Transport Infrastructure Development in Myanmar

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Ministry of Construction
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Overview of Myanmar

- Population: 52.45 M (2015~16) projected
- Area: 676578 km²
  - 936 km (East – West)
  - 2051 km (North – South)
- Road Length: 140910 km (Mar 2015)
- Number of registered vehicles: 6126289 (Dec 2016)
- Neighboring Countries: Bangladesh, India, China, Lao, Thailand
- GDP: 72780464.5 Million Kyats (March 2016)
- GDP Growth: 7.3% (March 2016)
- Per Capita GDP: 6.4% (March 2016)
<table>
<thead>
<tr>
<th>CITY PROFILE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YANGON</td>
<td>~600 sq-km</td>
<td>~7.0 million</td>
<td>~1.69%</td>
</tr>
<tr>
<td>MANDALAY</td>
<td>~120 sq-km</td>
<td>~1.0 million</td>
<td></td>
</tr>
<tr>
<td>NAY PYI TAW</td>
<td>~7,057 sq-km</td>
<td>~1 million</td>
<td></td>
</tr>
</tbody>
</table>

Cities & Towns (Population more than 100,000) - 56 no.
Transport Administration

Ministry of Transport and Communication
Aviation and Maritime transport, Rail Transport, Land Transport

Ministry of Construction
Construction and maintenance of national roads and bridges; Rural Road (New set up)

Urban Transport

Naypyitaw Development Committee
Yangon City Development Committee
Mandalay City Development Committee

The Ministry of Border Affairs
for construction and maintenance of roads and bridges in border areas
Government Policy

Set up Priority Policy

- Develop Transport Infrastructure and Electrical Power
Ministry of Construction

UNION MINISTER
Deputy Minister
PERMANENT SECRETARY

DIRECTOR GENERALS for

Department of Building
Department of Highways
Department of Bridge
Urban and Housing Development
Department of Rural Road Development
MOC Vision

- To meet the international standard of Highway
- To develop the highway linked with international connectivity

MOC Engineering will have technology to meet international standard
<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Vehicles/1000 peoples</td>
<td>79</td>
</tr>
<tr>
<td>Road(km)/100,000 people</td>
<td>308</td>
</tr>
<tr>
<td>Road Density (km, km²)</td>
<td>23</td>
</tr>
<tr>
<td>Road (km)/1000 vehicles</td>
<td>34</td>
</tr>
<tr>
<td>Pave Road(%)</td>
<td>20%</td>
</tr>
<tr>
<td>Pave Road (km)/100,000 peoples</td>
<td>67</td>
</tr>
<tr>
<td>Pave Road (km)/100km²</td>
<td>5</td>
</tr>
<tr>
<td>Pave Road(km)/1000 vehicles</td>
<td>7.4</td>
</tr>
</tbody>
</table>

(Sources from ADB)
## Total Road Length in Myanmar (as March 2015) [in km]

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

Note: The table above shows the total road length in Myanmar as of March 2015. The entries include concrete, bitumen, metal, gravel, earth, mule, and total road length for various organizations and cities. The data is presented in kilometers (km).
Total Road Length in Myanmar (as March 2015) [in km]

- **MOC** = Ministry of Construction
- **MOD** = Ministry of Defense
- **MOPBA** = Ministry of Progress of Border Areas
- **CDC** = City Development Committees (YCDC, MCDC, NCDC)

- **MOC** = 57%
- **MOD** = 32%
- **MOPBA** = 8%
- **CDC** = 3%
### Road Data in States and Regions under MoC (as of March 2016)

<table>
<thead>
<tr>
<th>Region/State</th>
<th>AC</th>
<th>Concrete</th>
<th>Bitumen</th>
<th>Metal</th>
<th>Gravel</th>
<th>Earth</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Up to 12’</td>
<td>Up to 22’</td>
<td>Over 24’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>343.595</td>
<td>1362.512</td>
<td>14014.269</td>
<td>7428.531</td>
<td>3473.065</td>
<td>3741.421</td>
<td>5486.255</td>
</tr>
</tbody>
</table>

#### Types of Road under MoC

- **AC**: 60.54%
- **Concrete**: 3.31%
- **Bituminous**: 0.83%
- **Metal**: 13.33%
- **Gravel**
- **Earth**

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*
International Connectivity
Asian Highways in Myanmar

- **AH1** 1,650km  
  (Myawadi-Yangon-Mandalay-Tamu)
- **AH2** 807km  
  (Tachilek-Meiktila-Tamu)
- **AH3** 93km  
  (Mongla-Kyaing Tong)
- **AH14** 453km  
  (Muse-Mandalay)
- **Total** 3,003km

*The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.*
## ASEAN Highways in Myanmar

<table>
<thead>
<tr>
<th>S.N</th>
<th>Route names</th>
<th>Length (Km)</th>
<th>Directly Connect to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AH 1</td>
<td>1650</td>
<td>India, Thailand</td>
</tr>
<tr>
<td>2</td>
<td>AH 2</td>
<td>807</td>
<td>Lao</td>
</tr>
<tr>
<td>3</td>
<td>AH 3</td>
<td>93</td>
<td>China</td>
</tr>
<tr>
<td>4</td>
<td>AH 14</td>
<td>453</td>
<td>China, Lao</td>
</tr>
<tr>
<td>5</td>
<td>AH 111</td>
<td>239</td>
<td>AH-2 to AH -14, China, Lao</td>
</tr>
<tr>
<td>6</td>
<td>AH 112</td>
<td>1145</td>
<td>Thailand</td>
</tr>
<tr>
<td>7</td>
<td>AH 123</td>
<td>141</td>
<td>Thailand</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4513</td>
<td></td>
</tr>
</tbody>
</table>
GMS East West Economic Corridor

proposed extend alignment
existing alignment
proposed extend alignment
existing alignment
Capital City
(Administrative, Transport & Logistic Hub)

National Economic Growth Center
(SEZ, Port, Int’l Airport, Trading, Financial)

Secondary Regional Growth Center
(Administrative, Transport & Logistic Hub)

Other Growth Center
(Town with more than 50,000 inhabitants)
Seaports in Myanmar

- Sittwe (Deep Seaport, 20,000dwt)
- Kyaukphyu (Deep Seaport, 300,000dwt)
- Pathein
- Yangon
- Thilawa
- Mawlamyine
- Dawei (Deep Seaport, 50,000 dwt)

Dawei Deep Seaport (Proposed)
Pathein
Ngayokekaung Deep seaport (Proposed)
Kyaukphyu Deep seaport (Proposed)

Legend
- Town Point
  - Capital
  - State Capital
  - Road
  - Coast
  - State Boundary
  - International Boundary

Major Rivers in Myanmar

18
## 10 Major Corridors

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Central North-South Corridor</td>
</tr>
<tr>
<td>B</td>
<td>East - West Corridor</td>
</tr>
<tr>
<td>C</td>
<td>Northern Corridor</td>
</tr>
<tr>
<td>D</td>
<td>Mandalay - Tamu Corridor</td>
</tr>
<tr>
<td>E</td>
<td>Second East - West Corridor</td>
</tr>
<tr>
<td>G</td>
<td>East - West Bridging Corridor</td>
</tr>
<tr>
<td>H</td>
<td>Delta Area Network</td>
</tr>
<tr>
<td>J</td>
<td>Southern Area Development Corridor</td>
</tr>
<tr>
<td>K</td>
<td>Western North-South Corridor</td>
</tr>
<tr>
<td>L</td>
<td>Eastern North - South Corridor</td>
</tr>
</tbody>
</table>

Priority corridors for urgent investment:
**Arterial Road Network Development**

- **Current**
- **Center to Center Connection**
- **Multimodal Transport Connectivity**
- **International Linkage**
- **Hierarchical Road Network Development**
- **Topographical Consideration**

<table>
<thead>
<tr>
<th>Road Class</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressway</td>
<td>9,470km</td>
</tr>
<tr>
<td>Main Arterial</td>
<td>13,224km</td>
</tr>
<tr>
<td>Sub Arterial</td>
<td>11,684km</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34,378km</strong></td>
</tr>
</tbody>
</table>
Phased Development

Expressway

Arterial Road

Legend:
- Capital
- State Capital
- Expressway (Existing)
- Phase (2020)
- Phase (2025)
- Phase (2035)
- Phase (After 2035)
Priority Implementation for Expressway 6 packages

E1
Yangon – Mandalay Expressway (589 km)
4 lane rigid pavement
Estimated Cost US$ 560 Millions

E2
Mandalay – Myitkyina Expressway (~460 km)
4 lane rigid pavement
Estimated Cost US$ 1870 Millions

E3
Pathein – Monywa – Shwebo Road (811 km)
4 lane rigid pavement
Estimated Cost US$ 2028 Millions

E4
Minbu-Am-Kyaumthu Highway (350 km)
4 lane rigid pavement
Estimated Cost US$ 875 Millions

E5
Yangon-Pathein-Ngayokekaung Road (304 km)
4 lane rigid pavement
Estimated Cost US$ 760 Millions

E6
Thilawa – Thanatpin – Kyeikhto Road (135 km)
4 lane rigid pavement
Estimated Cost US$ 135 Millions
Road Infrastructure Project Financing Strategy

- Government Budget
- International Loan/Grant
- PPP Scheme (Public Private Partnership)
- PFI Scheme (Private Finance Initiative)
- BOT Scheme
- FDI (Foreign Direct Investment)
- Road User Tax (Still preparing)
Build – Operate – Transfer (BOT) Scheme
Partnering Bodies - Ministry of Construction and Local Private Companies Established in 1996
First BOT Road - Mandalay-Lashio-Muse-Nankham Road (480.2 km)

Number of local companies - 26 companies
Number of roads - 64 roads
Total length of BOT roads - 5324.41 km

14% BOT Road
86% Roads managed by MoC (exclude BOT)
Future Road and Bridge Project
## Project Funded by ADB

<table>
<thead>
<tr>
<th>Project</th>
<th>Road length(km)</th>
<th>Estimated Cost (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yangon-Pathein Highway</td>
<td>180 km</td>
<td>155.5 Million US $</td>
</tr>
<tr>
<td>Bago-Thanlyin (Thilawa) Highway</td>
<td>99 km</td>
<td>101.1 Million US $</td>
</tr>
<tr>
<td>Yangon-Mandalay Expressway</td>
<td>64 km</td>
<td>105.9 Million US $</td>
</tr>
<tr>
<td>New Bago-Kytehto Highway Preparation</td>
<td>New Alignment</td>
<td></td>
</tr>
</tbody>
</table>
Future ADB’s Funded Road Project

- Yangon-Mandalay Expressway (64 km)
- Yangon–Pathelin Highway (180 km)
- Bago-Thanlyin(Thilawa) Highway (99 km)
New Bago-Kyitehto (New alignment)
Total Length = 69.5 km
Intersection : JCT 3ea, IC 4ea
New construction : 4-6 lanes (Yangon City Section, Bago City Section)
Cost: 346.3 Million USD
(Cost source: MP for Arterial Road Network Development in Myanmar, KOICA, 2015.8)
PROPOSED BRIDGE ACROSS RIVERS BARRIERS

1. Wartayar- Htan Ta Bin Bridge
2. Yangon-Thanlyin no-4 Bridge
3. Yangon-Dala Bridge
4. Kyimyindaing Bridge
5. Under ground Tunnel across Yangon River
Future Bridge Projects

Chindwin Bridge (Htamanti-Pinma)

Ayarwaddy Bridge (Hinthada-Tharawal)

Ayarwaddy Bridge (Thayet-Aunglan)

Sittaung Bridge (Kyaikto)

Wartayar (Yangon) Bridge

Bago (Yangon) Bridge No-4
Pontaung – Ponnya Tunnel projects

LOCATION MAP

Project Road (L=180km)

Ponna Taung Section

Pon Taung Section

Gangaw

National Park Kathaung Alaungdaw

Chunma–Lingadaw Section

Yaminbin

Monywa

Kalaiz

Kalaiz

Ponnya Taung Section

Project Road

180km

150km

100km

50km

10km

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1

Ah1
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).
Housing Project
Yangon, Mandalay and Special Economic Zone (SEZs) (Thilawa, Dawei, Kyawkphyu, NgayokeKaung)

Capital and Major 7 Cities of States and Regions (Sittwe, Pathein, Bago, Mawlamyine, Dawei, Monywa, Myitkyina)

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
Vision (2040)
Livable, Green, Resilient, Connectivity, Efficient Cities

Cooperation with MOC & JICA

Mandalay (2040)
- Mandalay National Economic Hub

Pathein (2040)
- Pathein Delta Region Development Hub

Malawmyaine (2040)
- Malawmyaine Asian Gateway City
Railway and Transport Project
Yangon-Mandalay Railway Project

- **Project Cost**: US $2,584.270 Million
  - Japan ODA Loan: 2115.318 Million US $
  - Myanmar Gov: 468.952 Million US $

- **Project Period**: 2017-2023 (7 years)

- **Implementation Procedure**
  - Phase I Yangon-Taungoo (267 Km)
  - Phase II Taungoo-Mandalay (353 Km)

**Project Outcome**
- Increase 60 km/h to 100 km/h
- To reduce travelling time
Yangon Circular Railway Project

- **Project Cost**
  - Japan ODA Loan: 207 Million US $
  - Myanmar Gov: 54.514 Billion Kyat

- **Project Period**: 2017-2020 (4 years)

- **Project Objective**
  - Upgrade Colour light signal, automatic block signalling system
  - Upgrade Automatic Gate Barrier System in level crossing

**Project Outcome**
- Increase 25km/h to 60 km/h
- To reduce travelling time
Mandalay - Myitkyina Railway Project

- **Project Length**: 34.9 km
- **Project Cost**
  - EDCF Loan: 100 Million US $
  - Myanmar Gov: 23.702 Billion Kyat
- **Project Period**: 2017-2019 (3 years)
- **Project Outcome**
  - Increase 16 km/h to 45 km/h
  - To reduce travelling time
Yangon-Pyay Railway Project

- **Project Length**: 250 Km
- **Project Cost**
  - ADB Loan: 60 Million US $
- **Project Period**: 2017-2021 (4 years)
- **Project Outcome**
  - Increase up to 60 km/h
  - To reduce travelling time
Inland Port Project

**Ayeyarwady River**
- Sinkhan
- Pakokku
- Mandalay
- Magway

**Objective**
- FS (Mandalay) from JICA
- JICA Grant USD $ (38) Million for IEE

**Chindwin River**
- Monywa
- Kalewa

Map showing locations along the rivers.
In 2015, (36) Million of Cargo Volume and (1) Million Container
In 2030, Myanmar expect Cargo Voulsme (173) Million and (7.4) Million Container
During the Dry Port construction, we will prepare to convey the cargo by container train.
Conclusion

- Myanmar is presently in a transition towards a modern development nation, and it is the most appropriate time to adopt a people-centered development which keeps the people at the center of economic and political reforms.
- Myanmar need more transport infrastructure to develop the nationwide. So Myanmar invites the investment for infrastructure development.
Welcome to Myanmar

Thank You for your Attention