



**MALAYSIAN JOINT WARFARE CENTRE
(PESAMA)**



INTRODUCTION TO INTELLIGENCE PREPARATION OF THE OPERATIONAL ENVIRONMENT (IPOE)

by

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IPOE - Step 4 DETERMINE THREAT COA



STEP 4: Determine Threat COA

- ❑ Information gained from Step 3 of the IPOE is merged with the MCOO and progressively refined to develop threat COA
- ❑ Threat COA - Graphically represented by situation overlays

Acty 1. Identify Threat Likely Obj & Desired End States

Acty 2. Identify Full Range of Threat COAs

Acty 3. Analyse COG Construct

Acty 4. Evaluate & Prioritise Threat COA

Acty 5. Compile the Combine Overlay



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Acty 1. Identify Likely Threat Obj & End State

- ☐ FF planning staff - provide their assessed FF CV to the G2 staff in order that the threat's intent and likely obj and the blue force vulnerability analysis can be compared by the two staffs
 - Rarely be able to confirm
 - Assumptions is to be made but must agreed by the comd – to keep the process moving
 - Ensure that each subordinate level of threat comd's obj must meet the likely obj of its parent comd
- ☐ Define how the threat perceives our COG
- ☐ Analyse own CVs that are open to exploitation by the threat



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Acty 1. Identify Likely Threat Obj & End State

Example of Own CV

- ☐ Def posn
- ☐ C2
- ☐ Flk Sy & protection
- ☐ Cbt sup (ammo, POL, rat storage, water pt) vulnerable to threat
- ☐ Electronic devices vulnerable to jamming
- ☐ RSI elm



Acty 1. Identify Likely Threat Obj & End State

Types of Obj:

☐ During conflict between conventional forces threat obj -
terrain or force related

- ❖ **Terrain related** – (intermediate, immediate and subsequent) often focus on key terrain
- ❖ **Force related** - usually focus on rear or reserve forces



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Acty 2. Identify Full Range Of Threat COA

- ☐ The consolidated list of broad and credible doctrinal COA identified in Step 4 IPOE is compared against threat likely obj



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Acty 2. Identify Full Range Of Threat COA

Sub Acty A. Develop Threat COAs

Sub Acty B. Develop Threat COA Description and Options

Sub Acty C. Test COA Against Criteria

Sub Acty D. Produce the Situation Overlay

Sub Acty E. Constructing a Situation Overlay

Sub Acty F. Produce an Event Overlay

Sub Acty F. Produce an Event Overlay

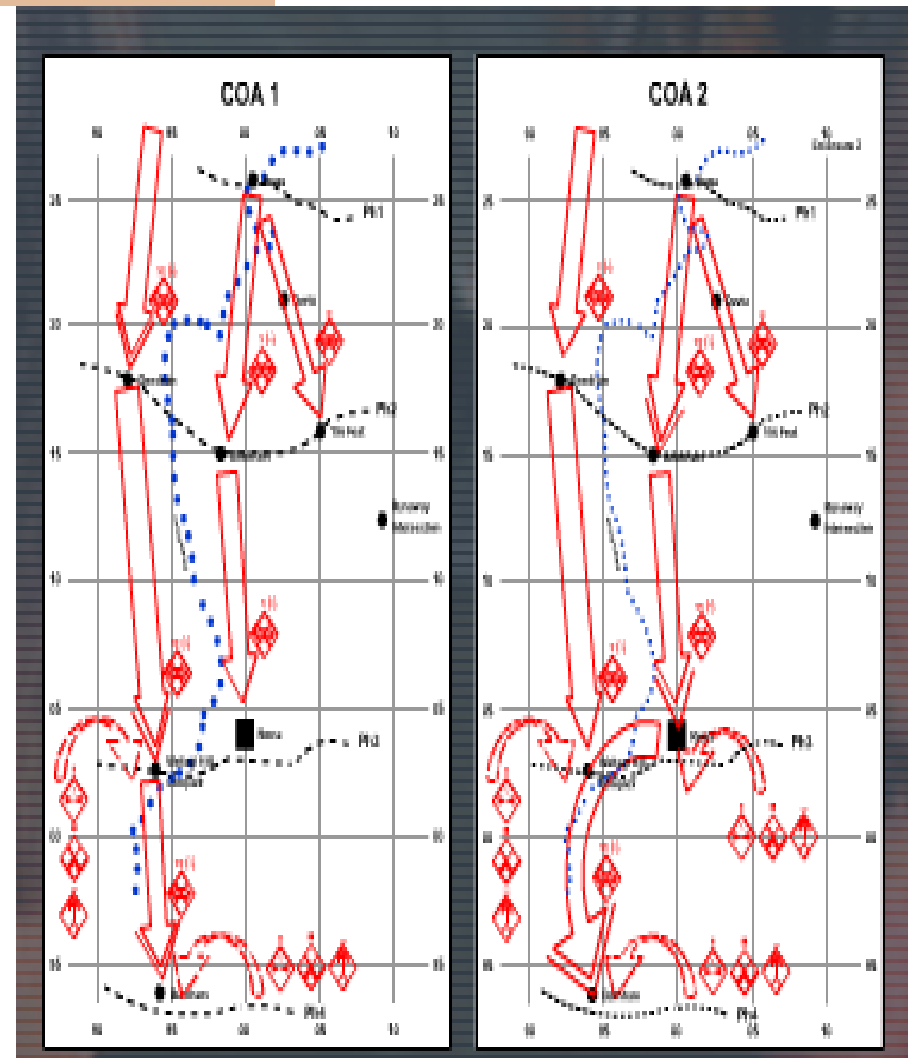


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Sub Acty 2A. Develop Threat COA

- ☐ Compare list of credible & broad COA (step 3) against threat likely obj
- ☐ Eliminate broad COAs that do not accomplish threat likely obj
- ☐ Examine the remaining COAs against the effects of the OE identified (step 2) – determine how the factors sp or limit & alter each COA
- ☐ Refines the remaining COAs into a specific COA statements





Sub Acty 2A. Factors To Be Considered

- ☐ The Threat intent & desired endstate
- ☐ Likely attk or CAttk obj
- ☐ Effects of the battlefield's environment on ops & broad COA
- ☐ Threat vulnerabilities or shortage in eqpt or pers
- ☐ Current disposn
- ☐ Loc of ME & SE
- ☐ Threat perception of friendly forces vulnerabilities
- ☐ Deceptions & threat efforts to present an ambiguous sit or achieve surprise
- ☐ Threat targeting of friendly force CV

COA 1 (Using the Centre and Right Approach)

- Threat will adv in wide front lead by tk using trunk rd as main axis MERSING – ULU SG SEDELI BESAR – KOTA TINGGI. Recon elm will be deployed well fwd . Subsidiary axis will be
- Upon approaching our def posn, recce elm will be sent to prob & ident strong & weak pt mostly during ni. Neutralisation will be done by massed fire & subsequently the threat will conduct div deliberate attk by using single envelopment onto our def loc. This manouvre permits conc of force & ensure max cbt superiority.
- 1st Ech sp by tk conducts the main attk fm right flk as ME to capture VG at the MDP rear. 2nd Ech sp by tk is to conduct supporting attk along the centre app. CAttk Gp will be deploy to repel threat CAttk initiative & act as a shock force. Comd Res will rft the 1st Ech when the attk is blunt & be deployed on orders.
- When wdr is initiated, the threat will imm conduct pursuit by outflk the wdr IOT isolate & disorg, thus denying our clean break. Throughout the attk, engr will be emp to clear obs while DAG/RAG will prov max fire sp at H-68 to weaken def posn, especially on the right app.



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Sub Acty 2B. Develop Threat COA Description and Options

- ☐ This step provides a description of the forces depicted on the situation overlay
- ☐ Should include the COA's earliest time lines, phases, decisions and the DPT
- ☐ The COA description is used to support staff wargaming and to develop the event overlay and supporting indicators
- ☐ Involves two activities which need to be performed as follows:
 - ❖ **Identify Critical Decisive Points** - recorded as critical events
 - ❖ **Identify Threat Decision Points** - associated with critical events, at which the threat commander still has options available, such as executing a branch or sequel



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Sub Acty 2C. Test COA Against Criteria

- ☐ Each threat COA is tested against the following criteria using the mnemonic FASSD:
 - ❖ **F = Feasible.** Does the COA have the physical means, time and ground and air space available to accomplish the COA?
 - ❖ **A = Acceptable.** Is the designated threat force commander willing to take the risk that this COA entails?
 - ❖ **S = Suitable.** Does the COA accomplish the threat's likely objective or desired endstate?
 - ❖ **S = Sustainable.** The COA is assessed for sustainability by phase in deep, close and rear areas
 - ❖ **D = Distinguishable.** Is the COA significantly different from the others?



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Sub Acty 2D. Produce the Situation Overlay

- ☐ Is a graphic depiction of expected threat dispositions and actions for each COA
- ☐ Should portray the full threat COA from start point to obj
- ☐ Each situation overlay should fully represent each threat COA to be wargamed in the COA analysis stage
- ☐ Detailed situation overlays are not required until COA analysis
- ☐ The commander directs which threat COA are to be developed further at the MA brief



Sub Acty 2E. Constructing a Situation Overlay

- ☐ The doctrinal overlay is merged with the MCOO relevant to the designated phase of the operation to be described
- ☐ Adjusted to fit with the reality of the OE effects as depicted in the MCOO and current knowledge of threat doctrine, objectives and intent, ME, deception and surprise
- ☐ All relevant detail must be included (eg; EA, objectives and obstacles) as well as the locations and activities of HVT
- ☐ TPL are drawn on the overlay



Time Phase Line (TPL)

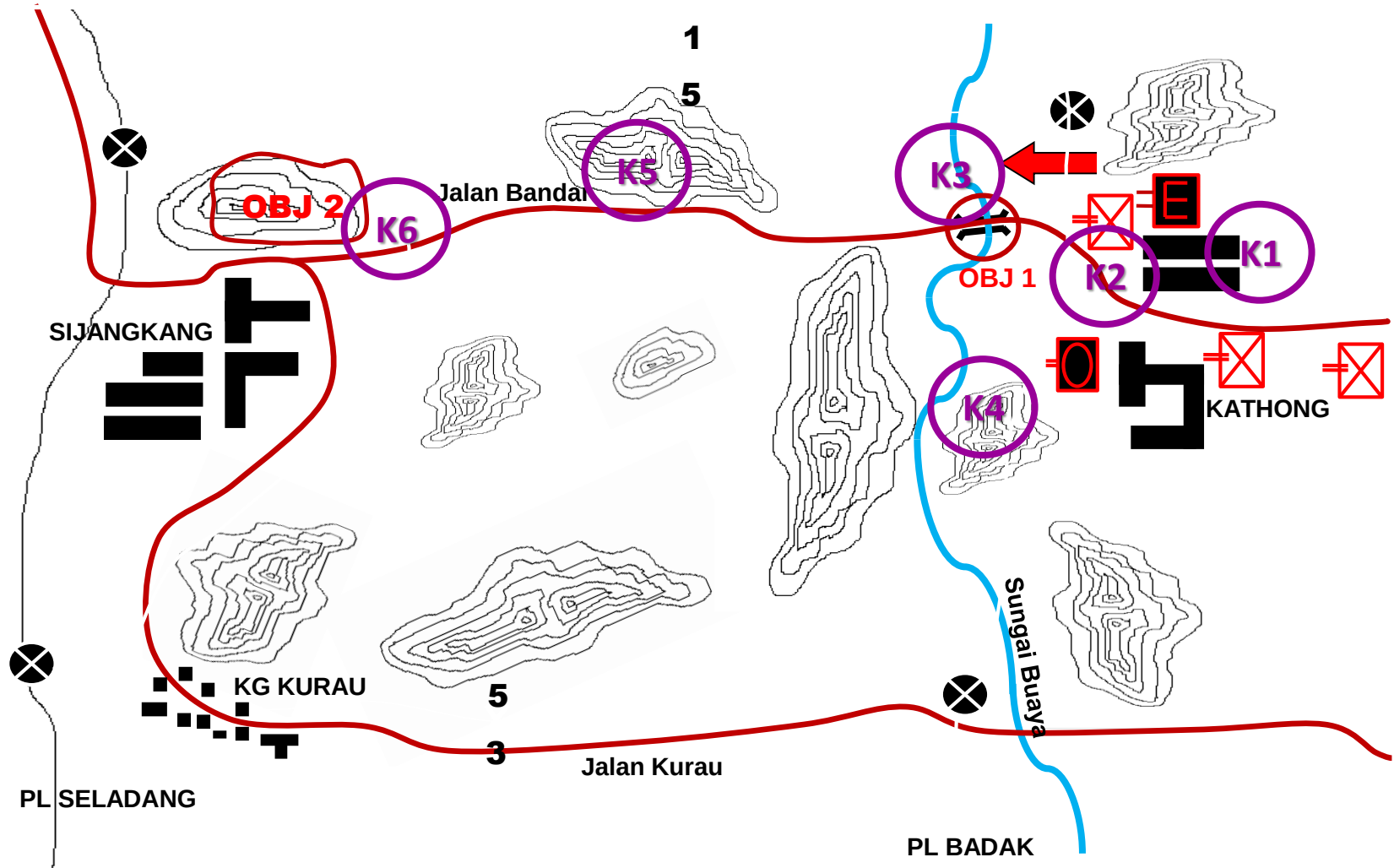
- ▣ Represent the movement of forces or flow of an operation over time
- ▣ Should account for the effects of the OE and the anticipated effects of contact with other forces

EXAMPLE:

TPL depicting threat movement through an area occupied by friendly forces should use movement rates based on a **FORCE IN CONTACT** with threat rather than convoy movement speeds

[illegible]

SIT OVERLAY



Notes:

1. Mov rate 2 km/h in contact.
2. Mov rate 3 km/h for river-X
3. Dist not to scale
4. NAIs chosen based on result of terrain analysis.
5. TAIs chosen based on doctrinal & terrain analysis.
6. DPT based on CE.



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Sub Acty 2F. Produce an Event Overlay

- ☐ It forms the foundation for synchronising intelligence collection and for the commander's decision support graphics
- ☐ To determine where all critical events are likely to occur, so that NAI and DPT can be identified for collection by RSI platforms
- ☐ The event overlay uses the situation overlay to determine where all CE are likely to occur – NAI and DPT can be identified
- ☐ Indicate known locations within each COA where threat assets are vulnerable to friendly targeting – TAI

Target Areas of Interest. TAI are geographical areas or points, usually along an MC, where CV are exposed to targeting by the friendly force



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Sub Acty 2F. Produce an Event Overlay

- ☐ The collection that occurs at NAI will assist the staff to confirm or deny which COA the opposing forces are conducting
- ☐ NAI will assist the staff to confirm or deny which COA the opposing forces are conducting
- ☐ NAI are prioritised in order to best employ the finite collection resources available to the commander

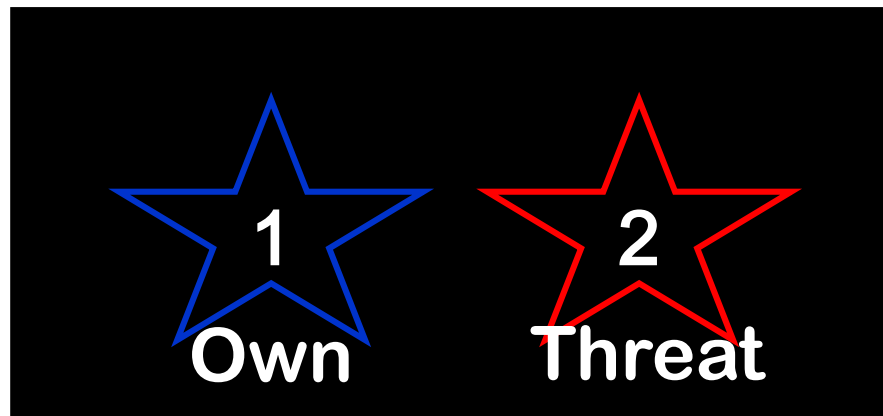
Named Areas of Interest. NAI are a geographical areas where information is gathered to satisfy specific IR



DECISION POINTS (DPT)

- ▣ A pt or line usually along a MC where presence of the threat forces cues the comd to make decision
- ▣ Decision pt needed to be ident **BEFORE** the TAI

Symbol:

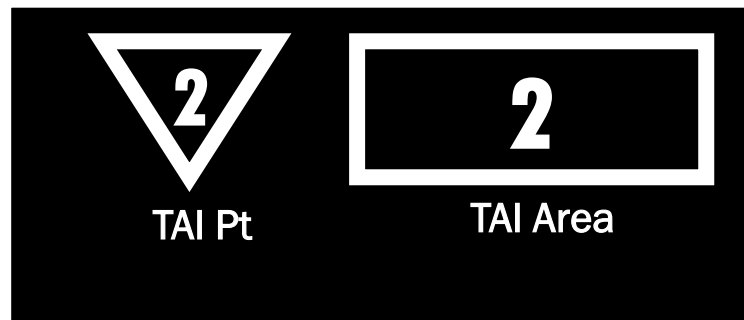




Identify Targeted Area of Interest (TAI)

- ☐ TAI - Represent areas where the comd can influence the battle by destroying, delaying or disrupting the threat.
- ☐ Area or pt, usually along the MC, where threat BOS are vulnerable to be targeted
- ☐ Normally linked to the relevant NAI & DPT.
 - ❖ Likely loc to posn recce or gnd force - WHERE YOU EXPECT TO STRIKE SOMETHING.
 - ❖ Example; br, choke pt, rd junc, known fording site etc.

☐ Symbol -

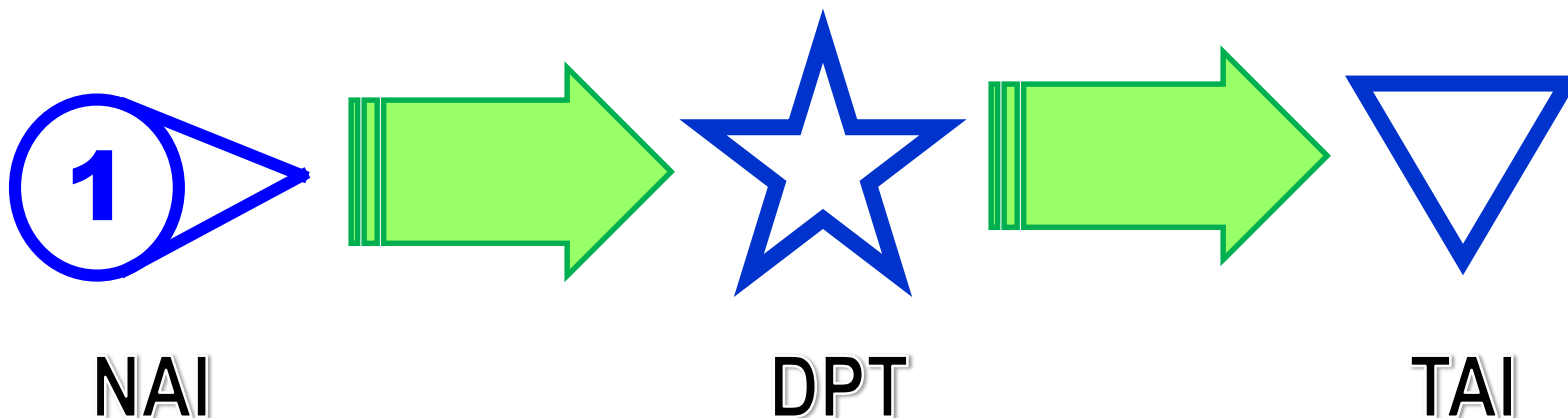




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SEQUENCE



- Where to look?
- What to look?
- When to look?

EMP YOUR RSI
ASSET HERE

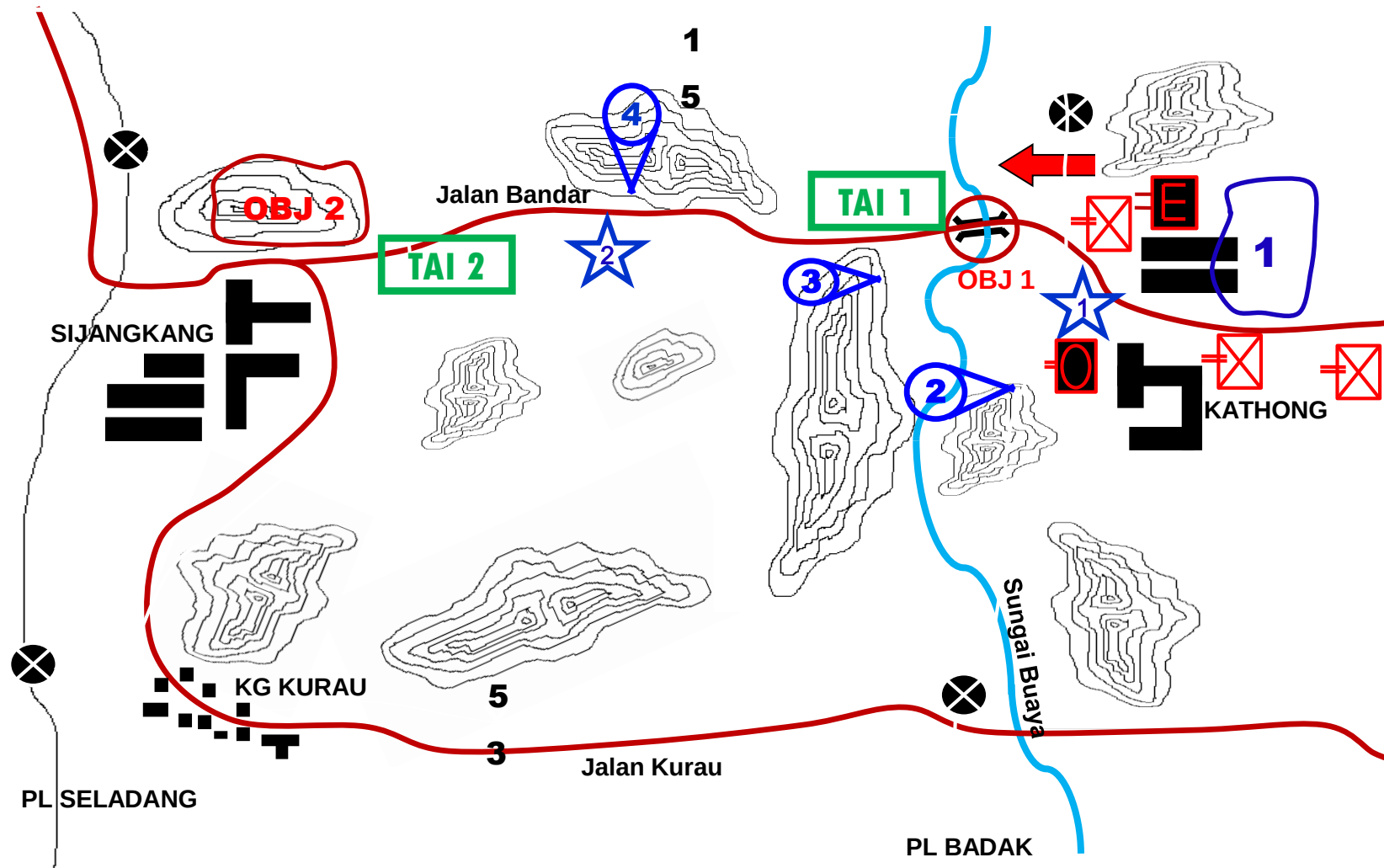
- Where tgt is identified to app TAI.
- To report when tgt can be engaged.

MAKE THE DECISION NOW

Where threat can be
engaged to the best
effect.

STRIKE!

EVENT OVERLAY



Notes:

1. Mov rate 2 km/h in contact.
2. Mov rate 3 km/h for river-X
3. Dist not to scale
4. NAIs chosen based on result of terrain analysis.
5. TAI's chosen based on doctrinal & terrain analysis.
6. DPT based on CE.

EVENT MATRIX

(Example – does not correlates to previous slide)

AVE APP 1

NAI/ TAI/ DPT	Indicators/ Acty	NET NLT	Loc (distance)	ROM (km/h)	Time Obsn	Time Cfm	Remarks
NAI1	Mov of Bn size gp with br assets	H+4hr H+5hr	VK 123456 (50km)	40	280700H	280745H	Doctrinal ROM mounted
NAI2	Br assets conc in Assy A	H+2.5hr H+3.5hr	VK 103256 (30km)	20	281100H	281115H	Being help until home bank is secure
DPT 1	4-5 APC possibly dismtd						
TAI1							



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Sub Acty 2G. Produce an Event and RSI Matrix

- ☐ Is a collection of indicators of threat
- ☐ Can be used in the development of the RSI plan

Where? (NAI)	What? (Indicators)			When?	Notes
	Most Likely COA	Most Dangerous COA	COA x		
NAI 1	Tank Coy + Mech Bn	Tank PI + Mech Coy		H-30 to H-15	ME fm east (single penetration)
NAI 2	Tank PI + Mech Coy	155 Howitzer Coy		H-30 to H-15	ME fm north (single envelopment)
NAI 3	155 Howitzer Coy			H-60 to H-Hour	Best OS loc
NAI 4	81mm Mortar PI			H-45 to H-Hour	ME fm east
NAI 5		81mm Mortar PI		H-45 to H-Hour	ME fm north



Acty 3. Analyze COG and Build Construct

- ☐ The staff must now focus on determining the CV for subsequent selective targeting and development of DP
- ☐ Analysing the COG to determine the CV is the COG construct.
- ☐ Each COG comprises the sum of its critical factors — capabilities, requirements and vulnerabilities



Acty 3. Analyze COG and Build Construct

Carl Von Clausewitz

VS

Dale C Eikmeier

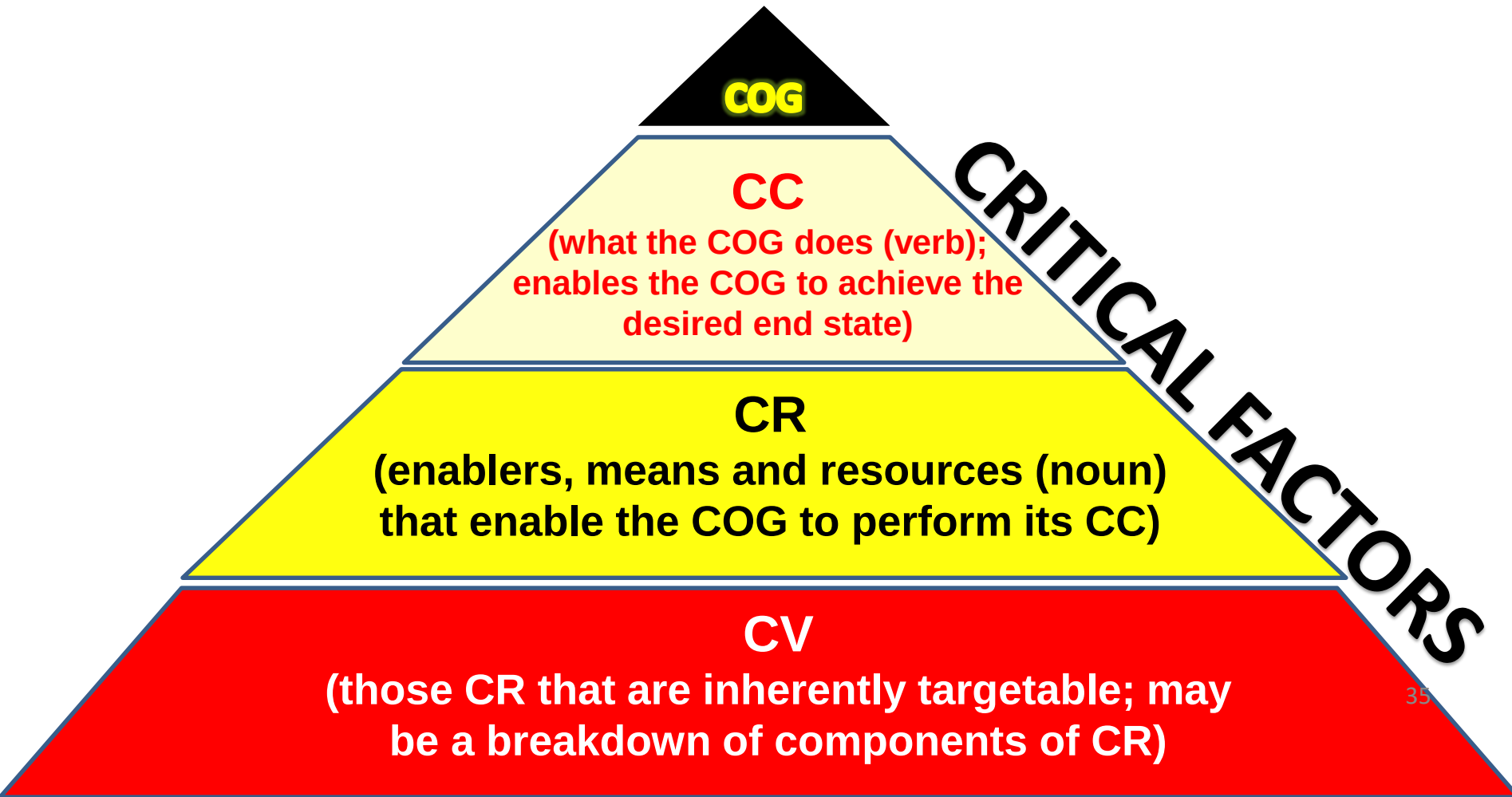
“The **source of power** that provides moral or physical strength, freedom of action or will to act”

“The **primary entity** that possesses the inherent capability to achieve an objective or the desired end state”

COG CONSTRUCT

The primary entity that possesses the inherent capability to achieve an objective or the desired end state

3 Elm of COG Construction:

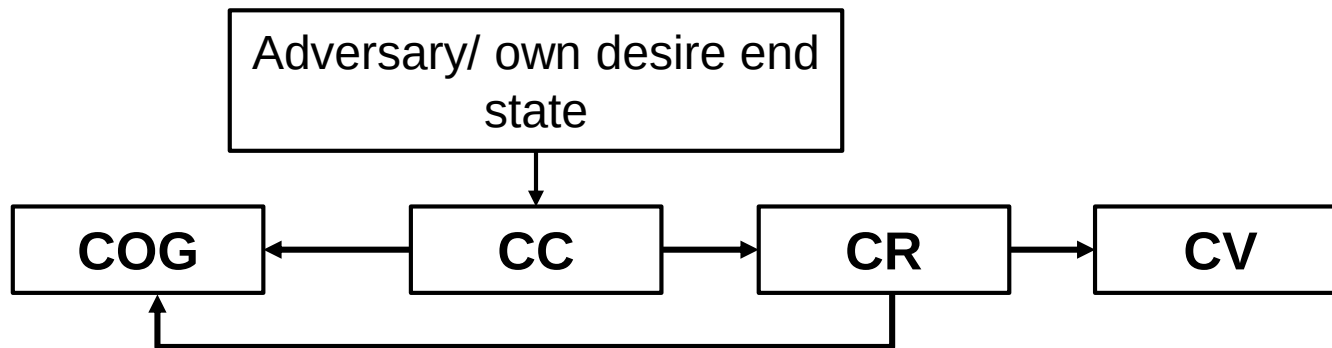




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Identifying A Centre Of Gravity



- ☐ Begin with - What is it that we and an threat are seeking to achieve? What is the primary goal? (what is most likely to be the desired end state and/or objectives?)
- ☐ Once the desired end state has been articulated - What are our own/the adversary's capabilities that are employed to reach that end state and which are critical to achieving the desired outcome? (What are the ways (verb) to arrive at operational success?)
- ☐ Having listed the CC - Ascertain if there is a significant enabler of the CC (Is there an entity (or entities) that produces all or most of the CCs in order that the objective can be achieved?)
- ☐ From this further analysis should emerge a prime means (noun) or entity without which we/the threat cannot achieve an objective.
- ☐ That entity is a likely **COG**



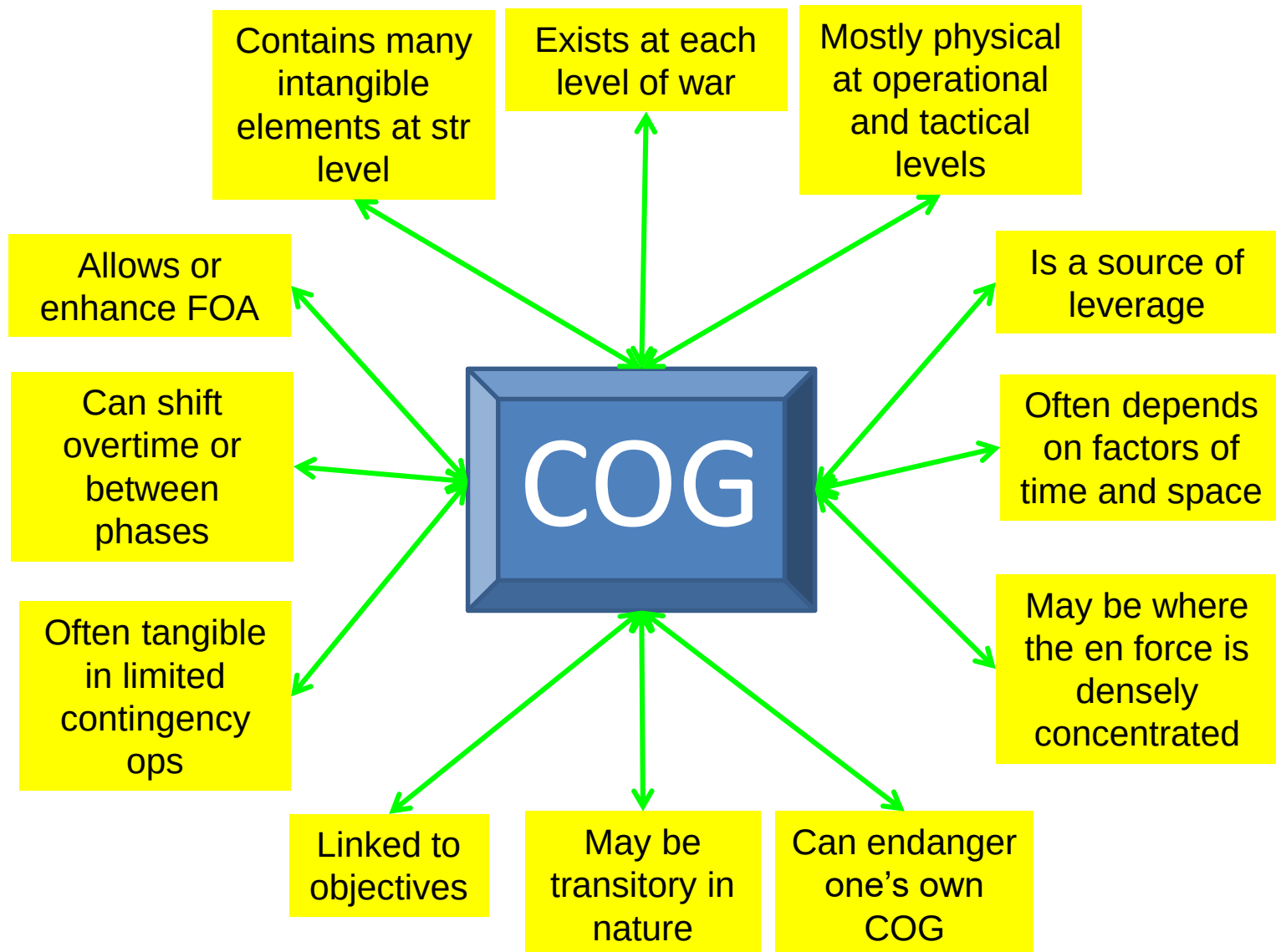
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CENTRE OF GRAVITY

COG The primary entity that possesses the inherent capability to achieve an objective or the desired end state	CC (what the COG does (verb); enables the COG to achieve the desired end state)	CR (enablers, means and resources (noun) that enable the COG to perform its CC)	CV (those CR that are inherently targetable; may be a breakdown of components of CR)
Amphibious Task Group	Ability to manoeuvring of combat forces to seize and hold key ground	Motorised Infantry	Vehicles
			Personnel
		Mobility support	Mobility support asset
		Offensive support	Indirect fire weapons platforms
		C2 platforms	Rigid C2 system with vulnerable nodes
		AAW (Anti-Air Warfare)	Air defence platforms

Characteristics of COG





Acty 4. Evaluate And Prioritize Threat COA

- ☐ The full range of credible threat COA must be evaluated and prioritised according to assessed likelihood
- ☐ Identify each COA's strengths and weaknesses by:
 - Evaluate impact of OE's effect on COA
 - Identify degree of risk
 - Identify each COAs potential to be use as deception
 - Identify each COAs potential to surprise
 - Evaluate threat current disposn & acty to determine if one COA already being favored one another
- ☐ Comparing the info of COAs & rank them in order of likelihood – MLCOA & MDCOA



Acty 4. Evaluate And Prioritize Threat COA

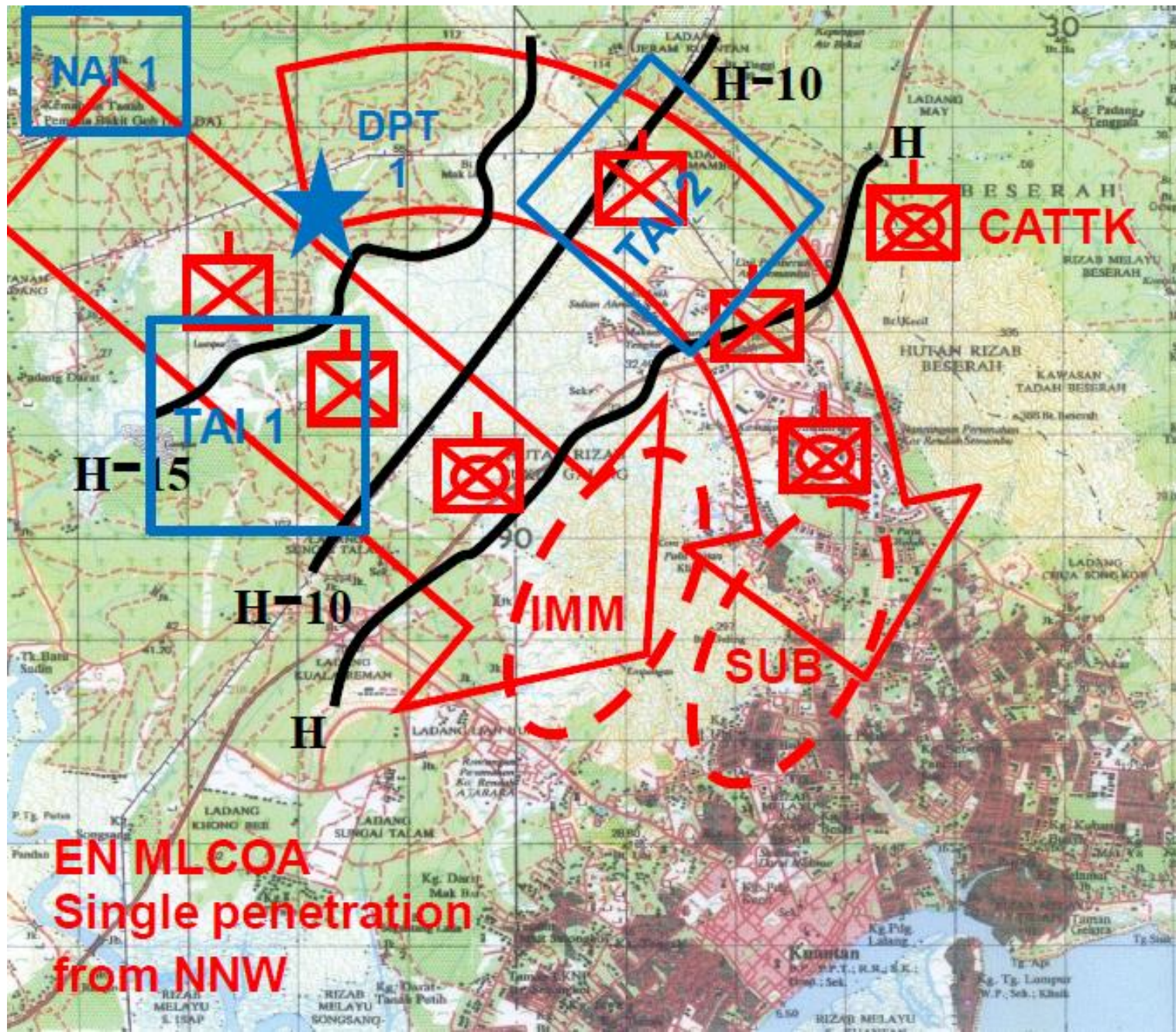
- **Most Likely COA** is that which most likely replicates enemy preferred tactics and doctrine.
- It may include aspects relative to the most likely approach direction to capture designated objectives
- **Most Dangerous COA** is that which stands to have the greatest impact on friendly force mission and cause it to fail
- Also consider:
 - Current reporting
 - Deception



Acty 5. Compile the Combined COA Overlay

- ☐ For each COA it shows the combination of situation and event overlays
- ☐ Enables the identification of NAI and DPT regardless of which COA is taken
- ☐ Contributes to friendly force development of an RSI plan

Example Combined COA Overlay/Situation





ACTY 6. PRODUCE ICP

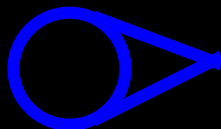
- ▣ 3 steps taken in producing the RSI Plan:
 - ▣ Identify Indicators
 - ▣ Identify NAI
 - ▣ Recommend RSI Assets for Collection

Identify Indicators

- ☐ Unique threat acty or capabilities – if revealed, will fulfill info requirements .
- ☐ Collection effort must concentrate on those indicators that prove or disapprove which enemy COA that has been chosen.

NAI

- ☐ Area where info can be collected – Prov obj basis for the employment of int gathering assets.
- ☐ NAIs usually selected to capture indications where CE are expected to occur – confirm or deny threat intention or acty.
- ☐ May incorporate a specific pt, area or route. Symbol used: -



NAI Pt



NAI Area



NAI Linear

Use colour **BLUE** or **PURPLE**

List of NAIs & Indicator (Sample)

NAI No.	Expected Time Activated		Indicator
	NET	NLT	
NAI 1	D - 1	H – 120	Engr preparation of arty posn
NAI 1	H - 120	H – 30	Arty occupies firing posn
NAI 1	H -60	H – 15	Arty commences prep fire
NAI 2	H- 120	H – 90	Cbt Recon Ptl conducts route recon
NAI2	H 60 – 90	H – 30 min	Rifle Coy in march fmn

- Determine where event will occur that differentiate between Threat COAs (these become NAIs)
- Determine what action confirms or denies a particular Threat COA (indicator)
- Determine when event will occur (NET/NLT)

Task Int Gathering Assets

- ☐ The list of NAIs is promulgated as the RSI Plan.
- ☐ Int gathering assets are tasked to observe NAIs.

PIR	NAI TAI DPT	Loc	Indicators	Tasked Sub Unit					Req Reports
				1 Bn	2 Bn	MI Bn	Arty	Cav	
1.	NAI 1	GR 327313	Threat OP – KT 1	Rec Sect					Report to Bde HQ NLT 1600H
2.	NAI 2	GR 289295	Threat OP – KT 2		Rec Sect				Report to Bde HQ NLT 1630H
3.	NAI 3	GR 285287 (Br)	Threat Cbt Recon elm in area along our home bank)			UAS Sect			Report size orientation to Bde HQ NLT 1700H
4.	NAI 4	GR 227259 (Br)		Sniper Sect					Report to BDE HQ



Sub Acty 6B. Refine The HVT Matrix

- ▣ Compare Threat BOS with COAs
 - Describe how & where each BOS prov sp for each threat COA.
 - Identify any BOS that must be use to sp threat COA
 - Reorder HVT pri list
- ▣ Identify Targeted Area of Interest (TAI)
- ▣ Reprioritise the HVT Matrix

STEP 4 OUTPUT

- ☐ Threat COA

 - ❖ MLCOA

 - ❖ MDCOA

- ☐ COG & List of Threat CV for possible tgt

- ☐ Sit overlay per COA

- ☐ Event overlay

- ☐ Event matrix

- ☐ Combined COA Overlay/Situation

- ☐ Intelligence Collection Plan

- ☐ Identify Indicators



HOW to conduct IPOE?

- 1** Define the Operational Environment
- 2** Describe the Operational Environment Effects
- 3** Evaluate the Threat
- 4** Determine Threat COAs

DIAGRAM OF IPOE PROCESS & OUTPUTS

IPOE

**Graphics Output
(Overlays & Matrix)**

Written Outputs

AO / AI

Define the Operational Environment

Fact

MCOO

Describe the OE Effects

**AO / AI
Analysis**

**Threat Template
& HVT Matrix**

Evaluate the Threat

**Threat ORBAT
&
Characteristics
Threat COG,
CV & full
range of COA**

**Threat COA,
Refined HVT, Event
Matrix,
Initial Event
Overlay**

Determine Threat COAs



KEY TAKEAWAYS

- The four step process in IPOE is designed to enable you to analyze the effects of weather and terrain on both friendly and en's COA & ultimately, to make predictions to the commd on en's actions
- IPOE utilizes a series of written product, overlays and matrices
- IPOE allows Int activities to be synchronized with maneuver & fire power assets to defeat threat as it identified on the battlefield



KEY TAKEAWAYS

- Each function in the process is performed continuously to ensure that the products of IPOE remain complete and valid
- As a tools multiplier for commander to provide direction to the intelligence system throughout the current mission and into preparation for the next and that critical and scarce Reconnaissance, Surveillance and Intelligence (RSI) assets are effectively utilised and employed for the commander to achieve mission success.



Clarification and Questions