E-learning opportunities in the Asian global south

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LIRNE*asia*: a pro-poor, pro-market Asia Pacific think tank; focus on infrastructure policy and regulation

Our Mission:

"Catalyzing policy change through research to improve people's lives in the emerging Asia Pacific by facilitating their use of hard and soft infrastructures through the use of knowledge, information and technology"

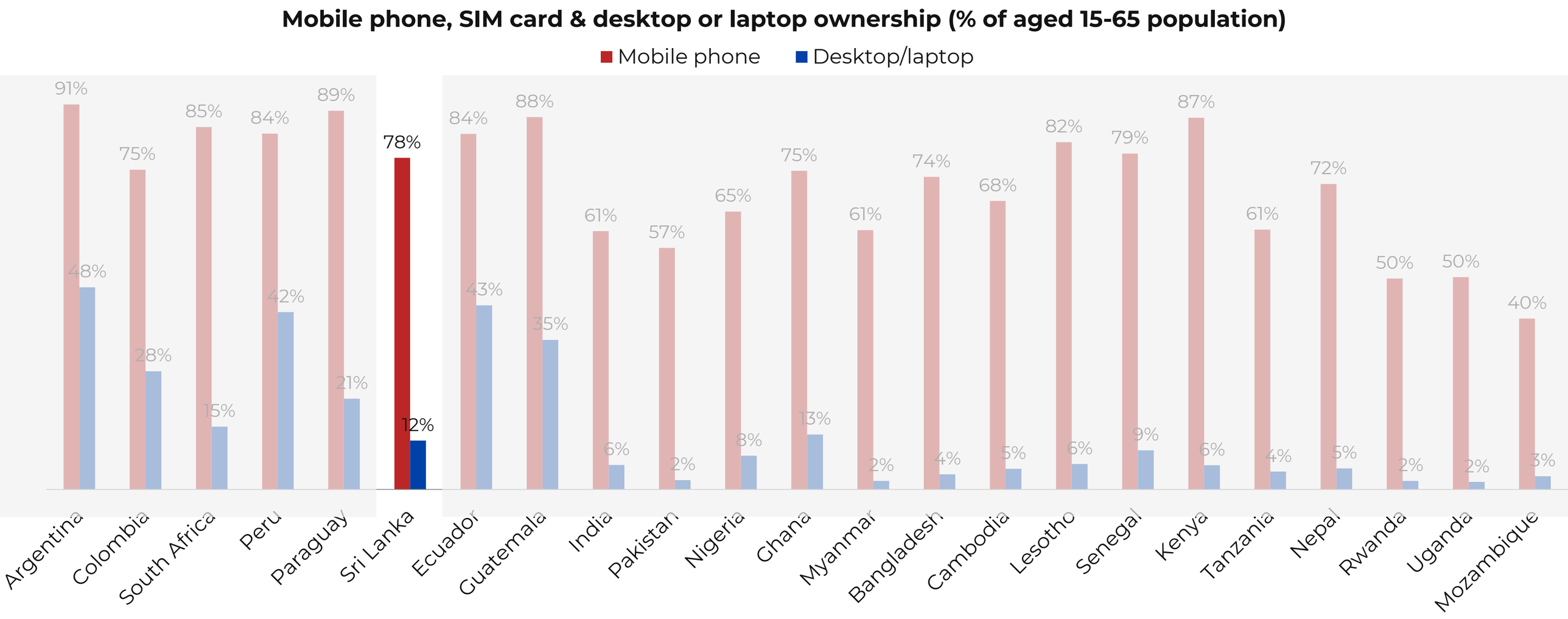
Findings from AfterAccess survey

ICT device and internet access among the 15-65 population

The bigger picture: What we know

- 78% of Sri Lankans aged 15-65 own a mobile
  - Almost half of those mobiles are still basic phones
- 37% of Sri Lankans (15-65) use “the internet”
  - Mostly via smartphones; mostly social media
  - Gender gaps, rural-urban gaps exist

Sri Lanka: 78% aged 15-65 population have a mobile phone of some type (individual level)

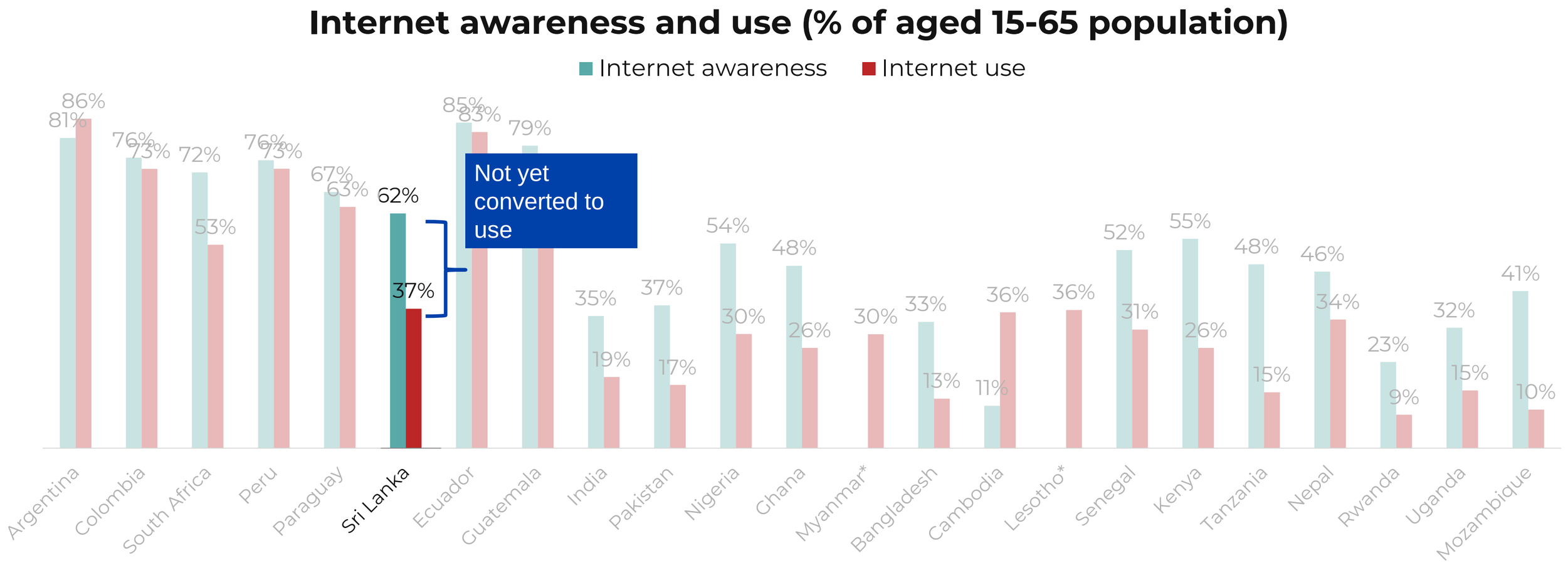


Q1: Do you own a mobile phone?
Q2: How many active SIM cards do you have, (SIM cards that you used in last 30 days)?
Q3: Do you own a personal Desktop computer or Laptop?

Note: Countries ordered left-right by descending GNI/capita or

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Sri Lanka	Ecuador	Guatemala	India	Pakistan	Nigeria	Ghana	Myanmar	Bangladesh	Cambodia	Lesotho	Senegal	Kenya	Tanzania	Nepal	Rwanda	Uganda	Mozambique
All respondents	1,240	1,425	1,610	1,478	1,357	2,017	1,420	1,407	5,069	2,002	1,706	1,145	7,204	2,020	2,123	1,844	1,181	1,179	1,102	2,008	1,118	1,757	1,091

Internet awareness among 15-65 population is yet to be converted to actual use (individual level)



Q1: Do you know what the Internet is?
Q2: Have you ever used the Internet (Gmail, Google, Facebook, email)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Sri Lanka	Ecuador	Guatemala	India	Pakistan	Nigeria	Ghana	Myanmar	Bangladesh	Cambodia	Lesotho	Senegal	Kenya	Tanzania	Nepal	Rwanda	Uganda	Mozambique
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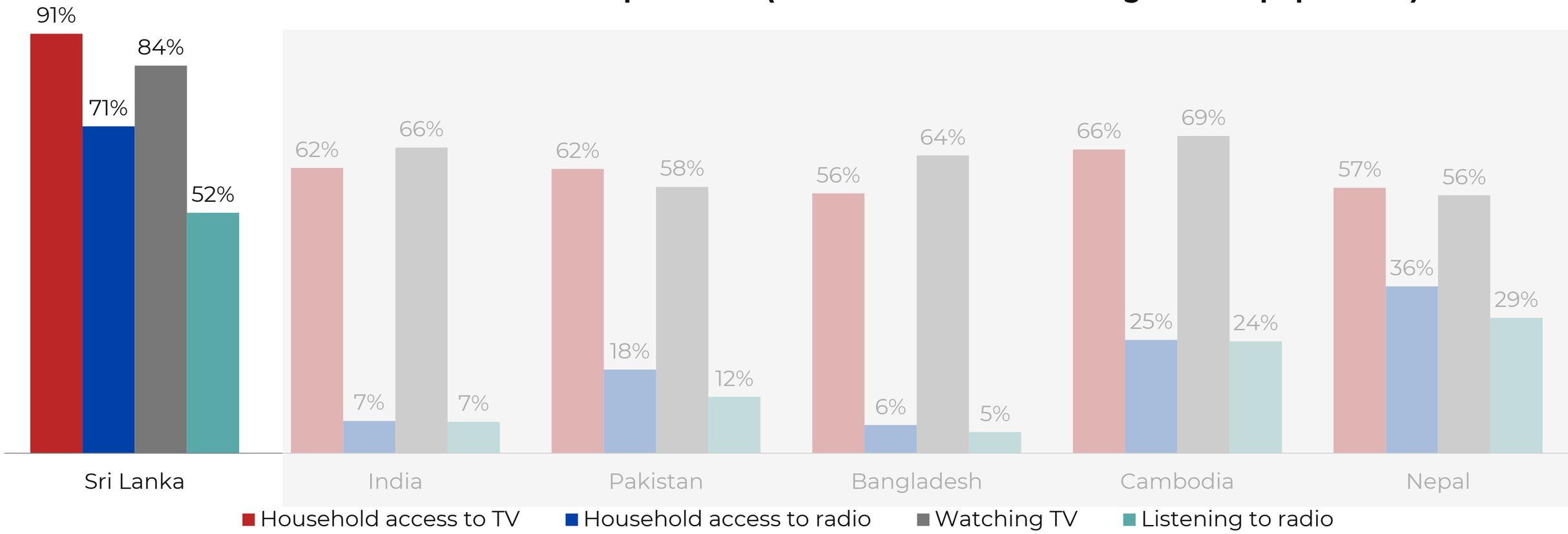
TV and radio are avalalable in ~90% of households

Household TV and Radio ownership and use (% all households and of aged 15-65 population)



Q1: How many working … Does your household have? Mobile phones
Q2:Does your household have a working…?Radio
Q3:How many hours a day do you watch the TV on average?
Q4: How many hours a day do you listen to radio on average?

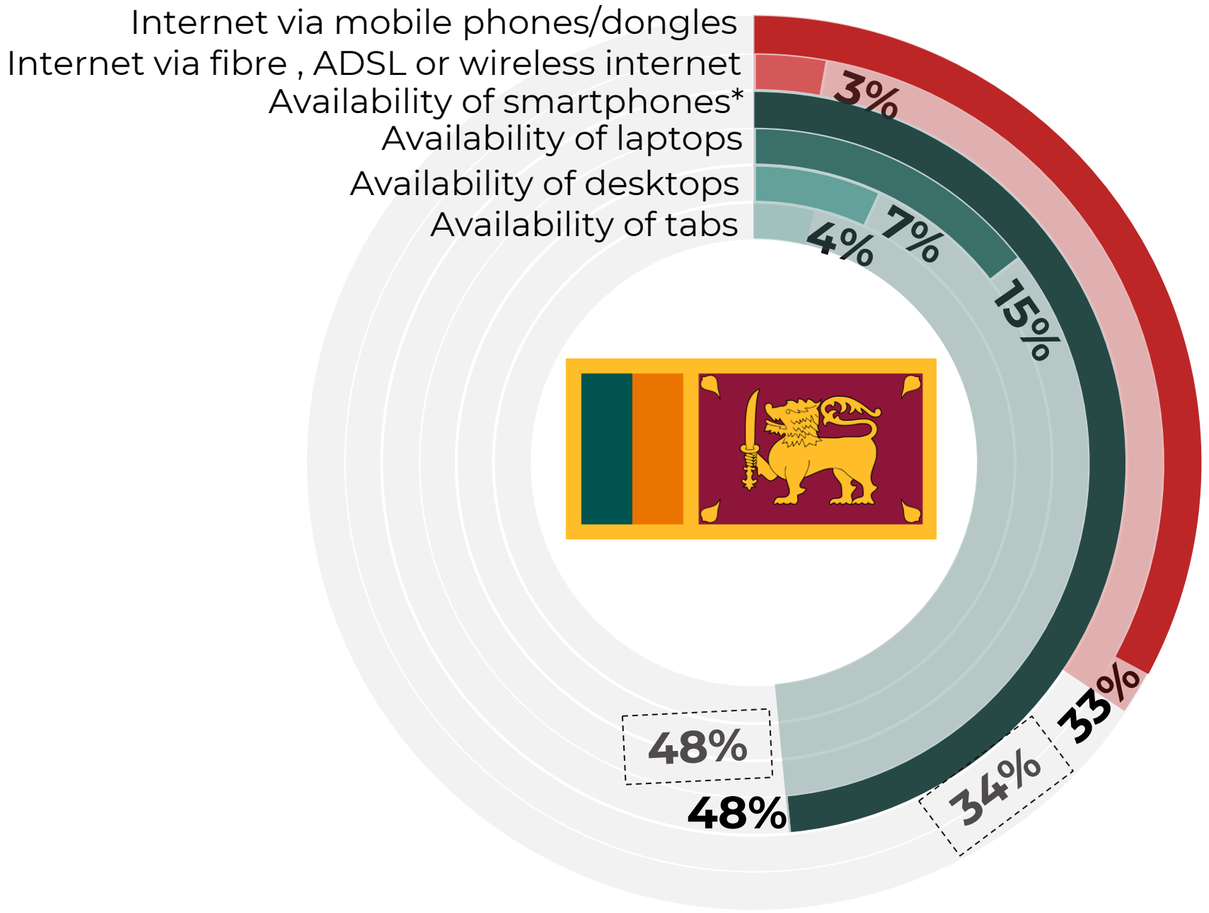
Base	Sri Lanka	India	Bangladesh	Cambodia	Nepal
All respondents	2,017	5,069	2,020	2,123	2,008

ICT device and internet access among households with children

Less than half of all households with children in Sri Lanka can avail of e-learning opportunities

Household availability of internet connection, smartphones & computers

(% households with children)



34% of households with children (age less than 18) have an internet connection

48% of households with children (age less than 18) have a smartphone* or computer

Q1: How many working computers (desktops, laptops or tabs) does your household have?
Q2: What type of mobile phone do you own?
Q3: Does this household have a working Internet connection, if so what type? (one that is exclusive for the household and is accessible to all household members)

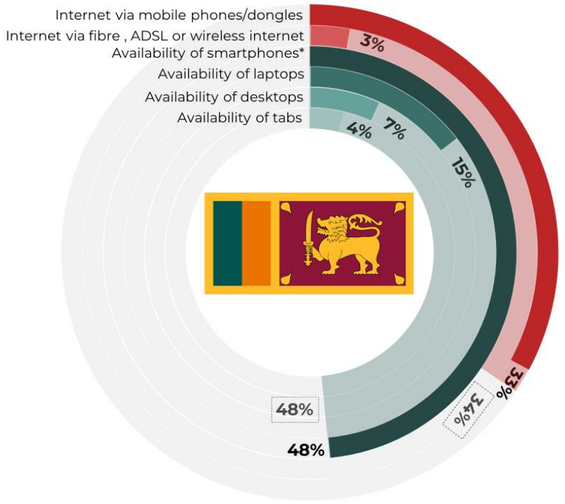
Base:	Sri Lanka
Households with children (18 or below)	1,301

* Based on statistical modeling of survey data

Nepal (lower GNI/capita) is ahead of Sri Lanka

Household availability of internet connection, smartphones & computers

(% households with children)



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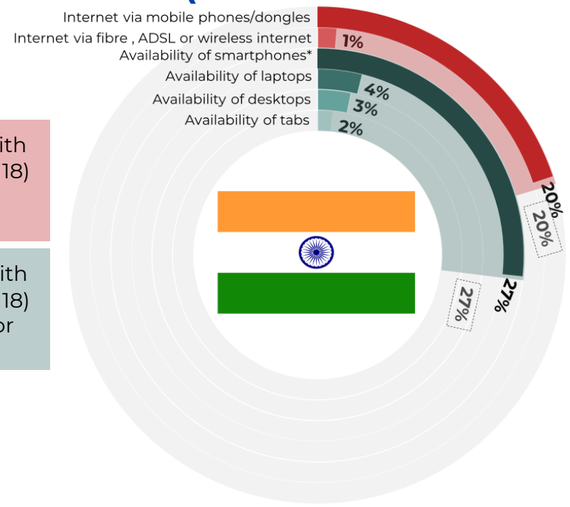
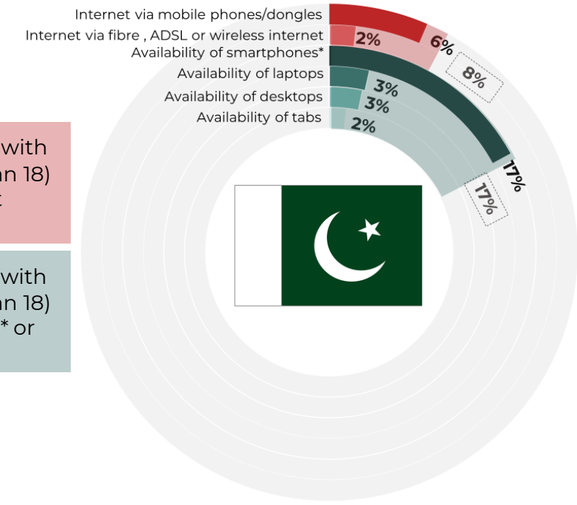


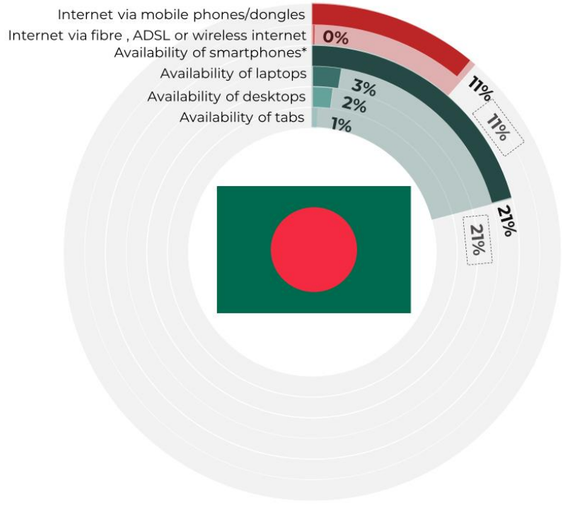
20% of households with children (age less than 18) have an internet connection

27% of households with children (age less than 18) have a smartphone* or computer



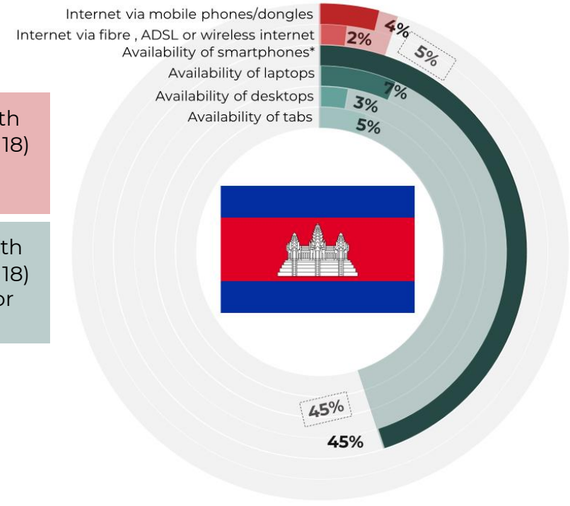
8% of households with children (age less than 18) have an internet connection

17% of households with children (age less than 18) have a smartphone* or computer



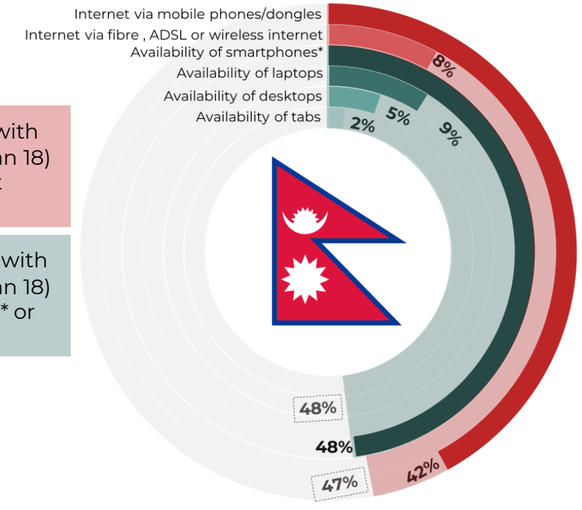
11% of households with children (age less than 18) have an internet connection

21% of households with children (age less than 18) have a smartphone* or computer



5% of households with children (age less than 18) have an internet connection

45% of households with children (age less than 18) have a smartphone* or computer



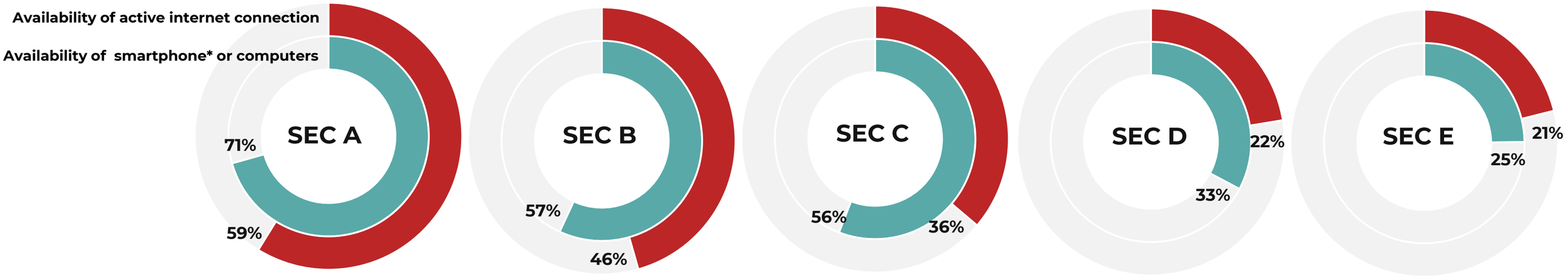
47% of households with children (age less than 18) have an internet connection

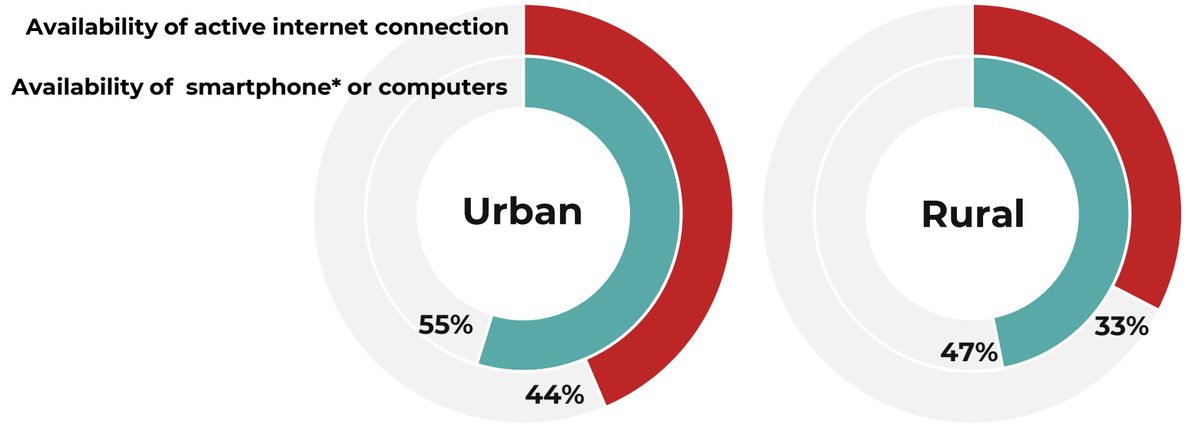
48% of households with children (age less than 18) have a smartphone* or computer

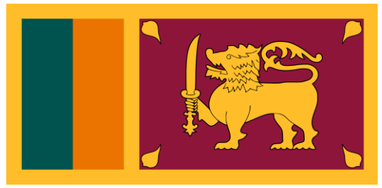
Base	Sri Lanka	India	Pakistan	Bangladesh	Cambodia	Nepal
Households with children age less than 18	1,301	3,580	1,744	1,606	1,730	1,605

Large disparity between richer and poorer households

Household availability of internet connection, smartphones & computers
(% households with children)







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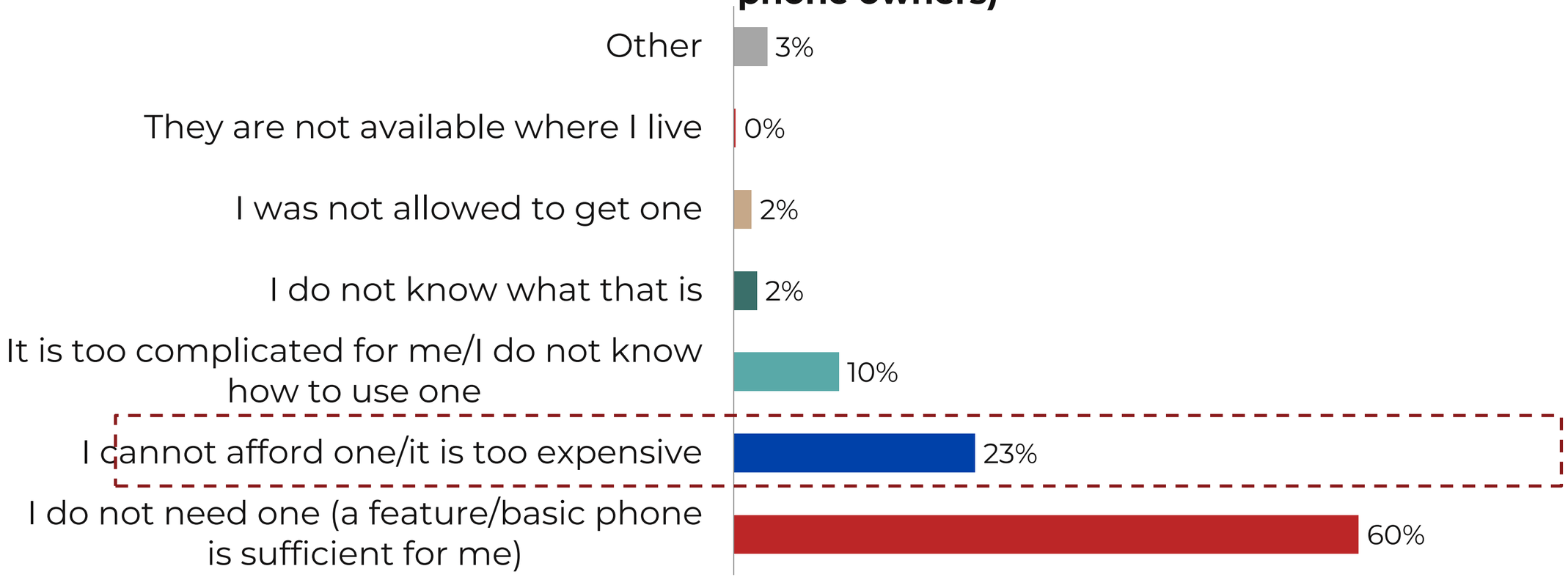
Households with children age less than 18	1,301	3,580	1,744	1,606	1,730	1,605

Affordability is a barrier

23% of basic/feature phone owners ‘can’t afford a smartphone’

Primary reason for not owning a smartphone (% of aged 15-65 basic or feature phone owners)



Q: Please tell me the primary reason why you have chosen not to obtain a smartphone or touch phone handset?

Base	Sri Lanka
basic or feature phone owners	861

Cost of 1GB is not affordable for 60% of the population

- Broadband Commission's affordability target for 2025: **1GB mobile broadband should cost no more than 2% monthly income**
- Sri Lanka meets the target as a country (~0.49% monthly income)
- BUT, Decile analysis → 1GB not 'affordable' for the poorer 60% of the population

Income decile group	Mean monthly per capita income by decile USD,2016	Mobile BB 1 GB, as a % of individual income
Decile 1 (poorest)	23.86	7.5%
Decile 2	39.12	4.6%
Decile 3	50.16	3.6%
Decile 4	60.63	3.0%
Decile 5	71.81	2.5%
Decile 6	84.61	2.1%
Decile 7	101.55	1.8%
Decile 8	125.41	1.4%
Decile 9	169.81	1.1%
Decile 10 (richest)	397.08	0.5%

Sources: ITU ICT Price Baskets, 2018;
Department of Census & Statistics, Household Income and Expenditure Survey 2016

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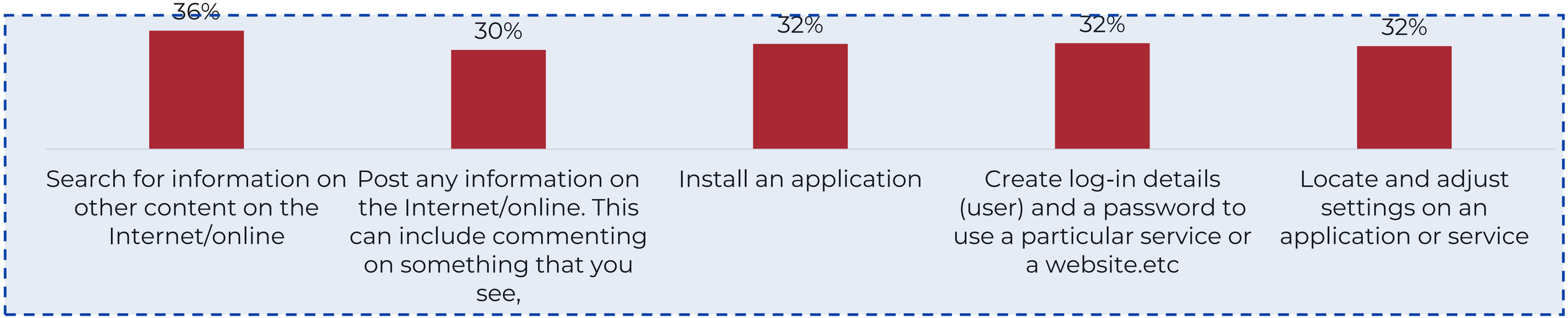
Skills?
Are parents and kids equipped with skills to learn effectively online?

Just 40% have done more than search for info online. But basic skills are not the end goal; what about skills for a safe & secure online experience?

Experience performing the tasks listed (% of aged 15-65 mobile phone owners)

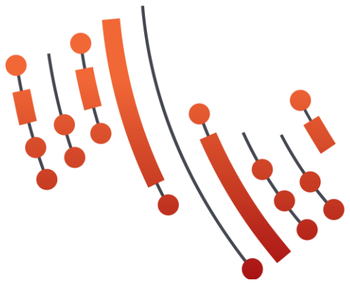
40% of mobile phone owners done at least *one* of these activities before



Q: Can you please tell me, which of the following activities you have ever done on your mobile or on the internet/online?

Base	Sri Lanka
Mobile phone owners	1,609

THANK YOU



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Annex: About *AfterAccess*

What we do: digital ++

- "Old fashioned telecom sector stuff": Evidence based inputs into ICT Sector reforms
  - E.g. India Universal Service Policy, Myanmar Telecom Law, Bangladesh telecom license renewal, Indonesia in-country back-haul pricing, S and S East Asia Broadband quality measurement, assessments of the telecom regulatory environments .....etc.
- ICTs for development, ICTs in non-ICT sectors
  - Agriculture: does more market price/other information through mobiles help agriculture markets work better and give farmers farmers better livelihoods?
  - Disaster Risk Reduction: models for ICT-based early warning systems for natural disasters in Maldives, Sri Lanka
- Other infrastructure: Roads, electricity, health, etc. Often using big data analytics
  - Historical, pseudonymized CDRs from multiple telcos
  - Where will disease spread? Where are traffic congestions spots? Where do people live? Which are commercial areas of a city (vs residential areas)? Proxies for credit ratings for individuals.
- Digital rights: what works in our context?
  - How do we ensure an equitable, human rights-enabling, safe Internet for users in the region?
  - E.g.: how do users in Myanmar deal with online harassment, privacy and security issues?
- Improving lives of marginalized groups
  - E.g. /independent living for Persons with Disabilities: Myanmar, Nepal, Sri Lanka, India
  - Other grups - the poor, women, those at th intersections of various forms of marginalizations

AfterAccess: Nationally representative surveys of ICT access and use by households & individuals aged 15-65 across Global South

- 3 partners conducting the research: LIRNE*asia* (in Asia), Research ICT Africa (RIA, in Africa)), DIRSI (in Latin America)
- Funded by IDRC (Canada), SIDA (Sweden), the Ford Foundation
- Rigorous sampling method, comparable across countries
- Predominantly common questionnaire with local customization
  - Structured, closed-ended responses administered face-to-face using mobile devices
  - User-based (rather than subscription-based) data allowing for disaggregation by urban-rural, gender, SEC, age, etc.
- Sri Lanka fieldwork – Nielsen Lanka Private Limited (selected through a competitive bidding process)

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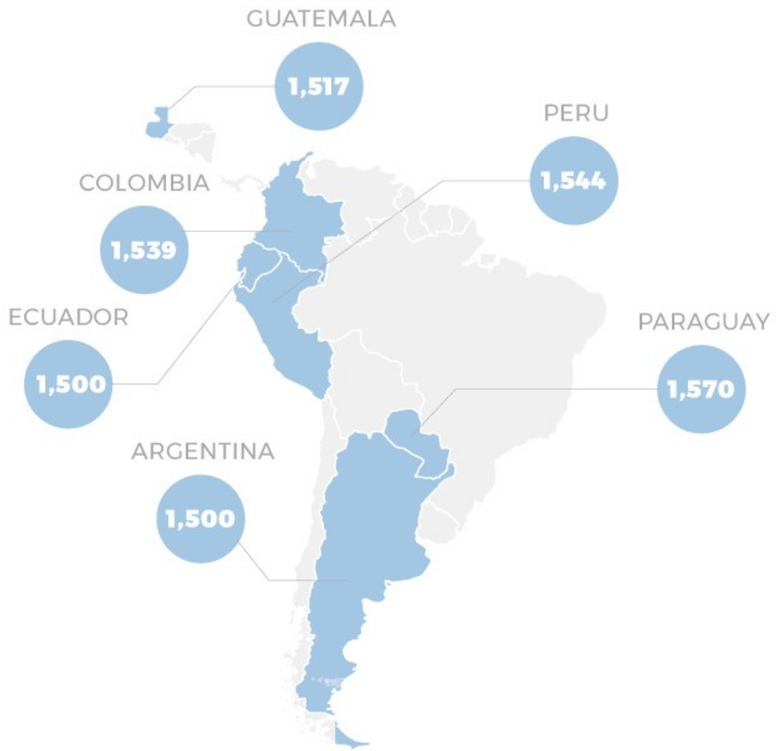
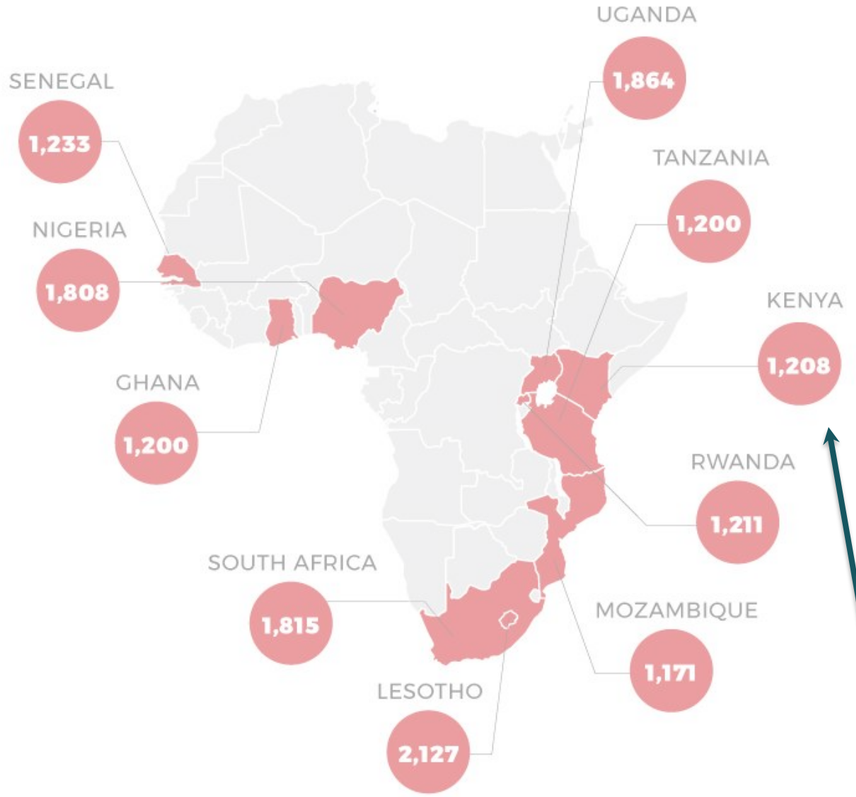
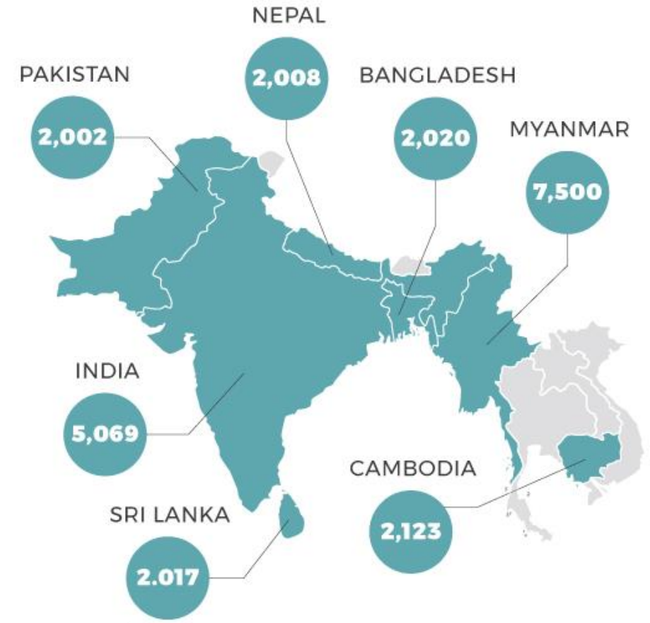
To date 23 countries (covering >30% global population); 38,005 face-to-face interviews



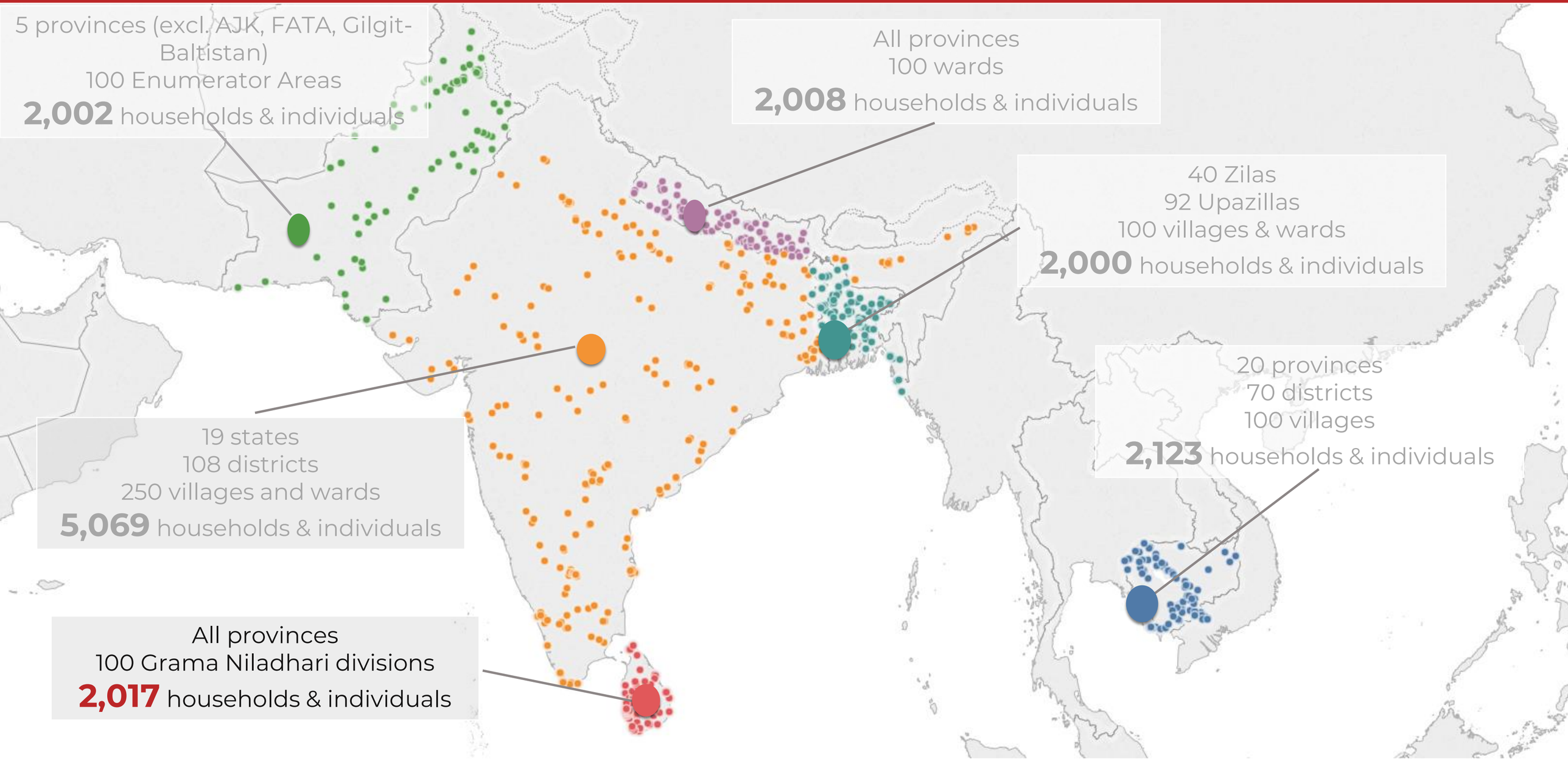




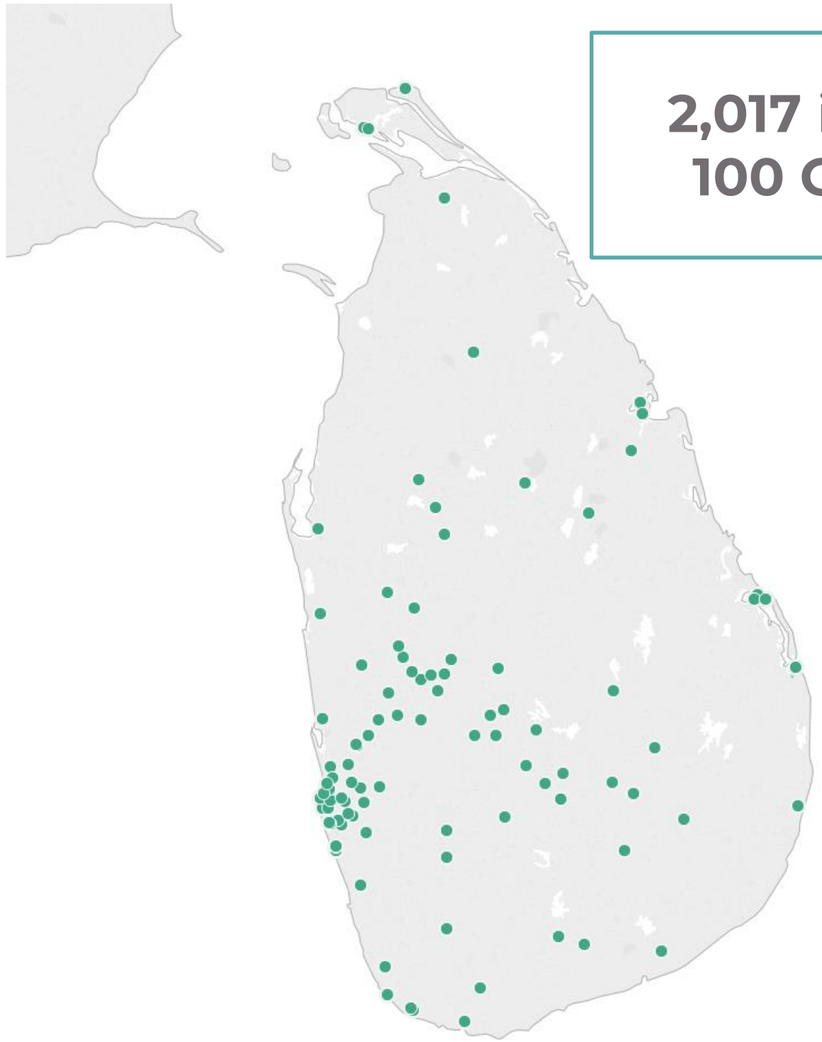
Sample sizes

Notes: Pakistan excludes AJK, FATA, Gilgit-Baltistan (~2% of population)

Asian survey country samples ranging from ~2,000-5,000 per country



Sri Lanka sample representative of 15-65 population
(95% confidence interval; +/-3.3 margin of error)



2,017 individuals in
100 GN divisions

- Sample designed to be representative of 15-65 population at:
  - National level
  - Urban-rural level
  - Men vs. women
  - SEC (Socio-economic classification, a proxy for income)

- The sample is **not** designed to represent at:
  - Province level
  - District
  - other

Sample GPS locations recorded by CAPI device at time of survey

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Sample size of 2,017 adequate to represent population at desired levels of disaggregation

Sample size calculation

- Desired level of accuracy set to a confidence level of 95% and an absolute precision (relative margin of error) of 5%. The population proportion p was set conservatively to 0.5 which yields the largest sample size (Lwanga & Lemeshow, 1991). The minimum sample size per tabulation group determined by (Rea & Parker, 1997):

$$n = \left(\frac{Z_a \sqrt{p(1-p)}}{C_p} \right)^2 = \left(\frac{1.96\sqrt{0.5(1-0.5)}}{0.05} \right)^2 = 384$$

Z = Z value (e.g. 1.96 for 95% confidence level)
p = percentage picking a choice
C = confidence interval, expressed as decimal
(e.g., .05 = ±5)

Weighting

- Two weights constructed: for households and individuals, based on inverse selection probabilities → data can be extrapolated to national level.

$$\text{Household weight: } HH_w = DW \frac{1}{P_{HH} * P_{EA}}$$

$$\text{Household Selection Probability: } P_{HH} = \frac{n}{HH_{EA}}$$

$$\text{Individual weight: } IND_w = DW \frac{1}{P_{HH} * P_{EA} * P_I}$$

Default value of 1.5 was used as the design effect for Sri Lanka. Actual sample size was increased beyond minimum requirement to compensate for clustering effects allow for urban/rural disaggregation of data, as well as gender-based disaggregation. Therefore, in Sri Lanka the sample size was increased to 2,000.

Sri Lanka weights (detailed)

Sri Lanka

Household weight:

$$\mathbf{HH}_W = {}^{DW}\frac{\mathbf{1}}{P_{GN} * P_{SEG} * P_{HH}}$$

Individual weight:

$$\mathbf{IND}_W = {}^{DW}\frac{\mathbf{1}}{P_{GN} * P_{SEG} * P_{HH} * P_I}$$

GN Selection Probability:

$$\mathbf{P}_{GN} = {}^{m}\frac{\mathbf{HH}_{GN}}{HH_{STRATA}}$$

Segment selection Probability:

$$\mathbf{P}_{SEG} = {}^{e}\frac{\mathbf{HH}_{SEG}}{HH_{GN}}$$

Household Selection Probability:

$$\mathbf{P}_{HH} = \frac{n}{HH_{SEG}}$$

Individual selection Probability:

$$\mathbf{P}_I = \frac{\mathbf{1}}{HH_{m15-65}}$$

When $\mathbf{HH_{GN}}$ <= 250, $\mathbf{HH_{GN}} = \mathbf{HH_{SEG}}$. Thus, $\mathbf{P_{SEG}}$=1. (i.e., If a village has less than 250 households, it will be treated as an segment)

DW = design weight compensation for over-sampling of urban PSUs and under-sampling of rural PSUs;

$\mathbf{HH_{SEG}}$= number of households in selected GN segment based on information of last census or updated listing by field team;

$\mathbf{HH_{STRATA}}$ =number of households in strata (urban, rural);

$\mathbf{HH_{m15+}}$=number of household members or visitors 15 years or older;

m = target number of Villages/Wards for each strata, (urban, rural);

e = target number of segments in a GN;

n = target number of households in a segment;

250 Villages and Wards covering
19 States
108 Districts
Fieldwork time period : October 5 – November 30 (2017)

100 Enumerator Areas of the 2017 National census
5 Provinces excluding FATA
28 Divisions
Fieldwork time period : October 21 – December 26 (2017)

100 Villages and Wards
40 Zilas
92 Upazillas
Fieldwork time period : October 8 – December 1 (2017)

100 Villages covering
20 Provinces
70 Districts
Fieldwork time period :September 23 – October 12 (2017)

100 wards covering
All Provinces
48 Districts
Fieldwork time period : April 23 – June 18 (2018)

100 GN divisions covering
All Provinces
Fieldwork time period : December 3 – January 21 (2018-2019)

Split the sample frame into urban and rural PSUs

Random selection of required number of PSUs urban (40) and rural (60) using PPS

PSUs with > 250 households segmented, and 1 segment randomly selected for listing

Stage 1:

Stratified random sampling of the primary sample units (PSUs) with probability proportionate to size (PPS) sampling

Stage 2:

Mapping and listing of selected PSUs

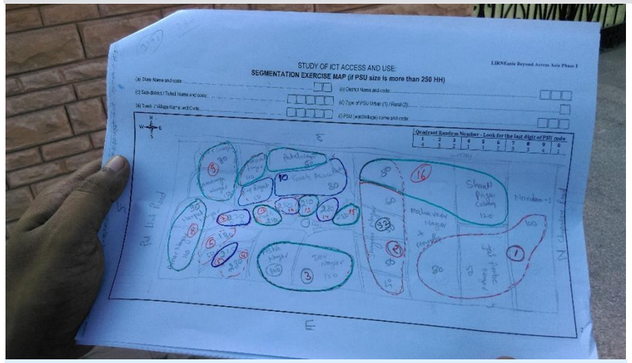
Obtaining PSU information (boundaries, households, etc.) from key informants (KIs)

KI Interview in India

KI Interview in Cambodia

- Mapping of randomly selected village with the help of the key informants

Mapping & segmentation



Segmentation Map - India

Segmentation Map - Sri Lanka

- Segmentation villages where the number of households exceeding 250

Listing of households

Listing - Nepal

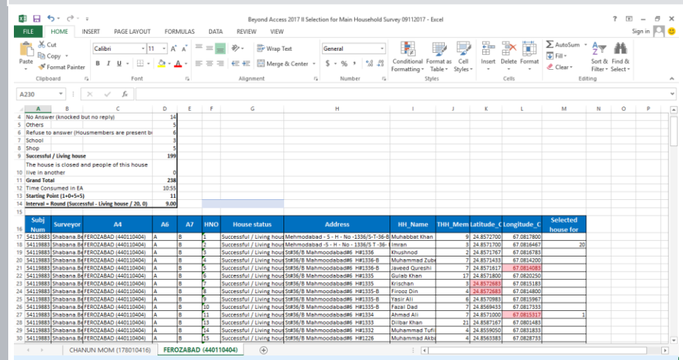
Listing - Pakistan

- List of structures of the entire segment identifying the eligible households

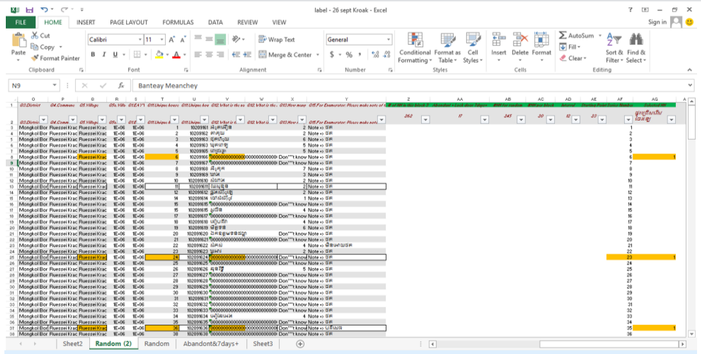
Stage 3:

Random selection of listed households

Random selection of households conducted systematic random sampling using the household lists collected during the listing



Random HH selection in PK



Random HH selection in KH

- Random selection of 20-25 households for the main survey

Stage 4:

Household interview (with household representative) and individual interview (with randomly selected individual after listing eligible members in household roster)

Interviews conducted on mobile devices

- Listing all the household members in the household roster
- Randomly selecting one member from age 15-65 from the list