

International Collaboration and the DIAMOND Peace Support Model

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The British armed forces have been involved in over 300 operations other than war (OOTW) of various types and sizes since World War II. However, until recently little attempt had been made to study these operations systematically and hence there was a lack of analytical methods to assess issues related to Peace Support Operations (PSO). As a result of this, the DIAMOND (Diplomatic And Military Operations in a Non-warfighting Domain) project began in August 1998 (after the Strategic Defence Review) to scope the requirement and focus the development on the core aspects of peacekeeping, peace enforcement and humanitarian aid.

The resulting DIAMOND model is a fast running, data-driven stochastic model which represents:

- Theatre of Operations
- C2 driven planning process
- Belligerent factions
- Peacekeeping forces

Key Features:

- Multi-sided modelling
- Civilians
- Non-military organisations
- Negotiation between parties (for access and mission support)
- Rules of Engagement



Negotiation in Iraq

Theatre/Campaign Level

Can be used to:

- Assess robustness of force structure against a variety of political/military environments encountered in PSO
- Assess effectiveness of force mix
- Assess impact of varying scales of effort
- Assess utilisation of force elements
- Complement other PCS high level models CLARION (land-air) and COMAND (maritime-air)
- Potentially feed into CHIMERA concurrency model

Parties and Entities in DIAMOND

Entity templates are the basis for generating a force / party within DIAMOND. Data characterises the template in terms of:

- Type of force (Infantry, Transport, etc.)
- Size and mass
- Strength and combat capability
- Movement capability
- Logistical capacity and consumption
- Sensor / detection capability
- Mission capability



Infrastructure repair in Iraq

C2/Plans

- A party consists of several entity types, including a commander, who is given plans for the party
- Plans may be triggered by time or the success or otherwise of certain objectives
- Objectives specify the sizing requirements (i.e. force needed)
- Each mission can have its own set of Rules of Engagement which rely on the relationships between parties
- 5 levels of relationships can be defined from hostile to friendly

Validation Scenarios

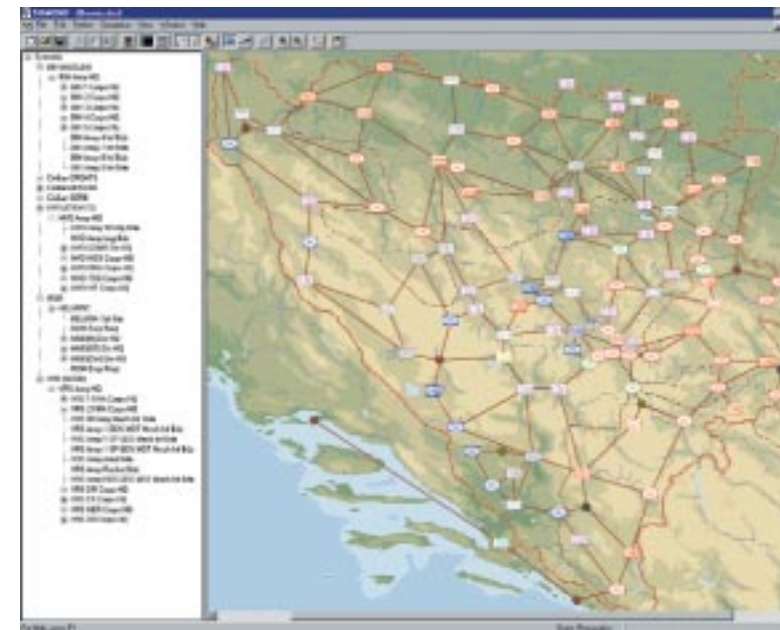
Several historical scenarios have been modelled in DIAMOND to gain an understanding of the model, provide some level of validation and encourage studies to use DIAMOND. Range of operations:

- humanitarian aid
- evacuations
- post-conflict stabilisation
- counter-insurgency

Bosnia 1995
East Timor 1999
Mozambique 2000
Sierra Leone 2000
Iraq 2003



Humanitarian aid in Afghanistan

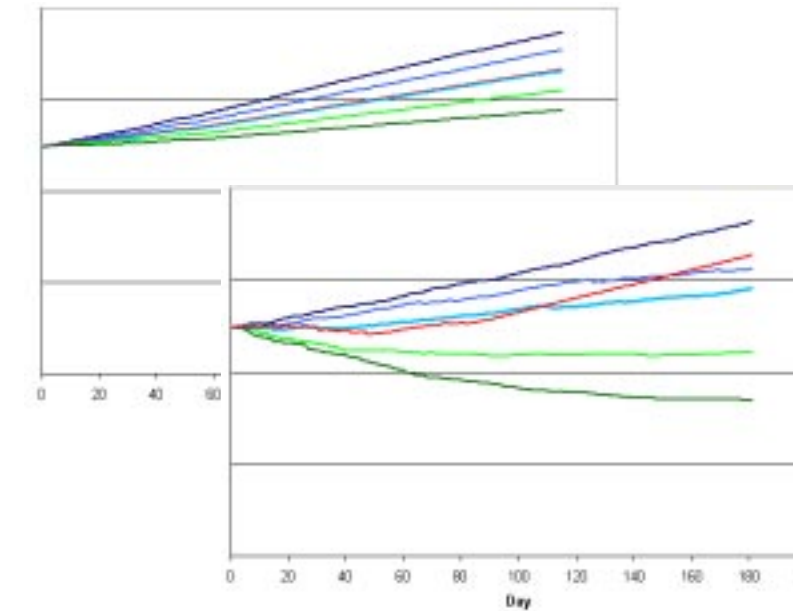


Bosnia scenario

Iraq Scenario - Example Results

Scenario represents aspects of:

- Coalition and indigenous forces
- Degradation and repair of facilities and infrastructure
- Hostile forces
- Civilian behaviour

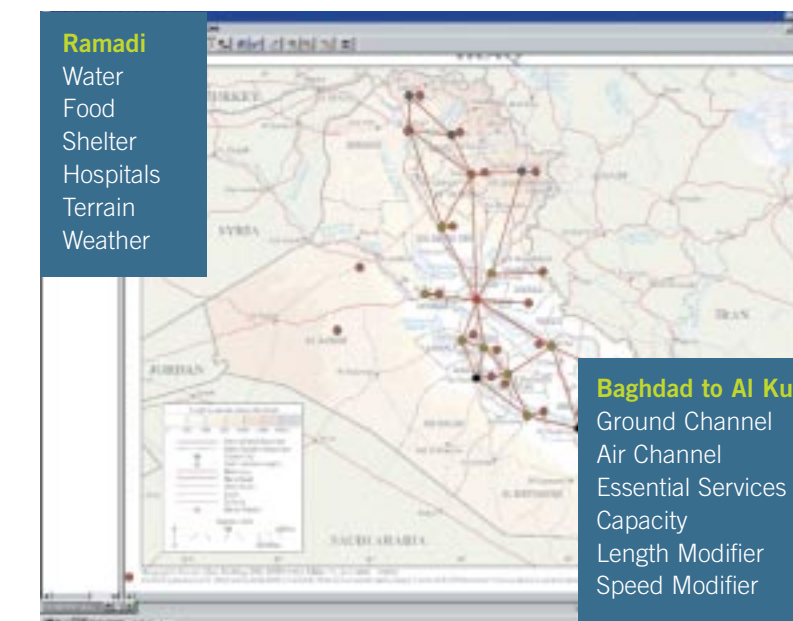


Facility capacity comparison - Basrah (above), Baghdad (below)

Charts displayed show greater repair of infrastructure at Basrah due to more stable situation:

- less damage done against facilities
- more repair carried out as less disruption by violence

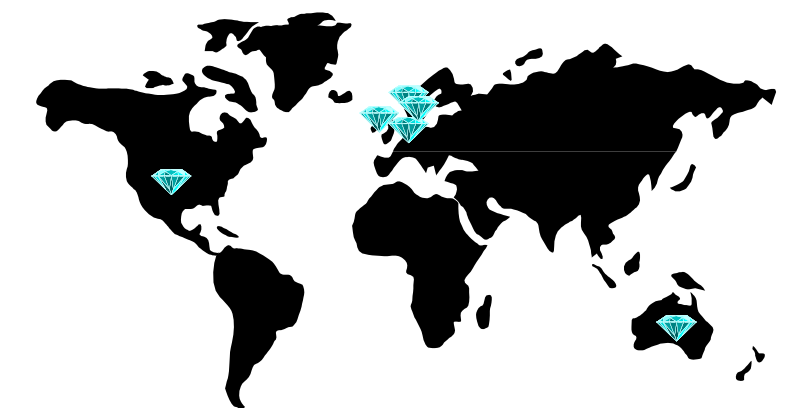
A variety of results can be collected – one challenge is determining the required Measures of Effectiveness (MOEs). Results are relative rather than absolute, especially as data is often not available.



Iraq scenario - nodes and arcs

International Collaboration

- Released to US who have carried out some development on pre- and post-processors
- Sweden – have developed an Iraq scenario in their higher level STRATMAS model
- Also released to Netherlands, Norway and Australia



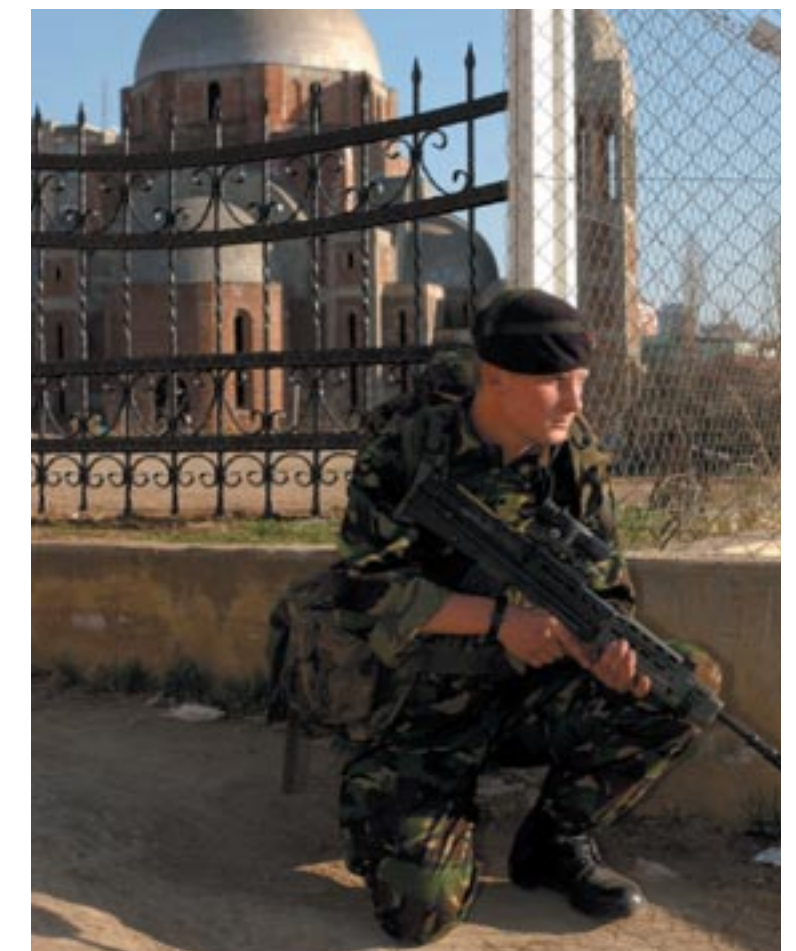
International collaboration and DIAMOND

Areas for Development

- Work is in progress to develop a “tension model” which could provide a feed into DIAMOND, taking more account of “human factors” and allowing dynamic relationships between parties
- Modelling asymmetric insurgent combat effectively with increased sensitivity to force strengths and opportunistic as well as planned attacks
- Improvement to representation of infrastructure

Status

- DIAMOND development is aiding our understanding of PSOs
- Currently in early study use
- DIAMOND provides a framework for structuring data collection and processing
- Evolutionary approach - DIAMOND will evolve with use and as our understanding of PSO improves



Presence in Kosovo