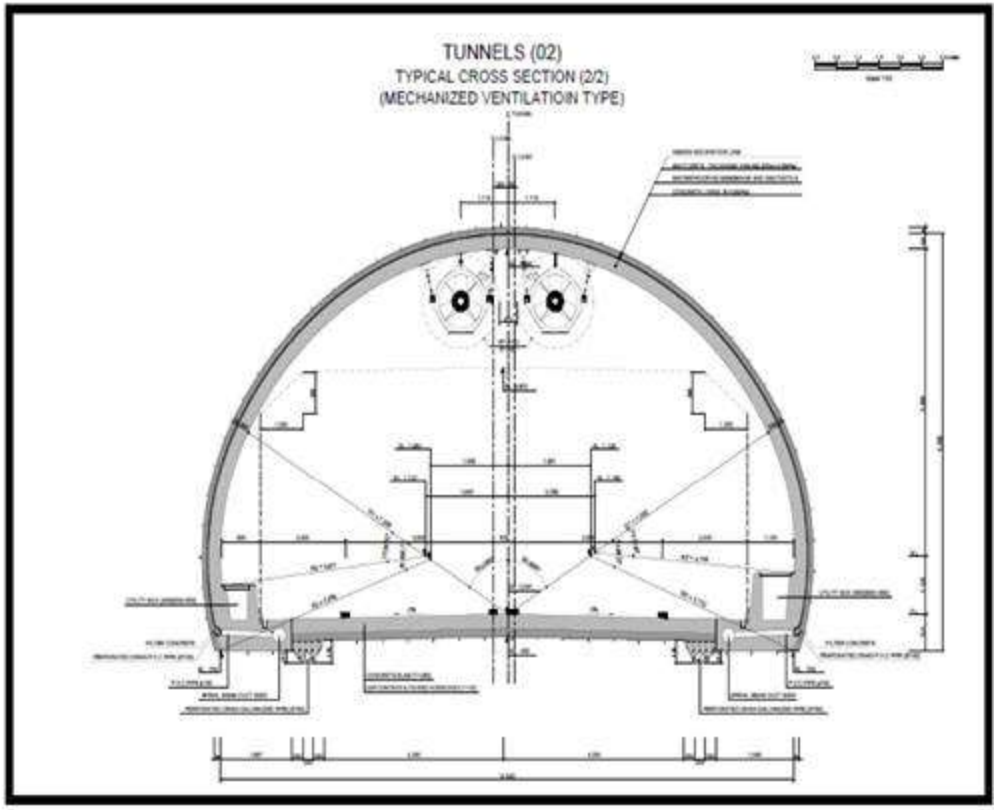
ELEVATED HIGHWAY
Phase (2)

Typical Cross Section



Pontaung –Ponnya Tunnel Projects (Proposal)





Watalone Tunnel in Shan State (Bi – Directional Tunnel)

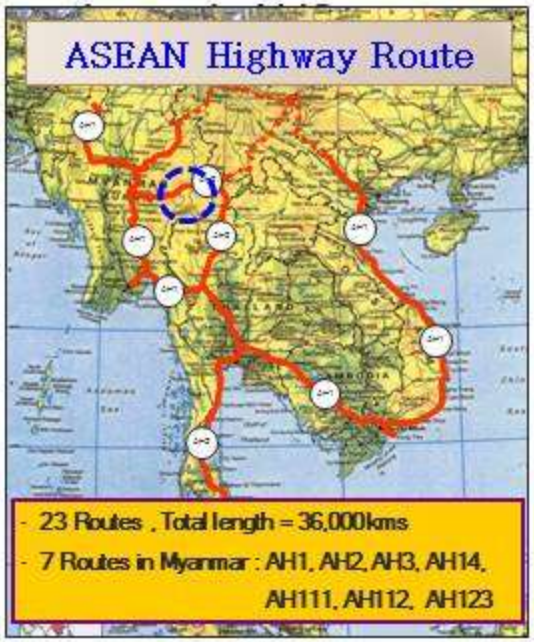
Project Purpose

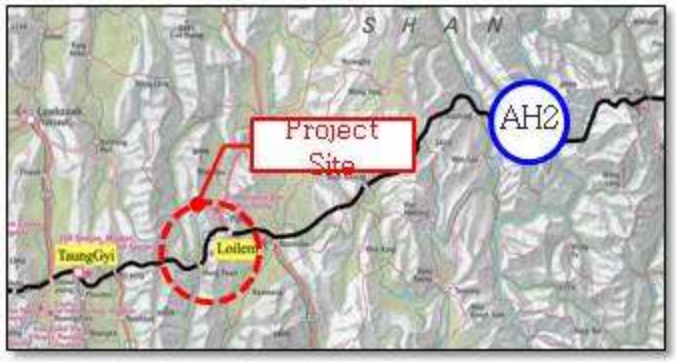
•A Feasibility study for tunnel construction of poor route road section located in mountains among comprehensive transportation environment Improvement plan which orders from Ministry of Construction(MOC).

Background

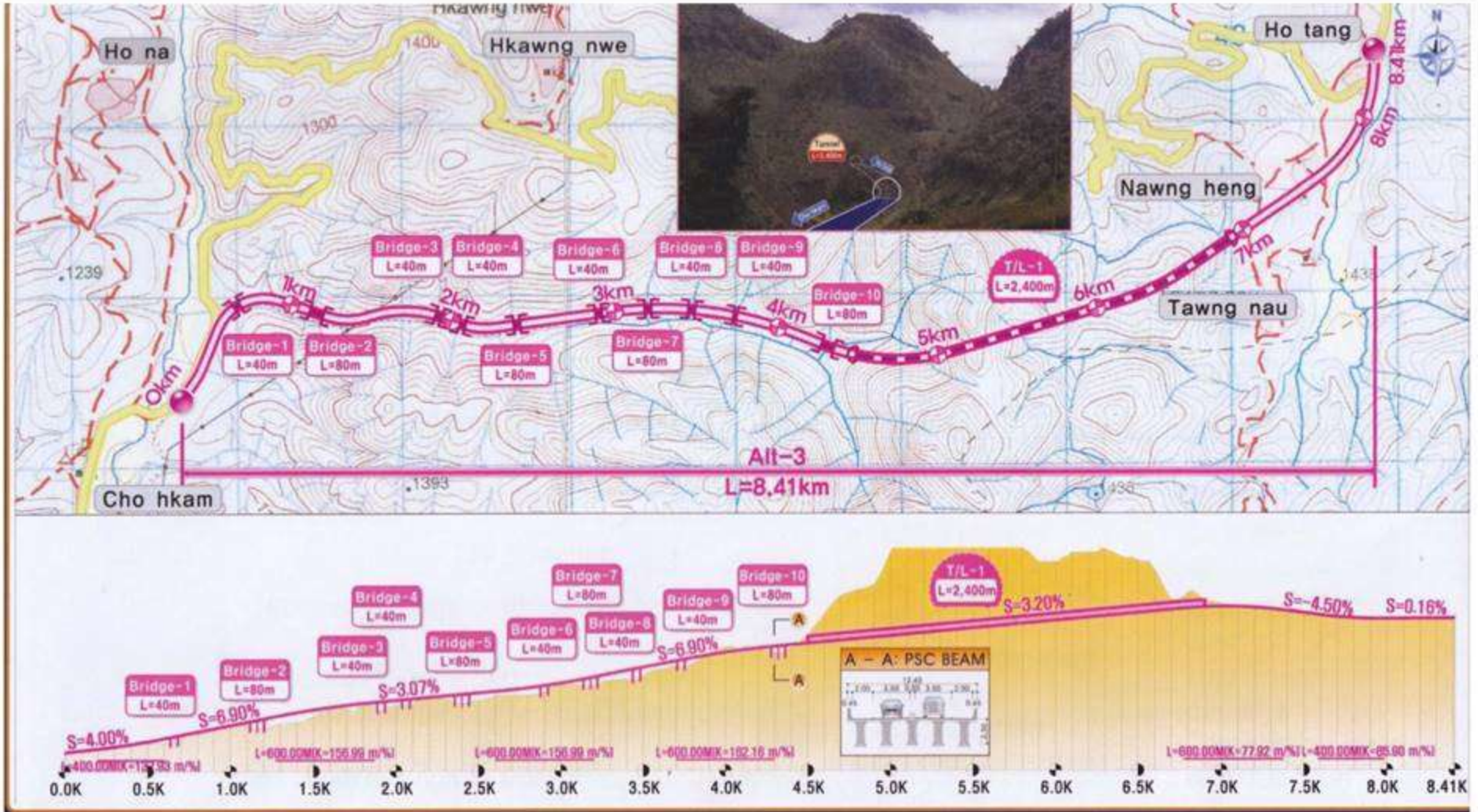
• The external aim of Myanmar government is playing a central role in land logistics through connected to Southwest Asia and Southeast Asia.

• Improvement of Social, economical conditions for Hill tribes living in mountains and the areas that passes





WATALONE Tunnel in Shan State



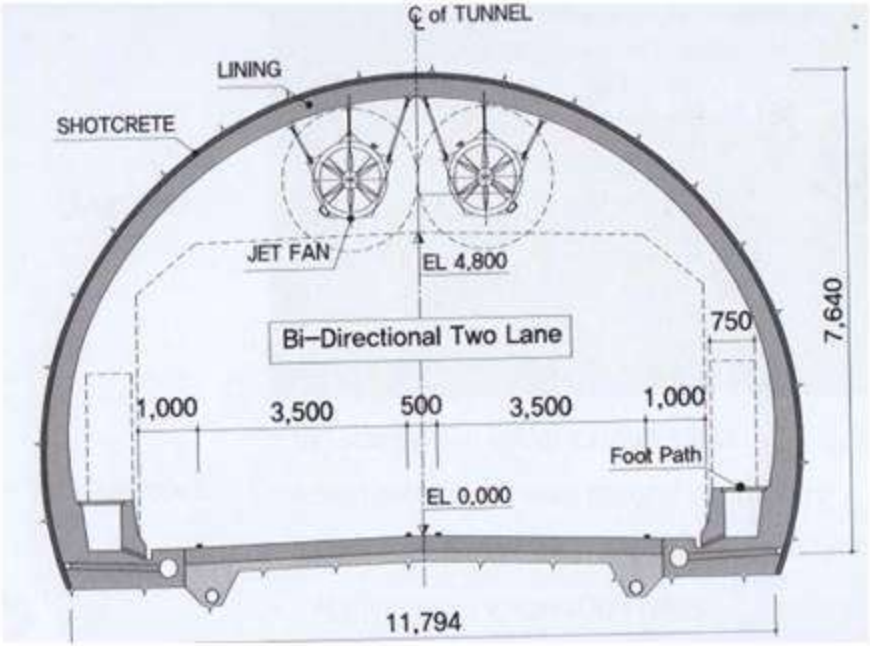
Contents • Satisfying geometric requirements → good road function, small number of structures(2,960m)

Total Length	: 8.41 km	Bridges	:10 nos (L=560m)	Driving Time	: 8.4 min
Normal Section	: 5,447 m	Tunnels	: 1 nos (L=2,400m)	Construction Cost	: 96.8 million US ($)

WATALONE Tunnel in Shan State

Tunnel Length	2,400 m
Horizontal Alignment	R=1,200-15,000m Straight
Vertical Alignment	+3.2%
Traffic Method	Bi-Directional Two Lane
Ventilation Type	Jet-fan
Excavation method	Drill & Blast, NATM
Portal Type	Arch face shape
Emergency Parking	3 EA
Emergency Shelter	6 EA

Elevation

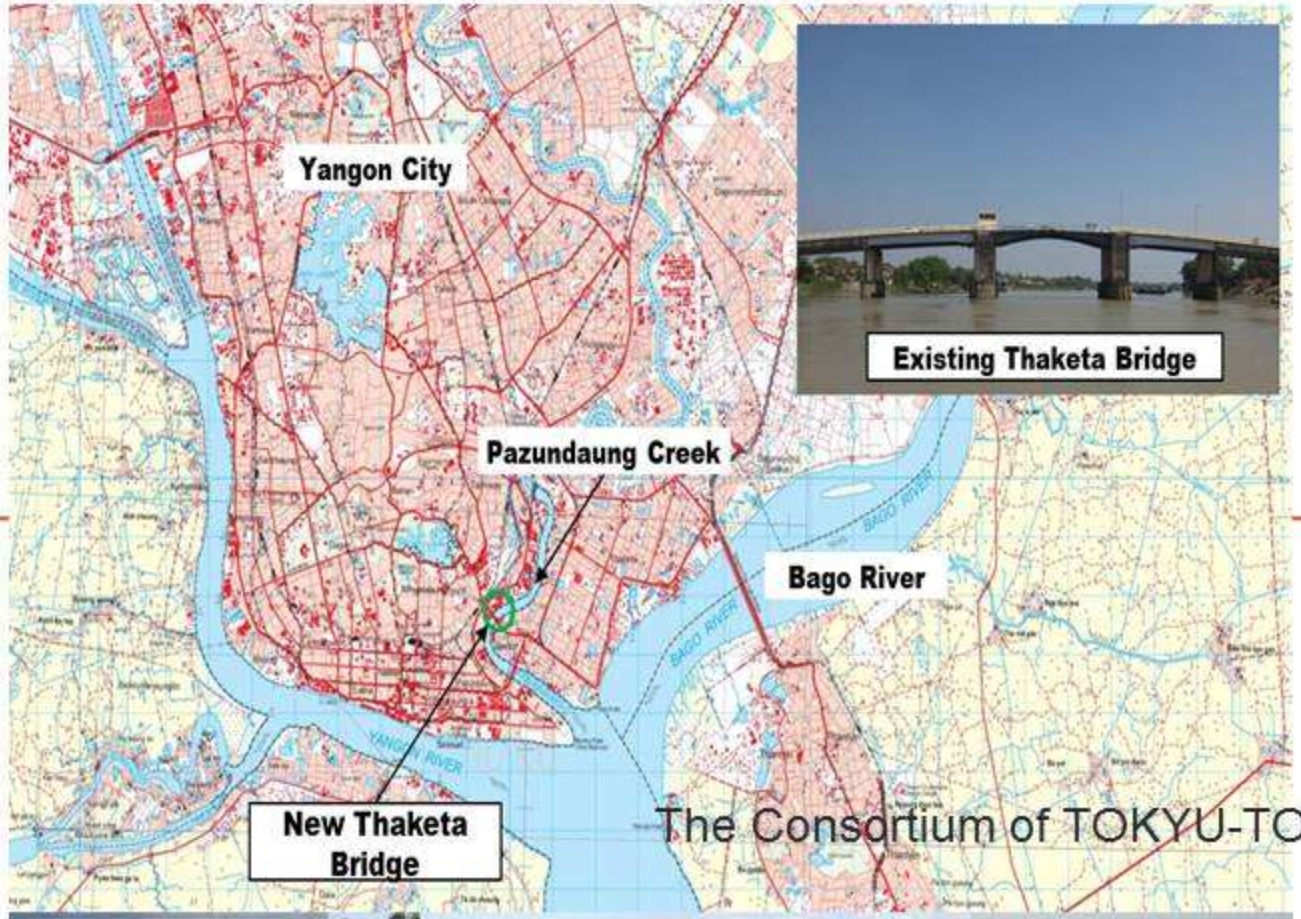


B/C	0.77
IRR	9.95%

Carriageway Width	9.5m (2@3.5+0.5+2@1)
Width of Median	500 mm
Vertical Clearance	4.8 m
Tunnel Width/ Height	W=11.794m/H=7.64m
Footpaths Width	750 mm
Drain Waterway Width	750 mm
Lining Thickness	300 mm
Excavation Area	82.828 m^3

Cross Section

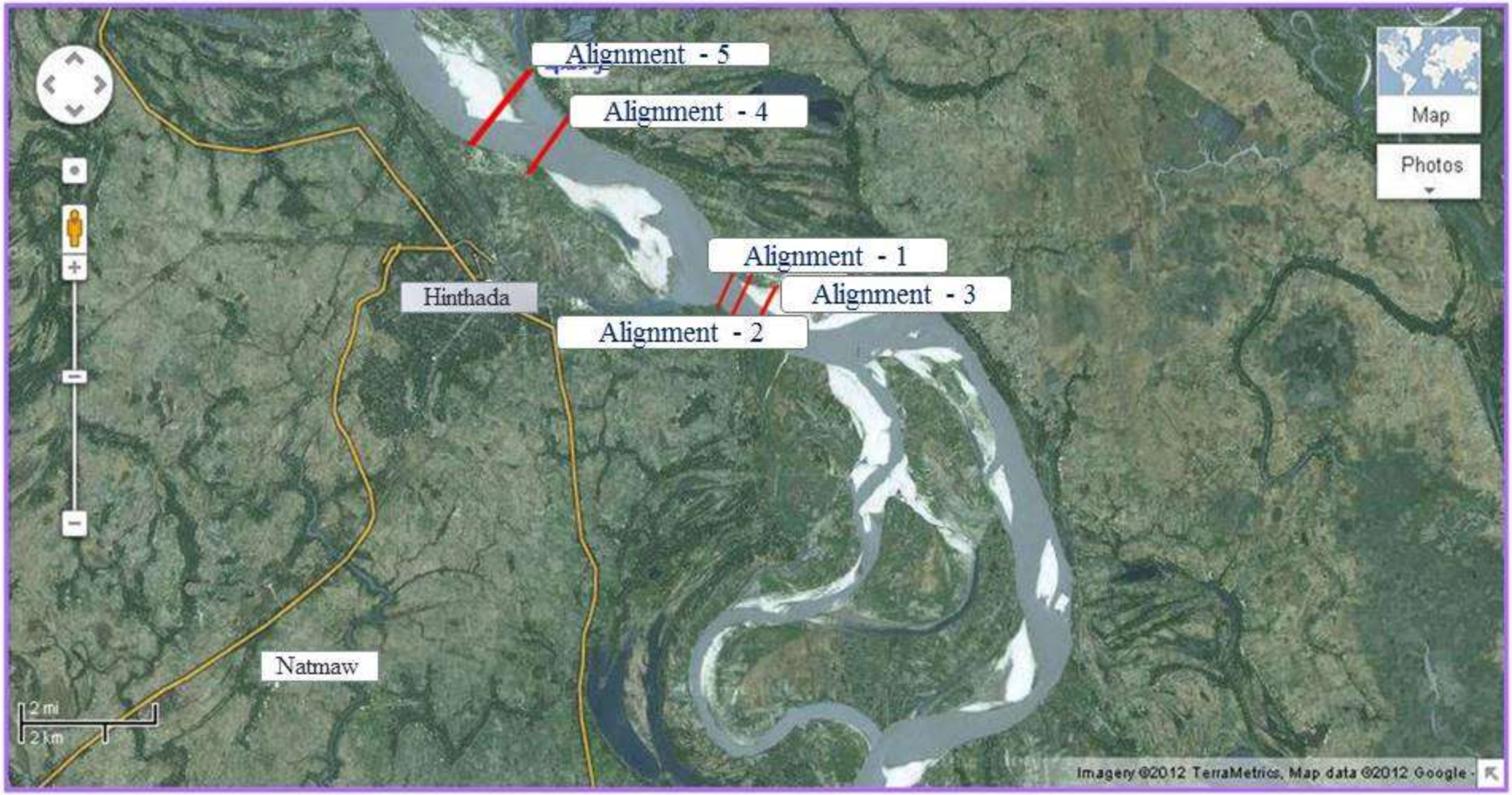
Thaketa Bridge in Yangon Region



The Consortium of TOKYU-TOYO-IIK

Thaketa Bridge

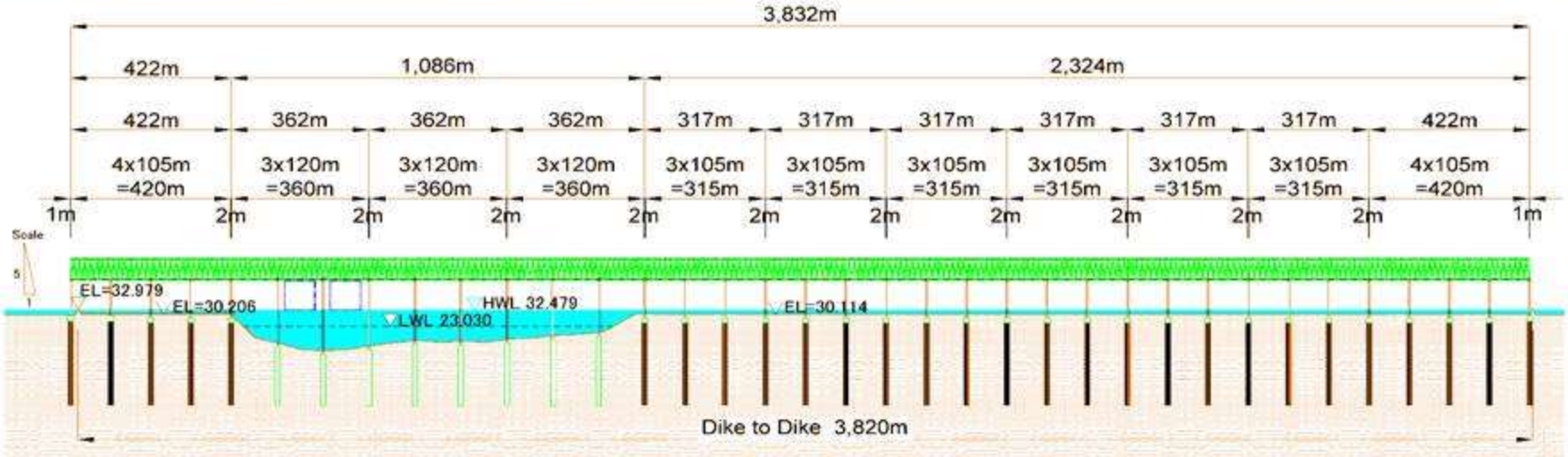
AYEYARWADY BRIDGE (HINTHADA) PROPOSED BRIDGE ALIGNMENT ON GOOGLE MAP



H-All possible proposed bridge alignments surveying work of the Ayeyarwady Bridge(Hinthada) had been done by the Aid of JICA.

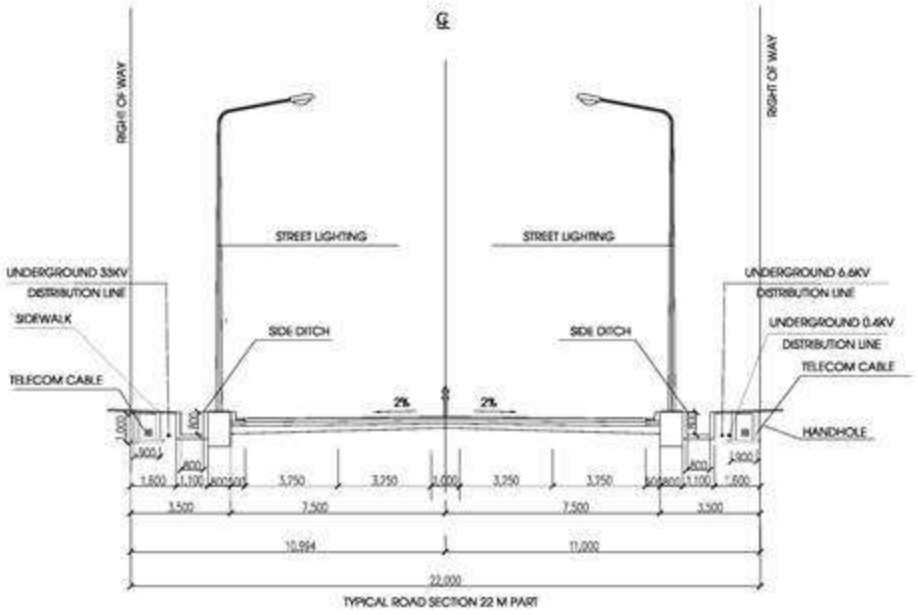
Ayeyarwaddy Bridge (Hinthada)

Double-decked Truss Bridge



Yangon – Thilawa Road Project (8.7 km)

Japanese ODA Loan (MYP6)
With JUMP process



Roadway Cross section

Japanese ODA Loan for Poverty Reduction

(MY P-2) (5711 Million Yen) *(2018-2019 to 2021-22)*

No	State/ Region	Name of Road	Road Length which will be upgraded (Km)
1.	Kayah	Taungoo - Leik Tho - Yardo - Loikaw - Hopone Road	77.76 km
2.	Sagaing	Mandalay - Dagaung - Bhamaw - Myitkyina Road	52.96 km
3.	Bago	Taungoo - Leik Tho - Yardo - Loikaw - Hopone Road	16.64 km
4.	Magway	Gangaw - Aika Road	14.72 km
5.	Shan (S)	Taungoo - Leik Tho - Yardo - Loikaw - Hopone Road	39.20 km
6.	Ayarwaddy Rakhine	Ngathaingchaung - Gwa Road	35.82 km
7.	Shan (S)	Hanmyintmo - Myogyi - Ywangan - Aungpan Road	14.68 km

Equipment provided by Grant Aids of Japan

Sr.	Name of Grant Aid	Number of Equipment	Total Price (JPY)	Remark
1	Equipment for Disaster Affected Area in 2001	70	800,000,000	
2	Equipment for Kayin State, Project Grant Aid	64	558,205,670	
3	Equipment for Rakhine State, Project Grant Aid	56	576,710,000	
4	Equipment for Kachin State & Chin State, Project Grant Aid	218	2,740,000,000	In tendering process
5	Equipment for Sagaing Region	38	450,000,000	Same as above
	Total (provided)	408	5,124,915,670	
6	Equipment for Ayeyarwaddy Region & Mon State	181	1,992,000,000	Proposed
7	Equipment for Shan State	59	1,150,000,000	Proposed
	Total (proposal)	240	3,142,000,000	
	Grand Total	648	8,266,915,670	

Urban and Housing Sector Development

- DUHD will be pure regulatory role in future and focus only housing provision on social housing and low-cost housing for urban poor.
- Expectation of Union Minister is that price of low-cost housing must be below 10 million Myanmar Kyats for affordability of current socio-economic situation.
- Experience of DUHD, this low-cost housing cannot be produced by private sector in current market situation. Therefore, government must essentially subsidizes land and basic infrastructure as electricity, water supply, street and drainage (Generally 30% of total housing cost)

- DUHD propose conceptually that targeted housing production both public and private sector will be one million up to 2031. In detail;

  1st Five Year Plan (2011-2016) – 100,000 Units

  2nd Five Year Plan (2016-2021) – 180,000 Units

  3rd Five Year Plan (2021-2026) – 300,000 Units

  4th Five Year Plan (2026-2031) – 420,000 Units

- During 2nd Five Year Plan (2016-2021), DUHD will produce 36,000 units as 20% of target by government provision (80% will be produced by private sector).

National Spatial Development Framework Plan

- **Yangon and Mandalay Centers Development Concept**
- **Concentrated Decentralization and Regional Balanced Development Strategy**

National Growth Center

- **Yangon, Mandalay and Special Economic Zone** (SEZs) (Thilawa, Dawei, Kyawkphyu,NgayokeKaung)

Regional Growth Center

- **Capital and Major Cities of States and Regions** (Sittwe, Pathein, Bago, Mawlamyine, Dawei, Monywa, Myitkyina)

Special Function Growth Center

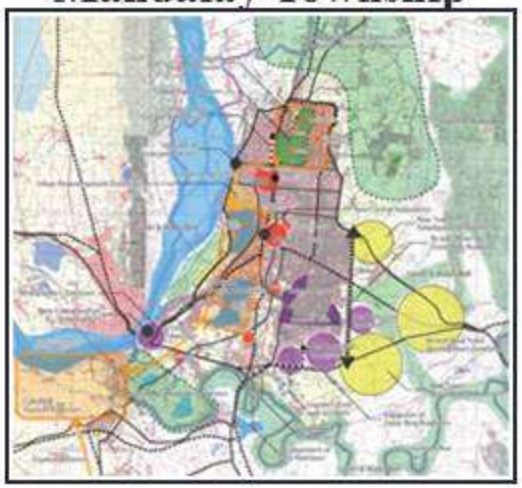
- **Border Trading and SME** (Thai-Myawaddy, Tarchilake, China- Muse, India-Tamu, Bangladesh – Maungtaw)
- **Tourism and Services Based Zone (Bagan, Inlay, Coastal area)**
- **Resource Based Industrial Zone** (water, mineral, agriculture, ..)

Main Corridor, Emerging Corridor, Major Communication Axis

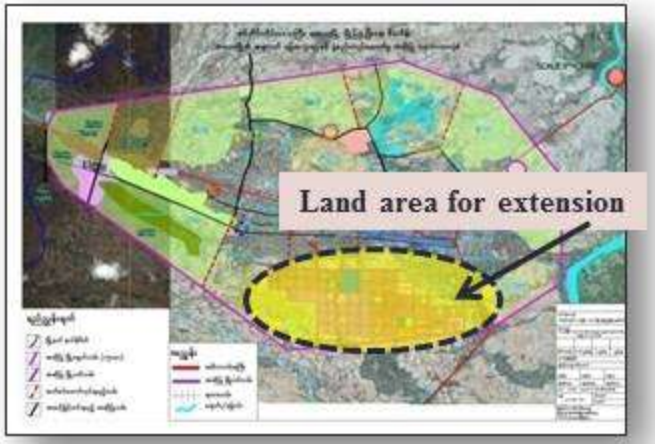
Proposed Township Project Plan of Capital Cities and Secondary Cities

Pathein Township

Mandalay Township

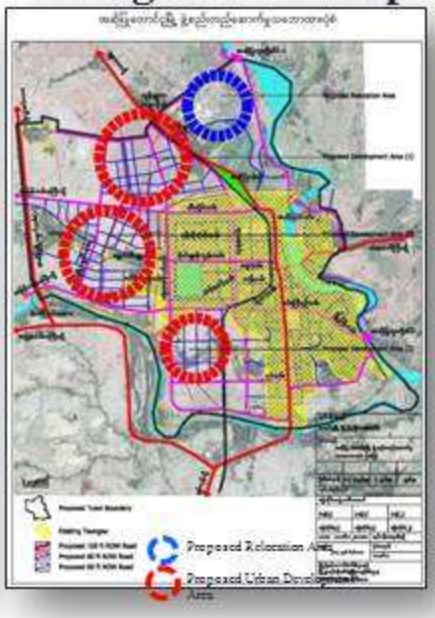


Kalay Township



Bago Township

Taungoo Township



(1) Upgrading and Urban Renewal

(2) Densification & Infill

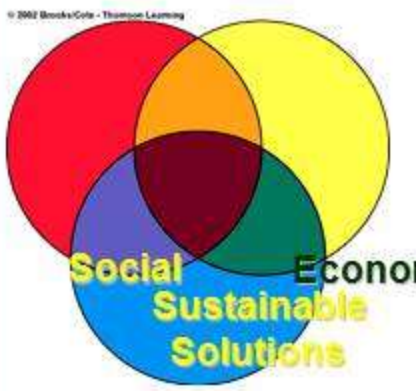
(3) Town Extension

(4) New Town Development

MYANMAR - Urban and Housing Policy and Action Plan

Vision (2030) Balanced Spatial Development

- To develop urban system contributing towards balanced, sustainable and comprehensive urban and regional development
- To establish green and resilient cities providing adequate housing and infrastructure to upgrade living standards for all



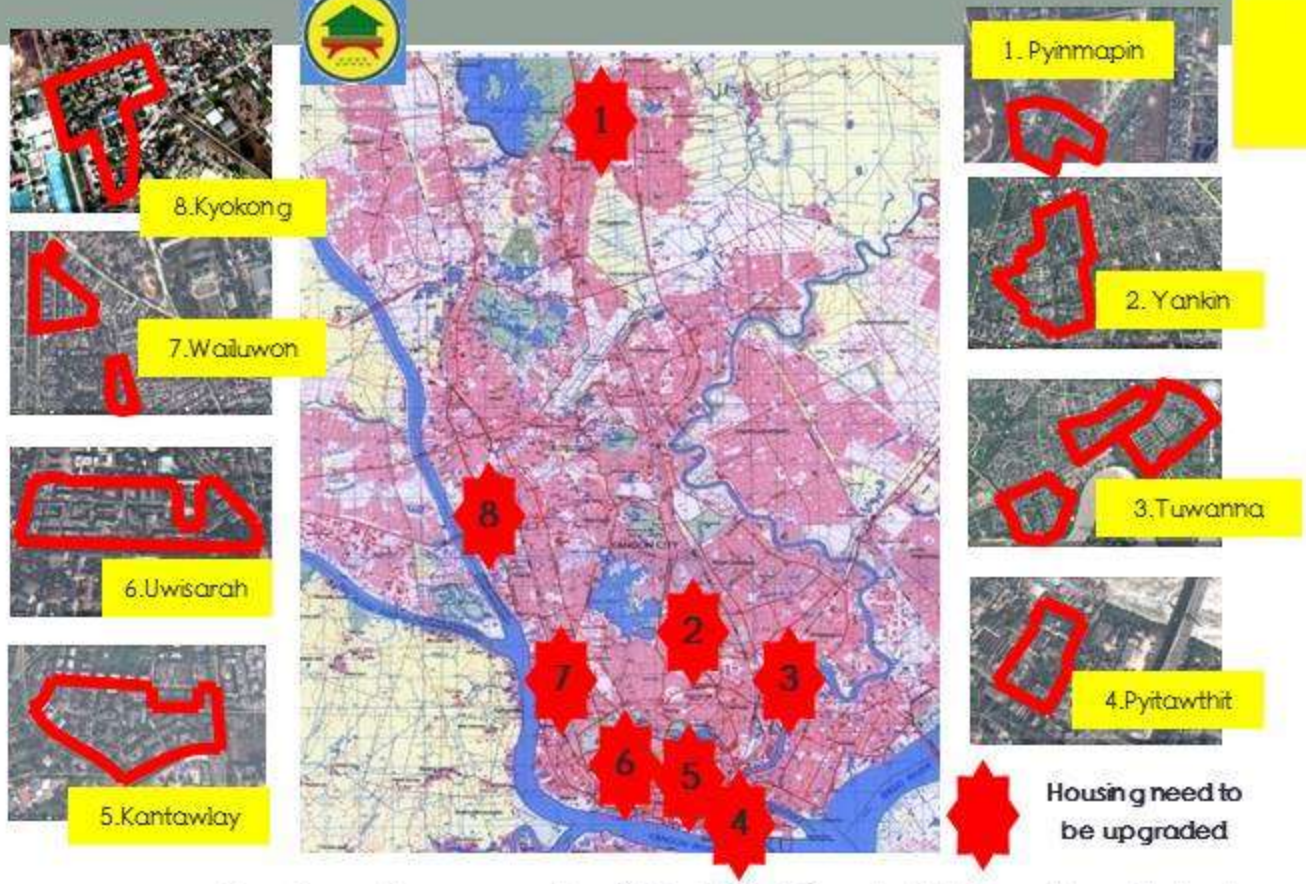
Planning and Action Plan (2011 - 2030)

- **Establishment of National Urban Policy and Strategies**
- **Establishment of National Housing Development Policy and Strategies**
- **City Development Strategic Plan** and **Town Development Concept Plan** (100 + cities)
- **One Million Housing Plan** (for Provision of **Affordable, Low Cost and Rental Housing)**
- **Urban Regeneration and Estate Redevelopment (PPP)**
- **Urban Infrastructure Services Improvement Program** (ADB, JICA, AFD--)
- **Integrated Urban Development with Connectivity, Transport and Logistic Development**
- **Industrial Park Development** (SEZ, Industrial Zones)
- **Manage Reserve Land for Future Urban Development (Housing, Infrastructure, Utility, etc)**

Housing Projects that have been planned to implemented in the region / state for five years from 2016-2017 to 2020-2021

No.	Region/State	Rent Housing	Low Cost Housing	Fair Cost Housing	Medium Cost Housing	Total Housing
1.	Yangon	4600	9240	7000	2400	23240
2.	Mandalay	2600	360	600	1200	4760
3.	Naypyitaw	-	1000	-	-	1000
4.	Ayeyarwady	-	700	250	-	950
5.	Bago	-	500	400	-	900
6.	Magwe	-	200	400	-	600
7.	Mon	-	300	350	-	650
8.	Thanintharyi	-	200	200	-	400
9.	Sagaing	-	400	500	-	900
10.	Shan	-	500	400	-	900
11.	Kachin	-	200	300	-	500
12.	Kayin	-	200	200	-	400
13.	Kayah	-	200	100	-	300
14.	Rakhine	-	200	100	-	300
15.	Chin	-	200	-	-	200
	Total	7200	14400	10800	3600	36000

Upgrading Housing at Yangon Region



- **Redevelopment of Public Rental Housing Estates**
  - **8 Housing Estates in Yangon (450 acres)**
  - **2 Housing Estates in Mandalay**
  - **29 Housing Estates in Other Cities**
- **Redevelopment through public- private partnership**
- **Mix- Used development for residential, commercial, offices and urban amenities**

Housing Development in down town Yangon

Low Cost Housing Schemes at Across the Country

Yangon City

Shwe Lin Pann low cost housing 6U 4S (504 units) (533.67 Sqft)

Japanese PPP Project in Yankin

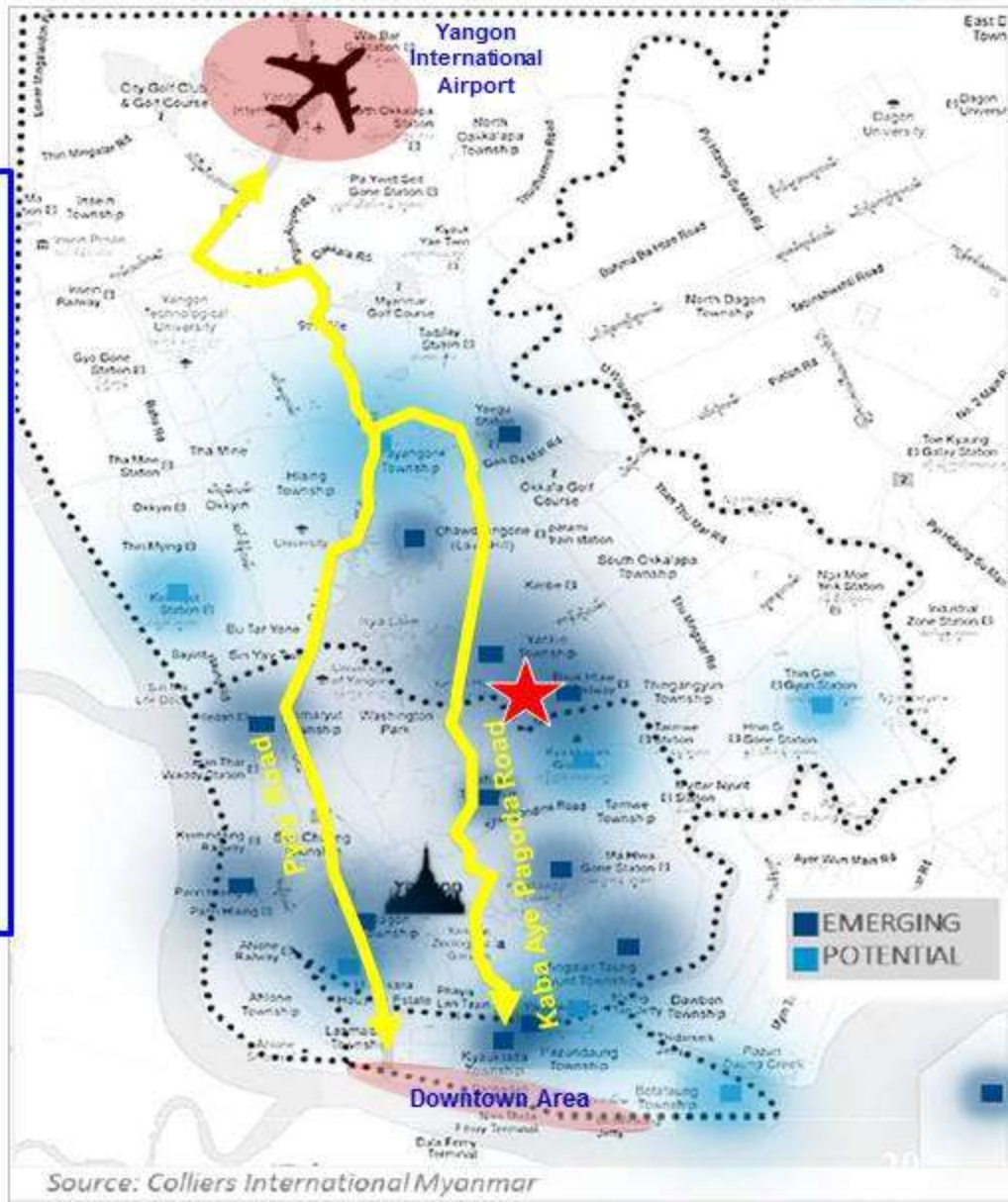
3) a : Site Description

■ Total Land Area :

7.296 Acres

■ Land Use :

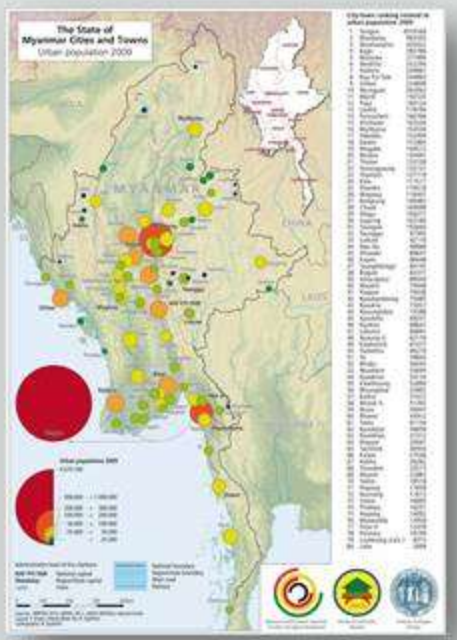
Mixed Development with Majority of Commercial and Office Space



Urban Development planning of the significant Cities in line with Socio-economic

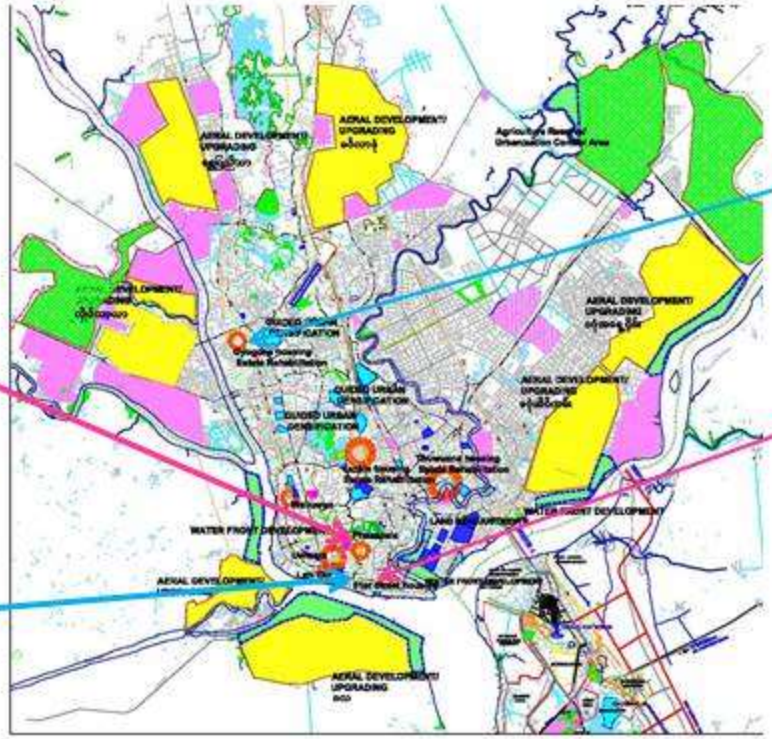
(2012-2016) – (56) Cities + (25) Cities

2012 - 2013	(2013-2014) (2014-2015)	(2015-2016)
•Yangon Concept Plan Vision (2040) •Monywa •Sagaing •Shwebo •Bago	- Mandalay - Mawlamyaing - Kyaikhto, Mudo, Thaton - Meikhtila - Myingyan - Falam - Lashio - Pathein - Myawaddy, Kawtkayeik - Tachileik, Kengtung - Myitgyina - Bamaw - Thandwe-Ngapali - Kyaukpyu - Hpa-an - Kalay - Pakokku - Tamu - Muse - Dawei - Pyay - Nyaung Oo, Bagan -Ye Nan Chaung, Kyauk -Other Cities	•Moekuk •Tha Peik Chin •Pyin Oo Lwin •Taunggyi •Kalaw •Hinthada •Ma-u-bin •Pyapon •Sittwe •Myauk Oo, Maung Taw •Hakha •Myeik •Cities which in Yangon Division •Khayang – Thonkwa •Thanlynn – Kyauktan •Twantay- Kungyangon •Hmawbi – Hlegu •Other Cities



MOC
DHSHD

Housing Estate Redevelopment Scheme



U Wizara, Dagon
51th Street, Botataung
Pyinmapin, Mingaladon
Gyogone, Insein
Pyitawthit, Pazuntaung
Yankin
Shwegondine, Bahan
Kantawkalay, Mingalataungnyunt
Wayluwun, Sanchaung
Thuwuna

- **Public Rental Housing Estates**
  - **10 Housing Estates in Yangon (450 acres)**
  - **3 Housing Estates in Mandalay**
  - **29 Housing Estates in Other Cities**
- **Redevelopment with the participation of private sector.**
- **Mixed development for residential and commercial to utilize scarce and valuable land effectively.**
- **2013-2015 , 10,000 housing units are planned to produce.**

CURRENT ACTIVITIES

YADANA HNIN SI RESIDENCE
To Be Launch In DEC 2016 @ DAGON SEIKEN, YANGON

low income housing

Old Housing Estate Redevelopment Project (51 street)

Urban Development Project by Unit Sharing (PPP)

NEW MIXED USED DEVELOPMENT by PPP at YANGON

JV WITH PRIVATE SECTOR

Punhlaing Golf Estate

- Target - High Income Group
- joint venture project between DHSHD and FMI Co.,. (30% : 70%)
- Project started in 1998.
- Project Area-650 Acres

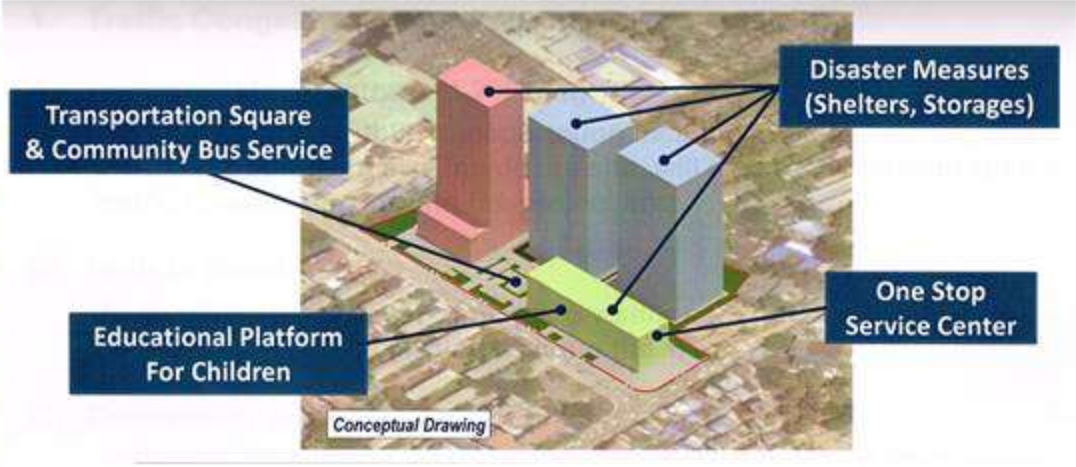
JV WITH FOREIGN COMPANY….MINGALADON IND, PARK

Mingaladon Industrial Park

- Target – Manufacturing FDI
- joint venture project between DUHD and Mitsui(40% : 60%)
- Project started in 1998.
- Project Area-220 Acre

PROPOSED MIXED USE DEVEKOPMENT BY KAJIMA CORPORATION

(7.2 acre)



Joint Ventures

J & M Steel Solution
(JV with JFE Co., Ltd.)

Production of Steel Truss, Steel Box Girders

I & H Engineering Co., Ltd.
(JV with IHI)

Production of PC Spun Pipes, PC Bridge Girders

Joint Ventures

Chiyoda Public Works Company Ltd

Engineering Services
Equipment & Machinery Services
Office Rental Services

Conclusion

The development of the nation is directly proportional to the investment in the infrastructure such as energy, transport, and basic infrastructure such as road, bridges and housing estates.

To gain the momentum on quality economic development, developers and investors from Italy are invited to invest in these sectors based on a Win – Win situation which will benefit both the investor and the country.

www.ministryofconstruction.org

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Office No.(11), Naypyitaw.
Myanmar

THANK FOR YOUR KIND ATTENTION

Air Transport

MoU between Myanmar Airways and GE Capital Aviation Services

Boeing 737-800 (NG)

First	Aircraft	June 2015
Second	Aircraft	Oct 2015
Third	Aircraft	Feb 2016
Fourth	Aircraft	Mar 2017

Caravan

First	Aircraft	
Second	Aircraft	Nov 2013
Third	Aircraft	
Fourth	Aircraft	Sept 2015

Boeing 737-800 MAX

Fifth	Aircraft	Jan 2019
Sixth	Aircraft	July 2019
Seventh	Aircraft	Jan 2020
Eighth	Aircraft	July 2020
Ninth	Aircraft	2021
Tenth	Aircraft	2021

Land Plot Allocations for Development of Terminals at Thilawa SEZ

1.	Developed	10	Plots
2.	Under Construction (GC Terminal)	5	Plots
3.	Under Construction (Tanker Berth)	10 1/3	Plots
4.	Under Construction (Grains Terminal)	5 2/3	Plots
5.	MPA(ODA Loan)	5	Plots
6.	Liquid Bulk Terminal	1	Plots

Priority Projects and Actions on Corridor A (cont'd)

Road Sector

- Extension of the expressway (from 0 mile) to Thilawa SEZ/Port
- Improvement of the existing expressway
- Extension of the expressway from 40 miles to HIA / Thilawa
- Two bridges on UH No.1 (near Meikthila and Pyinmana)

Dockyards and Capacity

Dockyards	Location	No. of Slipway			Docking Capacity	Maximum DWT For Docking
		Main Slipway	Side Slipway	Air Bag Way		
Dalla Dockyard	Dalla	14	-	-	22	1400
Dagon Seik Kan Dockyard	Dagon Seik Kan	2	5	1	26	1400
Sittway Dockyard	Sittway	1	2	-	5	250
Than lwin Dockyard	Mottama	1	-	-	2	300
Mandalay Dockyard	Mandalay	1	-	-	5	300
Chindwin Dockyard	Monywa	1	1	-	3	250
Total		**20**	**8**	**1**	**63**	-

Situation of Inland Water Transport

Cargo services

Passenger services

- Remain dominated by small-scale transporters unable to achieve sector modernization.
- Transport freight share by Inland Water Transport is less than 10%
- Trail Run of the Container Barges from Yangon-Mandalay-Yangon along the Ayeyarwady Water Way
- Need Financial Assistance

On-going Projects by External Assistances

- Ayeyarwady Integrated River Basin Management Project (AIRBMP) is implemented by the World Bank's 100 Million US $ loan
- It includes 3 components

Component 1 Water Resources Institutions, Information and Capacity Building

Component 2 Hydromet Observation and Information Systems Modernization

Component 3 Ayeyarwady river Navigation Enhancements

On going Projects by External Assistances

Ayeyarwaddy River

- Sinkham Port
- Mandalay Port
- Pakakku Port
- Magway Port

Chindwin River

- Monywa Port
- Kalewa Port

Benefits

- To establish standard Inland Ports along Ayeyarwaddy and Chindwin rivers in order to promote efficient cargo handling
- To promote the containerization by using inland water ways
- To support the facilitation of inland water transport
- To create job opportunities and develop the living standards of the people

Feasibility Study for Inland Water Transport Facilities Improvement Project in Mandalay has been completed in March 2014 with the assistance of JICA. Now, this FS is being reviewed to establish.

Navigational Constraint of Yangon Port

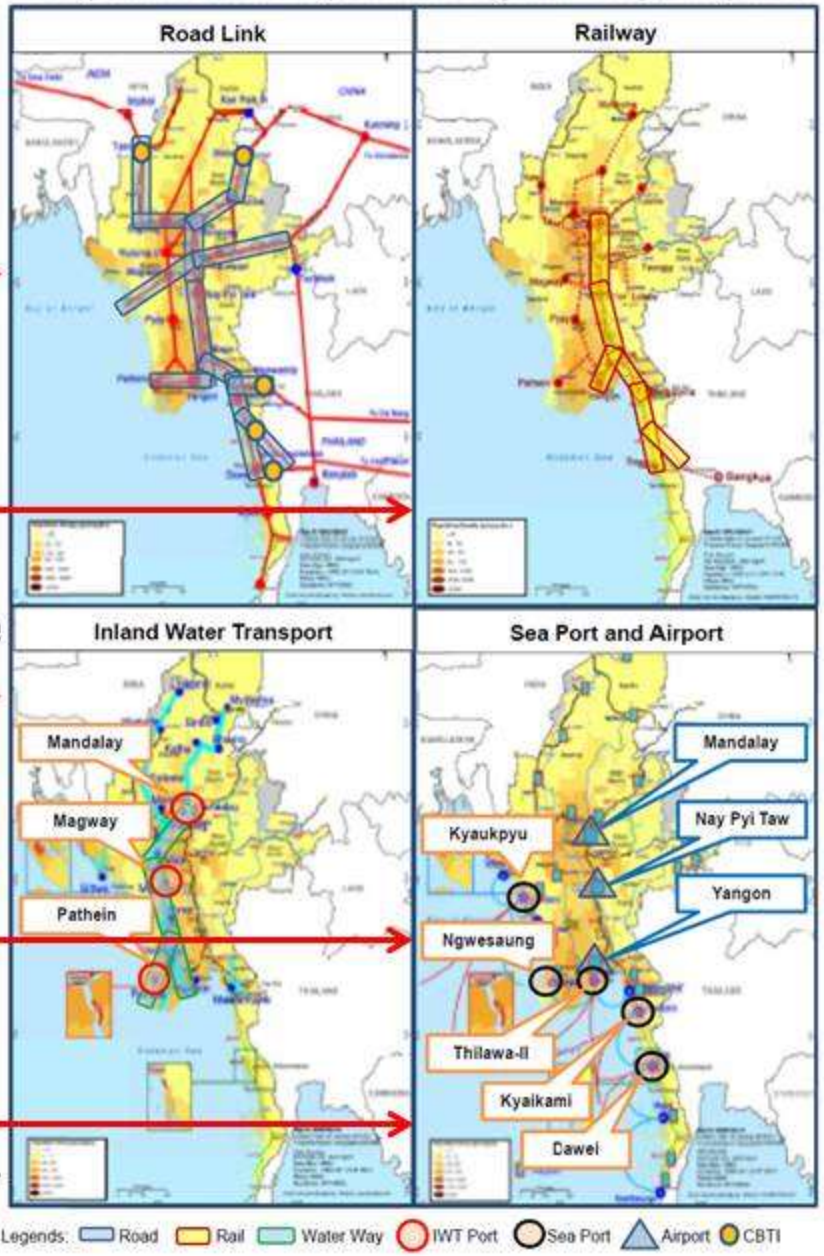
- All vessels calling to the Yangon Port (including Thilawa area) are generally on flood tide.
- Yangon inner harvour is accessible to vessel;
  - 167 m LOA,
  - 9 m draft,
  - 15,000 DWT
- Thilawa area
  - 200 m LOA,
  - 9 m draft,
  - 20,000 DWT.
- The navigation channel needs to be improved.

Rail Transport

Rolling Stocks

Type	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Diesel Loco Fleet	387	394	405	405	377	377
Rail Bus Fleet	182	182	189	236	237	305
Passenger Coaches	1238	1277	1282	1319	1369	1405
Freight Wagons	3331	3236	3210	3374	3384	3395

Priority Projects for Logistics Infrastructure

- **Logistics Facilities**
  - Improved truck terminals
  - Cross Border Trade Infrastructure
  - Multi-modal logistics center
- **Road**
  - Road for cargo transport by heavy loaded truc
  - Utilization of existing expressways
- **Railway**
  - Provision of ICD
  - Introduction of **Container Block Train** service
- **Inland Water Transport**
  - Orderly inland water transport ports
  - Reinforcement of **IWT fleet**
  - Transport of **containerized cargoes**
- **Sea Port**
  - Development of deep sea port(s)
  - Modernization of ports for coastal shipping
- **Airport**
  - Improvement of local airports especially for potential areas of tourism development

Priority Zone and Location of Logistics Related Projects Identified by Transport Mode