

Introduction

The Logistical support of Expeditionary Warfare by its very nature is a complex affair. With many Ports of Embarkation and Disembarkation, interlinked by Lines of Communication transiting Land, Sea and Air, the direction of the balance of investment in order to optimize the flow of Personnel, Equipment and Materiel can be far from clear.

Through work conducted LOGWAR 05 by the *Project & Recover* Pillar chaired by Brigadier C Steirn, CE DTMA, it became evident that the obvious areas for investment do not necessarily return the greatest increases in flow. Whereas computer based tools do exist for the planning of movements, there appeared to be a vacuum for a tool that could accurately model, in great detail, a Logistical Coupling Bridge such that 'Pinch Points' could be identified and sensitivity analysis conducted thereby allowing investment to be focused so that logistic flow might be optimised.

From this COBRAT was conceived...

Genesis

The basic Tool - constructed in the modelling environment of GCAM - started life as a model of the sea port of Shuaiba in Kuwait. This model allowed the variation of a number of parameters including: the number of Berths; the number of Gangs of Stevedores; and Transport so that the flow through the port could be optimised using actual Op TELIC shipping and Force Element Tables.

Following an early demonstration, the utility of this project was recognised and further work was generated to model the entire sea leg of a coupling bridge.

Marchwood Military Port in the UK was chosen as the Sea Port of Embarkation and was then linked to a generic Sea Port Of Disembarkation, based on the Turkish port of Mersin. A train link was added to provide a overland Line Of Communication from the port to a Force Rear Support Area.

This new tool took the parameters for variation much beyond that of the original model, incorporating many more processes. The *Monte Carlo* capability of GCAM has also been utilised to provide weather effects on sea lines of communication and failure of key mechanical handling and other equipments.

Future Development

With investment the tool could be taken forward so that an entire Coupling Bridge, or bridges could be constructed, allowing analysis to be conducted on any point in the Bridge, or on any commodity of interest as an indicative aid to planning and the direction of investment.

Bespoke adaptations of the COBRAT model could also have wider utility to assist in the logistic planning process across the defence community.

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