

0001 Introduction

African cities are growing rapidly.

According to the forecast by [statistica](#), Africa's total population would reach nearly 2.5 billion by 2050. In 2023, the continent had around 1.36 billion inhabitants, with Nigeria, Ethiopia, and Egypt as the most populous countries. In the coming years, Africa will experience significant population growth and will close the gap significantly with the Asian population by 2100.

This population growth coincides with urbanization, according to reports by [African Development Bank Group](#), the proportion of the world's urban population is expected to increase to about 57% by 2050. Africa has experienced the highest urban growth during the last two decades at 3.5% per year and this rate of growth is expected to hold into 2050.

Projections indicate that the share of the African urban population will increase to 50% and 60% by 2030 and 2050 respectively. This rapid expansion has changed the continent's demographic landscape. Yet, urbanization in Africa has failed to bring about inclusive growth which, in turn, has resulted in a proliferation of slums, congestion, poor waste management, and unsustainable social cultures.

Alongside growing environmental problems like Deforestation and Land Degradation, Air and Water Pollution, Oil Pollution, Desertification, and Climate Change it is apparent that engineers and innovators are needed to shape the future of African cities if the continent is to sustain its growing population long term.

A lot of engineering goes into building cities, we have to start to think about how people living will access electricity, their mobility, access to water, waste management, buildings they will live in, and most importantly the impact of culture and government policies.

Particularly, we have to think about these cities from a sustainable point of view. In doing so, we must think about the full cycle of sustainability, if not we create more irreversible problems for future engineers. While we can't possibly solve all problems at once, we can use innovative solutions to mitigate them to the best of our ability.

The next topics to cover in this part of this course focuses on understanding the Principles of Sustainable Development, Intro to Sustainable Smart Cities, Lo-Carbon And Renewable Energy, Managing Natural Resources, Green Infrastructure and Transportation, Socioeconomic Environment, cultures and the Role it Plays in Engineering Future Cities, Health and Livability, Green Buildings, Smart Cities Technologies, and Big Data.