



Royal Government of Bhutan  
Ministry of Works & Human Settlement

## DEPARTMENT OF ROADS AT A GLANCE



Compiled by Investigation & Development Division, DoR  
October 2005

## **1. General**

Department of Roads is currently one of the largest organizations under the Ministry of Works and Human Settlement (MoWHS).

The primary goals of the Road Sector are:

- ⇒ To improve quality of life of rural population through improved access to socioeconomic facilities and to markets, health and education facilities, etc.
- ⇒ To enhance reliability and safety of road transport through reduced road user costs, travel time, accidents and transportation costs of goods and services.

## **2. History**

- Established as “Bhutan Road Project” in 1959 headed by Principal Engineering Officer, with the primary function of conducting a feasibility study for construction of Phuentsholing-Thimphu Highway.
- Designated as “Bhutan Engineering Services” in 1961 headed by Chief Engineer for the construction of 179km Phuentsholing-Thimphu Highway.
- Re-designated as Public Works Department (PWD) in 1979
- Renamed as Department of Roads in 2000.
- DoR came under the purview of MoWHS since 2003

## **3. Organization Setup and Staffs**

The department is headed by a Director. The Directorate is supported by five divisions as follows:

At the Headquarter

- ⇒ Investigation and Development Division.
- ⇒ Survey and Design Division.
- ⇒ Roads Division.
- ⇒ Bridge Division.

In the Field, the Diviions are

- ⇒ Thimphu Division.
- ⇒ Lobesa Division.
- ⇒ Trongsa Division.

- ⇒ Zhemgang Division.
- ⇒ Phuentsholing Division.
- ⇒ Sarpang Division.
- ⇒ Trashigang Division.
- ⇒ Lingmethang Division.

There is a Mechanical Division to provide support to DoR, which functions on self sustaining basis. The Mechanical Division is supported by two regional workshops at Hesothingkha and Lingmethang

**Table 1: Organizational setup of DoR**

DIRECTOR									
JD Investigation & Development		SE Road Division			SE Survey & Design Division		SE Bridge Division		JD Mech.
EE (I)	EE (D)	EE Contract & Estimation	EE Adm. & Audit	EE L/thang EE Lobesa EE Z/gang EE P/ling EE Sarpang EE T/phu EE T/gang EE Trongsa EE E/way	EE Survey	EE Design	EE Const. Mtc.	EE Design	RM H/kha 3 AEs 6 JEs
AE G/tech AE Env AE Plg 3 JEs	AE RMMS AE Research AE HRD 3 JEs	AE CA AE Estimate 2 JEs	AE A&M AE Audit 2 JEs	3 AEs & 5-6 JEs each	AE Survey 1 JE	AE Pav. AE GD 2 JEs	AE Const. AE Mtc. 2 JEs	AE Design 2 JEs 2 JEs	RM L/thang 3 AEs 6 JEs
					12 Survey SFAs	1 JOCV 1 JICA Expert	One JICA expert Project for C/o of H/way Bdg.		
PROJECTS									
EFRC PM APM & JE		RIP PM APM		RAP PM APM, AE Design & JE			GOI PM		

**Staff Strength**

Civil Engineers:	152 nos
Mechanical Engineers:	41 nos
Other support staff:	447 nos
<b>Total:</b>	<b>640 nos</b>

### 3. Road Sector Objectives

- To improve accessibility to social and economic facilities by constructing new roads.
- To improve existing road network by shortening/realignment and widening/improvement.
- To enhance private sector participation in construction and maintenance of road and bridge activities.
- Phase out gradually from direct involvement in the execution of road works and to concentrate increasingly on design, estimates, supervision, quality control and assuming a regulatory role.
- To replace bridges which have outlived their useful lives.



Road formation cutting and disposing surplus earth to safe place



High altitude Road Maintenance



Slope protection works

#### 4. Road Network

**Table 2: Existing Road Network as on 30<sup>th</sup> June 2005**

Type of Road	Length (km)
National Highway (NH)	1579
District Road (DR)	459
Feeder Roads including other Project Roads	1270.26
Urban Road (UR)	125.11
Farm Road (FaR)	388.54
Forest Road (FoR)	570.6
Total	4392.5

**Table 3: Existing Road Network by Surface Category as on 30<sup>th</sup> June 2005**

CATEGORY	Road Length (Km)						
	NH	DR	FR	UR	FaR	FoR	Total
Black topped	1560.85	360	419.31	108.95	4.84	7.38	2461.33
Non black topped	18.15	99	855.75	7.96	400.2	550.12	1931.17
Total	1579	459	1275.06	116.91	405.04	557.5	4392.5

**Table 4: Existing Road Network by Agency as on 30<sup>th</sup> June 2005**

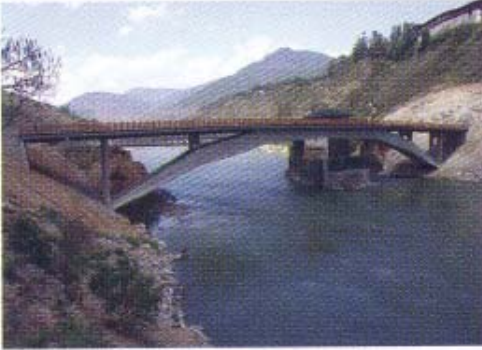
AGENCY	Road Length (Km)						
	NH	DR	FR	UR	FaR	FoR	Total
Department of Roads	1056.16	397	805.15	86.5	0	0	2344.81
Project Dantak	522.84	62	16.4	0	0	0	601.24
Dzongkhag Administration	0	0	163.87	38.61	96.85	0	299.33
Agriculture & Animal Husbandary	0	0	0	0	291.69	0	291.69
Department of Education	0	0	36.71	0	0	0	36.71
Bhutan Telecom	0	0	73.3	0	0	0	73.3
Department of Energy	0	0	165.03	0	0	0	165.03
Private individuals/Firms	0	0	9.8	0	0	0	9.8
Department of Forest	0	0	0	0	0	570.6	570.6
<b>Total</b>	<b>1579</b>	<b>459</b>	<b>1270.26</b>	<b>125.11</b>	<b>388.54</b>	<b>570.6</b>	<b>4392.5</b>

**Table 5: Existing Road Network by Dzongkhags as on 30<sup>th</sup> June 2005**

DZONGKHAG	Road Length (Km)							%
	NH	DR	FR	UR	FaR	FoR	Total	
Bumthang	122	0	54.02	0	31.2	47.6	254.82	5.8
Chuka	231.04	0	197.79	15.7	8.276	30.928	483.734	11
Dagana	0	87	32.06	1.5	16	0	136.56	3.1
Gasa	0	0	25.45	0	0	0	25.45	0.6
Haa	16	25.6	33.04	2.23	7	43	126.87	2.9
Lhuntse	0	45	43.9	0.77	11.2	14	114.87	2.6
Mongar	177	20	68.07	2.21	17.2	44.8	329.28	7.5
Paro	103	36.4	57.03	0	54.54	5.19	256.16	5.8
Pemagatshel	0	23	40.81	0	16.65	17.6	98.06	2.2
Punakha	9	0	99.22	0	10.52	59	177.74	4
S/Jongkhar	73.8	50	52.62	7.16	19	0	202.58	4.6
Samtse	0	89	25.35	8.98	0.5	7	130.83	3
Sarpang	123.4	0	42.6	0	39.5	93.25	298.75	6.8
Thimphu	111	0	90.56	71	18.85	103.86	395.27	9
Trashigang	128	5	130.35	4	58.92	8.5	334.77	7.6
Tasi Yangtse	0	40	38.16	5.17	13.1	10.48	106.91	2.4
Trongsa	168	0	33.87	0	14	10.71	226.58	5.2
Tsirang	62	0	28.2	1.5	22.1	6.48	120.28	2.7

Wangdue	150.8	0	106.48	3	24.12	26.6	310.96	7.1
Zhemgang	104	38	70.68	1.89	5.86	41.6	262.03	6
Total	1579.04	459	1270.26	125.11	388.536	570.598	4392.5	100

## 5. Bridge Inventory



Wangdue Zam



Mangde Zam

**Table 6: Existing Bridges by type as on Sept. 2005**

Type of Bridges	Number	Length (m)
RCT Beam	49	928.80
RC Slab	16	289.35
Prestressed Concrete	6	331.00
Bailey Bridge	98	2695.14
Bailey Suspension	5	475.62
Hemilton / Steel	6	186.60
Composite	24	383.56
Wooden	1	10.00
Submersible	7	193.56
Arch-RCC	1	120.00
Steel Poney Truss	4	190.00
Steel Truss/Girder	9	560.00
Langer Arch	1	95.20
M-Cell Box Culvert	1	30.00
Total	228	6488.77

**Table 7: Existing Bridges by name of route as on Feb 2005**

<b>Name of Route</b>	<b>No. of Bridges</b>	<b>Total Span (m)</b>
P'ling - Thimphu	11	243.50
Chunzom - Paro	4	222.00
Chunzom - Haa	5	89.00
Haa – Gasekha - Damthang	3	93.00
Thimphu Urban Area	13	315.05
Paro Urban Area	4	211.12
P'ling Urban Area	1	25.00
Trashigang - Semtokha	31	906.19
S/Jongkhar - Trashigang	13	250.78
Gelephu - Trongsa	21	632.33
Gelephu – Sarbang	15	336.15
Sarbang - Tsirang	4	121.78
Wangdue – Tsirang	11	304.87
Sunkosh – Dagana	13	323.18
Samtse – Sipsu	13	672.45
Sipsu – Tendu	3	86.60
Kharbandi – Singhi	1	126.00
Galakpa – Lhuentse	6	159.39
Lhuentse – Dungkhar	4	77.93
Chazam – Trashi Yangtse	5	96.63
Deothang – Bangtar	5	156.71
Chasker Feeder Road	3	45.72
Yadi – Shershong	1	27.44
Trashigang – Phongmey	6	125.81
Trashigang – Riju	1	36.59
Riju - Bartsham	1	36.59
Tingtibi – Gomphu	3	49.70
Dakpai – Buli	3	74.02
Missina – Punakha	1	18.29
Punakha – Dzong	2	73.17
Punakha – Tashithang	4	70.11
Tashithang – Damji	5	125.00
Khuruthang – Shengana	2	85.37
Sha Slate Road	3	60.97

Nyenzer gang – Wangdue	1	36.59
Bumthang Town Area	1	24.39
Yangthang – Tshengkha	1	30.49
Mathanguri – Pangbang	1	24.39
Bomdeling Farm Road	1	33.54
Kholongchu – Dondeychu	2	60.89
<b>Total</b>	<b>228</b>	<b>6488.82</b>

## 6. 9<sup>th</sup> Five Year Plan Status as on 30<sup>th</sup> June 2005

**Table 8: Targets and Achievements**

SN	ACTIVITY	TARGET	ACHEVEMENT	% ACHIEVEMENT
1	New Road Construction			
	Formation cutting	294.78 km	150.6 km	51
	Base Course	289.40 km	103.7 km	45
	Bitumen Sealing	93.22 km	9.5 km	10
	Permanent Works	291.02 km	117.7 km	40
2	Road Improvement	607.52 km	292.0 km	48
3	Bridge Construction	52 nos	31 nos	60
4	Road Resurfacing	1063 km	792 km	75
5	Routine Maintenance of Roads	2313.3 km	1387.98 km	60
6	Bridge Maintenance	152 km	91.2 km	60

## 7. Major Ongoing Roads & Bridges Activities

SN	ACTIVITIES	LENGTH	STATUS
<b>Construction of Highways</b>			
1	Gomphu = Pangbang Highway	56 km	FC & PW for 5 km awarded on contract 07 km FC completed as on June 2005
2	Nangar – Ura Highway	32 km	FC from Nangar side has reached 6 Km Design for 10 km from Ura side completed. Construction to start in 05-06

3	Gyalposhing – Nganglam Road	68 km	Survey & design for first 15 km from Gyalposhing side completed. Tender under process for 10 km of FC & PW. Survey of 10 km from Nganglam side completed.
4	Samtse - Phuentsholing Highway	76 km	Construction of first 5 km from P/ling side awarded on contract & FC 4.5 Km completed till date. From Samtse side construction being done departmentally & FC 3.2 km completed.
<b>Construction of Feeder Road</b>			
5	Jangchubcholing - Tashidingkha Road	14 km	Pilot mechanized project 4 km FC completed. Included in 2 <sup>nd</sup> phase RAP-II to be funded by World Bank (WB)
6	Lhuntse – Dungkhar Road	39.78 km	Spillover from 8 <sup>th</sup> plan. 32 km FC, BC 24 km, PW 30 km completed under WB Funding.
7	Mukuzor - Tshogonpa Road	7.43 km	FC 6 km, BC 2 km & PW 5 km completed. Under WB funding
<b>Construction of Bridges</b>			
8	Thimphu Chu	78 m	To be completed by June 2006
9	Olarong Chu	45 km	To be completed by June 2006
10	Ngabi Rong Chu	126 km	To be completed by June 2006
<b>Double laning</b>			
11	Babesa – P/ling Highway		Double laning commenced by DANTAK in Aug. 05. 30-35 km expected to be completed in the 9 <sup>th</sup> Plan. Entire Project to be completed by 2010.

## **8. Project in pipeline**

### (a) Under ADB Funding

#### i. Construction of new Feeder Road

- ⇒ Mirchim-Bongo Road 17.5 km
- ⇒ Khardungla-Kangpara Road 28 km
- ⇒ Garbagtang-Autsho Road 51 km
- ⇒ Tekizam-Bjena Road 6.5 km

#### ii) Realignment of Wangdi-Tingtibi highway

15 km

- (b) Construction of Feeder Roads under WB Funding
- i. Drugaygang-Balung (Lajab) Road 42.5 km
  - ii. Jangchubcholing-Tashidingkha Road 14.3 km
  - iii. Khothakpa-Khar-Tsebar Road 10 km
- (c) II Phase Bridge Reconstruction under JICA Funding
- i. Wakleytar Bridge
  - ii. Sunkosh Bridge
  - iii. Tangmachu Bridge



Crash barriers



Mechanized road surfacing

## 9. Road Sector Master Plan

The scopes of the Roads Sector Master Plan (2007-2027) includes:

- Construction of 2587.4 km of Feeder Roads throughout the country.
- Construction of a second East-West Highway (estimated 794 km) from Sipsu to Jomotshankha (Daifam).
- Construction of 410 km of highways for inter-Dzongkhag connectivity.
- Road improvements and realignments.
- Studies on tunneling as major part of highway shortening.



Improving road geometrics, carriage way width and drainage systems.

## 8. **Bhutan 2020 Milestones for Road Sector**

- ✚ Upgrade current national trunk roads to take 30-ton trucks by 2007 (End of 9<sup>th</sup> Five Year Plan)
- ✚ Ensure that 75% of rural population live within half-day's walk from nearest road by 2012 (End of 10<sup>th</sup> Five Year Plan)
- ✚ Completion of the second transnational highway by 2017 (End of 11<sup>th</sup> Five Year Plan)