



THE DIGITAL DIVIDE IN THE TROPICS



STATE OF
THE TROPICS

A STATE OF THE TROPICS REPORT 2021.

People across the globe are more connected than ever. Digital technologies, mobile phones, the internet and other forms of digital information exchange have changed the way business and education are conducted and how knowledge is shared. Information and communication technology (ICT) refers to any technology that enables the communication and electronic capture, processing and transmission of information. This includes older technologies such as radio, television and fixed-line telephony, as well as more recent innovations such as personal computers, mobile phones, broadband networks and the internet. The potential of these new technologies lies in their capacity to instantaneously connect vast networks of individuals, organisations and governments across all corners of the world. ICT can provide many opportunities

for education, entrepreneurship and new modes of finance and banking, and play a role in reducing corruption.

In 2020, the global COVID-19 pandemic brought focused attention to the reality that digital inequality persists around the world, even in countries with high-speed connectivity infrastructure. Most countries issued home quarantine measures in the first half of 2020 and workers, families and individuals relied on mobile phones and internet connectivity to continue to work, learn and communicate. For those without access to digital technologies, gaps in access and digital skills can increase societal fractures and undermine recovery.

This report takes stock of the current and historical status of ICT and digital access across different regions of the Tropics.

DIGITAL ACCESS IN THE TROPICS

- Globally, mobile phone ownership appears universal, with subscriptions outnumbering people. In 2019, there were 108 mobile phone subscriptions for every 100 people globally. This equates to some 8.7 billion active mobile cellular subscriptions.
- In the Tropics, access to mobile phones has increased dramatically since the turn of the century but still trails behind the rest of the world. In 2000, there were fewer than five mobile phones per 100 people in the Tropics. By 2019, this number had grown to more than 97 per 100.
- According to the latest available estimates from the International Telecommunications Union (ITU), in 2019, 53.5% of people worldwide used the internet in 2019—an increase from just 17% in 2005.
- In 2019, estimates suggest just 37.1% of people used the internet in the Tropics—indicating that the gap between the Tropics and the rest of the world has actually widened since previous State of the Tropics reports.
- Recent advances in mobile technology have allowed more people to access the internet through the use of internet-enabled mobile devices, particularly smartphones. This has allowed far more people access to the internet without ever having to be connected by a fixed line. However, access to the internet through mobile broadband remains low in many parts of the Tropics.
- Low Earth Orbit (LEO) satellite constellations could be transformative for expanding high-speed internet to underserved regions. However, the costs, both monetary and environmental, are potentially high.
- The groups of people who have access to and use the internet vary between regions, gender and age. People living in urban areas are more likely to use the internet, men are more likely than women, and young people are more likely than the elderly. There is no doubt that access to mobile phones and the internet has changed and continues to change how we communicate, work, do business, learn and interact with culture and art. During the various stages of lockdown imposed across the world in 2020, these forms of communication became more important than ever.

EDUCATION AND DIGITAL LITERACY

- Lack of access to ICT at school and home limits the ability of students to learn digital skills that would allow them to participate in the global digital economy, which many see as essential for ongoing sustainable development.
- There is huge variation in schools with internet access, from less than 3% in Madagascar and Burkina Faso to 100% in Brunei, Maldives and a number of Caribbean states. Access tends to remain very low across Central and Southern Africa and in some parts of South Asia, South-East Asia and Central America. Data are not available for any countries in Oceania.
- It is clear that some regions of the Tropics lag behind global estimates considerably. Africa and South Asia have particularly low levels of internet access at home. The youngest group, school-aged children, had the lowest access levels in these regions, with slightly higher access in East Asia and the Pacific.
- In the context of the global pandemic with many schools operating remotely, this low level of access in many tropical countries meant that when schools were closed, the only means of students continuing schooling was through take-home

packages. This has resulted simply in many students not accessing schooling at all, with potentially huge social and economic costs to the countries that can bear it the least.

- Generally, ICT is far less likely to be included in primary school curriculums, particularly in Africa and the Middle East. However, by upper secondary, most countries reporting included ICT in the curriculum. Programs in Brazil, Malaysia and Thailand have increased the number of schools with the capacity to teach ICT skills in those countries.
- Far fewer youth and adults have basic digital skills in the Tropics than in the rest of the world. However, there are some exceptions. Saudi Arabia, Malaysia and Singapore have relatively high digital literacy rates, with rates comparable to most countries reporting from the non-Tropics and higher than some countries.

PRODUCTION, TRADE, USE AND DISPOSAL OF ICT

- Around 40% of all ICT goods are exported from tropical regions. These exports are dominated by South-East Asia and Central America. In other regions of the Tropics, the share of the global trade in ICT goods remains small.
- South-East Asia is the only region in the Tropics that is a net exporter of ICT goods. All other regions in the Tropics import more technology than they produce and export.
- Globally, almost one-quarter of all people used the internet to make a purchase in 2019; however, this was concentrated in wealthy countries in North America, Europe and East Asia. Far fewer people used the internet for purchasing throughout the Tropics, with some exceptions such as Saudi Arabia, Malaysia and Singapore. The largest growth markets in the Tropics have been Hong Kong and India.
- The rapid expansion of electrical and electronic equipment manufacturing across the world due to industrialisation, economic expansion, technological development and growing wealth has led to complementary growth in electronic waste or e-waste.
- On a per-capita basis, tropical countries, with the exception of tropical Australia and the US (Hawaii), produce far less e-waste than nations in North America and Europe. E-waste from North America and Europe is often exported to China, Brazil, Nigeria, Ghana and India.

CASE STUDIES

Information and Communication Technology in the Pacific takes a closer look at the tropical region with the least connectivity. Mobile phone penetration is around half the global rate, and in 2019, internet users represented less than 20% of the population outside of Australia and Hawaii. Nations in the Pacific are generally small, culturally diverse and separated by challenging terrain or vast ocean. Although submarine cables now connect most capital cities in this region, outer islands and remote areas remain unconnected.

Digital Health in the Tropics explores the potential benefits of building better digital health systems in the Tropics. Digital health programs can improve vaccination rates, monitor diseases and symptoms, detect disease outbreaks and connect specialist medicine to those who are unable to travel to urban centres. Although privacy and reliability issues remain, digital health has the capacity to enhance existing health systems.

Mobile Money and the Story of M-Pesa charts the rise of mobile money throughout the Tropics with a focus on M-Pesa, the most successful service. Mobile money is a money transfer system that uses mobile phones and a network of human agents who cash in and cash out for customers, exchanging e-money as text messages for hard currency. It does not require a smartphone, bank account, credit card or internet connection. Mobile money accounts can provide a gateway to life-enhancing services such as remittances, health care, education, employment and social protections.

Cobalt Mining in the Democratic Republic of Congo (DRC) discusses the origin of a vital component in digital systems and lithium-ion batteries—cobalt. The enormous and growing demand for digital devices and products globally has driven huge growth in mining for critical minerals used in components.

The vast majority of cobalt is mined in the DRC, where it has been shown to create jobs, alleviate poverty and encourage investment in social infrastructure. However, working conditions are often dangerous, miners are poorly paid, and, in some cases, child labour is involved.