

Mobile Internet Connectivity Report (July - September, 2017)



**Division of Telecom & Space
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 fifth report for this fiscal year based on data input by the Dzongkhags.

Objective of the study

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.

The previous reports had the findings of only four Dzongkhags whereas the fifth report comprise the findings of all the twenty dzongkhags. Unlike from the previous reports, we have displayed the five lowest & five highest average mobile Internet speed from the twenty Dzongkhags in the form of column chart.

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

Key Findings

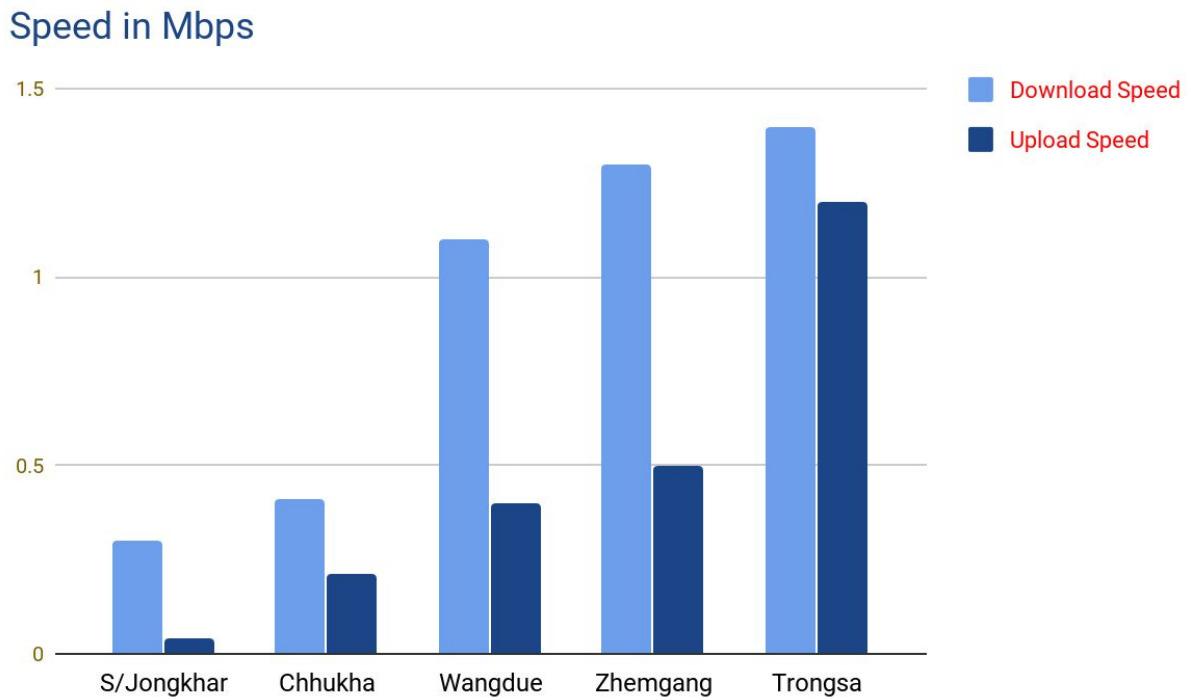
Based on the data submitted by all the twenty Dzongkhags (average mobile Internet speed (upload speed and download speed)of each dzongkhag has been compiled in Table 1 below.

Dzongkhag	Mobile Internet speed (Avg.)	
	Download (Mbps)	Upload(Mbps)
Wangdue	1.1	0.4
Bumthang	3.7	1.4
Dagana	4.5	1.3
Gasa	5.5	2.7
Haa	1.5	0.7
Lhuentse	2.9	1.2
Mongar	1.8	0.2
Paro	2	1.5
Sarpang	2.9	2.5
Punakha	5.3	3.1
Samdrup Jongkhar	0.3	0.04
Thimphu	17.1	10.5
P/Gatshel	7.6	3.5
Tsirang	6.9	2.7
T/Gang	11.1	7.5
T/Yangtse	3.3	1.4
Zhemgang	1.3	0.5
Trongsa	1.4	1.2
Samtse	2.5	0.8

Chhukha	0.41	0.21
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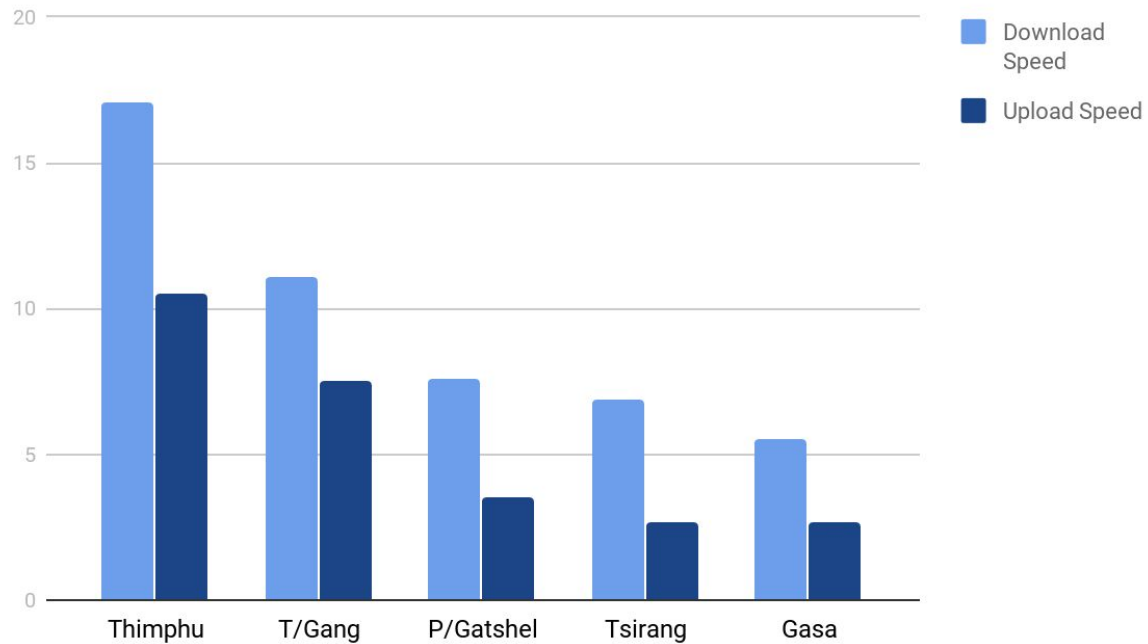
Table 1: Average upload and download speed in Mbps per Dzongkhag

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



Graph 1. Five Dzongkhags with the lowest average speed.

Speed in Mbps



Graph 2. Five Dzongkhags with the highest average speed.

The following observations were made from the above graphs:

1. A highest average upload speed of 10.5 Mbps has been observed in Thimphu and a lowest average upload speed of 0.21 Mbps has been observed in Chhukha.
2. A highest average download speed of 17.1 Mbps has been observed in T/Phu and a lowest average download speed of 0.41 has been observed in Chhukha.
3. The download speed is noted to be higher than the upload speed in all the twenty dzongkhags.

Conclusion

From this report, it has been observed that the download speed is higher than the upload speed in all the dzongkhags, as would be preferred by the end users. An inconsistency is observed in the data rates which could be due to network issue or events like higher access at certain times.

Constraints

This study has been limited by following constraints:

- Inconsistent and irregular internet speed measurements.
- No data input for the month of July by most of the Dzongkhags.