

Mobile Internet Connectivity Report

(July- September, 2018)



Division of Telecom & Space (DoTS)
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 seventh report for this fiscal year based on data inputs collected 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

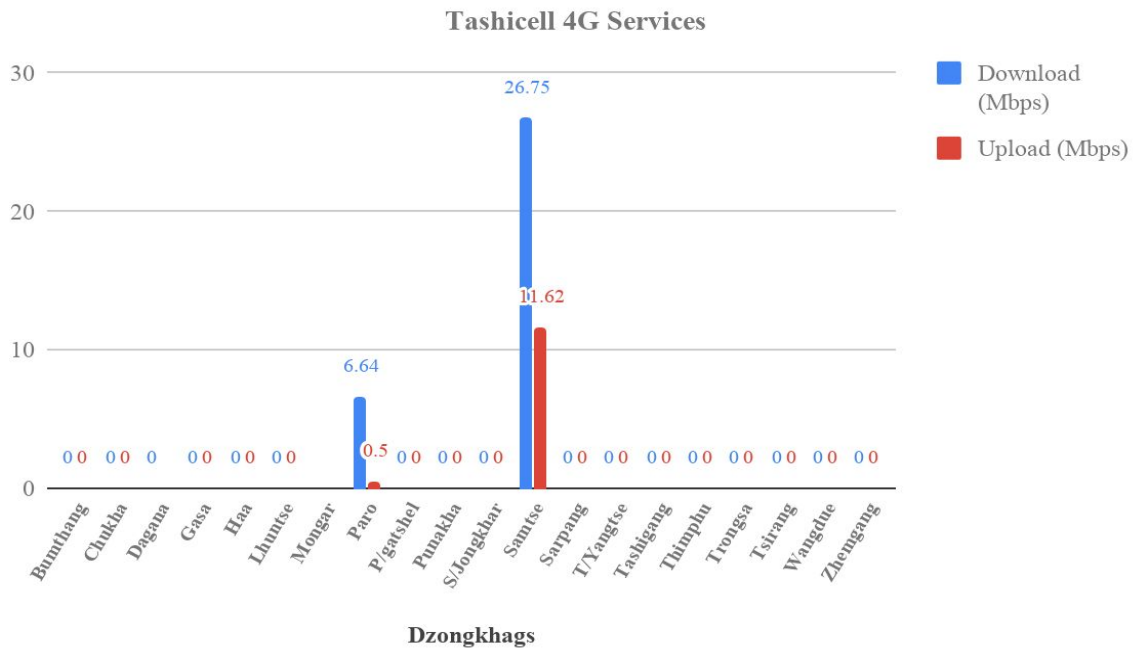
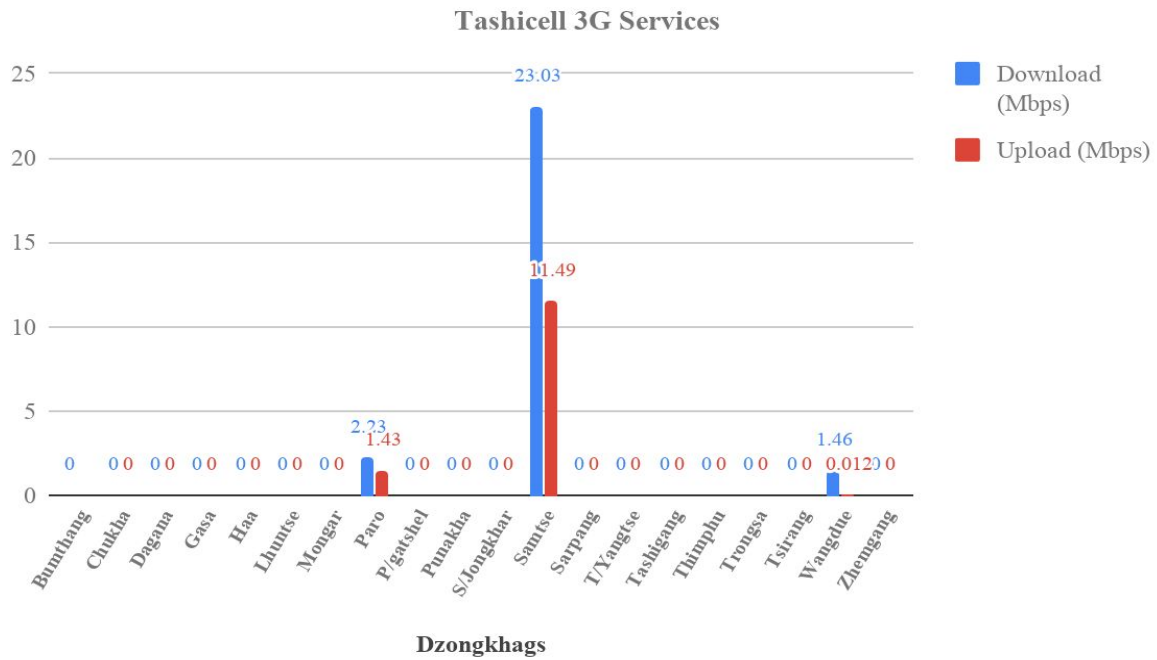
This dashboard is being shared with the Dzongkhag ICT Officers. The ICT officers were given instructions on the usage of the dashboard via email, letter and telephone after which they were asked to carry out and record measurements on above parameters from time to time on a monthly basis starting July,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

In this reports, we have displayed the lowest & highest average mobile Internet speed for twenty Dzongkhags in the form of column chart. Based on inputs provided by the Dzongkhag ICT Officers, data has been analysed and compiled as shown below.

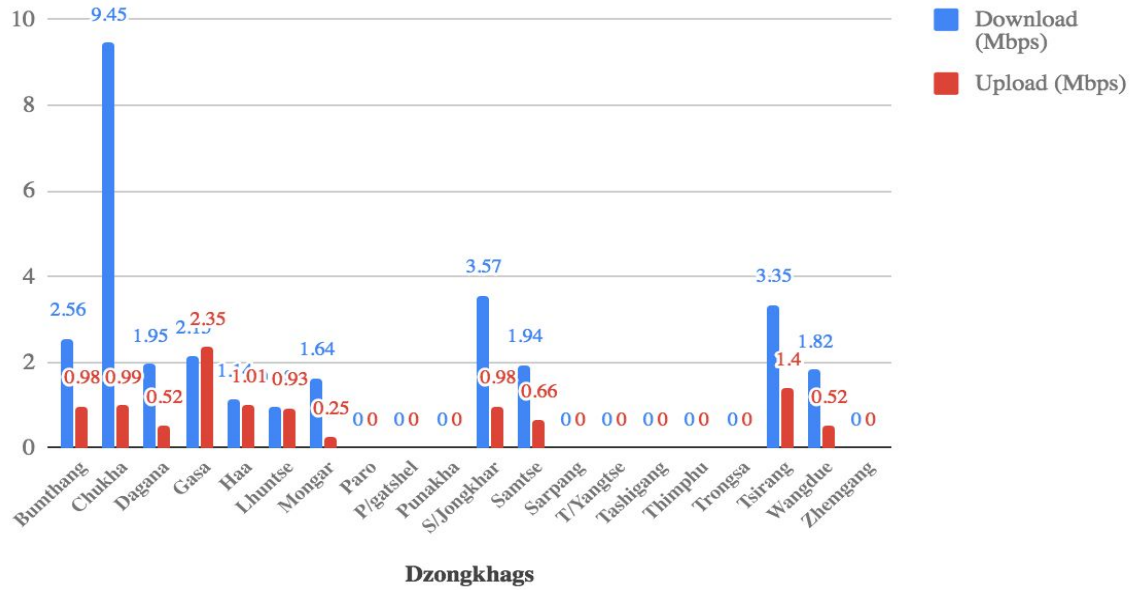
Key Findings

Based on the data submitted by all the twenty Dzongkhags ICT Officers (average mobile Internet speed (upload speed and download speed) for B-Mobile and TashiCell services of each dzongkhag has been compiled in Table 1 below.

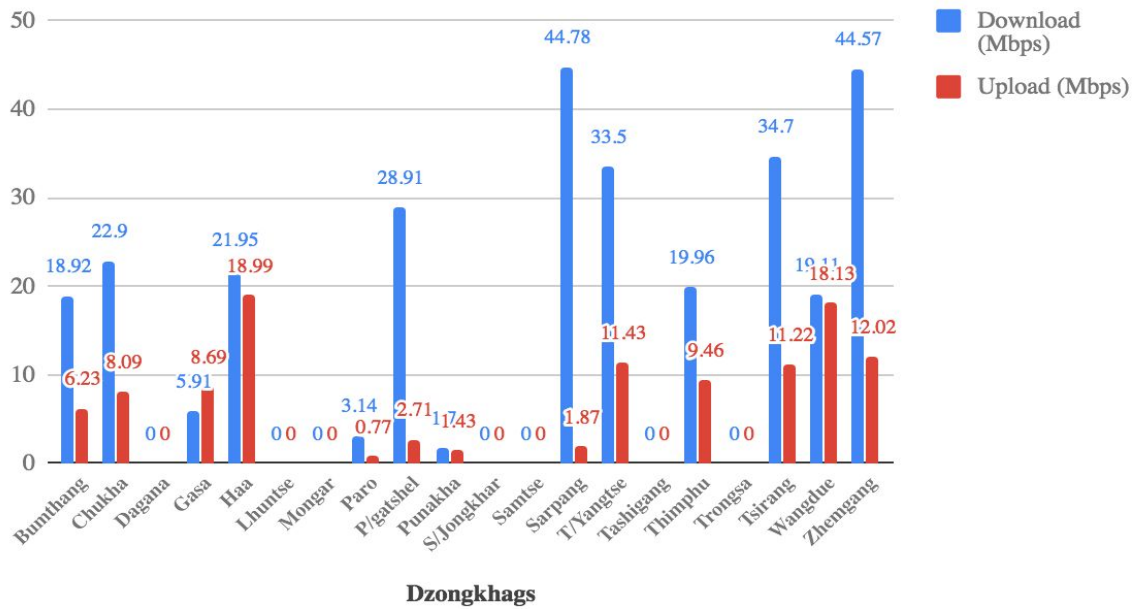
Mobile Internet speed (Avg.) for Different Dzongkhags									
Sl.No.	Dzongkhags	TASHICELL				BHUTAN TELECOM			
		3G		4G		3G		4G	
		Download (Mbps)	Upload (Mbps)	Download (Mbps)	Upload (Mbps)	Download (Mbps)	Upload (Mbps)	Download (Mbps)	Upload (Mbps)
1	Bumthang	0	0	0	0	2.56	0.98	18.92	6.23
2	Chukha	0	0	0	0	9.45	0.99	22.9	8.09
3	Dagana	0		0	0	1.95	0.52	0	0
4	Gasa	0	0	0	0	2.15	2.35	5.91	8.69
5	Haa	0	0	0	0	1.14	1.01	21.95	18.99
6	Lhuntse	0	0	0	0	0.98	0.93	0	0
7	Mongar	2.311	0.10	0	0	1.64	0.25	0	0
8	Paro	0	0	6.64	0.50	0	0	3.14	0.77
9	P/gatshel	0	0	0	0	0	0	28.91	2.71
10	Punakha	0	0	0	0	0	0	1.70	1.43
11	S/Jongkhar	0	0	0	0	3.57	0.98	0	0
12	Samtse	4.29	2.02	26.75	11.62	1.94	0.66	0	0
13	Sarpang	0	0	0	0	0	0	44.78	1.87
14	T/Yangtse	0	0	0	0	0	0	33.50	11.43
15	Tashigang	0	0	0	0	0	0	0	0
16	Thimphu	0	0	0	0	0	0	19.96	9.46
17	Trongsa	0	0	0	0	0	0	0	0
18	Tsirang	0	0	0	0	3.35	1.40	34.70	11.22
19	Wangdue	0	0	0	0	1.82	0.52	19.11	18.13
20	Zhemgang	0	0	0	0	0	0	44.57	12.02



Bhutan Telecom 3G Services



Bhutan Telecom 4G Services



The following observations were made from the above graphs:

1. Most of the dzongkhag ICTOs had provided the data using the Bhutan Telecom services
2. Samtse dzongkhag has observed highest avg. downloads and uploads speed with (23.03 Mbps & 11.49 Mbps) for 3G, and (26.75Mbps & 11.62 Mbps) for 4G Tashicell Services.
3. Wangdue dzongkhag has observed lowest avg. downloads and uploads speed for Tashicell 3G services (1.46 Mbps & 0.012 Mbps) and Paro dzongkhag has lowest downloads and uploads (6.64 mbps & 0.5mbps) for Tashicell 4G services.
4. Chhukha dzongkhag observed highest avg. downloads speed with 9.45 mbps and Dagana dzongkhag has lowest with 0.52mbps on Bhutan Telecom 3G services.
5. Gasa dzongkhag has highest upload speed with 2.35 mbps and lowest for Mongar with 0.25 mbps on Bhutan Telecom 3G services.
6. For Bhutan Telecom 4G services, Sarpang has observed highest download avg. speed with 44.78 mbps and lowest with 1.70 mbps for Punakha dzongkhag.
7. Haa dzongkhag has observed highest avg. upload speed with 18.99 mbps and lowest with 0.77 mbps for Paro dzongkhag in Bhutan Telecom 4G services.
8. Overall voice quality for every dzongkhags has observed good in both the telecommunication network services.
9. Trashigang and Trongsa ICT officers has not provided any information.

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. 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.
- Some concerned Dzongkhags ICT Officers failed to provide input of the measurements.
- Few dzongkhag ICT officers has provided data input about Tashicell Services beside its coverage.