

Exploring the Scope and Strategies for Achieving Resilient and Adaptive Infrastructure in Africa: Materials, Methods and the Political Economy

Abstract

This paper seeks to advance a debate that achieving resilient and adaptive infrastructure in Africa is a matrix involving a number of factors and elements including choice of materials, methods and political economy. The purpose is to demonstrate that the understanding and resultant outcomes cascades a whole spectrum involving science, tools, economy and politics of the day. To bring to the fore of these critical aspects, the paper engages a case study approach for in-depth analysis of which Egypt, South Africa, Ethiopia, Nigeria and Zimbabwe are the references. These are selected based on the climatic, economic performance, social dynamics and political developments characterising these countries. In recent times, all the selected case countries have faced some challenges related to political instability of some sort - ethnic embedded upheavals, war or disturbances due to acts of banditry. There is a noted shift in climatic changes of which extreme weather events known in some of the countries are on record. Infrastructure has been the major target of the damage induced by these extreme weather events with roads, bridges and houses being destroyed. This implies that new methods and material selection must be debated and local government budgets adjusted accordingly. In parliaments, three possible outcomes are possible: consensus, dissension or hijacking. South Africa has seen some of the ideas by the opposition parties being incorporated into implementation of programmes, projects and plans and celebrated for collaborative development. In Nigeria, the Boko Haram, in Mozambique, disturbances in the northern parts and in Ethiopia, the Tigray dissidents have derailed infrastructure development and maintenance. Reliance on the standards set by colonial masters regarding infrastructure materials and planning poses as a major hindrance in the development of new and innovative methods that take on board locally available materials. One of the greatest curses on the African soil has been a huge importation bill including engaging expatriate consultancy while ignoring local talent including engineers. The paper concludes that the production of resilient and adaptive infrastructure is an outcome of deliberations that decide on processes, methods and materials to be engaged. Understanding the full spectrum is a deliberate mixed-scan in which the macroscopic and microscopic elements are engaged. Research institutions, like polytechnic colleges and universities, have a role to bridge the gap in knowledge, policy and practice by making science and policy work.

Keywords: policy, politics, antagonism, constraints, standards, management, climate change.