STATE OF THE TROPICS

SHORT STORIES: Infrastructure

The State of the Tropics 2014 Report provides the first in-depth, objective assessment of the Tropics an environmental and geopolitical entity in its own right. Drawing on the knowledge, experience and diverse backgrounds of leading institutions across the Tropics, the report assess the state of the region and examines the implications of the immense changes the region is experiencing.

During the development of the report, across 50 social, economic and environmental indicators, a number of cross cutting issues have emerged. **Sustainable, durable and equitable infrastructure is a clear issue for the Tropics.**

Infrastructure is a critical component of functioning societies, and the basis of development and economic growth. It includes the physical and organisational structures required by societies and economies to function effectively and productively, and includes elements such as transport services (road, rail and port facilities), water supply, sanitation facilities, energy networks and telecommunications.

The development of key infrastructure and technology can be transformative for communities and nations, lifting people out of poverty and providing access to services and markets which have been previously unavailable. The development, operation and maintenance of infrastructure in the Tropics faces particular challenges. For a variety of reasons the economic and social benefits of investments in infrastructure in the Tropics have varied between regions and over time

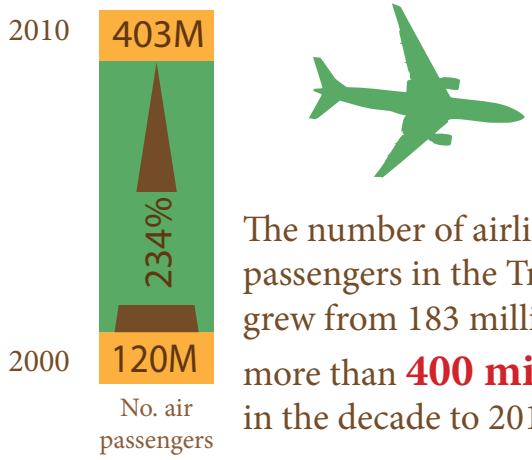
With the weight of the world's population being located in the Tropics by the 2030s and two-thirds of the world's children living there by 2050, there is and will be a huge need to focus the world's attention on enabling infrastructure, so that these children can be born into and grow up in a setting where they have access to health, education, appropriate housing and other infrastructure. Such investments will be critical for future generations to advance their own socioeconomic position and contribute positively to growing their nations' economies. Without such enabling infrastructure, it is not difficult to imagine the prospect of poverty and poorer life-chances with the potential for devastating effects not only for them, but for the broader global community.

The State of the Tropics report explored different elements of infrastructure across a range of indicators including urbanisation, information communication technology, transport, improved water and sanitation and gross capital formation.

Infrastructure for development and economic growth

The development and maintenance of infrastructure is considered essential for economic growth. Functionally it facilitates the production and distribution of goods and services and the provision of basic social services such as schools. Expenditure by governments and the private sector into road, rail, shipping and air transport alongside improvements in information communication technology (ICT) represent investments in future economic capacity. There has been considerable activity in tropical nations in recent years, investing in capital formation, transport and ICT.

Airports are among the most important infrastructural elements of modern cities. The air transport industry provides a vital role in connecting nations and contributing to trade and economic growth, especially in industries which rely on rapid transit times such as tourism, logistics and high tech manufacturing. The



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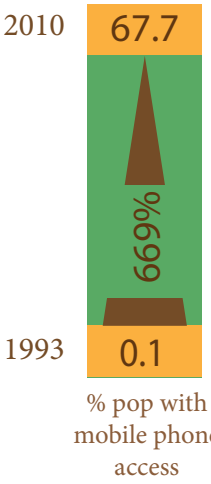
Tropical airport hubs are playing an increasingly important role in global air transport, particularly those in South East Asia. In 2010 Hong Kong's Chek Lap Kok International Airport became the world's biggest cargo hub.

Communication technology and infrastructure have grown rapidly over the past decade. The mobile phone has emerged as one of the fastest growing consumer technologies ever introduced

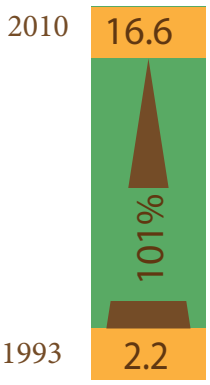
and is the dominant means of communication in the Tropics and a key driver for development and local empowerment. In 2010, more than 70% of people (a probable underestimate) in the Tropics had access to a mobile phone (c.f. 83% in the rest of the world).



% pop with mobile phone access

By 2010, more than **70%** of people in the Tropics had access to a mobile phone

The availability of smartphones and increasing access to mobile broadband in the Tropics has the potential to expand the transformative capabilities of mobile technologies through its capacity to bring the Internet to more consumers.



% pop with internet access

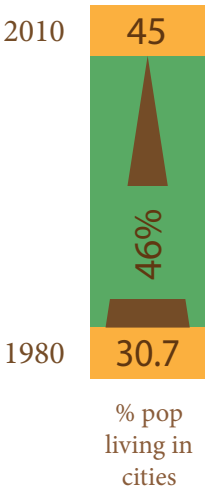
Internet usage (fixed line) remains under **20%** in the Tropics

Internet usage (fixed line) remains under 20% in the Tropics (though a likely underestimate), largely due to poor telecommunications infrastructure, market control by incumbent telecommunications operators, low rates of personal computer ownership, low literacy rates and lack of relevant content in local languages.

Infrastructure and health

Infrastructure that provides safe, clean environments in which to live and work is essential to the wellbeing of communities and nations. In many nations, rapid population growth and urbanisation, combined with budget constraints have often placed limitations on important health infrastructure such as improved water and sanitation.

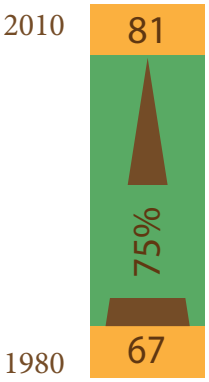
Although more people live in cities in the rest of the world, the rate of urbanisation in the Tropics is much faster. Growth in urbanisation can have positive impacts on productivity and service delivery. However,



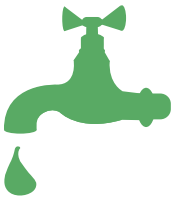
% pop living in cities

The rate of urbanisation in the Tropics is much faster than the Rest of the World

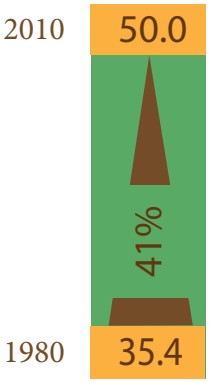
470 million people live in tropical slums



% pop with improved water



81% of the tropical population has access to an improved water source



% pop with sanitation access

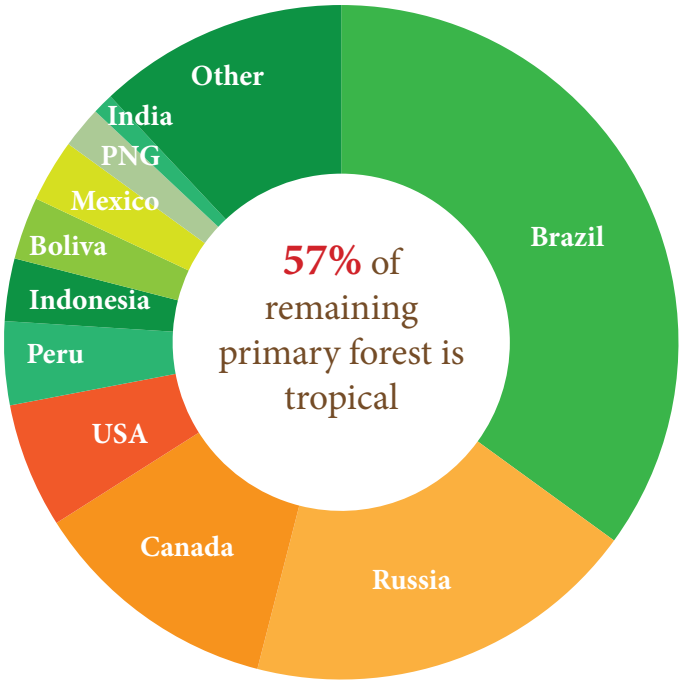
Only **50%** of people in the Tropics have access to a clean toilet

rapid urbanisation, particularly in poor nations, often results in a lag in infrastructure development (especially in electricity, water and sanitation) resulting in significant social and environmental issues including growth of slums, rise in rates of disease and environmental impacts.

The proportion of people living in slum conditions in the Tropics (46%) is much higher than the rest of the world (24%). There are an estimated 470 million people living in slums in the Tropics (more than the combined population of the U.S. and Mexico). In many tropical regions there is a chronic lack of basic infrastructure including access to clean water and sanitation. Only 81% of the urban population in the Tropics has access to an improved water source (the proportion is lower in rural areas at 73%) and despite improvements in recent years only half of the tropical population has access to improved sanitation.

Infrastructure and the environment

The economic benefits of investment in key infrastructure and technology are obvious. However, as the State of the Tropics report also demonstrates the inherent tension between development and environmental conservation. The conversion of native habitat of high biodiversity value to alternative land uses (agriculture, housing, industry, roads, ports, dams, mining and other infrastructure) will be an ongoing issue for tropical nations.



Primary forest is being lost at a rate of **0.5%** per annum or > 4 million hectares every year

19-35% mangrove forests have been lost since 1980

1980 - 175,063km^2 2005 - 143,151km^2

The Tropics retain the largest tracts of primary forest in the world. These forests are repositories of most of the world's terrestrial biodiversity. Notwithstanding the major threat of deforestation and habitat loss, the establishment of new transport networks (especially roads) has the potential to significantly open up large areas to other destructive impacts such as hunting and illegal logging, as well as facilitating the spread of introduced species. This points to a need for better planning when developing infrastructure projects.

The vast majority (>95%) of mangrove forests are tropical. It is estimated that up to half the world's mangrove forests were lost prior to 1980 when the first global estimates were reported. Since 1980, it is estimated that a further 19-35% have been lost. The main causes of this loss were increased demand for land for industrial and urban development, agriculture and aquaculture. The increased recognition of ecosystem services supplied by mangrove forests has slowed this rate of loss, however, very few nations have been able to reverse their losses.

Conclusion

The need to balance economic growth, equality and environmental sustainability is an issue for all nations. Achieving this balance in the Tropics will be a challenge as governments and populations strive to improve living standards and social conditions, while maintaining the environment and political stability. Tropical nations have an opportunity now to invest in clever, accessible infrastructure for the long term economic and environmental sustainability of the region rather than pursuing short term strategies that ignore environmental impacts and benefit only a proportion of the population.