

# **Mobile Internet Connectivity Report (January - March, 2017)**



**Telecom Division  
Department of IT and Telecom**

## **Executive Summary**

In compliance to the instruction of the Hon'ble Prime Minister to check and monitor the quality of Internet in the dzongkhags, the DITT/MoIC has prepared the third report for this fiscal year. This report is based on the quality of the mobile internet services.

Similar to the earlier two reports, Internet through mobile network is found to be inconsistent in the dzongkhags. The participation of the Dzongkhags in the data collection for this study has decreased compared to the first two reports.

## **Objective**

To study the quality of mobile Internet connectivity in Bhutan

## **Methodology**

A dashboard was prepared for monitoring/measuring the quality of telecom services based on different parameters listed as follows:

- Internet speed using the OpenSignal app.
- Call blocking rate
- Call dropping rate
- Voice Quality
- SMS received/sent failure rate
- Signal coverage
- Switchover

This dashboard is being shared with the Dzongkhag ICT Officers. The ICT officers were given instructions on the usage of the dashboard via email, letter and telephone after which they were asked to carry out and record measurements on above parameters from time to time on a monthly basis starting July, 2016. This data collection is an ongoing process and will be refined from time to time.

Based on inputs provided by the Dzongkhag ICT Officers, data has been analysed and compiled in this report.

## Key Findings

Based on the data submitted by the Dzongkhags (Mongar, Samdrup Jongkhar, Thimphu and Trashhi Yangtse), average mobile Internet speed (upload speed and download speed) of each dzongkhag has been compiled in Table 1 below.

Dzongkhag	Mobile Internet speed (Avg.)	
	Download (Mbps)	Upload(Mbps)
Mongar	2.22	0.603
Samdrup Jongkhar	1.87	0.11
Thimphu	3.827	0.363
Trashhi Yangtse	2.132	0.867

Table 1: Average upload and download speed in Mbps per Dzongkhag

Download Speed (Mbps) and Upload Speed (Mbps)

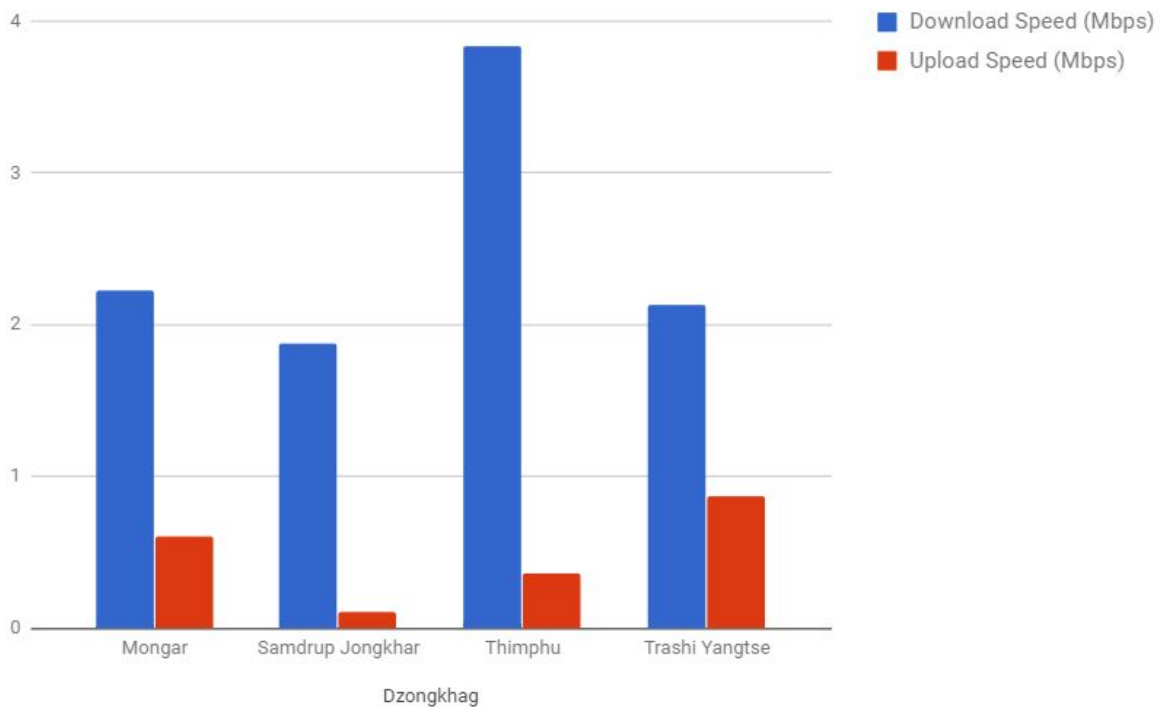


Figure 1: Average Upload and Download Mobile Internet Speed per Dzongkhag

The following observations were made from the above graph:

1. A maximum average upload speed of 0.867 Mbps has been observed in Trashy Yangtse and a minimum average upload speed of 0.11 Mbps has been observed in Samdrup Jongkhar.
2. A maximum average download speed of 3.827 Mbps has been observed in Thimphu and a minimum average download speed of 1.87 Mbps has been observed in Samdrup Jongkhar.
3. The download speed is noted to be higher than the upload speed in all the four dzongkhags.

### **Conclusion**

From this report, it has been observed that the download speed is higher than the upload speed in most of the dzongkhags, as would be preferred by the end users. However, there is inconsistency in the data rates observed, i.e Internet speed is fluctuating. This could be due to network issue in itself or due to some events like higher access at certain times.

### **Constraints**

This study has been limited by following constraints:

- No data input by most of the Dzongkhags.
- Inconsistent internet speed measurements.
- All dzongkhags except the four mentioned above have no data input for this quarter.

### **Annex**

#### **I. Internet Speed recorded Dzongkhag-wise for the months of July, August and September**

<b>D/khag</b>	<b>Mobile Internet speed</b>	
	<b>Download (Mbps)</b>	<b>Upload (Mbps)</b>
Mongar	5.21 0.047 2.2 0 7.7 0	0.585 0 0.703 0.001 2.09 0.002

	8.26 0 0 0.085 3.19 0	0.21 0.001 0.5 0 0.3151 0
Samdrup Jongkhar	2.46 1.19 1.96	0.311 0.023 0
Thimphu	5.72 4.62 3.62 2.92 6.93 2.77 2.86 5.69 3.36 7.6 5.53 6.89 0.043 2.74 7.54 3.03 6.68 6.5 6.81 4.53 0 7.46 4.47 0 7.28 0.082 5.22 0 5.22 7.31 0 6.76 0 6.51	0.284 0.727 0.722 0.696 0.822 2.06 1.03 0.573 0.515 0.712 1.54 276 0 0.438 0.608 0.51 0.795 0.937 0.472 0.347 0 0.906 0.191 0.142 0.663 0 0.08 0 0.08 1.09 0 0.279 0 0.745

	2.78	0.694
	7.03	0.519
	0	0.001
	0	0.001
	0	0
	7.39	0.341
	5.84	0.098
	5.14	0.262
	0	0.001
	0	0.001
	4.49	0.235
	3.49	0.647
	7.43	0.088
	2.07	0.21
	7.43	0.088
	2.07	0.21
	0	0
	7.42	0.703
	4.57	0.032
	7.43	0.088
	0.324	0.262
	3.15	0.088
	3.38	0.127
	0.459	0.552
	5.17	0.093
	3.89	0
	0	0.125
	0	0.308
	0.587	0.003
	3.05	0.071
	5.2	0.208
	4.27	0.12
	4.33	0.009
	0	0
	3.6	0.068
Trashhi Yangtse	0.332	0.359
	0.74	0.017
	0.35	0.013
	0.104	0.003
	4.66	0.023
	0.102	0.002
	0.036	0