



Lesson 3.5b

Analysis of the Operating Environment (AOE)

Operating Environment Evaluation;
Analysis of the Physical Terrain (PT)



Content

- APIR and APII
- Mapping
- Terrain features and key facilities
- LLOCs, WLOCs, relief and vegetation



Learning Outcomes

- Explain Area of Peacekeeping Intelligence Responsibility (APIR)
- Explain Area of Peacekeeping Intelligence Interest (APII)
- Using a map conduct an analysis of PT, including identifying terrain features and key facilities
- Identify key LLOCs, WLOCs, relief and vegetation



Relevance

- Movement is constrained and restrained by physical terrain (PT)
- Physical terrain is affected by climate and weather
- Human, information domains exist in physical terrain
- COAs can exploit the opportunities that Physical Terrain provides
- Terrain affects the COAs available to actors that pose as a threat to the UN mandate



Activity

Importance of Physical Terrain in military operations

Instructions:

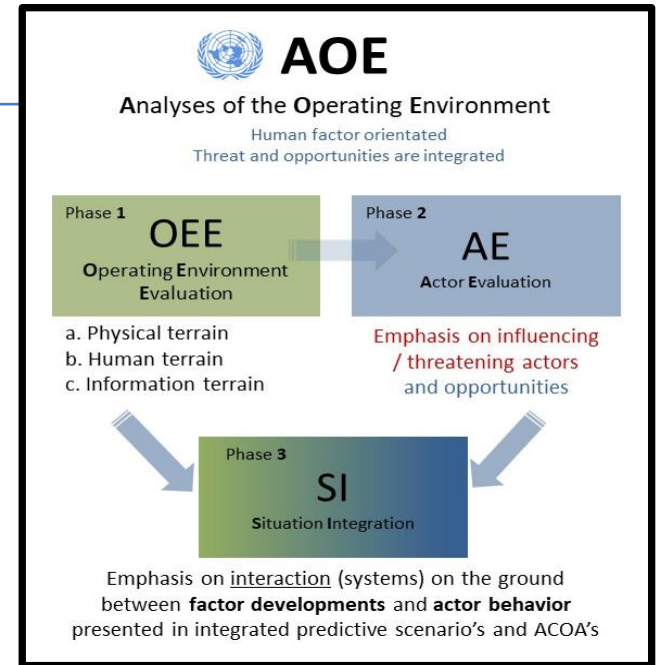
- Discuss what is meant by the "Physical Terrain" (PT)
- Discuss how the Physical Terrain is affected by climate and weather and its impact on the conduct of military operations.
- Illustrate by using examples from military history or your own experiences where a good analysis of the Physical Terrain resulted in the success of a mission and/or where a poor analysis of the Physical Terrain seriously hampered or even prevented the accomplishment of a mission

Approximate Time: 15-20 minutes



Where is Analysis of Physical Terrain in the AOE process?

- **Analysis and conclusions of PT, plus conclusions on Climate & Weather**
- **Analysis and conclusions on Human Terrain (HT)**
- **Analysis and conclusions on Information Terrain (IT)**





Physical Terrain is one of 3 interconnected layers in OEE



AOE

Analyses of the Operating Environment

Human factor orientated
Threat and opportunities are integrated

Phase 1
OEE
Operating Environment Evaluation

a. Physical terrain
b. Human terrain
c. Information terrain

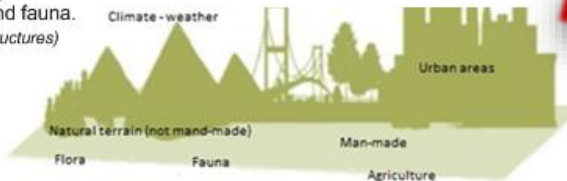
Phase 2
AE
Actor Evaluation

Emphasis on influencing / threatening actors and opportunities

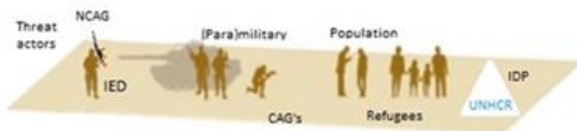
Phase 3
SI
Situation Integration

Emphasis on interactions (systems) on the ground between **factor developments** and **actor behavior** presented in integrated narrative scenario's and ACOA's

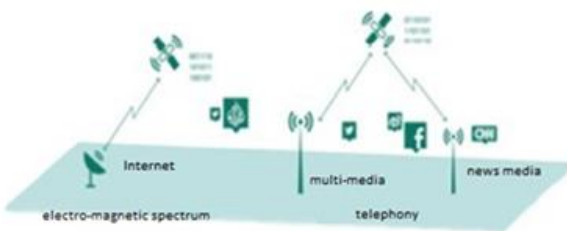
Physical Terrain (FT)
incl. Climate, weather, flora and fauna.
(Natural and man-made – infrastructures)



Human Terrain (HT)
(Actors and groups)



Information Terrain (IT)
(Factors and relations)



Three 'terrains' are interrelated



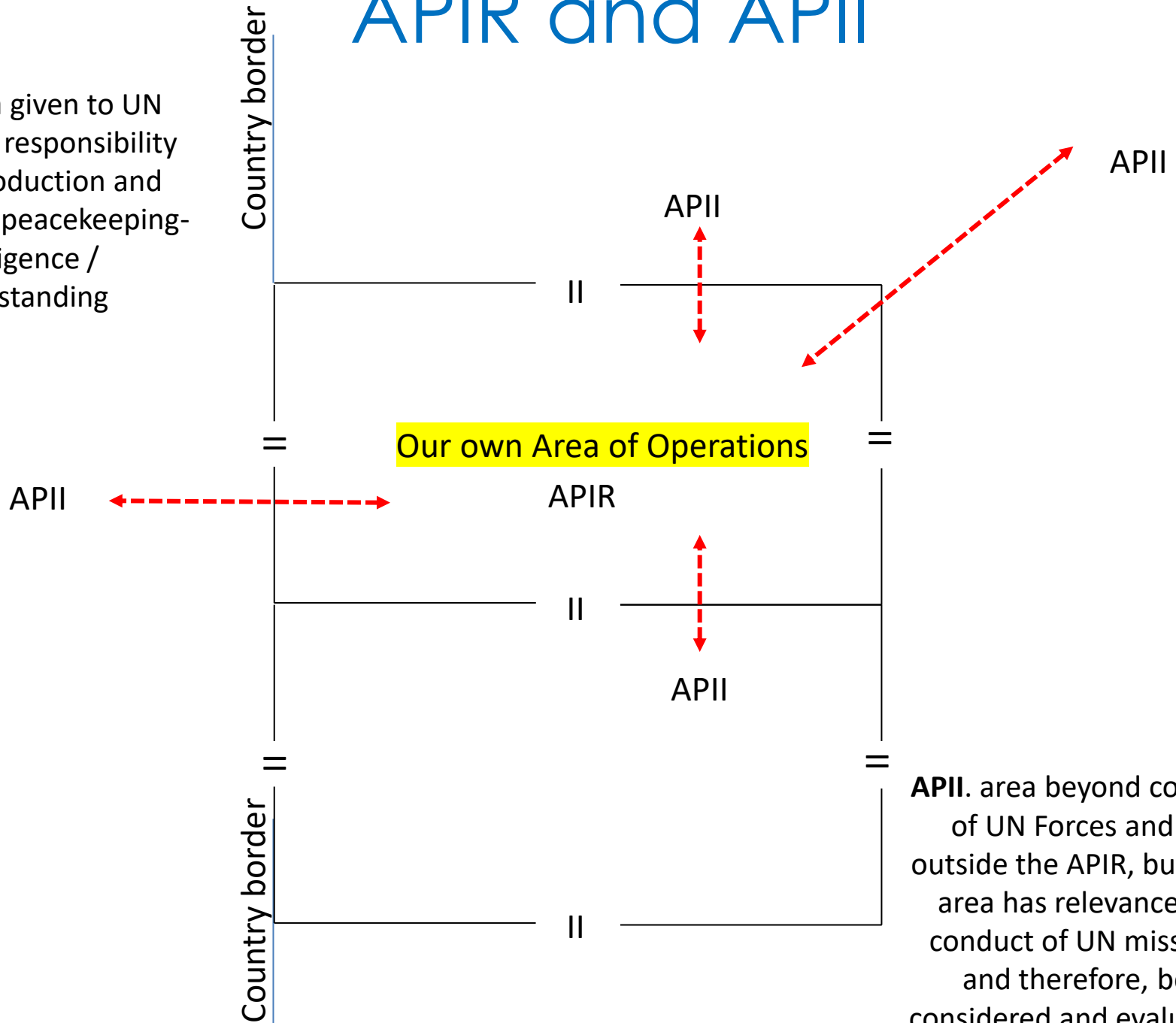
Physical Terrain

- **Living space** for actors:
 - Live on land and off
 - Influenced by where, when they can live move and work
 - How they use it
- **Focus** on Area of Peacekeeping-Intelligence Responsibility (APIR)
- And wider Area of Peacekeeping-Intelligence Interest (APII)
- Helps visualization of OE



APIR. area given to UN Forces; has responsibility for the production and provision of peacekeeping-intelligence / understanding

APIR and APII



APII. area beyond control of UN Forces and is outside the APIR, but this area has relevance to conduct of UN mission and therefore, be considered and evaluated



Learning Activity

How to analyze and evaluate the Physical Terrain (**PT**):

- **Situation:**
 - Use the scenario to identify APIR and APII
- **Task:**
 - Define the Area of Peacekeeping Intelligence Responsibility (APIR) and the Area of Peacekeeping Intelligence Interest (APII)
- **Time:** Approx. 10 min -group work and discussion



Terrain Features

- Physical Terrain consists of two distinct terrain features:
 - Natural
 - Manmade



Learning Activity

- **Situation:**

- Use the scenario to identify terrain features

- **Task:**

Use mapping and other assets to:

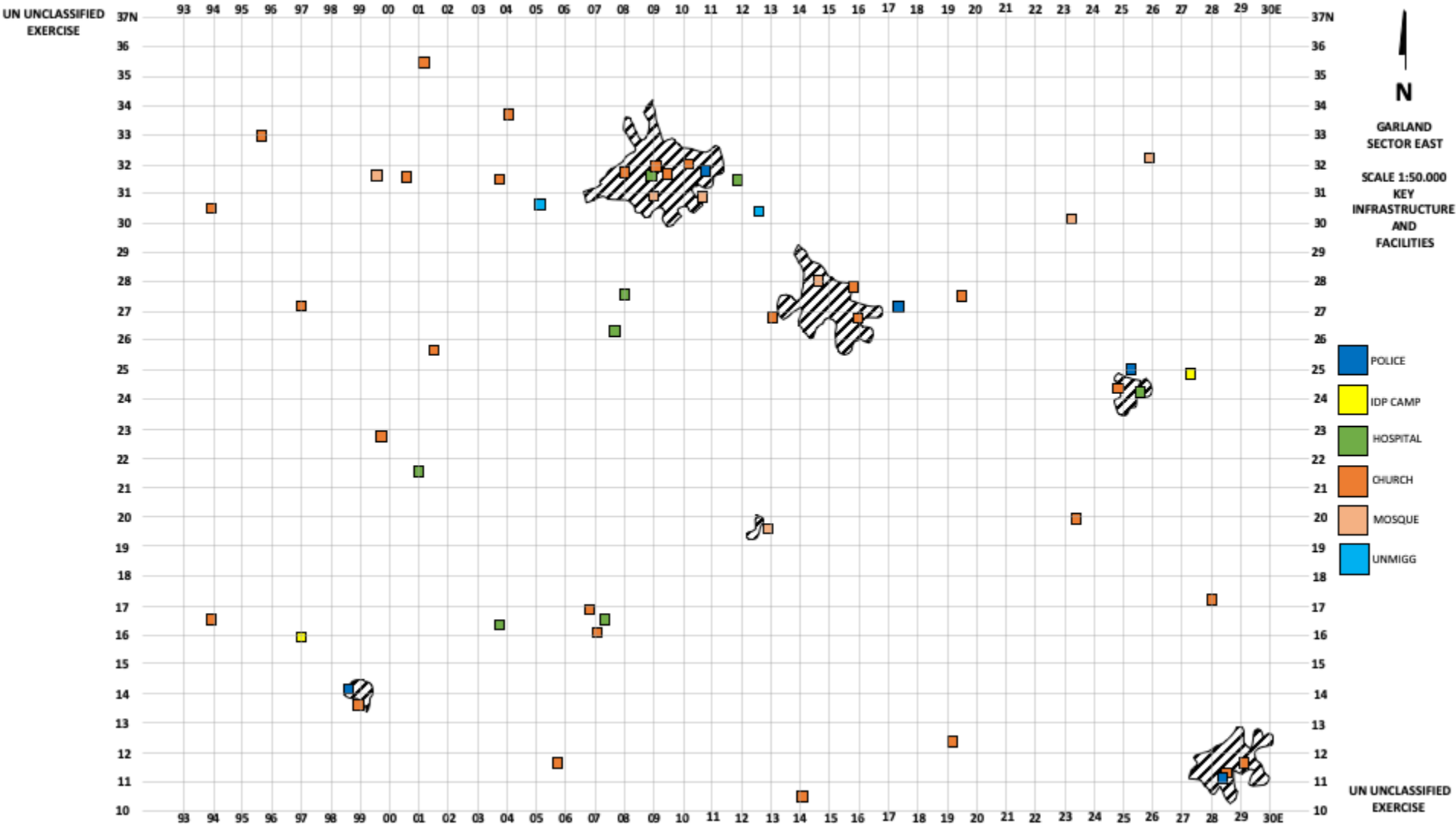
- Identify physical terrain features (Natural and man-made)
- Mark on map

Key Question: How will this affect the actions of the human terrain?

- **Approx. Time: 10 Min**



Example of a map showing key facilities





Learning Activity

Example of 3CF analysis of key facilities in Sector EAST

FACTOR	DEDUCTION	OUTPUT
Physical terrain:	1.1 LL EAST – WEST	1.1 IR
1. LLOC in SCT EAST	1.1.1 Main LL is critical for both UN / UNHCR / LP / AG	- What is the condition of the road?
2. Entrances to SCT EAST	2.1 Main entrance from ERIYA to GARIYA	- What is the type of surface
3. Airfields in SCT EAST	2.1.1 LLOC through mountains	2.1 IR
4. Relief in SCT EAST	2.1.2 LLOC go's through tunnel	- What are the characteristics of the tunnel surroundings
5. Bridges in SCT EAST	2.1.3 Tunnel is key entrance	5.1 IR
	3.1 1x Airfield in SCT EAST	- Condition of the bridges
	4.1 Strong relief EAST of SCT EAST	- Classification of the bridges
	5.1 Bridges in SCT EAST	RFI
	5.1.1 3x bridges are critical for entrance from ERIYA	



Learning Activity

Key Facilities

- **Situation:**
 - Use the scenario to identify all key facilities in your AIR
- **Task:**
 - Study your sector map and identify key facilities
 - Mark on Map with a clear legend
 - Insert factors into the 3-column format (3CF) and make deductions
 - Draw up a list of IRs
- **Time:** Approx. 20 minutes (group work and discussion)

FACTOR	DEDUCTION	OUTPUT
Bridges	Are bridge classifications sufficient for UN convoys?	RFI
Dam at X		
Electric power plant at Y		



Types of Terrain Analysis and Overlays to Complete




Use of mapping

- Accurate up-to-date mapping is essential
- Digital and analogue
- Map scale: 1:50,000 or 1:100,000 for OE
- Details and clarity important
- Close-up imagery for conducting small-unit operations
- Use separate overlays or digital overlay layers
 - Don't reproduce map, highlight objects, elements for making conclusions
- One overlay per specific topic/factor to focus information and to combine single overlays as needed



Overlay Symbols

-  Key Terrain
-  Restricted Terrain
-  Severely Restricted Terrain
-  Built/up Areas
-  Rivers & Lakes
-  Land Lines of Communications (**LLC**)
-  Rail road
-  No go waterway
-  Slow go waterway*
-  Bridge
-  No go waterway**

* **Outside** Rainy season

** Already in Slow- or No go area









Terrain Overlays

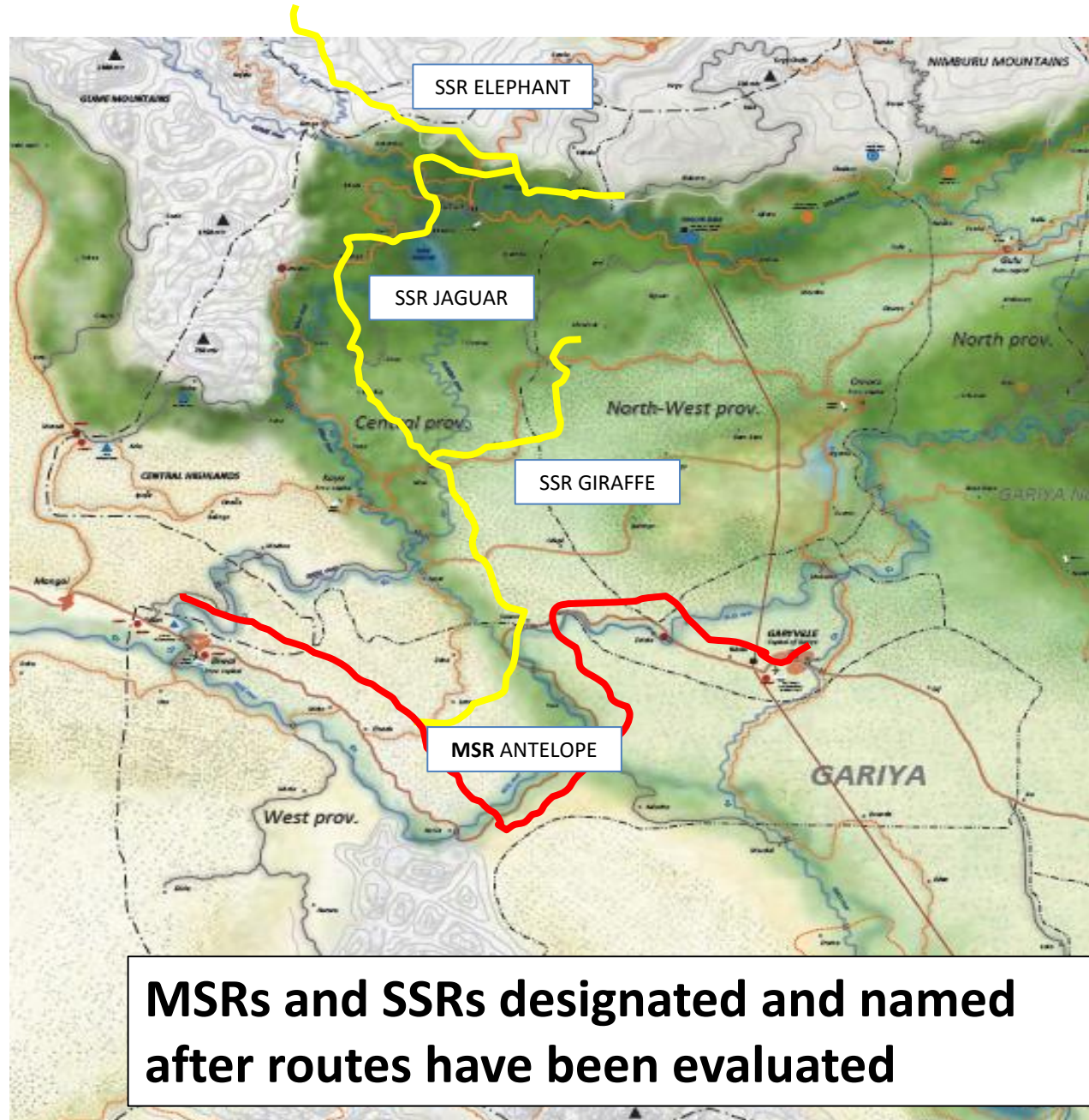
The different Terrain Overlays that allow us to conduct the analysis of military aspects of the terrain are:

- Land Lines of Communication (LLOC)
- Water Lines of Communication (WLOC)
- Relief
- Vegetation



Land Lines of Communication (LLOCs)

-  Key Terrain
 -  Restricted Terrain
 -  Severely Restricted Terrain
 -  Built/up Areas
 -  Rivers & Lakes
 -  Land Lines of Communications (LLOC)
 -  Rail road
 -  No go waterway
 -  Slow go waterway*
 -  Bridge
 -  No go waterway**
- * Outside Rainy season
** Already in Slow- or No go area



MSRs and SSRs designated and named after routes have been evaluated

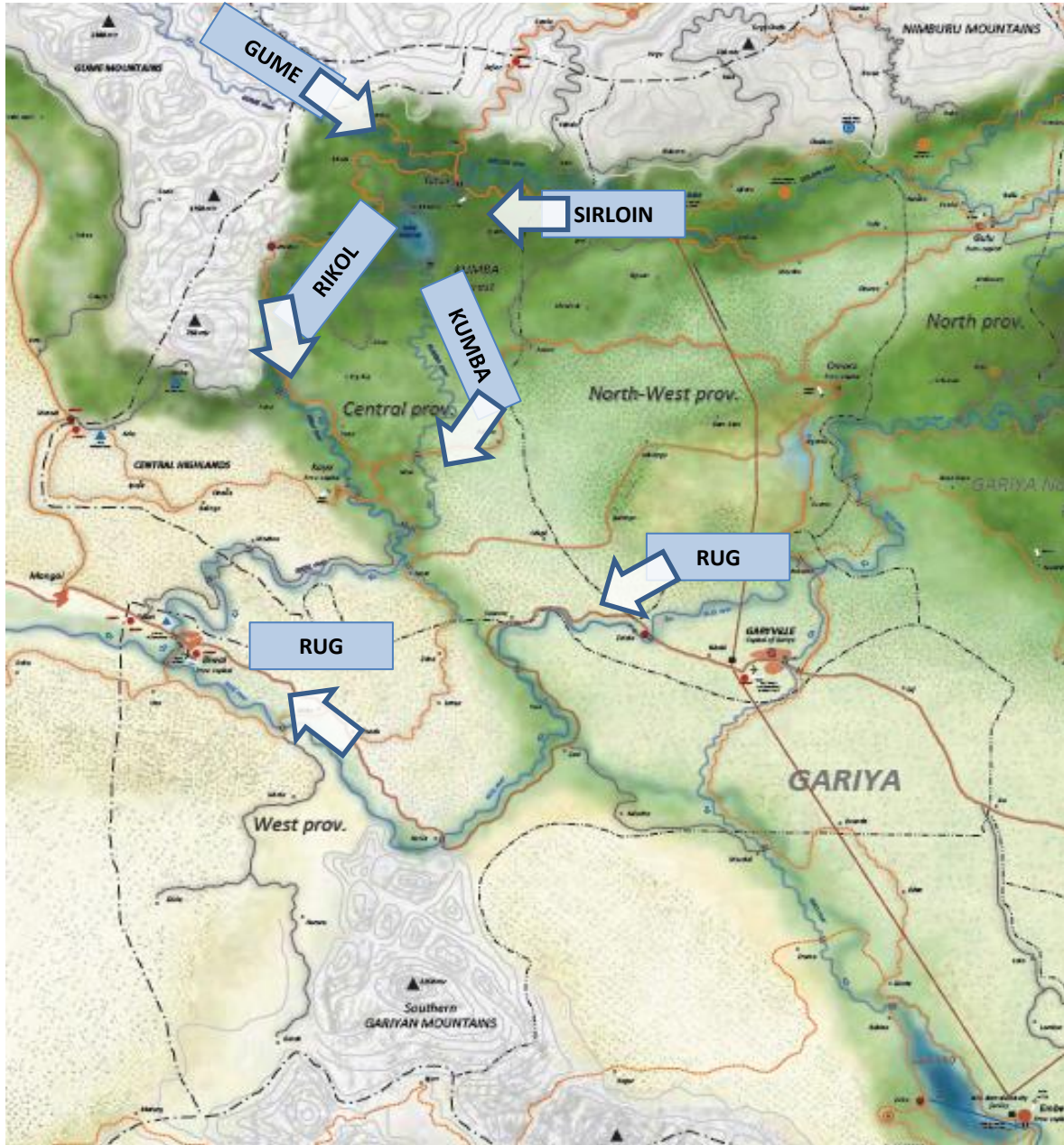


Water Lines of Communications(WLOCs)

-  Key Terrain
-  Restricted Terrain
-  Severely Restricted Terrain
-  Built/up Areas
-  Rivers & Lakes
-  Land Lines of Communications (LLC)
-  Rail road
-  No go waterway
-  Slow go waterway*
-  Bridge
-  No go waterway**

* **Outside** Rainy season

** Already in Slow- or No go area





Relief

 UNIGAR – GARYA main map (PKMI pilot course 2019-1)

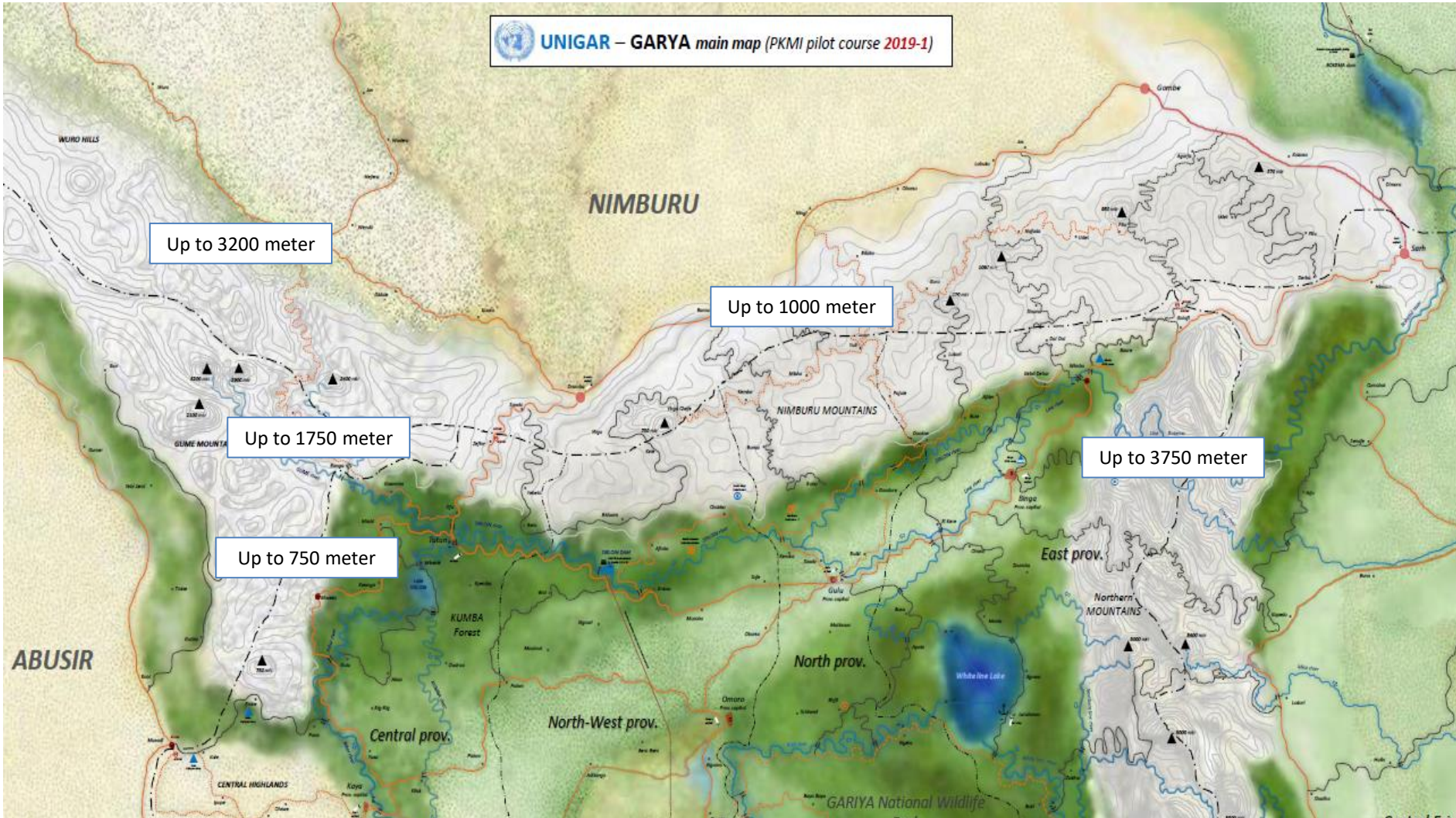
Up to 3200 meter

Up to 1000 meter

Up to 1750 meter

Up to 3750 meter

Up to 750 meter





Vegetation

LEGEND



Lake



Jungle / Rainforest / woodlands



Grassland type Savannah



Savannah



Desert



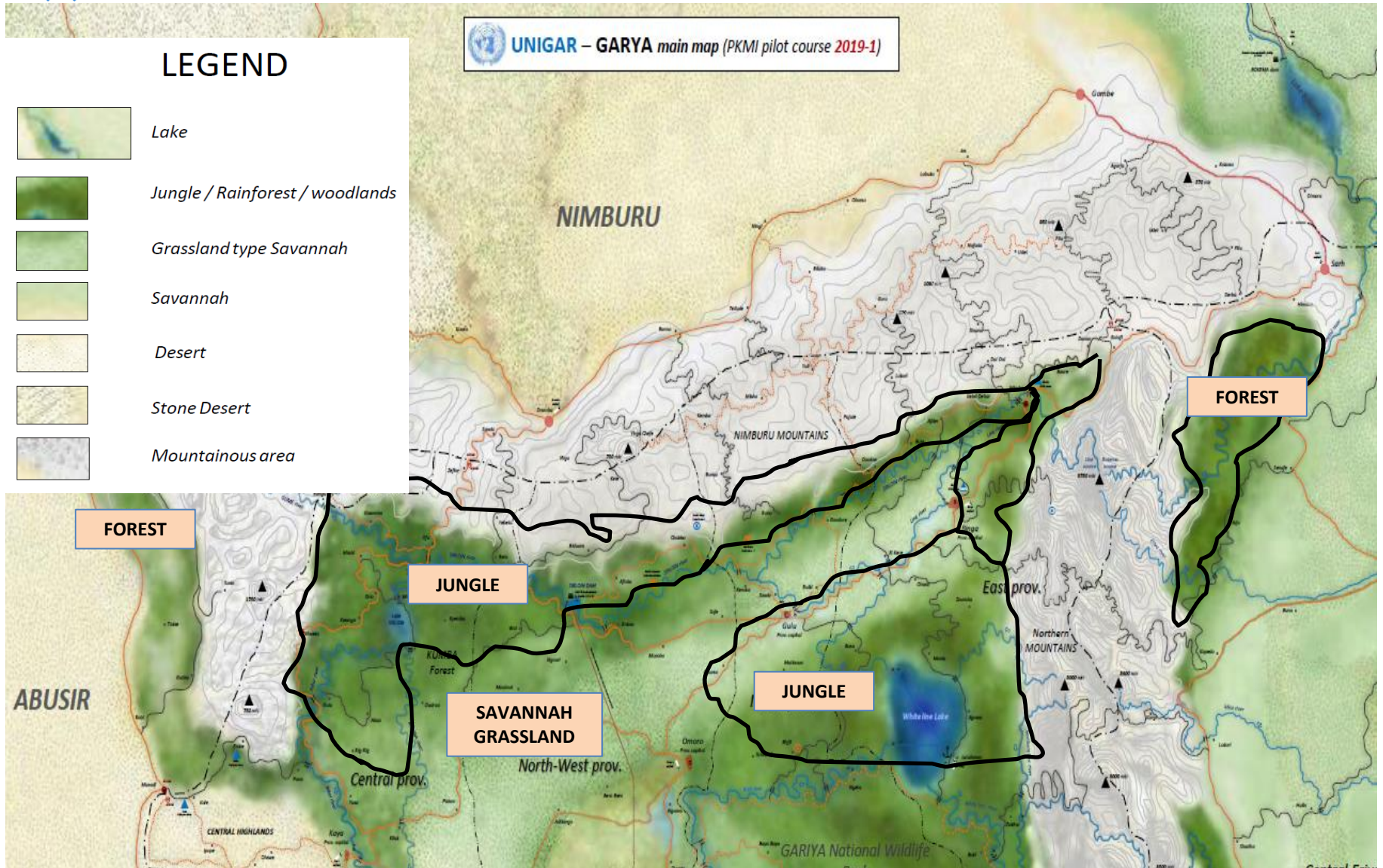
Stone Desert



Mountainous area



UNIGAR – GARYA main map (PKM pilot course 2019-1)





Learning Activity

- **Situation:**
 - Use the scenario identify LLOCs, WLOCs, Relief, Vegetation in the AIR
- **Task:**
 - Study sector map; identify key LLOCs, WLOCs, Relief and Vegetation
 - Mark on Map with a clear legend
 - Insert factors into the 3-column format (3CF) and make deductions
 - Draw up a list of Information Requirements
- **Time:** 30 minutes (group and discussion)

FACTOR	DEDUCTION	OUTPUT
MSR from Town A to B	Threat Actor A needs to control for supplies. May challenge UN FOM UN need to control MSR. Local population requires security in this area.	RFI. Where are vulnerable areas for UN convoys



Take Away

- Understand Area of Peacekeeping Intelligence Responsibility (APIR) and term Area of Peacekeeping Intelligence Interest (APII)
- Be able to conduct a simple analysis of the PT of an area of operations
- Identify terrain features and key facilities
- Identify key LLOCs, WLOCs, relief and vegetation
- Integrate your analysis into the broader AOE/MPKI products



Questions