DIGITAL TECHNOLOGY FOR DEVELOPMENT

Sustainable Development and Climate Change Department

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ADB

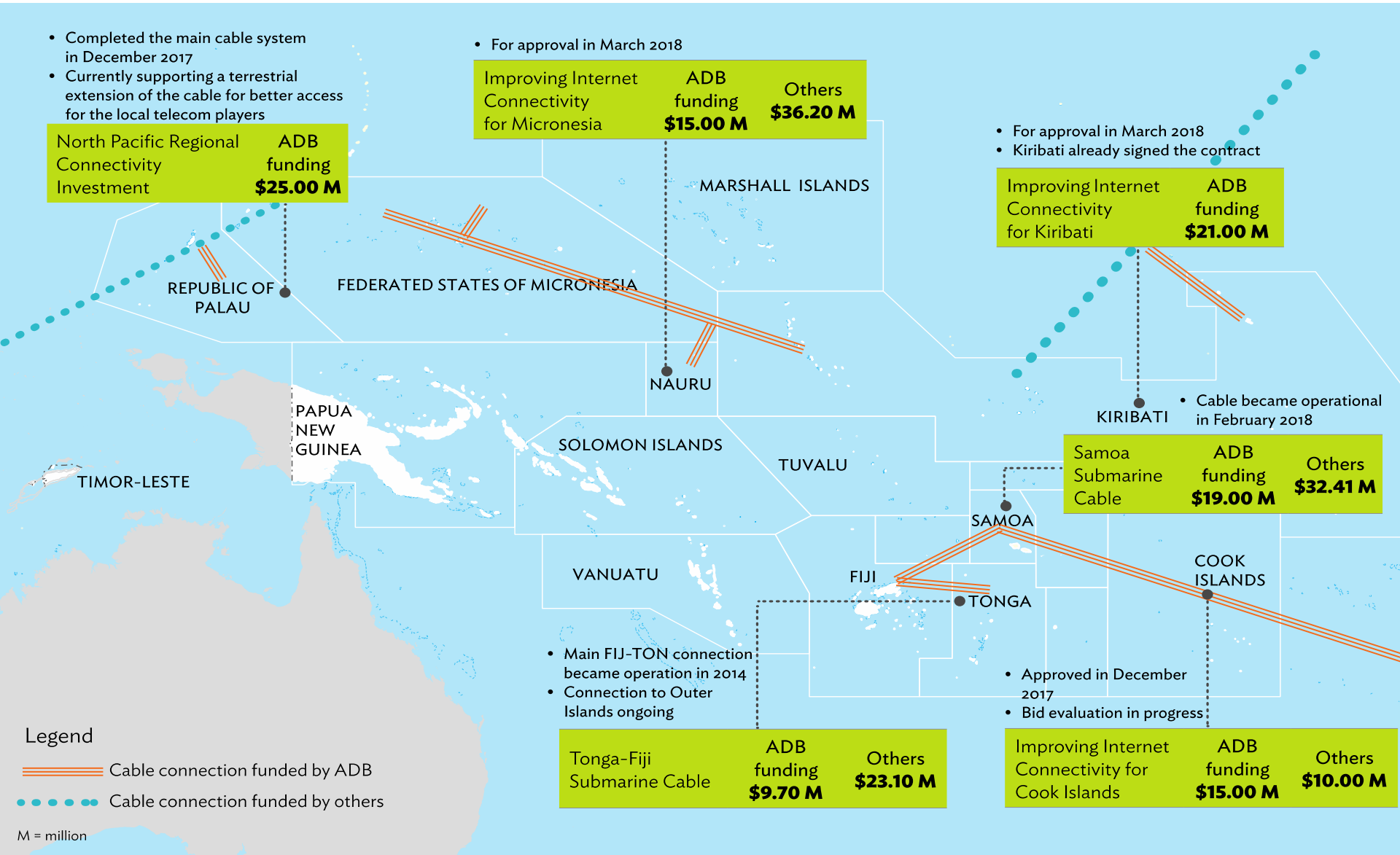
Our focus:

Technology	Description
1. Broadband Communications	Mobile networks (5G), undersea cables, satellite networks, etc.
2. Smartphones	Low-cost personal devices for broad public internet access
3. Digital Identification	Critical for deploying personal digital services
4. Digital Payments	Critical for enabling digital commerce
5. Cloud Computing	Enables data storage and processing without physical infrastructure
6. Internet of Things (IoT)	Low cost sensors that collect data from everyday life and are connected to the internet to enable digital services
7. Artificial Intelligence	Using big data, collected from a variety of data sources such as sensors and social media, to build intelligent systems for development projects
8. Robotics/Drones	Using intelligent systems to power autonomous machines
9. Cybersecurity	Improving the privacy and security of users
10. Geospatial Information Systems (GIS)	Digital location, mapping and routing services (e.g. ridesharing apps enabled by GPS, digital maps and digital routing)
11. Earth Observation	Using satellite and drone imagery for planning and analysis tasks
12. Genetics	Genetic sequencing and editing for health and agriculture

What can MDB's do on connectivity?

- Invest in infrastructure projects directly (public, private, PPPs)
  - Submarine cables
  - Communications satellites
  - Broadband networks
  - Last mile connectivity of key infrastructure (such as schools)
- Grants and technical assistance
  - Infrastructure support and project support
- Policy actions
  - Support national broadband plans, competition policy, rural access funds, etc.
- Generate demand and urgency through development initiatives
  - transport, energy, education, health, governance, environment, agriculture, etc.
- Example: ADB connectivity projects:
  - Pacific Submarine Cables
  - Kacific Communications Satellite
  - Philippines Shared Connectivity for Government

ADB Support for Pacific Submarine Cables



ADB Support for Satellite Connectivity

Kacific1 Satellite

- ADB provided $50 million in private sector financing to *Kacific* to deliver low cost, high-speed, easily accessible broadband internet;
- Kacific1 provides access to broadband internet in remote areas, where no or very limited coverage is currently available (since Dec 2019);
- Enables better education and health services, improves access to information, and drives more trade and connectivity between countries.

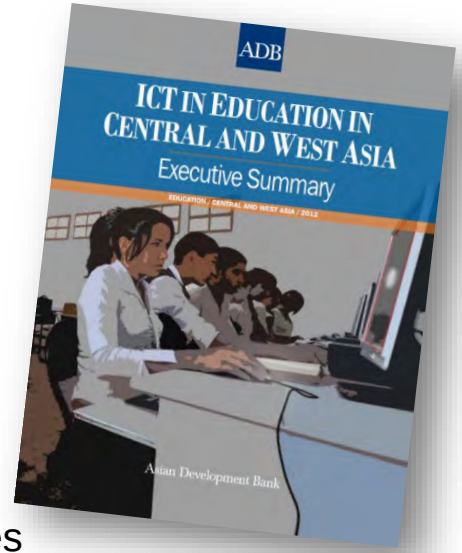
ADB Technical Assistance (examples)

Advice for Philippines National Broadband Plan

- Research on Network Infrastructure Sharing (now adopted): Studied opportunities, anticipating commercial aspects and other surrounding issues; and providing strategies moving forward.
    - Access fiber/right of way, specifically on the electricity transmission network to provide connectivity for better government services
    - Network expansion & operating costs would reduce
    - Revenue generation for host infrastructure providers through rental revenue and opportunities for private investment
    - Increase competition by providing opportunities for new operators

Publication: Central & West Asia (2006 – 2012)

- varying levels of school internet connectivity (in 2012): virtually 100% in Kazakhstan, around 60% in Uzbekistan, 7% in Tajikistan, and 3%–5% in the Kyrgyz Republic
- few countries attempted estimating the total cost of their national ICT for education strategies
- most governments had no clear idea of the costs involved in sustaining effective ICT use in schools.
- little conclusive evidence that ICT significantly improved student performance, even in developed countries with the most substantial ICT-related investments



Current Research Project

Country Education **Technology Readiness Assessment**

Innovation in Education Sector Development in Asia and the Pacific

- Observation: Weak link between rising public spending and increases in quality (learning outcomes).

  Question: Could (cost-efficient) EdTech help deliver and focus investments on increasing quality via scalable, student-centered digital technology?

  - **infrastructure** status, incl. quality, coverage and accessibility
  - **regulatory/policy environment** for education sector ICTs, policies, plans and activities
  - **situation in schools**, including systems, teachers' capacity & skills, digital content & curriculum (subjects) quality, outcomes & assessments, and digital literacy of teachers
  - **situation with students**, incl accessibility, inclusivity and digital literacy of the learners
  - competitive **landscape of providers**, including systems, content, technological integration services and innovative solutions that support EdTech-based learning

- **EdTech Readiness Report**
  for Bangladesh, Cambodia, Kyrgyz Republic and Uzbekistan

  Status: consultants on board (1 intl., 4 national), in-country workshops planned

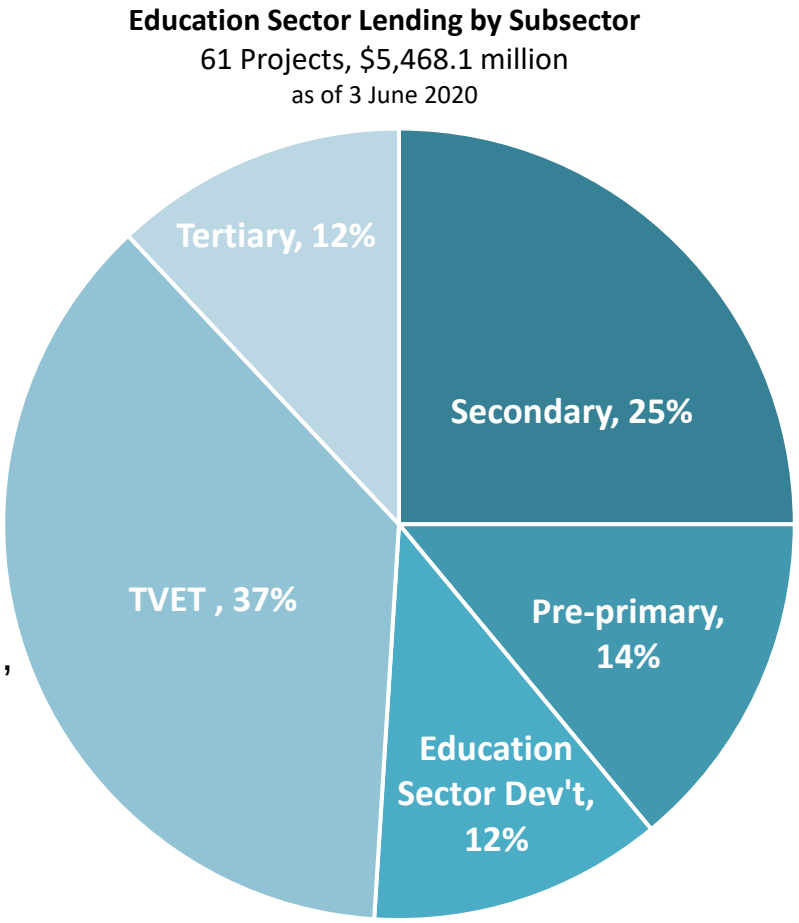
Education Sector

ADB education projects across Asia-Pacific

- 61 **ongoing projects**, incl.
  - Digital delivery of education
  - Management Information Systems
  - Digital job skills and job placement services

  Almost 70% approved since 2017

- Over 45 **pipeline projects**, incl.
  - Digital strategies & platforms
  - Digital literacy (skills and digital content in education curriculum)
  - Digital management (LMS/ERP) and delivery of education (teacher training, student assessment, exams)
  - EdTech solutions



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