

Abstract: Supply Chain Resilience in Africa

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Purpose of this paper : The purpose of this paper is to present and propose a macrologistics approach to analysing and recommending interventions for improved resilience of supply chains on the African continent. Africa has a complex history with significant volatility in its social, environmental and economic spheres. The systemic impact of these factors compromises poverty reduction, food security and resilience against the backdrop of an increasingly inter-connected global risk landscape – where the impact of shocks to countries in Africa are more severe due to cascading effects. The long-term objective of this research is thus to support improved resilience on the African continent through improved macrologistics management that is embedded in and can improve local and regional socioeconomic and environmental sustainability realities.

Research Methodology : A novel approach is applied to inform supply chain resilience (SCR) initiatives from a macrologistics perspective. Analysis provides an estimate of the current and potential real productive output and capacity within a focal country economy, namely disaggregated agriculture, mining, and manufacturing outputs, and how these are connected logistically. Disaggregated freight flows are then consolidated to reveal macrologistics realities and opportunities localised value chains. This methodology reflects a data-driven approach to analysis – even in cases where full data sets are not readily available. A classification of mainland African countries was custom-made and used to map the perceived level of resilience of countries.

Findings : Globally, shocks appear to be increasing in frequency and severity, which intensifies their impact on vulnerable countries in Africa. Analysis surfaced weaknesses in supply chains and analysis of freight flows assisted in determining how to respond with agility when shocks do occur so that recovery options are strengthened. The report highlights the manner in which supply chains have contributed to and have been impacted by significant macro-level global shocks, risks, and disruptions to justify why effective supply chains are integral to country and regional resilience. While historic shocks are considered, this report pays express attention to recent upheavals (such as the COVID-pandemic and the war in Ukraine) that launched supply chain resilience to the forefront of government, industry and academic consciousness, requiring SCR efforts to extend beyond efficiency improvement and environmental sustainability. Within the global risk landscape, transport and logistics infrastructure vulnerability in Africa is exacerbated by inadequate capacity resulting in transport and logistics challenges.

The detailed case studies reflect an overarching research approach of analysing economic components and their related shocks, risks, and disruptions to identify weaknesses, gaps, and opportunities related to SCR. Wherever possible, this process incorporates value and supply chain flow data from freight-flow analysis as an evidence base. Customised frameworks are applied to South Africa, Botswana, South Sudan, Ethiopia, Ghana, Morocco, and Senegal which assess their macrologistics value and supply chain flows and macrologistics production factors.

Implications : This research process, in conjunction with the mapping of supply chains from selected case-study countries supports understanding of supply chains in Africa, leading to the development of specific

strategies for improvement. The macrologistics strategy proposals for increased supply chain resilience in the analysed countries may be used to synthesise high-level improvement recommendations to support and guide the development and implementation of vital macrologistics interventions for increased resilience across the African continent.

Value : It is expected that value will lie in the use of recommendations, by Governments and global institutions or agencies to prioritise and direct funding, aid and policy interventions in support of logistics infrastructure development and related policy or strategy interventions

Practical Limitations : Detailed case studies are presented for South Sudan, Botswana and South Africa, while other countries analysed require deeper analysis and detailed supply chain mapping. Peer review of the paper is currently underway