

# Executive Summary

## THE ROLE OF ICT IN ADVANCING GROWTH IN LEAST DEVELOPED COUNTRIES



### Trends, Challenges and Opportunities 2011



ICT Service / Applications

Strategies & Policies

Universal Access

Smart Skills

New & Low Cost Technologies

Emergency Telecommunications



*The Role of ICT in Advancing Growth in Least Developed Countries: Trends, Challenges and Opportunities* report is being published on the occasion of the Fourth United Nations Conference on the Least Developed Countries (LDC-IV), to be held in Istanbul, Turkey in May 2011. Ten years after the adoption of the Brussels Declaration, with its Programme of Action for the Least Developed Countries (LDCs) for the Decade 2001-2010, and in view of the assessments of results to be conducted at LDC-IV, ITU has prepared this report to evaluate the progress these countries have made in the deployment of Information and Communication Technologies (ICT) in the last decade and the opportunities ICT can bring about to help LDCs address some of the key challenges they still face.

LDCs are internationally recognized as the most vulnerable members of the United Nations, due to their low per capita gross domestic product (GDP), the characteristics of their human assets in terms of literacy, health and nutrition, as well as their vulnerability to exogenous economic shocks and the environmental effects of climate change. These factors create structural impediments to growth and limit the ability of the LDCs to achieve sustainable development and meet national and international development goals, such the Millennium Development Goals (MDGs). The report examines some of the emerging trends and current challenges faced by LDCs in their road to poverty alleviation, taking into consideration concerns regarding access to financial resources, infrastructural obstacles — in particular those of the telecommunication sector —, human capacity, as well as the additional risks that climate change is bringing about to most LDCs, but specially to those that are also Small Island Developing States (SIDS).

Telecommunication infrastructure and ICTs can play a catalytic role in boosting GDP and economic growth, facilitating the LDCs' path towards sustainable development. The mobile industry, for example, is a substantial generator of GDP, contributing 3.5 per cent GDP in Tanzania, 3.8 per cent in Uganda, 4 per cent in Rwanda, and 4.1 per cent in Niger in 2006. Acknowledging the importance of ICT for development, LDCs have made inroads in establishing an enabling regulatory environment that fosters competition, network investment and the provision of telecommunication services to a larger portion of their populations to achieve universal access.

In 1971, most of the initially identified 25 countries had very limited access to telecommunications. Today, the average number of people with access to telephones in the 49 least developed countries has gone beyond our expectation. Since the adoption of the BPoA in 2001, ICT uptake in LDCs has grown at double and even triple digit rates for services such as mobile cellular telephony and fixed Internet subscriptions, slightly reducing the gap between LDCs and developing countries. As of 2010, it is estimated that about one third (29.1 per cent) of the population in LDCs had mobile cellular telephone subscriptions.

The results have also been positive in terms of population coverage. Mobile cellular coverage reached 62 per cent of the LDC population by the end of 2010, improving access to mobile services beyond the urban areas. The boom of mobile cellular technology in LDCs has been influenced by market liberalization and privatization in the mobile cellular market in several LDCs, which has provided incentives for investors and new operators to enter the market. Increased deployment of mobile cellular technology and usage is also the result of innovative services and applications, like mobile banking, as well as the adoption of prepaid subscription schemes that have reduced the cost of telephone ownership for low-income users and displaced or transient populations in LDCs.

Prices for mobile cellular services are decreasing faster in the LDCs than in other countries of the world. Based on the ITU ICT Price Basket and its mobile cellular sub-basket, the prices for these services decreased for almost all LDCs between 2008 and 2009. The average change (drop) in prices between 2008 and 2009 was 23 per cent, with the highest percentage change in Rwanda (48 per cent), Sudan (40 per cent) and Bhutan (39 per cent). Despite the drop in prices, mobile cellular prices in LDCs remain relatively high and on average, the price of mobile cellular services in LDCs corresponds to 19 per cent of average monthly income, compared to 7.5 and 1.2 per cent in developing and developed countries, respectively.

Though lagging behind, Internet penetration continues to grow at an unprecedented rate. In 2001, Internet penetration per 100 inhabitants was 0.2 per cent among LDCs; by 2009, it had gone up to 2.8 per cent. The results for 2010 are expected to be even more positive. Broadband technology is considered a uniquely valuable tool to meet the MDGs by the target date of 2015. Yet, least developed countries, and even several developing countries, are lagging behind developed countries in deploying these technologies. This is particularly evident in the adoption of new generation technologies, such as fixed and mobile broadband Internet services and third generation of mobile cellular technologies (3G), where developed countries have reached high levels of penetration. LDCs' average access to fixed broadband is expected to remain as low as 0.2 per cent by the end of 2010, constrained mostly by the high cost of service relative to the population per capita income. The minimal progress achieved in the deployment of fixed and mobile broadband in LDCs signals the need to implement more effective strategies to bring technology and international Internet bandwidth costs down, so that by improving affordability, service uptake is able to rise in these countries.

While LDCs face multiple socio-economic, technological and environmental challenges, there are also multiple opportunities available to assist them in their path to development. Some of these opportunities stem from their own classification as LDCs; others, from their human and natural resources, or from the adaptation of capital, technology and knowledge to the specific needs of the population. As the report shows, mobile communications — both cellular and broadband based — have emerged as a key technology to bridge the digital divide in LDCs and as a means to accelerate the diffusion of government, health and environmental information throughout their territories. Yet, the challenge of making these services affordable still remains. The introduction of ICT applications, particularly those to support the administration of public activities and improve the provision of health services, will require the deployment of more advanced technologies and backbone networks, able to handle large amounts of data at higher speeds. To this end, the International Telecommunication Union (ITU) and several of its partners —including development banks in Africa and Asia, other UN organizations, the telecom industry and non-governmental organisations (NGOs) — are implementing diverse global initiatives to usher the deployment of ICT infrastructure, particularly broadband technology, facilitate the harmonization of ICT policies, and support the creation of an enabling policy environment, so that LDCs can exploit all the opportunities ICT have to offer to advance growth and promote sustainable development.

The report shows that, while LDCs are, by definition, particularly burdened by severe structural impediments to growth, progress is possible. It introduces the cases of the three countries that have graduated from the LDC status since the category was established (Botswana, Cape Verde and Maldives), as well as those of five countries in the Pacific region, facing the special

challenges of being Small Island Developing States (SIDS): Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu. The case studies overview the progress made by each country in improving telecommunication and ICT connectivity and establishing an enabling regulatory framework for the deployment of this infrastructure. The report also examines the impact of ICT in promoting socio-economic development in these countries and presents lessons and remaining challenges. Higher penetration levels of mobile cellular telephony, Internet usage and even broadband services in the three graduated LDCs, and in some of those countries recommended for graduation, provide evidence of the connection that exists between ICT/telecommunication deployment and socioeconomic development.

The concluding chapter attempts to bridge some of the 'mis-understandings' within the Information and Communication Technologies for Development (ICTD) domain, by briefly describing and examining two significantly different approaches to this area. It explores the idea of developing 'informational spaces' — that is, environments in which people are able not only to access relevant information through various means, but also to think through and articulate their own responses to what they hear, in the course of which they become information producers — and considers their potential value to any approach to information and development that aims to support local processes of empowerment, innovation and change.

Creating digital opportunities in least developed countries — including Small Island Developing States and countries with special needs — during the next decade will require reinforced efforts on the part of ITU to coordinate with all Member States, the private sector and development partners. Working in consonance to pool resources and muster partnerships, we can support LDCs in making the best use of the technological promise of ICT to promote economic growth.



**International Telecommunication Union**

Place des Nations  
CH-1211 Geneva 20  
Switzerland