RURAL ROADS MAINTENANCE MANAGEMENT IN THAI LAND

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Department of Rural Roads (DRR), THAI LAND

Thailand Road Network

396,903 km.

Department of Highway
51,537 km.

Paved road
51,537 km.

Collector Roads
Paved road
42,634 km.

Laterite road
5,282 km.

Local Governments
297,450 km.

Paved road
114,300 km.

Laterite road
183,150 km.
Visions

Develop a sustainable and self-sufficiency road network for better social welfare

Missions

1. Construct and maintain rural road & bridge network
2. Provide technical supports for local governments
3. Analyze and form a local road master plan
4. Draft local and rural road standards & specifications and regulate accordingly
Working Strategies

1. Maintain zero-pot hole and zero-black sport condition on rural roads
2. Develop complete rural road network correlatively to regional economic & strategic plan throughout country
3. Integrate rural road network with other transportation facilities and services
4. Provide technical supports for local governments
5. Encourage public participation
6. Develop human resource, manage knowledge and optimize department operation process
DRR Targets

**Duties**

1) Rural Road Construction
2) District Bridge Construction
3) Rural Road Maintenance
4) Local Government Technical Mentoring

**Targets**

- Sufficient collector road networks
- Comfortable shortcut for local commuters
- Convenient quick and safe transport
- Self-sufficiency development of local roads
Department of Rural Roads (DRR), THAI LAND

Central Management

Construction
- Bureau of Road Construction
- Bureau of Bridge Construction

Maintenance & Safety
- Bureau of Maintenance
- Bureau of Traffic Safety

Local Government Mentoring
- Bureau of Local Road Development Promotion
- Bureau of Training and Public Participation

Supporting Offices
- Bureau of Location & Design
- Bureau of Research & Development
- Bureau of Planning
- Office of Secretariat
- Bureau of Machinery & Communicat.
- Office of Legitimation

Regional Management

Regional Rural Roads Bureau
No.1-18
Provincial Rural Roads Office 76 provinces
Work Procedures

- **Planning**
  - Feasibility study
  - Request accumulation
  - Budget planning
  - Budget allocation
  - Disbursement evaluation

- **Location & Design**
  - Initial site survey
  - Record data on GIS
  - Site investigation & Design
  - Budget planning & allocation

- **Construction**
  - Contractor Procurement
  - Consulting engineer procurement

- **Maintenance & Safety**
  - Failure assessment
  - Maintenance method decision
  - Project prioritization
  - Design & cost estimation
  - Procurement

- **Public Participation**
  - Technical mentoring for local governments
Road Maintenance

- Keep road in good condition (Good Maintenance)
- Improve road safety engineering
4 Types of Rural Roads Maintenance

**Routine Maintenance**
- Remedying the defects that occur on the road from time to time that may cause the road to fail prematurely.
- Road resurfacing program

**Periodic Maintenance**
- Remedying the defects that occur on the road in unpredictable time (Flooding).

**Special Maintenance**

**Emergency Maintenance**

**Rehabilitation**
## Budget Allocation

<table>
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<tr>
<th>Fiscal Year</th>
<th>Demand Budget (MB)</th>
<th>Allocated Budget (MB)</th>
<th>%</th>
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<tr>
<td>2010</td>
<td>20,868</td>
<td>7,232</td>
<td>34.66</td>
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<td>2011</td>
<td>22,794</td>
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<td>2012</td>
<td>28,330</td>
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<td>2013</td>
<td>27,037</td>
<td>14,000</td>
<td>51.78</td>
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</tbody>
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Note: Demand budget for Zero Base in road maintenance

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How to put the right budget on the right time with the right method in the right place?
Central Road Database (CRD)
Pavement Maintenance Management System (PMMS)
Flood Management System (FMS)
Bridge Maintenance Management System (BMMS)
Routine Maintenance Management System (RMMS)
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- Pavement Maintenance Management System (PMMS)
- Safety Management System (SMS)
- Bridge Maintenance Management System (BMMS)
- Flood Management System (FMS)
- Central Road Database (CRD)
- Routine Maintenance Management System (RMMS)
- Rural roads network database (road assets and social information)
- Data exchange with other systems
Pavement Maintenance Management System (PMMS)

- Engineering Database
- Road service life prediction
- Strategic planning of road maintenance and financial budgeting

Road Survey Car
Evaluation of Pavement Damage Using Image Processing Technique

Road Deflection

- Benkelmann Beam
- Falling weight deflectometer (FWD)
Skid Resistance Measurement

- Spot measurement
- Continuous measurement

- Pavement texture
- Radius
- Superelevation

Finding Radius
Flood Management System (FMS)

- Flood reporting
- Damage assessment and cost estimation
- Budget allocation
- Project evaluation
- Repetitive flooding analysis
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Bridge Management System (BMMS)

- Damage assessment data
- Service life prediction
- Strategic planning of bridge maintenance and financial budgeting

Evaluation by Specialist
Department of Rural Roads (DRR), THAI LAND

Bridge Inspection by using Tablet Computer

- Locating the bridge
- Create 3D bridge model
- Inspect members
  (Damage area and position can be marked and recorded)
Safety Management System (SMS)
- Safety engineering database
- Project prioritization and budget allocation
- Executive information system

Accident Report Management System (ARMS)
- Black spot analysis
- Black spot treatment
- Evaluation