

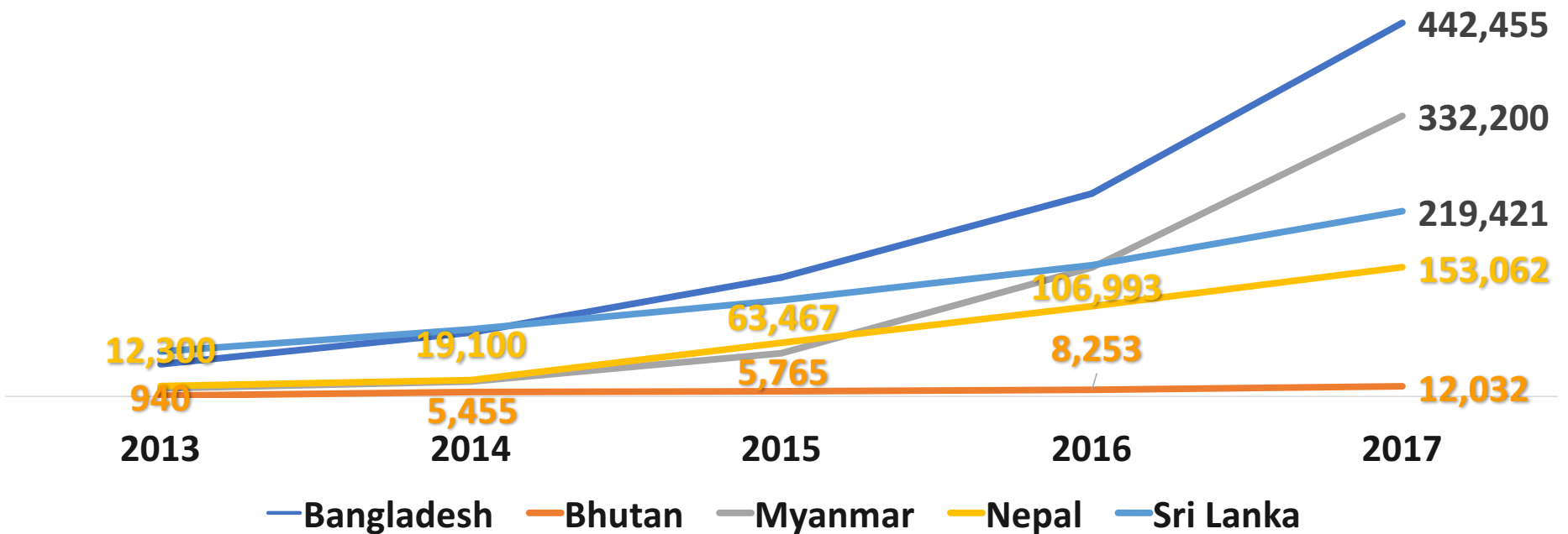
Broadband: How broad the bandwidth should be

**Royal Institute of Management: Department of ICT
Training Workshop on ICT, Climate Change and Green Growth
Thimphu, Bhutan
October 26,2017**

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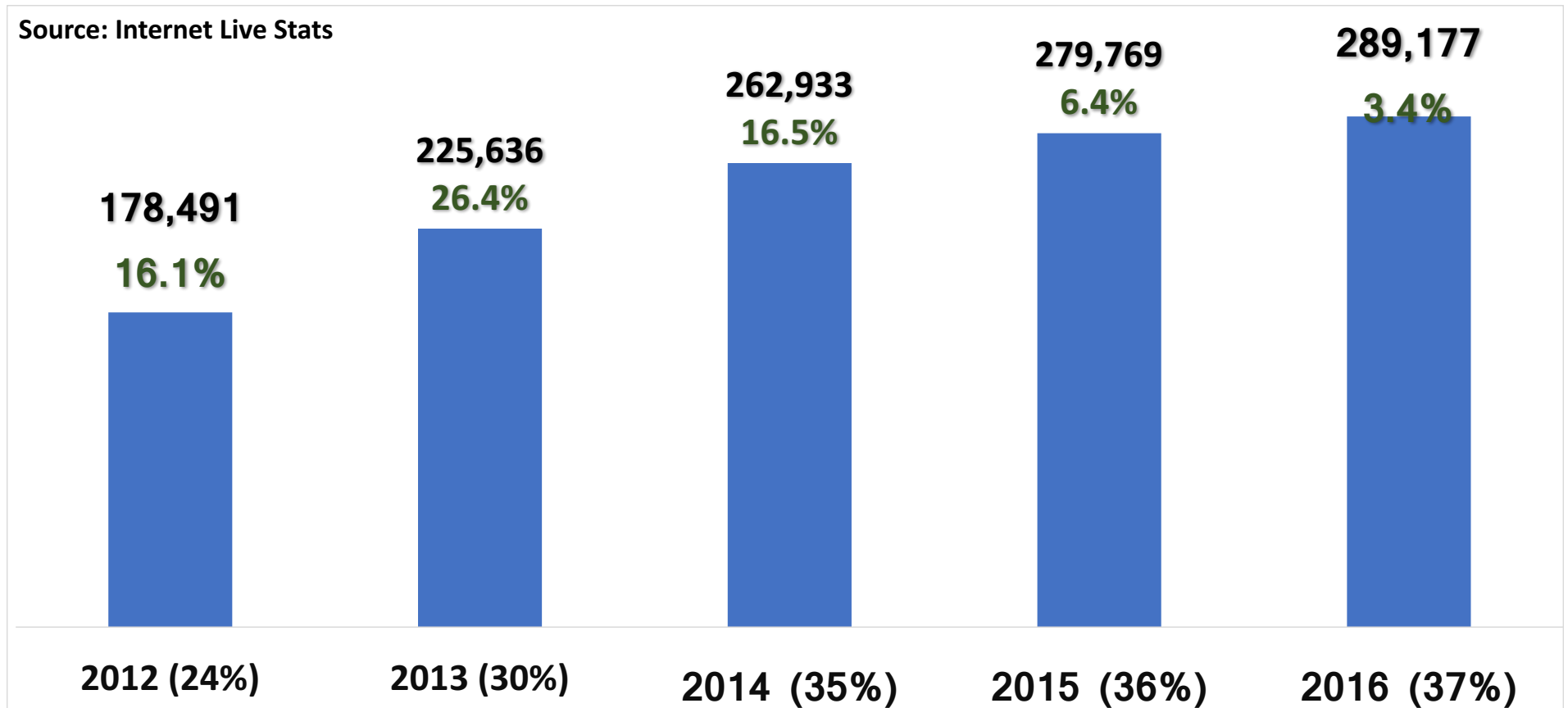
Bhutan's international bandwidth supply is choked

International Internet Bandwidth (Mbps)
consumption until June 2017
(Source: TeleGeography)



Internet users and annual growth (%) in Bhutan. Penetration (%) is with respective year.

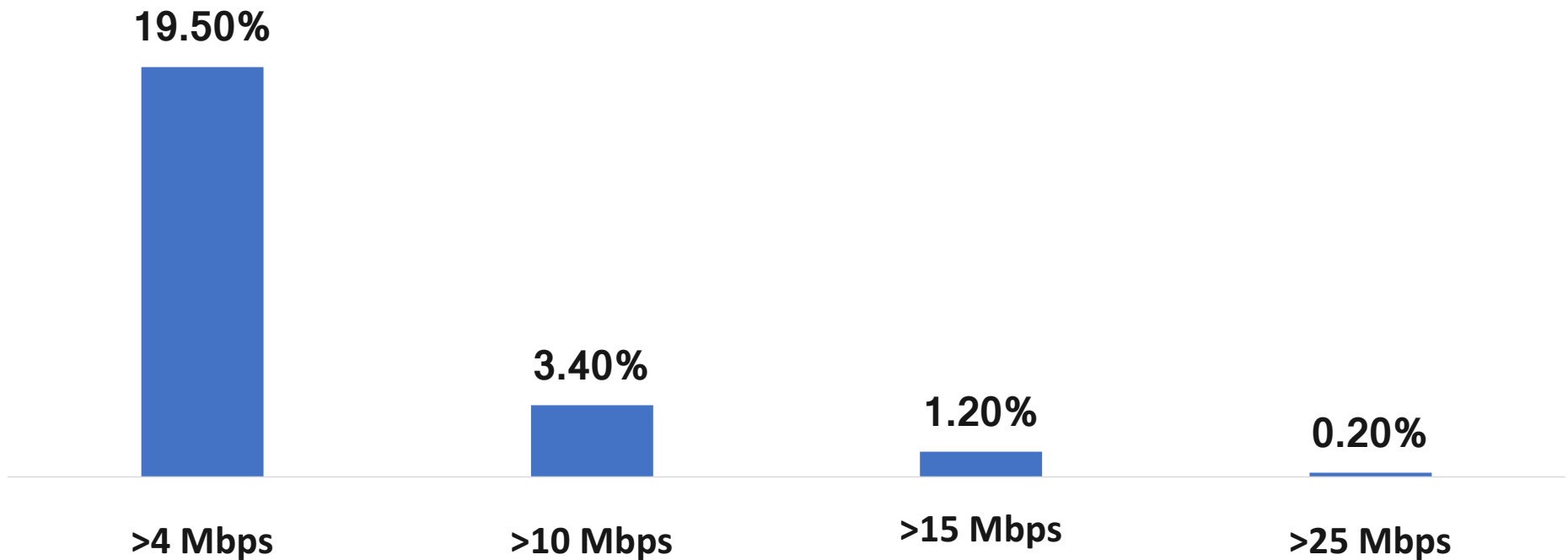
Source: Internet Live Stats



Officially broadband is 512 Kbps in Bhutan (Informally it's 1 Mbps)

Average speed of Internet in Bhutan: 3.43 Mbps

Source: Akamai. September 2017



Bhutan Telecoms and Broadband Policy 2014:

Short and medium-term goals

1. To have in place a competitive structure for the provision of broadband in Bhutan: The Government will examine and remove legal and regulatory barriers to competition. It will ensure that market for broadband services operates competitively.
2. To achieve broadband service availability to 80% of both urban and rural communities during the 11th Five Year Plan: 80% of people of Bhutan shall have accessibility to entry level broadband services or better.
3. USF will be used in areas that are not economically viable.
4. Government to lead the broadband evolution by delivering its services online over broadband: A significant programme of **e-Government transactions** that can be performed online and enhanced by broadband shall be developed and progressively implemented during the course of the 11th Five Year Plan.
5. Lead Government applications: In addition to above, Government shall develop a range of lead **applications** for delivery of new, enhanced or extended services online using broadband.

Never follow anything like the first three recommendations of Broadband Commission [Working Group](#)

4.2 Recommendations

- ~~1. Establish government subsidies for broadband demand, which may be most effective when targeted at certain demographics or vulnerable populations.~~
- ~~2. Expand the use of Universal Service Funds for broadband adoption including subsidies for devices, content and training. Universal Service Obligations (e.g. conditions on spectrum auctions to incentivise adoption by vulnerable demographics) could also be an effective means of reaching vulnerable and underserved populations. Despite past lack of use in several countries there are successful models where USFs have been impactful for expanding broadband adoption.~~
- ~~3. Subsidies that lead to self-sufficiency by the recipients are more sustainable longer-term. For example, a simultaneous online job training programme, or programmes using e-commerce platforms to broaden the market for agricultural products in farming communities, can help increase recipients' income so that they progress toward no longer needing the subsidy. At that point, the subsidy can be re-targeted to previously unaddressed members of the population.~~
4. Public-private partnerships can increase the efficiency and sustainability of broadband adoption programmes. However, the private entities need not be limited to network operators and could also include, for example e-learning content or application developers, schools, medical facilities, etc.

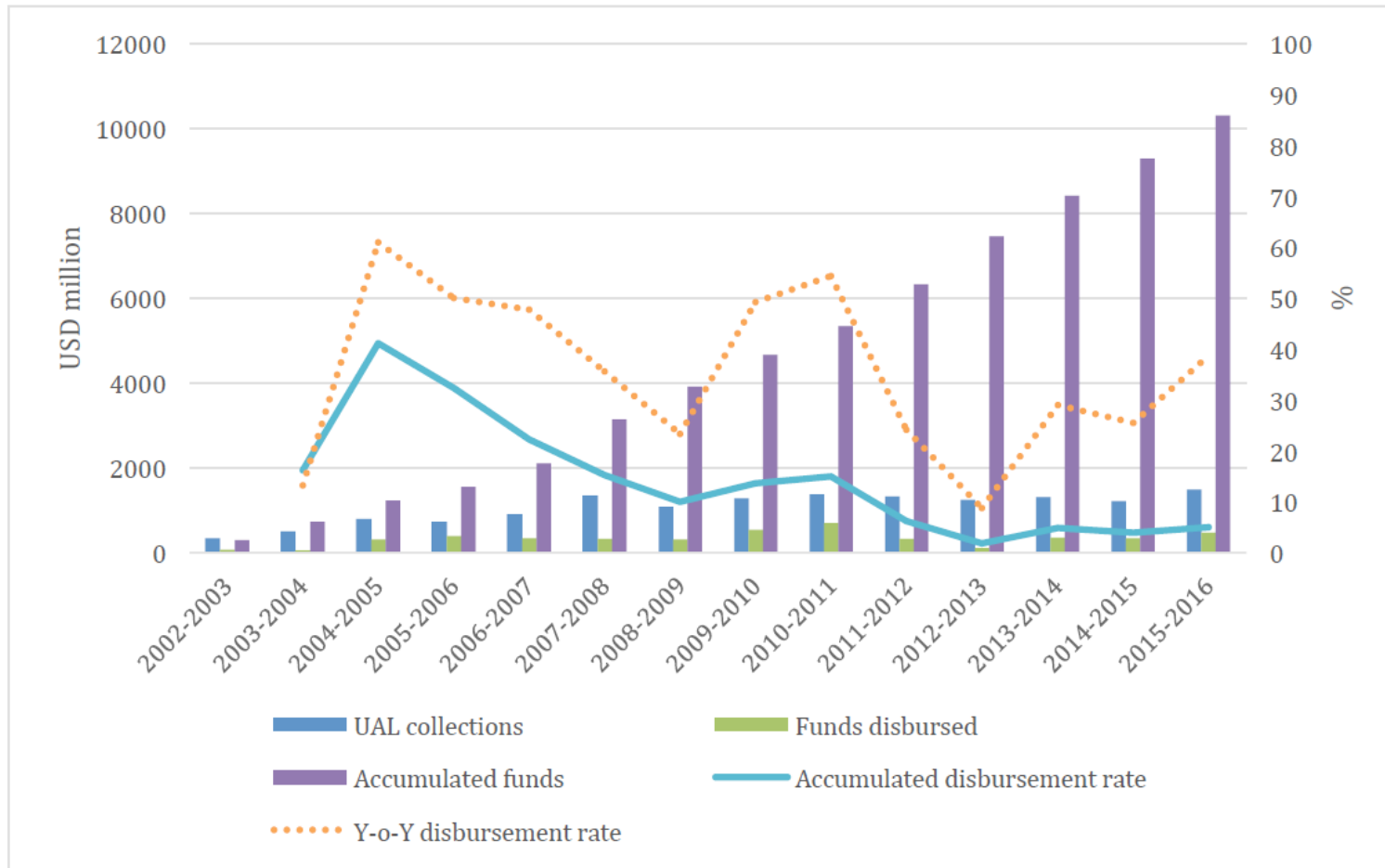
Measuring disbursement efficacy of
Universal Service Funds: Case studies from India,
Malaysia, Pakistan & Sri Lanka

By: Rohan Samarajiva and Gayani Hurulle

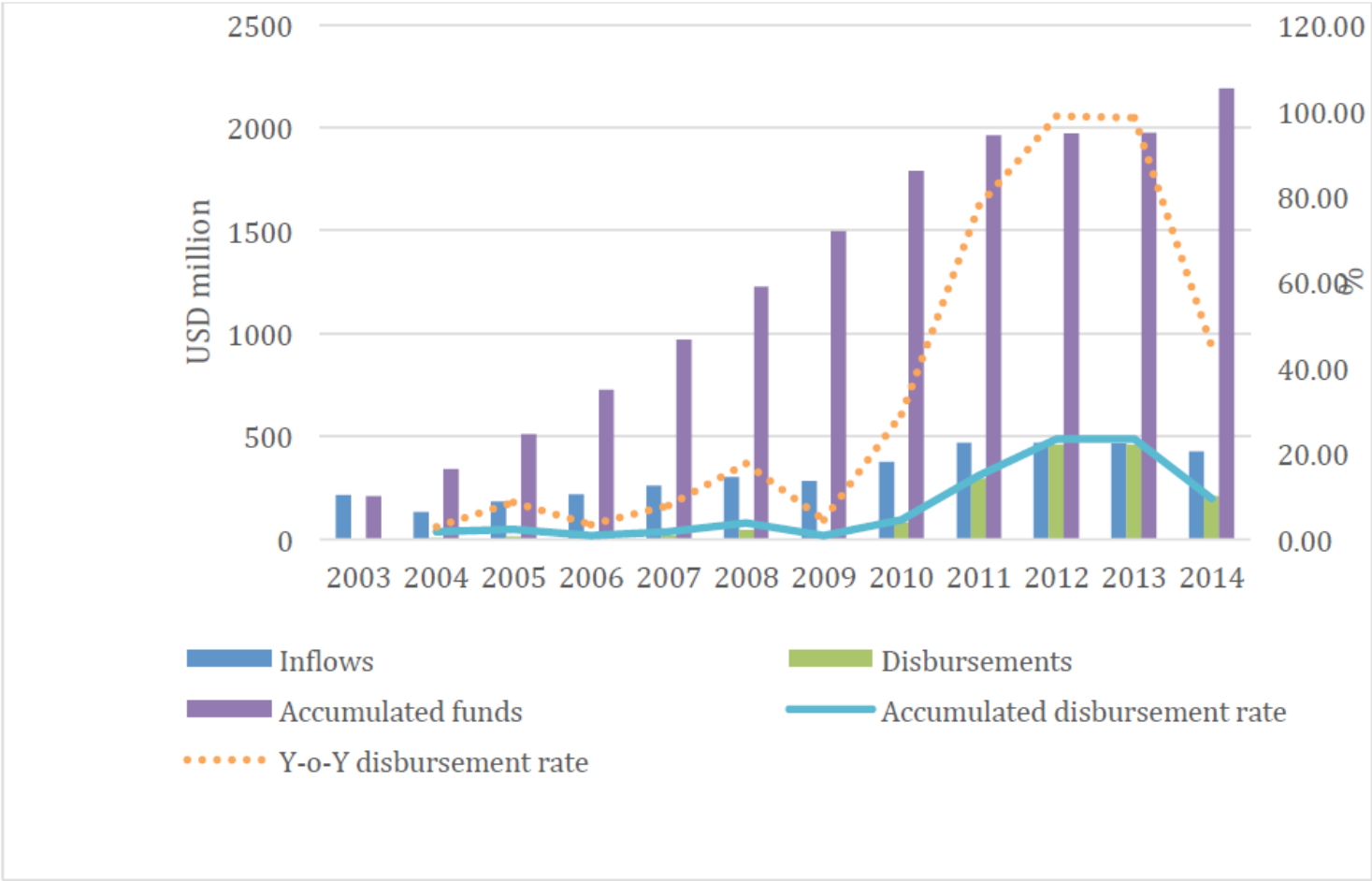
September 28, 2017

Download full report [from here.](#)

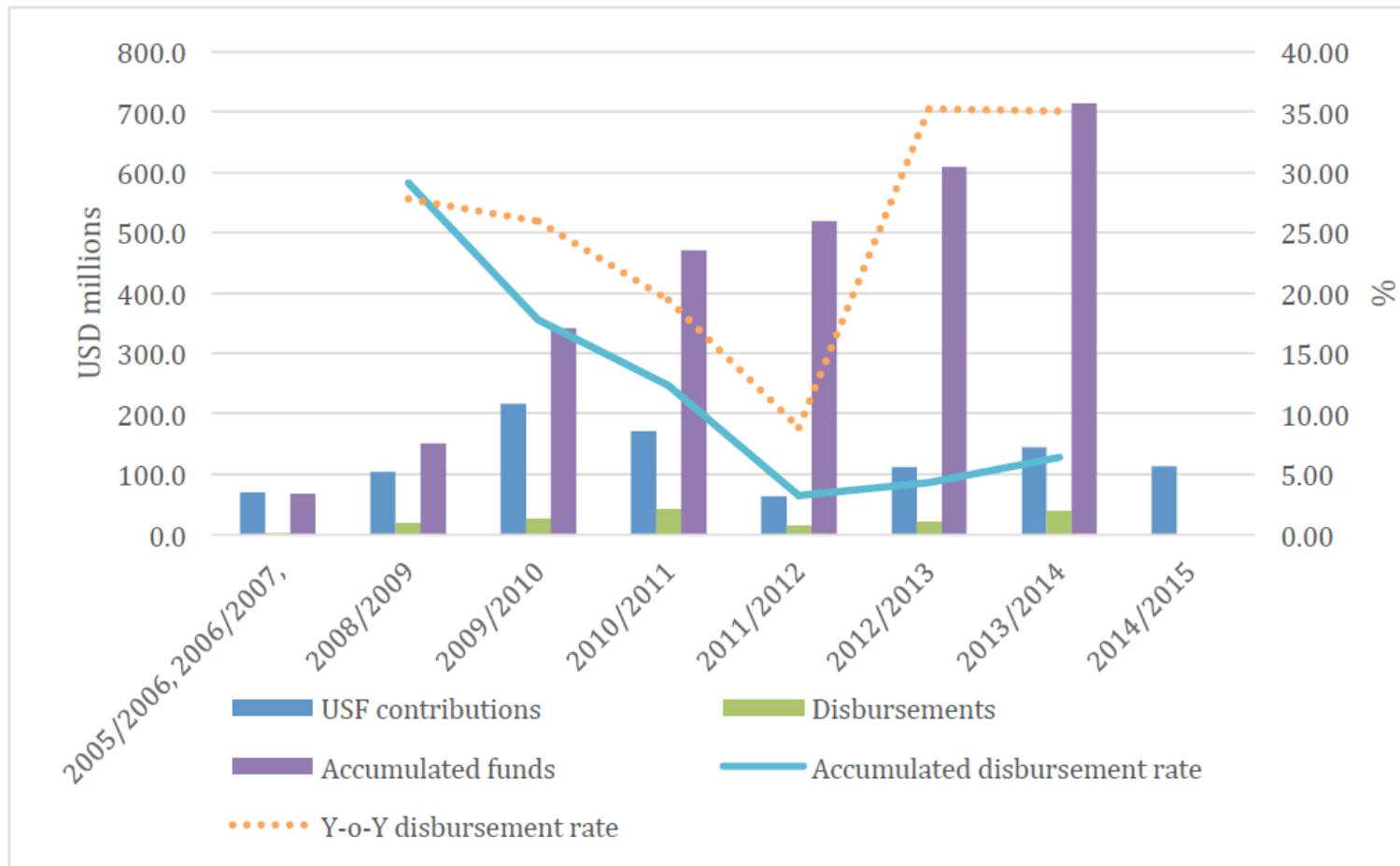
Status of Indian Universal Service Fund



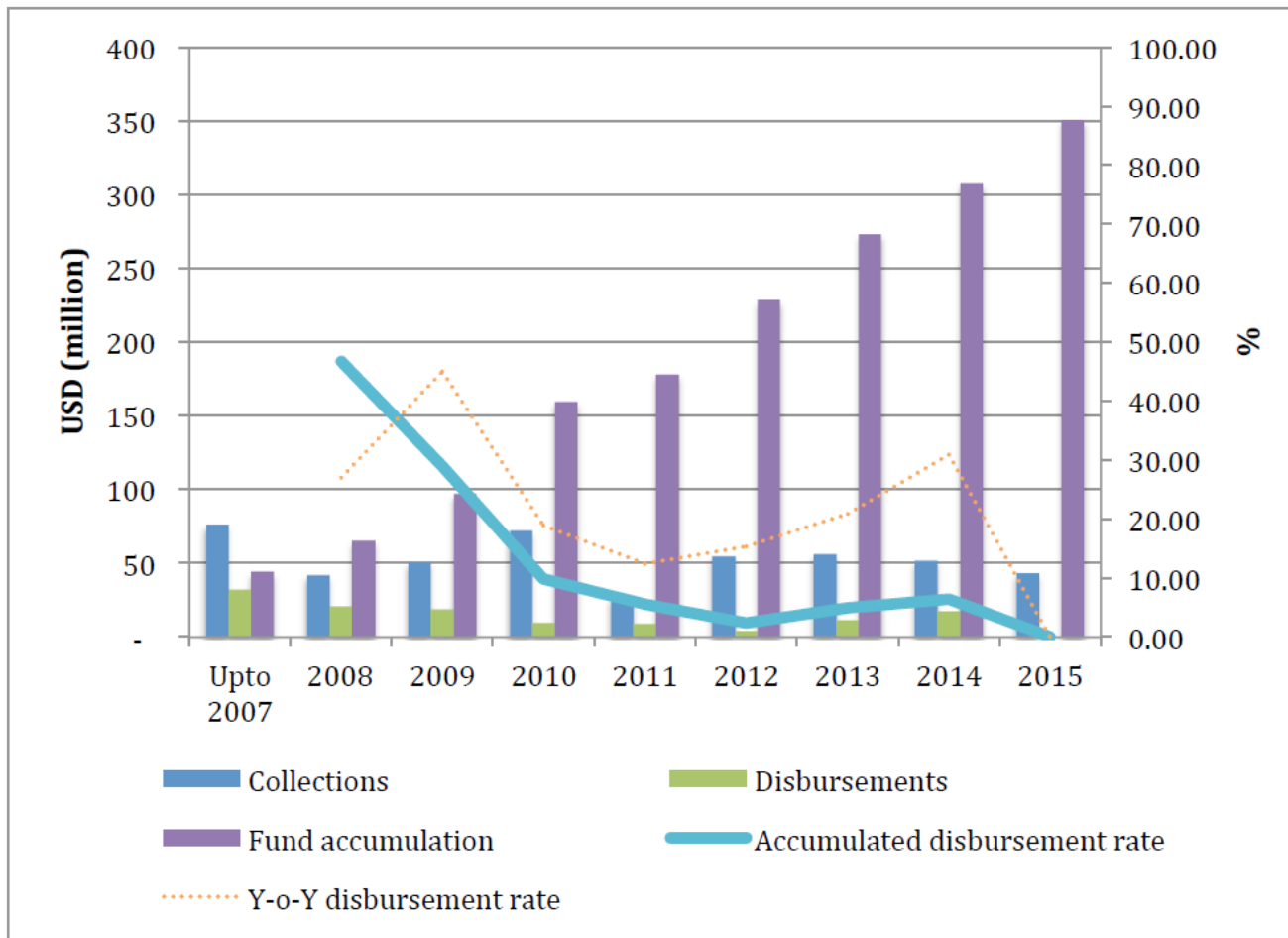
Status of Malaysian Universal Service Fund



Status of Pakistani Universal Service Fund



Status of Sri Lankan Universal Service Fund



Back to basics

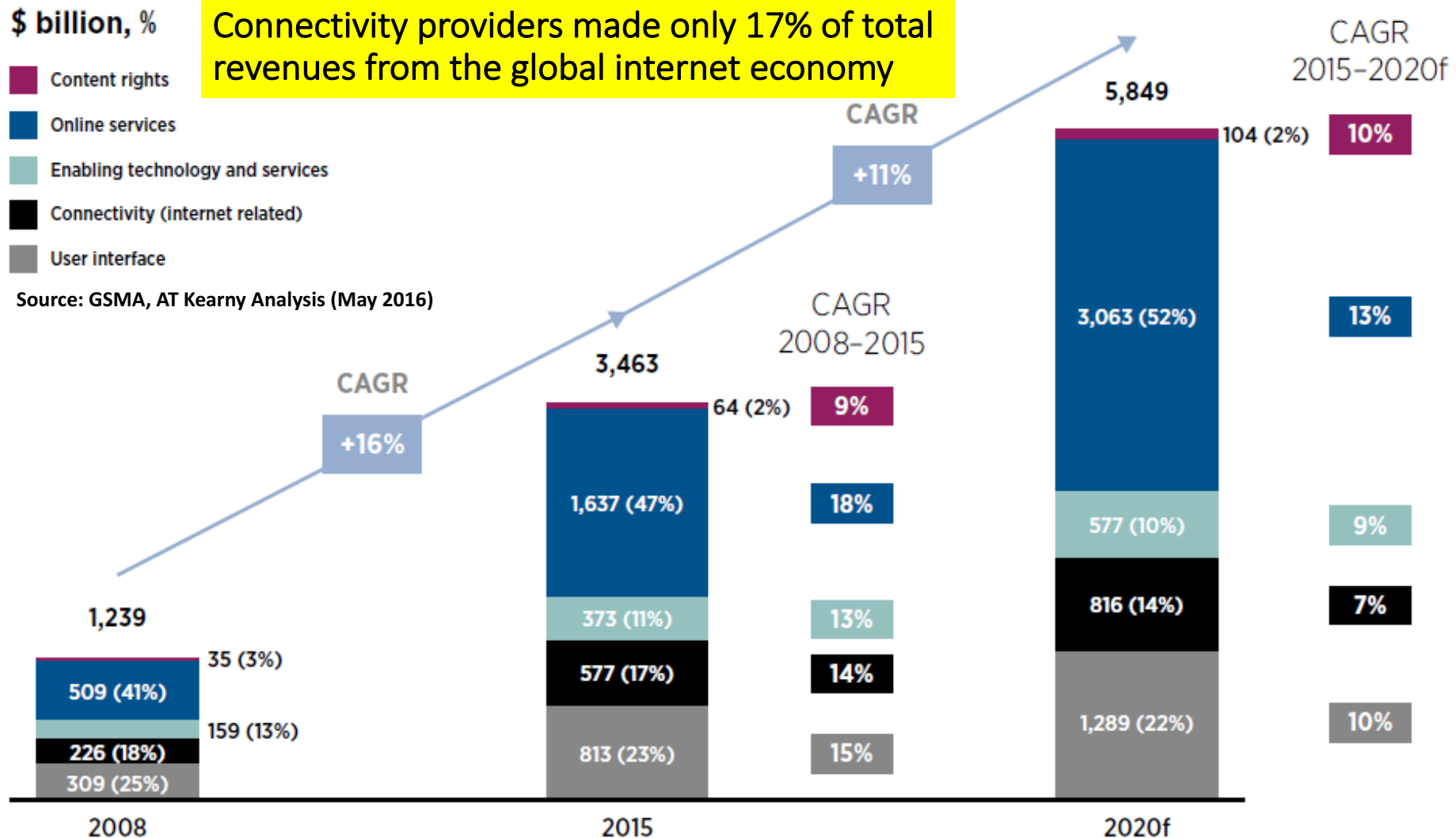
- The value of mobile phone (only local network provider)
 - Person-to-Person communication
 - Personal and business
- The value of broadband (local and global network providers)
 - Person-to-Person communication
 - Personal and business
 - Person-to-Machine communication
 - Personal, business and entertainment
 - Person-to-Machine-Person(s) communication
 - Personal, business and entertainment

\$ billion, %

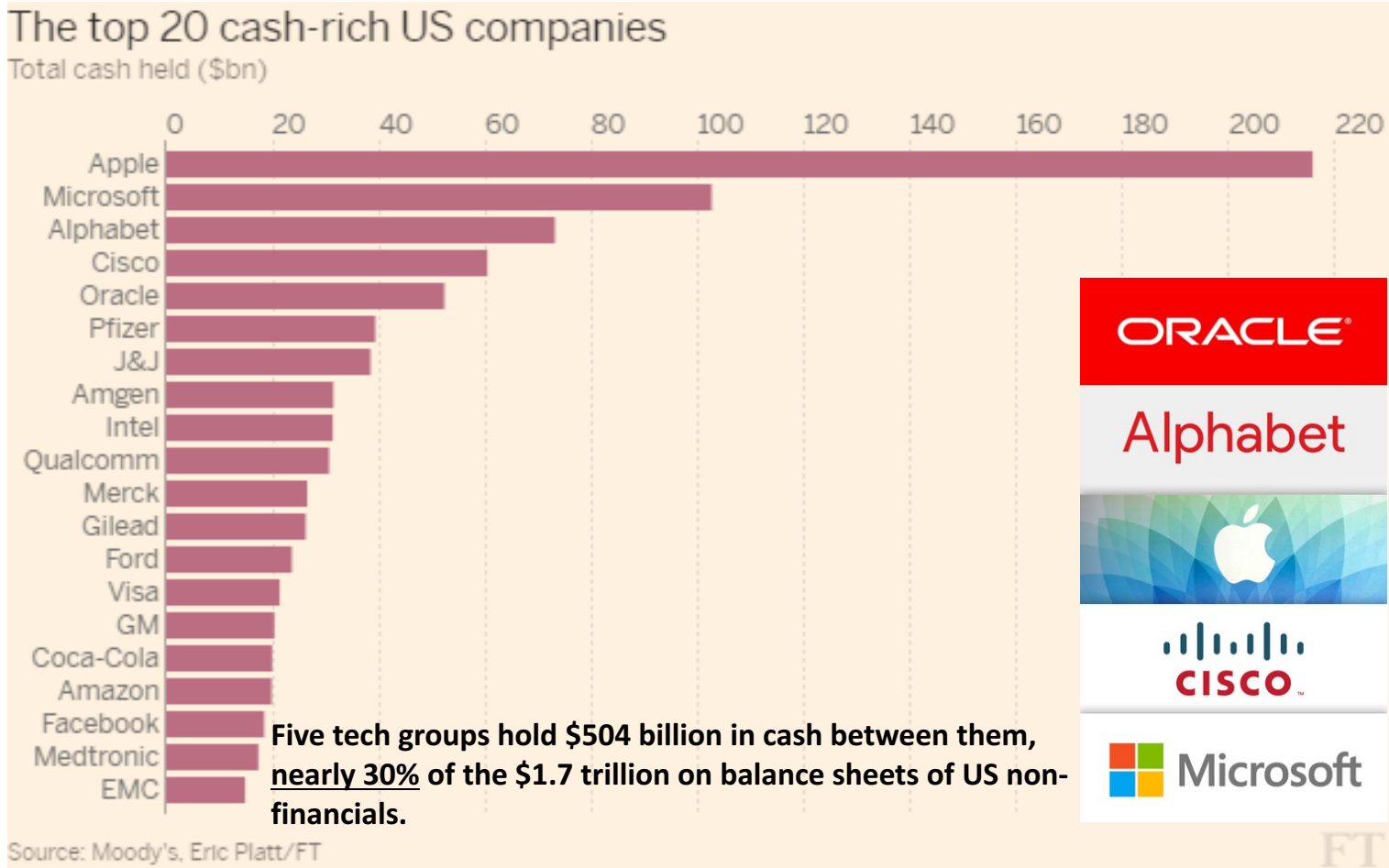
- Content rights
- Online services
- Enabling technology and services
- Connectivity (internet related)
- User interface

Source: GSMA, AT Kearny Analysis (May 2016)

Connectivity providers made only 17% of total revenues from the global internet economy



Consequence: There is no telco in the list



Bhutan's two policy imperatives:

- Government to lead the broadband evolution by delivering its services online over broadband: A significant programme of **e-Government transactions** that can be performed online and enhanced by broadband shall be developed and progressively implemented during the course of the 11th Five Year Plan.
- Lead Government applications: In addition to above, Government shall develop a range of **lead applications** for delivery of new, enhanced or extended services online using broadband.

Carriers must monetize these initiatives without subsidy.