Location Analysis Essential For Effective Supply Chain Development

"Supply chains compete, not products, commodities or companies. All nodes and links in a supply chain should be engaged and integrated to be able to provide seamless and transparent logistics services from origin to destination," said Gerard de Villiers recently at the Australian Rail Association's (ARA) Rail Freight Conference in Sydney, Australia.

De Villiers, a logistics specialist at Arup, believes South Africa can draw on its past freight and rail planning limitations to research and commission more practical logistics solutions for the country, and the region, for the future.

"A key element of any successful implementation of intermodal terminals is a comprehensive and accurate location analysis. The need for practical terminal placement to reduce freight congestion around key transportation hubs is imperative," said de Villiers, adding, "These new intermodal terminals can in turn become distribution and logistics hubs in their own right with trickle down benefits to associated industries as well as employment".

Various Southern African countries are landlocked, and have a dire need for efficient logistics connectivity for imports and exports between coastal ports and their capital cities. Swaziland, Botswana, Zimbabwe, Zambia and the southern region of the Democratic Republic of Congo are examples of this dilemma, resulting in various freight corridor development.

Several studies conducted on these corridors look at how the implementation of intermodal terminals can ensure a more effective flow in the logistics chain. Supply chain planning is normally done on four levels of strategic, structural, functional and operational activities and while the design of inland terminals and logistics hubs are normally done on the structural level. Much more input is required, for example, from logistics functions such as transport, warehousing, and materials handling on a functional level.

De Villiers commented, "There are certainly parallels between the South African and Australian scenarios. The sheer length of transportation corridors/nodes required offer planning challenges that need careful analysis and attention. Location analysis will look at factors such as existing and future anticipated demand, the location of existing and future customers and transport costs (inbound from origins and outbound to destinations)".

The demand needs plotting at the location of existing customers as well as an estimate of where future customers will be located. Origins of raw materials or bought out supplies are equally important. These ingredients are for the centre-of-gravity analysis determining where distribution centres or terminals should be located.

"One cannot plan for the development of major freight and rail routes and hubs without conducting a location analysis. It is critical in supply chain management for logistics to be coordinated with a practically routed intermodal terminal needs analysis. Freight and rail activity at existing ports already place an enormous amount of pressure on city feeder roads established long before the current increased container and freight loadings. In South Africa, we are aware of how future requirements of our logistics industry need addressing. I believe we are on the right path, and we have a lot of experience to share with those confronted with similar challenges," concluded de Villiers.