



Co-OPR

Collaborative Operations for Personnel Recovery

***Collaborative Sensemaking, Planning and Execution
via sharing of issues, activity options, constraints and annotations***

***Summary Slides of Compendium's deployment
in Expt. B, USJFCOM 16 Nov. 2004.
See Co-OPR Expt. B website for I-X outputs.***

Compendium: Background

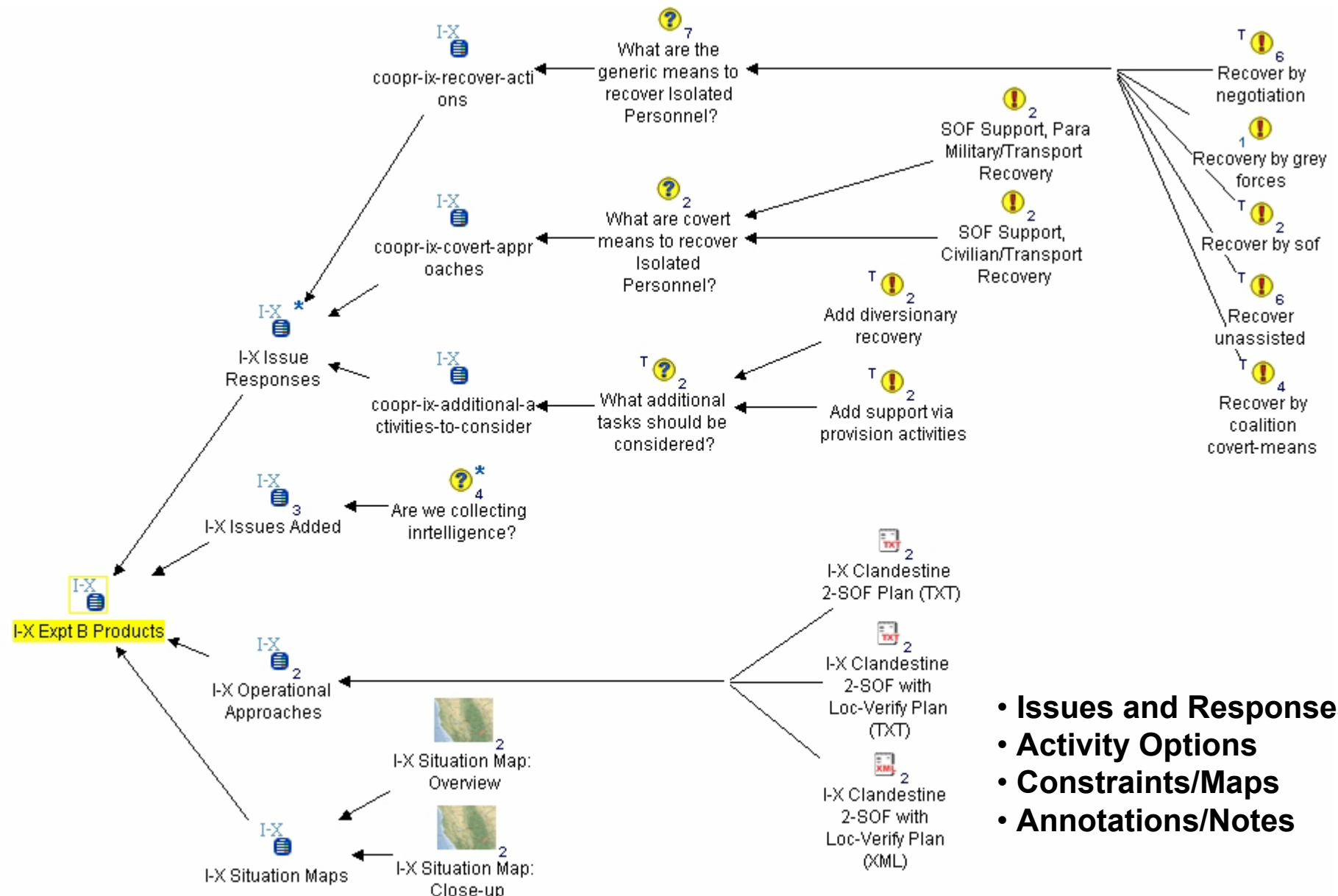
- **Compendium is a tool for the rapid construction of task-specific knowledge management environments.**
- **Specific emphasis on the real time capture of the human intelligence in f-f/virtual meetings to support *collective sensemaking* when there are complex connections between knowledge elements, and diverse perspectives.**
- **It is interoperable with other systems whose output may need to be linked into a discussion, and can export in diverse formats.**
- **An IBC-application for Personnel Recovery (PR) was created, seeded with:
 - PR workflow
 - PR doctrine
 - Example ONA content**
- **See Co-OPR Briefing slides for more details**
- **See www.CompendiumInstitute.org for software**

Compendium: Key Points from Expt. B

- 0950 spec. received from Plans Director for *Crisis Action Planning* process to be followed. **CAP navigational template** for each CAP step ready for mission planning at 1130
- Compendium used as **primary working display** by Plans Director during mission planning and COA analysis
- **Compendium used to brief** JTFC, Joint Chiefs of Staff and Senior Mentors
- Semiformal argument mapping is **well suited for COA and DIME sensemaking** which requires the structuring and integration of formal/hard constraints and informal/soft factors
- Compendium **received Issues and Options from Co-OPR I-X** planning tool
- Example shown of how **output from PMESII Effects Predictor (PEP)** tool could be imported for subsequent analysis in Compendium
- Issues and Options received from **I-X planning tool**
(see I-X Expt. B outputs for details)
- Plans Director enquires about availability of **Compendium for Vignette 2**

Grey Matter and Silicon

I-X Inputs to Compendium during Expt B



- Issues and Responses
- Activity Options
- Constraints/Maps
- Annotations/Notes

Compendium “vs.” PowerPoint

- The default tool for discussion capture and mission briefing is PowerPoint (as used in Vignette 2)
- Used trivially Compendium can be used like PowerPoint, but how does it add value when used fully?
 - Points can be added cumulatively over time, in a structured fashion using the Issue/Option/Argument network grammar. V. hard to do on a slide
 - Compendium ‘nodes’ are date/author stamped, and can be combined and compared in multiple ways (= discussions/contexts)
 - Nodes are aware of their presence and attributes in multiple contexts, and assist navigation between those contexts
 - Full relational database is queryable
 - Real time data interchange via API and peer2peer interfaces
 - Rich metadata
 - Views can be arbitrarily large (not ltd. to a slide)
 - As a long term group memory, its value grows with time



Selected screens from Compendium deployment in Expt. B

COA-2.1 Wargaming Worksheet (1/2)



Compendium - Co-OPR Expt. B 2004.11.16

File Edit Map Format Tools Favorites Workspaces Window Help

[Map]: COA-2.1: Coalition D.I.m.E. (US; UK; AU)

16 JPRC 94
 1 MAP: COA-3
 23 COA Comparison

5 11 PMESII effects?
 5 12 IP capacity?
 7 12 RM R. Superiority?

13 1. Safe return of hostages
 11 Do not destabilize region

10 Ensure safe retrieval of hostages
 11 Maintain good relations with nations
 11 Reinforce rule of law
 11 Preserve regional stability
 11 Be prepared for coalition follow-on

12 Do not disturb CA balance of power or govmt structure
 12 No hostage can be harmed

6 Rescue Mech.
 2 General issues
 11 Analysis of approaching Cebesoy

6 Support

13 IP

Need to focus on Cebesoy
 Focus on President Melen
 Contact senior military command structure to exert pressure via State Security Council

Possible options within this COA

COA-2.1 Wargaming Worksheet (2/2)

Compendium - Co-OPR Expt. B 2004.11.16

File Edit Map Format Tools Favorites Workspaces Window Help

[Map]: COA-2.1: Coalition D.I.m.E. (US; UK; AU)

JPRC 94
MAP: COA-3
COA Comparison

PMESII effects?
IP capacity?
RM R. Superiority?

1. Safe return of hostages
Do not destabilize region
Ensure safe retrieval of hostages
Maintain good relations with nations
Reinforce rule of law
Preserve regional stability
Be prepared for coalition follow-on
Do not disturb CA balance of power or govt structure
No hostage can be harmed

Rescue Mech.
General issues
Support
IP

Need to focus on Cebesoy
Focus on President Melen
Contact senior military command structure to exert pressure via State Security Council

[Map]: Analysis of approaching Cebesoy

Should we approach Cebesoy to bypass the president to defuse the situation?

Cebasoy has contacts with several ambassadors
CA has rejected all diplomatic approaches and offers of assistance
Calif govt lacks lift to move troops: Can we offer CA C130s or large trucks?
Can we offer economic inducements?
Tell Cebesoy that we know what he's doing
Admiral: We can contact Cebesoy and offer him help in
Cebasoy is not a stable person --

Do we go public about what we know about the conspiracy?
Public diplomacy, propaganda would be counter-productive
PoMil: We can't go public outside of notifying President etc.

Dialog map capturing the planners' discussion of this option

COA Comparison Worksheet

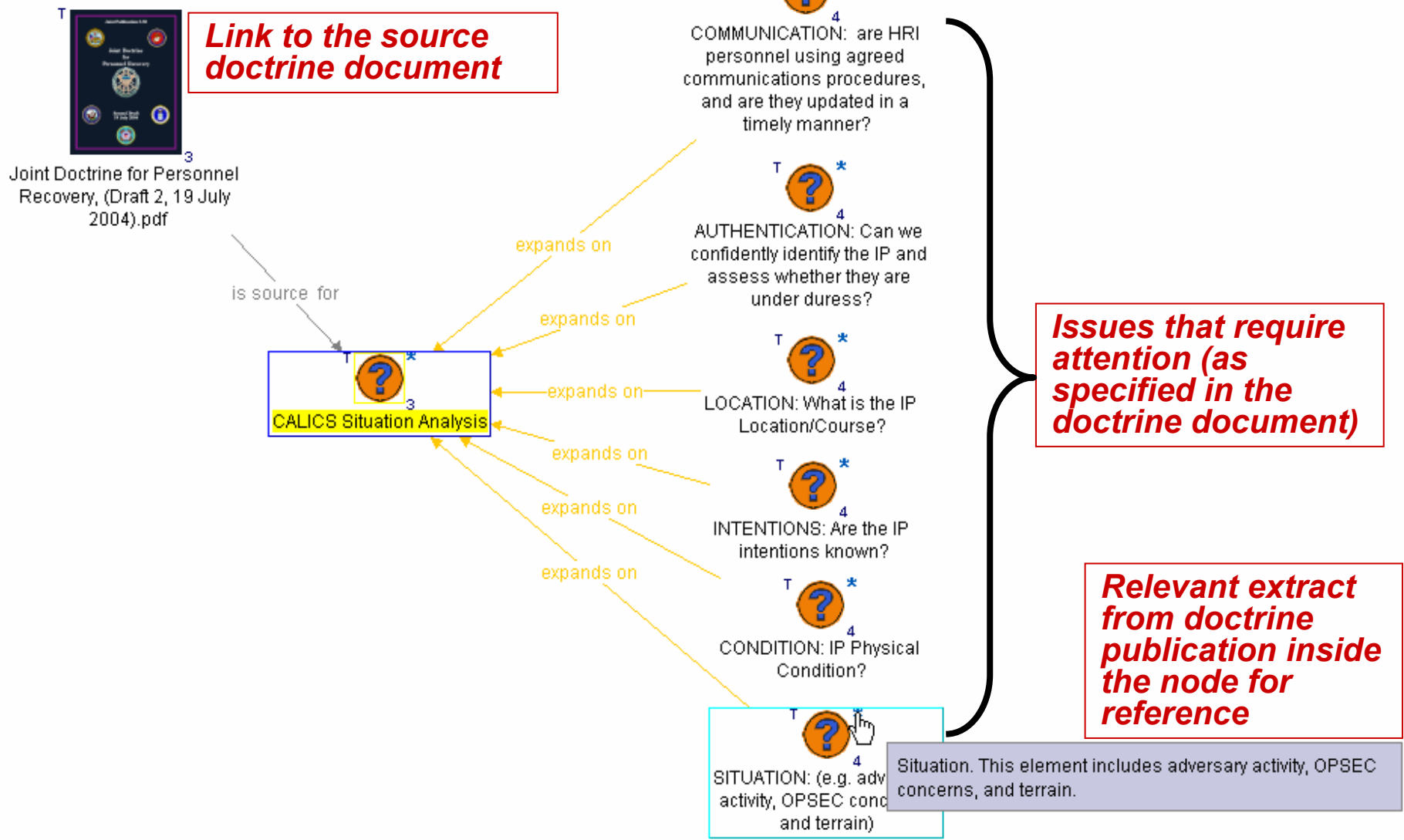
Summary of how COAs trade off against each other, derived from each COA worksheet

[Map]: COA Comparison	COA-1	COA-2	COA-3
<p>JPRC 16 93 JTFC 69 6 Crisis Action Planning Map: JTFC</p>	<p>COA-1 31 6 COA-1.1: Recovery by overt coalition forces</p>	<p>COA-2 28 6 COA-2.1: Coalition D.I.m.E. (US; UK; AU)</p>	<p>COA-3 11 5 COA 3: COA-3: International D.I.m.E.</p>
<p>1. Safe return of hostages</p>	<p>+* 8</p>	<p>If COA-2 successful this ensures safe return of hostages</p>	<p>- 2 Discarded -- not timely enough</p>
<p>Do not destabilize region</p>	<p>Something that is quick and accurate should not be destabilizing.</p>	<p>May have some effect on legitimacy of the govt</p>	<p>If COA-2 successful will go a long way to not destabilizing region</p>
<p>Maintain good relations with nations</p>	<p>+ UN approved (6)</p>		
<p>Preserve regional stability</p>	<p>- Could have a destabilizing influence (3)</p>		
<p>No hostage can be harmed</p>	<p>Achieve surprise?</p>		
<p>Do not disturb CA balance of power or govt structure</p>	<p>- Will disturb CA govt structure (2)</p>		
	<p>+ Follow-on plans</p>	<p>Follow-on plans can be better executed</p>	

Constraints

Restrains

PR Doctrine for Situation Analysis extracted as an Issue Template



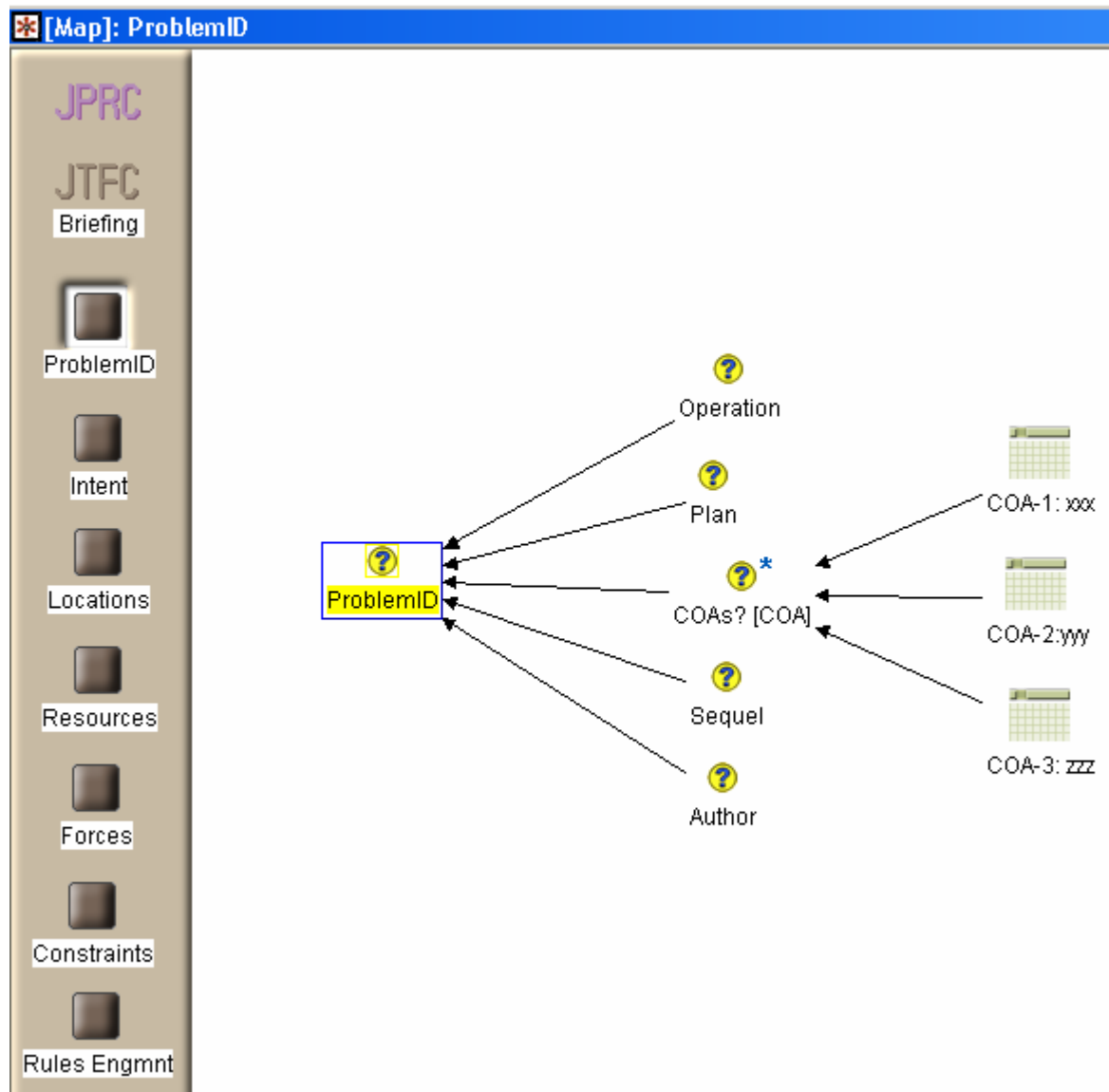
Issue Templates for JTFC Briefing

- We prepared for the Mission Briefing with a set of Issue templates to focus planning deliberations
- The structure was derived from the XML schema circulated by Doug Dyer
- For each category (menu item on left) there are a number of issues awaiting answers

```

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</element>
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  ArtilleryUnit UrbanAssaultTeam
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  AdvancedPartyTeam JTFHqTeam
  MarshallingTeam LogisticsTeam
  PublicAffairsTeam PsyopsTeam</values>
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- <element>
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</element>
- <element>
  <tag>ForceLocation</tag>
  <type>listbox</type>
  <values />
</element>
- <element>
  <tag>ForceAttributes</tag>

```



JTFC Briefing: *Intent* template

[Map]: Intent

JPRC 29

JTFC Briefing 10

ProblemID 8

Intent 8

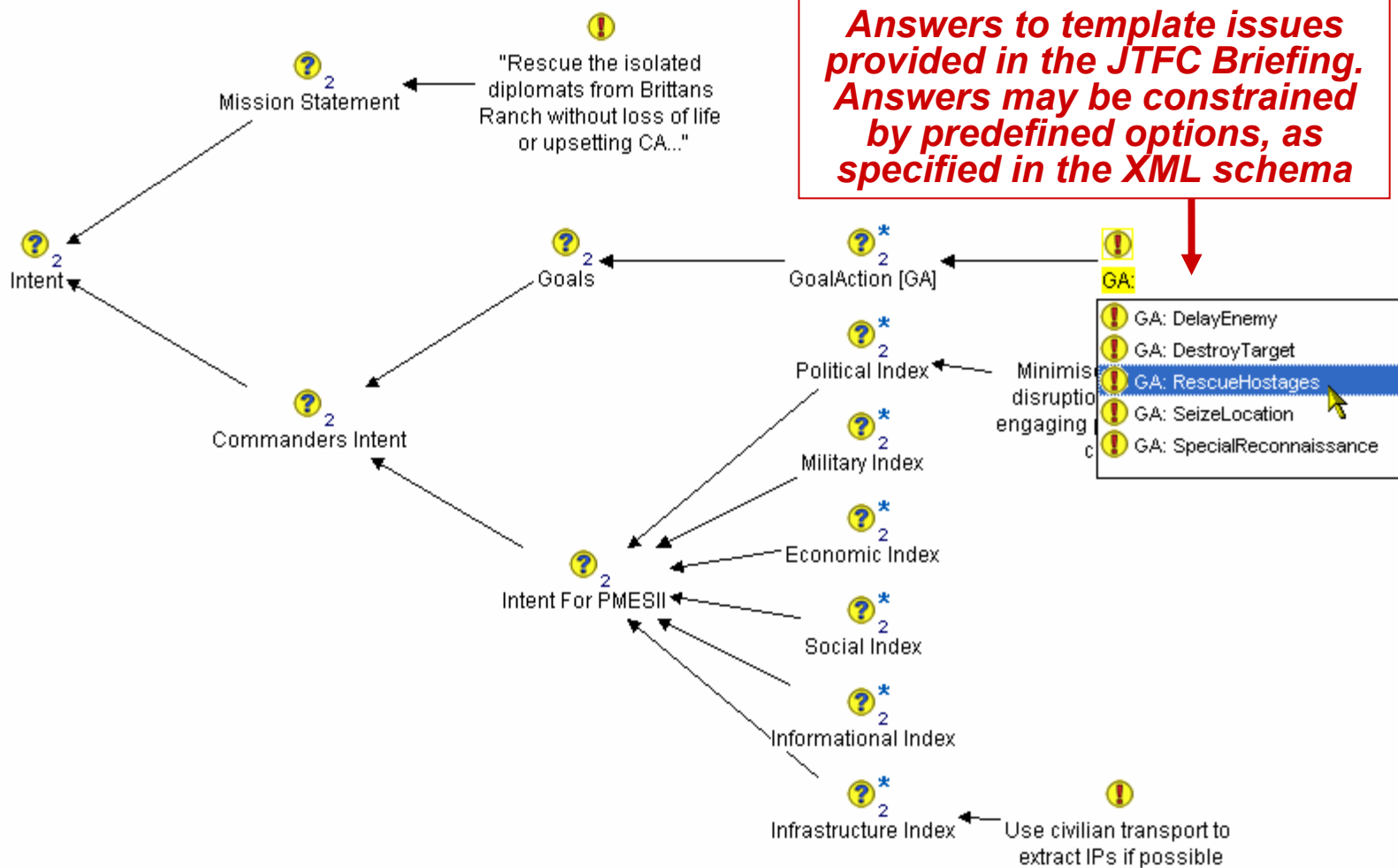
Locations 8

Resources 8

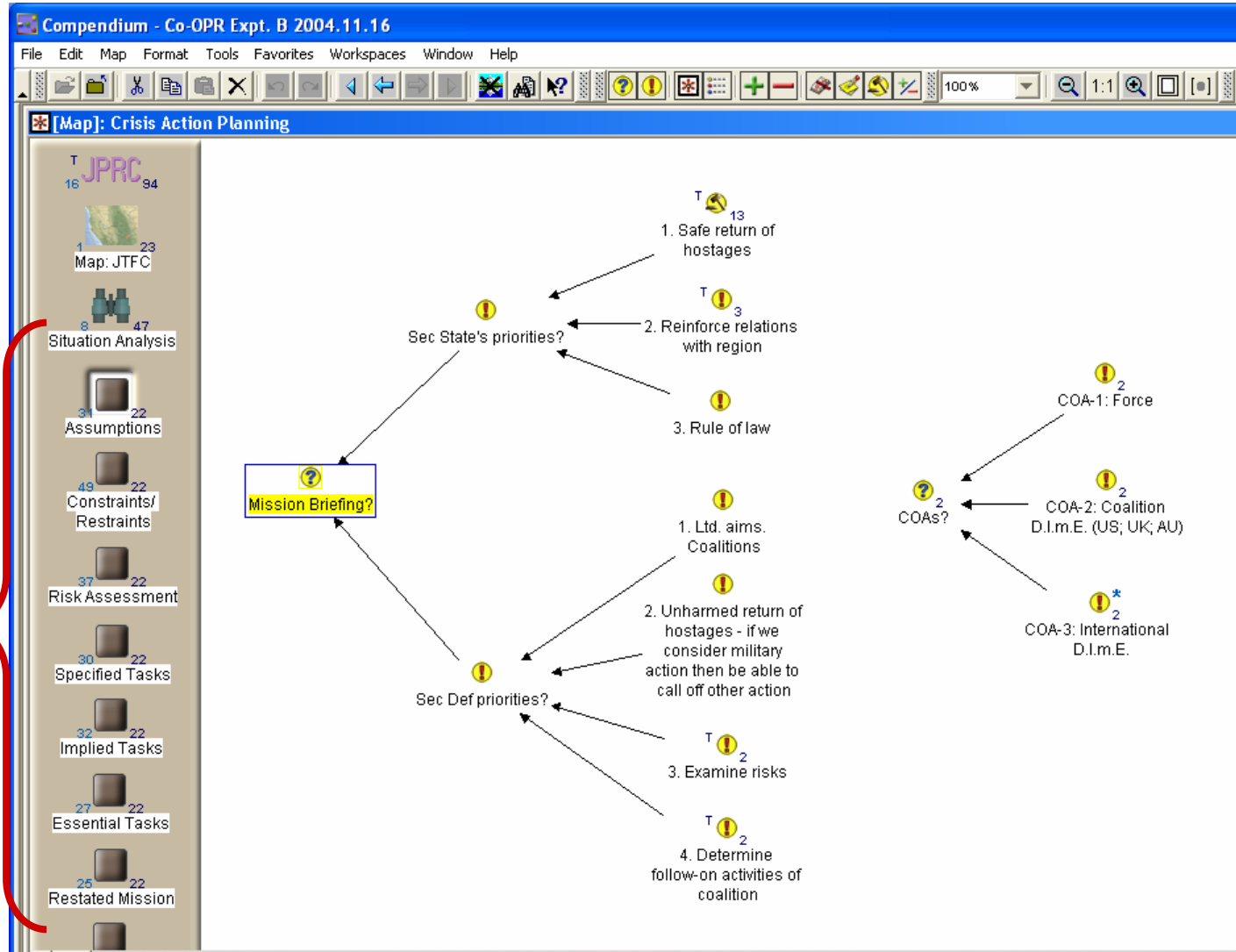
Forces 8

Constraints 8

Rules Engmnt 8



Crisis Action Planning template built in an hour



Following distribution of the Crisis Action Planning process which was to be followed, a CAP template was created at short notice to support the process

Example ONA database maps

JPRC
29

7
ONA: Local Transportation

4
ONA: Terrain Maps

3
ONA: Local Accommodation

3
Rescue Mech. Forces

[Map]: Map: StJohnsMtnArea

JPRC
ONA
database

Map: CA

Map:

[Map]: 12 Agent Recruited Para-Military Team

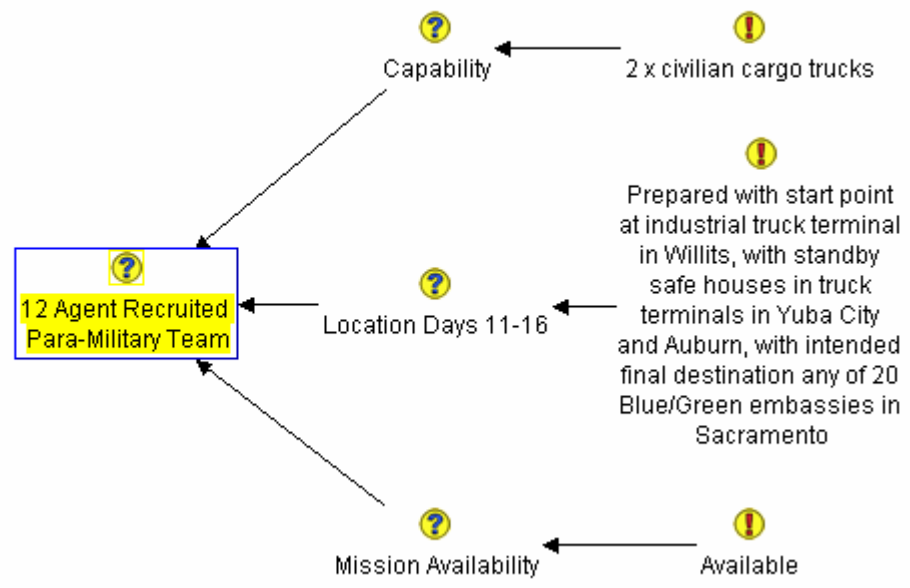
JPRC
ONA
database

24th Marine Expeditionary Unit (Special Operations Capable)

12 Agent Recruited Para-Military Team

- Maps of multimedia data from the ONA db
- (ONA connection is simulated in Expt. B)

Response Mechanism Force data converted to Issue template by drag+drop from Excel spreadsheet



Compendium: Future Trajectories

- Deploy on a longer term to show how the **whole sensemaking lifecycle** can be supported for a mission: pre/execution/post
- Add **deeper intelligence** (as already started with I-X) to:
 - Raise new Issues, Options or Criteria
 - Retrieve data on the fly updating discussion maps
 - Guide analysts through templates like a tool 'wizard'
- Explore **alternative visualizations**
- **Grey matter+silicon**: synergistic human and software input
- Acquire **deeper knowledge of end-users** in order to build more powerful templates to scaffold work practices
- **Interoperability**: Compendium as 'sensemaking interchange' format (already done with NASA) based on an underlying ontology
- Develop **team process models** (eg. using I-X) to better understand how Compendium pays back in different contexts
- **Training**: it is most effective as a 'power tool' for skilled personnel (although many people use it as a personal knowledge management tool)
- As a by-product of discussion capture, **generate relevant documentation/briefings**
- **Voice recognition** for discussion capture is a long term challenge