Recent statistics on ICT in education:
Evidence from Latin America & the Caribbean, Arab States, Asia, and sub-Saharan Africa

Regional Workshop on ICT in Education Statistics, 2015:

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Objectives

- ☐ What do we mean by ICT in education?
- ☐ Why measure ICT in education?
- ☐ Matching policy to indicators
- ☐ Reports and UIS Partners
- ☐ Previous data collections and results
- ☐ Lessons learned

What do we mean by ICT in education?

ICT in education refers to education models that employ ICT to support, enhance and enable the delivery of education. Any, all or combinations of the following types of ICTs are included.

ICTs in Education

Radio   **TV**   **Computer**   **Internet**
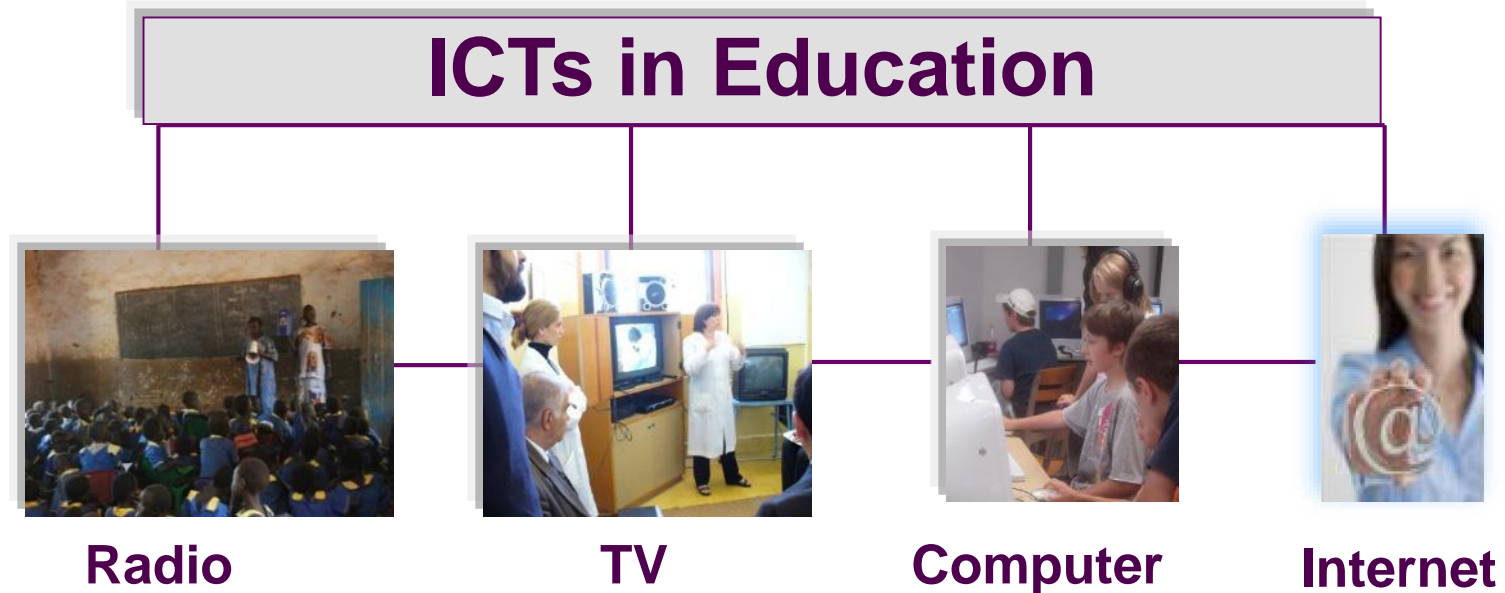
New trends: Mobile Learning

- ☐ Mobile learning (m-learning) as a form of e-learning?
- ☐ Across various contexts in space and in time
- ☐ Various devices including:
  - ■ Handheld computers
  - ■ Tablet computers
  - ■ MP3 players
  - ■ Mobile phones

Why measure ICT in education?

☐ Policy-makers accept ICT in education can help individuals compete in a global economy by creating a skilled work force and facilitating social mobility by:

  ☐ enhancing learning and providing new sets of skills;

  ☐ reaching students with poor or no access (remote regions)

  ☐ facilitating the training of teachers

  ☐ minimising costs associated with delivery

  ☐ improving the administration of schools to enhance the quality and efficiency of service delivery.

☐ Measuring ICT in education is therefore important to inform policy makers in setting national priorities and developing ICT in education policy

Examples of policies and related indicators

- **Internet capacity:** Fixed broadband is key for enhancing the usage of online resources including open educational resources (OER).
  - Related indicators: Proportions of schools with Internet, proportions of schools with fixed broadband Internet; proportions of schools with mobile broadband

- **Location of computers:** Increasingly educational planners are giving consideration to where computers are placed in schools.
  - Related indicators: Proportions of schools with computer labs; proportions of schools with classroom-based computers

- **Deployment levels:** How many computers are needed per pupil for effective learning? Does this differ between educational levels? Evidence suggests LCR of 3:1 is ideal
  - Related indicators: Learner-to-computer ratio

Examples of policies and related indicators (cont.)

- **Older generation ICT:** Older forms of ICT are in use to reach remote areas, in particular where more advanced technology or supporting infrastructure are unavailable

    - Related indicators: Proportion of schools with television/ radio-assisted instruction; proportion of pupils enrolled in programmes with television- / radio assisted instruction

- **Building supporting infrastructure:** There is a lack of electricity and Internet connections in many schools precluding the use of ICT.

    - Related indicators: Proportion of schools with electricity, proportion of schools with fixed broadband Internet; schools with mobile broadband Internet

- **Teacher training:** What kind of training do teachers need to take advantage of these resources? Teaching computer skills versus learning how to teach using ICTs

    - Related indicators: Proportion of teachers trained to teach using ICT; proportion trained to teach basic computer skills

UIS Partners for ICT in education statistics

- UNESCO Institute for Information Technologies in Education (IITE)
- Talal Abu-Ghazaleh (TAG.org) (Jordan)
  - Arab States
- Korea Education Research and Information Service (KERIS) (Republic of Korea)
  - Asia, Sub-Saharan Anglophone Africa
- Brazilian Network Information Center (NIC.br) (Brazil)
  - Lusophone sub-Saharan Africa, Latin America and the Caribbean
- UNESCO Education and Communication & Information sectors
- Economic Commission for Latin America and the Caribbean (ECLAC)
- UNESCO Bangkok
- World Bank
- Intel Corporation
- Partnership on Measuring ICT for Development (ICT4D)

UIS ICT in education survey

QUESTIONNAIRE: THEMES

- Policy and curriculum
- ICT infrastructure in schools
- Pupils' access to/participation in programmes using ICTs
- Teachers' ICT related training and use of ICT

UIS Core ICT in education indicators

Adopted by the United Nations Statistical Commission (UNSC) through the Partnership on Measuring ICT for Development at its 40th session in February 2009

ED1	Proportion of schools with a radio used for educational purposes (for ISCED level 1-3)
ED2	Proportion of schools with a TV used for educational purposes (for ISCED level 1-3)
ED3	Proportion of schools with a telephone communication facility (for ISCED level 1-3)
ED4	Learner-to-computer ratio in schools with CAI (for ISCED level 1-3)
ED4. bis	Learner-to-computer ratio (for ISCED level 1-3)
ED5	Proportion of schools with Internet access at school, by type (for ISCED level 1-3) • Fixed narrowband Internet access (using modem dial-up, ISDN) • Fixed broadband Internet access (DSL, cable, other fixed broadband) • Both fixed narrowband and broadband Internet access
ED6	Proportion of learners who have access to the Internet at school (for ISCED level 1-3)
ED7	Proportion of learners enrolled by gender at the post-secondary non-tertiary and tertiary level in ICT-related fields (for ISCED level 4 and level 5- 6)
ED8	Proportion of ICT-qualified teachers in primary and secondary schools (for ISCED level 1-3)
EDR1	Proportion of schools with electricity (for ISCED level 1-3) --- *Reference indicator*

PREVIOUS RESULTS

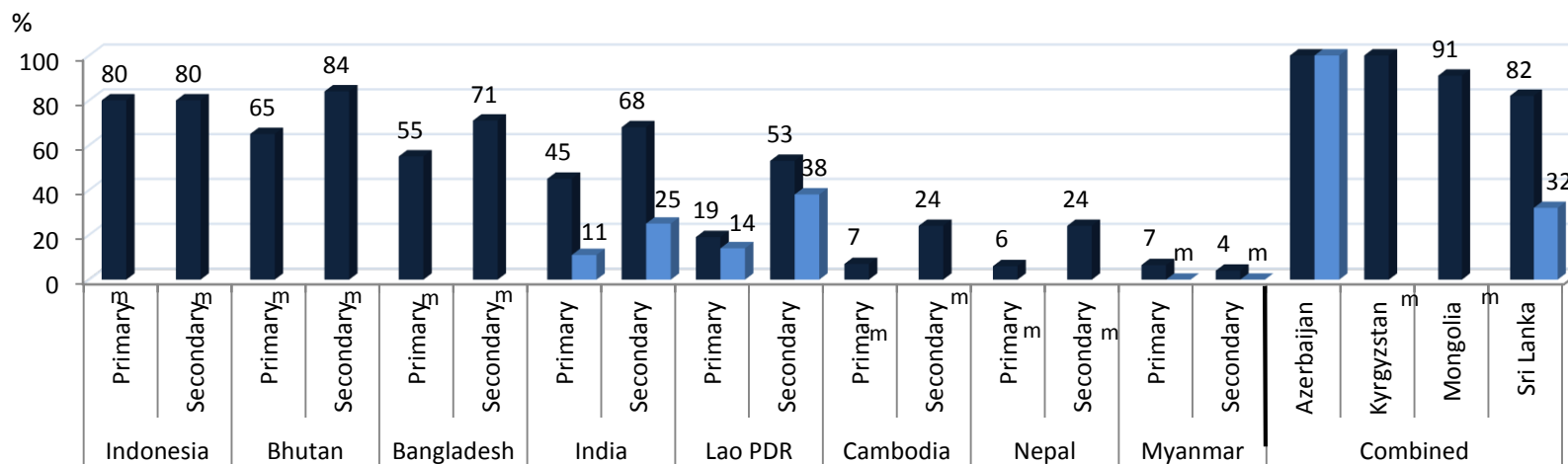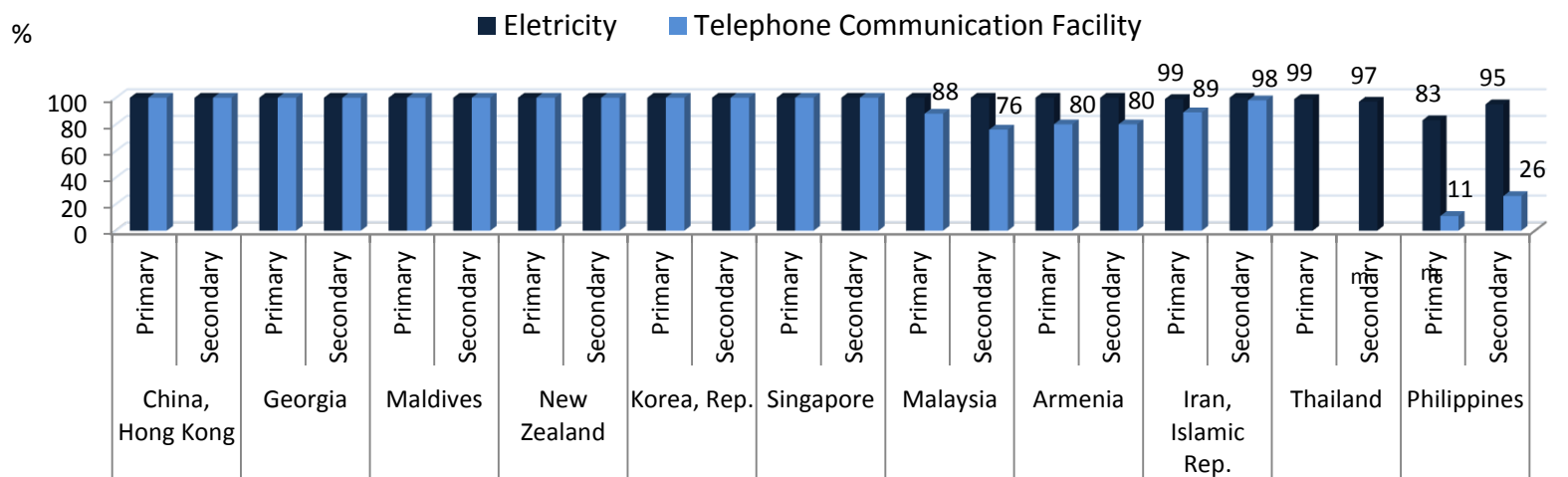Latin America and the Caribbean, Arab States, Asia, and sub-Saharan Africa

Electricity as a prerequisite for ICT in education

Proportion of schools with electricity and telephone communication facilities, 2012

Chart 1 (top): Proportion of schools (%) with Electricity and Telephone Communication Facility, by Primary/Secondary for: China, Hong Kong; Georgia; Maldives; New Zealand; Korea, Rep.; Singapore; Malaysia (Secondary telephone 88, 76); Armenia (80, 80); Iran, Islamic Rep. (99, 89, 98); Thailand (99, 97 m); Philippines (Primary 83 m, 11; Secondary 95, 26).

Chart 2 (bottom): Indonesia (Primary 80 m, Secondary 80 m); Bhutan (65 m, 84 m); Bangladesh (55 m, 71 m); India (45, 11; 68, 25); Lao PDR (19, 14; 53, 38); Cambodia (Primary 7 m, Secondary 24 m); Nepal (Primary 6 m, Secondary 24 m); Myanmar (Primary 7, m; Secondary 4, m); Combined: Azerbaijan; Kyrgyzstan m; Mongolia m 91; Sri Lanka 82, 32.

Legend: ■ Eletricity ■ Telephone Communication Facility

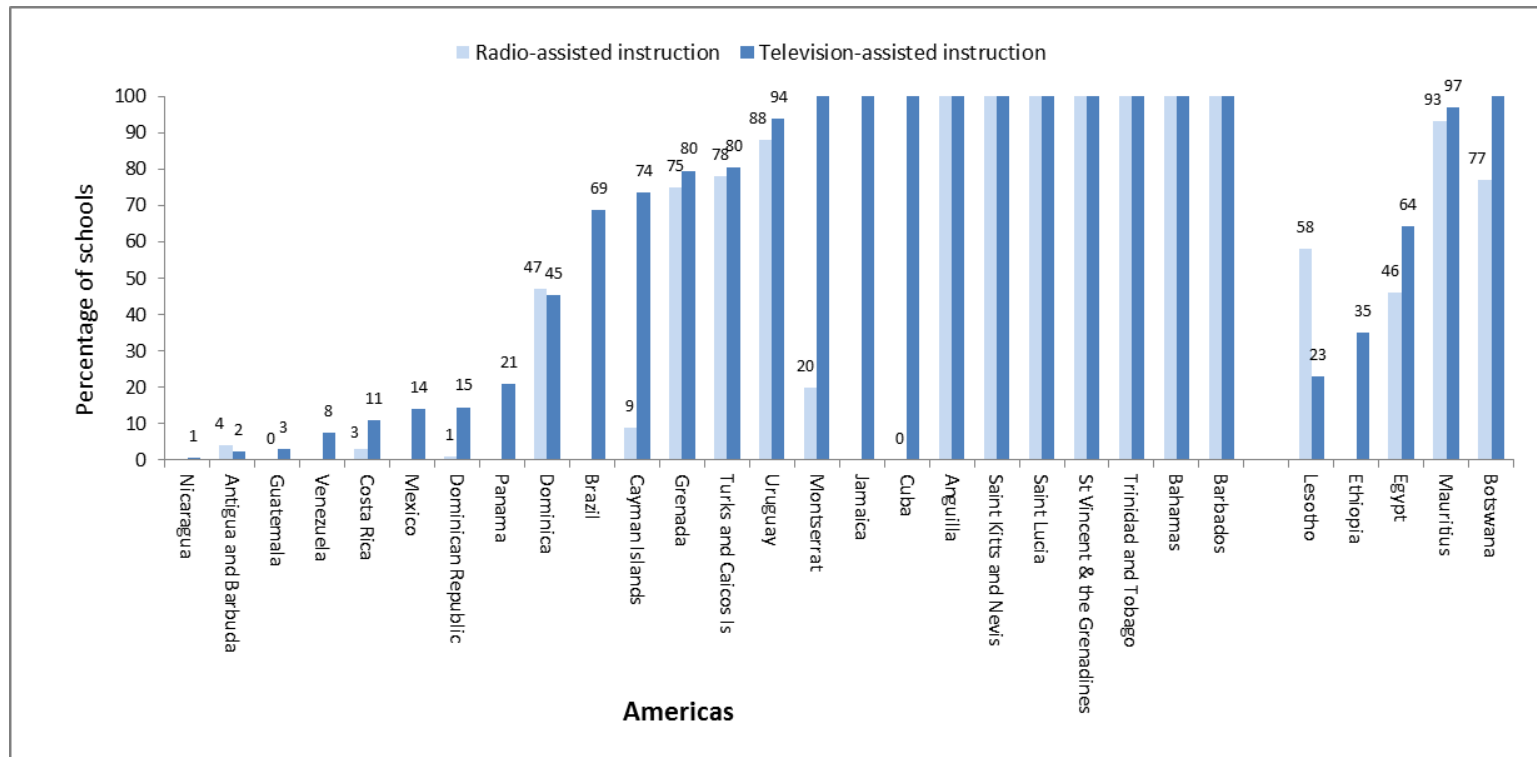# WSIS Target 2: Connect all secondary and primary schools with ICTs

- Proportion of schools with a radio used for educational purposes
- Proportion of schools with a television used for educational purposes
- Learners-to-computer ratio
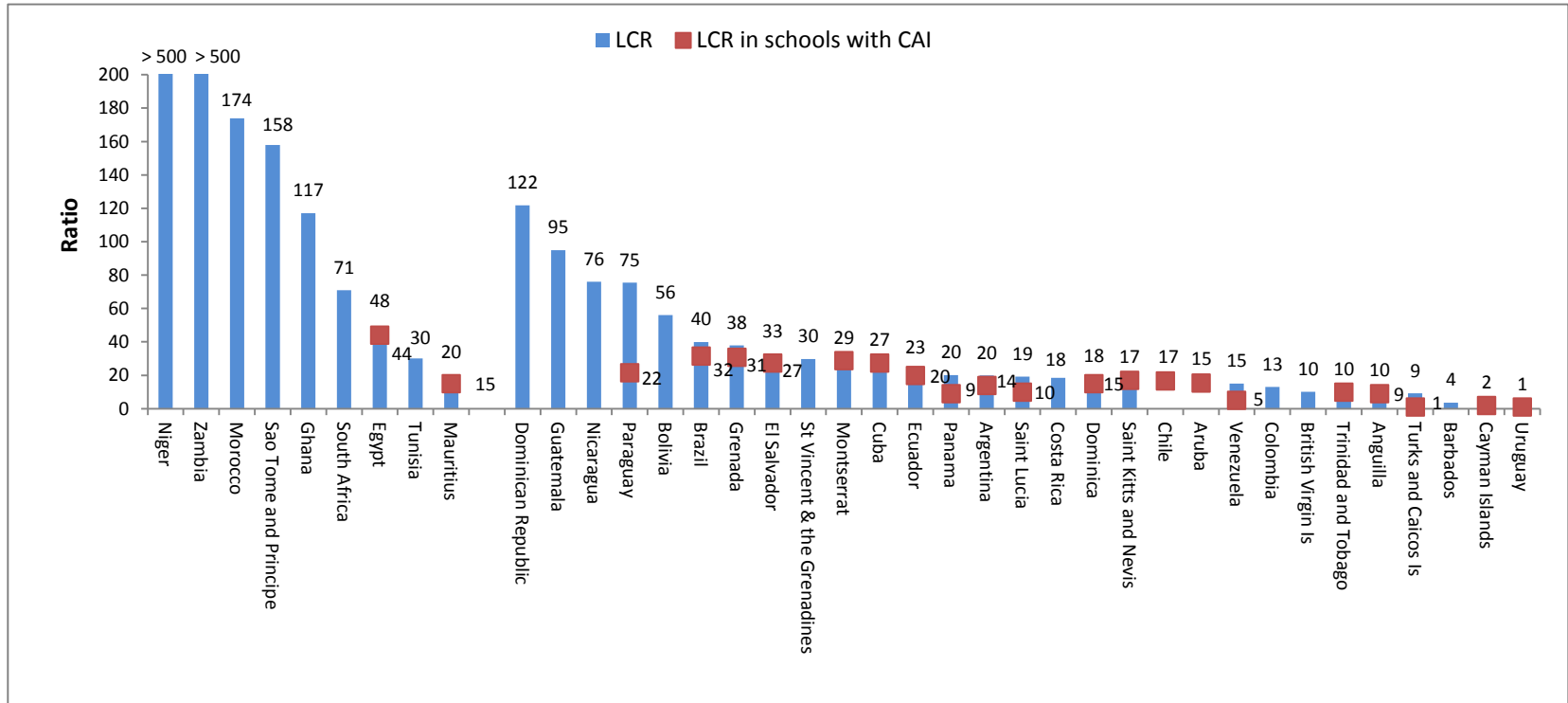- Proportion of schools with Internet access, by type of access

Proportion of schools with a radio/ television for pedagogical purposes (primary and secondary), 2012

- Data on radio and television more difficult to collect for most countries
- Substantial variability between regions and countries, reflecting varying policies about it use
- Despite low costs related to implementation, it is not widely used in many developing countries where it may serve an important role where other technologies are not available
- Broadcast varieties of radio and television are falling in some countries (where computer numbers are increasing), being replaced by more informal ad hoc methods

Learner-to-computer ratios (primary and secondary), 2012

- Significant disparities between and within regions.
- Highest ratios in low income countries in Asia and Africa
- Lowest ratios in European and high income East Asian countries
- Progress over the decade in developing countries with high level and sector-wide support

Proportion of educational institutions with Internet access, by type, (primary and secondary) 2012

- 100 per cent of schools have Internet (fixed broadband) in most high income East Asian, Caribbean, and European countries

- Internet connectivity is least common in low income and least developed countries (LDCs) in Asia and Africa

- Fixed broadband Internet varies from all to less than 50% of all Internet connections

- Some evidence of a leapfrogging phenomenon in some LDCs
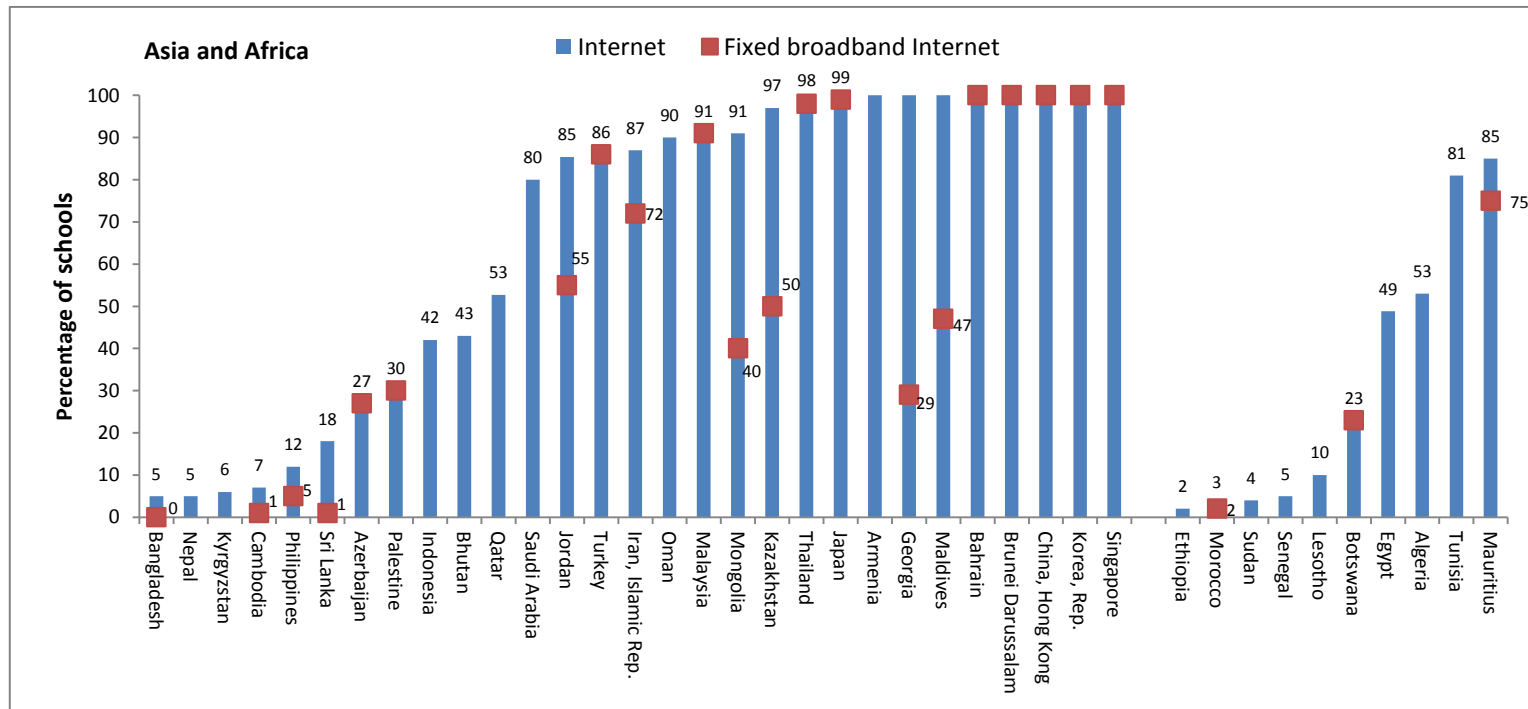
Target 7: Adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances
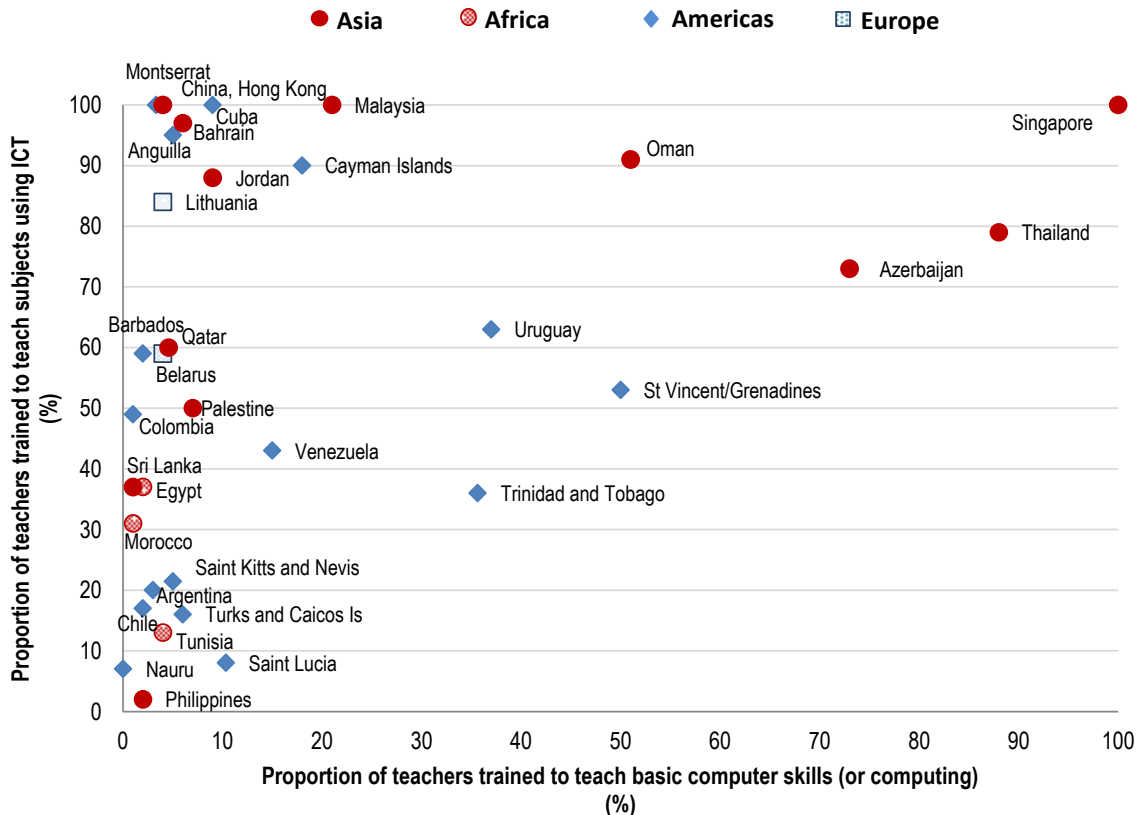
- Proportion of ICT-qualified teachers in schools
- Proportion of teachers trained to teach subjects using ICT
- Proportion of schools with computer-assisted instruction
- Proportion of schools with Internet-assisted instruction

Proportion of ICT-qualified teachers (primary and secondary) in schools versus teachers trained to teach using ICT, 2012

UNESCO Institute for Statistics

- In most countries, fewer than 10% of teachers are ICT-qualified.
- The proportion trained to teach using ICT varies much more widely and may or may not reflect the level of ICT infrastructure in the education system
- Proportions of trained teachers are highest in high income and lowest in low income countries
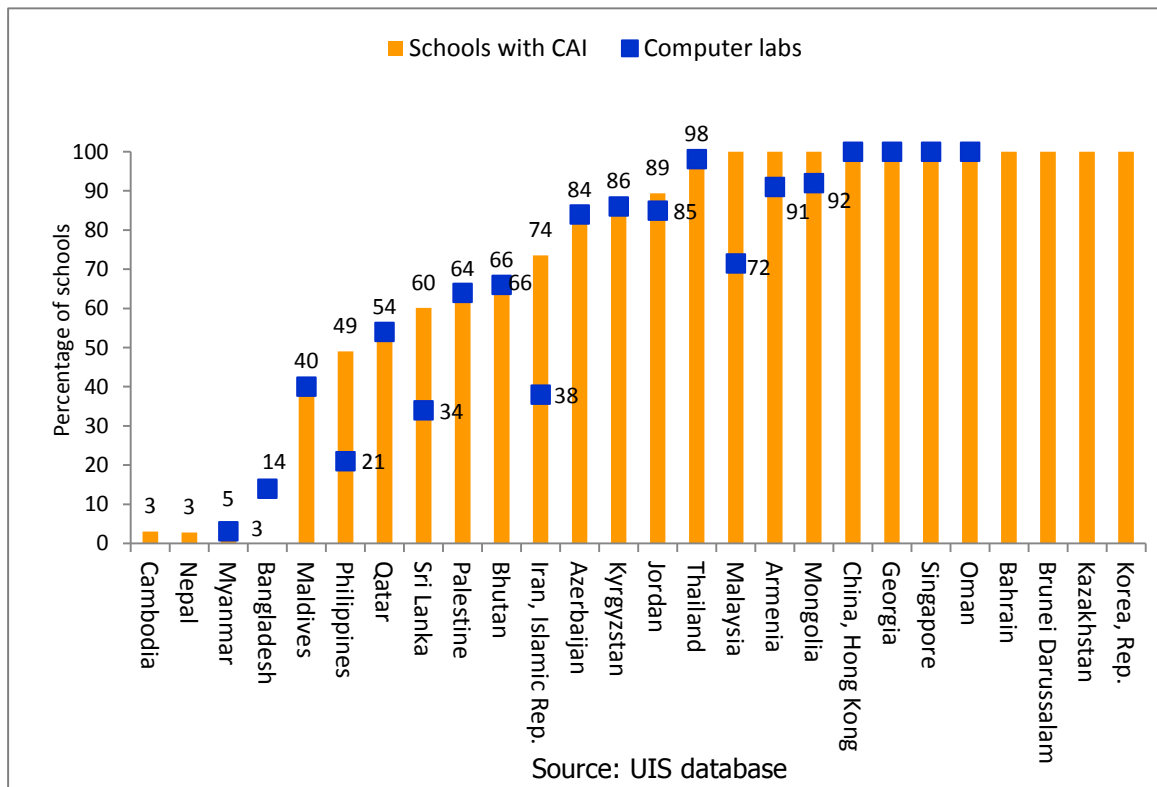- Caveat: Definitions of training vary by country

Proportion of educational institutions (primary and secondary) with computer-assisted instruction (CAI), 2012

- CAI varies between regions and countries
- Highest in high income countries of East Asia, Caribbean and Europe
- Least available in LDCs
- CAI is delivered through labs in many developing countries due to lack of resources and sharing models

**Proportion of schools with computer-assisted instruction, by region, 2009–2013**

Source: UIS database

Proportion of educational institutions (primary and secondary) with Internet-assisted instruction (IAI), 2012

- IAI varies between regions and countries
- Highest in high income countries of East Asia, Caribbean and Europe, low in low income countries
- Internet is not employed for educational purposes in all schools
- Least available in LDCs

**Proportion of schools with Internet-assisted instruction, by region, 2009–2013**
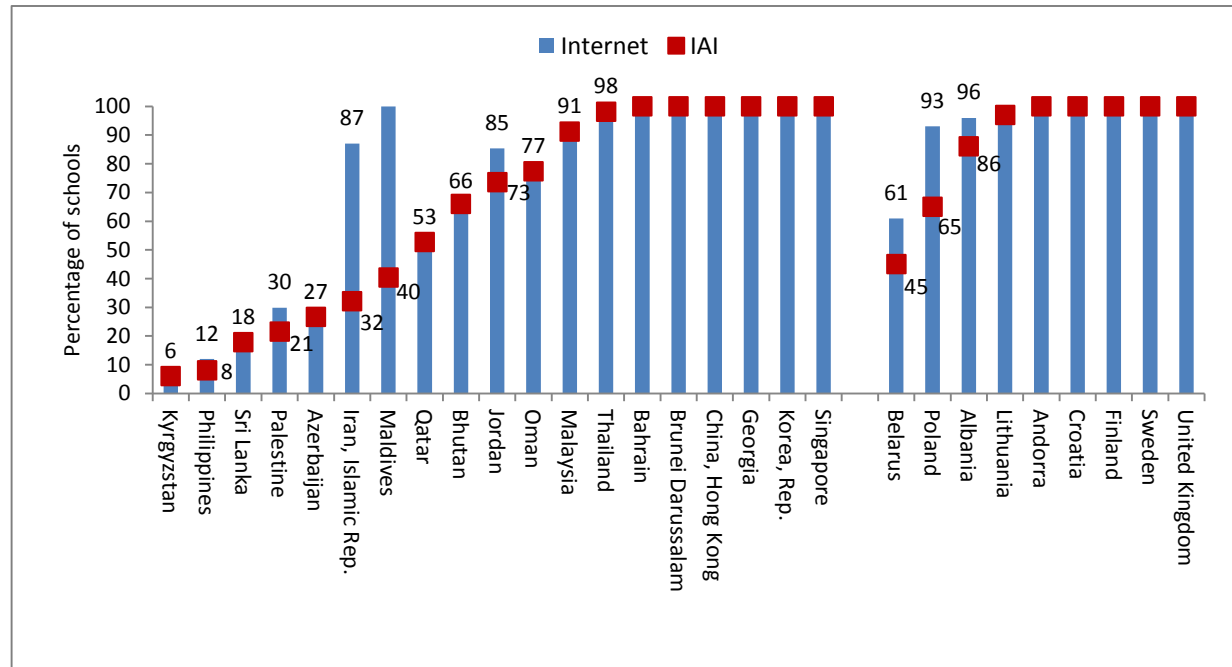
Source: UIS database

OTHER INDICATORS

- Enrolment:
  - Proportion of pupils enrolled in programmes with radio/ television/ computers/ Internet, for teaching and learning
  - Gross enrolment in programmes with radio/ television/ computers/ Internet, for teaching and learning
    - Uses population data
- Other infrastructure
- Intended instructional hours using ICT
- Teachers
  - Proportion of teachers have had an in-service training on ICT

Enrolment in programmes with computer-assisted instruction, by sex, 2011

Latin America and the Caribbean   **Arab States**
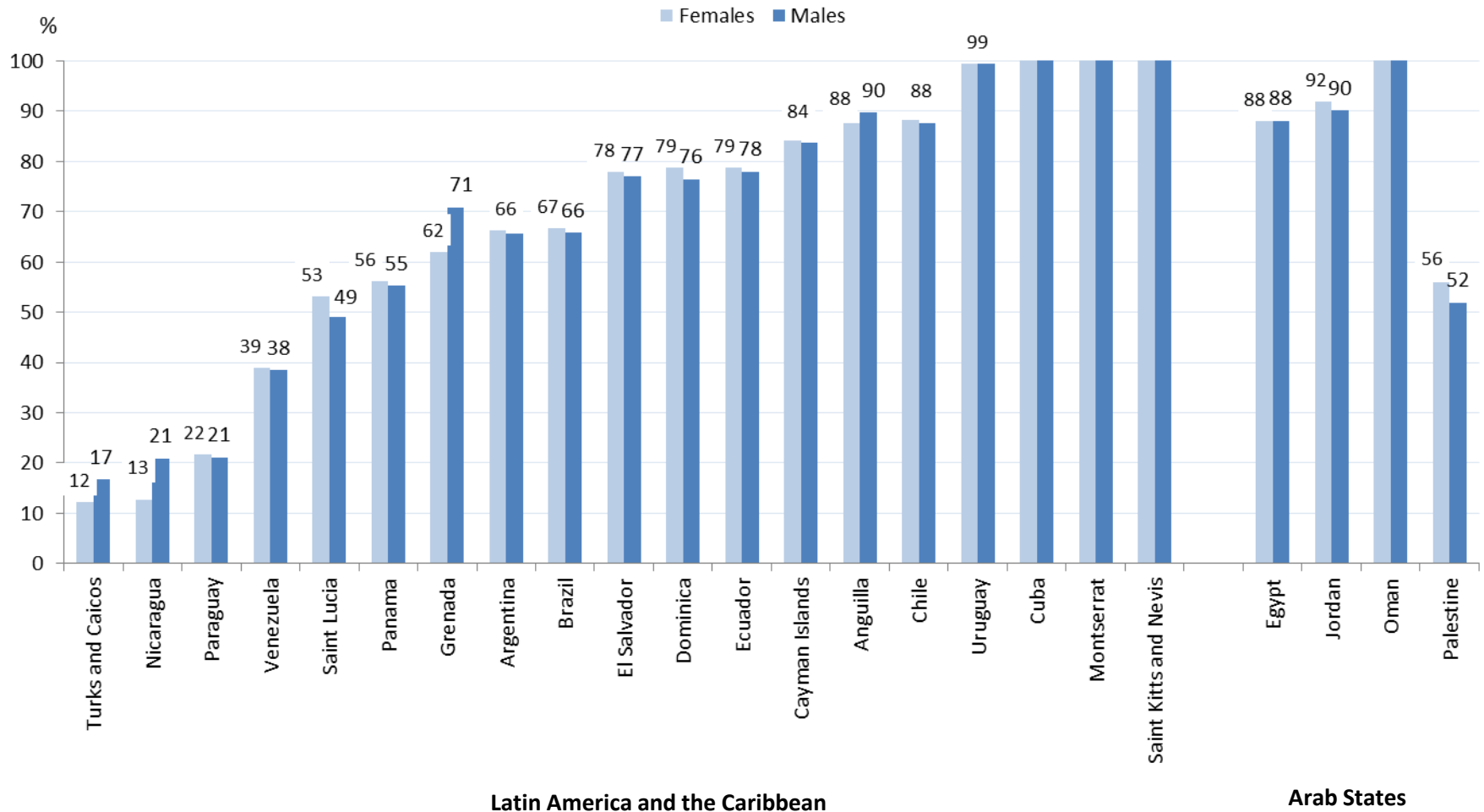
SUMMARY

- Progress is being achieved in a number of countries; however it is difficult to provide a comprehensive review

- Data is still unavailable for many countries, particularly from the developing world; time series data is also missing making statements about progress limited

- ICT in education is linked to national income; however significant strides have been achieved in a number of developing countries that have strong policies and set targets for ICT in education with high level government and sector-wide support

LESSONS LEARNED

□ International comparability:

- Intensity of usage varies substantially between countries
- What is meant by teacher training on ICTs? (i.e., training varies between countries)
- Broadband, upload and download speeds vary significantly however data on speeds is difficult to obtain from schools,
- WSIS should emphasize more disaggregated data such as by sex (e.g. population based indicators) to shed light on the digital divide; or by level of education since most countries target secondary education

□ Merging ICTs: Categories have limited life span. Challenges in identifying concepts that have consistency of meaning over time

□ More indicators on usage and outcomes required, secondary sources?

THANK YOU

For more information on UIS statistics on ICT in education, please visit the UIS website:

www.uis.unesco.org

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