

## IMPROVING REGIONAL BROADBAND CONNECTIVITY IN NORTH AND CENTRAL ASIA

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IMPROVING REGIONAL BROADBAND CONNECTIVITY THROUGH THE  
**ASIA-PACIFIC INFORMATION SUPERHIGHWAY**



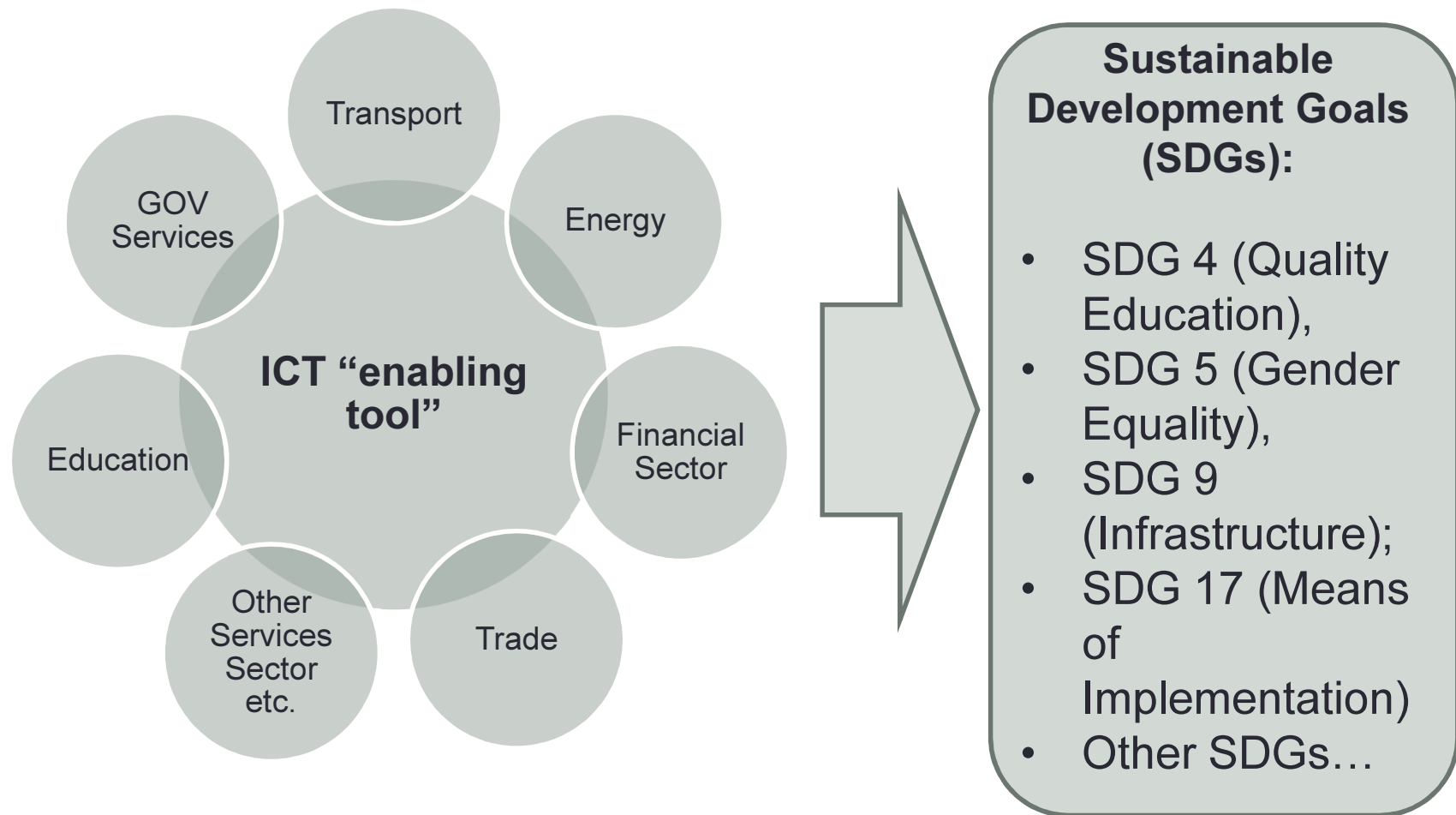
# Presentation Outline

1. The digital divide in North and Central Asia

2. Asia-Pacific Information Superhighway

3. E-resilience in North and Central Asia

# Information & Communications Technology (ICT)



# Recent ESCAP Findings

- Asia and the Pacific region is one of the **most digitally-divided** regions in the world.
- **Digital divide** – lack of access to affordable and resilient broadband connectivity, between countries (between urban and rural, by gender, by age etc).
- Use of two indicators (ITU) (**Fixed-broadband** subscriptions per 100 inhabitants & **Mobile-broadband** subs. per 100 inhabitants) to demonstrate **increasing digital divide**.

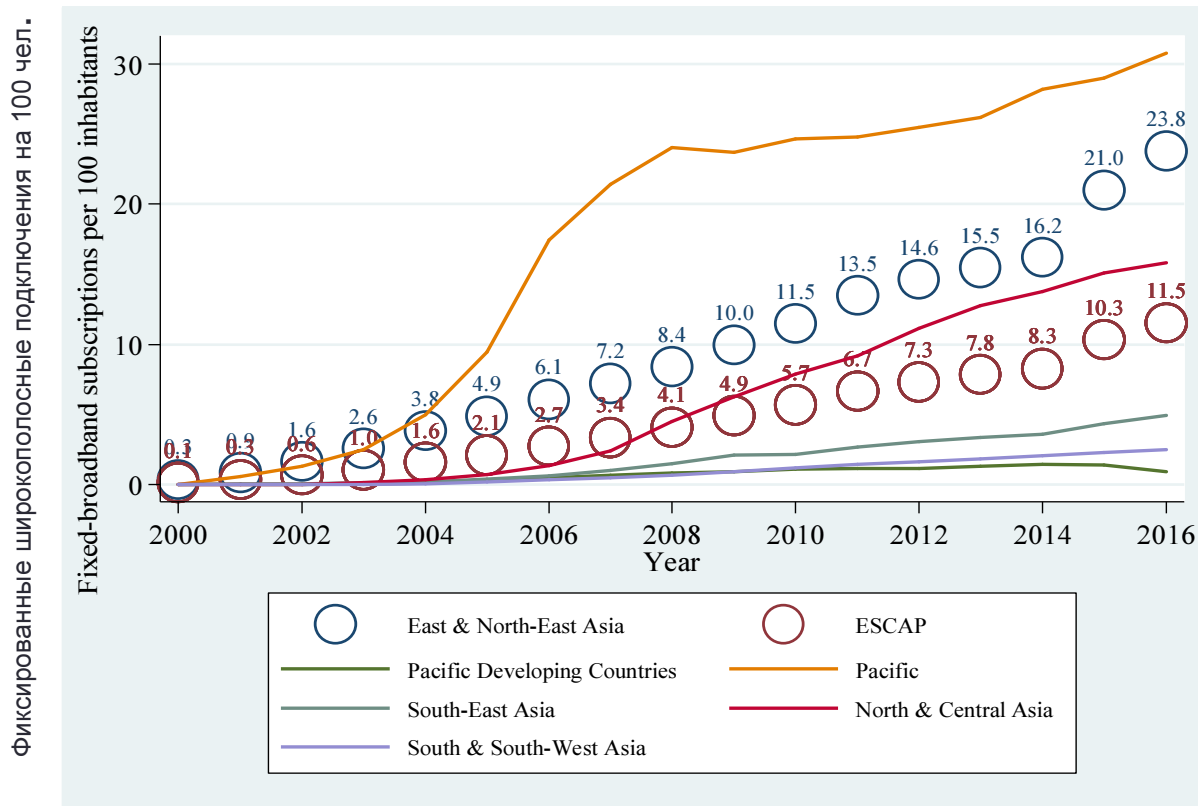


# The digital divide between AP sub-regions...

## *Fixed broadband*

Trends in fixed broadband adoption in ESCAP, by sub region

Развитие фиксированной широкополосной связи в субрегионах ЭСКАТО



Source: Produced by ESCAP, based on data sourced from ITU World Telecommunications/ICT Indicators Database (accessed July 2017).

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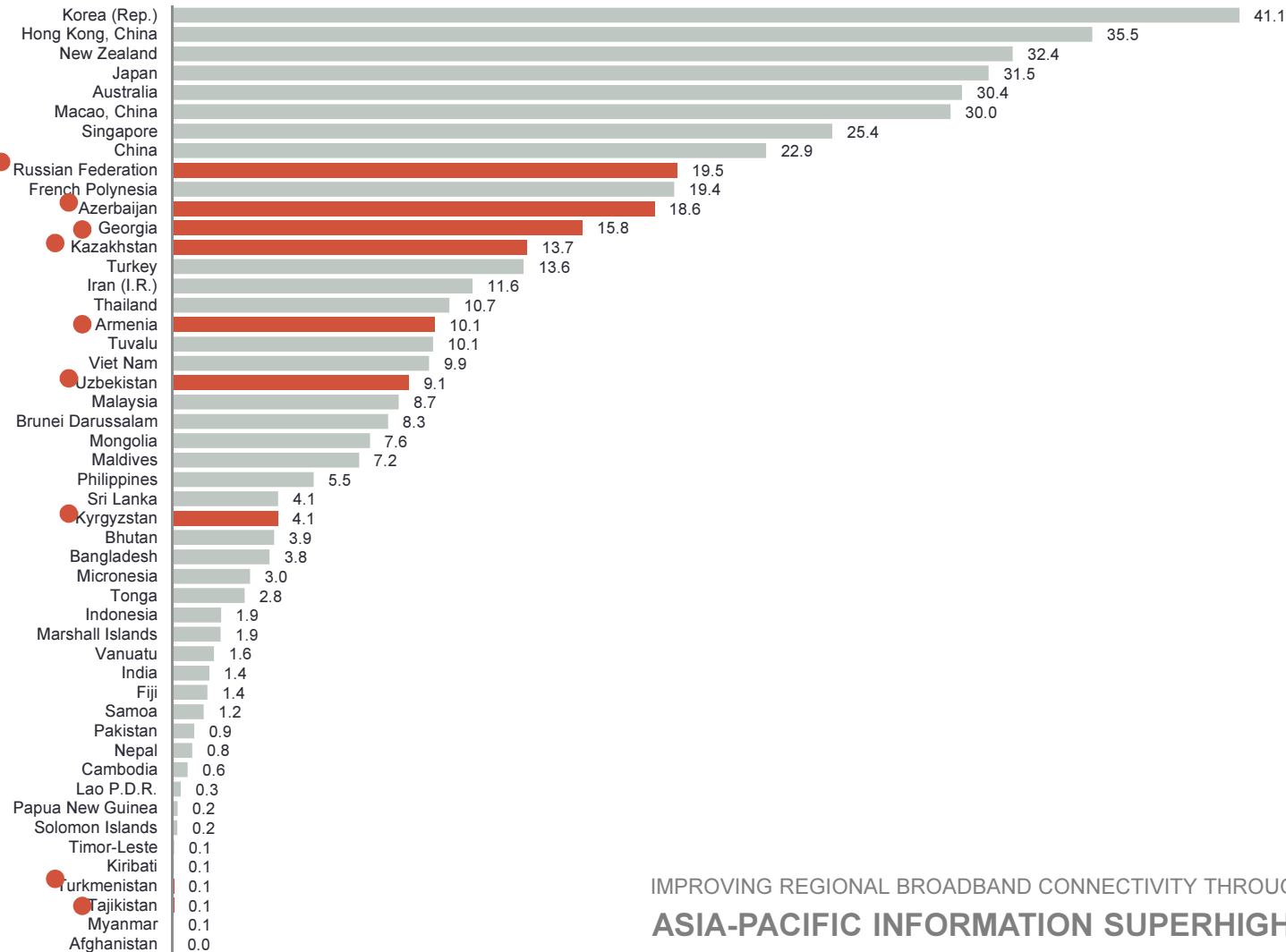


# The digital divide in North and Central Asia

## Fixed broadband

Fixed broadband subscriptions per 100 inhabitants in 2016

Число фиксированных широкополосных подключений на 100 чел. в 2016 году



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Source: Produced by ESCAP, based on data sourced from ITU World Telecommunications/ICT Indicators Database (accessed July 2017).

# The digital divide in North and Central Asia

## Fixed broadband

Box and whiskers plot of the North and Central Asia sample of 9 countries, fixed broadband, 2010-2016

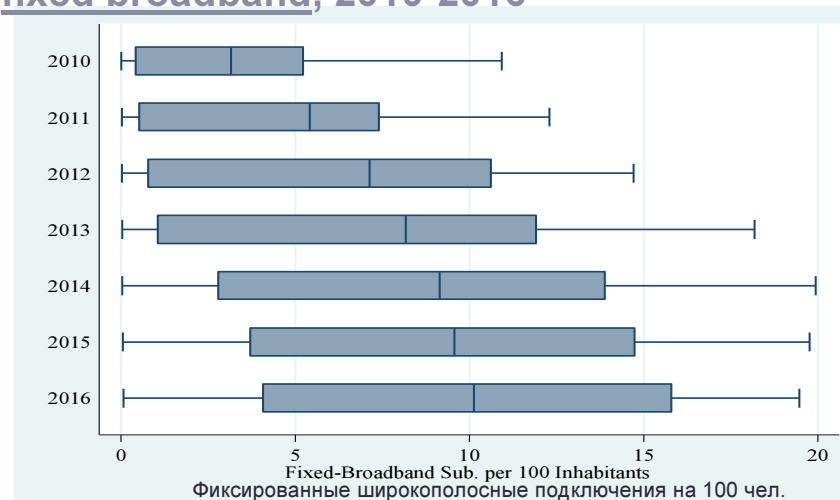


Диаграмма размаха по развитию фиксированной связи в 9 странах Северной и Центральной Азии, 2010-2016

Year	N	Mean	Standard deviation	Minimum	Median	Maximum	Interquartile range	Coefficient of variation
2010	9	3.3	3.6	0.0	3.2	10.9	4.8	1.1
2011	9	4.7	4.7	0.0	5.4	12.3	6.9	1.0
2012	9	6.6	6.2	0.0	7.1	14.7	9.9	0.9
2013	9	7.8	7.2	0.0	8.2	18.2	10.9	0.9
2014	9	8.8	7.6	0.0	9.1	19.9	11.1	0.9
2015	9	9.6	7.6	0.1	9.6	19.8	11.0	0.8
2016	9	10.1	7.4	0.1	10.1	19.5	11.7	0.7

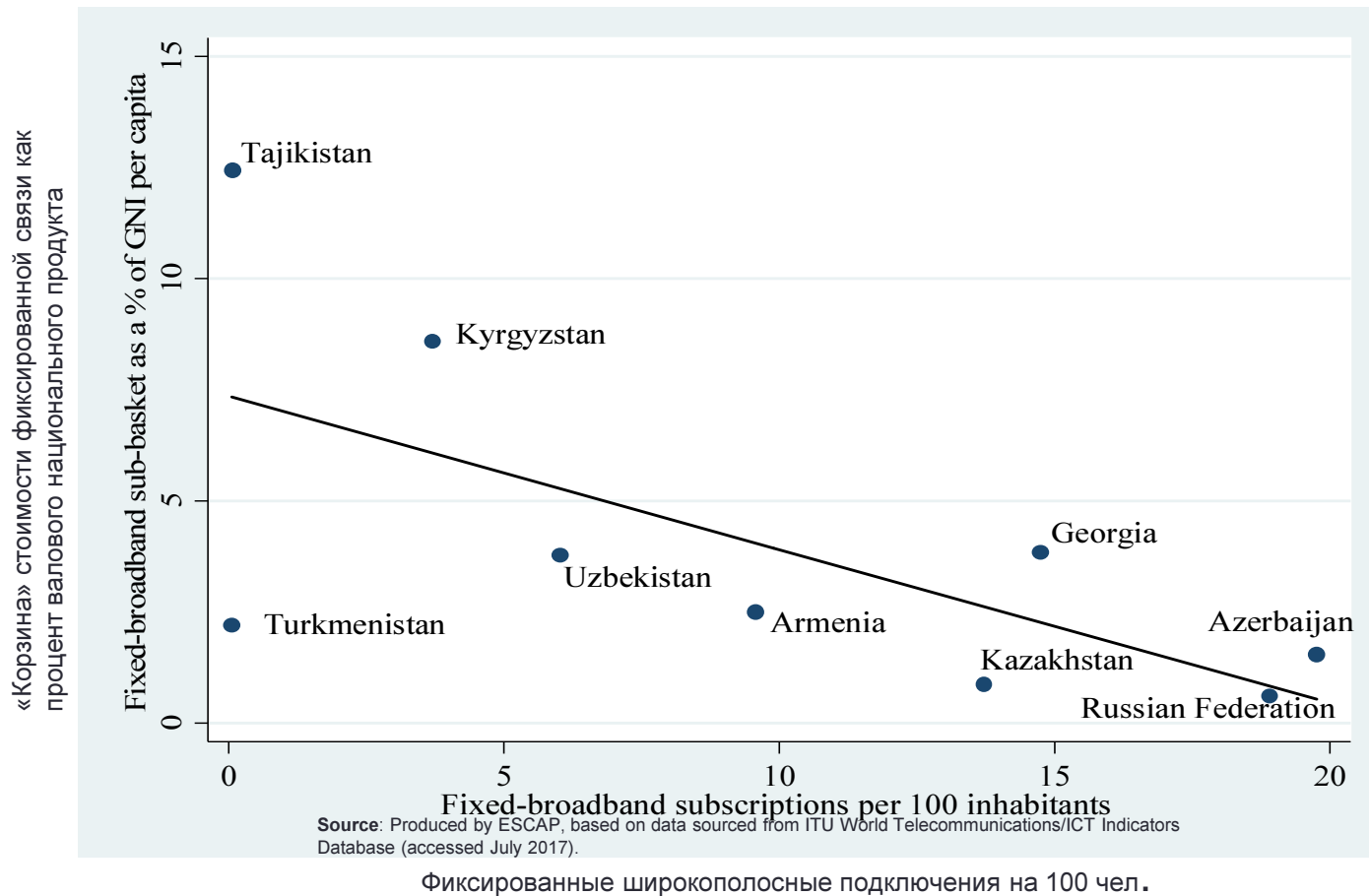
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# The digital divide in North and Central Asia

## *Fixed-broadband affordability*

Fixed broadband affordability and subscriptions in North and Central Asia, 2015



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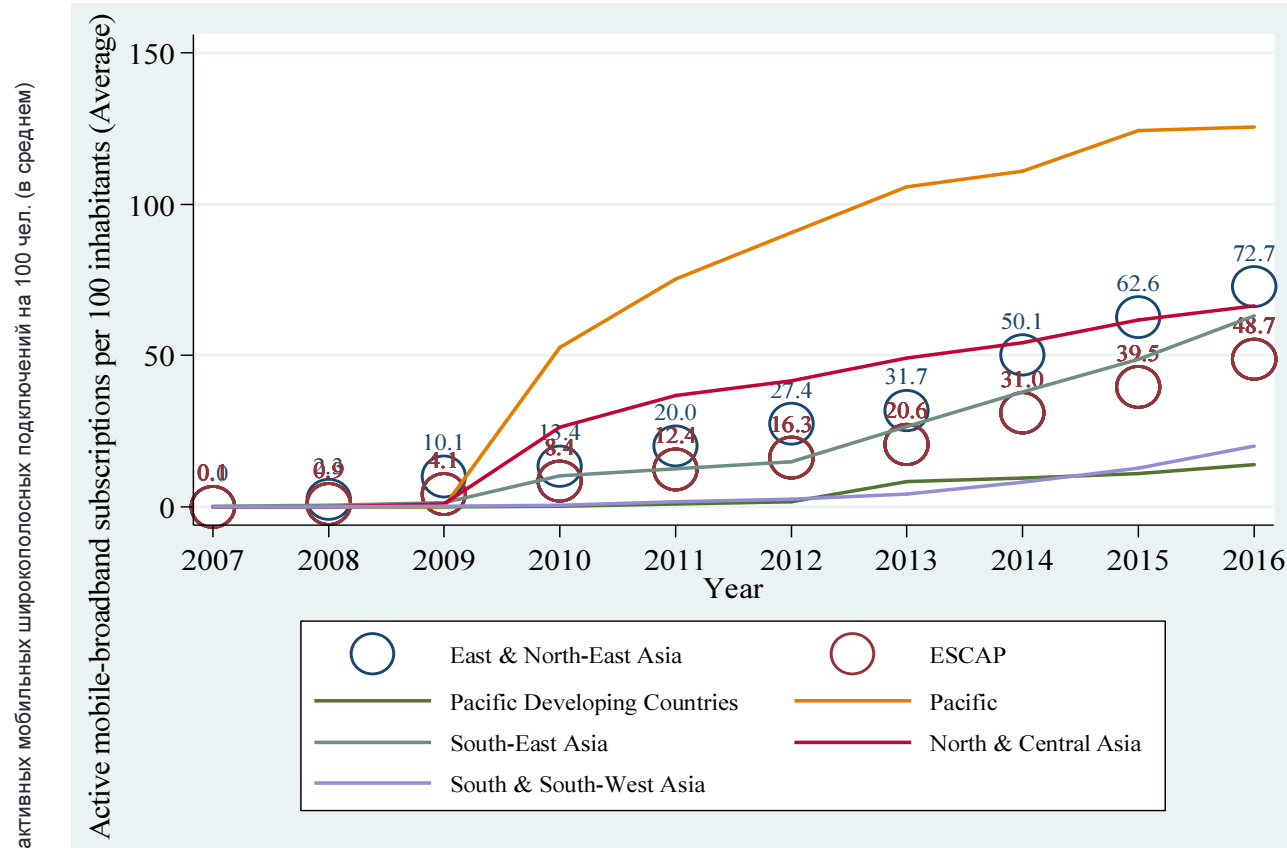


# The digital divide in North and Central Asia

## Mobile broadband

Trends in mobile broadband adoption in ESCAP, by subregion

Развитие мобильной широкополосной связи в субрегионах ЭСКАТО



Source: Produced by ESCAP, based on data sourced from ITU World Telecommunications/ICT Indicators Database (accessed July 2017).

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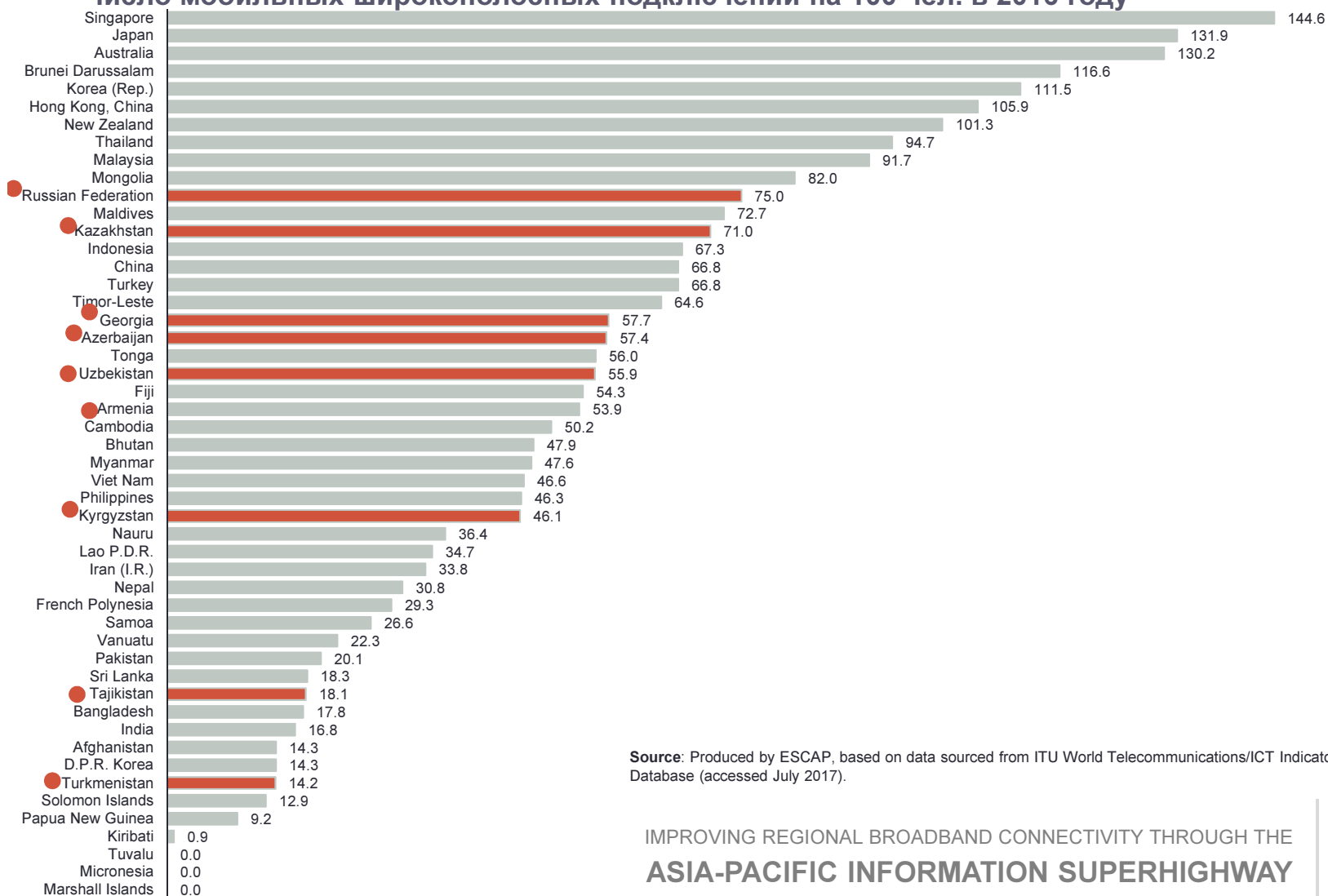


# The digital divide in North and Central Asia

## Mobile broadband

### Mobile broadband subscriptions per 100 inhabitants in 2016

### Число мобильных широкополосных подключений на 100 чел. в 2016 году



Source: Produced by ESCAP, based on data sourced from ITU World Telecommunications/ICT Indicators Database (accessed July 2017).

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# The digital divide in North and Central Asia

## Mobile broadband

Box and whiskers plot of the North and Central Asia sample of 7 countries for mobile broadband, 2010-2016

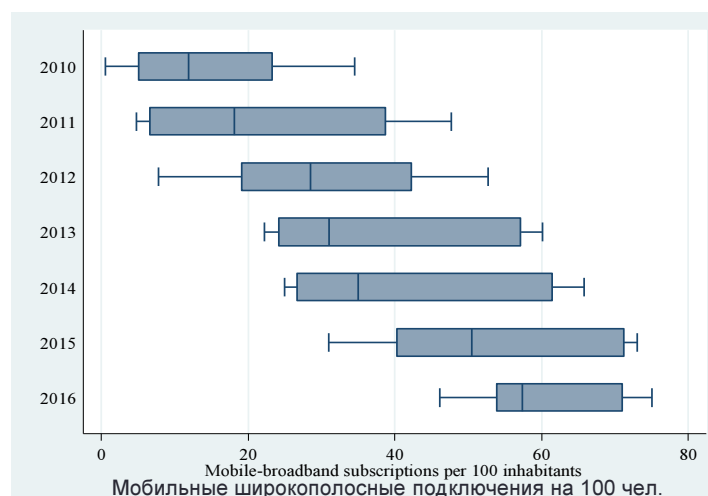


Диаграмма размаха по развитию мобильной широкополосной связи в 7 странах Северной и Центральной Азии, 2010-2016

Year	N	Mean	Standard deviation	Minimum	Median	Maximum	Interquartile range	Coefficient of variation
2010	7	13.7	11.9	0.5	11.9	34.5	18.2	0.9
2011	7	21.5	16.9	4.8	18.1	47.7	32.1	0.8
2012	7	28.5	15.1	7.8	28.5	52.7	23.1	0.5
2013	7	38.2	15.6	22.2	31.0	60.1	33.0	0.4
2014	7	43.9	17.6	25.0	35.0	65.8	34.8	0.4
2015	7	53.0	16.0	31.0	50.5	73.1	30.9	0.3
2016	7	59.6	10.0	46.1	57.4	75.0	17.1	0.2

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# The digital divide in North and Central Asia

## Broadband affordability

Broadband and affordability in the North and Central Asia sub region, 2016

Доступность связи и широкополосный доступ в Северной и Центральной Азии в 2016 году



Sources: Produced by ESCAP, based on data sourced from ITU Measuring the Information Society Report, Available from <http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2016.aspx>.

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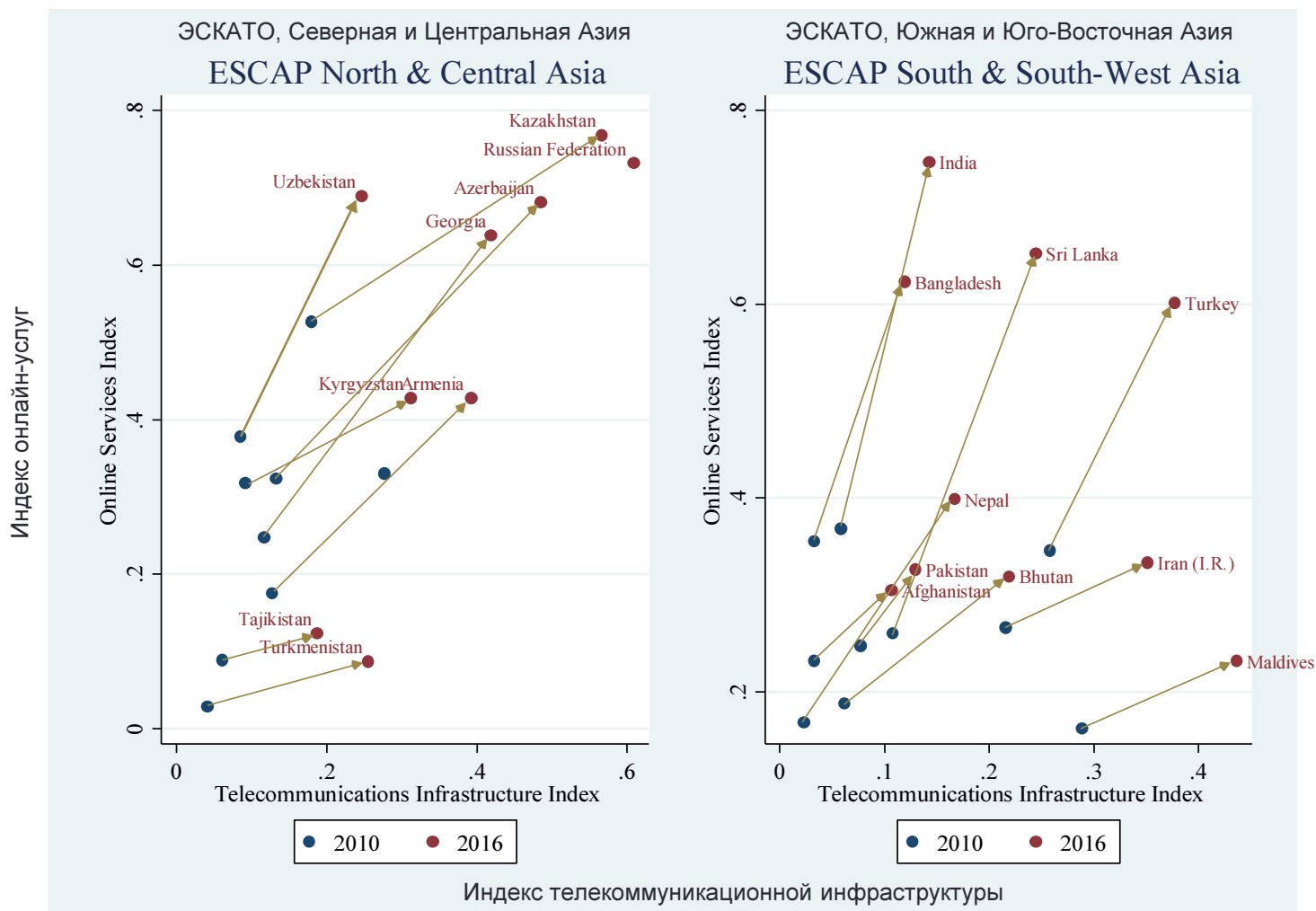


# Drivers of Digital Divide

- Insufficient international bandwidth – missing or lack of access to international **fibre-optic cables**.
- Lack of e-government services;
- Lack of **conductive regulations** for development of ICT infrastructure;
- Poor internet traffic management;
- Lack of resilient ICT infrastructure (**E-resilience**);
- Lack of access to **affordable** and reliable **energy source**;
- **Income** (economic levels) of countries, among other factors...



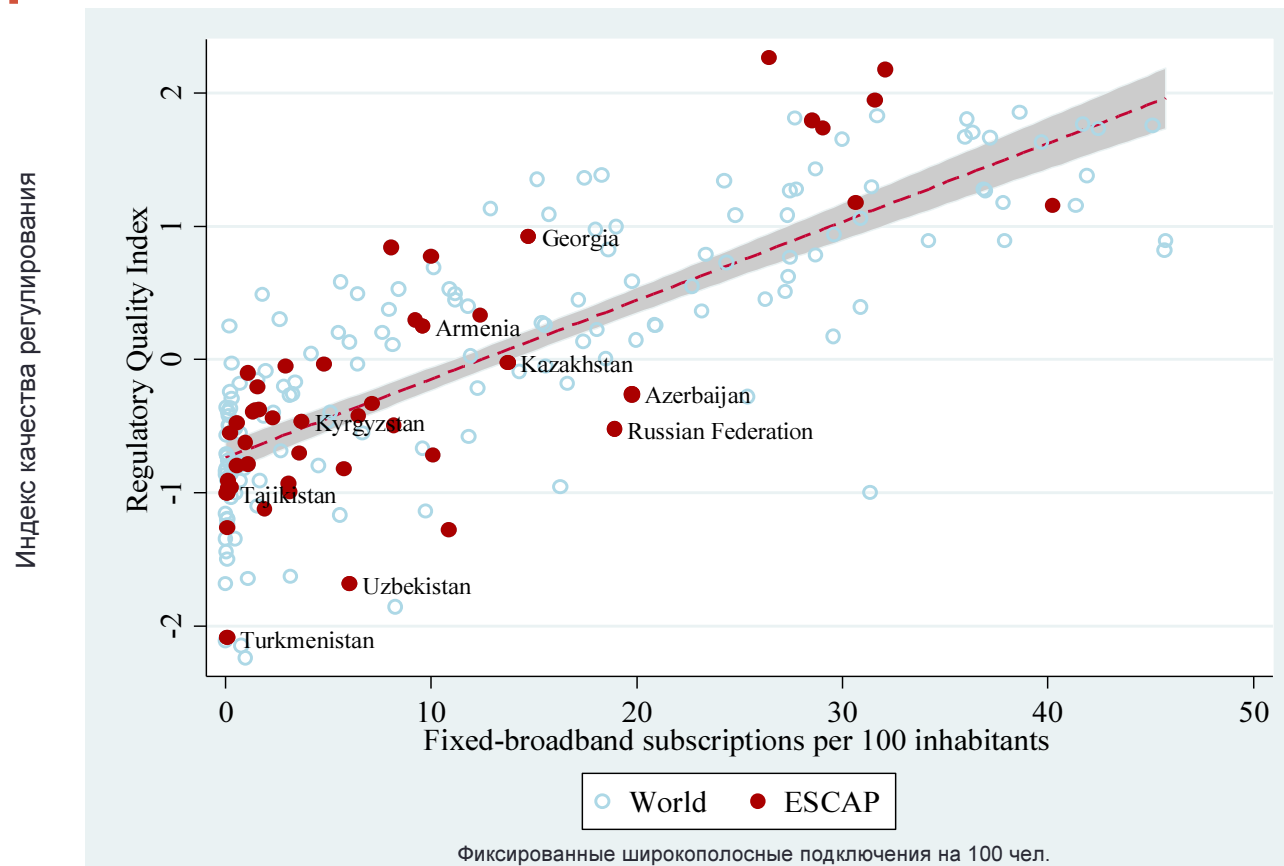
# Online Service Index and Telecommunication Infrastructure Index



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# Regulatory quality and fixed broadband adoption in 2015



**Sources:** Produced by ESCAP, based on data sourced from ITU World Telecommunications/ICT Indicators Database (accessed July 2017); and Regulatory Quality Index sourced from World Governance Indicators, World Bank.

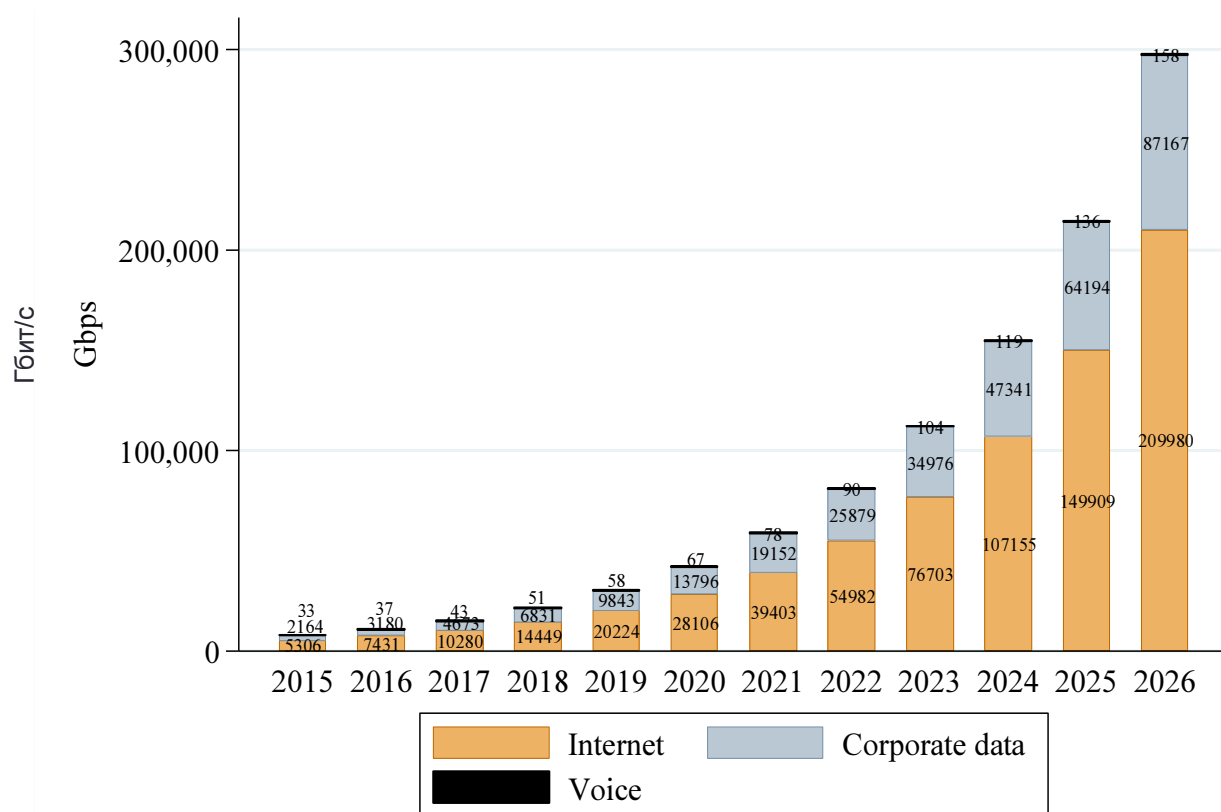
**Note:** Estimates for regulatory quality ranges between -2 (poor regulatory quality) and +2 (very good regulatory quality); 95% confidence interval shaded in grey.

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## Forecasted international bandwidth in North and Central Asia

## Прогноз емкости соединения в Северной и Центральной Азии



Source: ESCAP 2016.

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# Forecasted international bandwidth in North and Central Asia

	Projected annual growth 2016-2020	Projected Total growth 2016-2020	Share of corporate data in international bandwidth demand 2016	Share of corporate data in international bandwidth demand 2020	Share of Internet in international bandwidth demand 2016	Share of Internet in international bandwidth demand 2020
Azerbaijan	45.7%	+350.2%	11.3%	12.5%	88.7%	87.4%
Kazakhstan	49.6%	+399.5%	16.6%	16.7%	83.2%	83.3%
Kyrgyzstan	51.4%	+423.3%	2.2%	5.1%	97.8%	94.9%
Russian Federation	38.0%	+263.1%	34.5%	40.2%	65.2%	59.6%
Tajikistan	102.5%	+1562.5%	12.5%	8.3%	87.5%	91.7%
Turkmenistan	132.7%	+2700.0%	7.5%	8.9%	75.0%	91.2%
Uzbekistan	57.5%	+508.0%	8.0%	11.5%	88.0%	87.5%
<b>Region</b>	<b>40.9%</b>	<b>+294.1%</b>	<b>29.9%</b>	<b>32.9%</b>	<b>69.8%</b>	<b>67.0%</b>

Source: ESCAP 2016.

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# Presentation Outline

1. The digital divide in North and Central Asia

2. Asia-Pacific Information Superhighway (AP-IS)

3. E-resilience in North and Central Asia

## What is the Asia-Pacific information superhighway (AP-IS)?

- A **regional broadband connectivity** initiative supported by ESCAP;
- Intergovernmental platform for governments, telecom operators, regulators, financiers, and other stakeholders to discuss priority missing links in each sub-region;



















# Four Pillars of AP-IS

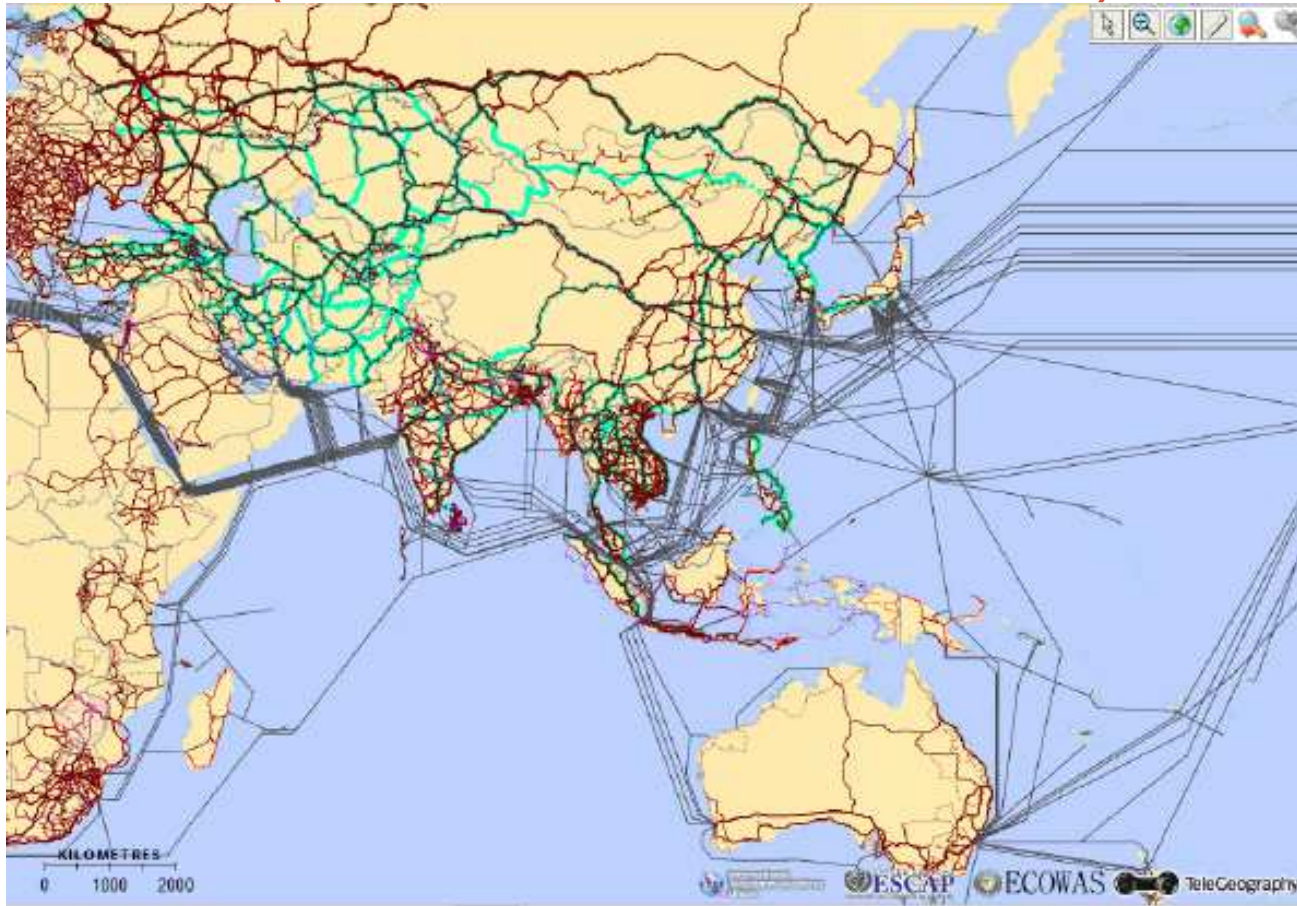


# AP-IS Initiatives

## Strategic Initiatives 2016-2018

		P1: Infrastructure & Connectivity	P2: Internet Traffic & Network Mgmt.	P3: E-Resilience	P4: Broadband for All
1	Identification, coordination, deployment, expansion and integration of the regional backbone network				
2	Establish a sufficient number of IXPs at the national and sub-regional levels and set out common principles on Internet traffic exchange				
3	Regional social and economic studies				
4	Enhancing ICT infrastructure resilience				
5	Policy and regulations for leveraging existing infrastructure, technology and inclusive broadband initiatives				
6	Capacity-building				
7	AP-IS funding mechanism based on public-private partnerships				

## Asia-Pacific Information Superhighway Map (ESCAP-ITU collaboration)



Interactive Map, visit <<http://www.itu.int/itu-d/tnd-map-public/>>

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# Implementation of the AP-IS Master Plan

- **Resolution 69/10:** Member States recognized the need to promote the exchange of best practices and experiences related to the development of ICT infrastructure, including in-depth analysis of the policy and regulatory barriers that could impede efforts to synchronize the deployment of ICT infrastructure across the region in a seamless manner;
- **Resolution 71/10:** Commission decided to establish the open-ended Working Group on the AP-IS to agree on principles and norms, and develop a Master Plan and Regional Cooperation Framework;
- **First Meeting of Working Group** in Incheon, Korea in September 2015;
- **Private Sector Consultative Meeting** organized in April 2016;
- **Second Meeting of Working Group** in Guangzhou, China in August 2016;
- **Establishment of Steering Group**, which started discussion on Master Plan and Regional Cooperation Framework Document in June 2016.
- **Resolution 73/6:** Member States adopt the resolution to push forward the implementation of AP-IS through regional cooperation (**May 2017**).



# Implementation of the AP-IS Master Plan

- **1<sup>st</sup> Session of the AP-IS Steering Committee:** To be held on 1-2 November 2017, Dhaka, Bangladesh to establish sub-regional AP-IS governance structures, members and update on the work of the secretariat and implementing partners.
- **East Asia Sub-regional Steering Group meeting:** To be held on 12-13 December 2017, Xi'an, China. The sub-regional meeting will discuss sub-regional challenges on ICT connectivity and priorities for implementation.





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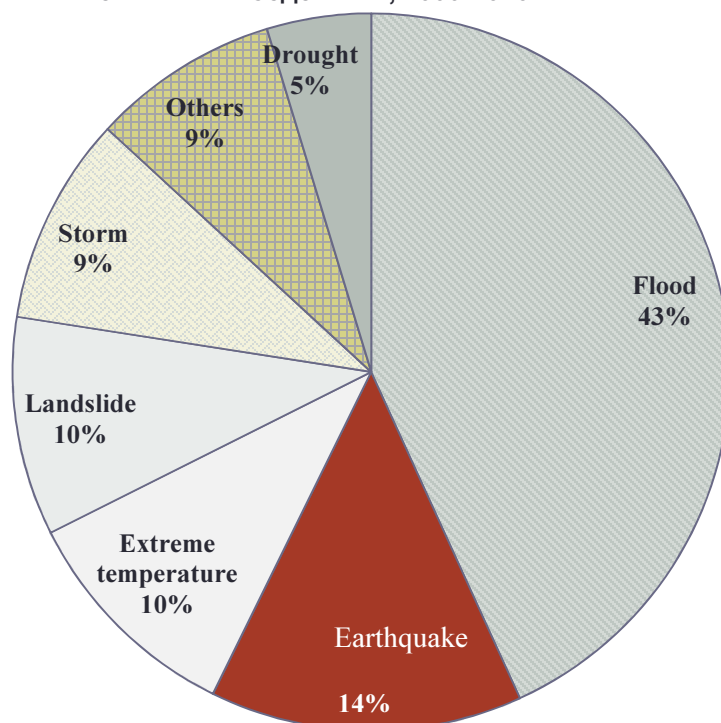
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# E-resilience in North and Central Asia

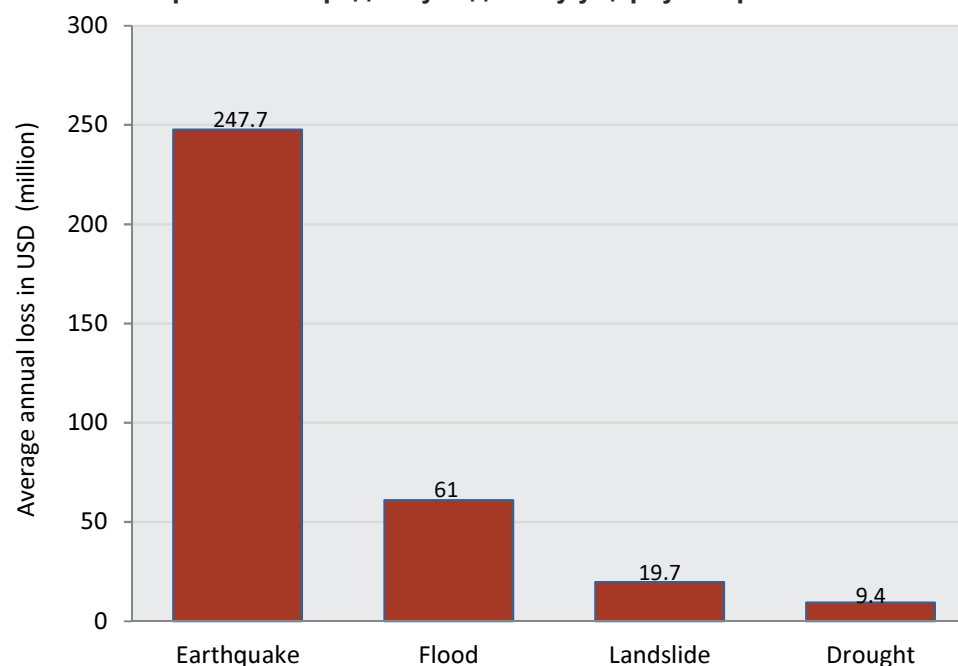
Share of disasters in North and Central Asia by number of occurrences, 2000-2016

Доля Северной и Центральной Азии в мировых стихийных бедствиях, 2000-2016



Source: ESCAP based on data from Centre for Research on the Epidemiology of Disasters, "EM-DAT: The International Disaster Database", 2017.

Predicted Average Annual Losses in SPECA countries  
Прогноз по среднему годовому ущербу в странах СПЕКА



Source: ESCAP based on calculations from Global Facility for Disaster Reduction and Recovery, Disaster Risk Management Programs for Priority Countries (Washington D.C., 2009). Available from [http://www.unisdr.org/files/14757\\_6thCGDRMPProgramsforPriorityCountrye.pdf](http://www.unisdr.org/files/14757_6thCGDRMPProgramsforPriorityCountrye.pdf).

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# E-resilience and SMEs

- Previous research from ESCAP for Central Asia shows that **ICT is a key enabler for SMEs**
- ICT enhances competitiveness and spurs SMEs' integration into global value chains.
- Emerging and future usage include e-commerce, e-payment, cloud computing, online labor markets
- SMEs contribute to a significant share of GDP in countries of the Central Asia region.

## Problem:

- SMEs are vulnerable to natural disasters due to direct and indirect damage (e.g. supply chain and production issues)
- Business continuity plans (BCPs) among SMEs are lacking
- Lack of awareness among employees and management, a lack of resources, expertise and information about managing disaster risks

## Solutions:

- Micro-Level Practices: **(1)** backing up data, **(2)** maintaining power supply (e.g. autonomous power supply technologies), **(3)** web applications for disaster risk management (for early warnings, alerts, risk assessment)
- Macro-Level Solutions: **(1)** infrastructure redundancy (e.g. more terrestrial links in fiber optic networks) and reliability, **(2)** requirements on data centre service providers, **(3)** ensuring that critical infrastructure are robust (roads, electricity supply) as they are highly interdependent

Reference: ESCAP (2017), Building a Resilient Digital Economy: Fostering SMEs in Central Asia.  
<http://www.unescap.org/sites/default/files/SMEs%20in%20SPECA%20final.pdf>



## Policy recommendations and the Way Forward

- Enabling ICT policy and regulatory framework.  
E.g. minimum standards on critical ICT infrastructure such as data centers;
- Ensuring availability of redundant power sources and adequate equipment protection;
- Improving redundancy in broadband networks:  
**Asia-Pacific Information Superhighway (AP-IS)**



# Navigate to the ICT & DRR Gateway

Access the Gateway on  
**[www.drrgateway.net](http://www.drrgateway.net)**

Ряд статей доступны на русском языке



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# Thank you

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