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Counter Trafficking System Development "Analysis Training Program"

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Disclaimer

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Lawrence Livermore National Laboratory
Global Security
S Program

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Counter Trafficking System Development
"Analysis Training Program"

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Counter-Trafficking System Development Analysis Training Outline

Version 5.0 Dec. 14, 2010

Overview

This document will detail the training curriculum for the Counter-Trafficking System Development (CTSD) Analysis Modules and Lesson Plans are derived from the United States Military, Department of Energy doctrine and Lawrence Livermore National Laboratory (LLNL), Global Security (GS) S Program.

Title: Border Security Analysis and Evaluation Training

Implementer: DoE/NNSA/INECP/***CTSD***

Intended Audience: The target audience includes those individuals who have responsibility for analysis and evaluation functions to design a national border security system and/or planning and development of their national border security strategy.

Student Essential Skills and Knowledge:

- High School Diploma or Equivalent
- Basic Computer Skills (Excel)
- Map Reading Skills (Military Background)
- Comprehend and Speak English
- Presentation Skills

Venue: Outbound

Length of Course: 5 Days

Number of Participants: 15

Description: This training is targeted at imparting analysis and evaluation techniques to expand the knowledge, skills, and abilities of the student group. Topics covered include an overview of the analytic concept demonstrating the components and benefits of border security systems; basic concepts of terrain and route network analysis; task / tactical analysis; and the establishment of a border analysis compatibility within the national government framework.

Scope

The Modules and Lesson Plans will provide training aids for CTSD Analytical Officers (Train the Trainers). These lessons and procedures are recommendations. This training is classroom based along with practical application to ensure student learning and comprehension.

Standards & Conditions / Learning Assessment

During the training period, the students will be given closed book written examinations and Limited Scope Performance Test (LSPT). The students must achieve a minimum score of 70% to pass the written examinations or demonstrate these tasks to the passing standard (pass/fail), during a LSPT.

Lesson Plan Modules Outline

- Module 1 - CTSD Analysis Training & Process of Analysis
- Module 2 - Force Decompositions & Timing and Decision Analysis
- Module 3 - Terrain & Route Network Analysis
- Module 4 - Solution Compositions
- Module 5 - Comprehensive Training Exercises

Lesson Plans Outline Per Module

- **Module 1 - CTSD Analysis & Process of Analysis (Total 2 Hours)**
  - 01.01 CTSD Analysis Training (1 Hour)
  - 01.02 Process of Analysis (1 Hour)
- **Module 2 - Force Decompositions & Timing and Decision Analysis (Total 6 Hours)**
  - 02.01 Smuggler Assessment (2 Hours)
  - 02.02 Border Police Task Decomposition (2 Hours)
  - 02.03 Timing & Decision Analysis (2 Hours)
- **Module 3 - Terrain & Route Network Analysis (Total 8 Hours)**
  - 03.01 Terrain Analysis (4 Hours)
  - 03.02 Zone and Route Network Analysis (4 Hours)
- **Module 4 - Solution Compositions (Total 8 Hours)**
  - 04.01 Tactics and Technology Assessment (4 Hours)
  - 04.02 Solution Development (3 Hours)
  - 04.03 Solution Testing (1 Hours)
- **Module 5 - Comprehensive Training Exercises (Total 15 Hours)**
  - 05.01 Introduction to Exercises (.5 Hours)
  - 05.02 Task Decomposition Exercise (3 Hours)
  - 05.03 Decision Analysis Exercise (.5 Hours)
  - 05.04 Terrain Analysis Exercise (3 Hours)
  - 05.05 Zone and Route Network Analysis Exercise (1 Hours)
  - 05.06 Solution Development Exercise (4 Hours)
  - 05.07 Solution Selections and Testing Exercise (3 Hours)

Goals & Objectives Outline Per Lesson Plan

- **Module 1 - CTSD Analysis Training & Process of Analysis**

01.01 CTSD Analysis Training

01.01.00 The students will understand the Curriculum of the Analytic Training Course.

01.01.01	To familiarize the student with the CTSD Analysis Program.
01.01.02	The student will identify the Analysis Goals.
01.01.03	The student will identify the mission of CTSD.
01.01.04	The student will identify the CTSD Analysis Process.
01.01.05	To familiarize the student with the Course Outline.
01.01.06	The student will identify the Roles and Responsibilities of the Border Security Analysis Officer.

01.02 Process of Analysis

01.02.00 The student will understand the CTSD Analysis Process as applied to the border security problem.

01.02.01	The student will identify the need for Analysis'.
01.02.02	The student will identify select Border Security Analysis Components.

- **Module 2 - Force Decompositions & Timing and Decision Analysis**

02.01 Smuggler Assessment

02.01.00 The student will understand how to conduct a Smuggler Assessment Process.

02.01.01 The student will develop a Smuggler Assessment.

02.02 Border Police Task Decomposition

02.02.00 The student will understand how to conduct a Border Police Task Decomposition Process.

02.02.01 The student will develop Border Police Force Task Decompositions.

02.03 Timing & Decision Analysis

02.03.00 The student will understand how to conduct a Timing and Decision Analysis and why it is important.

02.03.01 To familiarize the student with the Decision Process.

02.03.02 The student will demonstrate using the Decision Timing Tool to solve a Border Security Problem.

- **Module 3 - Terrain & Route Network Analysis**

03.01 Terrain Analysis

03.01.00 The student will understand how to conduct a Terrain Analysis and why it is important.

03.01.01 The student will identify the five aspects of a Terrain Analysis.

03.01.02 The student will demonstrate making a Decision Support Template.

03.02 Zone and Route Network Analysis

03.02.00 The student will understand the concept of Zone / Route Analysis and how the smuggler could use the terrain to travel to their destination.

03.02.01 The student will demonstrate the Manual Network Analysis Process.

03.02.02 The student will demonstrate using the Excel Route Network Tool.

- **Module 4 - Solution Compositions**

04.01 Tactics and Technology Assessment

04.01.00 The student will understand how to conduct a Tactics and Technology Assessment.

04.01.01 The student will demonstrate identifying available or possible tactics and technologies.

04.01.02 The student will demonstrate determining effectiveness, strengths, weaknesses of each tactic, and supporting technologies.

04.01.03 The student will demonstrate how to build a database of possible components for developing solutions.

04.02 Solutions Development

04.02.00 The student will understand the importance of a System Solution Development.

- 04.02.01 The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.
- 04.02.02 The student will demonstrate using the task decomposition tool for comparison of solutions.

04.03 Solution Testing

04.03.00 The student will understand how to examine border police actions against various smuggler tactics to compare solutions and select the most effective.

- 04.03.01 The student will demonstrate how to test solutions using a map exercise (small group exercise).
- 04.03.02 To familiarize the student with ACATS-Lite as a virtual test bed to test solutions.

- **Module 5 - Comprehensive Training Exercises**

05.01 Introduction to Exercises

05.01.00 The student will be presented with a border security scenario and will use the following objectives to resolve the scenario.

- 05.01.01 To familiarize the student with Scenario / Exercise Procedures.
- 05.01.02 The student will demonstrate applying the Process of Analysis.

05.02 Task Decomposition Exercise

05.02.00 The student will be presented with a border security scenario and will use the following objectives to resolve the scenario.

- 05.02.01 The student will demonstrate the Process of Analysis.
- 05.02.02 The student will demonstrate a Smuggler Assessment.
- 05.02.03 The student will demonstrate Border Police Tasks Decomposition.

05.03 Decision Analysis Exercise

05.03.00 The student will be presented with a map and will use the following objectives to resolve the scenario.

- 05.03.01 The student will demonstrate Timing and Decision Analysis.

05.04 Terrain Analysis Exercise

05.04.00 The student will be presented with a map and will use the following objectives to resolve the scenario.

- 05.04.01 The student will demonstrate making a Decision Support Template.

05.05 Zone and Route Network Analysis Exercise

05.05.00 The student will be presented with a border security scenario and will use the following objectives to resolve the scenario.

- 05.05.01 The student will demonstrate Zone and Route Networking Analysis.

05.06 Solution Development Exercise

05.06.00 The student will be presented with a border security scenario and will use the following objectives to resolve the scenario.

- 05.06.01 The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.
- 05.06.02 The student will demonstrate using the task decomposition tool for comparison of solutions.

05.07 Solution Selections and Testing Exercise

05.07.00 The student will be presented with a border security scenario and will use the following objectives to resolve the scenario

- 05.07.01 The student will demonstrate testing and developing a Solution for the Border Security Scenario.

Counter-Trafficking System Development Certification FY 2010/11
Class 01.10 Daily Schedule

Week 1-Day 1 **Day, Month Date, Year**

Hours	Class/Assignment	Location	Instructor
0700-0800	CTSD Analysis Training / 01.01 **Classroom Only**		
0800-0900	Process of Analysis / 01.02 **Classroom Only**		
0900-1100	Smuggler Assessment / 02.01 **LSPT**		
1100-1200	Border Police Task Decomposition / 02.02 **Classroom Only**		
1200-1300	Lunch		
1300-1400	Border Police Task Decomposition / 02.02 **LSPT**		
0400-1600	Timing & Decision Analysis / 02.03 **LSPT**		Bartelt

Week 1-Day 2 **Day, Month Date, Year**

Hours	Class/Assignment	Location	Instructor
0700-0900	Terrain Analysis / 03.01 **Classroom Only**		Peterson
0900-1100	Terrain Analysis / 03.01 **LSPT**		Peterson
1100-1200	Lunch		
1200-1400	Zone and Route Network Analysis / 03.02 **Classroom Only**		White
1400-1600	Zone and Route Network Analysis / 03.02 **LSPT**		White

Week 1-Day 3 **Day, Month Date, Year**

Hours	Class/Assignment	Location	Instructor
0700-1100	Tactics and Technology Assessment / 04.01 **LSPT**		
1100-1200	Lunch		
1200-1500	Developing Solutions / 04.02 **LSPT**		
1500-1600	Solution Testing/ 04.03 **LSPT**		

Week 1-Day 4 **Day, Month Date, Year**

Hours	Class/Assignment	Location	Instructor
	Situational Training Exercises		
0700-0730	Introduction to Exercises / 05.01		Bartelt
0730-1030	Task Decomposition Exercise / 05.02 **LSPT**		
1030-1100	Decision Analysis Exercise / 05.03 **LSPT**		
1100-1200	Lunch		
1200-1500	Terrain Analysis Exercise / 05.04 **LSPT**		Peterson
1500-1600	Zone and Route Network Analysis Exercise/ 05.05 **LSPT**		White

Week 1-Day 5 **Day, Month Date, Year**

Hours	Class/Assignment	Location	Instructor
	Situational Training Exercises		
0700-1100	Solution Development Exercise / 05.06 **LSPT**		
1100-1200	Lunch		
1200-1500	Solution Selections and Testing Exercise/ 05.07 **LSPT**		
1500-1600	Recap CTSD Lesson Plans / Evaluations (Remedial)		
1600-1630	**Graduation**		All

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Counter-Trafficking System Development (CTSD) Analysis Training**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**1.0 Hour**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture & Discussion**
Preparation Date:	**October 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 01.01
GOALS AND OBJECTIVES

Instructional Goal

01.01.00 The students will understand the Curriculum of the Analytic Training Course.

Learning Objectives

Cognitive Tasks

01.01.01 To familiarize the student with the CTSD Analysis Program.

01.01.02 The student will identify the Analysis Goals.

01.01.03 The student will identify the mission of CTSD.

01.01.04 The student will identify the CTSD Analysis Process.

01.01.05 To familiarize the student with the Course Outline.

01.01.06 The student will identify the Roles and Responsibilities of the Border Security Analysis Officer.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

None.

Performance Conditions and Standards

None.

LESSON PLAN 01.01
CRITERION TEST

Test Q.

01.01.02 The goals can be categorized into the following area(s): p. 8-9, II, A, 1-2

a. Provide complex analysis tools.
b. Provide analysis tools and instructions to build analytic capacity in your country's border enforcement organization.
c. Analyses and Solution Development.
d. The blending of CONOPS and technology to be most effective for border security.
e. B, C & D.
f. All the above.

01.01.03 The general mission of the CTSD is to.... p. 9. II, B, 1

a. Provide analysis support.
b. Restricts all legitimate trade.
c. To develop, deploy, and integrate an improved technology.
d. Provide equipment to secure the borders.
e. A & C

01.01.04 The basic concept of the CTSD Analysis Process involves.... p. 10, III

a. A complex analytical solution set.
b. A two phase a design model concept.
c. Develops and tests solutions based on new technologies and tactics.
d. Utilizes a combination of analytical tools to understand.
e. None of the above.
f. C & D

01.01.06 What are the roles of the Border Security Analysis Officer? p. 17, V, A-C

a. Part of a team that is selected, and trained to support a nations border security.
b. The Border Security Analysis Officer works as a part of a special task force or group.
c. Bring a high level of understanding of border analysis in order to develop improvements in border security.
d. A group that uses specialized training and knowledge to develop the best solutions.
e. All the above.

LESSON PLAN 01.01
SKILLS CRITERIA

None.

LESSON PLAN 01.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials

Visual Aids
PowerPoint slides, Lesson 01.01.00, 1-17

Handout Materials
Student Guide

References
1. DOE, Central Training Academy, "Module 1 - Introduction to DOE", Lesson Plans 2006.
2. United States, Customs and Border Protection,"http://www.cbp.gov", 10-05-2010.
3. Dick, W., & Carey, L. (1996). The Systematic Design of Instruction (4th Ed.). New York: Haper Collins College Publishers.

LESSON PLAN 01.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
01.01 CTSD Analysis Training **Instructor Comments**

I. INTRODUCTION

1) Introduce Self

2) Student Introductions.
- Name
- Current duty assignment
- Border control experience
- Hometown

Overheads 1-5

To understand the Counter-Trafficking System Development (CTSD) program, a brief look at the development of the CTSD is necessary.

The Unites States (US) Department of Energy (DOE) has provided the framework for a comprehensive and balanced border security system based on analysis through a program named the Counter-Tracking System Development (CTSD).

Effective control of the border is achieved by knowing what is going on at the border (situational awareness) and having the ability to respond. CTSD analysis utilizes a combination of analytical tools to achieve effective control: force decomposition, time and decision, terrain, road / pathway networking and technologies / tactics analysis'.

A. Analysis helps generate an effective solution, but it also shows the partner nation the benefit of the solution (motivation to implement).

Objective 01.01.01

B. Analyzing allows them to see for themselves – not prescriptive (a handed over solution).

C. Shows the benefits of looking at the problem as a system – and allow trading off different components to find effective and affordable answers.

D. As threat evolves, the partner nation can analyze and adjust to it, because border crossers are adaptive.

II. CTSD MISSION AND ANALYSIS GOALS

Test Q. 02

A. The Analysis Goals are:

1. Analyses and Solution Development

a. Current state

b. Identify gaps

c. Build culturally appropriate sets of solutions (both technology & tactics).

d. Analyze and adjust solutions in a virtual test bed – and select most appropriate in a phased approach.

Overhead 6

- Tactics only
- Simple Technology Insertion
- Objective Technology Set

2. Provide analysis tools and instructions to build analytic capacity in your country's border enforcement organization.

a. Partner country can now complete their border enforcement structure, and in future respond to changes in threat, technology, or resources.

It's not a question of what technology will be the "Silver bullet"; analysis will assist in finding a solution that blends CONOPS and technology most effectively for the border police.

B. The CTSD Mission is to:

The overarching mission is securing the host nation's borders. CTSD top priority is to keep terrorists and their weapons from entering the host Nation. While welcoming all legitimate travelers and trade across the borders.

Test Q. 03

1. The CTSD mission is to provide analysis support (including training, processes, and tools) as well as assisting the acquisition requirements developments in order to develop, deploy, and integrate an improved technology and tactical infrastructure in support of efforts to gain and maintain effective control of border areas.

Overhead 7

III. CTSD ANALYSIS PROCESS

Sometimes simply changing tactics with forces already in place can produce immediate, significant, and sustainable results.

Utilizes a combination of analytical tools to understand, then develops and tests solutions based on new technologies and tactics.

Test Q. 04

Overheads 8-9

Analysis will allow you to understand how to examine the border security problem and quantify potential improvements. How to look at the problem as a system – and allow trading off different components to find effective and affordable answers. Then as the threat evolves, understand how best to change and adjust to it, because border crossers are adaptive.

A. Force Capabilities and Requirements. Some questions to ask:

1. What will the smuggler do and where will they go?
2. Where will the border police detect the smuggler?
3. How will the border police control the interdiction(s)?
4. How will they conduct the interdiction?
5. How effective are the border police currently?
6. What countermeasures can the smuggler employ?
7. How can the border police improve their operations?
    a. Tactics
    b. Technology
    c. Policy
8. How will the smuggler react?

B. Time and Decision Constraints

Identify how decisions are made and the length of time it takes. Decision timing analysis is critical for understanding responses and command and control issues.

C. Terrain

Identify the importance of a detailed terrain analysis of the area of operations to better deploy border security forces.

D. Road / Pathway Corridors

Road / Pathway analysis allows determining the most likely smuggling corridors.

E. Smuggler and Border Police Tactics

Perform step assessments, which identify methods and capabilities of both the smugglers and the border police force. Identify force decompositions from both sides for desired outcomes and solutions for those outcomes.

1. Smugglers (Red Force)

Understanding the smuggler requires understanding their goals and intentions as well as their capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ.

2. Border Police (Blue Force)

Like with the Red Force, we now conduct a Blue Force step assessments, which identify methods and capabilities. Identify desired outcomes and solutions / tasks for those outcomes. The process consists of three major components, understanding the smugglers, border protection system and how terrain affects both sides.

IV. CTSD TRAINING CERTIFICATION AND EXPECTATIONS

A. Attendance

1. Length of CTSD Certification - 5 days. 100% attendance is required. Missed time will have to be cleared with the lead instructor.

2. Start, Stop Times and Breaks

   Start ad stop times are adjustable, as are breaks. Individual class times are an approximate, they might go longer or shorter depending on the learning skills of the students as a collective group.

3. Attire

   Site specific duty uniforms or casual attire, unless otherwise notified

B. Course Outline

Overheads 10-11
Objective 01.01.05

This course will teach you an analytic process to look at your border security as a "system. Provide you with tools to assist in the analysis and walk you through an actual analysis from start to finish on a real border sector using these processes and tools. The Training is divided into three modules, followed by a comprehensive exercise module. The course outline can be further broken into two main groups, Training and Comprehensive Exercises.

Overheads 12-13

1. Training

   a. Process of Analysis

      Is a systematic examination of all of the components of system(s).

   b. Force Decompositions (Red & Blue)

      Perform step assessments, which identify methods and capabilities. Identify force

decompositions from both sides for desired outcomes and solutions for those outcomes.

c. Decision and Timing Analysis

Identify how decisions are made and the length of time it takes. Decision timing analysis is critical for understanding responses and command and control issues. Upgrade as needed, using the timing and decision analysis procedures.

d. Terrain Analysis

Identify the importance of conducting a detailed terrain analysis of the area of operations to better deploy border security forces. Develop a Decision Support Template.

e. Road / Pathway Network Analysis

Combined with terrain analysis, this simple tool reveals high probability road / pathway networks and possible solutions for favorable outcomes. Network analysis allows determining the most likely smuggling avenues, as well as assisting in developing countermeasures such as checkpoints, sensor placement, patrol routes.

f. Tactics and Technologies

Examine available or possible tactics and technologies by determining the effectiveness, strengths, and weaknesses of each tactic and supporting technologies. Then we build a database of possible components for developing solutions.

g. Developing Solutions

Understand the importance of a system solution considering:

i. Communications

ii. Logistics

iii. Training

iv. Maintenance

v. Environment

Bring all of the analysis products together into a full-system solution.

h. Solution Testing

Compare solutions and select most effective. Determine solution effectiveness against multiple smuggler tactics so you can optimize the solutions.

2. Comprehensive Exercises

a. Introduction to Exercises

You will be presented with a border security scenario. Then you will have to solve it using process of analysis, force decompositions and timing and decision analysis.

b. Task Decomposition Exercise

Perform step assessments, which identify methods and capabilities. Identify force decompositions from both sides for desired outcomes and solutions for those outcomes.

c. Decision Analysis Exercise

Identify how decisions are made and the length of time it takes. Upgrade as needed, using the timing and decision analysis procedures.

d. Terrain Analysis Exercise

You will be presented with a map. Then you will develop a decision support template.

e. Road Network Exercise

You will be presented with a road / pathway networking analytical tool and map. Then you will use the networking tool for a border security solution.

f. Solution Development

Combine all the above analyses (exercises) and develop a border security solution.

g. Solution Selection and Testing

Identify technologies and tactics that can be combined for a more robust border protection. Compare solutions and select most effective. Determine solution effectiveness against multiple smuggler tactics so you can optimize the solutions

C. Standards and Conditions / Learning Assessment

Successful course completion depends on achieving acceptable scores on written (cognitive) evaluation and/or a limited scope performance test (performance).

The student will be given two chances to pass an evaluation. If they pass either chance then they have met the standard and will achieve a passing score.

Overhead 14

1. Lesson Content

a. Each analysis topic will be covered with a lecture with examples.

b. Lectures will be followed with a hands-on practice session.

c. Each lecture will conclude with either an evaluation or a limited scope performance exercise on the topic to assess student understanding.

2. Success

a. After the training period, the student will be given a closed book written evaluation. The student must achieve a minimum score of 70% to pass the written evaluation. Students achieving less than 70% on a topic's evaluation will be given additional instruction and practice to ensure success.

b. The performance test (Limited Scope Performance Test (LSPT)) requires a minimum passing grade of 100%. The student is evaluated on knowledge, skills and abilities (KSA's) learned.

3. Remediation

If the student fails a written evaluation or misses more than one task for a given LSPT objective, they will be given additional instruction and practice to ensure success.

D. Expectations

1. Overall Objective

To train Anlaysis personnel to a level of proficiency and competence that ensures they are qualified to perform border security analysis', thus providing high assurance that the security of the borders are successful.

2. Feedback

   Feedback and upgrade suggestions for CTSD program should be an on going to better build a more robust program and systems.

E. LLNL Support

When reporting problems or upgrade suggestions to LLNL Staff, always include examples with your correspondence.

V. BORDER SECURITY ANALYSIS OFFICER ROLES AND RESPONSIBILITIES

Test Q. 06
Overhead 15

A. Purpose

A Border Security Analysis Officer is part of a team selected, and trained to support a nations border security.

B. Primary Duties

The primary duties of a Border Security Analysis Officer are to bring a high level of understanding of border analysis in order to develop and quantify possible improvements in border security.

C. Task Organization

The Border Security Analysis Officer works as a part of a special task force or group that uses specialized training and knowledge to develop the best solutions, working closely with upper management and border forces.

VI. CONCLUSION

Overhead 16

The CTSD mission is to provide analysis support (including training, processes, and tools) as well as assisting the acquisition requirements developments in order to develop, deploy, and integrate an improved technology and tactical infrastructure in support of efforts to gain and maintain effective control of border areas.

Counter-Trafficking System Development
Module 1
CTSD Analysis Training

Objective

- The student will be provided with an overview of the Analytic Training Course.
  - Goals
  - Standards
  - Course Outline

Introduction

- Name
- Current duty assignment
- Border control experience
- Hometown

Introduction

- The Unites States (US) Department of Energy (DOE) has provided the framework for a comprehensive and balanced border security system based on analysis through a program named the Counter-Tracking System Development (CTSD).

Introduction

- Effective control of the border is achieved by knowing what is going on at the border (situational awareness) and having the ability to respond.
  - Analysis helps generate an effective solution.
  - Analyzing allows them to see for themselves.
  - Shows the benefits of looking at the problem as a system.
  - As threat evolves, the partner nation can analyze and adjust to it, because border crossers are adaptive.

Analysis Goals

- Analyses and Solution Development.

- Provide analysis tools and instructions to build analytic capacity in your country's border enforcement organization.

It's not a question of what technology will be the "Silver bullet"; analysis will assist in finding a solution that blends CONOPS and technology most effectively for the border police.

CTSD Mission

- The CTSD mission is to provide analysis support (including training, processes, and tools) as well as assisting the acquisition requirements developments in order to develop, deploy, and integrate an improved technology and tactical infrastructure in support of efforts to gain and maintain effective control of border areas.

Introduction

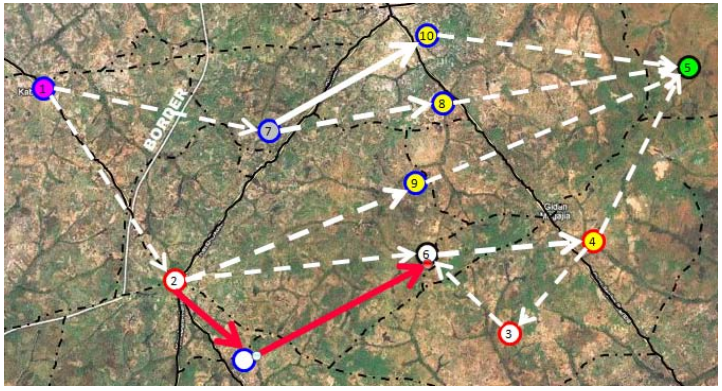
- The CTSD Analysis Process
  - utilizes a combination of analytical tools to understand:
    - Force capabilities and requirements
    - Time and decision constraints
    - Terrain
    - Road / pathway corridors
    - Smuggler and border police tactics
  - then develops and tests solutions based on new technologies and tactics.

Introduction

- Analysis will allow you to:
  - understand how to examine the border security problem and quantify potential improvements.
  - look at the problem as a system – and allow trading off different components to find effective and affordable answers.
  - As threat evolves, understand how best to change and adjust to it, because border crossers are adaptive.

Introduction

- This course will:
  - Teach you an analytic process to look at your border security as a “system.
  - Provide you with tools to assist in the analysis.
  - Walk you through an actual analysis from start to finish on a real border sector using these processes and tools.



Course Outline

The Training is divided into three modules, followed by a comprehensive exercise module.

1. The smuggler and border security forces.
2. Terrain effects on each force's mission.
3. Solution tactics and technologies.

4. Conduct a comprehensive exercise to walk through an actual analysis from start to finish on a real border sector using these processes and tools.

Course Outline

- Training
  - CTSD Analysis Training
  - Analysis Process
  - Smuggler Assessment
  - Border Police Task Decomposition
  - Timing & Decision Analysis
  - Terrain Analysis
  - Road Network Analysis
  - Tactics & Technologies
  - Development of Solutions
  - Solution Testing

- Comprehensive Exercise
  - Introduction to Exercises
  - Task Decomposition Exercise
  - Decision Analysis Exercise
  - Terrain Analysis Exercise
  - Road Network Exercise
  - Solution Development
  - Solution Selection & Testing

Course Layout

	Day 1	Day 2	Day 3	Day 4	Day 5
0700	01.01 CTSD Analysis	03.01 Terrain Analysis	04.01 Tactics & Technologies	05.01 Intro to Exercise	05.06 Solution Development
	01.02 Process of Analysis			05.02 Task Decomposition Exercise	
	02.01 Smuggler Assessment			05.03 Decision Analysis Exercise	
	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
	02.02 Border Police Task Decomposition	03.02 Road Network Analysis	04.02 Development of Solutions	05.04 Terrain Analysis Exercise	05.07 Solution Selections & Testing
1600	02.03 Timing and Decision Analysis		04.03 Solution Testing	05.05 Road Network Exercise	Recap --- Graduation

Standards & Conditions / Learning Assessment

- Lesson Content
  - Each analysis topic will be covered with a lecture with examples.
  - Lectures will be followed with a hands-on practice session.
  - Each lecture will conclude with either a evaluation or a limited scope performance exercise on the topic to assess student understanding.
- Success
  - Students achieving less than 70% on a topic's evaluation will be given additional instruction and practice to ensure success.

Border Security Analysis Officer Responsibilities

- Purpose
  - A Border Security Analysis Officer is part of a team selected, and trained to support a nations border security.
- Primary Duties
  - The primary duties of a Border Security Analysis Officer are to bring a high level of understanding of border analysis in order to develop and quantify possible improvements in border security.
- Task Organization
  - The Border Security Analysis Officer works as a part of a special task force or group that uses specialized training and knowledge to develop the best solutions, working closely with upper management and border forces.

Conclusion

The CTSD mission is to provide analysis support (including training, processes, and tools) as well as assisting the acquisition requirements developments in order to develop, deploy, and integrate an improved technology and tactical infrastructure in support of efforts to gain and maintain effective control of border areas.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Process of Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**1.0 Hour**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture & Discussion**
Preparation Date:	**October 2010**
Review Schedule:	**Annually**

_____ / _____ _____
Prepared by **Date**

_____ / _____ _____
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 01.02
GOALS AND OBJECTIVES

Instructional Goal

01.02.00 The student will understand the CTSD Analysis Process as applied to the border security problem.

Learning Objectives

Cognitive Tasks

01.02.01 The student will identify the need for Analysis'.

01.02.02 The student will identify select Border Security Analysis Components.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

None.

Performance Conditions and Standards

None.

LESSON PLAN 01.02
CRITERION TEST

01.02.01	What is the need for an Analysis when securing the border? a. Nations can identify improvement opportunities. b. Improve border security. c. Implement border security missions. d. Resource allotment for border security missions. **e. All the above.**	Test Q. p. 8, I
01.02.02	What are some select Border Security Analysis Components? a. Timing and decision analysis. b. Smuggler and border police capabilities. c. Direction analysis. d. Technologies and tactics. **e. A, B & D.** f. All the above.	p. 8-9, II, A-G

LESSON PLAN 01.02
SKILLS CRITERIA

None.

LESSON PLAN 01.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials

Visual Aids
PowerPoint slides, Lesson 01.02.00, 1-24

Handout Materials
Student Guide

References
University Central Florida, "What is Process Analysis",
http://oeas.ucf.edu/process_analysis/what_is_pa.htm

1. Operational Excellence and Assessment Support (OEAS), University Central Florida, "What is Process Analysis", http://oeas.ucf.edu/process_analysis/what_is_pa.htm, 10/11/2010.
2. "Uses and Limitations of Systems Analysis", by Clay Thomas Whitehead, 1967.

LESSON PLAN 01.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
01.02 Process of Analysis **Instructor Comments**

I. INTRODUCTION

In today's environment nothing is more common than change. Border security programs are always looking to improve the way security is done.

Test Q.1

Nations are challenging practices and procedures in order to improve border security. Through process analysis, nations can identify improvement opportunities, implementation and resource allotment for border security missions.

Overheads 1-3

II. PROCESS ANALYSIS

Process analysis is an approach that helps Counter-Trafficking System Development (CTSD) Border Security Analysis Officers improves the performance of their border security activities.

A. What is process analysis? It is a systematic examination of all of the components of a system.

Overhead 4

B. Why? Analysis develops an understanding of all of the interactions and effectiveness of all parts of the system, as well as determining weaknesses within it.

C. What is the product? A total, systems view of the entire process, with an understanding of how combinations of technology and tactics can work together to overcome weaknesses.

D. The CTSD analysis approach examines the current border protection system and uses analysis to see how effective it is and where improvements might enhance it.

Overhead 5

E. It considers the current “as-is” border security forces, their capabilities, and the operating environment.

F. The process then assists in developing sets of possible solutions to overcome identified weaknesses, and then assesses their relative effectiveness.

Note: It's not a question of what technology will be the "silver bullet" it is finding a solution that blends CONOPS and technology most effectively for the level of technical sophistication of the border police.

II. BORDER SECURITY ANALYSIS COMPONENTS

The process consists of three major components, Understanding the smugglers, border protection system and how terrain affects both sides.

Overhead 6

Test Q. 2

A. Smuggler Goals and Capabilities

Perform step assessments, which identify methods and capabilities. Identify the smuggler goals and capabilities.

B. Border Security Force Capabilities

Perform step assessments, which identify methods and capabilities. Identify the border security force decomposition from both sides for desired outcomes and solutions for those outcomes.

C. Timing and Decision Analysis

Identify how decisions are made and the length of time it takes. Decision timing analysis is critical for understanding responses and command and control issues.

D. Terrain Analysis

Identify the importance of conducting a detailed terrain analysis of the area of operations to better deploy border security forces.

E. Transportation Network

Transportation network analysis allows determining the most likely smuggling avenues, as well as assisting in developing countermeasures such as checkpoints, sensor placement, patrol routes.

F. Technologies and Tactics

Identify technologies and tactics that can be combined for a more robust border protection.

G. Solution Development and Evaluation

Combine all the above analyses (exercises) and develop a border security solution. The effectiveness of the border police requires study of their operational tactics, their decision processes, and the terrain.

III. ANALYSIS PROCESS

Overheads 7-9

A. Force Frameworks

Understanding the smuggler requires understanding his goals and intentions as well as his capabilities. It is then possible to look at the terrain and see what possible tactics he can effectively employ.

The first analysis process is an assessment of the smuggler's methods and capabilities.

1. Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level shows these steps on the overhead.

2. The step to move and avoid, as well as the step to change transportation methods could happen multiple times.

3. Under each step are a series of tasks that the smuggler could perform to accomplish that step.

4. This model is useful to think through the smugglers capabilities and how he might be accomplishing each task.

5. The model also can help identify protection actions to neutralize particular tasks.

6. One specific identification, which was used as a critical point in the example analysis, was the need in this case for the smuggler to employ canoes to carry contraband and then change modes to pickup trucks.

7. Then police tactics are examined against smuggler tactics to see what improvements can counter the smuggler. As the smuggler changes tactics, each change can require a corresponding change for the border police.

B. Border Security Task Decomposition

Overhead 10

Understanding the border system requires looking at how all tasks are accomplished based on where the border police can observe and travel. It also involves examining the Command and Control (C2) system to determine response times – from which appropriate tactics can be determined.

As was done for the smuggler, the border security tasks were examined. In this case, it was done by listing those outcomes necessary to secure the border, and decomposing them into the necessary tasks to achieve them.

Each of the task boxes was then broken down into the specific methods that could or were employed to accomplish them – this forms a systematic method for understanding the security functions.

In this example, only certain outcomes were important to interdict the smuggler on the specific terrain. The outcomes we want to examine are shown in the yellow boxes: For example.

- Situation Correctly Assessed
- Response Appropriate
- Apprehension Effective

Then the tasks in the orange boxes were examined to determine current effectiveness and see where we can make improvements.

C. Decision and Timing Analysis

Overheads 11-12

The Observe, Orient, Decide and Act (OODA) Loop looks at all aspects of decision process. Then we can identify ways to accomplish each phase of OODA process. For example;

1. Observe - Action.
    a. Can use sensor inputs.
    b. Individual observations.
    c. Information from other areas.
2. Orient - puts info in context.
    a. Take new info.
    b. Analyze and synthesize info.
    c. Incorporate previous experience.
    d. Consider cultural traditions.
3. Decide - decide what should do.
    a. Consider what are the goals.
    b. What are the rules of engagement?
    c. What are the possible actions we could take?
    d. Select the action.
4. Act - what have to do in order to take action?
    a. Consider startup delays.
    b. Time to complete action.

Also look at how OODA loops for different personnel connect. For example, if need a higher authority to make a decision about an interdiction.

c. Have to consider what info he needs.

d. How long will it take him to make decision, etc?

5. Remember, Red and blue have competing OODA loops.

a. While Blue force (border security personnel) is going through OODA loop.

b. Red force (threat) is also going through OODA loop.

c. Red force is observing what Blue is doing and adjusting action.

d. Blue needs to do the same.

D. Multilevel Decision Model Example — Overhead 13

A model linking the patrol observing the smuggler (shown in green) with there fort (shown in light blue) and the higher headquarters battalion (shown in dark blue) was made to examine the timing from the OODA loop processes at each decision level.

After entering the normal, earliest and latest times from the OODA process at each level it was possible to determine how quickly different responses could be initiated.

E. Development of Terrain Analysis — Overhead 14

Understanding the border terrain on which both sides operate, means understanding where the smuggler and border security forces can travel, where terrain will block movement. This will generate a network of roads and travel areas that can be analyzed. Terrain analysis is used for

developing interdiction tactics, such as checkpoint placements and patrol routes.

1. Understanding Border Terrain Example:

Overhead 15

The map shows the specific border area in the example. All of the terrain categories were identified in this region – marsh, waterways, and agricultural areas. Each terrain category was analyzed to see how it would affect both the smuggler and the border police operations.

Basically it's a reed-filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trails. The smuggler could travel almost anywhere through the marsh, but was restricted to the road and trail network in the agricultural area. The border police had virtually no capability to observe or interdict within the marsh. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation.

The smuggler could use canoes in the marsh, but then must change to pickup trucks in the agricultural area.

The roads and trails in the agricultural area were all elevated on levees forming a network of many routes through the area.

Overheads 16-17

F. Road Network Analysis

A detailed model was made of the road network in the agricultural area, consisting of 120 individual road or trail segments with the speeds associated with each – as shown on the sketch map.

An analysis was performed using a discrete event simulation to determine the most frequently used exit points and the required response times for interdiction.

This model was then used for developing interdiction tactics, such as checkpoint placements and patrol routes.

F. Tactics and Technology Assessment — Overheads 18-19

1. Identify technologies and tactics that can assist obtaining desired outcomes in the Task Decomposition.
2. Quantify capabilities of each technology.
3. Determine characteristics of each tactic.
4. Identify combinations of tactics and technology to produce optimum results.

G. Solution Development — Overheads 20-21

1. From the Task Decomposition, determine those tasks where improvements would be helpful.
2. Combine all the analyses and develop sets of possible border security solutions that address these tasks.
3. Solution sets will be a combination of tactics and supporting technologies.

H. Assess Solution Effectiveness — Overhead 22

1. The effectiveness of the border police requires study of their operational tactics, their decision processes, and the terrain.
2. During the evaluation process the data provides the performance level of the process. The focus is on the overall picture of the organization's performance for a particular period of time.
3. Finally, recommendations are made based on the data collected and the assessment and performance evaluation. Given the recommendations, the analyst can review alternatives for implementation purposes

IV. CONCLUSION

The effectiveness of the border police requires study of their operational tactics, their decision processes, and the terrain.

Solutions must combine Concept of Operations (CONOPS) and technology; however, the solutions must match the level of technical sophistication of the border police.

No technology will be the “silver bullet."

Finally, analysis models provide understanding – NOT answers!

Overhead 23

Counter-Trafficking System Development
Module 1
Process of Analysis

Objective

- The students will understand the CTSD Analysis Process as applied to the border security problem.

Introduction

- In today's environment nothing is more common than change. Border security programs are always looking to improve the way security is done.

- Through process analysis, nations can identify improvement opportunities, implementation and resource allotment for border security missions.

Analysis Process

- What is process analysis? A systematic examination of all of the components of a system.
- Why? Analysis develops an understanding of all of the interactions and effectiveness of all parts of the system, as well as determining weaknesses within it.
- What is the product? A total, systems view of the entire process, with an understanding of how combinations of technology and tactics can work together to overcome weaknesses.

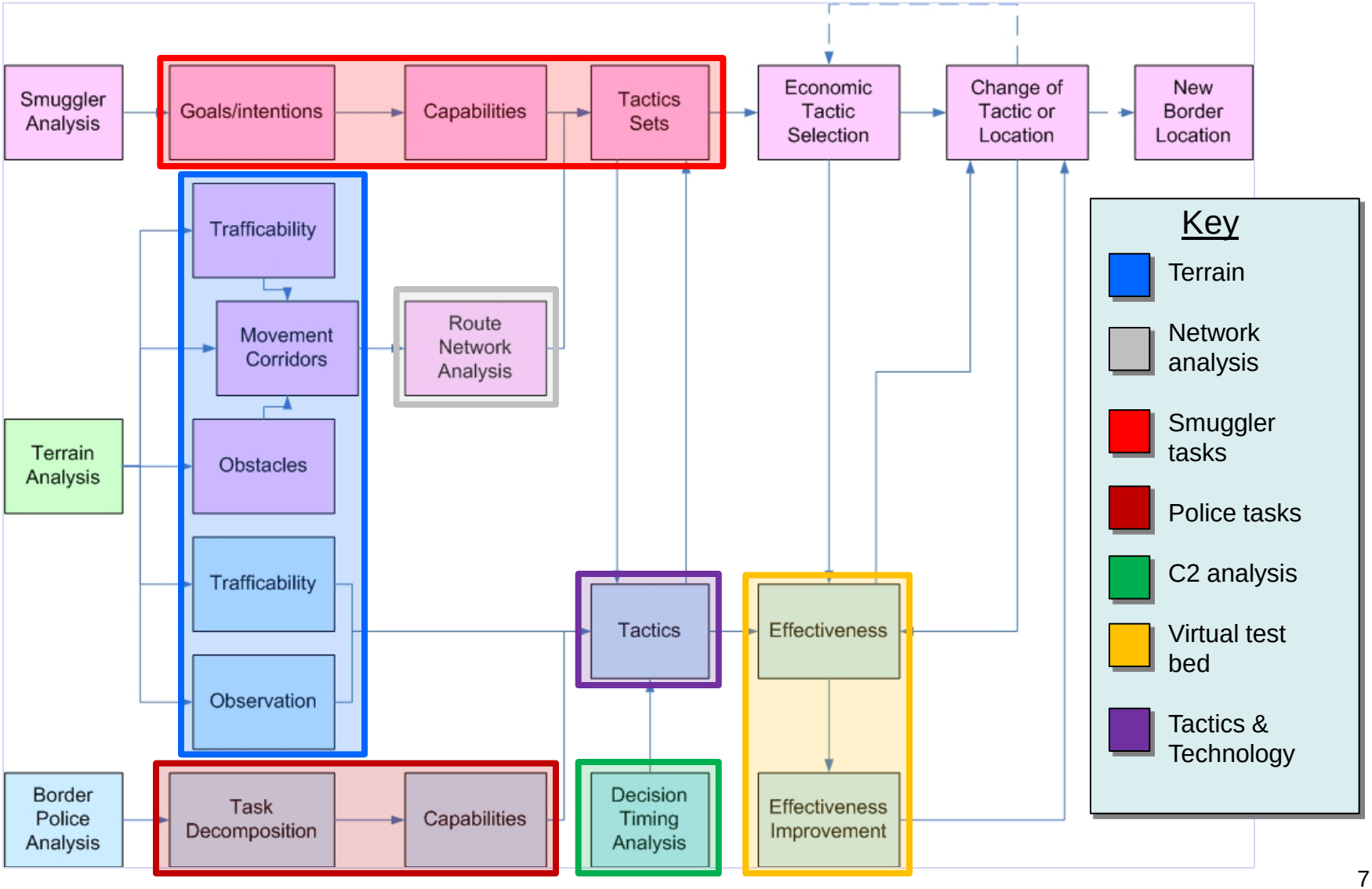
Analysis Process, cont.

- The CTSD analysis approach examines the current border protection system and uses analysis to see how effective it is and where improvements might enhance it.
- It considers the current “as-is” border security forces, their capabilities, and the operating environment.
- The process then assists in developing sets of possible solutions to overcome identified weaknesses, and then assesses their relative effectiveness.

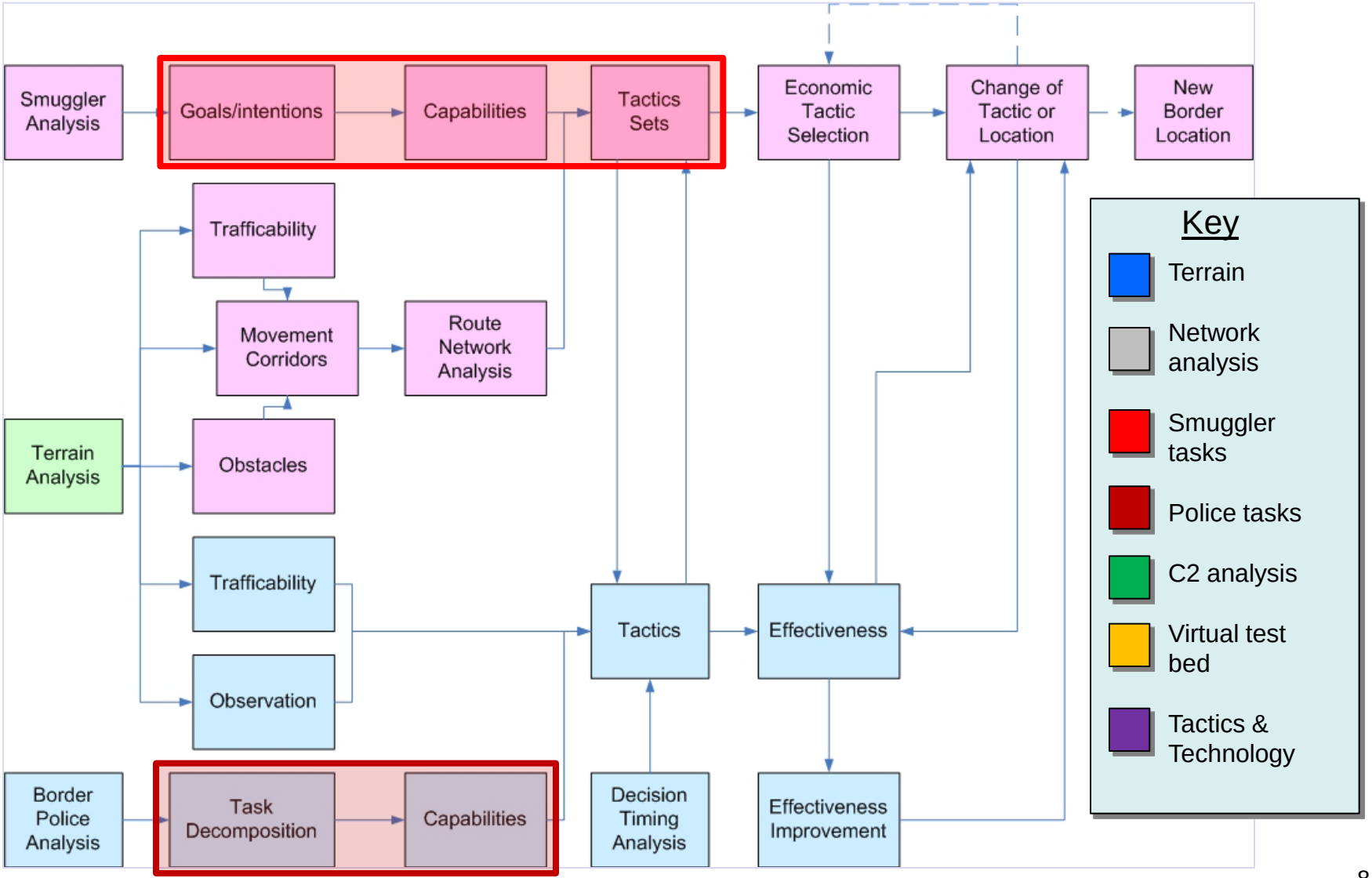
Border Security Analysis Components

- Smuggler goals, capabilities, and tactics.
- Border security force capabilities.
- Timing and decision analysis.
- Terrain analysis.
- Transportation network.
- Border Police technologies and tactics.
- Solution development and evaluation.

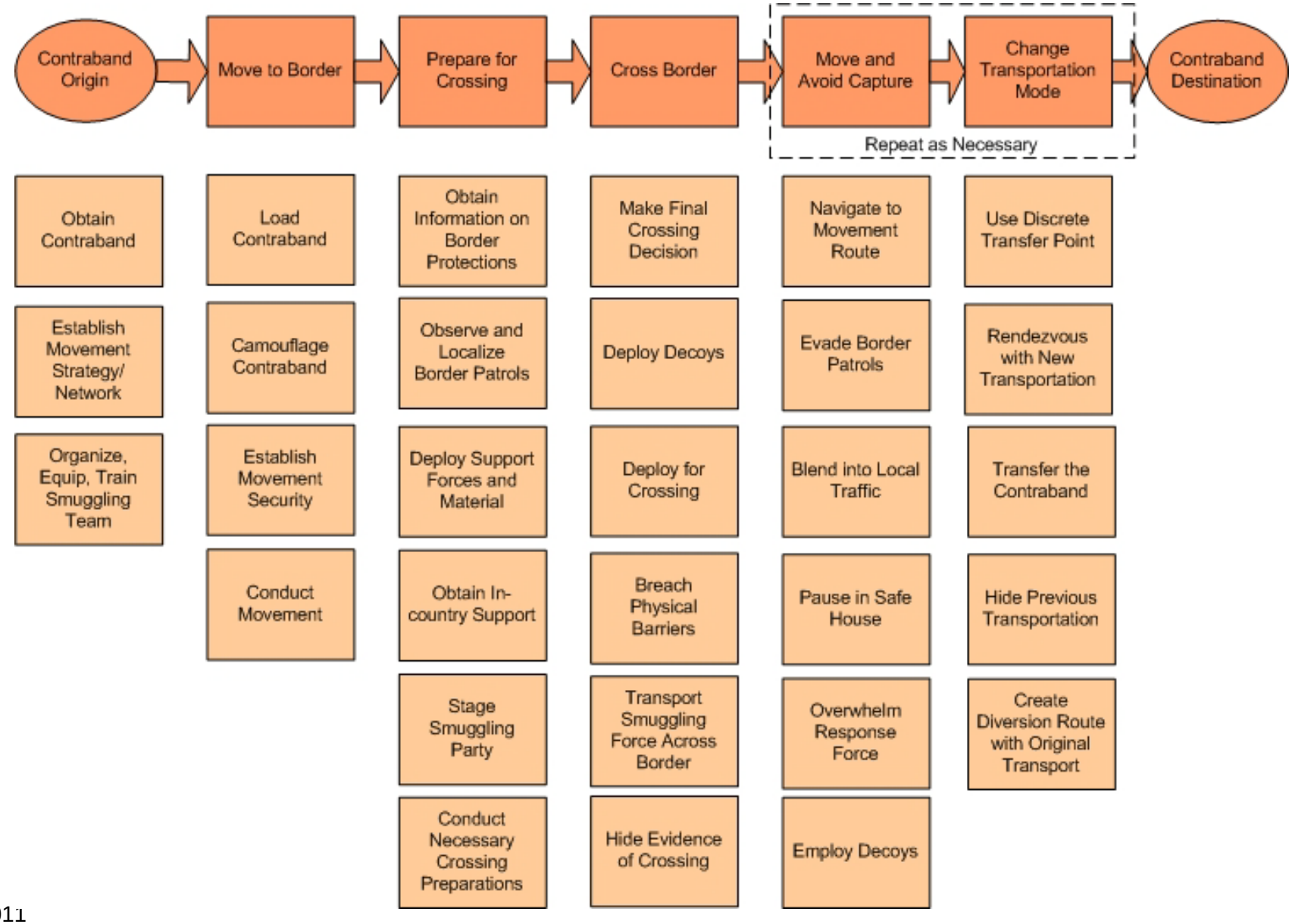
The Analysis Process



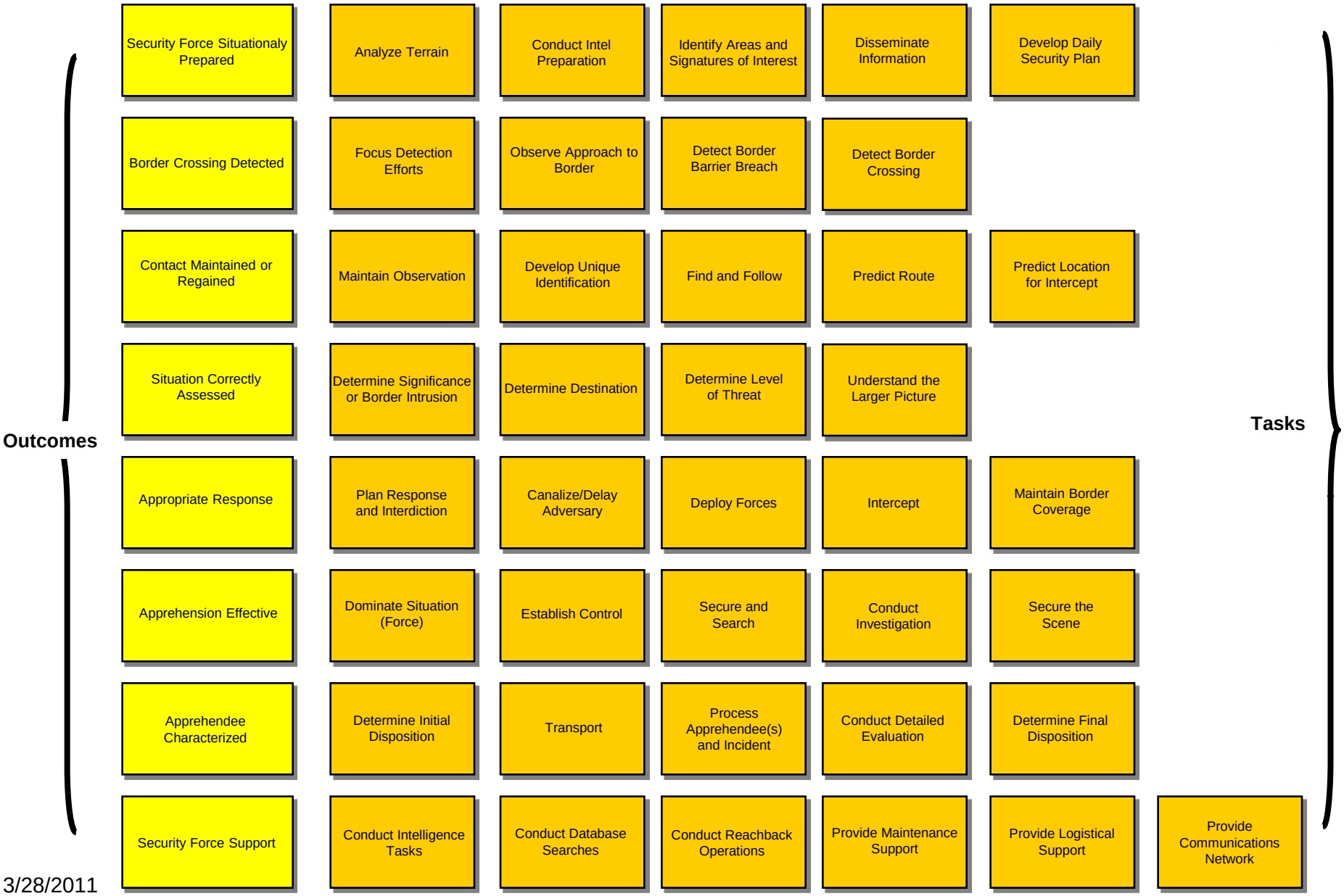
Force Frameworks



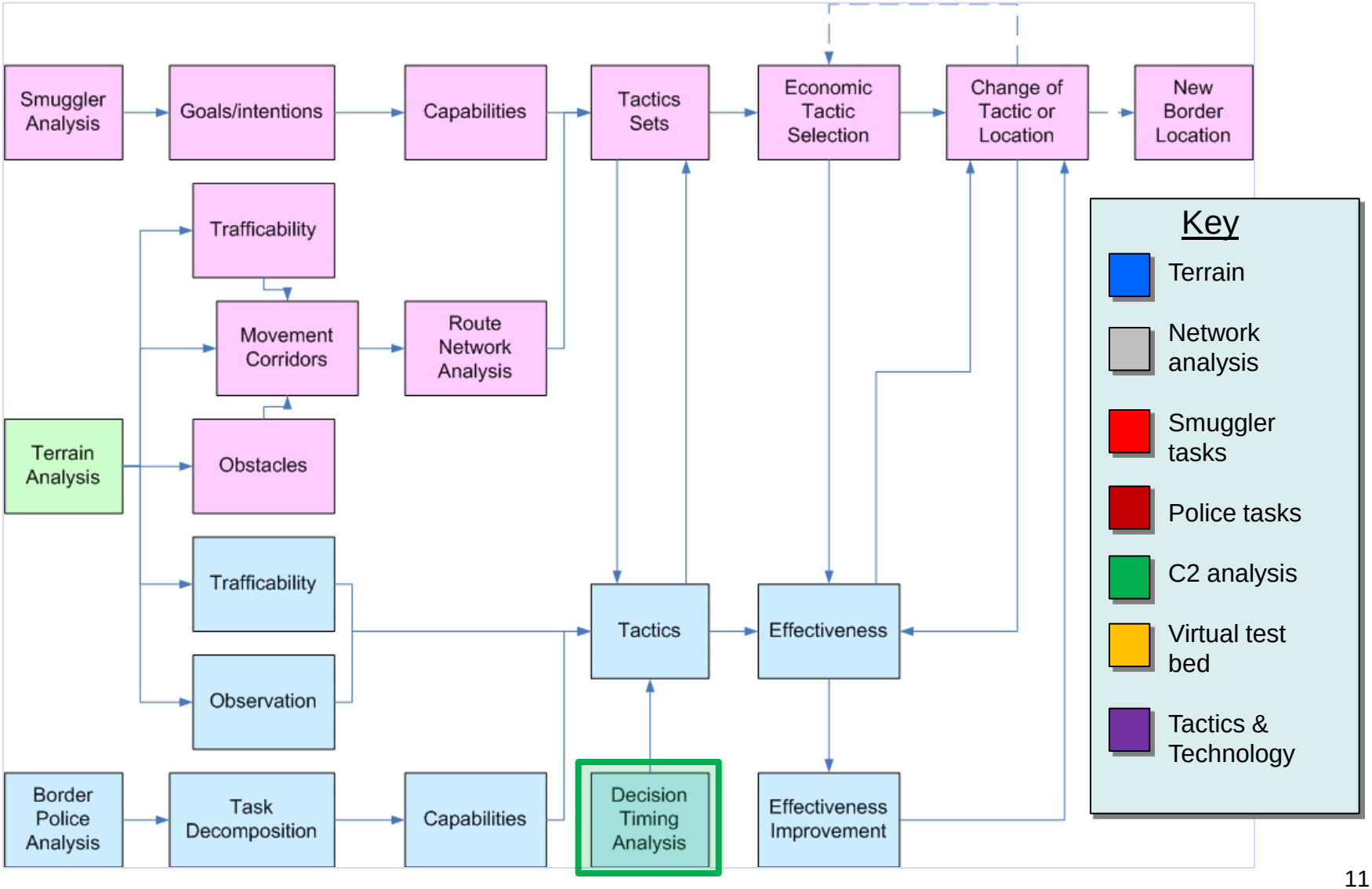
Understanding the Smuggler



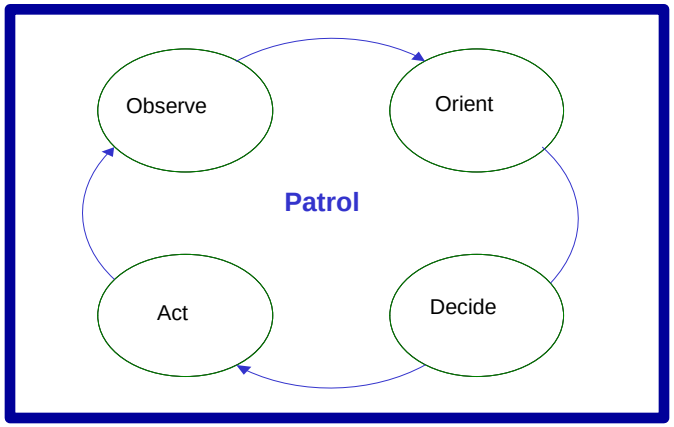
Border Security Task Decomposition



Decision & Timing Analysis



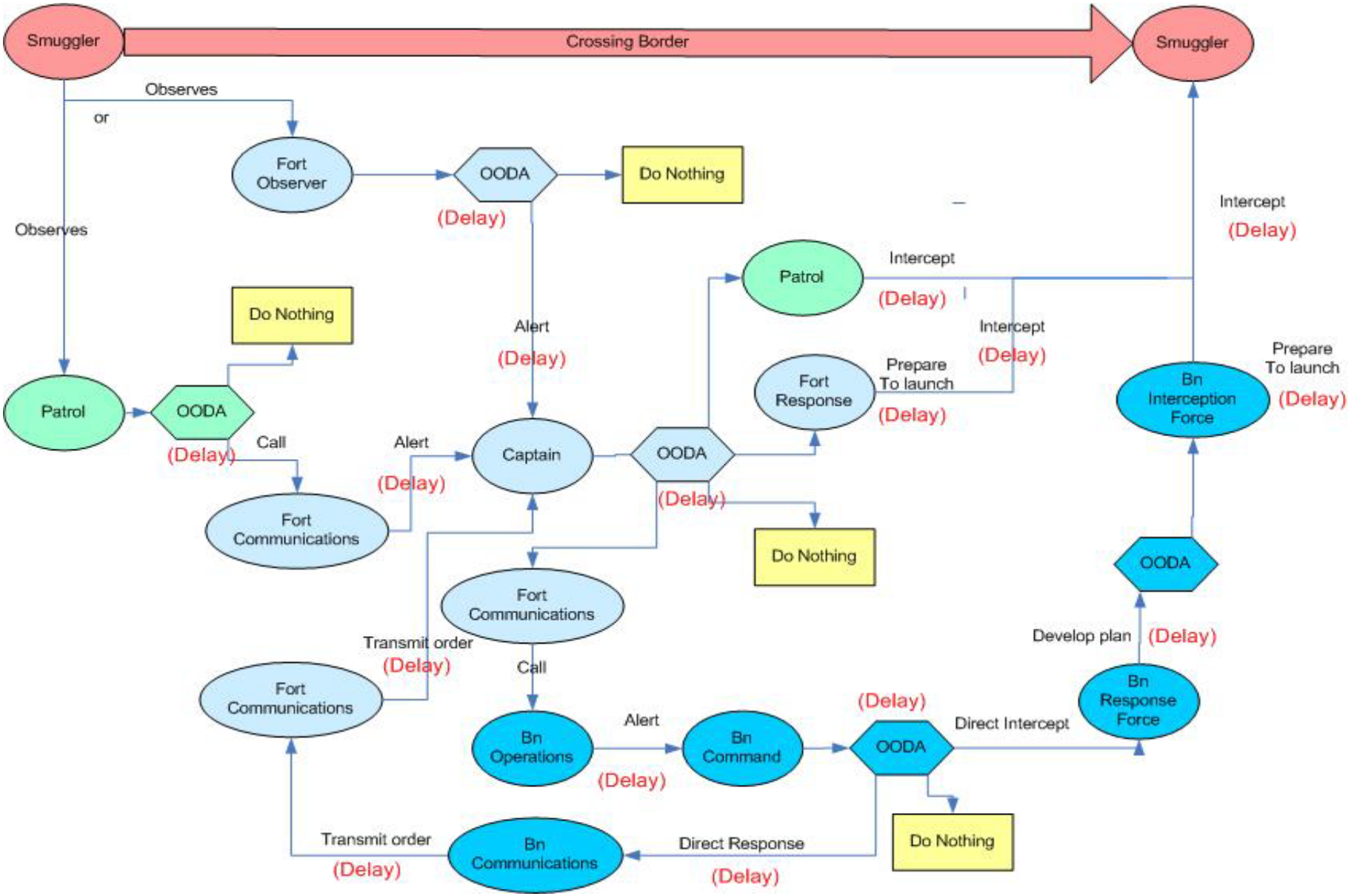
Decision & Timing Analysis



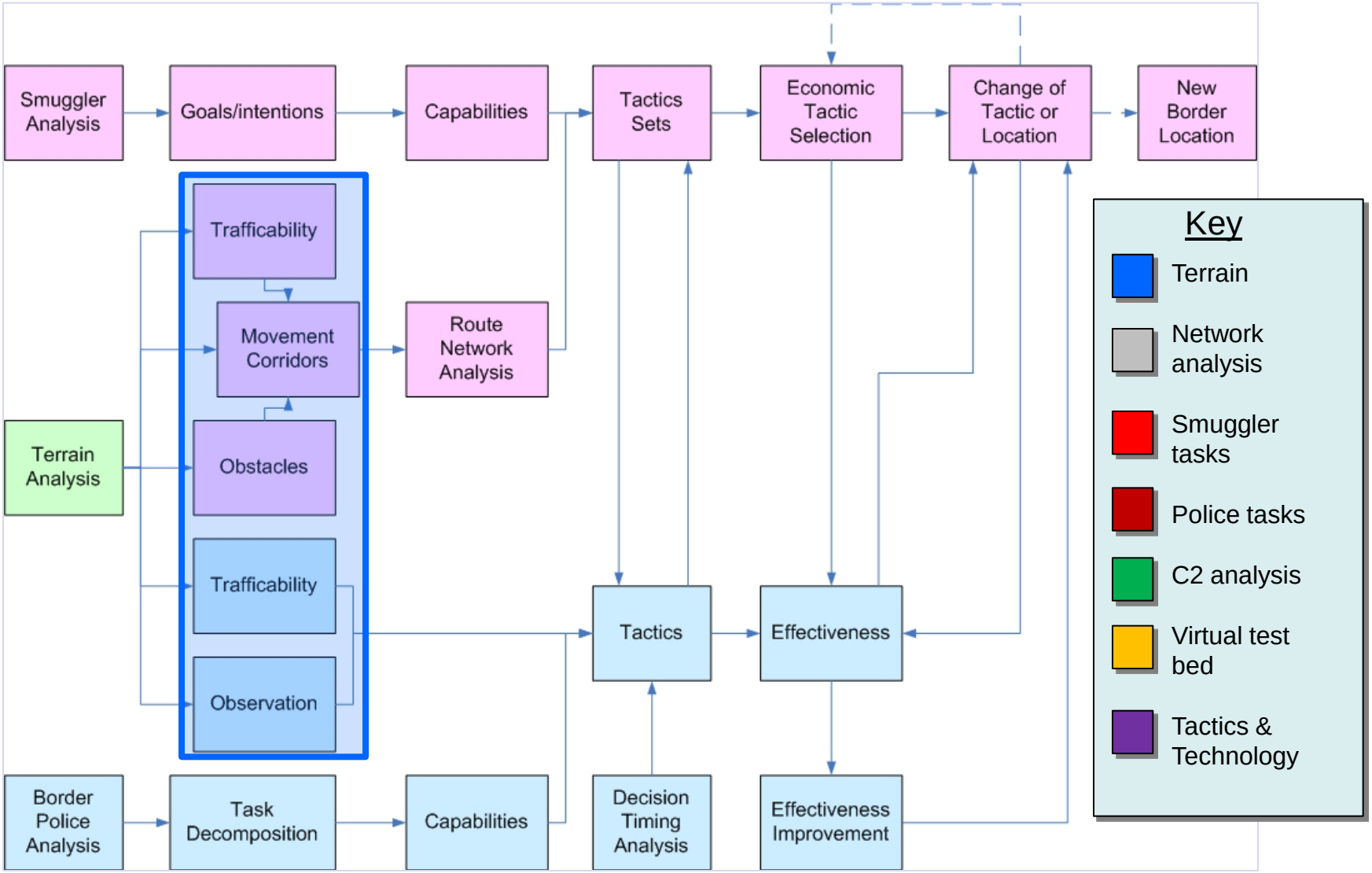
Students will examine the OODA decision process from Observation to Action

Observe:	**See or detect**
Orient:	**Place observation in context**
Decide:	**Decide course of action**
Act:	**Take action**

Multilevel Decision Model



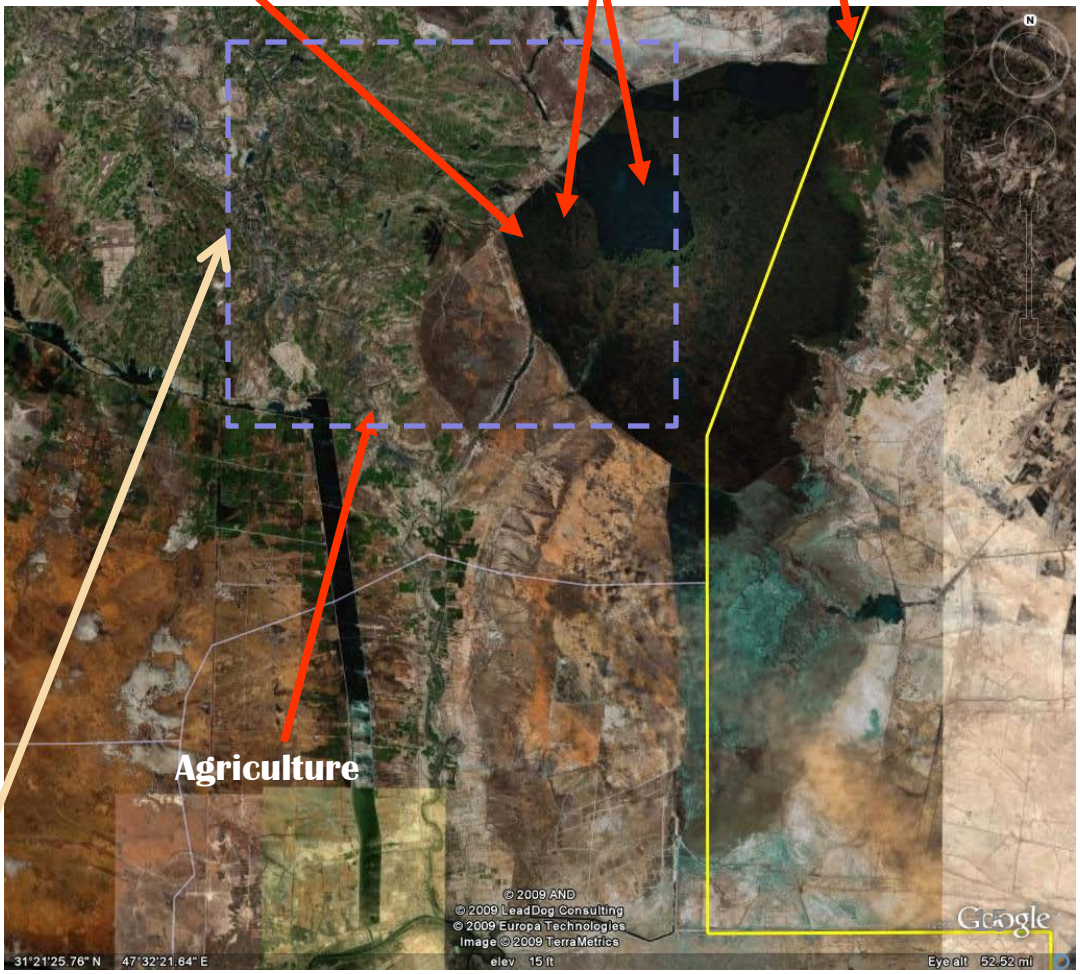
Development - Terrain Analysis



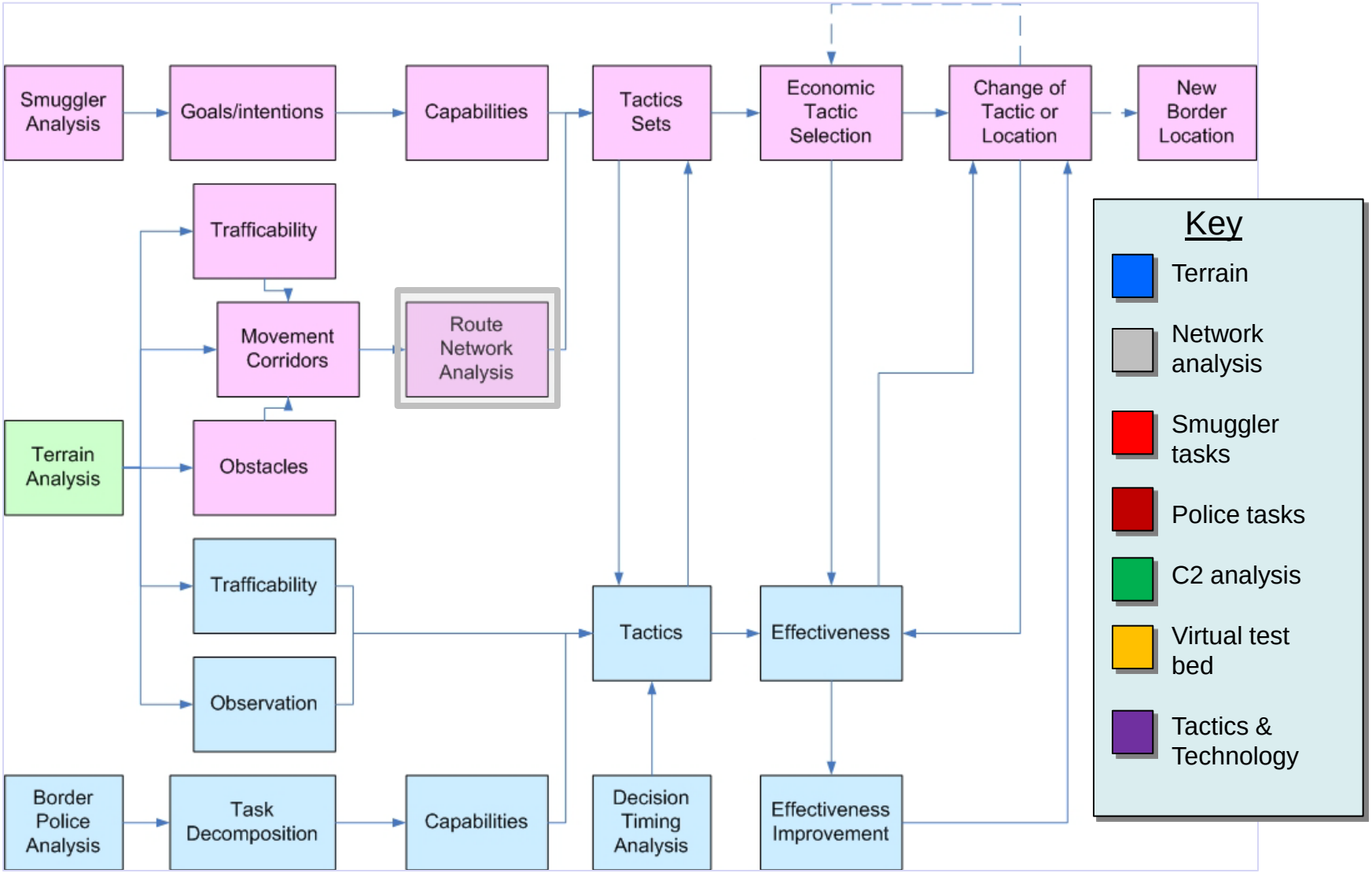
Understanding Border Terrain

- Complex terrain in marsh requires set-back from border with forts and annexes located on edge of marsh
- Marsh reeds 3-12 feet high
- Swamp contains many water-filled streams for canoe traffic
- Many levees with dirt roads on edges of marsh
- Agriculture areas include a complex of canals and levees
- Many isolated villages

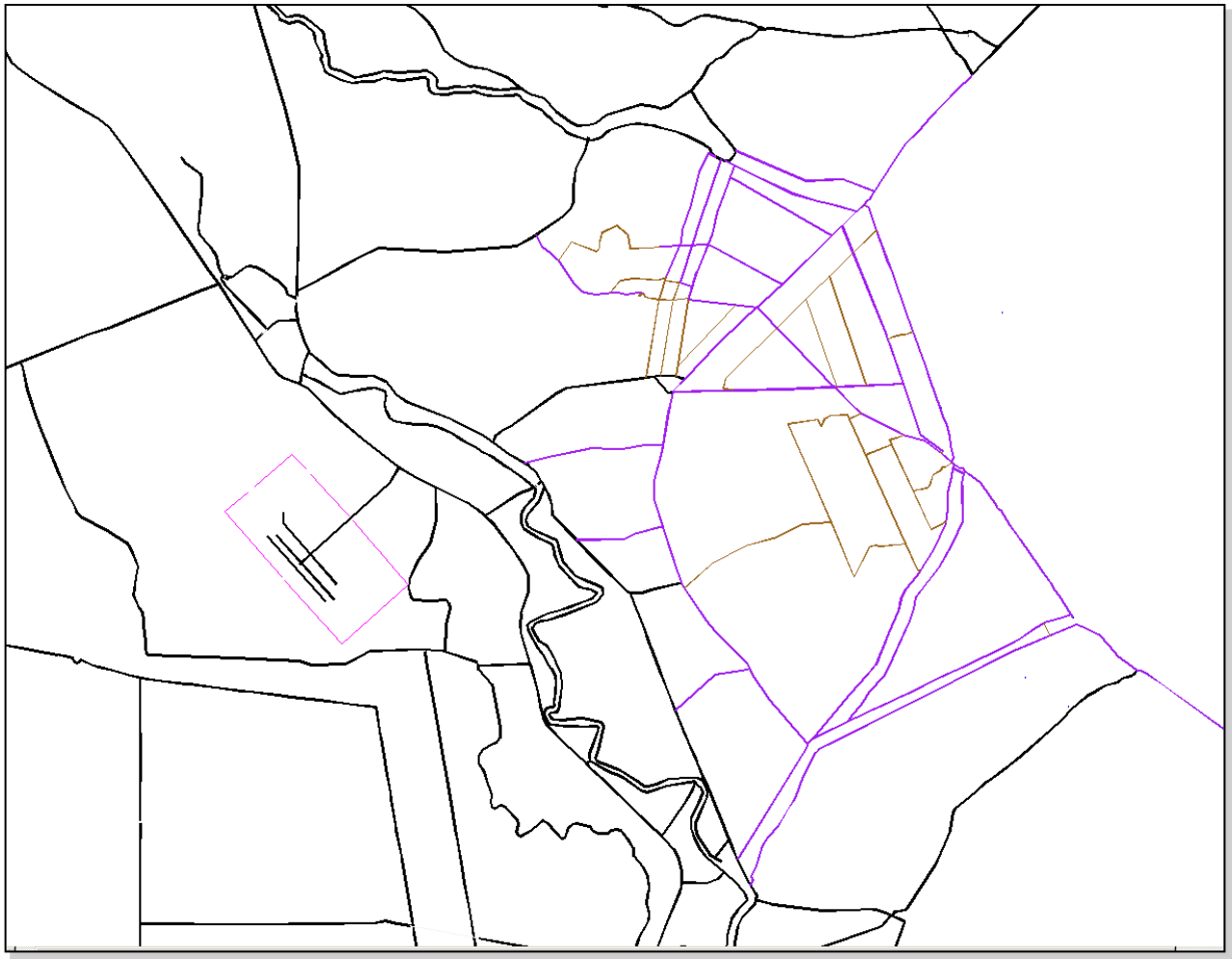
Area used in the analysis



Road Network Analysis

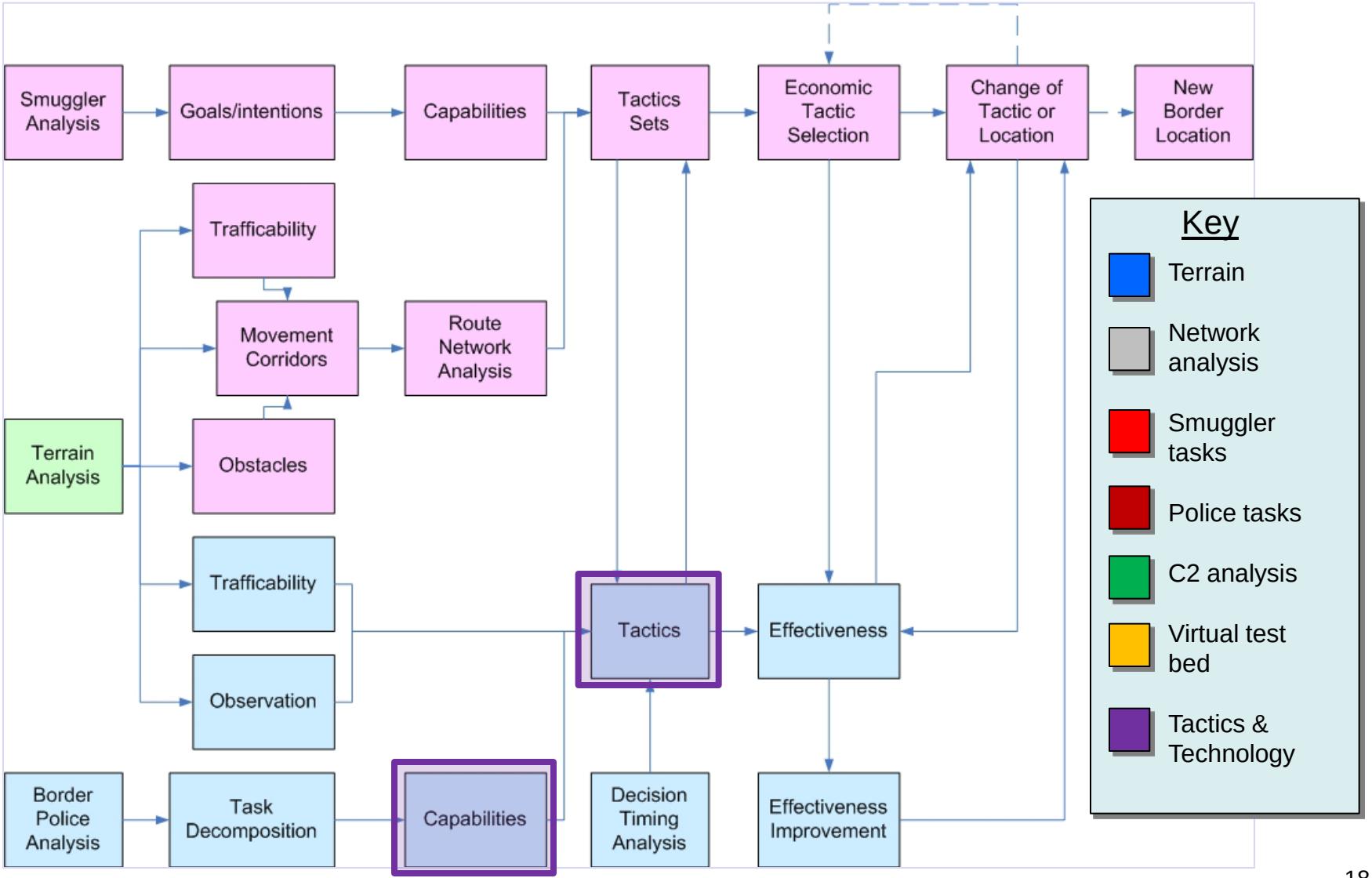


Trafficability Network



Route	Number	time
33	21	81 min
31	14	125 min
30	331	116 min
28	60	193 min
25	49	163 min
23	57	169 min
21	88	122 min
D	336	127
C	125	146
A1	38	58

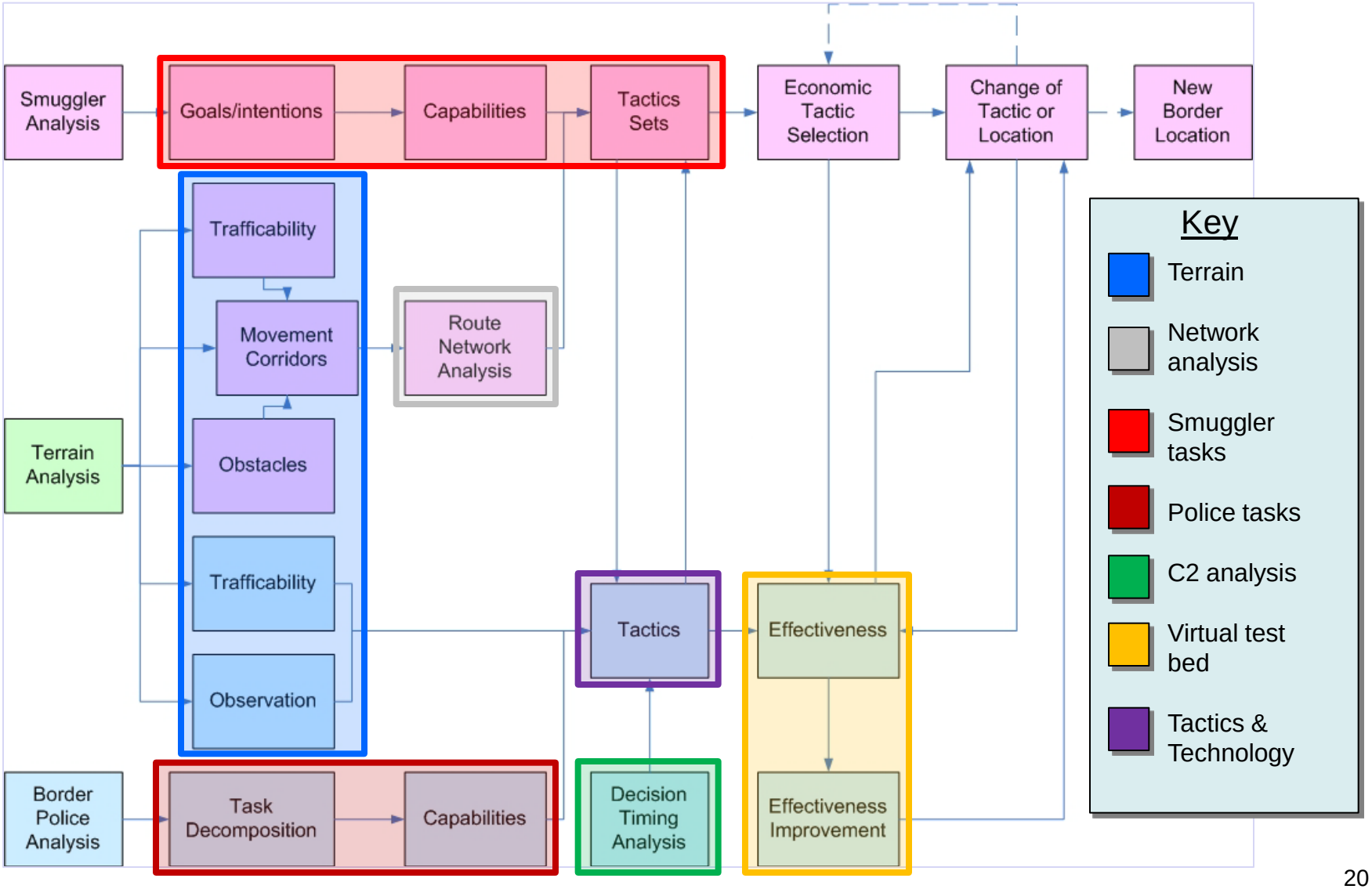
Tactics and Technology Assessment



Tactics and Technology Identification

- Identify technologies and tactics that can assist obtaining desired outcomes in the Task Decomposition.
- Quantify capabilities of each technology.
- Determine characteristics of each tactic.
- Identify combinations of tactics and technology to produce optimum results.

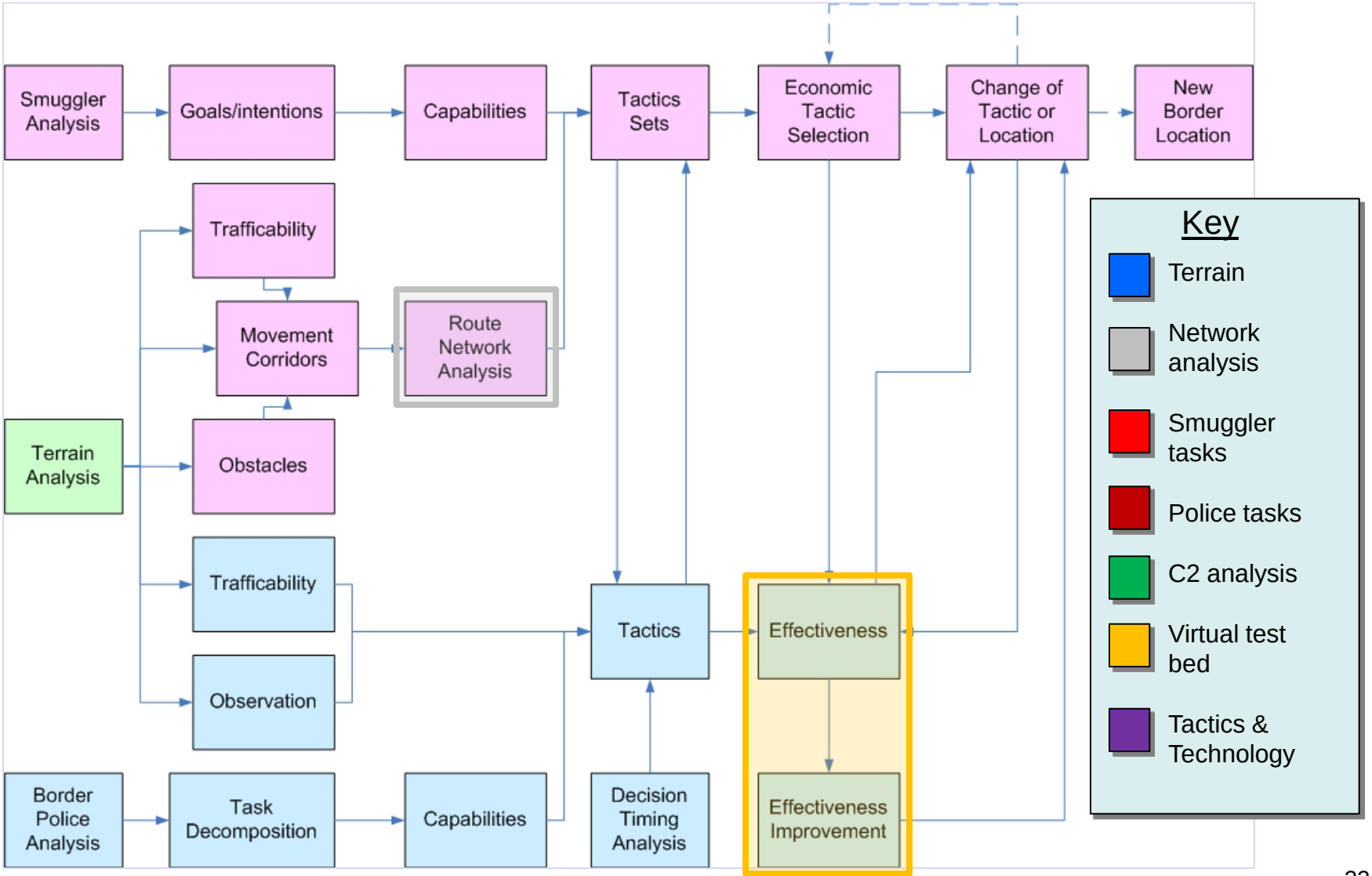
Solution Development



Solution Development

- From the Task Decomposition, determine those tasks where improvements would be helpful.
- Combine all the analyses and develop sets of possible border security solutions that address these tasks and counter smuggler tactics.
- Solution sets will be a combination of tactics and supporting technologies.

Assess Solution Effectiveness



Conclusion

- The effectiveness of the border police requires study of their operational tactics, their decision processes, and the terrain.
- Solutions must combine Concept of Operations (CONOPS) and technology; however, the solutions must match the level of technical sophistication of the border police.
- *No technology will be the “silver bullet."*
- *Finally, analysis models provide understanding – NOT answers!*

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Smuggler Assessment**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**2.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**October 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 02.01
GOALS AND OBJECTIVES

Instructional Goal

02.01.00 Students will understand how to conduct a Smuggler Assessment Process.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

02.01.01 The student will develop a Smuggler Assessment.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 02.01
CRITERION TEST

None.

LESSON PLAN 02.01
SKILLS CRITERIA

02.01.01	The student will develop a Smuggler Assessment. a. Identify Contraband b. Identify their Source c. Identify Smuggler Goal / Objective d. Identify if the Smugglers will use Lethal Force e. Identify the Smugglers Composition, Disposition and Strength f. Identify the Smugglers Motivation g. Identify Smuggler Capabilities (intensity, persistence, willingness to use lethal force) h. Identify the Smugglers Course of Action i. Identify Tasks Associated with Smugglers Goal / Objective j. Identify Sub-Tasks Associated with Smugglers Goal / Objective	LSPT p. 8-14, III, A-E

LESSON PLAN 02.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 02.01.00, 1-20

Handout Materials
Student Guide

References

LESSON PLAN 02.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
02.01 Smuggler Assessment **Instructor Comments**

I. INTRODUCTION

Understanding the smuggler requires understanding his goals and intentions as well as his capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ.

Overheads 1-2

Understanding the border system requires looking at how all tasks are accomplished based on where the border police can observe and travel. It also involves examining the Command and Control (C2) system to determine response times – from which appropriate tactics can be determined. Then police tactics are examined against smuggler tactics to see what improvements can counter the smuggler. As the smuggler changes tactics, each change can require a corresponding change for the border police.

II. SMUGGLER ASSESSMENT

Perform step assessments, which identify methods and capabilities. Identify force decompositions from both sides for desired outcomes and solutions for those outcomes.

The process consists of three major components, understanding the smugglers, border protection system and how terrain affects both sides. We will just analyze the smuggler force decompositions. Remember, that performing a smuggler assessment for one section of the border does not apply to other sections.

LSPT 02.01.01

A. Think like the Smuggler - put yourself in their position.

Overhead 5

1. Identify the <u>What</u>:

   a. What is the contraband?

   b. What is their source - or where are they coming from?

   c. What is their goal or objective - where are they going?

   d. What is their intensity, persistence, and willingness to use lethal force?

B. Smuggler Forces (Opposition)

The objective of an analysis of the smuggler situation is to deduce the smuggler's most probable course of action. Its development comes from sources including smuggler doctrine and historical data, as well as current smuggler activities as indicated in the higher border commander's operation order. Ideally, the information used to analyze the smuggler situation includes the following:

Overhead 6

1. Composition, Disposition and Strength

Overhead 7

Describe your typical smuggler. Are they locals or outsiders? It is an identification of the forces and equipment that the smuggler can bring to bear within your patrol zone or sector. What are the ethnic breakdowns? This might help with possible known locations of sympathizers, safe houses and their access/egress routes. Also, it may aid in the deployment of your personnel to ensure those employed are patrolling their own ethnic make-up and possible area they grew up. Does demeanor, language, clothing and or equipment match that local area? Also considered are known and suspected smuggler locations and strength estimates in relation to personnel, equipment and support capabilities. Do they work in pairs closely together or are they separated with one working as an overwatch element? What kinds of connections do they have with one another and with government officials?

What is the power structure of a smuggling organizations? Will the smugglers create their own network or use an existing one? I.e., will they utilize current smugglers of illegal contraband; if it exists why duplicate another route? They could meet with these individuals inquire of their success and failure rates. Learn the border patrol routines and interdiction routines. This is where cooperation between various units/agencies on sharing their interdictions, the smugglers patterns and methods of operations can

help identify how to relocate resources more efficiently.

2. Motivation

Overhead 8

What is the main motivation for the smuggler, economic gain (money or food), hatred, or intimidation? If you know what their motivations are you might undermine their network by understanding their needs and helping them achieve them in a lawful manner. Also knowing what motivates the smuggler helps you identify anomalies in purchases with hard currencies.

3. Capabilities and Limitations

Overhead 9

What can the smuggler do to me? What can they not do to me? In this subparagraph, the information listed under Composition, Disposition, Strength, is analyzed in relation to the smuggler's ability to conduct operations against your unit. The smugglers force is analyzed concerning its ability or inability to conduct various operations against our unit under any reasonably foreseeable situation. Is the smuggler force capable of defending, reinforcing, attacking, withdrawing, or delaying? For example, can the smuggler effectively move at night? Can they conduct a deliberate defense against us or do they lack sufficient forces and equipment? Will the smuggler be reinforced by elements of other units as a result of our interdiction? How long will this reinforcement take? Can it be done at night, is it a vehicular transported reinforcement force or will it be traveling on foot?

4. Smugglers most probable Course of Action

Overhead 10

What will the smuggler try to do to me? Based on the analysis of the smuggler's capabilities and limitations, deduce the smuggler's most probable course of action in relation to our action. For example, "the smuggler is likely to withdraw to the northwest as a result of our interdiction and attempt to melt with

locals west of the objective." Remember, the smugglers will watch where you patrol and your patterns to try to either evade or wait until you are not there. Possible Course of Action's (but not limited too):

a. Deceit/Piggyback

Trying to blend in with the locals doing lawful business (herders, farmers, etc.). The smuggler's might also drop their contraband long before you interview them knowing that someone else on this side of the border will pick up the cache. They might also have a team perform an overt crossing while the border forces are responding while the actual smugglers with the items cross covertly at another location.

b. Evade

They will have done their own terrain analysis and know your patrol routes and routines. This is why it is important to never set a routine and have various routes.

c. Fight

Smugglers will have a tendency to never put up a stand up fight unless they have no other choice. They are packing light (weaponry) for maneuverability.

d. Recruit/Bribe

Your patrol officers should try to keep their identity and where they live as secretive as possible to prevent intimidation and bribing techniques.

e. Drop Off/Mules

The smuggler might drop off the contraband at a known location for another smuggler to pick up then exfiltrate. For example a smuggler group from the outside might not know the local terrain so they will drop off the contraband to an local insider group to carry the contraband either the rest of the way to the objective, or yet again, drop off the contraband to another group of smugglers. The smugglers might come across on foot or other means and drop off the contraband to another group or location (safe house) with a better means to transport.

III. SMUGGLER ASSESSMENT PROCESS

Understanding the smuggler requires understanding his goals and intentions as well as his capabilities. It is then possible to look at the terrain and see what possible tactics he can effectively employ.

A. Identify the How: How can they achieve their goal? Overhead 11

1. What are their technical capabilities?

2. What are their tactical capabilities?

3. How much local support can they receive?

Collecting the smuggler capabilities together to form a set of options is a part of identifying his tactical options.

B Identifying the Who and the When is a function of Border Police intelligence. Overhead 12

1. Identifying smuggling networks.

2. Identifying smuggler personalities and identities.

3. Identifying timing of major shipments.

C. Identifying the Where is the subject of the next module, Terrain Analysis.

D. Smuggler Assessment Process

The first analysis process is an assessment of the smuggler's methods and capabilities. These steps will be illustrated by examining how they were used in one specific border sector analysis.

1. Smuggler Assessment Template

A template is used to decompose the smugglers actions: Overheads 13-14

a. Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level shows these steps on the overhead.

b. Under each step are a series of tasks that the smuggler could perform to accomplish that step.

c. The step to move and avoid, as well as the step to change transportation methods could happen multiple times. This model is useful to think through the smugglers capabilities and how he might be accomplishing each task. The model also can help identify protection actions to neutralize particular tasks.

d. Each step has its own breakout page, where the smuggler's capabilities to accomplish each task are defined. Overheads 15-16

i. This is where you think like a smuggler, and think through the smugglers capabilities and how they might be accomplishing each task.

ii. Identify those tasks associated with Smuggler goal / Objective.

e. The template will be used later to identify protection actions to neutralize particular tasks.

Overheads 17-18

E. Converging Capabilities to Tactics

1. This step involves building a full sequence of smuggler operations, from contraband origin to its destination using various smuggler capabilities for each task or step in the process.

2. Likely capabilities are combined in various combinations to produce different sets of tactics (solutions) the smuggler could employ

3. Then police tactics are examined against smuggler tactics to see what improvements can counter the smuggler. As the smuggler changes tactics, each change can require a corresponding change for the border police. This will be discussed further in Lesson Plan 02.02 Border Police Task Decomposition.

III. CONCLUSION

Overhead 19

Understanding the smuggler requires understanding their goals and intentions as well as their capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ. Understanding potential smuggler tactics is essential to countering them.

02.01 Limited Scope Performance Test Summary Specification

LSPT Type and Layer:	Effectiveness -Smuggler Assessment
Essential Elements:	Border Police Developing a Smuggler Assessment
Associated Element(s):	Lesson Plan 01.02
Responsible Organization:	Border Police
LSPT Approach:	The purpose is to test an individual's (group) performance on conducting a smuggler assessment.
LSPT Goal	To determine the level of knowledge, and or ability, possessed by the student during a tabletop discussion, or practical application exercise, in regards to a border security problem.
LSPT Objective's	02.01.01 Did the student demonstrate developing a Smuggler Assessment?
Summary Description:	The CTSD Analysis Training provides guidance in response direction and required actions to Border Police for applicable assessment, containment, denial, and fresh pursuit strategy requirements and to support interruption/neutralization operations requirements.
LSPT Administration	1. This LSPT will start with the students forming into analysis groups under control of an assistant instructor. 2. The student will also receive associated paperwork, and marking materials. 3. The student will utilize any previous materials (i.e., Process of Analysis, etc.) to conduct a smuggler assessment. 4. Situation a. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives. b. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices. c. Smugglers will seldom stand and fight. They use deception and blending techniques. d. Smugglers penetrate at all times there is not specific pattern. 5. Once the smuggler assessments are completed the students will present their final product to the class.
LSPT Outcome Determination:	The outcome of this LSPT is determined to be adequate when: (1) The student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test (presentation or completion of making a smuggler assessment). The students will be presented with a border security problem concerning smugglers and will use the following objective to resolve the scenario: 1. Identify Contraband 2. Identify their Source 3. Identify Smuggler Goal/Objective 4. Identify if Smugglers will use Lethal Force 5. Identify the Smugglers Composition, Disposition and Strength 6. Identify the Smugglers Motivation 7. Identify Smuggler Capabilities 8. Identify the Smugglers Course of Action 9. Identify Tasks Associated with Smugglers Goal/Objective 10. Identify Sub-Tasks Associated with Smugglers Goals/Objectives
Trend Determination:	LSPT outcome is evaluated and documented by the responsible organization. Effectiveness trending is performed by the CTSD Training Group lead. A trend is identified when the cause of an inadequate outcome is repeated from any of the previous objectives.
Safety	Performance tests shall be conducted with the highest regard for the safety and health of personnel and protection of the environment, government property, and national security interests.
Comments:	

SMUGGLER ASSESSMENT - LSPT #02.01		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to smuggler assessment.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand smuggler assessment duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
02.01.00		**SMUGGLER ASSESSMENT**	**PASS**	**FAIL**	**PASS**	**FAIL**
02.01.01		The student will develop a Smuggler Assessment.				

This LSPT is based on Mission Essential Task List.

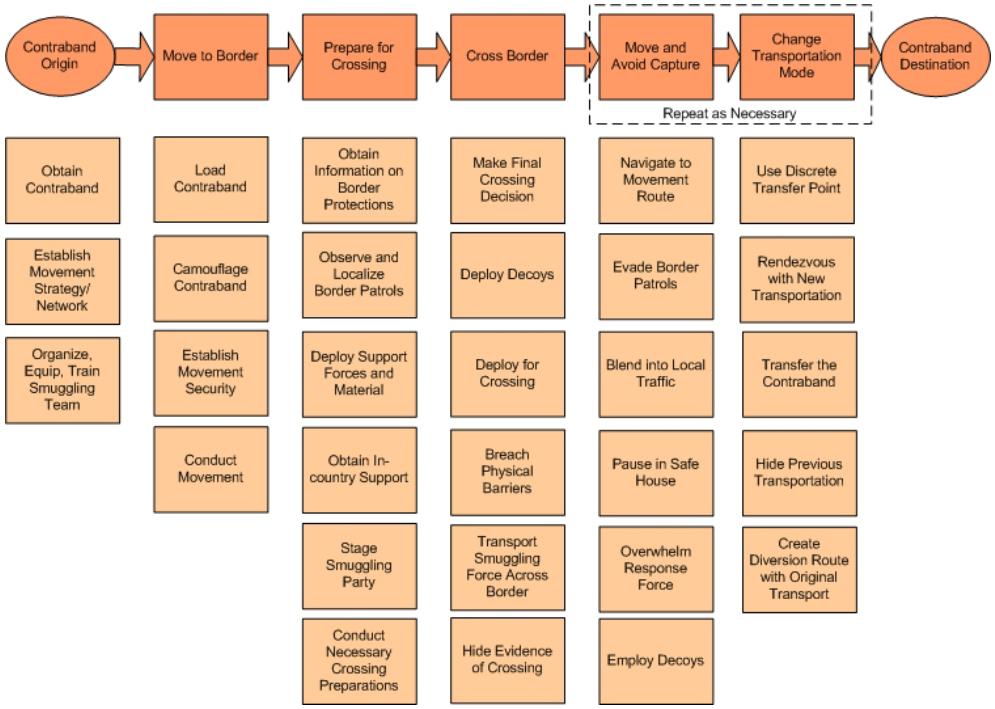
Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Module 2
Smuggler Assessment

Objective

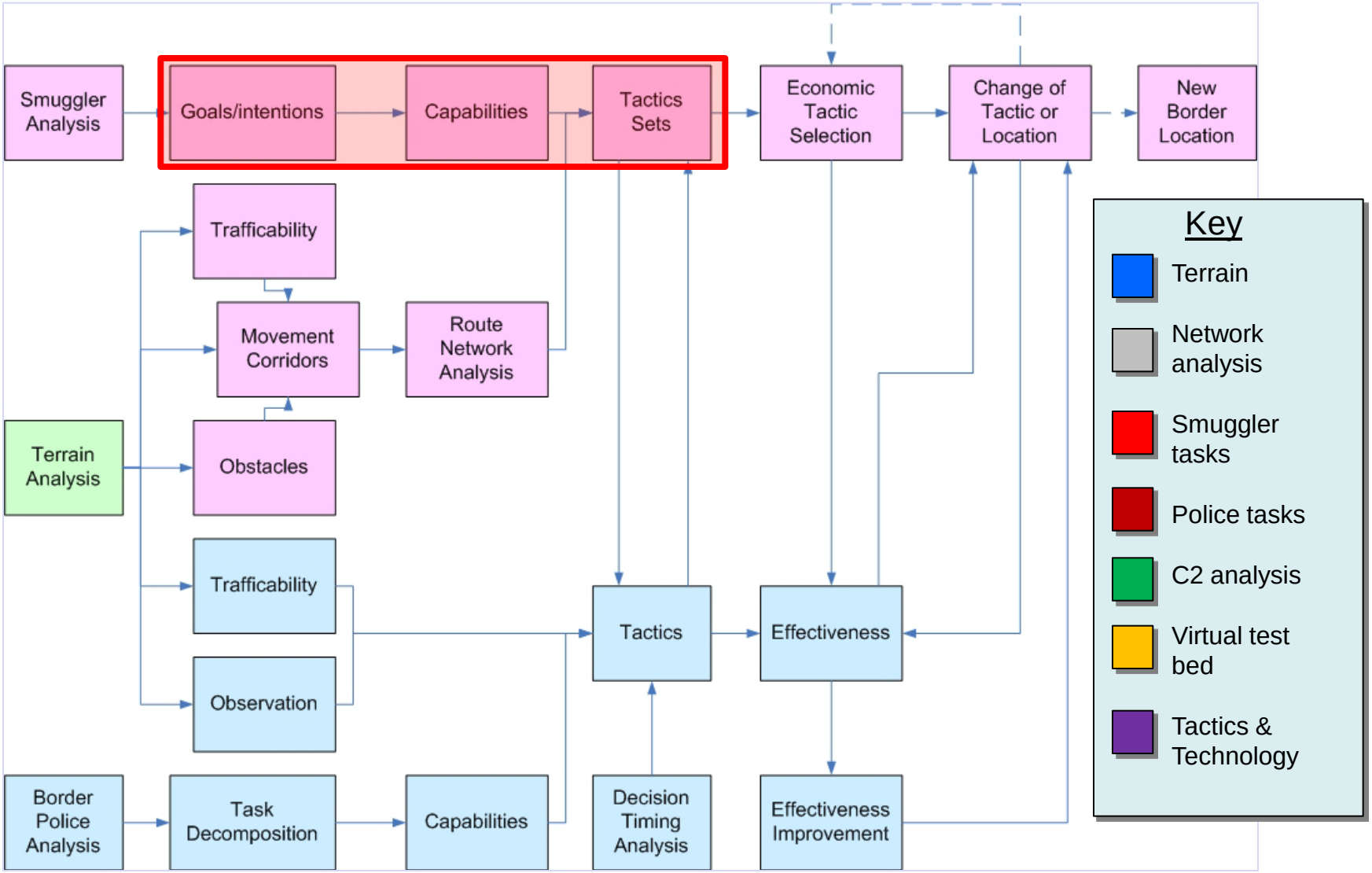
- Students will understand how to conduct a Smuggler Assessment Process.



Introduction

- Understanding the smuggler requires understanding his goals and intentions as well as his capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ.

Smuggler Assessment Process



Smuggler Assessment

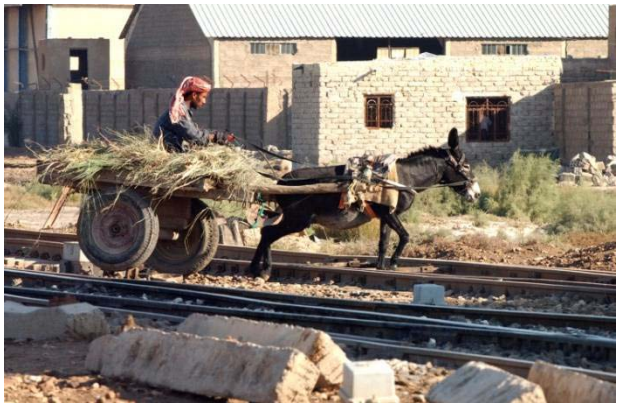
- Think like the smuggler – put yourself in their position.
- Identify the What: What are the smuggler intentions.
  - What is the contraband?
  - What is their source – or where are they coming from?
  - What is their goal or objective – where are they going?
  - What is their intensity, persistence, willingness to use lethal force.

Smuggler Assessment, cont.

The objective of an analysis of the smuggler situation is to deduce the smuggler's most probable course of action. Its development comes from sources including smuggler doctrine and historical data, as well as current smuggler activities.

Smuggler Assessment, cont.

- Composition, Disposition and Strength
  - Describe your typical smuggler.
  - Are they locals or outsiders?
  - Also considered are known and suspected smuggler locations and strength estimates in relation to personnel, equipment and support capabilities.
  - What are the ethnic breakdowns?



Smuggler Assessment, cont.

- Motivation
  - What is the main motivation for the smuggler, economic gain (money or food), hatred, or intimidation?

  - If you know what their motivations are you might undermine their network by understanding their needs and helping them achieve them in a lawful manner.

Smuggler Assessment, cont.

- Capabilities and Limitations
  - What can the smuggler do to me? What can they not do to me?
  - The smugglers force is analyzed concerning its ability or inability to conduct various operations against our unit under any reasonably foreseeable situation.
  - Is the smuggler force capable of defending, reinforcing, attacking, withdrawing, or delaying?

Smuggler Assessment, cont.

- Smugglers Course of Action
  - What will the smuggler try to do to me? Based on the analysis of the smuggler's capabilities and limitations, deduce the smuggler's most probable course of action in relation to our action. Possible course of actions:
    - Deceit/Piggyback
    - Evade
    - Fight
    - Recruit/Bribe
    - Drop Off/Mules

Smuggler Assessment - Part 2

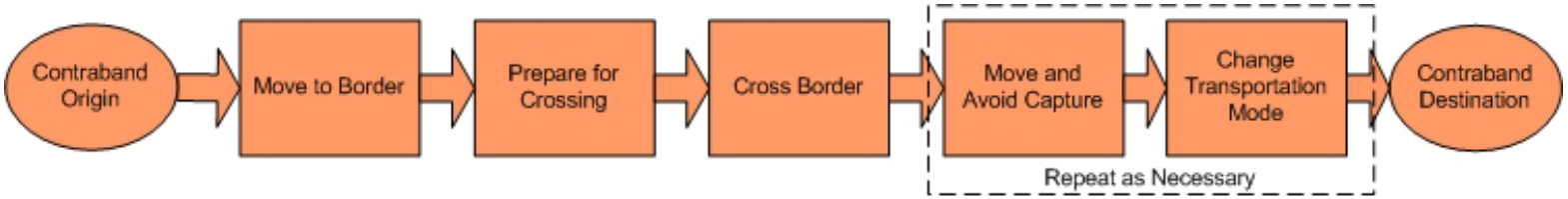
- Identify the How: How can they achieve their goal?
  - What are their technical capabilities?
  - What are their tactical capabilities?
  - How much local support can they receive?
- Collecting the smuggler capabilities together to form a set of options is a part of identifying his tactical options.

Smuggler Assessment - the remainder

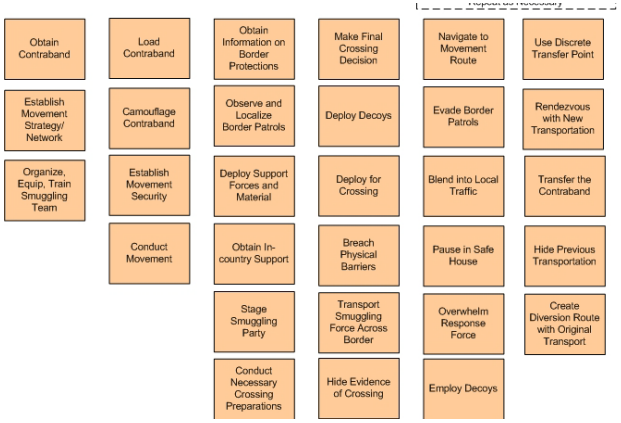
- Identifying the Who and the When is a function of Border Police intelligence.
  - Identifying smuggling networks
  - Identifying smuggler personalities and identities
  - Identifying timing of major shipments
- Identifying the Where is the subject of the next module, Terrain Analysis.

Smuggler Assessment Process

1. A template is used to decompose the smugglers actions
   - Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level.

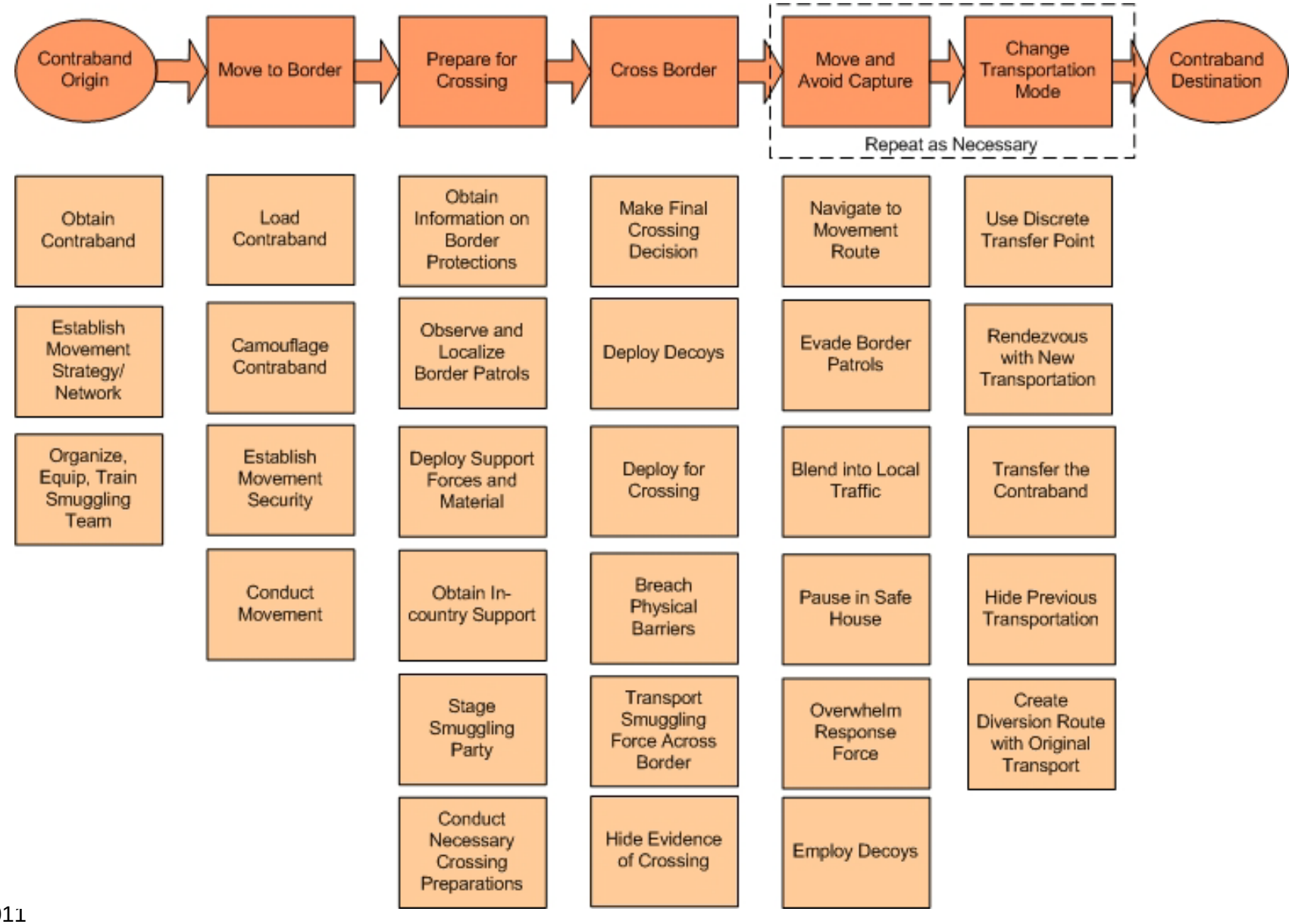


   - Each step consists of several tasks that could be used to do the step



   - The step to move and avoid, as well as the step to change transportation methods could happen multiple times.

Understanding the Smuggler



Smuggler Assessment Process - continued

- Each step has its own breakout page, where the smuggler's capabilities to accomplish each task are defined.
  - This is where you think like a smuggler, and think through the smugglers capabilities and how they might be accomplishing each task.
  - Identify those tasks associated with Smuggler goal / Objective.
- The template will be used later to identify protection actions to neutralize particular tasks.

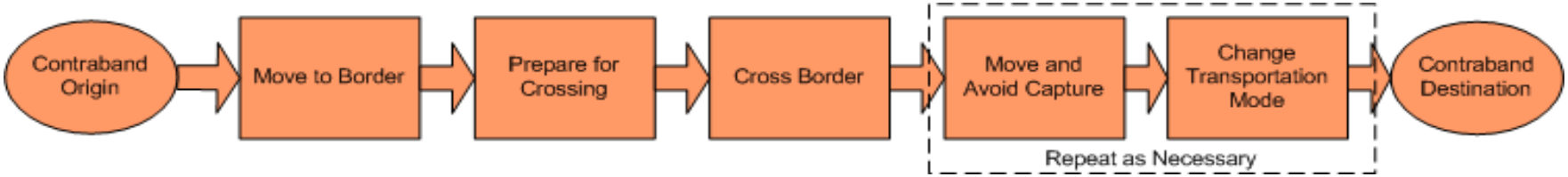
Cross Border Task Breakdown

	Method	Effectiveness
Make Final Crossing Decision	Leader decision in isolation Joint decision, based on	Fast, mostly effective
Deploy Decoys	Send low-value contraband on separate route Flood border with multiple crossers at nearby points	
Deploy for Crossing		
Breach Physical Barriers		
Transport Smuggling Force Across Border		
Hide Evidence of Crossing		

Converging Capabilities to Tactics

- This step involves building a full sequence of smuggler operations, from contraband origin to its destination using various smuggler capabilities for each task or step in the process.
- Likely capabilities are combined in various combinations to produce different sets of tactics (solutions) the smuggler could employ.

Smuggler Tactics Set Definition



Set 1

Set 2

Set 3

Set 4

Set 5

Conclusion

- Understanding the smuggler requires understanding their goals and intentions as well as their capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ.

- Understanding potential smuggler tactics is essential to countering them.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Smuggler Assessment**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**2.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**October 2010**
Review Schedule:	**Annually**

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Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
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Revision Schedule:

Revision	**Date**
Revision	**Date**
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LESSON PLAN 02.01
GOALS AND OBJECTIVES

Instructional Goal

02.01.00 Students will understand how to conduct a Smuggler Assessment Process.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

02.01.01 The student will develop a Smuggler Assessment.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 02.01
CRITERION TEST

None.

LESSON PLAN 02.01
SKILLS CRITERIA

02.01.01 The student will develop a Smuggler Assessment.

a. Identify Contraband
b. Identify their Source
c. Identify Smuggler Goal / Objective
d. Identify if the Smugglers will use Lethal Force
e. Identify the Smugglers Composition, Disposition and Strength
f. Identify the Smugglers Motivation
g. Identify Smuggler Capabilities (intensity, persistence, willingness to use lethal force)
h. Identify the Smugglers Course of Action
i. Identify Tasks Associated with Smugglers Goal / Objective
j. Identify Sub-Tasks Associated with Smugglers Goal / Objective

LESSON PLAN 02.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 02.01.00, 1-20

Handout Materials
Student Guide

References

LESSON PLAN 02.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
02.01 Smuggler Assessment **Student Comments**

I. INTRODUCTION

Understanding the smuggler requires understanding his goals and intentions as well as his capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ.

Understanding the border system requires looking at how all tasks are accomplished based on where the border police can observe and travel. It also involves examining the Command and Control (C2) system to determine response times – from which appropriate tactics can be determined. Then police tactics are examined against smuggler tactics to see what improvements can counter the smuggler. As the smuggler changes tactics, each change can require a corresponding change for the border police.

II. SMUGGLER ASSESSMENT

Perform step assessments, which identify methods and capabilities. Identify force decompositions from both sides for desired outcomes and solutions for those outcomes.

The process consists of three major components, understanding the smugglers, border protection system and how terrain affects both sides. We will just analyze the smuggler force decompositions. Remember, that performing a smuggler assessment for one section of the border does not apply to other sections.

A. Think like the Smuggler - put yourself in their position.

1. Identify the <u>What</u>:

a. What is the contraband?

b. What is their source - or where are they coming from?

c. What is their goal or objective - where are they going?

d. What is their intensity, persistence, and willingness to use lethal force?

B. Smuggler Forces (Opposition)

The objective of an analysis of the smuggler situation is to deduce the smuggler's most probable course of action. Its development comes from sources including smuggler doctrine and historical data, as well as current smuggler activities as indicated in the higher border commander's operation order. Ideally, the information used to analyze the smuggler situation includes the following:

1. Composition, Disposition and Strength

Describe your typical smuggler. Are they locals or outsiders? It is an identification of the forces and equipment that the smuggler can bring to bear within your patrol zone or sector. What are the ethnic breakdowns? This might help with possible known locations of sympathizers, safe houses and their access/egress routes. Also, it may aid in the deployment of your personnel to ensure those employed are patrolling their own ethnic make-up and possible area they grew up. Does demeanor, language, clothing and or equipment match that local area? Also considered are known and suspected smuggler locations and strength estimates in relation to personnel, equipment and support capabilities. Do they work in pairs closely together or are they separated with one working as an overwatch element? What kinds of connections do they have with one another and with government officials?

What is the power structure of a smuggling organizations? Will the smugglers create their own network or use an existing one? I.e., will they utilize current smugglers of illegal contraband; if it exists why duplicate another route? They could meet with these individuals inquire of their success and failure rates. Learn the border patrol routines and interdiction routines. This is where cooperation between various units/agencies on sharing their interdictions, the smugglers patterns and methods of operations can

help identify how to relocate resources more efficiently.

2. Motivation

   What is the main motivation for the smuggler, economic gain (money or food), hatred, or intimidation? If you know what their motivations are you might undermine their network by understanding their needs and helping them achieve them in a lawful manner. Also knowing what motivates the smuggler helps you identify anomalies in purchases with hard currencies.

3. Capabilities and Limitations

   What can the smuggler do to me? What can they not do to me? In this subparagraph, the information listed under Composition, Disposition, Strength, is analyzed in relation to the smuggler's ability to conduct operations against your unit. The smugglers force is analyzed concerning its ability or inability to conduct various operations against our unit under any reasonably foreseeable situation. Is the smuggler force capable of defending, reinforcing, attacking, withdrawing, or delaying? For example, can the smuggler effectively move at night? Can they conduct a deliberate defense against us or do they lack sufficient forces and equipment? Will the smuggler be reinforced by elements of other units as a result of our interdiction? How long will this reinforcement take? Can it be done at night, is it a vehicular transported reinforcement force or will it be traveling on foot?

4. Smugglers most probable Course of Action

   What will the smuggler try to do to me? Based on the analysis of the smuggler's capabilities and limitations, deduce the smuggler's most probable course of action in relation to our action. For example, "the smuggler is likely to withdraw to the northwest as a result of our interdiction and attempt to melt with

locals west of the objective." Remember, the smugglers will watch where you patrol and your patterns to try to either evade or wait until you are not there. Possible Course of Action's (but not limited too):

a. Deceit/Piggyback

Trying to blend in with the locals doing lawful business (herders, farmers, etc.). The smuggler's might also drop their contraband long before you interview them knowing that someone else on this side of the border will pick up the cache. They might also have a team perform an overt crossing while the border forces are responding while the actual smugglers with the items cross covertly at another location.

b. Evade

They will have done their own terrain analysis and know your patrol routes and routines. This is why it is important to never set a routine and have various routes.

c. Fight

Smugglers will have a tendency to never put up a stand up fight unless they have no other choice. They are packing light (weaponry) for maneuverability.

d. Recruit/Bribe

Your patrol officers should try to keep their identity and where they live as secretive as possible to prevent intimidation and bribing techniques.

e. Drop Off/Mules

The smuggler might drop off the contraband at a known location for another smuggler to pick up then exfiltrate. For example a smuggler group from the outside might not know the local terrain so they will drop off the contraband to an local insider group to carry the contraband either the rest of the way to the objective, or yet again, drop off the contraband to another group of smugglers. The smugglers might come across on foot or other means and drop off the contraband to another group or location (safe house) with a better means to transport.

III. SMUGGLER ASSESSMENT PROCESS

Understanding the smuggler requires understanding his goals and intentions as well as his capabilities. It is then possible to look at the terrain and see what possible tactics he can effectively employ.

A. Identify the How: How can they achieve their goal?

1. What are their technical capabilities?

2. What are their tactical capabilities?

3. How much local support can they receive?

Collecting the smuggler capabilities together to form a set of options is a part of identifying his tactical options.

B Identifying the Who and the When is a function of Border Police intelligence.

1. Identifying smuggling networks.

2. Identifying smuggler personalities and identities.

3. Identifying timing of major shipments.

C. Identifying the Where is the subject of the next module, Terrain Analysis.

D. Smuggler Assessment Process

The first analysis process is an assessment of the smuggler's methods and capabilities. These steps will be illustrated by examining how they were used in one specific border sector analysis.

1. Smuggler Assessment Template

A template is used to decompose the smugglers actions:

a. Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level shows these steps on the overhead.

b. Under each step are a series of tasks that the smuggler could perform to accomplish that step.

c. The step to move and avoid, as well as the step to change transportation methods could happen multiple times. This model is useful to think through the smugglers capabilities and how he might be accomplishing each task. The model also can help identify protection actions to neutralize particular tasks.

d. Each step has its own breakout page, where the smuggler's capabilities to accomplish each task are defined.

i. This is where you think like a smuggler, and think through the smugglers capabilities and how they might be accomplishing each task.

ii. Identify those tasks associated with Smuggler goal / Objective.

e. The template will be used later to identify protection actions to neutralize particular tasks.

E. Converging Capabilities to Tactics

1. This step involves building a full sequence of smuggler operations, from contraband origin to its destination using various smuggler capabilities for each task or step in the process.

2. Likely capabilities are combined in various combinations to produce different sets of tactics (solutions) the smuggler could employ

3. Then police tactics are examined against smuggler tactics to see what improvements can counter the smuggler. As the smuggler changes tactics, each change can require a corresponding change for the border police. This will be discussed further in Lesson Plan 02.02 Border Police Task Decomposition.

III. CONCLUSION

Understanding the smuggler requires understanding their goals and intentions as well as their capabilities. It is then possible to look at the terrain and see what possible tactics they can effectively employ. Understanding potential smuggler tactics is essential to countering them.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Border Police Task Decomposition**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**2.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**October 2010**
Review Schedule:	**Annually**

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Prepared by **Date**

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Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
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Revision Schedule:

Revision	**Date**
Revision	**Date**
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Revision	**Date**

LESSON PLAN 02.02
GOALS AND OBJECTIVES

Instructional Goal

02.02.00 The student will understand how to conduct a Border Police Task Decomposition Process.

Learning Objectives

Cognitive Tasks

None

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

02.02.01 The student will develop Border Police Force Task Decompositions.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 02.02
CRITERION TEST

None.

LESSON PLAN 02.02
SKILLS CRITERIA

02.02.01	The student will develop Border Police Force Task Decompositions. a. Conduct a Smuggler Assessment b. Identify Border Police Desired Goal / Outcomes c. Identify Tasks Associated with Goal / Outcomes d. Identify Sub-Tasks Associated with Goal / Outcomes e. Identify Procedural Changes f. Make Procedural Changes g. Evaluate Border Police Goals / Outcomes h. Adjust as Needed	LSPT p. 8-9, II, A-C

LESSON PLAN 02.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 02.02.00, 1-15

Handout Materials
Student Guide

References

LESSON PLAN 02.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
02.01 Border Police Task Decomposition **Instructor Comments**

I. INTRODUCTION

After conducting the Smugglers Assessment to understand the smugglers goals and intentions, and capabilities the next step is to examine the Border Police tasks.

Overheads 1-3

Understanding the border system requires looking at how all tasks are accomplished based on where the border police can observe and travel. It also involves examining the Command and Control (C2) system to determine response times – from which appropriate tactics can be determined. Then police tactics are examined against smuggler tactics to see what improvements can counter the smuggler. As the smuggler changes tactics, each change can require a corresponding change for the border police.

II. BLUE FORCE TASK DECOMPOSITION

Overhead 4

Like with the Smuggler Force we now conduct a Border Police assessments, which identify methods and capabilities. Identify desired outcomes and solutions / tasks for those outcomes. After the 'generic' outcomes are identified the border security tasks were examined. In this case, it was done by listing those outcomes necessary to secure the border and decomposing them into the necessary tasks to achieve them.

A. Border Security Task Decomposition

Overhead 5
LSPT 02.02.01

Each of the task boxes was then broken down into the specific methods that could or were employed to accomplish them – this forms a systematic method for understanding the security functions.

In this example, only certain outcomes were important to interdict the smuggler on the specific terrain. The outcomes we want to examine are shown in the yellow boxes. Then the tasks in the orange boxes were examined to determine current effectiveness and see where we can make improvements. For example:

1. Situation Correctly Assessed

   Did you correctly identify the situation for a particular section of border? If not adjust accordingly.

2. Response Appropriate

   Is your response to the smugglers task decomposition appropriate? If not adjust accordingly.

3. Apprehension Effective

   Are your apprehension techniques to the smugglers task decomposition appropriate? If not adjust accordingly.

B. Methods Used to Accomplish Tasks Examples (but not limited too) — Overheads 6-10

1. Prepare the Security Force
2. Detect Border Crossing
3. Maintain / Regain Contact
4. Assess
5. Respond

C. Capabilities Assessment — Overhead 11

After determining the tasks that could, either singly or together provide a desired outcome, the methods that could be used to accomplish a task are delineated.

1. Task Decomposition Tool

   Each method is qualitatively evaluated on how well it currently is applied in the Border Police.

   a. Red: not possible or effective.

   b. Yellow: applied or possible, but not fully effective.

   c. Green: applied or possible, fully effective.

2. Demonstrate the Task Decomposition Tool

Overheads 12-13

IV. CONCLUSION

Task Decomposition is a method to identify methods to achieve Border Police objectives. It is used to identify effectiveness accomplishing each task(s), and identify those areas for potential improvement. It also is useful to assist in developing solutions in a future analysis process.

Overhead 14

BORDER POLICE TASK DECOMPOSITION - LSPT #02.02		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to border police task decomposition.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand Border Police Tasks Decomposition duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
02.02.00		**BORDER POLICE TASK DECOMPOSITION**	**PASS**	**FAIL**	**PASS**	**FAIL**
02.02.01		The student will develop Border Police Task Decompositions.				

This LSPT is based on Mission Essential Task List.

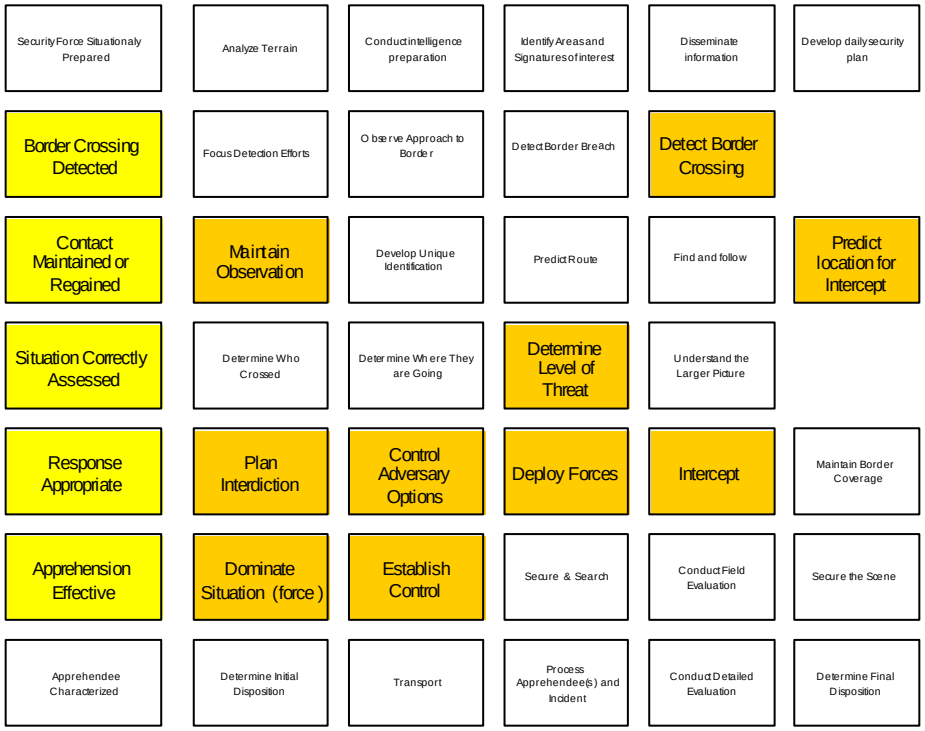
Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Module 2
Border Police Task Decomposition

Objective

- The student will understand how to conduct a Border Police Task Decomposition Process.

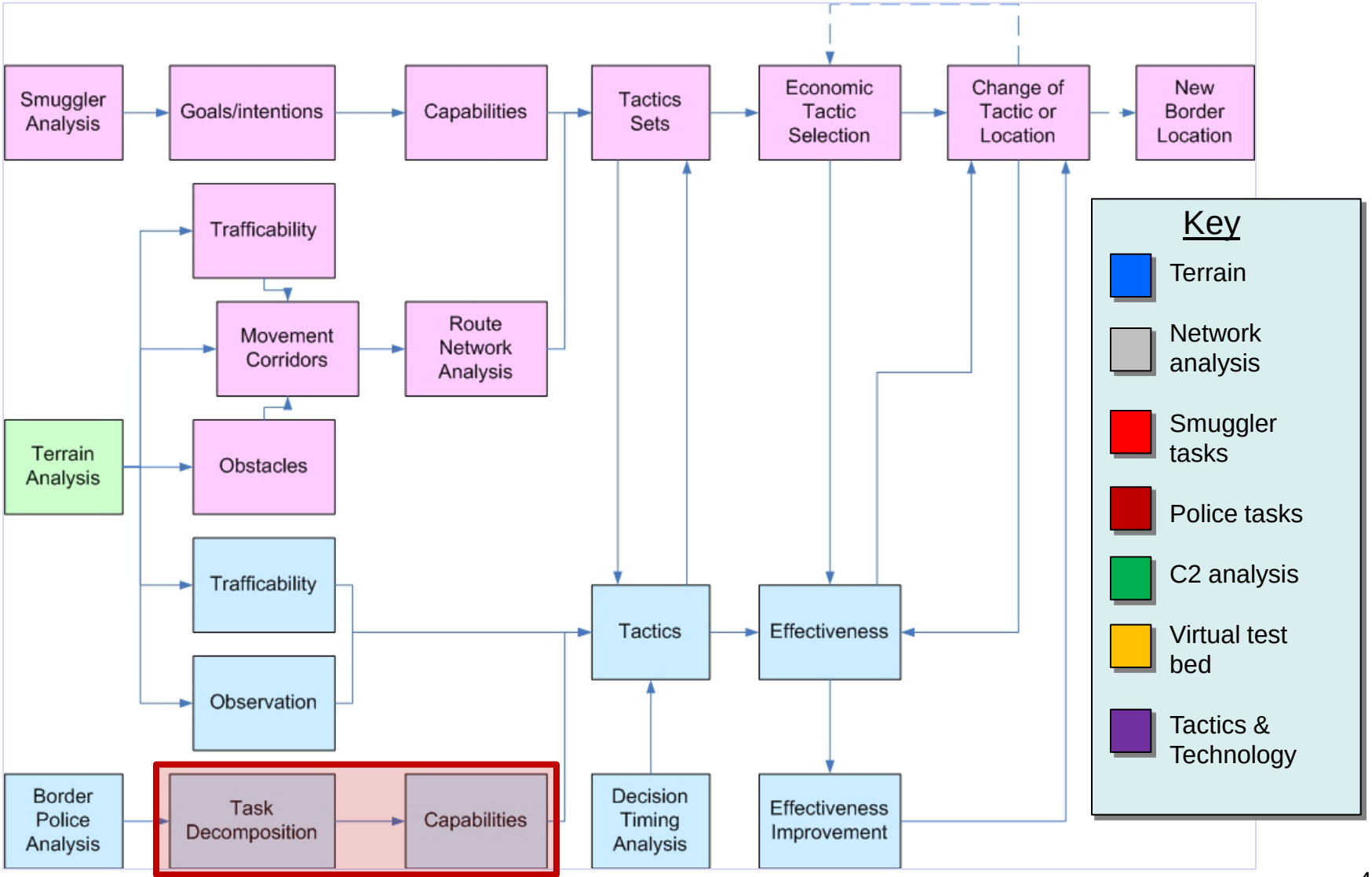


Introduction

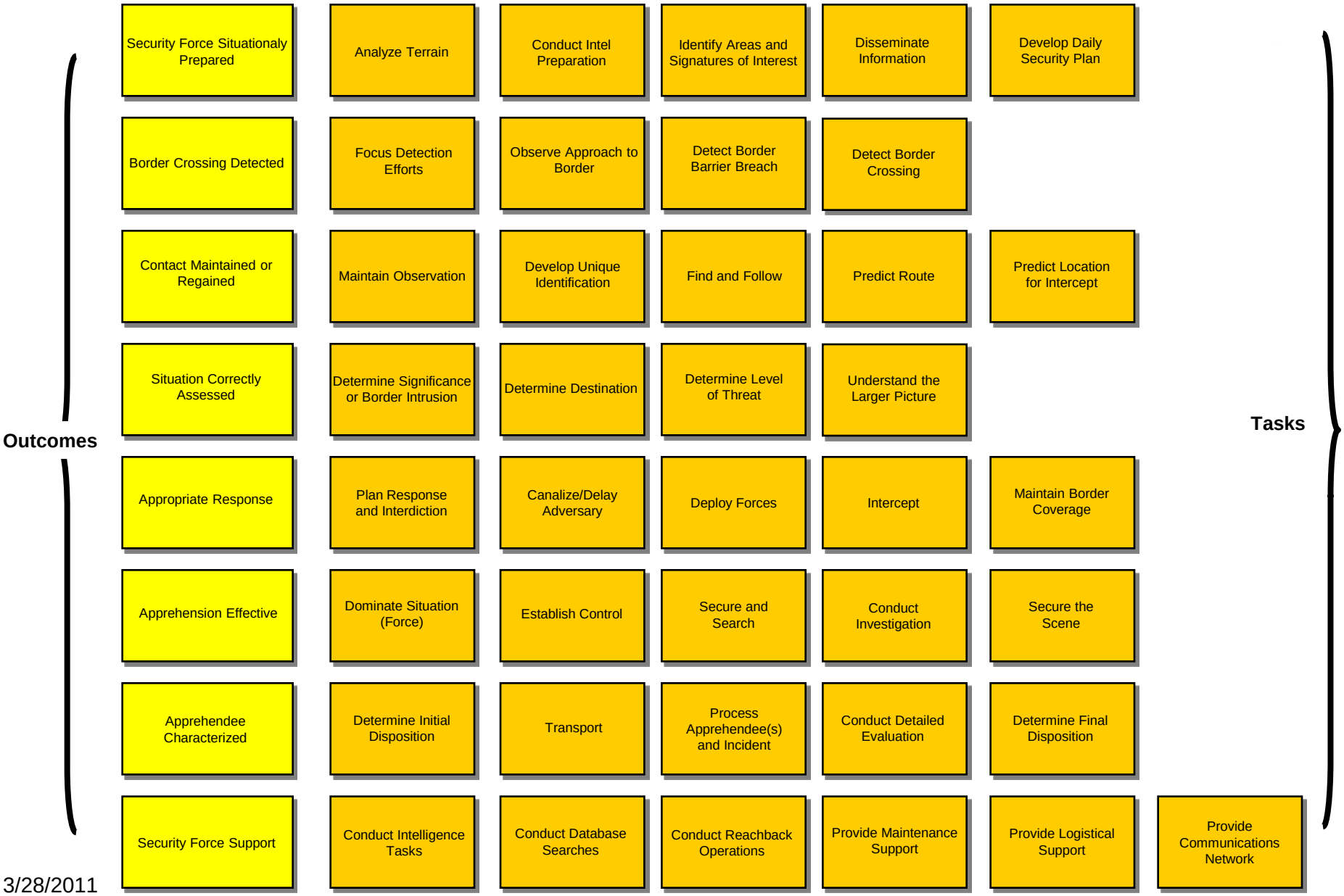
- After conducting the Smuggler task Assessment to understand the smugglers goals, intentions, and capabilities the next step is to examine the Border Police tasks.

- This is accomplished through a process called “task decomposition.”
  - First desired outcomes from Border Police efforts are identified.
  - The tasks that could achieve each outcome are then listed, followed by methods to conduct each task.

Border Police Decomposition



Border Security Task Decomposition

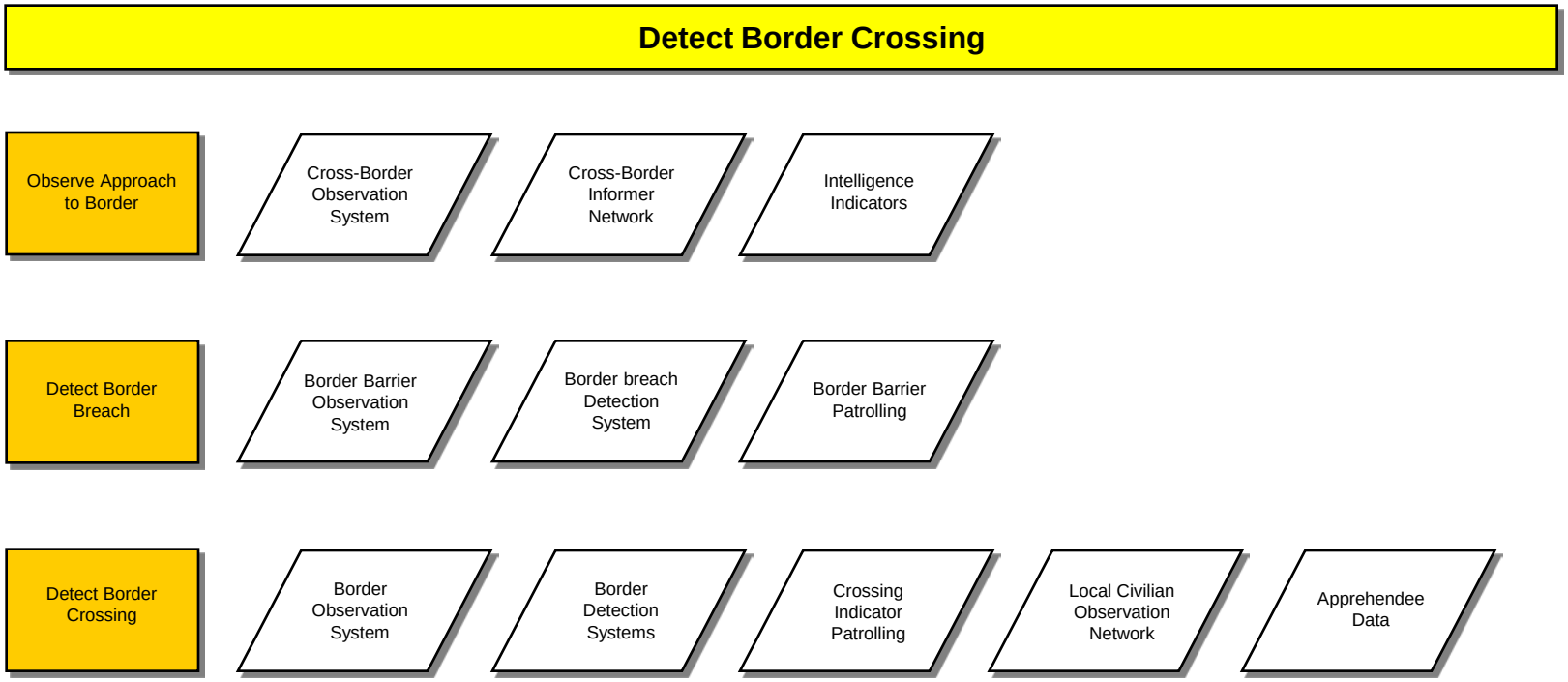


Methods Used to Accomplish Tasks

Prepare the Security Force

Analyze Terrain	Understand Concealment features	Understand Trafficability features	Understand Observation features	Identify Usable Routes	
Conduct Intelligence Preparation	Understand Current Threat	Analyze and incorporate new Data	Understand Normal Background	Detect Intelligence Indicators	Build Intelligence Picture
Identify Areas and Signatures of Interest	Select Area Focus	Select Signature Focus			
Disseminate Information	Periodic Intell Summary	Current Intell Updates	Build Intell Pictures		

Methods Used to Accomplish Tasks

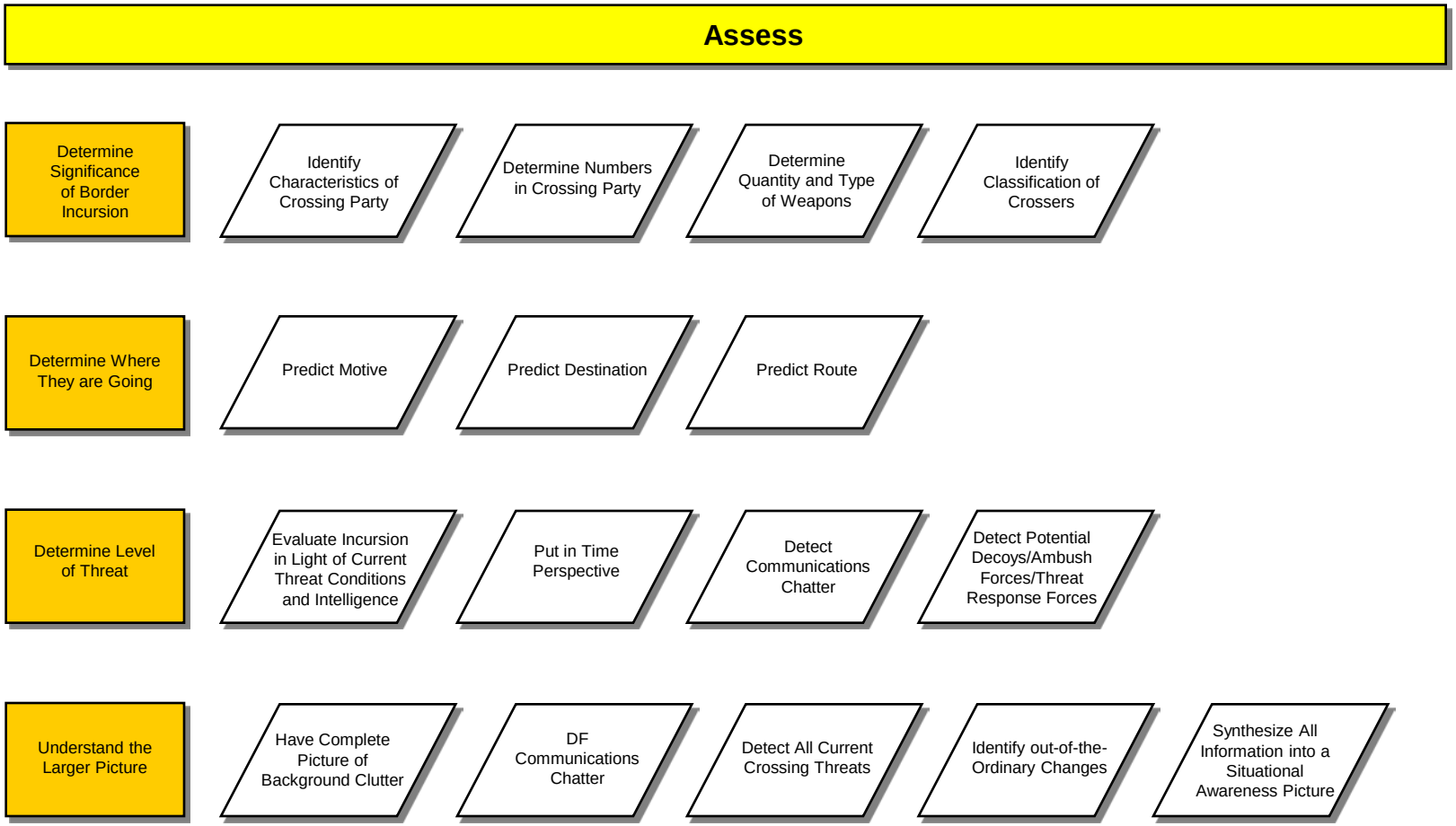


Methods Used to Accomplish Tasks

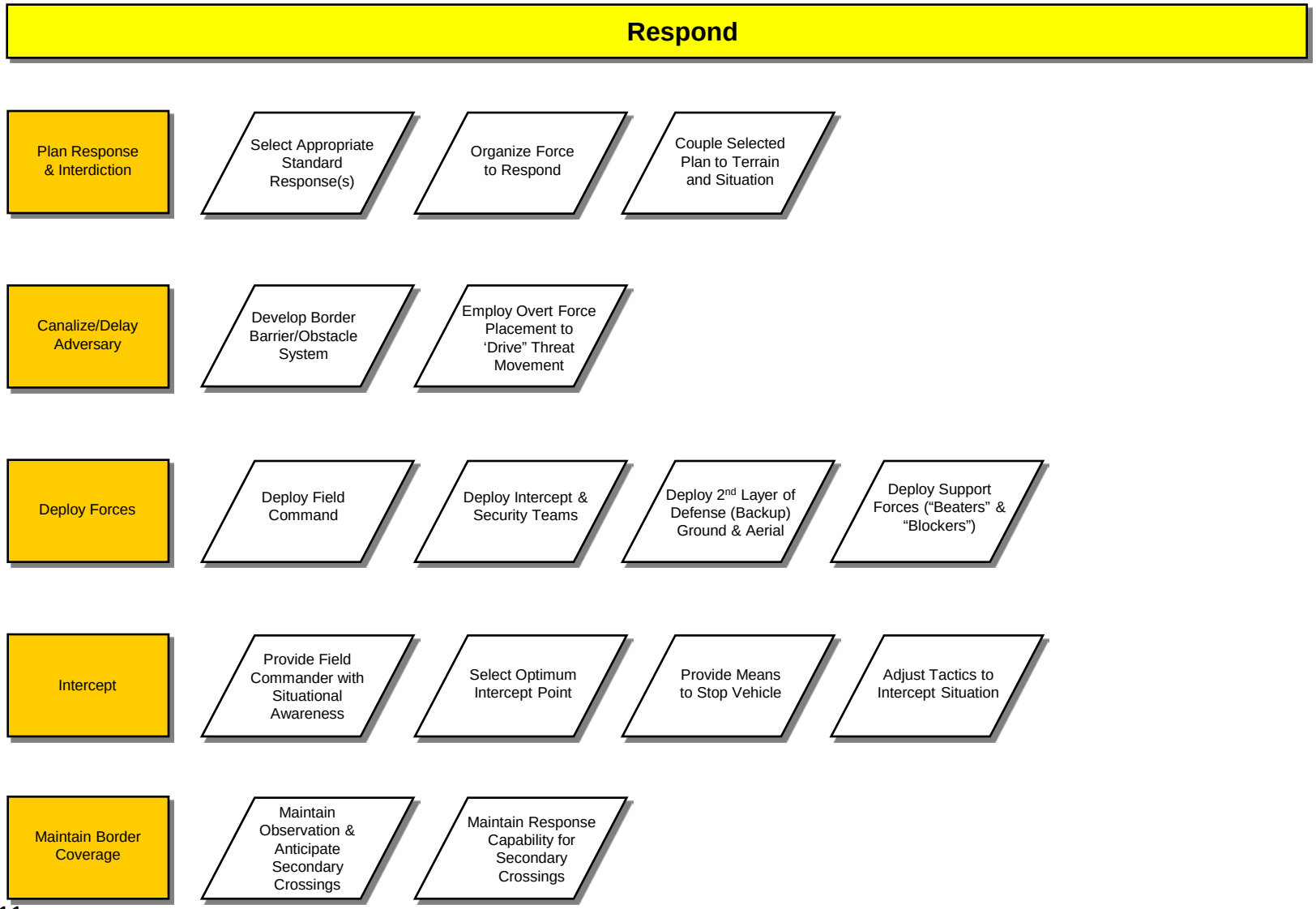
Maintain / Regain Contact

Maintain Observation	Deploy a Tracking Observation or Sensing System	Follow from Air	Follow on Ground		
Develop Unique Identification(s)	Acquire Detailed Description	Acquire Unique Signature	Disseminate Description or Signature	Apply Unique Mark or Tag	
Predict Route	Understand Terrain and Terrain Avenues	Understand Possible Destinations	Extrapolate Route to Probable Destination		
Find and Follow	Conduct Regional Search	Identify a Ground Signature	Follow a Ground Signature	Search for Description or Signature	Follow a Mark or Tag
Predict Location for Intercept	Understand Potential Hiding Places and Alternative Routes	Select Response Route(s)			

Methods Used to Accomplish Tasks



Methods Used to Accomplish Tasks



Capabilities Assessment

- After determining the tasks that could, either singly or together provide a desired outcome, the methods that could be used to accomplish a task are delineated.
- Each method is qualitatively evaluated on how well it currently is applied in the Border Police.
  - Red: not possible or effective
  - Yellow: applied or possible, but not fully effective
  - Green: applied or possible, fully effective

Task Decomposition Tool

- Use the Task Decomposition Tool.
- Assess each method as:
  - 0-33% effective = Red
  - 34-66% effective = Yellow
  - 67-100% effective = Green
- Examine outcomes and adjust solutions.
- Select best solution.

Task Decomposition Tool Demonstration

- Enter here.....

Conclusion

- Task Decomposition is a method to identify methods to achieve Border Police objectives.
- It is used to identify effectiveness accomplishing each tasks, and identify those areas for potential improvement.
- It also is useful to assist in developing solutions in a future analysis process.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Timing and Decision Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**2.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 02.03
GOALS AND OBJECTIVES

Instructional Goal

02.03.00 The student will understand how to conduct a Timing and Decision Analysis and why it is important.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

02.03.01 To familiarize the student with the Decision Process.

02.03.02 The student will demonstrate using the Decision Timing Tool to solve a Border Security Problem.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 02.03
CRITERION TEST

None.

LESSON PLAN 02.03
SKILLS CRITERIA

02.03.02	The student will demonstrate using the Decision Timing Tool to solve a Border Security Problem. a. Give Students a Border Crossing Scenario b. Student will utilize the OODA Loop Components c. Student will utilize the Decision Timing Tool	LSPT p. 8-13, II, A-E

LESSON PLAN 02.03
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 02.03.00, 1-25

Handout Materials

References
1. College of Business," Fighter Pilots and Entrepreneurs: Creating OODA Loop Curriculum to Enhance Marketing Responsiveness", White Paper
2. Colonel John R. Boyd, "Boyd Cycle - OODA Loop", 1997

LESSON PLAN 02.03
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
02.03 Timing and Decision Analysis **Instructor Comments**

I. INTRODUCTION

Patrol operations require thorough knowledge of the terrain and detailed intelligence preparation of the area of concern or operations. To succeed, you have to quickly understand what's going on, know what to do, be able to do it, while learning from the experience is the OODA loop outcome.

Overheads 1-3

OODA is an acronym for Observation, Orientation, Decision, and Action. This sequence of individual and/or organizational cognitive processes is also referred to as the "Boyd Cycle" because it is attributed to the late Colonel John R. Boyd, a pioneering jet-fighter pilot and strategic theorist with the U.S. Air Force. It was Colonel Boyd's practiced belief that combat-fighter aircraft operate and successfully achieve specific mission-essential outcomes in an ultra-dynamic, continuously evolving set of environments, and that critical to the success of the individual pilot and the entire organization was the ability of the pilot to make accurate, appropriate, and strategically responsive decisions (Boyd, 1997).

II. OODA LOOP

Overheads 4-5

The Observe, Orient, Decide and Act (OODA) Loop looks at all aspects of decision process. Then we can identify ways to accomplish each phase of OODA process. For example;

LSPT 02.03.01-2
Overhead 6

A. Observe: See or Detect Action

1. Individual Observations (observation posts, patrols, etc.).

2. Sensor Inputs (ground sensors, radar, cameras, etc.).

3. Information from Other Commands (Intel, battalion, other area, etc.).

Observe unfolding circumstances and gather outside information in order to orient to perceived threats.

Overhead 7

B. Orient: Place Observation in Context

1. Is observation something of interest?

2. What does it mean?
3. Based on previous experience and training.
4. Based on Intel.
5. What Affects Orientation?
    a. Cultural Tradition
    b. Genetic Heritage
    c. Previous Experiences
    d. Analysis/Synthesis
    e. New Information
    f. Training

C. Decide: Course of Action is Based on... Overhead 8

1. Goals
2. Capabilities
3. Rules of Engagement
4. Limitations

Overhead 9

D. Act: Follow through on your Decision

1. Start Up Delay
2. Time to Complete Action
3. Ask, "If I'm going to take this action, what is the delay involved?"
4. Optimally, the action will be a skill that is so ingrained through training and rehearsal as to involve no thought.

a. It should be seamlessly employed. Utilize training drills and practice scenarios to gain experience.

E. OODA Critical Steps

Overheads 10-11

1. Orient

The entire “loop” (not just orientation) is an on-going many-sided implicit cross-referencing process of projection, empathy, correlation, and rejection.

2. Speed of Execution

Quickly understand what’s going on, know what to do, be able to do it, while learning from the experience is the OODA loop outcome.

Note that “OODA” speed is quite different from the speed of the actions.

a. Making a decision takes time, performing the resulting action also takes time – both must be considered together.

b. Doing something dumb, but doing it at high speed, may not provide much of a competitive advantage – a good decision is critical.

F. OODA Loop Goals

Overhead 12

1. Conduct multiple loops inside the enemy’s loop.

2. Stop the opponent reacting to anything that is happening to them.

3. Be prepared to start the decision loop process over again and make modifications based on your opponent’s actions

4. Decision Timing Insight — Overhead 13

   Remember, smugglers and border police have competing OODA loops. While the border police are going through OODA loop, the smuggler (threat) is also going through an OODA loop of their own. The smugglers are observing what you are doing and adjusting their actions. In knowing this, you must be able to interlink the decision processes.

   a. Each person or group is going through the decision process.

   b. Remember, each step in the decision process takes time.

5. Take specific actions to lengthen the opposition's loop. — Overhead 14

   a. **Observe**: use camouflage to avoid detection.

   b. **Orientation**: utilize decoys to cause confusion.

   c. **Decisions:** the goal is to make your opponent make the wrong decision.

   d. **Act**: place barriers in key locations.

6. Complete your OODA Loop quicker than the opponents.

G. Increases Chances of Success — Overheads 15-16

1. OODA cycles create continuous unpredictable change.

   a. Team tactics, strategy and supporting structures should be based on the idea of shaping and adapting to this change. And, doing it faster than one's opponent.

2. The opponent's loop can be lengthened by deception, novel actions, or fast transient maneuvering.

a. These isolate the opponent from match reality by destroying his existing mental model and denying him the means to build a new model.

3. The combination of pressure and an inability to cope with external circumstances.

4. This causes the opponent to feel any or all uncertainty, doubt, confusion, self-deception, indecision, fear, panic, discouragement and despair.

5. This destroys their capacity to adapt and succeed.

6. Decision Timing Insight for Success

Overhead 17

a. Each additional level involved in the decision process adds delay to the response.

b. Decision to interdict should be made at the lowest possible level.

c. Higher decision levels need a good situational awareness picture to speed their orientation and decision steps.

Also look at how OODA loops for different personnel connect. For example, if need a higher authority to make a decision about an interdiction.

- Have to consider what info they need.

- How long will it take to make communications?

- How long will it take them to make decision, etc?

E. Decision Timing Flow

Overheads 18-19

1. Build a decision flow chart.

2. Determine OODA times at each level.

3. Determine time necessary to communicate between levels.

4. Add times together for each route from initial observation of smuggler through to initiating an action.

5. Decision Timing Tool, Example and Results

Overheads 20-22

A model linking the patrol observing the smuggler (shown in green) with there fort (shown in light blue) and the higher headquarters battalion (shown in dark blue) was made to examine the timing from the OODA loop processes at each decision level.

After entering the normal, earliest and latest times from the OODA process at each level it was possible to determine how quickly different responses could be initiated.

Results from the model are shown – if the patrol seeing the smuggler is allowed to make the decision to interdict, it takes about 2-3 minutes. If the decision must be made at the battalion, it can take almost 50 minutes.

This shows the importance of either allowing decisions to be made at the lowest level, perhaps with pre-authorized standard procedures and rules of engagement, or providing technology such as a common operational picture to the higher levels in order to speed their decision process.

III. CONCLUSION

Overheads 23-24

Decision to interdict should be made at lowest possible level. Remember, each additional level involved in the decision process adds delay to the response. Competitive advantage comes from quickness over the entire “loop”, not just or even primarily from the O-to-O-to-D-to-A sequence.

TIMING AND DECISION ANALYSIS - LSPT #02.03		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to timing and decision analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand Timing and Decision Analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
02.03.00		**TIMING AND DECISION ANALYSIS**	**PASS**	**FAIL**	**PASS**	**FAIL**
02.03.01		The student will demonstrate using the Decision Timing Tool to solve a Border Security Problem.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Timing and Decision Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**2.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 02.03
GOALS AND OBJECTIVES

Instructional Goal

02.03.00 The student will understand how to conduct a Timing and Decision Analysis and why it is important.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

02.03.01 To familiarize the student with the Decision Process.

02.03.02 The student will demonstrate using the Decision Timing Tool to solve a Border Security Problem.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 02.03
CRITERION TEST

None.

LESSON PLAN 02.03
SKILLS CRITERIA

02.03.02	The student will demonstrate using the Decision Timing Tool to solve a Border Security Problem. a. Give Students a Border Crossing Scenario b. Student will utilize the OODA Loop Components c. Student will utilize the Decision Timing Tool	

LESSON PLAN 02.03
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 02.03.00, 1-25

Handout Materials

References
1. College of Business," Fighter Pilots and Entrepreneurs: Creating OODA Loop Curriculum to Enhance Marketing Responsiveness", White Paper
2. Colonel John R. Boyd, "Boyd Cycle - OODA Loop", 1997

LESSON PLAN 02.03
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
02.03 Timing and Decision Analysis **Student Comments**

I. INTRODUCTION

Patrol operations require thorough knowledge of the terrain and detailed intelligence preparation of the area of concern or operations. To succeed, you have to quickly understand what's going on, know what to do, be able to do it, while learning from the experience is the OODA loop outcome.

OODA is an acronym for Observation, Orientation, Decision, and Action. This sequence of individual and/or organizational cognitive processes is also referred to as the "Boyd Cycle" because it is attributed to the late Colonel John R. Boyd, a pioneering jet-fighter pilot and strategic theorist with the U.S. Air Force. It was Colonel Boyd's practiced belief that combat-fighter aircraft operate and successfully achieve specific mission-essential outcomes in an ultra-dynamic, continuously evolving set of environments, and that critical to the success of the individual pilot and the entire organization was the ability of the pilot to make accurate, appropriate, and strategically responsive decisions (Boyd, 1997).

II. OODA LOOP

The Observe, Orient, Decide and Act (OODA) Loop looks at all aspects of decision process. Then we can identify ways to accomplish each phase of OODA process. For example;

A. Observe: See or Detect Action

1. Individual Observations (observation posts, patrols, etc.).

2. Sensor Inputs (ground sensors, radar, cameras, etc.).

3. Information from Other Commands (Intel, battalion, other area, etc.).

Observe unfolding circumstances and gather outside information in order to orient to perceived threats.

B. Orient: Place Observation in Context

1. Is observation something of interest?

2. What does it mean?
3. Based on previous experience and training.
4. Based on Intel.
5. What Affects Orientation?
    a. Cultural Tradition
    b. Genetic Heritage
    c. Previous Experiences
    d. Analysis/Synthesis
    e. New Information
    f. Training

C. Decide: Course of Action is Based on...

1. Goals
2. Capabilities
3. Rules of Engagement
4. Limitations

D. Act: Follow through on your Decision

1. Start Up Delay
2. Time to Complete Action
3. Ask, "If I'm going to take this action, what is the delay involved?"
4. Optimally, the action will be a skill that is so ingrained through training and rehearsal as to involve no thought.

a. It should be seamlessly employed. Utilize training drills and practice scenarios to gain experience.

E. OODA Critical Steps

1. Orient

The entire “loop” (not just orientation) is an on-going many-sided implicit cross-referencing process of projection, empathy, correlation, and rejection.

2. Speed of Execution

Quickly understand what’s going on, know what to do, be able to do it, while learning from the experience is the OODA loop outcome.

Note that “OODA” speed is quite different from the speed of the actions.

a. Making a decision takes time, performing the resulting action also takes time – both must be considered together.

b. Doing something dumb, but doing it at high speed, may not provide much of a competitive advantage – a good decision is critical.

F. OODA Loop Goals

1. Conduct multiple loops inside the enemy’s loop.

2. Stop the opponent reacting to anything that is happening to them.

3. Be prepared to start the decision loop process over again and make modifications based on your opponent’s actions

4. Decision Timing Insight

   Remember, smugglers and border police have competing OODA loops. While the border police are going through OODA loop, the smuggler (threat) is also going through an OODA loop of their own. The smugglers are observing what you are doing and adjusting their actions. In knowing this, you must be able to interlink the decision processes.

   a. Each person or group is going through the decision process.

   b. Remember, each step in the decision process takes time.

5. Take specific actions to lengthen the opposition's loop.

   a. **Observe**: use camouflage to avoid detection.

   b. **Orientation**: utilize decoys to cause confusion.

   c. **Decisions:** the goal is to make your opponent make the wrong decision.

   d. **Act**: place barriers in key locations.

6. Complete your OODA Loop quicker than the opponents.

G. Increases Chances of Success

1. OODA cycles create continuous unpredictable change.

   a. Team tactics, strategy and supporting structures should be based on the idea of shaping and adapting to this change. And, doing it faster than one's opponent.

2. The opponent's loop can be lengthened by deception, novel actions, or fast transient maneuvering.

a. These isolate the opponent from match reality by destroying his existing mental model and denying him the means to build a new model.

3. The combination of pressure and an inability to cope with external circumstances.

4. This causes the opponent to feel any or all uncertainty, doubt, confusion, self-deception, indecision, fear, panic, discouragement and despair.

5. This destroys their capacity to adapt and succeed.

6. Decision Timing Insight for Success

a. Each additional level involved in the decision process adds delay to the response.

b. Decision to interdict should be made at the lowest possible level.

c. Higher decision levels need a good situational awareness picture to speed their orientation and decision steps.

Also look at how OODA loops for different personnel connect. For example, if need a higher authority to make a decision about an interdiction.

- Have to consider what info they need.

- How long will it take to make communications?

- How long will it take them to make decision, etc?

E. Decision Timing Flow

1. Build a decision flow chart.

2. Determine OODA times at each level.

3. Determine time necessary to communicate between levels.

4. Add times together for each route from initial observation of smuggler through to initiating an action.

5. Decision Timing Tool, Example and Results

   A model linking the patrol observing the smuggler (shown in green) with there fort (shown in light blue) and the higher headquarters battalion (shown in dark blue) was made to examine the timing from the OODA loop processes at each decision level.

   After entering the normal, earliest and latest times from the OODA process at each level it was possible to determine how quickly different responses could be initiated.

   Results from the model are shown – if the patrol seeing the smuggler is allowed to make the decision to interdict, it takes about 2-3 minutes. If the decision must be made at the battalion, it can take almost 50 minutes.

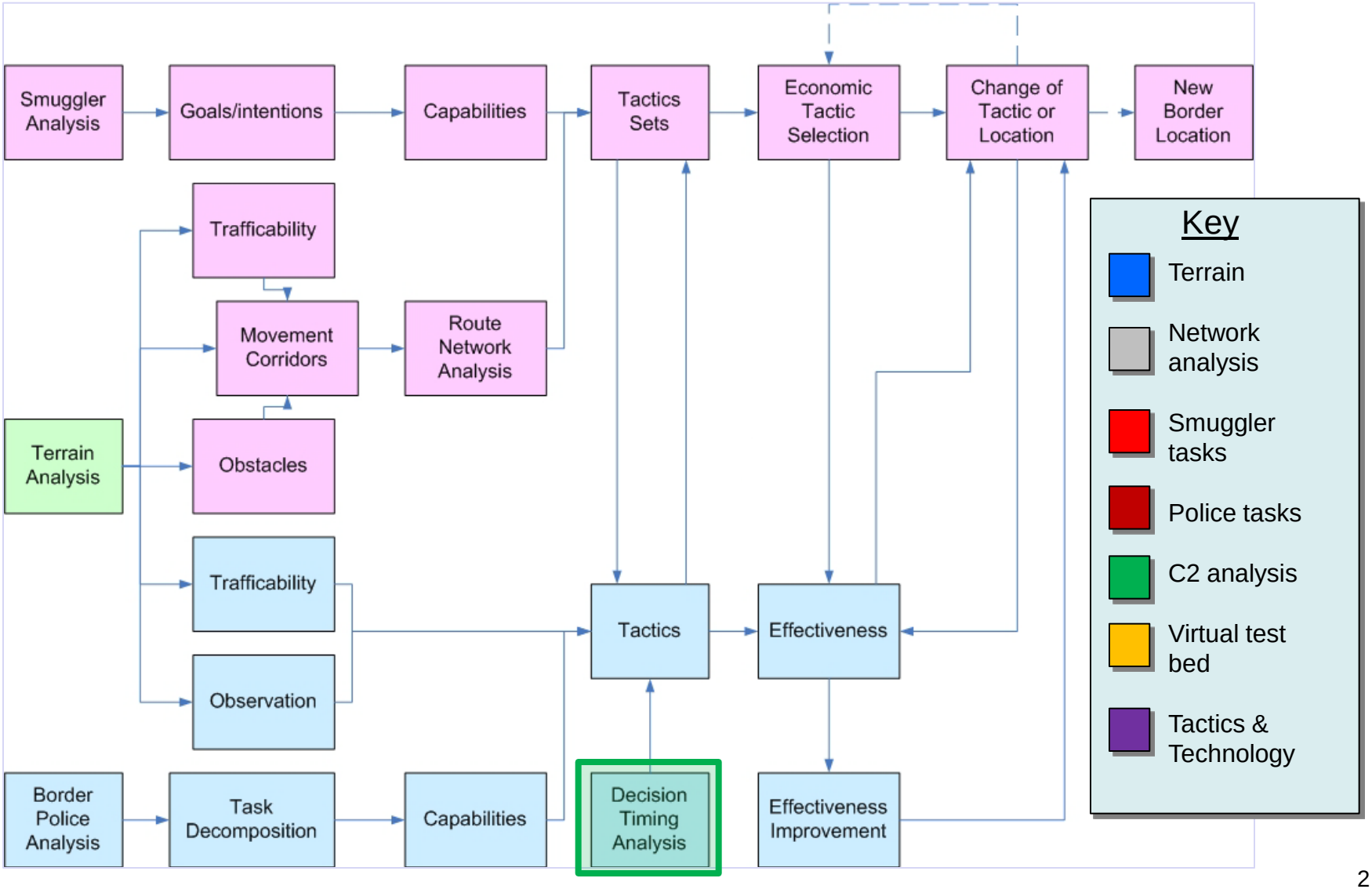
   This shows the importance of either allowing decisions to be made at the lowest level, perhaps with pre-authorized standard procedures and rules of engagement, or providing technology such as a common operational picture to the higher levels in order to speed their decision process.

III. CONCLUSION

Decision to interdict should be made at lowest possible level. Remember, each additional level involved in the decision process adds delay to the response. Competitive advantage comes from quickness over the entire “loop”, not just or even primarily from the O-to-O-to-D-to-A sequence.

Counter-Trafficking System Development
Module 2
Timing and Decision Analysis

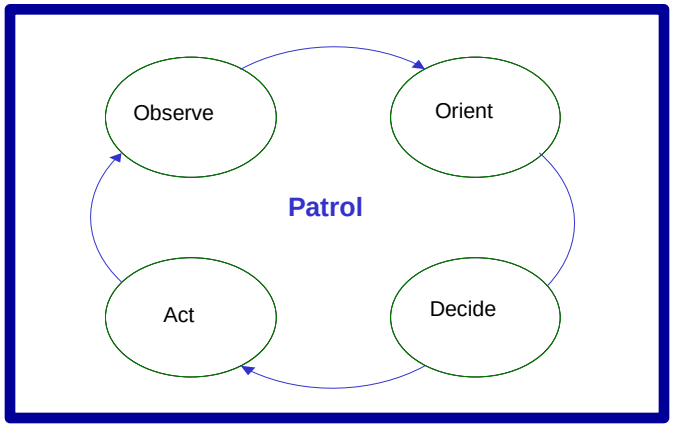
Timing & Decision Analysis



The Timing & Decision Objectives

- To develop an understanding of the decision process and how it works.
- Understand how one group's decision process interacts with other group's decision processes.
- Understand the time required to make a decision and implement and action – and how to predict it.

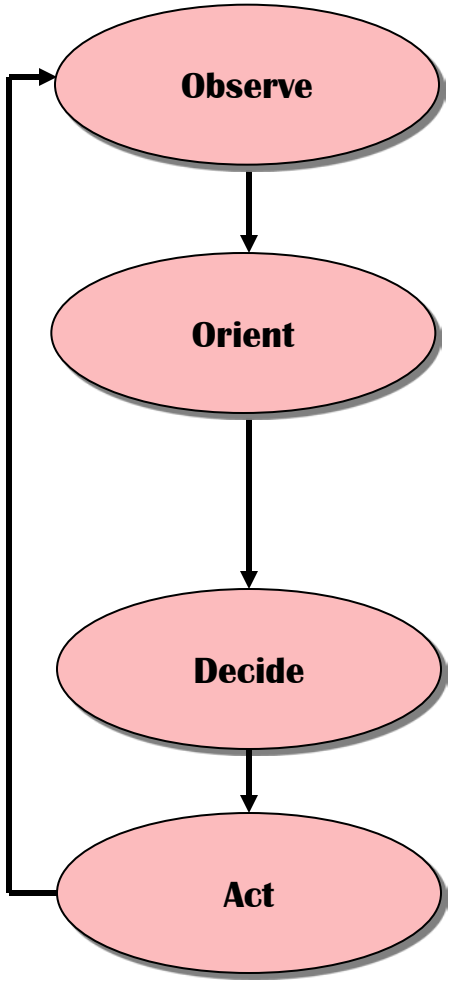
The Decision Process is Modeled by the OODA Loop



Students will examine the OODA decision process from Observation to Action

Observe:	**See or detect**
Orient:	**Place observation in context**
Decide:	**Decide course of action**
Act:	**Take action**

OODA Loop Components & Interactions



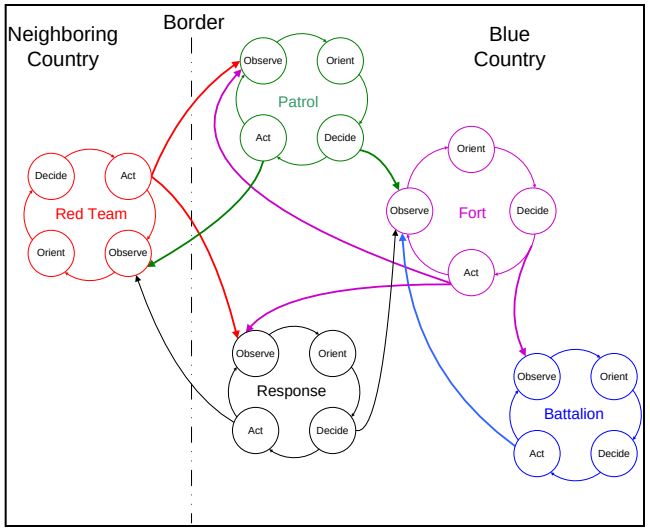
See or detect action
- Individual Observations (observation posts, patrol, etc.)
- Sensor Inputs (ground sensors, radar, cameras, etc.)
- Information from Other Commands (intel, battalion, other areas, etc.)

Place observation in context
- Is observation something of interest
- What does it mean
- Based on previous experience
- Based on intell

Decide on course of action
- Goals
- Capabilities
- Rules of Engagement

Take action
- Startup Delay
- Time to Complete Action

Decision timing impacts response effectiveness



Interlinking decision processes- each person or group involved is going through the decision process

Observation

- Observe: See or Detect Action
  - Individual Observations (observation posts, patrols, etc.)
  - Sensor Inputs (ground sensors, radar, cameras, etc.)
  - Information from Other Commands (intel, battalion, other area, etc.)
- Observe unfolding circumstances and gather outside information in order to orient to perceived threats.

Orientation

- Orient: Place Observation in Context
  - Is observation something of interest?
  - What does it mean?
  - Based on previous experience and training.
  - Based on Intell.
- What Affects Orientation?
  - Cultural Tradition
  - Genetic Heritage
  - Previous Experiences
  - Analysis/Synthesis
  - New Information
  - Training

Decision

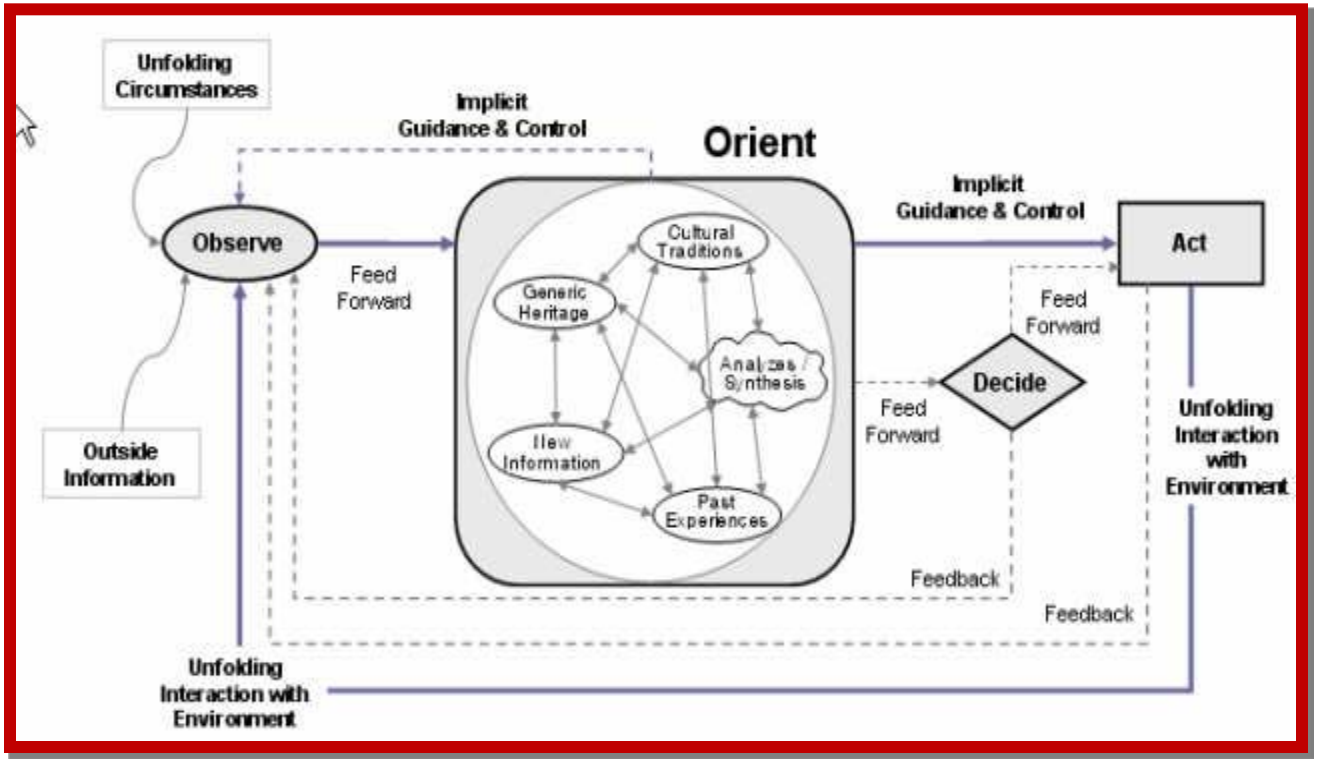
- Decide: Course of Action is Based on...
  - Goals
  - Capabilities
  - Rules of Engagement
  - Standard Operating Procedures (SOPs)
  - Limitations

Action

- Act: Follow through on your Decision
  - Startup Delay
  - Time to Complete Action
  - *Ask*, “If I’m going to take this action, what is the delay involved?”
- Optimally, the action will be a skill that is so ingrained through training and rehearsal as to involve no thought.
  - It should be seamlessly employed
    - Utilize training drills and practice scenarios to gain experience.

The OODA Loop Orient Step is Critical-
as it influences the rest of the process

- The entire “loop” (not just orientation) is an on-going many-sided implicit cross-referencing process of projection, empathy, correlation, and rejection.



The OODA Loop Speed of Execution is a Critical Component of Decision Timing

- Quickly understand what's going on, know what to do, be able to do it, while learning from the experience is the OODA loop outcome.

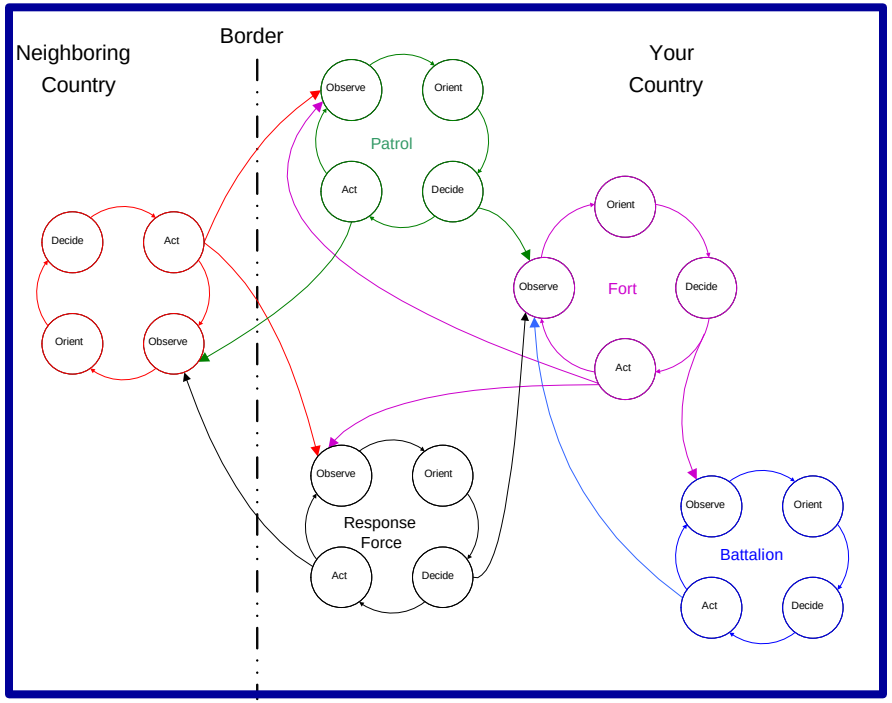
- Note that "OODA" speed is quite different from the speed of the actions.
  - Making a decision takes time, performing the resulting action also takes time – both must be considered together.
  - Doing something dumb, but doing it at high speed, may not provide much of a competitive advantage – a good decision is critical.

What are the OODA Loop Goals?

- Conduct multiple loops inside the enemy's loop.
- Stop the opponent reacting to anything that is happening to them.
- Be prepared to start the decision loop process over again and make modifications based on your opponent's actions.

Decision Timing Insight

- Interlinking decision processes
  - Each person or group is going through the decision process
  - Each step in the decision process takes time



What are the OODA Loop Goals?

- Take specific actions to lengthen the opposition's loop.
  - **Observe**: use camouflage to avoid detection.
  - **Orientation**: utilize decoys to cause confusion.
  - **Decisions**: the goal is to make your opponent make the wrong decision.
  - **Act**: place barriers in key locations.
- Complete your OODA Loop quicker than the opponents.

Increases Chances of Success

- OODA cycles create continuous unpredictable change.
  - Team tactics, strategy and supporting structures should be based on the idea of shaping and adapting to this change.
  - And, doing it faster than one's opponent.
- The opponent's loop can be lengthened by deception, novel actions or fast transient maneuvering.
  - These isolate the opponent from match reality by destroying his existing mental model and denying him the means to build a new model.

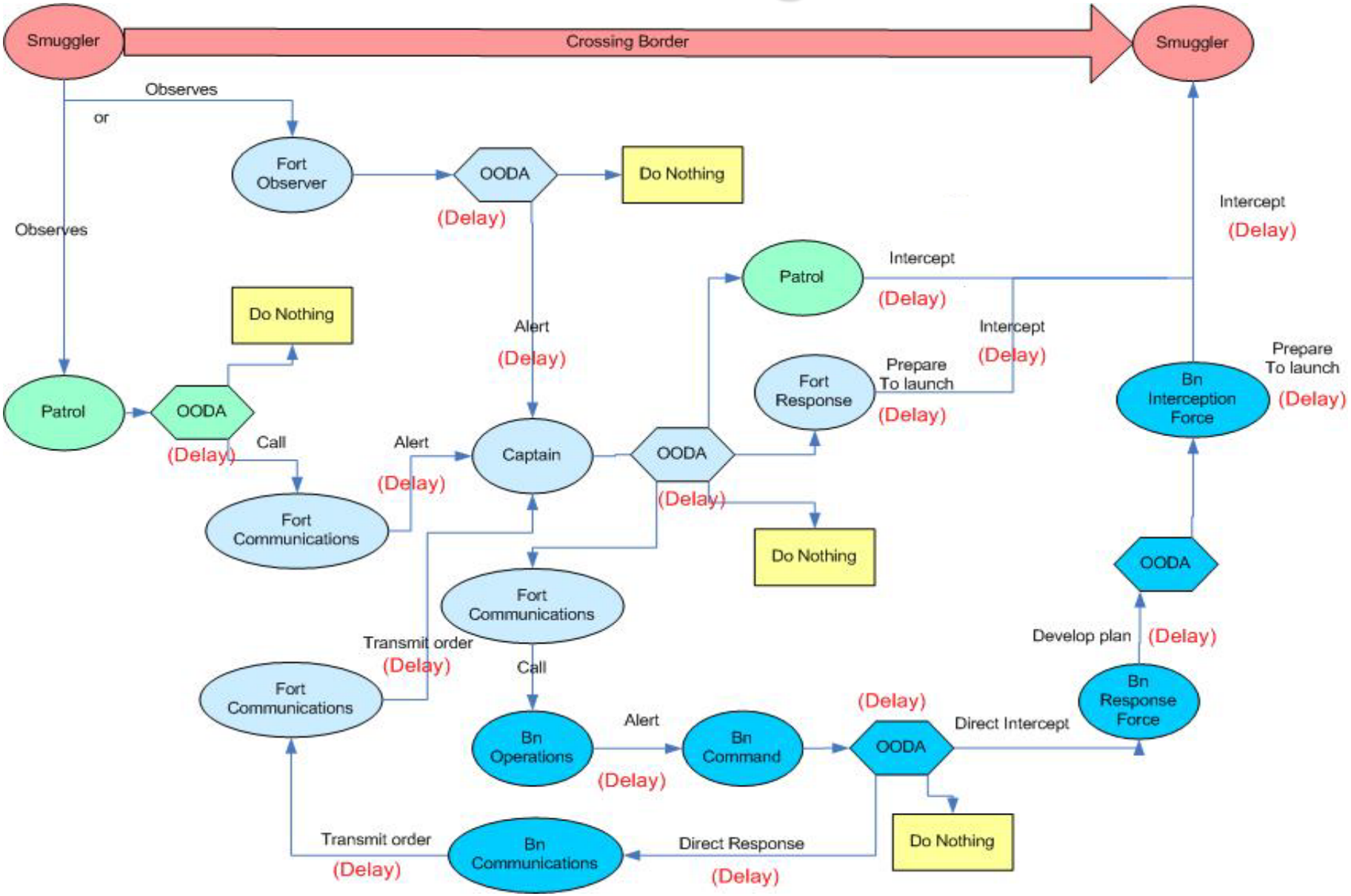
Increases Chances of Success

- The combination of pressure and an inability to cope with external circumstances.
- This causes the opponent to feel any or all uncertainty, doubt, confusion, self-deception, indecision, fear, panic, discouragement and despair.
- This destroys their capacity to adapt and succeed.

Decision Timing Insight

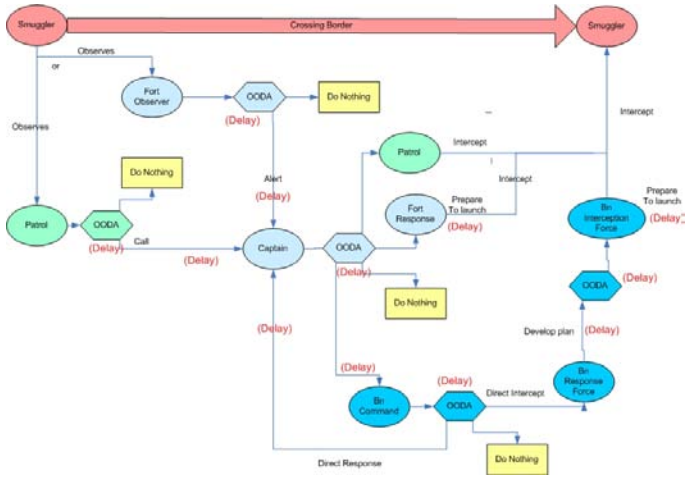
- Each additional level involved in the decision process adds delay to the response.
- Decision to interdict should be made at the lowest possible level.
- Higher decision levels need a good situational awareness picture to speed their orientation and decision steps.

Decision Timing Flow

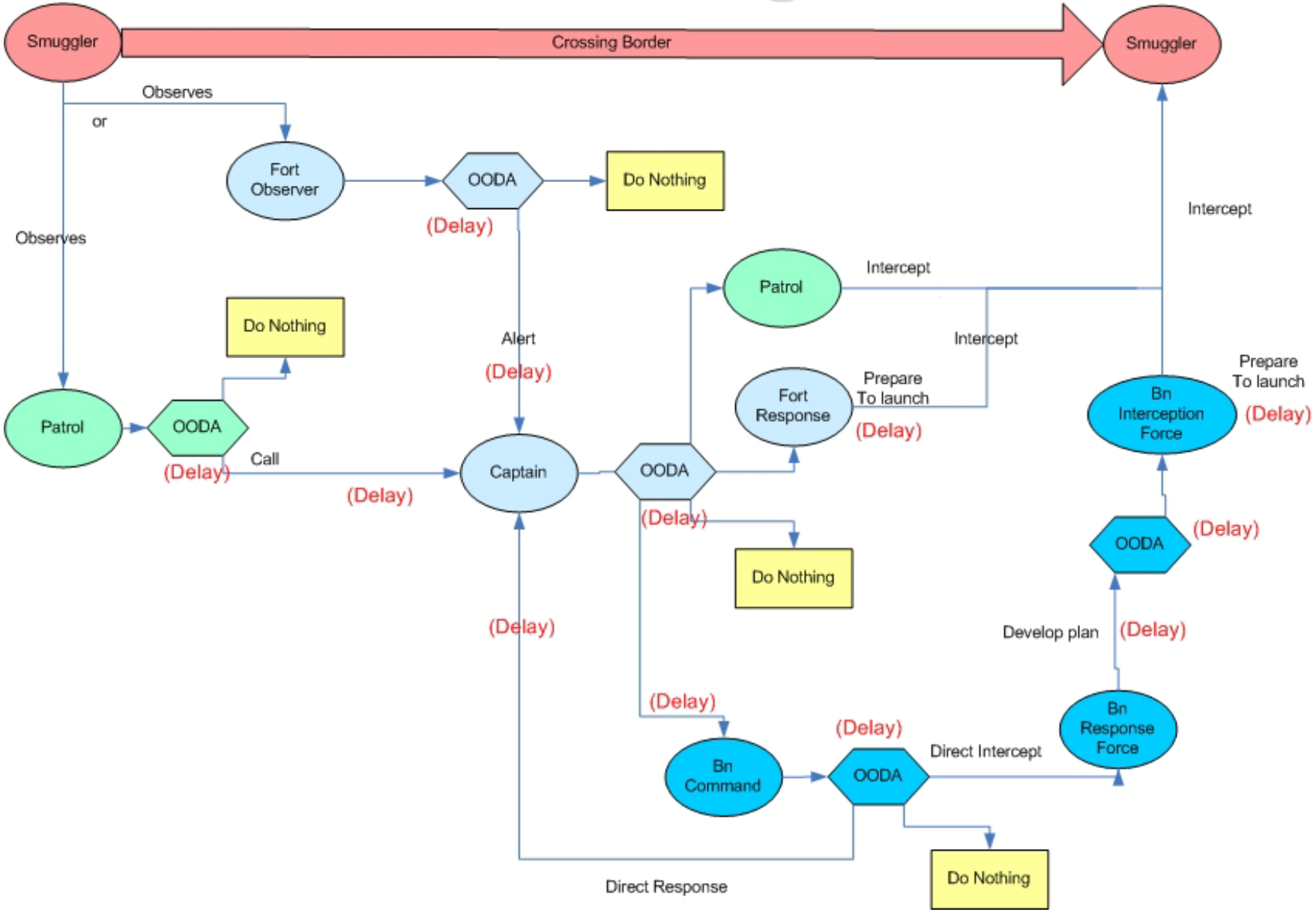


Calculating Decision Timing

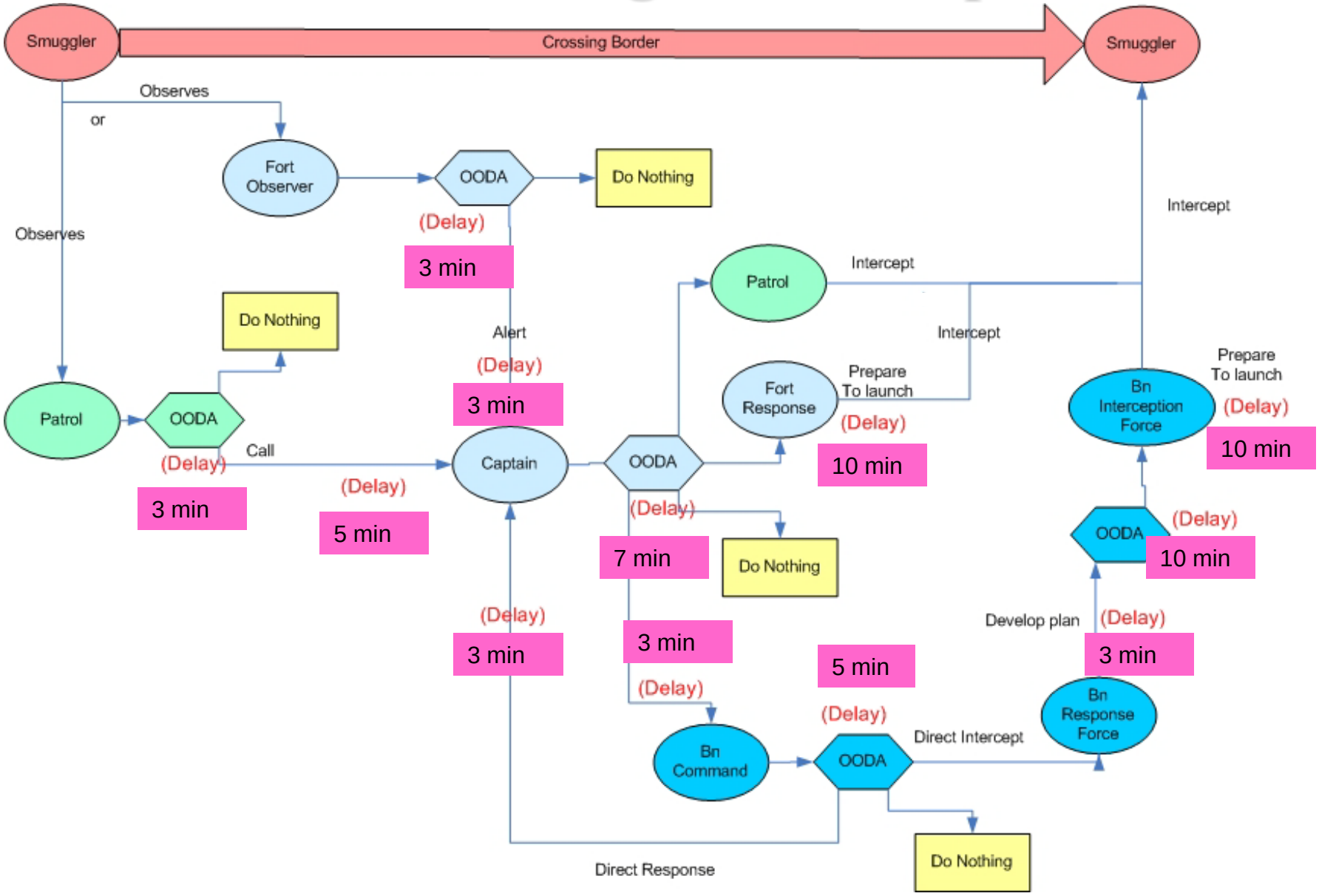
- Build a decision flow chart.
- Determine OODA times at each level.
- Determine time necessary to communicate between levels.
- Add times together for each route from initial observation of smuggler through to initiating an action.



Decision Timing Tool



Decision Timing Tool Example



Decision Timing Example Results

Patrol observes smuggler

Case 1 – Patrol calls Fort – Fort decides that patrol should interdict

Case 2 – Patrol calls Fort – Fort decides to send response force from Fort to interdict

Case 3 – Patrol calls Fort – Fort calls Battalion – Battalion decides to send Fort to interdict

Case 4 – Patrol calls Fort – Fort calls Battalion – Battalion decides to send response force from Battalion to interdict

Average Time to Initiate Action
15 min
25 min
43 min
46 min

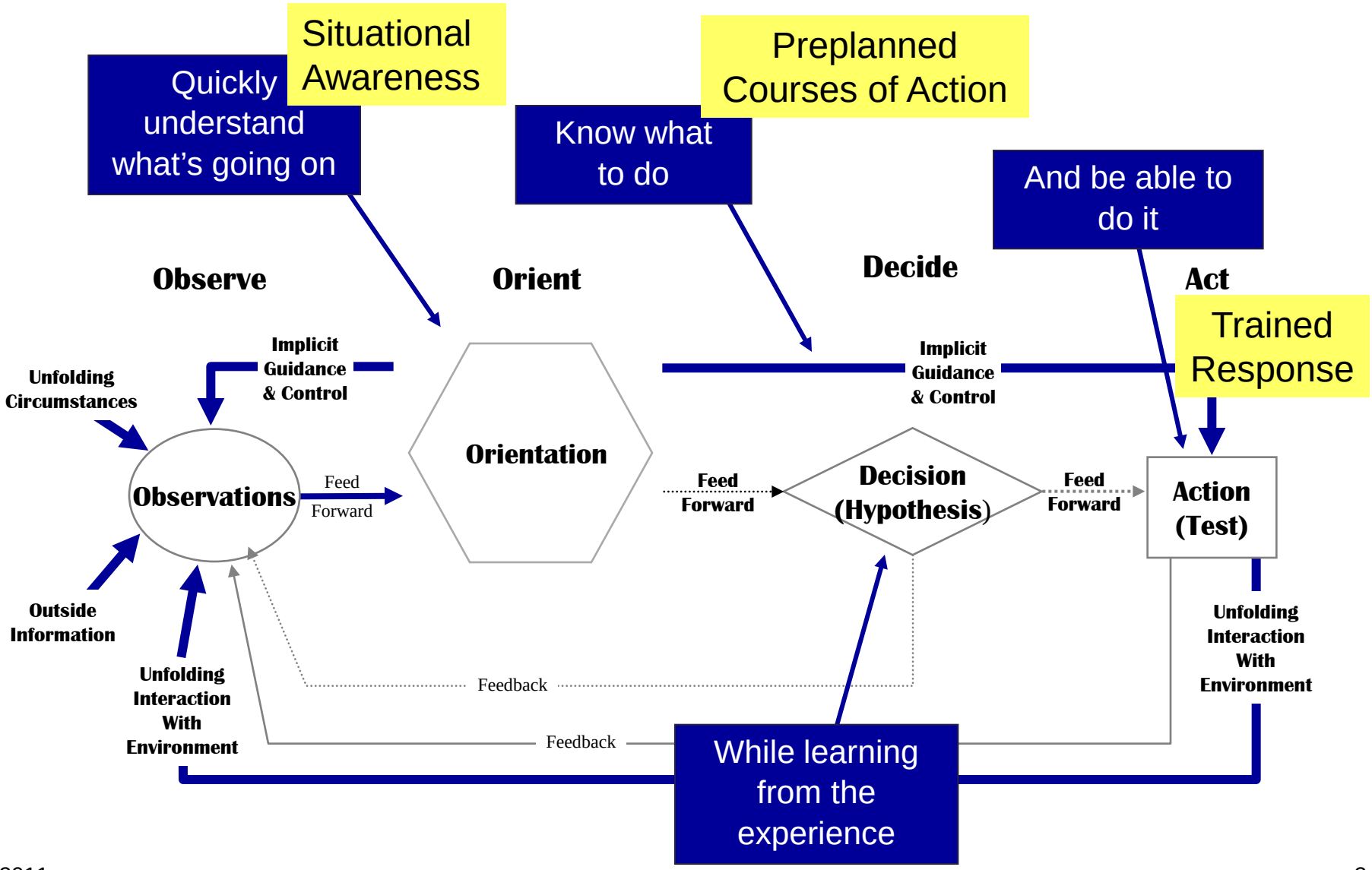
NOTE: Times are fictional

Conclusion

- Decision to interdict should be made at lowest possible level.
  - Each additional level involved in the decision process adds delay to the response.

- Competitive advantage comes from quickness over the entire “loop”, not just or even primarily from the O-to-O-to-D-to-A sequence.

Speeding up the OODA process



03.01 Limited Scope Performance Test Summary Specification

LSPT Type and Layer:	Effectiveness -Terrain Analysis, Decision Support Template
Essential Elements:	Border Police Demonstrating Terrain Analysis
Associated Element(s):	Lesson Plans 01.02, 02.01, 02.02, & 02.03
Responsible Organization:	Border Police
LSPT Approach:	The purpose is to test an individual's (group) performance on conducting a terrain analysis and creating a decision support template.
LSPT Goal	To determine the level of knowledge, and or ability, possessed by the student during a tabletop discussion, or practical application exercise, in regards to a border security problem.
LSPT Objective's	03.01.01 Did the student demonstrate making a Decision Support Template?
Summary Description:	The CTSD Analysis Training provides guidance in response direction and required actions to Border Police for applicable assessment, containment, denial, and fresh pursuit strategy requirements and to support interruption/neutralization operations requirements.
LSPT Administration	1. This LSPT will start with the students forming into analysis groups under control of an assistant instructor. 2. The student will also receive a map, associated paperwork, transparencies and marking materials. 3. The student will utilize any previous materials (i.e., Smuggler Assessment, Border Police task Decomposition, etc.) to conduct a terrain analysis through a decision support template. 4. Situation a. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives. b. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices. c. Smugglers will seldom stand and fight. They use deception and blending techniques. d. Smugglers penetrate at all times there is not specific pattern. 5. Once the decision support templates are completed the students will present their final product to the class.
LSPT Outcome Determination:	The outcome of this LSPT is determined to be adequate when: (1) The student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test (presentation or completion of making a decision support template). The students will be presented with a map and will use the following objective to resolve the scenario: 1. Step 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development 2. Step 2 - Smuggler Situation Template Overlay Development 3. Step 3 - Targeted Area of Interest Overlay Development 4. Step 4 - Friendly Course of Action Overlay Development
Trend Determination:	LSPT outcome is evaluated and documented by the responsible organization. Effectiveness trending is performed by the CTSD Training Group lead. A trend is identified when the cause of an inadequate outcome is repeated from any of the previous objectives.
Safety	Performance tests shall be conducted with the highest regard for the safety and health of personnel and protection of the environment, government property, and national security interests.
Comments:	

Cooperative Border Security Program
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Terrain Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**4.0 Hours**
Instructor:	**CBSP Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 03.01
GOALS AND OBJECTIVES

Instructional Goal

03.01.00 The student will understand how to conduct a Terrain Analysis and why it is important.

Learning Objectives

Cognitive Tasks

03.01.01 The student will identify the five aspects of a Terrain Analysis.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

03.01.02 The student will demonstrate making a Decision Support Template.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 03.01
CRITERION TEST

03.01.01	What are the five aspects used when you analyze terrain? a. Obstacles b. Avenues of Approach c. Key Terrain d. Observation e. Cover and Concealment	Test Q. p. 9, II, B, 8-18

LESSON PLAN 03.01
SKILLS CRITERIA

03.01.02	The student will demonstrate making a Decision Support Template. a. Step 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development b. Step 2 - Smuggler Situation Template Overlay Development c. Step 3 - Targeted Area of Interest Overlay Development d. Step 4 - Border Course of Action Overlay Development	LSPT p. 20-25, III, A-D

LESSON PLAN 03.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 03.01.00, 1-46

Handout Materials
Student Guide

References
1. DOE Central Training Academy, "Module 5 - Tactics", Lesson Plans 2006.
2. DOE M 470.4-3 Chg 1, "Protective Force Program Manual". Washington, 2006.
3. United States Army, "Small Unit Tactics", PT 7-8-SWCS.
4. United States Army, "Dismounted Patrolling", FM 21-77.
5. United States Marine Corps, "Engineer Field Data", FM5-34.
6. United States Army, "Intelligence Preparation of the Battlefield", Newsletter No. 96-12.
7. United States Army, "The Military Decision Making Process (MDMP) in The LRS Planning Phase", LRS MDMP with maps PowerPoint Presentation, 23, July 2001.

LESSON PLAN 03.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
01.06 Terrain Analysis **Instructor Comments**

I. INTRODUCTION

Overheads 1-5

Border Police operations require thorough knowledge of the terrain and detailed intelligence preparation of the area of concern or operations. To succeed, border commanders and leaders must know the nature of the terrain, civilians and the opposition they may face. They must analyze the effect the area has on both the opposition (smuggler) and Border Security forces.

II. ANALYZE THE MISSION

Several special considerations have implications in a terrain analysis the border commanders must analyze the terrain that affects the carrying out of their mission, and provide the results of the analysis to border patrol personnel and their leaders.

A. Purpose of Terrain Analysis

The first step in the estimate is mission analysis; it begins upon receipt of the mission. It is the means for the unit leader to gain an understanding of the mission.

1. Task Analysis

The unit leader must identify and understand all that is required for the successful accomplishment of the mission. This includes tasks received in the unit's task statement and coordinating instructions from the higher commander's operations order.

2. Limitations

These are restrictions on the freedom of action of the border force; these prohibit the commander from doing something specific. Tactical control measures, such as Rules of Engagement. This is also known as clutter. It can deal with population distribution (cooperation with smugglers), density of normal vehicle and foot traffic.

B. Terrain Analysis Process

In any tactical situation, you must consider the Smuggler's capabilities as determined in the Smuggler Assessment and the Border Police capabilities as determined in the Task Decomposition. Be aware that capabilities can change, so do not be excessively limited by current capabilities when looking at how each side might use the terrain. The nature of the terrain can have a tremendous impact on what can and cannot be done. We have the advantage because we can analyze the terrain in advance.

Overheads 6-7

Factors, which make up terrain analysis is the military acronym (OAKOC-W), which, should always be considered and conducted from both the border patrol and smuggler's perspectives. The unit leader conducts analysis of the five military aspects of terrain relevant to his mission. Certain situations may elevate one element of OAKOC-W to a level of importance above that of one or more of the remaining elements (extreme weather, for example). A logical sequence for rapidly analyzing terrain and weather is as follows:

Test Q. 01

1. Obstacles

Overhead 8

Obstacles are any natural or man-made obstructions that canalize, delay, restrict, or divert the maneuver or movement of a smuggler. The terrain setting creates obstacles to both the border's response force and the smuggler's. The open flat desert, hills, civilians, and geometric patterns present obstacles to both humans and vehicles. Areas that can be observed may be considered obstacles, as neither side may want to be seen.

Consider the advantages and disadvantages that obstacles within the area may present to you when selecting a response route.

Also consider the advantages and disadvantages that obstacles within the area may present to a smuggler when attempting to access/egress an area.

An example of an obstacle might be a river or stream. When you conducted a smuggler's capabilities and limitations, you should have taken into account their mode of transportation. With the river or stream you take into account that mode of transportation and logically search where they can cross, then the composition of the bottom will determine its passability if they plan to ford the river rather than float across, again dependent on their mode of transportation. Depth, current speed, embankment slope should also be noted along with what seasonal weather does to these areas.

Other examples of obstacles are: buildings, steep slopes, rivers, lakes, streams, swamps, forests, deserts, jungles, cities, minefields, trenches, wire obstacles, etc. Factors to Consider Are:

a. Vegetation (tree spacing, trunk diameter)

Overhead 9

b. Surface Drainage (stream width, depth, velocity, bank slope & height)

c. Surface Materials (soil type & conditions that affect mobility)

d. Surface Configuration (slopes, embankments, roughness that affect mobility)

e. Transportation Systems (bridge classifications, slopes, & road width)

f. Weather Effects (inclement and seasonal changes)

g. Man-Made Obstacles (berms, fences, etc.)

2. Avenues of Approach (Mobility Corridors)

Overhead 10

Mobility corridors are areas of the terrain where either force can move. Avenues of approach are linked mobility corridors that lead from a starting point through to an objective. The smuggler is attempting

to move their contraband along an avenue of approach to their goal. The border police is using different avenues of approach to intercept or cut off the smuggler(s). When border forces are patrolling or interdicting, these avenues of approach must be identified.

Avoid all likely avenues of approach because the smuggler will likely have them under surveillance or covered by booby traps. The smugglers will more than likely not use these routes knowing that the border patrol will use them. Instead they will use routes less traveled and harder for the border patrol to utilize.

Factors that can influence the selection of routes are nature of the mission (border officers and smugglers), time limitations, size of response force or type (mounted vs. un-mounted) of patrol. These routes must consider the weight, width, and height of the vehicles used for trafficability.

You must randomly patrol all areas that can be utilized as approach or escape routes by the smuggler, along with less desirable routes that the smugglers might take to avoid obvious border patrols.

Information sought for these routes includes: Overhead 11

a. Slope of 5-percent or greater.

   With steep slopes it will slow the travel speeds of the smuggler.

b. Existing roads and their characteristics.

   i. Surface material will determine speed and ease of travel.

   ii. Weather or seasonal effects

c. Bridges and other stream crossing means.

These will create a choke point for both sides. Once again and very good location for a checkpoint would be on the opposite side so the smugglers will have no choice but to cross or turn away. If they turn away then an interdiction team could be dispatched to investigate.

d. Tunnels

Main concern along the border that has physical barriers that the smuggler cannot negotiate or areas that the border patrol cannot get access too from their vehicles. This is why it is not only important to patrol not only in vehicles, but also on foot. Tunnels should be identified and either be destroyed or used to capture smugglers as they emerge.

e. Vegetation

Can conceal, canalize or let the smugglers hide their cache before an interdiction or search.

f. Built Up Areas

Congested areas have 360-degree angles to cover. Allot of clutter/noise to decipher. Possible sympathizers may either be passive or violent to aid in smuggling operations. Easy for the smuggler to blend/hide with the local population.

g. Agricultural Areas

As roads tend to run along tops of levees and berms, traffic in agricultural areas is observable. Another thing to consider, if a smuggler observes a sheepherder moving his flock through a certain area they can surmise

that the area is not mined and has no sensor coverage.

h. Open Areas / Zones

An open area that is easily traversable without road or pathway network (i.e., fields, thin forest, etc.).

3. Key Terrain

Overhead 12

Key terrain is any area that affords a marked advantage to either border forces or the smugglers in that it offers observation or trafficability superiority to those in its possession. Examples or key terrain include (but not limited too):

a. Observation Points

b. Road Control Points

c. Choke Points

f. Critical Intersections

g. High Speed Routes

You have the advantage over the smuggler. Knowing the location of every key terrain location and learning how to safely access it. Key terrain is ideal for optical aid devices or checkpoints. Key terrain, if not occupied should at least be patrolled to monitor or placement of sensors to indicate movement patterns. This can also be great location for preplanned roadblock techniques for suspected searches or smuggler interdiction points.

If key terrain is a critical road junction(s) you can eliminate these routes by establishing checkpoints. These can either be permanent or hasty.

4. Observation

Overhead 13

Determine what effect on observation the terrain features of the area will have on both smuggler and border police. Critical features include vegetation/forest, elevation and dry riverbeds. Different times of the day/night and different weather conditions must be considered. Consider not only how the terrain will affect your ability to observe smuggler activity, but also how terrain features will affect, smuggler observation of your activity.

Identify the inconsistencies in the terrain (shadows, lighting and vegetation) relating to the time of day or year. Know areas where you are backlit when moving or casts shadows that can be seen from afar. Also, identify the terrain features (within and adjacent to the area of operations) that will provide either the border officers or smugglers observers with a good field of view as well as cover and concealment. These types of areas must be patrolled and checked frequently, using sensory techniques.

Overhead 14

a. Sensory Techniques

An officer's ability to effectively use their senses, along with the ability to move and observe without being detected, is critical to effective patrolling. Equipment supplements the senses, enabling the observer to accurately portray the environment. Senses consist of sight, hearing, touch, and smell. Examples of sensory use are as follows:

i. Sight, look for

- Smuggler's mode of transportation.
- Sudden or unusual movement.
- Smoke or dust.
- Unusual movement of farm or wild animals.
- Activity of local inhabitants.
- Vehicle or personnel tracks.

- Signs or evidence of smuggler occupation.
- Recently cut vegetation or freshly tilled earth.
- Lights, fires, or reflections.
- Amount/type of trash.

ii. Hearing, listen for

- Running engines or vehicle sounds.
- Voices.
- Animals.
- Metallic sounds.
- Unusual calm or silence.
- Dismounted movement.

iii. Touch, feel for

- Warmth of coals/materials from fires.
- Freshness of tracks.
- Age of food or trash.

iv. Smell for

- Vehicle exhaust.
- Burning petroleum products.
- Cooking food.
- Age of food or trash.
- Human waste.

Overhead 15

5. Cover and Concealment

One of the key elements to any patrol is to avoid detection. The utilization of stealth techniques and available cover is critical. The analysis of cover and concealment is often inseparable from the consideration of observation.

a. Cover is protection from weapons fire, direct and indirect. Since we did an assessment of the smuggler on their capabilities and weaponry, "cover" should relate to the most

lethal weapons that could be employed against you by the smuggler. If the cover you seek will stop those, it will stop the less lethal weaponry. Get in the habit of utilizing all available cover in performing your patrols on foot and in vehicles. Maximum realism in conducting normal patrols will help sharpen your skills and increases the probability that your "immediate action" in a response will be correct when confronted with a hostile environment. Remember, the most effective cover is always selected in advance. A basic rule of thumb is to always move to cover rather than concealment.

Cover can be natural such as hills, cuts, ditches or trees. Cover can also be man-made. Some types of man-made cover are:

i. Permanent or Hasty Fighting Positions

ii. Vehicles (regular and armored)

iii. Buildings

b. Concealment is the ability to conceal oneself while observing, moving or applying fire in all type of conditions. Concealment is protection from observation only. Natural concealment is provided by your surroundings. Artificial concealment is man made or altered. The term "invisible deployment" is used to describe the use of a concealed route.

The general rules for concealment are:

i. Avoid unnecessary movement.

ii. Use all available concealment and blend with it to prevent detection of your position. Understand the relationship of the color of your uniform to your surroundings (light absorption capabilities).

iii. Use shadows to your advantage. Shadows can be found under most conditions of day and night.

iv. Stay low to observe.

v. Expose nothing that shines.

vi. Keep off the skyline.

vii. Alter your silhouette or outline.

viii. Maintain silence.

6. Weather

Overhead 16

Weather is analyzed using: temperature and humidity, precipitation, wind, clouds, and visibility (both day and night). To determine its cumulative effect on operations, weather must be considered in conjunction with the terrain associated with the unit's mission. Weather affects equipment (including electronic and optical), terrain (trafficability), and visibility, but its greatest effect is on the individual border officer. During inclement weather or in extreme heat or cold, the amount of time spent on leadership and supervision must increase as the severity of the weather increases. Inclement weather affects visibility and movement, unit efficiency and morale, and makes command and control more difficult. Poor weather conditions can be as much of an advantage to a unit as it is a disadvantage, depending upon unit capabilities, equipment and level of training.

Examples of weather effect might be:

a. Wet Season Marsh - High River Flow

Trafficability only by canoe or other floating vessel. Not restricted to streams or canals. They can penetrate the swamp grass areas.

b. Dry Season Marsh - Low River Flow

Trafficability only by canoe or other floating vessel, restricted to streams or canals. Grass can still be penetrated but not maneuvered through.

c. Wet Season Roads

Trafficable by 2x2 vehicles, animals and foot. Roads do not have a waterproof surface and is considerably affected by rain. At no time are the roads closed due to weather effects other than bypassing large mud puddles.

d. Dry Season Roads

Trafficable by 2x2 vehicles, animals and foot. At no time are the roads closed due to weather effects.

C. Smuggler Forces

Overhead 17

The objective of an analysis of the smuggler situation is to deduce the smuggler's most probable course of action (Lesson Plan 02.01 Smuggler Assessment). Its development comes from sources including smuggler doctrine and historical data, as well as current smuggler activities as indicated in the higher border commander's operation order. Ideally, the information used to analyze the smuggler situation includes the following:

1. Capabilities and Limitations

What can the smuggler do to me? What can they not do to me? In this subparagraph, the information listed under Composition, Disposition, Strength, is analyzed in relation to the smuggler's ability to conduct operations against your unit. The smugglers force is analyzed concerning its ability or inability to conduct various operations against our unit under any reasonably foreseeable situation. Is the smuggler

force capable of defending, reinforcing, attacking, withdrawing, or delaying? For example, can the smuggler effectively move at night? Can they conduct a deliberate defense against us or do they lack sufficient forces and equipment? Will the smuggler be reinforced by elements of other units as a result of our interdiction? How long will this reinforcement take? Can it be done at night, is it a vehicular transported reinforcement force or will it be traveling on foot?

2. Smugglers most probable Course of Action

What will the smuggler try to do to me? Based on the analysis of the smuggler's capabilities and limitations, deduce the smuggler's most probable course of action in relation to our action. For example, "the smuggler is likely to withdraw to the northwest as a result of our interdiction and attempt to melt with locals west of the objective." Remember, the smugglers will watch where you patrol and your patterns to try to either evade or wait until you are not there

Overhead 18

D. Border Officer's and Support Available

Any course of action the unit leader considers must take into account the number of personnel and support assets available for the operation. The mental and physical condition of the border officer's, their level of training, the status of their equipment, fire support assets, and logistics must be considered.

Overhead 19

E. Time

Time is vital to all patrol operations; it drives planning and execution. The unit leader gets his indication of time available from his commander. The amount of time a unit has to prepare for or to execute an operation determines the detail possible during the planning process. Initial estimates of time should be used to identify any critical timings in the operation.

Time is also important upon receiving notification of smuggler activities. Clear and concise interdiction plans must be in place prior to any smuggler activities. This is to ensure subordinates and subordinate leaders do not need to delay in their decision and actions (see Lesson Plan 02.03 Timing and Decision Analysis).

III. DECISION SUPPORT TEMPLATE DEVELOPMENT

Overhead 20

A decision support template can assist the commander in identifying and anticipating decisions on the area of operations. The development of the decision support template begins early in the intelligence planning process. It is a systematic approach to detect the critical terrain on the area of operations and the reactions or decisions that both border officers and smugglers must make to accomplish their missions. The intelligence planning process provides the framework to predict where, when, and what probable decisions border officers and smugglers make as they interact on the area of operations.

LSPT 03.01.02

This section presents and explains a four-step process designed to assist units in understanding and developing decision support templates. The four steps are:

Overhead 21

- Step No. 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development.
- Step No. 2 - Smuggler Situation Template Overlay Development.
- Step No. 3 - Targeted Area of Interest Overlay Development.
- Step No. 4 - Friendly Course of Action Overlay Development.

The development of a decision support template uses products developed throughout the entire planning process. It is not something that is exclusively done after the plan is developed. The goal is to use products that are previously developed during the planning process and create a useful tool that can help the commander make decisions at critical points on the area of operations.

A. STEP 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development

Overhead 22

The first step in the development of the decision support template is the development of the modified combined obstacles overlay. The modified combined obstacle overlay then enables the commander to develop an avenue of approach overlay, identifying threat avenues of approach. The modified combined obstacle overlay and avenues of approach assist the commander and staff in identifying options that are available to both the border officers and smugglers concerning maneuver. The avenue of approach overlay will be used throughout the decision support template development process, and will eventually become the decision support template.

A product of conducting a terrain analysis can also be a modified combined obstacle overlay. Here you have a map of area of operations, you then identify aspects of the terrain, including weather effects on clear overlays one at a time. Trace these areas on the overlay that is placed over the map. Continue to do this until you have identified all areas of concern and you should see areas that need to be addressed in your mission analysis.

The first product we want to construct is called a combined obstacle overlay. This product identifies all known natural and man-made obstacles and combines them together into a single product. This product should begin to spark visualization on the ground you are preparing to patrol upon.

1. Obstacle Marking Suggestions:

Overhead 23

   a. Water Obstacles: Depicted in blue.

Overhead 24

   b. Roads and Trails: Depicted in black.

Overhead 25

   c. Restricted Terrain: An area that can slow or disrupt maneuver. Normally depicted with green or brown diagonal lines inside.

d. Severely Restricted Terrain: An area that severely hinders or slows movement unless some effort is made to enhance mobility. Normally depicted with green or brown cross-hatching inside.

e. Built Up Areas: Usually larger than one square kilometer. Outlined and cross-hatched in black. — Overhead 26

f. Man-Made: Sensor arrays, etc. Depicted in black by a square with an "S" inside. — Overhead 27

2. Avenues of Approach

a. Mobility Corridors: Areas where a force will be canalized due to terrain constrictions. Outlined in red. These mobility corridors are grouped to form avenues of approach. — Overhead 28

b. Arrows oriented in the direction of movement. Outlined in red. — Overhead 29

3. Key Terrain — Overhead 30

a. The retention or control of which affords a marked advantage to either side. Depicted in purple by a circle with a "K" inside.

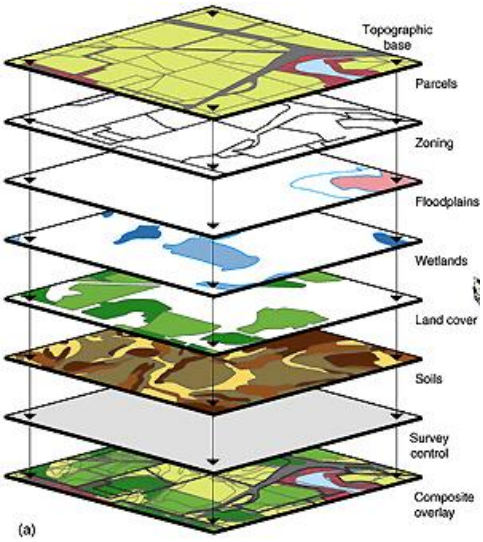
4. Observation

Is not normally identified in the overlay.

5. Cover and Concealment

Is not normally identified in the overlay.

Below is an example of this overlay:



Once we have created this, we can begin to analyze the terrain for maneuver and movement. During this step, we categorize terrain as unrestricted, restricted and severely restricted. Below are definitions and a symbol we can utilize in creating further products for each:

Using these terrain classifications, we now take our combined obstacle overlay and begin drawing restricted and severely restricted terrain upon it. With this complete, we can start to determine mobility corridors in our area.

After you have identified mobility corridors and placed them on your combined obstacle overlay, you begin to develop your avenues of approach. To do this, you look for mobility corridors that relate or converge with other. Generally, two mobility corridors will translate into an avenue of approach.

After drawing the avenues of approach on the overlay, we add other characteristics we believe will effect operations.

Once we complete this, we have now turned our original combined obstacle overlay into a modified combined obstacle overlay. This provides us a tool that reflects the results of our terrain analysis and now we can analyze the

Overhead 31

effects the terrain will have on the smugglers and us. Remember, this is not an End-All. Periodic updates will have to be done as the seasons and smugglers tactics change.

B. STEP 2 - Smuggler Situation Template Overlay Development

The second step in the decision support template development process is the development of the smuggler situation template. Time may preclude the development of multiple smugglers course of actions, but at least two most probable courses of actions should be considered. The local police units and border agents should combine knowledge of past smugglers course of action as they develop the smuggler course of actions. Each course of action should be on a separate sheet.

Overhead 32

Average rate of movement (includes periodic rest halts, but does not to include inclement weather);

Overheads 33-35

1. Foot - On Roads
    a. Day - 4 kmh
    b. Night - 3.2 kmh
    c. 20-32 days march kilometers.
2. Foot - Cross Country
    a. Day - 2.4 kmh
    b. Night - 1.6 kmh
    c. 20-32 days march kilometers.
3. Trucks, general - On Roads
    a. Day - 40 kmh
    b. Night - 40 (lights), 16 (black out) kmh

c. 280 days march kilometers.

4. Trucks, general - Cross Country

a. Day - 12 kmh

b. Night - 8 kmh

c. 280 days march kilometers.

C. STEP 3 - Targeted Area of Interest Overlay Development

Overheads 36-38

The addition of targeted areas of interest is the next step of the decision support template development process. As the commander develops each smuggler course of actions, they must identify those locations and events where the smuggler may utilize potential high value access/egress routes. These areas become targeted areas of interest are marked on each individual course of action. These targeted areas of interest overlays are then placed individually under the avenues of approach and the targeted areas of interest are copied onto this overlay. Targeted areas of interest are defined as points or areas where the border commander can influence the action of the smugglers.

D. STEP 4 - Friendly Course of Action Overlay Development

Overheads 39-43

The fourth step in developing the decision support template is border patrol course of action development. The staff develops border patrol course of actions based on the commander's guidance and the facts and assumptions identified during intelligence planning process and mission analysis. The commander's guidance provides a basis for the initial borders forces array needed to counter the smuggler's actions. The commander's role in border patrol course of action development is to ensure that each border patrol course of action takes advantage of the opportunities that are offered by the environment (entry locations, choke points, best defensive terrain) and the smuggler's situation (weaknesses).

IV. CONCLUSION

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

Overheads 44-45

To perform successfully you must understand how to analyze the terrain and then integrate that information into your patrol, response techniques, tactics and the planning of other operations.

TERRAIN ANALYSIS - LSPT #03.01		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to terrain analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand terrain analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
03.01.00		**TERRAIN ANALYSIS**	**PASS**	**FAIL**	**PASS**	**FAIL**
03.01.02		The student will demonstrate making a Decision Support Template.				

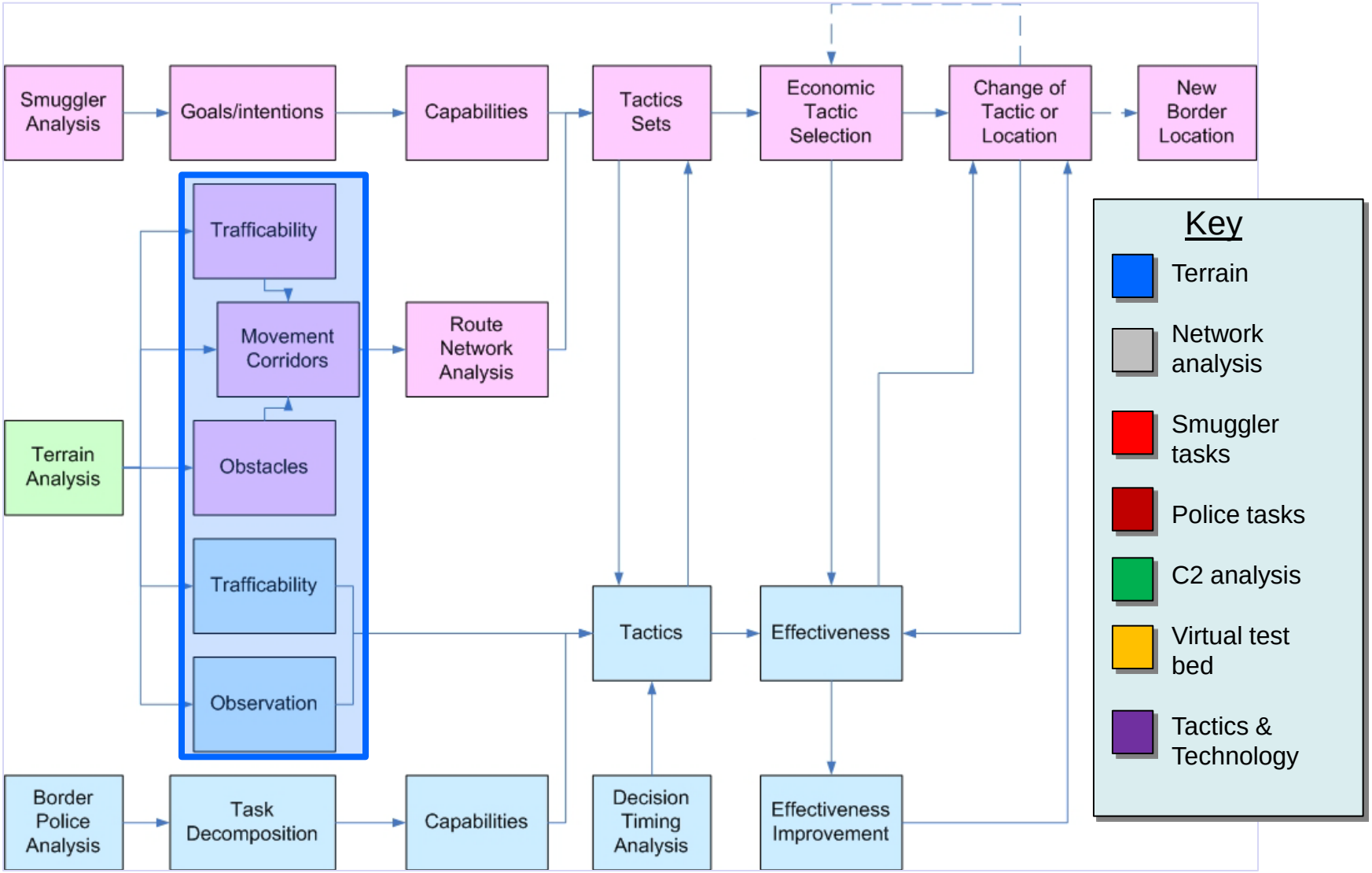
This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Module 3
Terrain Analysis

Development - Terrain Analysis



Goal

Students will understand how to conduct a Terrain Analysis and why it is important.

Introduction

- Border Police operations require thorough knowledge of the terrain.
- To succeed, police and leaders must know the nature of both the terrain and the opposition they may face.
- The Analyst must analyze the effect the area has on both the opposition (smuggler) and Border Security forces.

Lesson Outline

- Purpose of Terrain Analyze
  - Task Analysis
  - Limitations
- Terrain Analysis Process
  - OAKOC-W
- Smuggler Forces
  - Capabilities & Limitations
  - Course of Actions
- Border Police Forces
- Time
- Decision Support Template
- Practical Exercise

Consideration for Terrain Analysis

- Consider the Smuggler's capabilities as determined in the Smuggler Assessment.
- Consider the Border Police capabilities as determined in the Task Decomposition.
- Be aware that capabilities can change, so do not be excessively limited by current capabilities when looking at how each side might use the terrain.

Terrain Analysis (OAKOC-W)

Terrain Analysis - O

- Obstacles
  - Obstacles are any natural or man-made obstructions that canalize, delay, restrict, or divert the maneuver or movement of a smuggler. The terrain setting creates obstacles to both the border's response force and the smuggler's.
  - The open flat desert, hills, civilians, and geometric patterns present obstacles to both humans and vehicles.
  - Areas that can be observed may be considered obstacles, as neither side may want to be seen.

Terrain Analysis - O

- Obstacles, cont.
  - Factors to Consider are:
    - Vegetation
    - Surface Drainage
    - Surface Materials
    - Surface Configuration (slopes, embankments, roughness)
    - Transportation Systems
    - Weather Effects
    - Man-Made obstacles (berms, fences, etc.)

Terrain Analysis - A

- Avenues of Approach (Mobility Corridors)
  - Mobility corridors are areas of the terrain where either force can move.
  - Avenues of approach are linked mobility corridors that lead from a starting point through to an objective.
    - The smuggler is attempting to move their contraband along an avenue of approach to their goal.
    - The border police is using different avenues of approach to intercept or cut off the smuggler.

Terrain Analysis - A, Cont.

- Avenues of Approach, cont.
  - Information sought for these routes includes:
    - Slope
    - Existing roads and their characteristics
    - Bridges and other stream crossing means
    - Tunnels
    - Vegetation
    - Built Up Areas
    - Agricultural Areas
    - Open Areas / Zones

Terrain Analysis - K

- Key Terrain
  - Key terrain is any area that affords a marked advantage to either border forces or the smugglers in that it offers observation or trafficability superiority to those in its possession.
  - Examples of Key Terrain include:
    - Observation Points
    - Road Control Points
    - Choke Points
    - Critical Intersections
    - High Speed Routes

Terrain Analysis - O

- Observation
  - Determine what effect on observation the terrain features of the area will have on both smuggler and border police.
  - Critical features include:
    - Vegetation and Forests
    - Elevation (slopes, hills, etc.)
    - Dry Riverbeds and Gullies/Arroyos

  - Different times of the day/night and different weather conditions must be considered.

Terrain Analysis - O

- Observation includes all Senses
  - Sensory Techniques
    - Sight
    - Hearing
    - Touch
    - Smell

Terrain Analysis - C

- Cover and Concealment
  - One of the key elements to any patrol is to avoid detection. The utilization of stealth techniques and available cover is critical.
  - The analysis of cover and concealment is often inseparable from the consideration of observation.

Terrain Analysis - W

- Weather
  - Weather is analyzed using: temperature and humidity, precipitation, wind, clouds, and visibility (both day and night).
  - To determine its cumulative effect on the operation, weather must be considered in conjunction with the terrain associated with the unit's mission.
  - Weather affects equipment (including electronic and optical), terrain (trafficability), and visibility, but its greatest effect is on the individual border officer.

Terrain Analysis, cont.

- Smuggler
  - Capabilities and limitation.
  - Possible courses of action.

Terrain Analysis, cont.

- Border Officer's and Support Available
  - Any course of action the unit leader considers must take into account the number of personnel and support assets available for the operation.
  - The mental and physical condition of the border officer's, their level of training, the status of their equipment, fire support assets, and logistics must be considered.

Terrain Analysis, cont.

- Time
  - Time is vital to all patrol operations; it drives planning and execution.
  - The unit leader gets his indication of time available from his commander.
  - The amount of time a unit has to prepare for or to execute an operation determines the detail possible during the planning process.
  - Initial estimates of time should be used to identify any critical timings in the operation.

Decision Support Template

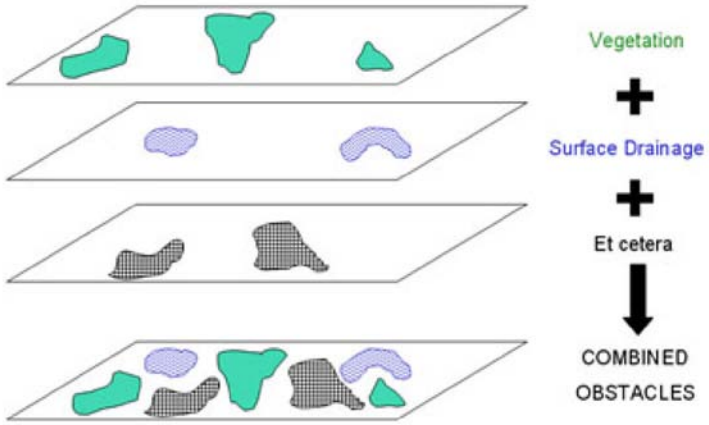
- A decision support template can assist the commander in identifying and anticipating decisions on the area of operations.
  - The development of the decision support template begins early in the intelligence planning process.
  - It is a systematic approach to detect the critical terrain on the area of operations and the reactions or decisions that both border officers and smugglers.

Decision Support Template Four Steps

- Step 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development.
- Step 2 - Smuggler Situation Template Overlay Development.
- Step 3 - Targeted Area of Interest Overlay Development.
- Step 4 - Friendly Course of Action Overlay Development.

Step 1 Modified Comb Obstacle Overlay

- The first step in the development of the Decision Support Template is the development of the modified combined obstacles overlay.
- Here you have a map of Area of Operations, you then identify aspects of the terrain, including weather effects on clear overlays one at a time. Trace these areas on the overlay that is placed over the map.



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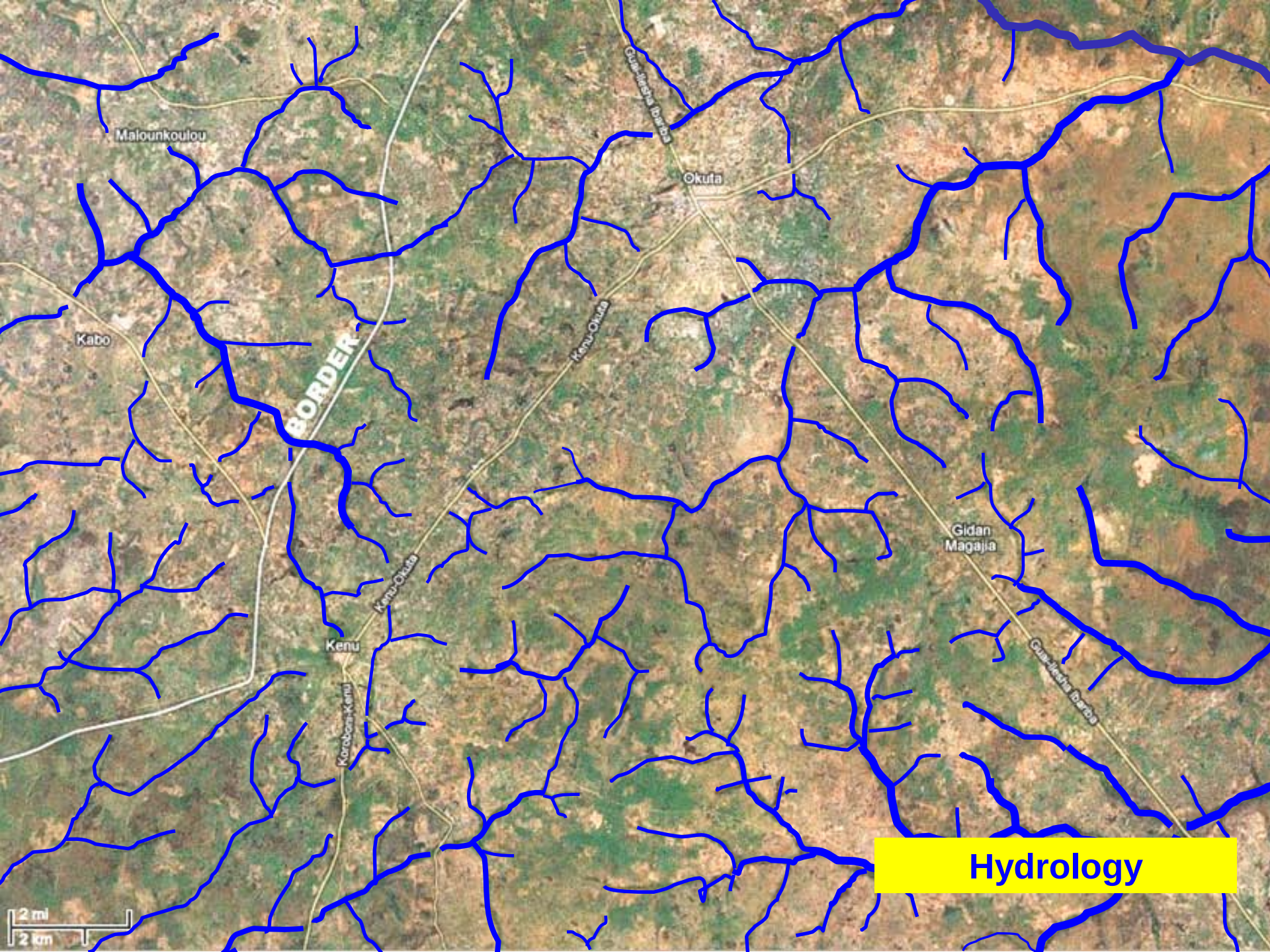
Malounkoulou
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Gidan Magaji
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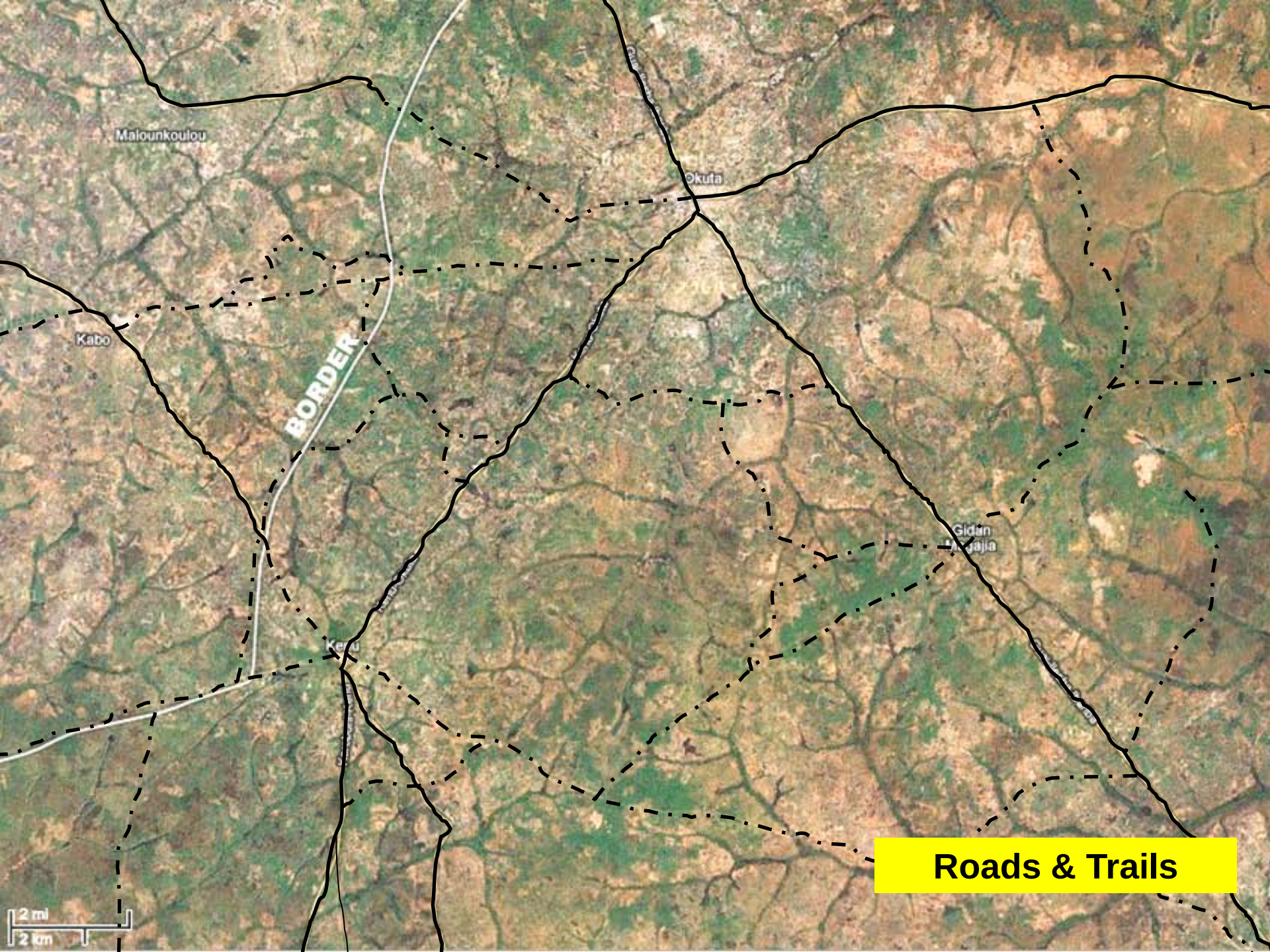
Hydrology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Roads & Trails
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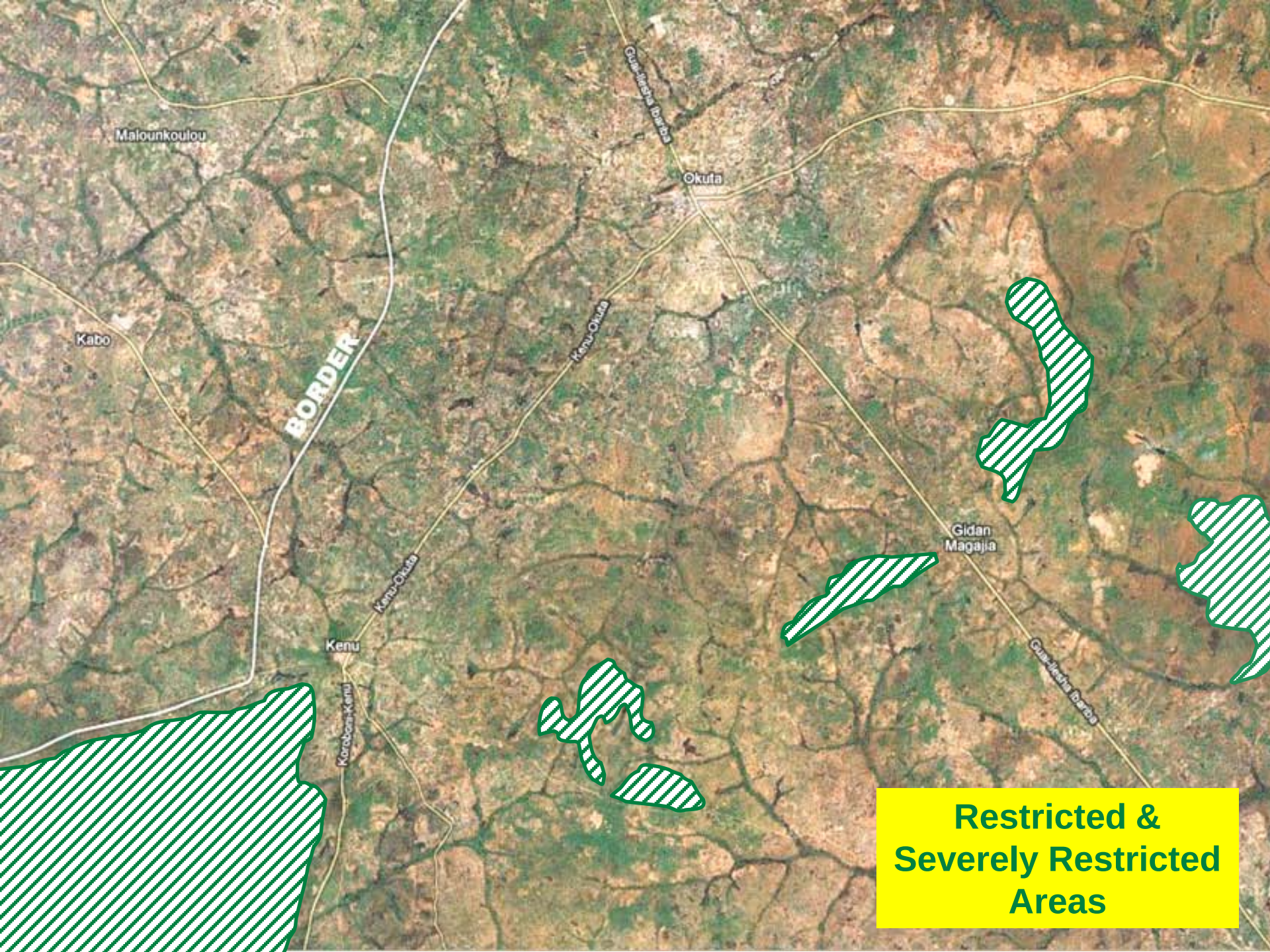
Malounkoulou
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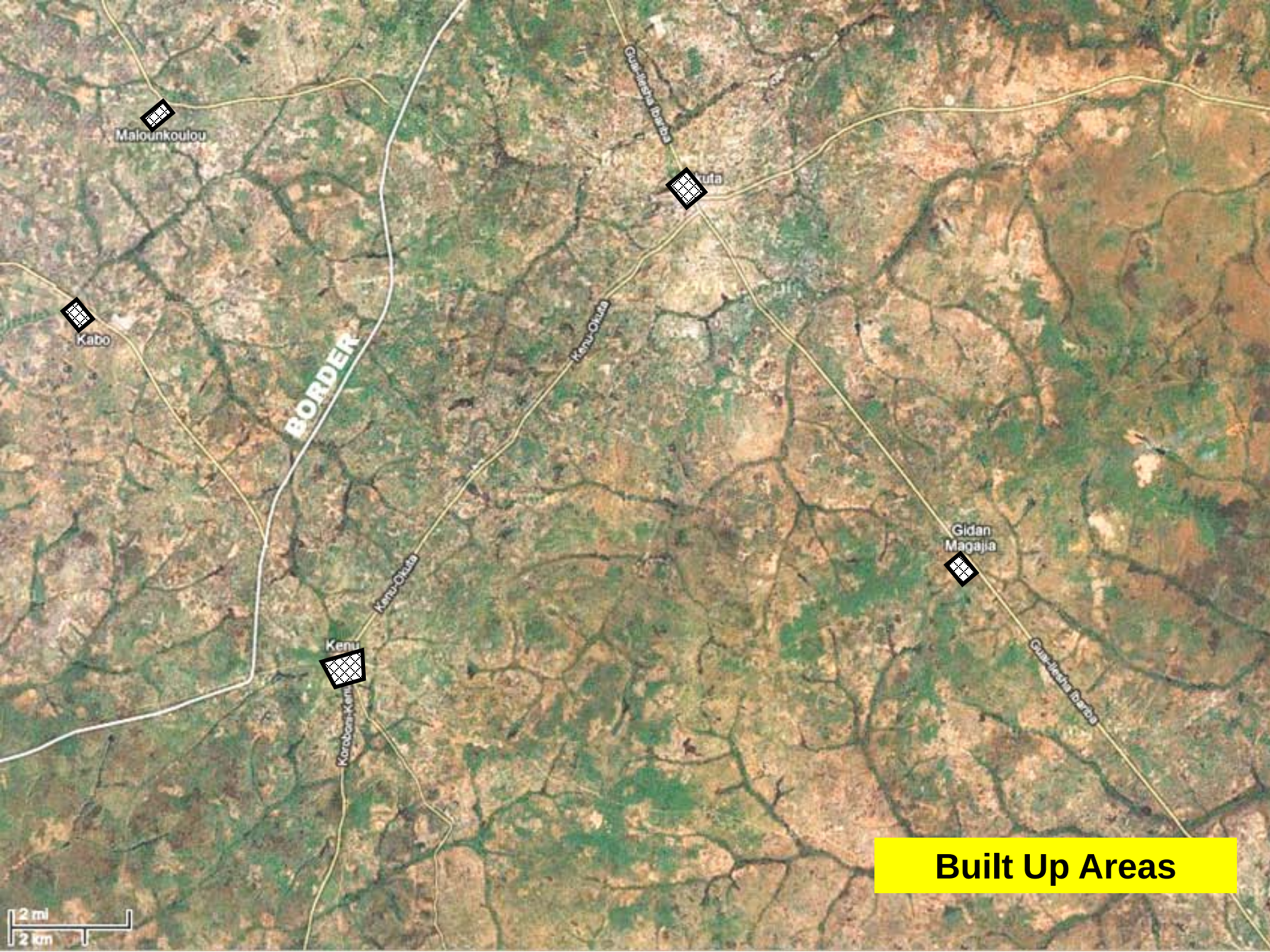
Kenu
Restricted &
Severely Restricted
Areas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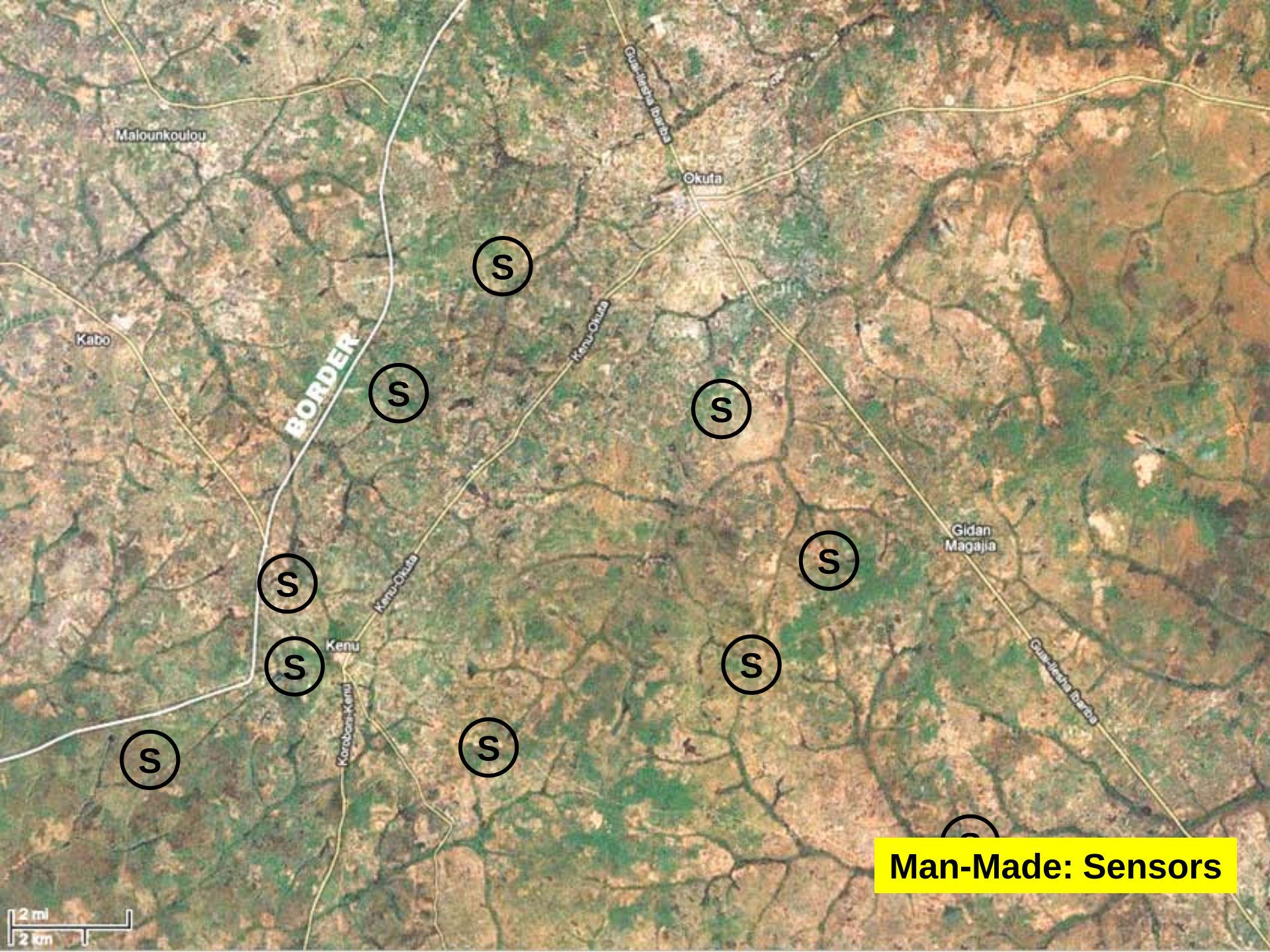
Built Up Areas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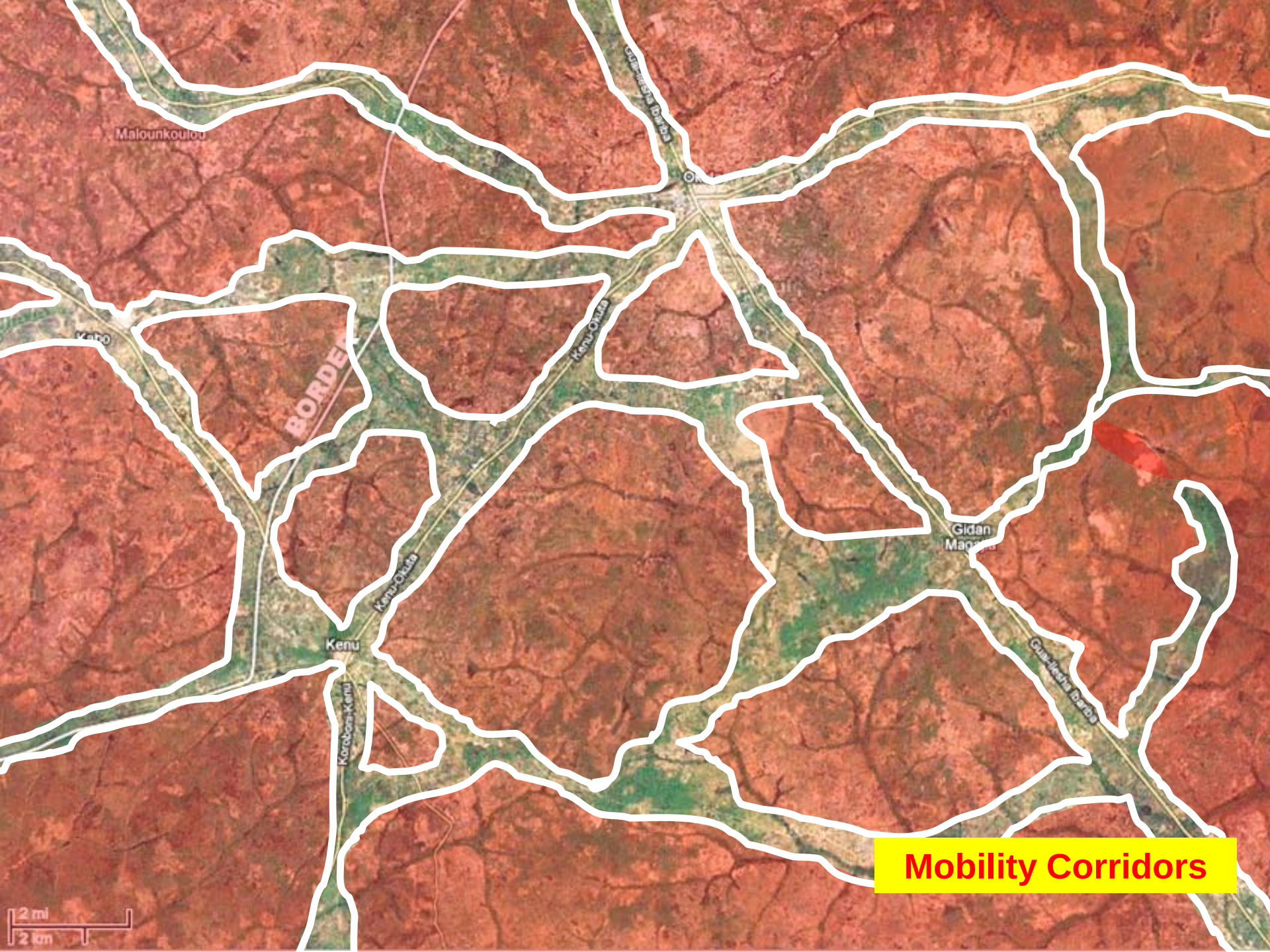
Man-Made: Sensors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Gidan
Mobility Corridors
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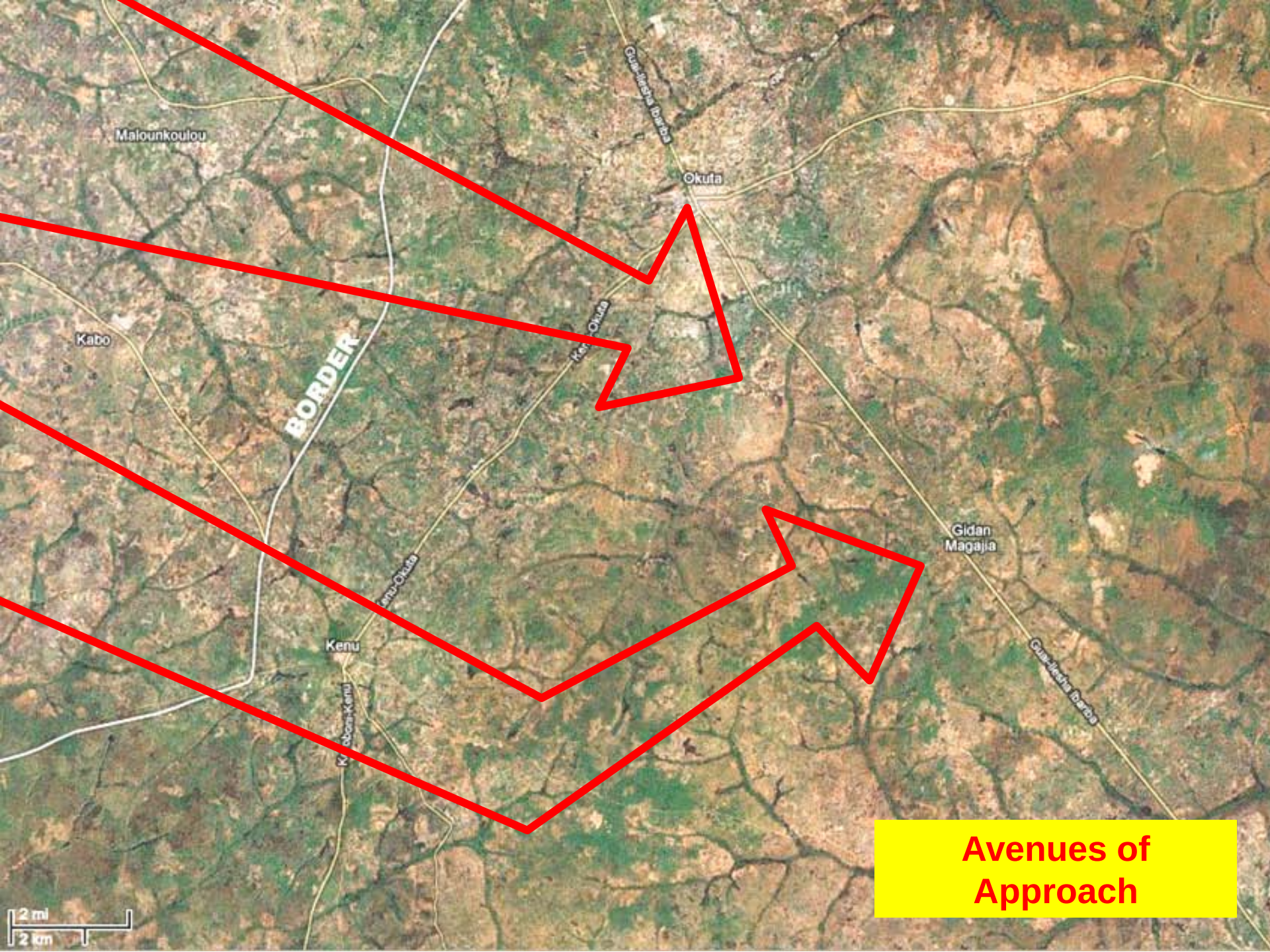
2 km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Gidan Magaji
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Avenues of Approach


Malounkoulou
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Key Terrain


Malounkoulou
BORDER
Hydrology
Roads & Trails
Restricted & Severely
Restricted Areas
Built Up Areas
Man-Made: Sensors
Mobility Corridors
Avenues of Approach
Key Terrain

Step 2 Smuggler Situation Overlay

- Time may preclude the development of multiple smugglers course of actions, but at least two most probable course of actions should be considered.
- The local police units and border agents should combine knowledge of past smugglers course of actions as they develop the smuggler course of actions.
- Each course of actions should be on a separate sheet.

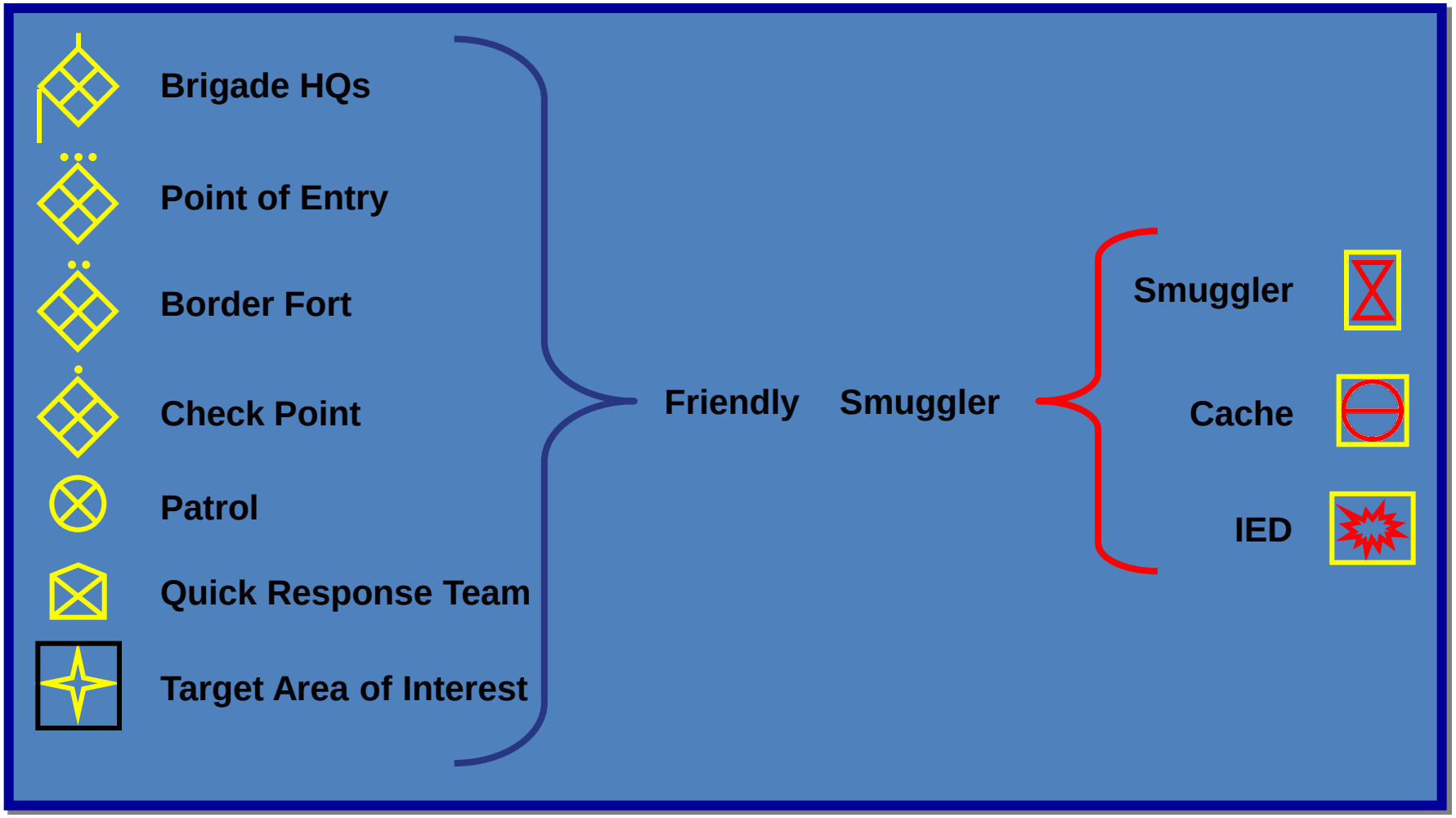
Considerations of Rate of Movement

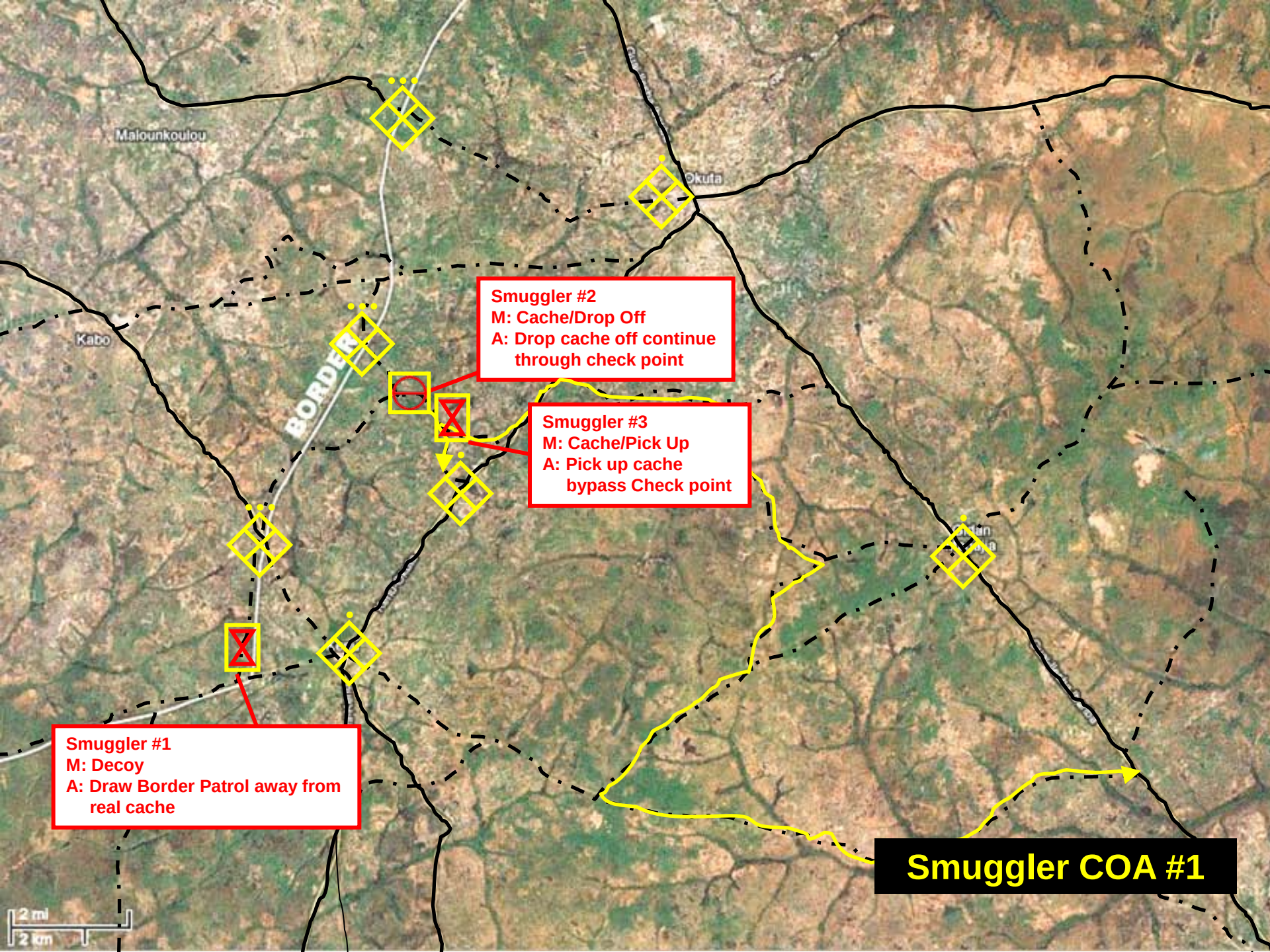
- Foot - On Roads
  - Day - 4 kmh
  - Night - 3.2 kmh
  - Total Day 20-32 km
- Foot -Cross Country
  - Day - 2.4 kmh
  - Night - 1.6 kmh
  - Total Day 20-32 km

Includes periodic rest halts, but does not include inclement weather.

- Trucks General- On Roads
  - Day - 40 kmh
  - Night - 40 (lights), 16 (black out) kmh
  - Total Day 280 km
- Trucks General - Cross Country
  - Day - 12 kmh
  - Night - 8 kmh
  - Total Day 280 km

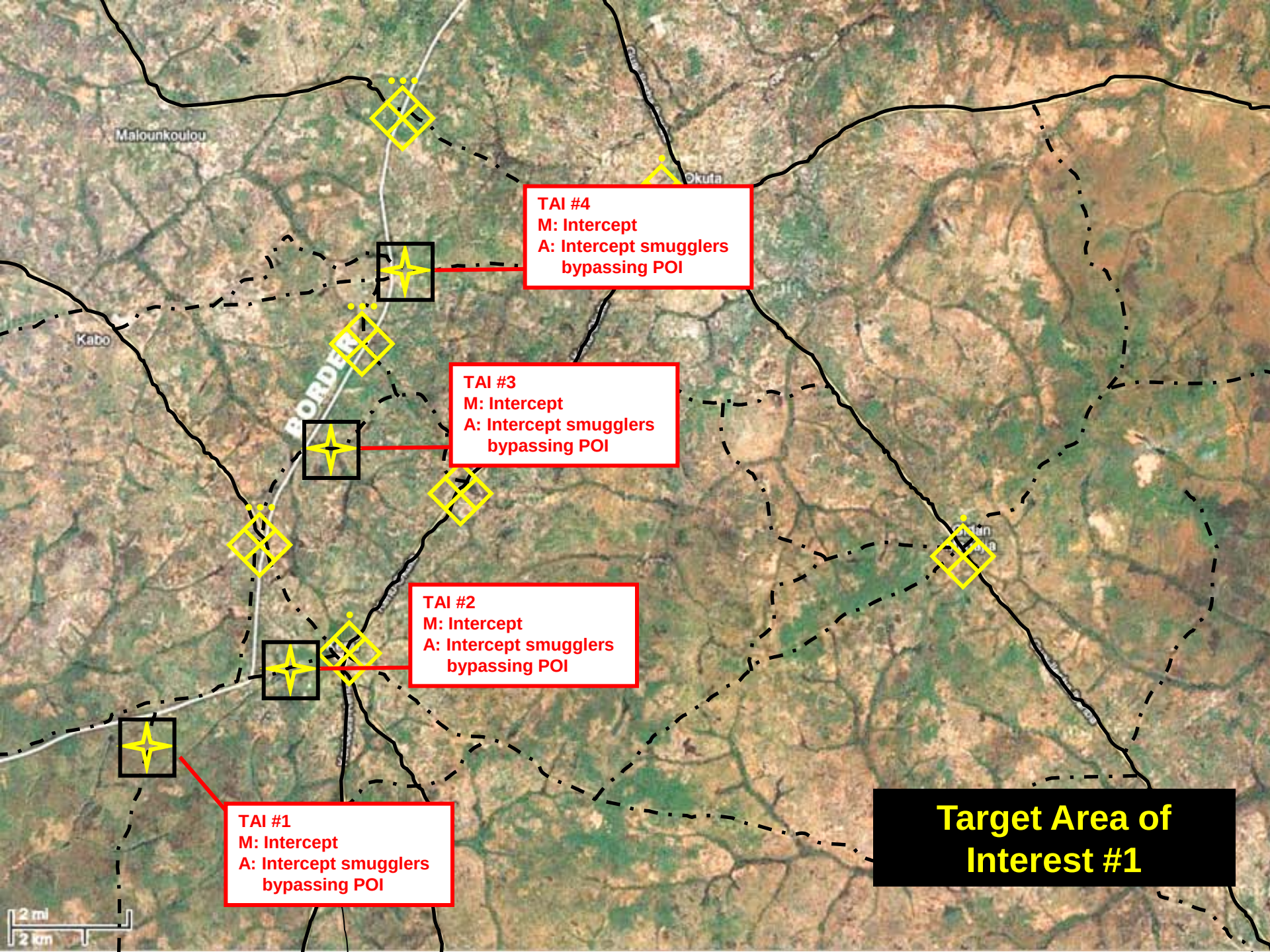
Icon Template

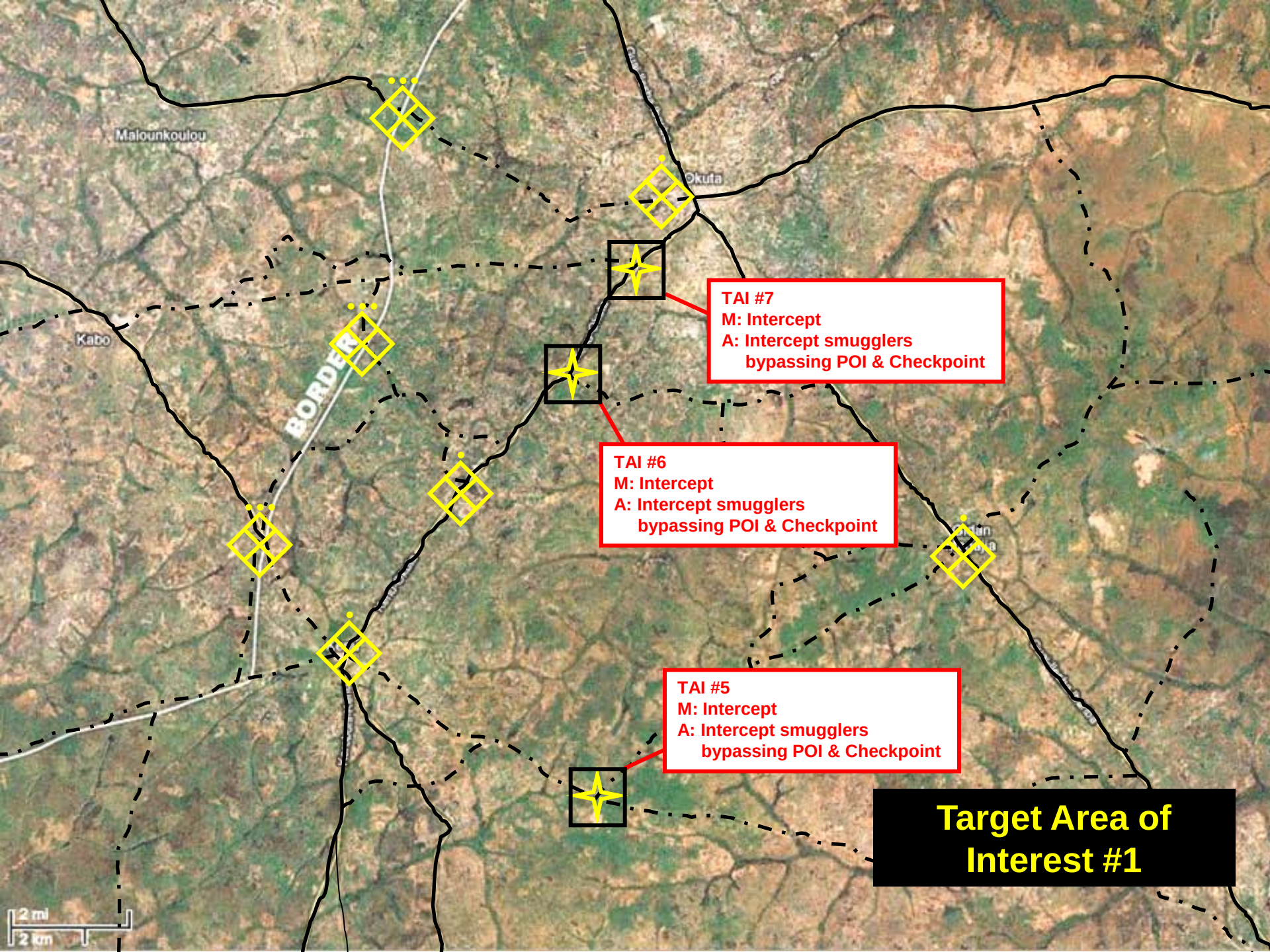



Malounkoulou
Okuta
Kabo
BORDER
Smuggler #2
M: Cache/Drop Off
A: Drop cache off continue through check point
Smuggler #3
M: Cache/Pick Up
A: Pick up cache bypass Check point
Smuggler #1
M: Decoy
A: Draw Border Patrol away from real cache
Smuggler COA #1
2 mi
2 km

Step 3 Target Area of Interest

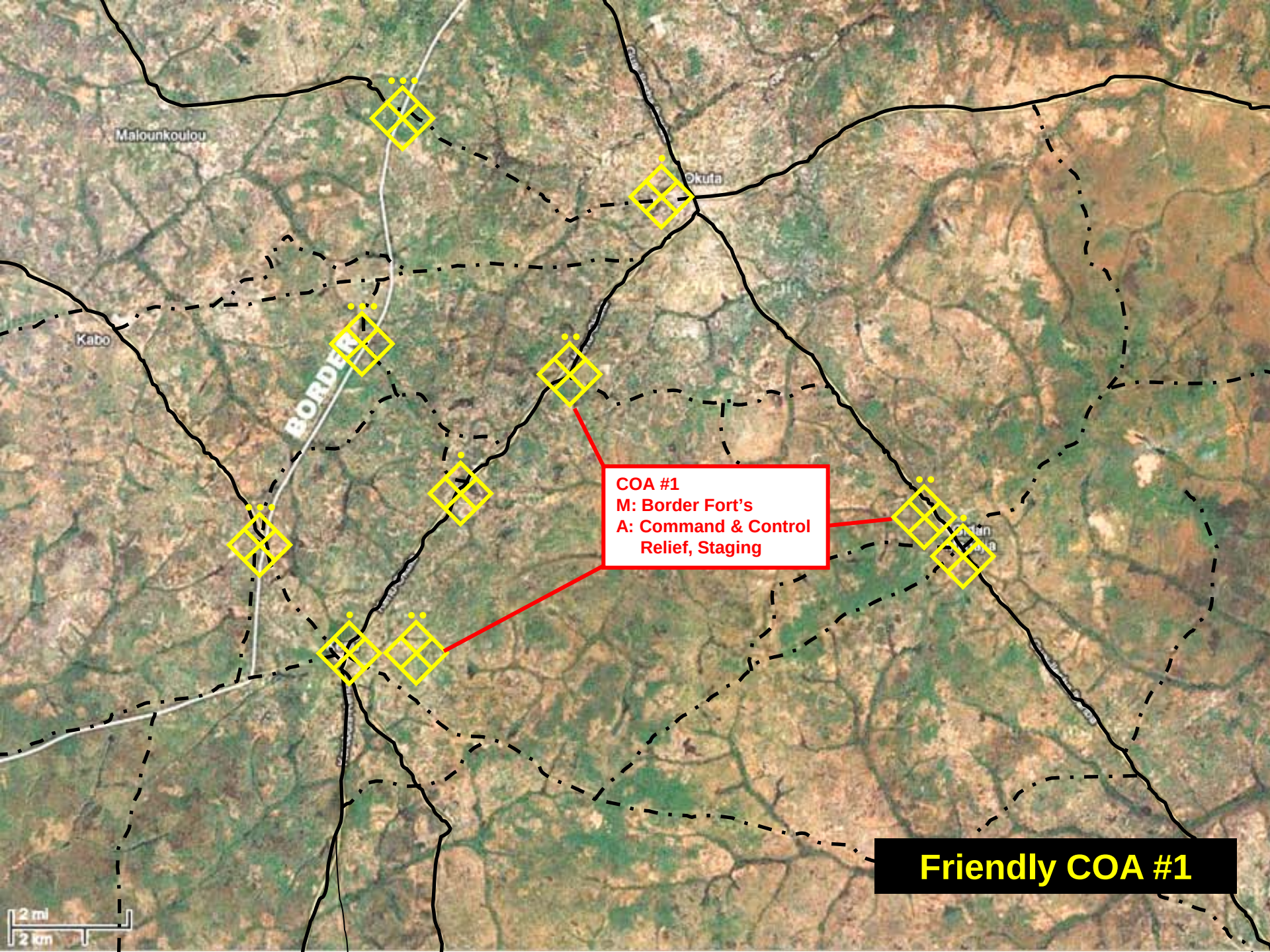
- The addition of targeted areas of interest is the next step of the decision support template development process.
- As the commander develops each enemy course of actions, they must identify those locations and events where the smuggler may utilize potential high value access/egress routes. These areas become targeted areas of interest and are marked on each individual course of action.


Malounkoulou
Okuta
Kabo
BORDER
TAI #4
M: Intercept
A: Intercept smugglers bypassing POI
TAI #3
M: Intercept
A: Intercept smugglers bypassing POI
TAI #2
M: Intercept
A: Intercept smugglers bypassing POI
TAI #1
M: Intercept
A: Intercept smugglers bypassing POI
Target Area of Interest #1
2 mi
2 km


Malounkoulou
Okuta
Kabo
BORDER
TAI #7
M: Intercept
A: Intercept smugglers
bypassing POI & Checkpoint
TAI #6
M: Intercept
A: Intercept smugglers
bypassing POI & Checkpoint
TAI #5
M: Intercept
A: Intercept smugglers
bypassing POI & Checkpoint
Target Area of
Interest #1
2 mi
2 km

Step 4 Border Security Course of Action

- The staff develops border patrol course of actions based on the commander's guidance and the facts and assumptions identified during intelligence planning process and mission analysis.
- The commander's role in border patrols course of action development is to ensure that each border patrol course of action takes advantage of the opportunities that are offered by the environment.


Malounkoulou
Okuta
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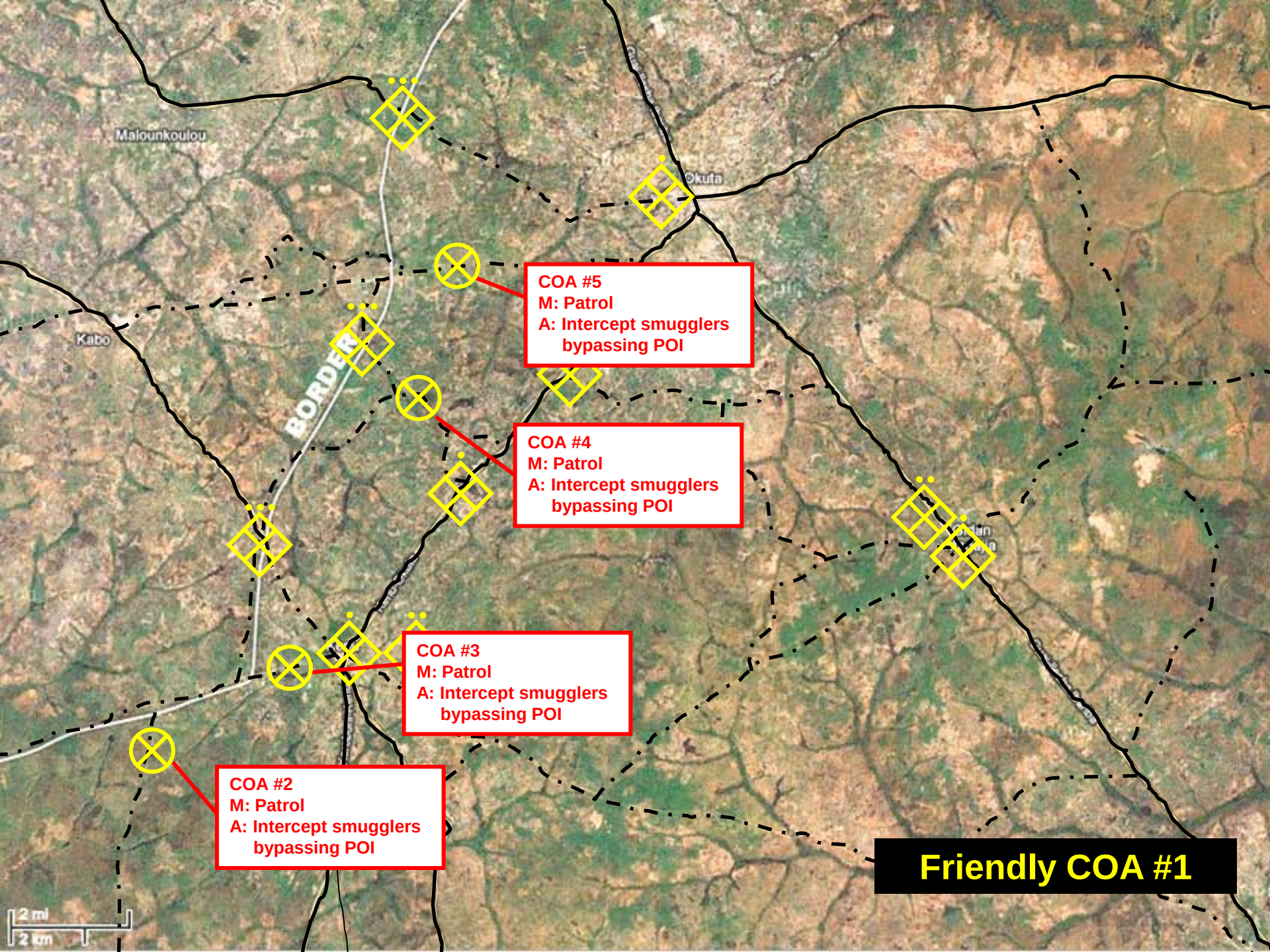
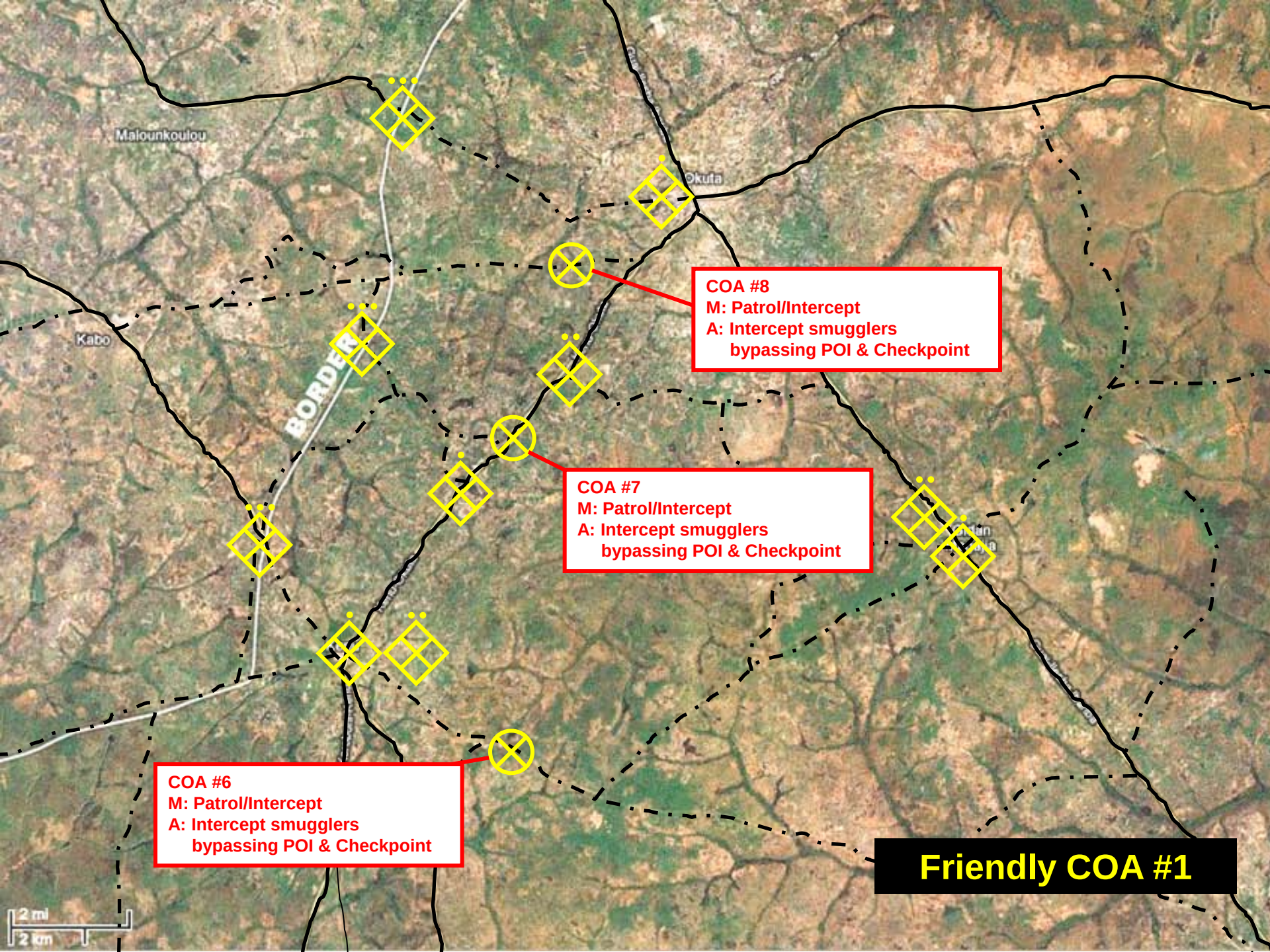
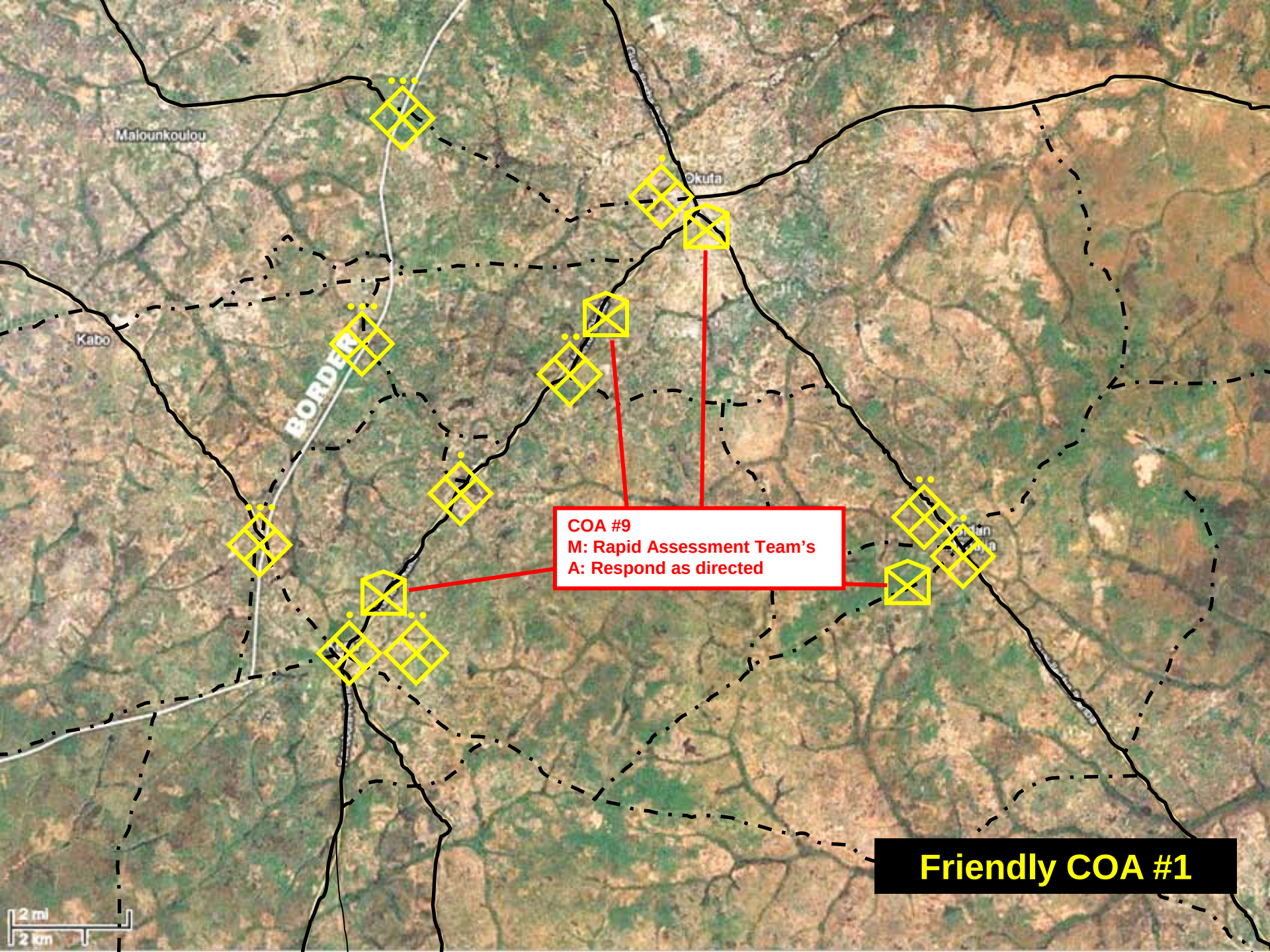
BORDER
COA #1
M: Border Fort's
A: Command & Control
Relief, Staging
Friendly COA #1
2 mi
2 km


Malounkoulou
Okuta
Kabo
BORDER
COA #5
M: Patrol
A: Intercept smugglers bypassing POI
COA #4
M: Patrol
A: Intercept smugglers bypassing POI
COA #3
M: Patrol
A: Intercept smugglers bypassing POI
COA #2
M: Patrol
A: Intercept smugglers bypassing POI
Friendly COA #1
2 mi
2 km

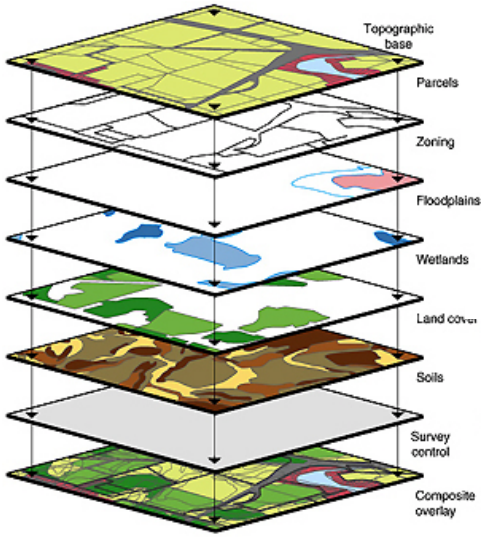

Malounkoulou
Okuta
Kabo
BORDER
COA #8
M: Patrol/Intercept
A: Intercept smugglers
bypassing POI & Checkpoint
COA #7
M: Patrol/Intercept
A: Intercept smugglers
bypassing POI & Checkpoint
COA #6
M: Patrol/Intercept
A: Intercept smugglers
bypassing POI & Checkpoint
Friendly COA #1
2 mi
2 km


Malounkoulou
Okuta
Kabo
BORDER
COA #9
M: Rapid Assessment Team's
A: Respond as directed
Friendly COA #1
2 mi
2 km

Practical Exercise

- Break into analysis groups under control of an assistant instructor.

- Conduct a terrain analysis through a decision support template.



Conclusion

- The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

Cooperative Border Security Program
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Terrain Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**4.0 Hours**
Instructor:	**CBSP Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 03.01
GOALS AND OBJECTIVES

Instructional Goal

03.01.00 The student will understand how to conduct a Terrain Analysis and why it is important.

Learning Objectives

Cognitive Tasks

03.01.01 The student will identify the five aspects of a Terrain Analysis.

Cognitive Conditions and Standards

After the training period, the student will be given a closed book written examination. The student must achieve a minimum score of 70% to pass the written examination.

Performance Tasks

03.01.02 The student will demonstrate making a Decision Support Template.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 03.01
SKILLS CRITERIA

03.01.02 The student will demonstrate making a Decision Support Template.

a. Step 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development
b. Step 2 - Smuggler Situation Template Overlay Development
c. Step 3 - Targeted Area of Interest Overlay Development
d. Step 4 - Border Course of Action Overlay Development

LESSON PLAN 03.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 03.01.00, 1-46

Handout Materials
Student Guide

References
1. DOE Central Training Academy, "Module 5 - Tactics", Lesson Plans 2006.
2. DOE M 470.4-3 Chg 1, "Protective Force Program Manual". Washington, 2006.
3. United States Army, "Small Unit Tactics", PT 7-8-SWCS.
4. United States Army, "Dismounted Patrolling", FM 21-77.
5. United States Marine Corps, "Engineer Field Data", FM5-34.
6. United States Army, "Intelligence Preparation of the Battlefield", Newsletter No. 96-12.
7. United States Army, "The Military Decision Making Process (MDMP) in The LRS Planning Phase", LRS MDMP with maps PowerPoint Presentation, 23, July 2001.

LESSON PLAN 03.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
01.06 Terrain Analysis **Student Comments**

I. INTRODUCTION

Border Police operations require thorough knowledge of the terrain and detailed intelligence preparation of the area of concern or operations. To succeed, border commanders and leaders must know the nature of the terrain, civilians and the opposition they may face. They must analyze the effect the area has on both the opposition (smuggler) and Border Security forces.

II. ANALYZE THE MISSION

Several special considerations have implications in a terrain analysis the border commanders must analyze the terrain that affects the carrying out of their mission, and provide the results of the analysis to border patrol personnel and their leaders.

A. Purpose of Terrain Analysis

The first step in the estimate is mission analysis; it begins upon receipt of the mission. It is the means for the unit leader to gain an understanding of the mission.

1. Task Analysis

The unit leader must identify and understand all that is required for the successful accomplishment of the mission. This includes tasks received in the unit's task statement and coordinating instructions from the higher commander's operations order.

2. Limitations

These are restrictions on the freedom of action of the border force; these prohibit the commander from doing something specific. Tactical control measures, such as Rules of Engagement. This is also known as clutter. It can deal with population distribution (cooperation with smugglers), density of normal vehicle and foot traffic.

B. Terrain Analysis Process

In any tactical situation, you must consider the Smuggler's capabilities as determined in the Smuggler Assessment and the Border Police capabilities as determined in the Task Decomposition. Be aware that capabilities can change, so do not be excessively limited by current capabilities when looking at how each side might use the terrain. The nature of the terrain can have a tremendous impact on what can and cannot be done. We have the advantage because we can analyze the terrain in advance.

Factors, which make up terrain analysis is the military acronym (OAKOC-W), which, should always be considered and conducted from both the border patrol and smuggler's perspectives. The unit leader conducts analysis of the five military aspects of terrain relevant to his mission. Certain situations may elevate one element of OAKOC-W to a level of importance above that of one or more of the remaining elements (extreme weather, for example). A logical sequence for rapidly analyzing terrain and weather is as follows:

1. Obstacles

Obstacles are any natural or man-made obstructions that canalize, delay, restrict, or divert the maneuver or movement of a smuggler. The terrain setting creates obstacles to both the border's response force and the smuggler's. The open flat desert, hills, civilians, and geometric patterns present obstacles to both humans and vehicles. Areas that can be observed may be considered obstacles, as neither side may want to be seen.

Consider the advantages and disadvantages that obstacles within the area may present to you when selecting a response route.

Also consider the advantages and disadvantages that obstacles within the area may present to a smuggler when attempting to access/egress an area.

An example of an obstacle might be a river or stream. When you conducted a smuggler's capabilities and limitations, you should have taken into account their mode of transportation. With the river or stream you take into account that mode of transportation and logically search where they can cross, then the composition of the bottom will determine its passability if they plan to ford the river rather than float across, again dependent on their mode of transportation. Depth, current speed, embankment slope should also be noted along with what seasonal weather does to these areas.

Other examples of obstacles are: buildings, steep slopes, rivers, lakes, streams, swamps, forests, deserts, jungles, cities, minefields, trenches, wire obstacles, etc. Factors to Consider Are:

a. Vegetation (tree spacing, trunk diameter)

b. Surface Drainage (stream width, depth, velocity, bank slope & height)

c. Surface Materials (soil type & conditions that affect mobility)

d. Surface Configuration (slopes, embankments, roughness that affect mobility)

e. Transportation Systems (bridge classifications, slopes, & road width)

f. Weather Effects (inclement and seasonal changes)

g. Man-Made Obstacles (berms, fences, etc.)

2. Avenues of Approach (Mobility Corridors)

Mobility corridors are areas of the terrain where either force can move. Avenues of approach are linked mobility corridors that lead from a starting point through to an objective. The smuggler is attempting

to move their contraband along an avenue of approach to their goal. The border police is using different avenues of approach to intercept or cut off the smuggler(s). When border forces are patrolling or interdicting, these avenues of approach must be identified.

Avoid all likely avenues of approach because the smuggler will likely have them under surveillance or covered by booby traps. The smugglers will more than likely not use these routes knowing that the border patrol will use them. Instead they will use routes less traveled and harder for the border patrol to utilize.

Factors that can influence the selection of routes are nature of the mission (border officers and smugglers), time limitations, size of response force or type (mounted vs. un-mounted) of patrol. These routes must consider the weight, width, and height of the vehicles used for trafficability.

You must randomly patrol all areas that can be utilized as approach or escape routes by the smuggler, along with less desirable routes that the smugglers might take to avoid obvious border patrols.

Information sought for these routes includes:

a. Slope of 5-percent or greater.

   With steep slopes it will slow the travel speeds of the smuggler.

b. Existing roads and their characteristics.

   i. Surface material will determine speed and ease of travel.

   ii. Weather or seasonal effects

c. Bridges and other stream crossing means.

These will create a choke point for both sides. Once again and very good location for a checkpoint would be on the opposite side so the smugglers will have no choice but to cross or turn away. If they turn away then an interdiction team could be dispatched to investigate.

d. Tunnels

Main concern along the border that has physical barriers that the smuggler cannot negotiate or areas that the border patrol cannot get access too from their vehicles. This is why it is not only important to patrol not only in vehicles, but also on foot. Tunnels should be identified and either be destroyed or used to capture smugglers as they emerge.

e. Vegetation

Can conceal, canalize or let the smugglers hide their cache before an interdiction or search.

f. Built Up Areas

Congested areas have 360-degree angles to cover. Allot of clutter/noise to decipher. Possible sympathizers may either be passive or violent to aid in smuggling operations. Easy for the smuggler to blend/hide with the local population.

g. Agricultural Areas

As roads tend to run along tops of levees and berms, traffic in agricultural areas is observable. Another thing to consider, if a smuggler observes a sheepherder moving his flock through a certain area they can surmise

that the area is not mined and has no sensor coverage.

h. Open Areas / Zones

An open area that is easily traversable without road or pathway network (i.e., fields, thin forest, etc.).

3. Key Terrain

Key terrain is any area that affords a marked advantage to either border forces or the smugglers in that it offers observation or trafficability superiority to those in its possession. Examples or key terrain include (but not limited too):

a. Observation Points

b. Road Control Points

c. Choke Points

f. Critical Intersections

g. High Speed Routes

You have the advantage over the smuggler. Knowing the location of every key terrain location and learning how to safely access it. Key terrain is ideal for optical aid devices or checkpoints. Key terrain, if not occupied should at least be patrolled to monitor or placement of sensors to indicate movement patterns. This can also be great location for preplanned roadblock techniques for suspected searches or smuggler interdiction points.

If key terrain is a critical road junction(s) you can eliminate these routes by establishing checkpoints. These can either be permanent or hasty.

4. Observation

Determine what effect on observation the terrain features of the area will have on both smuggler and border police. Critical features include vegetation/forest, elevation and dry riverbeds. Different times of the day/night and different weather conditions must be considered. Consider not only how the terrain will affect your ability to observe smuggler activity, but also how terrain features will affect, smuggler observation of your activity.

Identify the inconsistencies in the terrain (shadows, lighting and vegetation) relating to the time of day or year. Know areas where you are backlit when moving or casts shadows that can be seen from afar. Also, identify the terrain features (within and adjacent to the area of operations) that will provide either the border officers or smugglers observers with a good field of view as well as cover and concealment. These types of areas must be patrolled and checked frequently, using sensory techniques.

a. Sensory Techniques

An officer's ability to effectively use their senses, along with the ability to move and observe without being detected, is critical to effective patrolling. Equipment supplements the senses, enabling the observer to accurately portray the environment. Senses consist of sight, hearing, touch, and smell. Examples of sensory use are as follows:

i. Sight, look for

- Smuggler's mode of transportation.
- Sudden or unusual movement.
- Smoke or dust.
- Unusual movement of farm or wild animals.
- Activity of local inhabitants.
- Vehicle or personnel tracks.

- Signs or evidence of smuggler occupation.
- Recently cut vegetation or freshly tilled earth.
- Lights, fires, or reflections.
- Amount/type of trash.

ii. Hearing, listen for

- Running engines or vehicle sounds.
- Voices.
- Animals.
- Metallic sounds.
- Unusual calm or silence.
- Dismounted movement.

iii. Touch, feel for

- Warmth of coals/materials from fires.
- Freshness of tracks.
- Age of food or trash.

iv. Smell for

- Vehicle exhaust.
- Burning petroleum products.
- Cooking food.
- Age of food or trash.
- Human waste.

5. Cover and Concealment

One of the key elements to any patrol is to avoid detection. The utilization of stealth techniques and available cover is critical. The analysis of cover and concealment is often inseparable from the consideration of observation.

a. Cover is protection from weapons fire, direct and indirect. Since we did an assessment of the smuggler on their capabilities and weaponry, "cover" should relate to the most

lethal weapons that could be employed against you by the smuggler. If the cover you seek will stop those, it will stop the less lethal weaponry. Get in the habit of utilizing all available cover in performing your patrols on foot and in vehicles. Maximum realism in conducting normal patrols will help sharpen your skills and increases the probability that your "immediate action" in a response will be correct when confronted with a hostile environment. Remember, the most effective cover is always selected in advance. A basic rule of thumb is to always move to cover rather than concealment.

Cover can be natural such as hills, cuts, ditches or trees. Cover can also be man-made. Some types of man-made cover are:

i. Permanent or Hasty Fighting Positions

ii. Vehicles (regular and armored)

iii. Buildings

b. Concealment is the ability to conceal oneself while observing, moving or applying fire in all type of conditions. Concealment is protection from observation only. Natural concealment is provided by your surroundings. Artificial concealment is man made or altered. The term "invisible deployment" is used to describe the use of a concealed route.

The general rules for concealment are:

i. Avoid unnecessary movement.

ii. Use all available concealment and blend with it to prevent detection of your position. Understand the relationship of the color of your uniform to your surroundings (light absorption capabilities).

iii. Use shadows to your advantage. Shadows can be found under most conditions of day and night.

iv. Stay low to observe.

v. Expose nothing that shines.

vi. Keep off the skyline.

vii. Alter your silhouette or outline.

viii. Maintain silence.

6. Weather

Weather is analyzed using: temperature and humidity, precipitation, wind, clouds, and visibility (both day and night). To determine its cumulative effect on operations, weather must be considered in conjunction with the terrain associated with the unit's mission. Weather affects equipment (including electronic and optical), terrain (trafficability), and visibility, but its greatest effect is on the individual border officer. During inclement weather or in extreme heat or cold, the amount of time spent on leadership and supervision must increase as the severity of the weather increases. Inclement weather affects visibility and movement, unit efficiency and morale, and makes command and control more difficult. Poor weather conditions can be as much of an advantage to a unit as it is a disadvantage, depending upon unit capabilities, equipment and level of training.

Examples of weather effect might be:

a. Wet Season Marsh - High River Flow

Trafficability only by canoe or other floating vessel. Not restricted to streams or canals. They can penetrate the swamp grass areas.

b. Dry Season Marsh - Low River Flow

Trafficability only by canoe or other floating vessel, restricted to streams or canals. Grass can still be penetrated but not maneuvered through.

c. Wet Season Roads

Trafficable by 2x2 vehicles, animals and foot. Roads do not have a waterproof surface and is considerably affected by rain. At no time are the roads closed due to weather effects other than bypassing large mud puddles.

d. Dry Season Roads

Trafficable by 2x2 vehicles, animals and foot. At no time are the roads closed due to weather effects.

C. Smuggler Forces

The objective of an analysis of the smuggler situation is to deduce the smuggler's most probable course of action (Lesson Plan 02.01 Smuggler Assessment). Its development comes from sources including smuggler doctrine and historical data, as well as current smuggler activities as indicated in the higher border commander's operation order. Ideally, the information used to analyze the smuggler situation includes the following:

1. Capabilities and Limitations

What can the smuggler do to me? What can they not do to me? In this subparagraph, the information listed under Composition, Disposition, Strength, is analyzed in relation to the smuggler's ability to conduct operations against your unit. The smugglers force is analyzed concerning its ability or inability to conduct various operations against our unit under any reasonably foreseeable situation. Is the smuggler

force capable of defending, reinforcing, attacking, withdrawing, or delaying? For example, can the smuggler effectively move at night? Can they conduct a deliberate defense against us or do they lack sufficient forces and equipment? Will the smuggler be reinforced by elements of other units as a result of our interdiction? How long will this reinforcement take? Can it be done at night, is it a vehicular transported reinforcement force or will it be traveling on foot?

2. Smugglers most probable Course of Action

What will the smuggler try to do to me? Based on the analysis of the smuggler's capabilities and limitations, deduce the smuggler's most probable course of action in relation to our action. For example, "the smuggler is likely to withdraw to the northwest as a result of our interdiction and attempt to melt with locals west of the objective." Remember, the smugglers will watch where you patrol and your patterns to try to either evade or wait until you are not there

D. Border Officer's and Support Available

Any course of action the unit leader considers must take into account the number of personnel and support assets available for the operation. The mental and physical condition of the border officer's, their level of training, the status of their equipment, fire support assets, and logistics must be considered.

E. Time

Time is vital to all patrol operations; it drives planning and execution. The unit leader gets his indication of time available from his commander. The amount of time a unit has to prepare for or to execute an operation determines the detail possible during the planning process. Initial estimates of time should be used to identify any critical timings in the operation.

Time is also important upon receiving notification of smuggler activities. Clear and concise interdiction plans must be in place prior to any smuggler activities. This is to ensure subordinates and subordinate leaders do not need to delay in their decision and actions (see Lesson Plan 02.03 Timing and Decision Analysis).

III. DECISION SUPPORT TEMPLATE DEVELOPMENT

A decision support template can assist the commander in identifying and anticipating decisions on the area of operations. The development of the decision support template begins early in the intelligence planning process. It is a systematic approach to detect the critical terrain on the area of operations and the reactions or decisions that both border officers and smugglers must make to accomplish their missions. The intelligence planning process provides the framework to predict where, when, and what probable decisions border officers and smugglers make as they interact on the area of operations.

This section presents and explains a four-step process designed to assist units in understanding and developing decision support templates. The four steps are:

- Step No. 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development.
- Step No. 2 - Smuggler Situation Template Overlay Development.
- Step No. 3 - Targeted Area of Interest Overlay Development.
- Step No. 4 - Friendly Course of Action Overlay Development.

The development of a decision support template uses products developed throughout the entire planning process. It is not something that is exclusively done after the plan is developed. The goal is to use products that are previously developed during the planning process and create a useful tool that can help the commander make decisions at critical points on the area of operations.

A. STEP 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development

The first step in the development of the decision support template is the development of the modified combined obstacles overlay. The modified combined obstacle overlay then enables the commander to develop an avenue of approach overlay, identifying threat avenues of approach. The modified combined obstacle overlay and avenues of approach assist the commander and staff in identifying options that are available to both the border officers and smugglers concerning maneuver. The avenue of approach overlay will be used throughout the decision support template development process, and will eventually become the decision support template.

A product of conducting a terrain analysis can also be a modified combined obstacle overlay. Here you have a map of area of operations, you then identify aspects of the terrain, including weather effects on clear overlays one at a time. Trace these areas on the overlay that is placed over the map. Continue to do this until you have identified all areas of concern and you should see areas that need to be addressed in your mission analysis.

The first product we want to construct is called a combined obstacle overlay. This product identifies all known natural and man-made obstacles and combines them together into a single product. This product should begin to spark visualization on the ground you are preparing to patrol upon.

1. Obstacle Marking Suggestions:

   a. Water Obstacles: Depicted in blue.

   b. Roads and Trails: Depicted in black.

   c. Restricted Terrain: An area that can slow or disrupt maneuver. Normally depicted with green or brown diagonal lines inside.

d. Severely Restricted Terrain: An area that severely hinders or slows movement unless some effort is made to enhance mobility. Normally depicted with green or brown cross-hatching inside.

e. Built Up Areas: Usually larger than one square kilometer. Outlined and cross-hatched in black.

f. Man-Made: Sensor arrays, etc. Depicted in black by a square with an "S" inside.

2. Avenues of Approach

a. Mobility Corridors: Areas where a force will be canalized due to terrain constrictions. Outlined in red. These mobility corridors are grouped to form avenues of approach.

b. Arrows oriented in the direction of movement. Outlined in red.

3. Key Terrain

a. The retention or control of which affords a marked advantage to either side. Depicted in purple by a circle with a "K" inside.

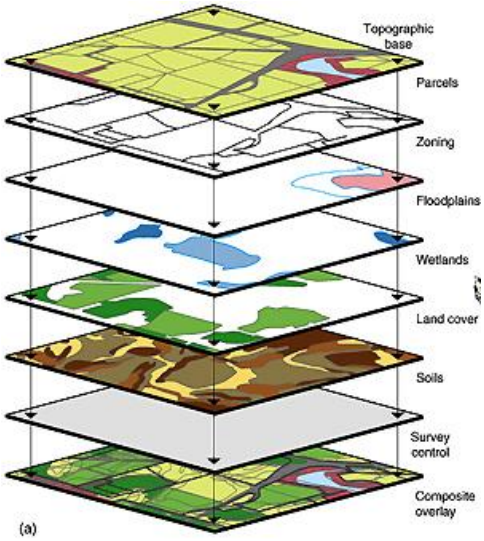
4. Observation

Is not normally identified in the overlay.

5. Cover and Concealment

Is not normally identified in the overlay.

Below is an example of this overlay:



Once we have created this, we can begin to analyze the terrain for maneuver and movement. During this step, we categorize terrain as unrestricted, restricted and severely restricted. Below are definitions and a symbol we can utilize in creating further products for each:

Using these terrain classifications, we now take our combined obstacle overlay and begin drawing restricted and severely restricted terrain upon it. With this complete, we can start to determine mobility corridors in our area.

After you have identified mobility corridors and placed them on your combined obstacle overlay, you begin to develop your avenues of approach. To do this, you look for mobility corridors that relate or converge with other. Generally, two mobility corridors will translate into an avenue of approach.

After drawing the avenues of approach on the overlay, we add other characteristics we believe will effect operations.

Once we complete this, we have now turned our original combined obstacle overlay into a modified combined obstacle overlay. This provides us a tool that reflects the results of our terrain analysis and now we can analyze the

effects the terrain will have on the smugglers and us. Remember, this is not an End-All. Periodic updates will have to be done as the seasons and smugglers tactics change.

B. STEP 2 - Smuggler Situation Template Overlay Development

The second step in the decision support template development process is the development of the smuggler situation template. Time may preclude the development of multiple smugglers course of actions, but at least two most probable courses of actions should be considered. The local police units and border agents should combine knowledge of past smugglers course of action as they develop the smuggler course of actions. Each course of action should be on a separate sheet.

Average rate of movement (includes periodic rest halts, but does not to include inclement weather);

1. Foot - On Roads

    a. Day - 4 kmh

    b. Night - 3.2 kmh

    c. 20-32 days march kilometers.

2. Foot - Cross Country

    a. Day - 2.4 kmh

    b. Night - 1.6 kmh

    c. 20-32 days march kilometers.

3. Trucks, general - On Roads

    a. Day - 40 kmh

    b. Night - 40 (lights), 16 (black out) kmh

c. 280 days march kilometers.

4. Trucks, general - Cross Country

a. Day - 12 kmh

b. Night - 8 kmh

c. 280 days march kilometers.

C. STEP 3 - Targeted Area of Interest Overlay Development

The addition of targeted areas of interest is the next step of the decision support template development process. As the commander develops each smuggler course of actions, they must identify those locations and events where the smuggler may utilize potential high value access/egress routes. These areas become targeted areas of interest are marked on each individual course of action. These targeted areas of interest overlays are then placed individually under the avenues of approach and the targeted areas of interest are copied onto this overlay. Targeted areas of interest are defined as points or areas where the border commander can influence the action of the smugglers.

D. STEP 4 - Friendly Course of Action Overlay Development

The fourth step in developing the decision support template is border patrol course of action development. The staff develops border patrol course of actions based on the commander's guidance and the facts and assumptions identified during intelligence planning process and mission analysis. The commander's guidance provides a basis for the initial borders forces array needed to counter the smuggler's actions. The commander's role in border patrol course of action development is to ensure that each border patrol course of action takes advantage of the opportunities that are offered by the environment (entry locations, choke points, best defensive terrain) and the smuggler's situation (weaknesses).

IV. CONCLUSION

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

To perform successfully you must understand how to analyze the terrain and then integrate that information into your patrol, response techniques, tactics and the planning of other operations.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Zone and Route Network Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**4.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 03.02
GOALS AND OBJECTIVES

Instructional Goal

03.02.00 The student will understand the concept of Zone / Route Analysis and how the smuggler could use the terrain to travel to their destination.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

03.02.01 The student will demonstrate the Manual Network Analysis Process.

03.02.02 The student will demonstrate using the Excel Route Network Tool.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 03.02
CRITERION TEST

None

LESSON PLAN 03.02
SKILLS CRITERIA

03.02.01	The student will demonstrate the Manual Network Analysis Process. a. Label each intersection, entry point and exit point. b. Document each possible route, from entry point to exit point. c. Using a map or GPS, calculate the distance between each road intersection. d. Based on road or path conditions, assign an average speed to each segment. e. Determine each route through the network. f. Calculate total distance of each route. g. Calculate total time required to travel each route. h. Predict smuggler routes, based on time, distance or speed.	LSPT p. 12-13, III, A-B
03.02.02	The student will demonstrate using the Excel Route Network Tool. a. Calibrate Map b. Edit the Network c. Set Edge/Segment Parameters d. Set Node Parameters e. Generate Statistics - Simulate Runs f. Path Optimization	p. 13- 17, IV, A-H

LESSON PLAN 03.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Excel Route Networking Tool Applications

Visual Aids
PowerPoint slides, Lesson 03.02.00, 1-31

Handout Materials
Student Handout
Zone and Route Network Analysis Tool Manual

References

LESSON PLAN 03.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
03.02 Zone and Route Network Analysis **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

Patrol operations require thorough knowledge of the terrain and detailed intelligence preparation of the area of concern or operations. You need to examine how the smuggler could use the terrain to travel to their destination (routes & timing). Understanding this allows the border police to establish interdictions.

This lesson will discuss zone analysis, manual network analysis process and the excel route networking tool.

II. ZONE AND ROUTE ANALYSIS OUTCOMES

Overhead 5

A. The analysis process determines the most likely smuggler avenues and locations for interdictions.

1. What will the smuggler do and where will he go?
2. Where will the border police detect the smuggler?
3. How will the border police control the interdiction?

Overhead 6

B. Improved Operations

Border police can use this knowledge to improve their operations.

1. Checkpoints
2. Sensor Placement
3. Patrol Routes
4. Tactics
5. Technology
6. Policy

C. Terrain Constraints

Overhead 7

Understanding terrain constraints will determine if zone or network analysis is appropriate. Zone and network analysis considerations, but not limited too:

1. Desert
    a. Observation - Excellent
    b. Cover and Concealment - Minimal
    c. Obstacles - Loose Sand/Wadis
    d. Key Terrain - Roads
    e. Avenues of Approach - Everywhere
2. Agriculture
    a. Observation - Limited, Erratic
    b. Cover and Concealment - Restricted View
    c. Obstacles - Vegetation, Irrigation
    d. Key Terrain - Intersections
    e. Avenues of Approach - Roads, People Everywhere
3. Mountains
    a. Observation - Excellent in Narrow Fields
    b. Cover and Concealment - Minimal
    c. Obstacles - Mountains
    d. Key Terrain - High Terrain
    e. Avenues of Approach - Roads/Passes

4. Water

   a. Observation - Excellent

   b. Cover and Concealment - None

   c. Obstacles - Water, Shore Boundary

   d. Key Terrain - High Ground

   e. Avenues of Approach - Shipping Lanes, Everywhere

5. Urban

   a. Observation - Minimal

   b. Cover and Concealment - Lots

   c. Obstacles - Buildings, Traffic

   d. Key Terrain - Edges, Arteries

   e. Avenues of Approach - Roads

6. Ag/Water

   a. Observation - Limited, Erratic

   b. Cover and Concealment - Restricted View

   c. Obstacles - Water Way, Vegetation

   d. Key Terrain - Intersections

   e. Avenues of Approach - Roads, People Everywhere

II. ZONE ANALYSIS

Overhead 8

Zone analysis is utilized in areas where smuggler movement is not constrained by roads or pathways. I.e., waterways, desert and agricultural areas. The smuggler can go in any direction – the only

limit to where he might be is the length of time he has been traveling!

A. Zone Analysis Process

Overhead 9

1. The objective is to determine the area in which the smuggler must be at any specific time, based on their speed and travel time. These are dependent on mode of travel, contraband, time and weather.

2. A set of time-based zones can be defined to display this.

3. These zones are the search areas for the Border Police – with the area expanding as time goes by.

4. If the breach location is known, the zones are established with a set of arcs (see example). Each zone should have a land feature identifier and/or call name.

5. If the border breach location is not known, the zones are represented by a series of lines parallel to the border – where the smuggler could have traveled in 5 minutes, 10 minutes, etc. As with above, each zone should have a land feature identifier and/or call name.

B. Zone Analysis Utility

Overhead 10

Zone Analysis can be used to develop countermeasures and improve frontier capture rates.

1. Exit points are frequently locations where smugglers can blend and then merge into the next zone.

2. How long will it take a smuggler to reach the exit point?

3. Can the Border Police respond in time to interdict before the smuggler vanishes?

III. MANUAL ROUTE NETWORK ANALYSIS

A. Manual Route Network Analysis Set Up

Overhead 11

Network analysis is most useful in areas where movement is constrained to roads, pathways and mobility corridors.

Using the results of terrain analysis, identify and manually plot:

1. Mobility Corridors
2. Roads
3. Paths
4. Intersections
5. Entry and Exit Points

Overhead 12
LSPT 03.02.01

B. Manual Route Network Analysis Process

Follow a step-by-step manual process to:

1. Label each intersection, entry point and exit point.
2. Document each possible route, from entry point to exit point.
3. Using a map or GPS, calculate the distance between each road intersection.
4. Based on road or path conditions, assign an average speed to each segment.
    a. AB = Fast: 55km
    b. BD = Medium: 30km
    c. DF = Slow

Overhead 13

5. Determine each route through the network.

6. Calculate total distance of each route.

7. Calculate total time required to travel each route. Remember, these are dependent on mode of travel, contraband, time and weather.

8. Predict smuggler routes, based on time, distance or speed.

   a. Example 1

      Routes A, B, D, G, I, and K is a combined distance of 57kms, and has an estimated travel time of 2 hours, 28 minutes.

   b. Example 2

      Routes A, C, E, H, G, I, and K is a combined distance of 49kms and has an estimated travel time of 1 hour, 14 minutes.

IV. EXCEL ROUTE NETWORK TOOL ANALYSIS

Overhead 14

The Excel Networking tool automates a time consuming manual process.

A. Excel Route Networking Tool Overview

1. Allows users to highlight primary entrance and exit points.

2. Identifies most frequently used routes.

3. Calculates the length of time to transverse routes, factoring variables such as visibility, road conditions, and means of travel.

4. Allows users to manipulate results by adding roadblocks and barriers

B. Excel Route Networking Tool Overview

LSPT 03.02.02

Overhead 15

1. Map Calibration
2. Nodes
   a. Source
   b. Target
   c. Exit
3. Edit the Network
   a. Set Arc Parameters
   b. Set Node Parameters
4. Simulate Runs
   a. Minimize Option
   b. Generate Statistics
5. Analyze Results

C. Calibrate the Map

Overhead 16

1. Have a map of select border are of operations.
2. Select Map Calibration/Begin Calibration from the Network Tool drop down menu.
   a. 2 green crosses will appear in the upper left corner.
   b. Drag 1st cross to start of the scale.
   c. Drag 2nd cross to the end-point on the scale.
3. Select Map Calibration/Begin Calibration from the Network Tool drop down menu.

Overhead 17

a. Enter distance between the two crosses in Km (i.e. 2k)

b. Select OK to close Calibrating Scale box.

Overhead 18

D. Edit the Network

1. Add a Node and an Edge.

From the Network Tool drop down menu, select Edit Network.

a. Select Add Nodes

b. Select Add Edge

* Nodes and Edges will appear in the upper left corner of the NW Tool.

Overhead 19

2. Connect the Node and Edge to the network.

3. Close the Update Network box.

Overhead 20

E. Set Edge/Segment Parameters

Smuggler Values have been pre-determined, but can be modified as necessary by the user.

Overhead 21

1. Click on an Edge/Segment

a. Fill in the Segment Name (optional).

b. Select the Path Type from the drop down menu.

c. Select Conveyance from the Drop down Menu.

2. Select Save

F. Set Node Parameters

Overheads 22-23

1. Fill in Node Name (optional).

2. Select Node Type

   a. Target: this is the node designated to be the destination goal of the smuggler.

   b. Source: this is the node designated to be the entry point for the smuggler.

   c. Network: these are interior intersections within the network.

   d. Exit: these are the intersection points that will be your last chance to interdict the smuggler.

   e. Barrier: can be placed at intersections to slow progress of the smuggler.

G. Generate Statistics - Simulate Runs

Overhead 24

1. Select Path Simulation from the Network Tool drop-down menu.

   a. The random path generator can be manipulated by emphasizing one of three areas: Cost, Travel Time, or Visibility.

   b. Each time the generator reaches a node; it will make a choice on which direction to turn based on Utility Weights.

Overhead 25

2. Generate Statistics from Multiple Runs

   a. Adjust Utility Weights for Cost, Travel Time and Visibility.

   b. Set the number of attempts.

   c. Select the Simulate Button.

After reviewing the results, you have the option to save your results in order to analyze multiple scenarios.

H. Path Optimization — Overhead 26

1. Select Path Optimization from the Network Tool drop-down menu.

   a. The minimize option will allow you to analyze available routes with an emphasis on Distance, Travel Time, Cost or Visibility.

   b. Selected Path displays specific details on the current path that is highlighted in green on the Networking Tool map.

2. Next Path allows you to scroll through each available route, by the Minimization option, in ascending order. — Overhead 27

3. Path Details provides the ability to view. — Overhead 28

   a. Travel Time

   b. Cost or

   c. Distance Parameters

   d. By individual segment, for the current route.

I. Excel Road Networking Tool Demonstration — Overhead 29

V. CONCLUSION — Overhead 30

You have learned the concept of Zone Analysis, the manual Network Analysis process and the Excel Route Networking tool.

You have learned how to do zone analysis, manual network analysis, and use of a network analysis tool.

These analyses help you determine the most likely smuggler movement avenues and locations for interdiction.

ZONE AND ROUTE NETWORK ANALYSIS - LSPT #03.02		DATE:
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to zone and road network analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand zone and route network analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	MOA	DESCRIPTION			REMEDIAL	
03.02.00		**ZONE AND ROUTE NETWORK ANALYSIS**	**PASS**	**FAIL**	**PASS**	**FAIL**
03.02.01		The student will demonstrate the Manual Network Analysis Process.				
03.02.02		The student will demonstrate using the Excel Route Network Tool.				

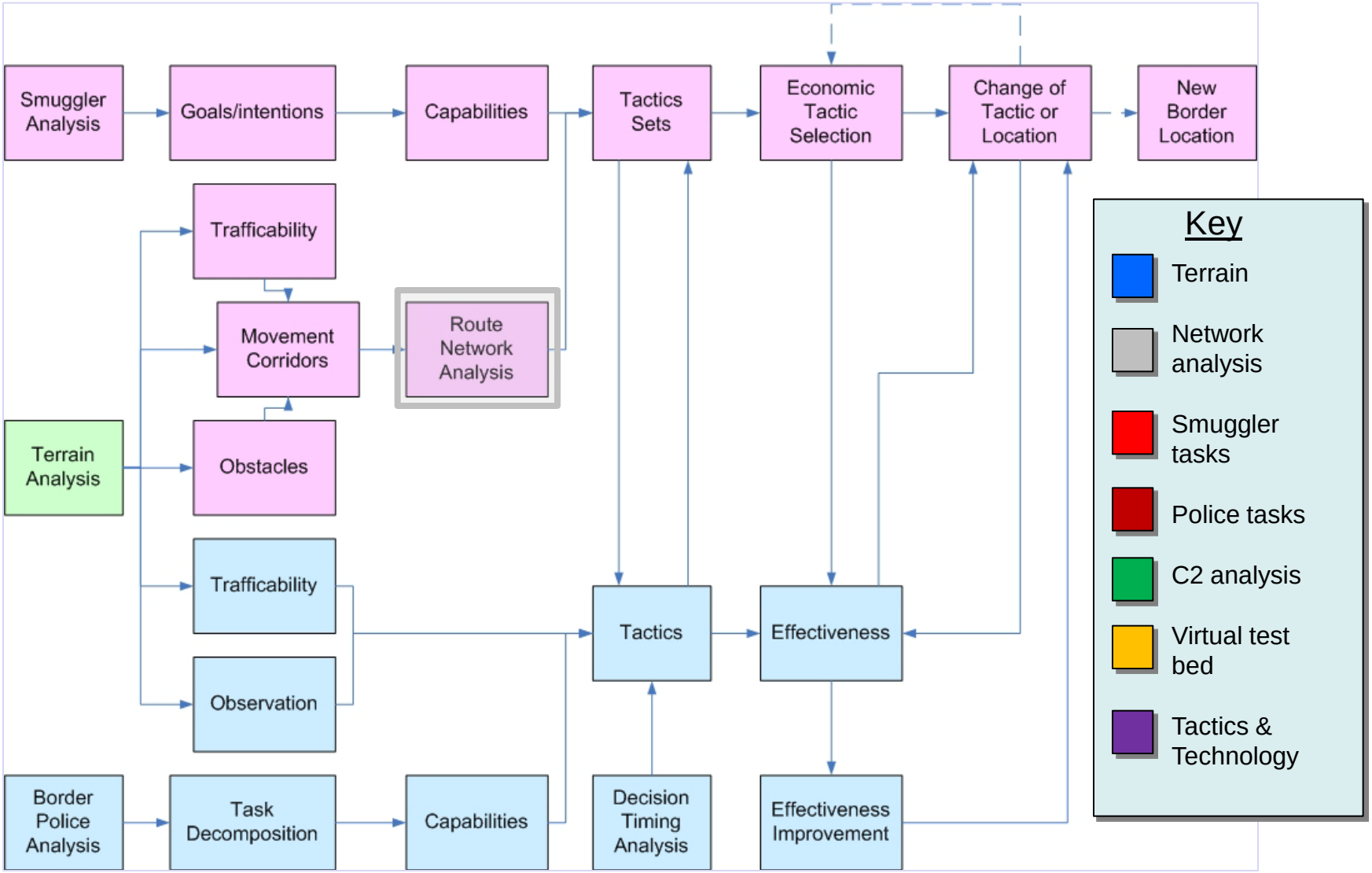
This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Module 3
Zone and Route Network Analysis

Zone and Route Network Analysis

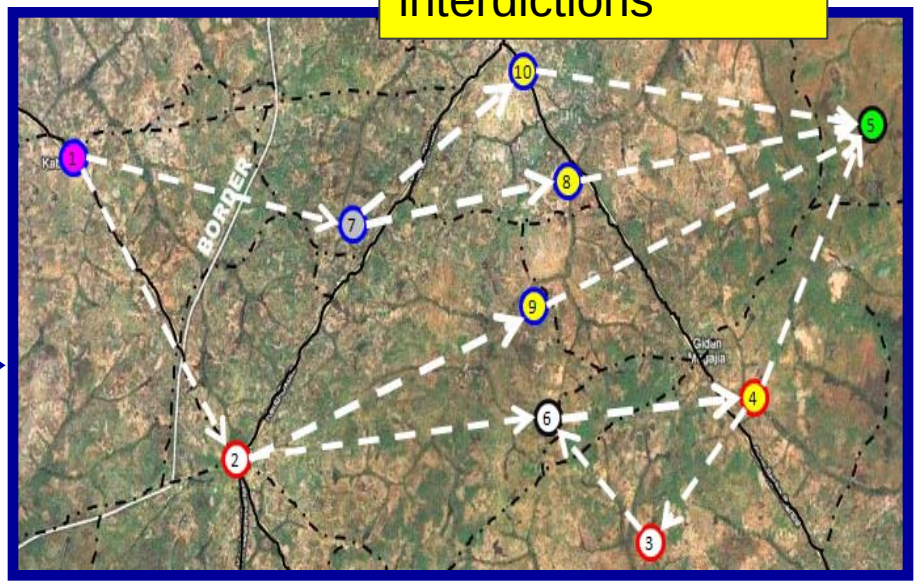


Goal

- To examine how the smuggler could use the terrain to travel to their destination (routes & timing).

Students will understand the process of both Zone and Networking Analysis

Understanding this allows the border police to establish interdictions



Objective

- Students will understand the concept of Zone Analysis, the Manual Network Analysis process and the Excel Route Networking Tool.

Zone and Route Network Analysis Outcomes

- This analysis determines the most likely smuggler avenues and locations for interdiction:
  - What will the smuggler do and where will he go?
  - Where will the border police detect the smuggler?
  - How will the border police control the interdiction?

Analysis Utility

- Border police can use this knowledge to improve their operations.
  - Checkpoints
  - Sensor Placement
  - Patrol Routes
  - Tactics
  - Technology
  - Policy

- Become familiar with each zone's constraints

Desert	Agriculture	Mountains	Water	Urban	Ag/Water

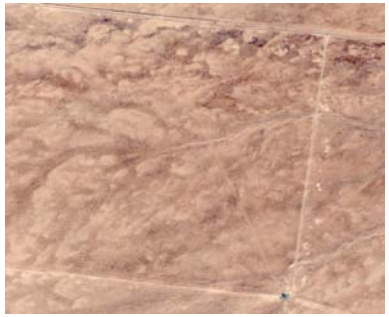
Zone & Network Analysis Considerations

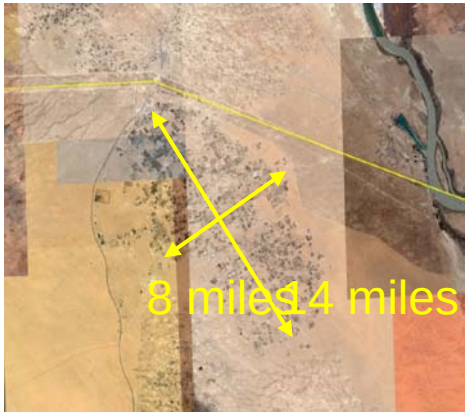
Terrain		Observe	Cover Conceal	Obstacles	Key Terrain	Avenues of Approach
Desert		Excellent	Minimal	Loose sand /Wadis	Roads	Everywhere
Agriculture		Limited, erratic	Restricted view	Vegetation, irrigation	Intersections	Roads, people everywhere
Mountains		Excellent in narrow fields	Minimal	Mountains	High Terrain	Roads / Passes
Water		Excellent	None	Water/shore boundary	High Ground	Shipping Lanes, everywhere
Urban		Minimal	Lots	Buildings, traffic	Edges, Arteries	Roads
Ag/Water		Limited, erratic	Restricted View	Water way, Vegetation	Intersections	Roads, people everywhere

Understanding terrain constraints will determine if zone or network analysis is appropriate.

Zone Analysis Overview

- Zone analysis is utilized in areas where smuggler movement is not constrained by roads or pathways.
  - Waterways
  - Desert
  - Agricultural Areas

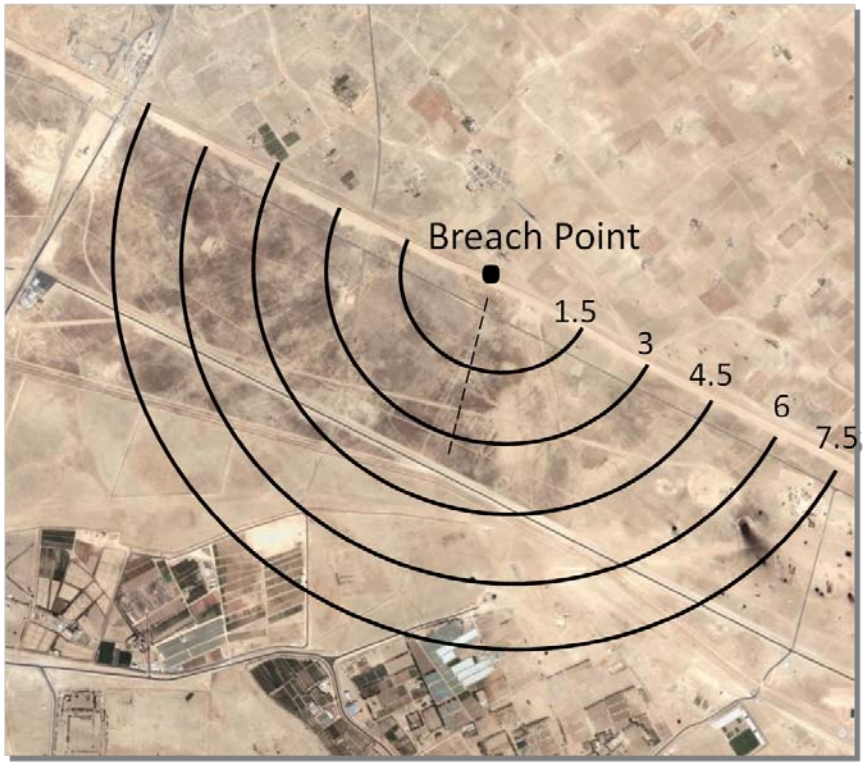




The smuggler can go in any direction – the only limit to where he might be is the length of time he has been traveling!

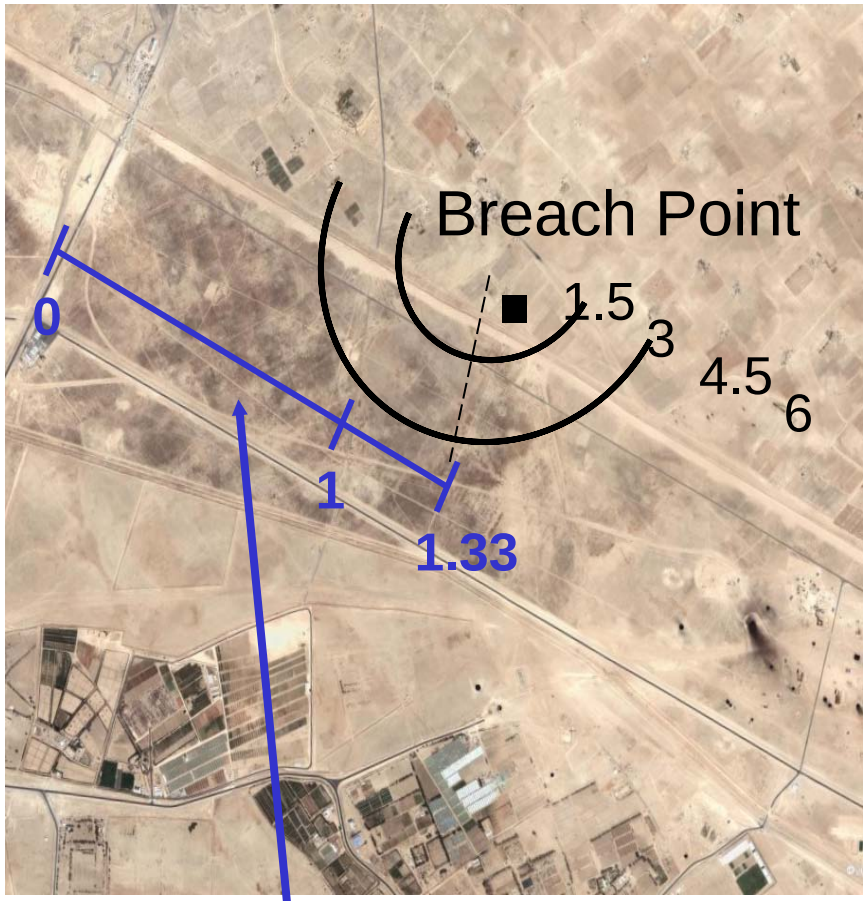
Zone Analysis Process

- The objective is to determine the area in which the smuggler must be at any specific time, based on his speed and travel time.
- A set of time-based zones can be defined to display this.
- These zones are the search areas for the Border Police – with the area expanding as time goes by.
- If the breach location is known, the zones are established with a set of arcs (see example).
- If the border breach location is not known, the zones are represented by a series of lines parallel to the border – where the smuggler could have traveled in 5 minutes, 10 minutes, etc.



Zone Analysis Utility

- Zone Analysis can be used to develop countermeasures and improve frontier capture rates.
  - Exit points are frequently locations where smugglers can blend and then merge into the next zone.
  - How long will it take a smuggler to reach the breach point?
  - Can the Border Police respond in time to interdict before the smuggler vanishes?



The blue line shows Border Police response timing

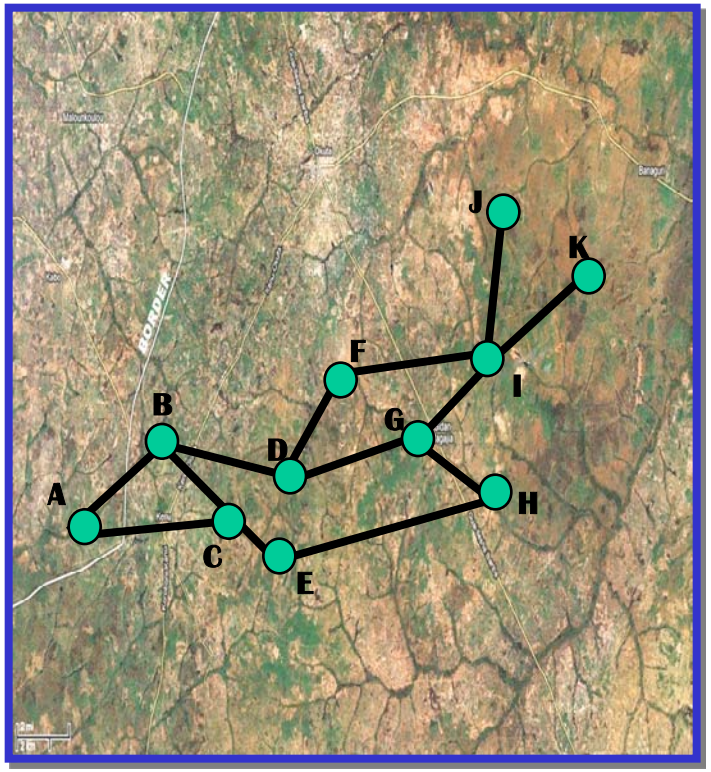
Manual Route Network Analysis

- Network analysis is most useful in areas where movement is constrained to roads, pathways and mobility corridors.
- Using results of terrain analysis, identify and plot:
  - Mobility Corridors
  - Roads
  - Paths
  - Intersections
  - Entry & Exit Points

Manual Route Network Analysis

Follow a step-by-step manual process to:

- Label each intersection, entry point and exit point.
- Document each possible route, from entry point to exit point.
- Using a map or GPS, calculate the distance between each road intersection.
- Based on road or path conditions, assign an average speed to each segment.
  - AB = Fast: 55km
  - BD = Medium: 30km
  - DF = Slow



Manual Route Network Analysis

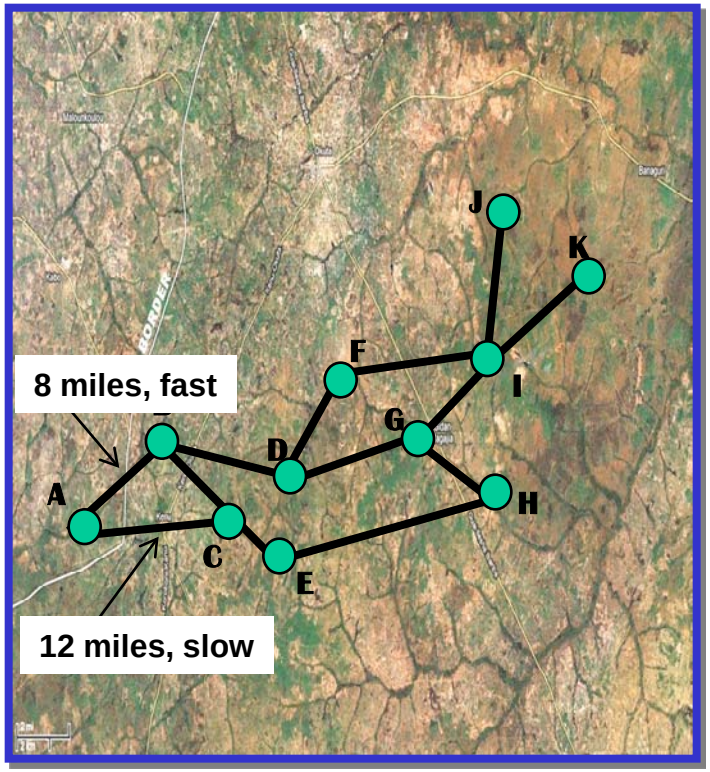
- Determine each route through the network.
- Calculate total distance of each route.
- Calculate total time required to travel each route.
- Predict smuggler routes, based on time, distance or speed.

Example 1:

Route A,B,D,G,I,K is a combined distance of 57 kms, and has an estimated travel time of 2 hours, 28 minutes

Example 2:

Route A,C,E,H,G,I,K is a combined distance of 49kms and has an estimated travel time of 1 hour, 14 minutes

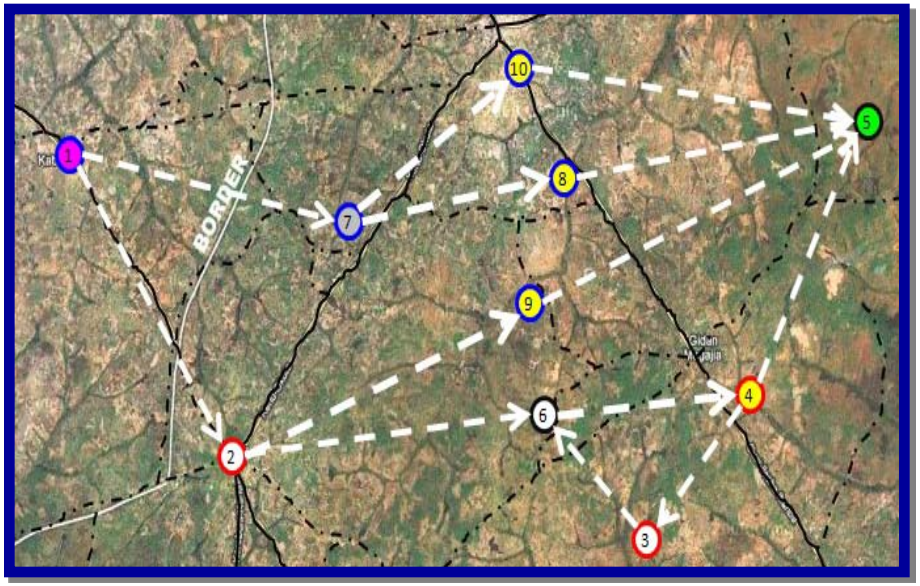


Networking Tool Overview

- The Excel Networking tool automates a time consuming manual process.
  - Allows users to highlight primary entrance and exit points.
  - Identifies most frequently used routes.
  - Calculates the length of time to transverse routes, factoring variables such as visibility, road conditions, and means of travel.
  - Can highlight routes not designated on existing maps
  - Allows users to manipulate results by adding road blocks and barriers.

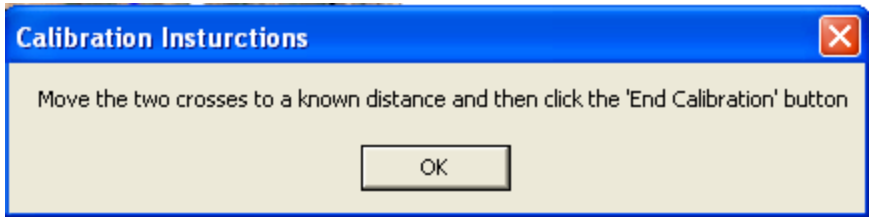
Network Tool Demonstration

- Map Calibration
- Nodes:
  - Source
  - Target
  - Exit
- Edit the Network
  - Set Arc Parameters
  - Set Node Parameters
- Simulate Runs
  - Minimize Option
  - Generate Statistics
- Analyze the Data Results



Calibrate the Map

- Select **Map Calibration/Begin Calibration** from the **Network Tool** drop down menu

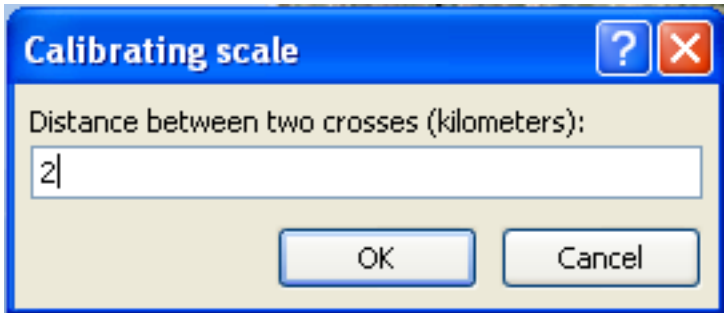


- (2 green crosses will appear in the upper left corner)

- Drag 1st cross to start of the scale
- Drag 2nd cross to the end-point on scale

Calibrate the Map

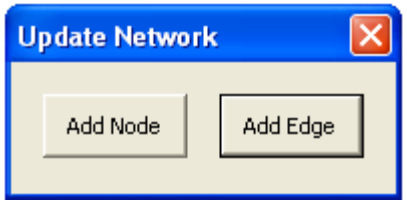
- Select **Map Calibration/End Calibration** from the **Network Tool** drop down menu
  - Enter Distance between the 2 Crosses in Kms (i.e. 2k)



  - Select **OK** to close Calibrating Scale box

Edit the Network

- Add a **Node** and an **Edge**
  - From the **Network Tool** drop down menu, select **Edit Network**

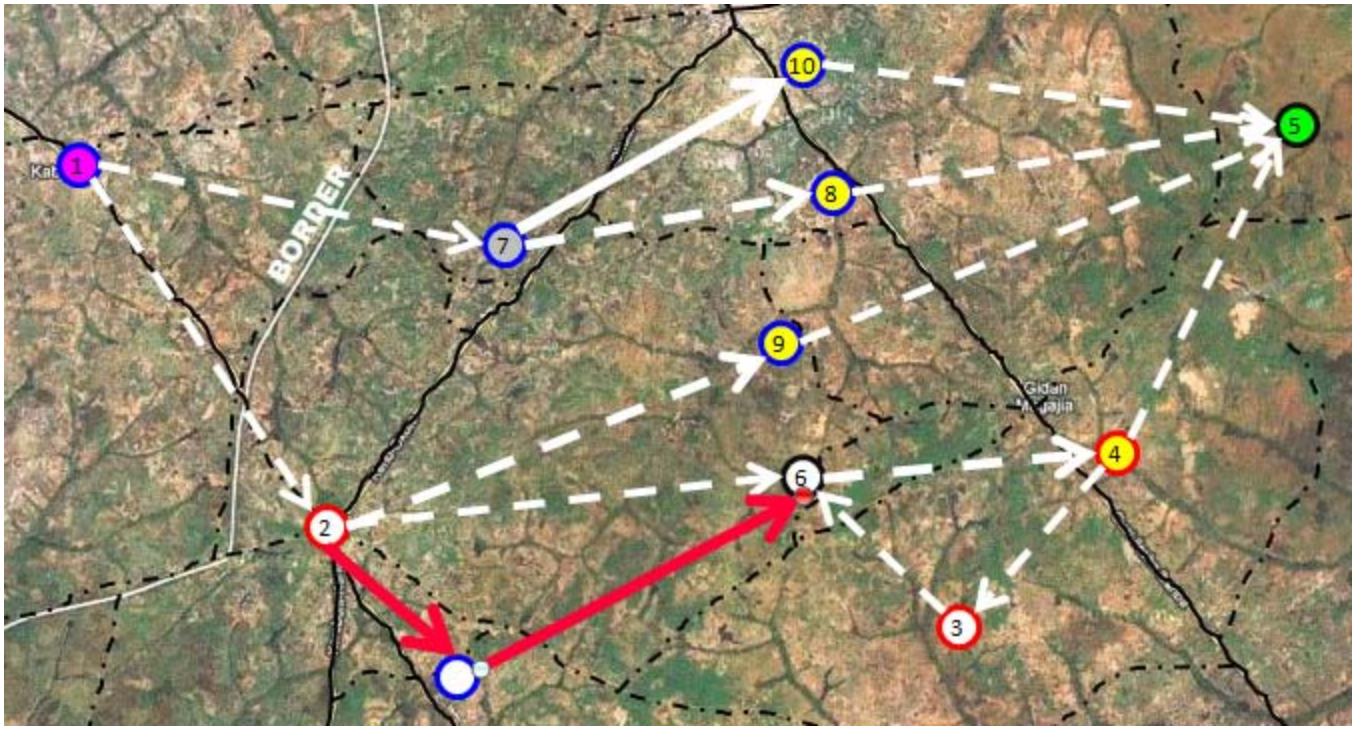


- Select **Add Nodes**
- Select **Add Edge**

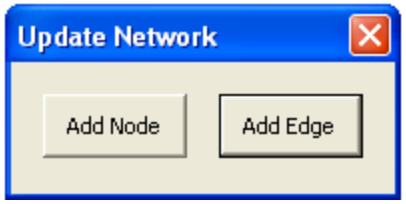
***** *Nodes and Edges will appear in the upper left corner of the NW Tool*

Edit the Network

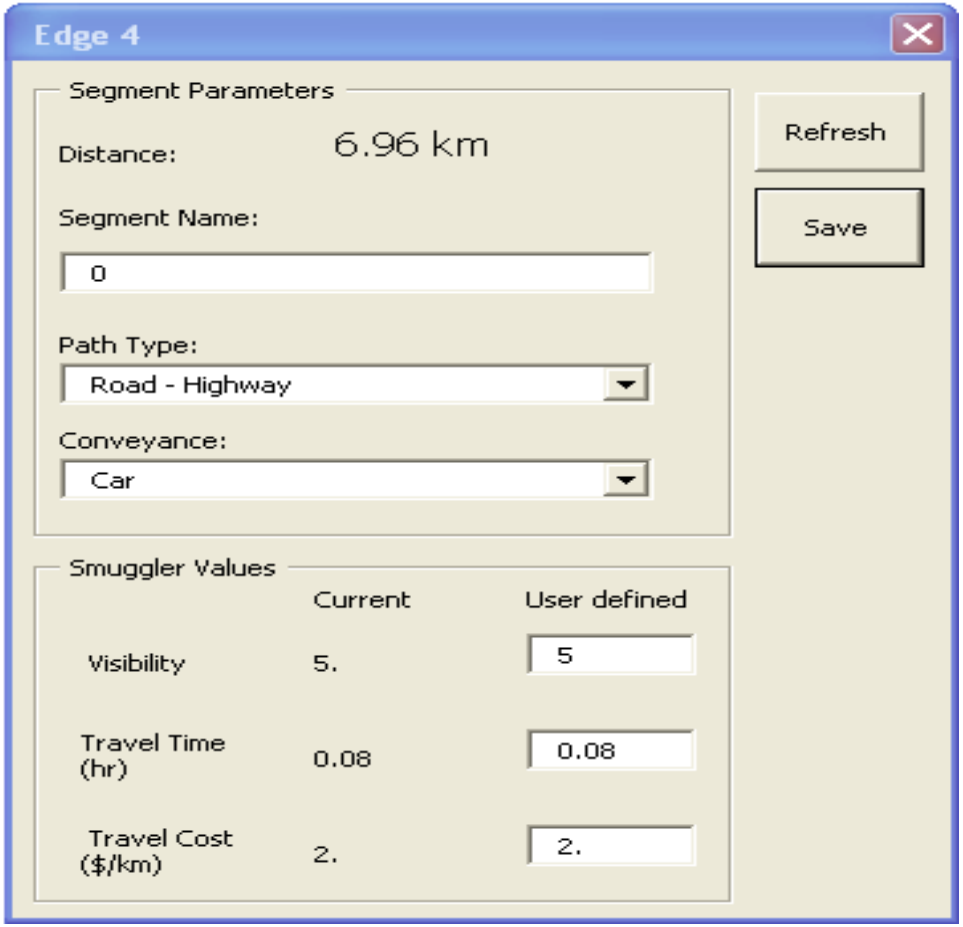
- Connect the **Node** and **Edge** to the Network



– Close the **Update Network** box



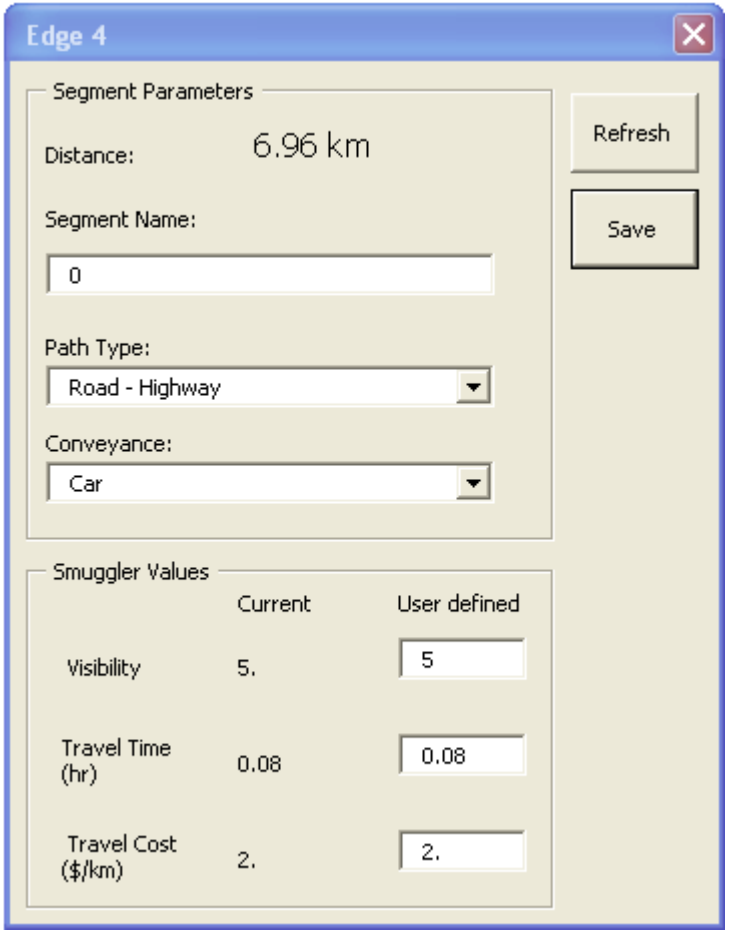
Set Edge/Segment Parameters



Smuggler Values have been pre-determined, but can be modified as necessary by the user

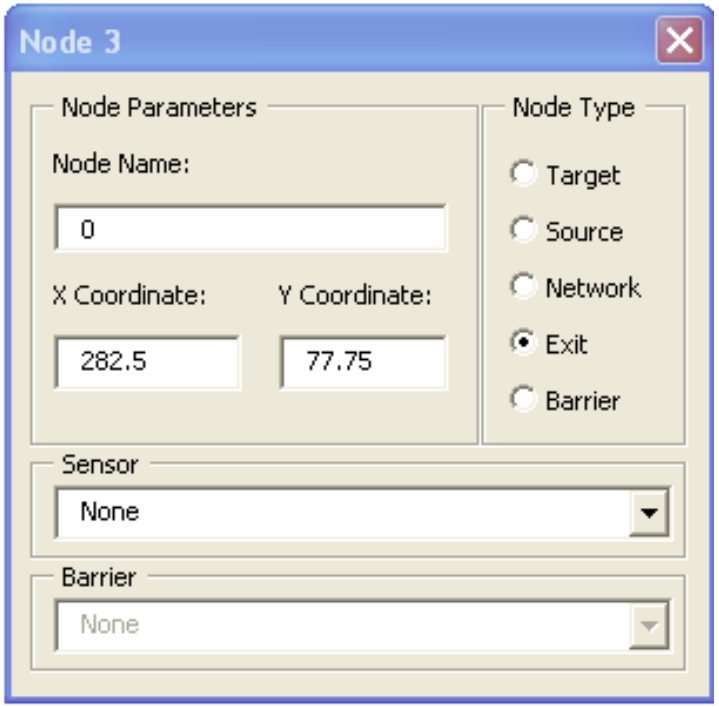
Set Edge/Segment Parameters

- Click on an edge/segment
  - Fill in the **Segment Name** (optional)
  - Select the **Path Type** from the drop down menu
  - Select **Conveyance** from the Drop down Menu
- Select **Save**

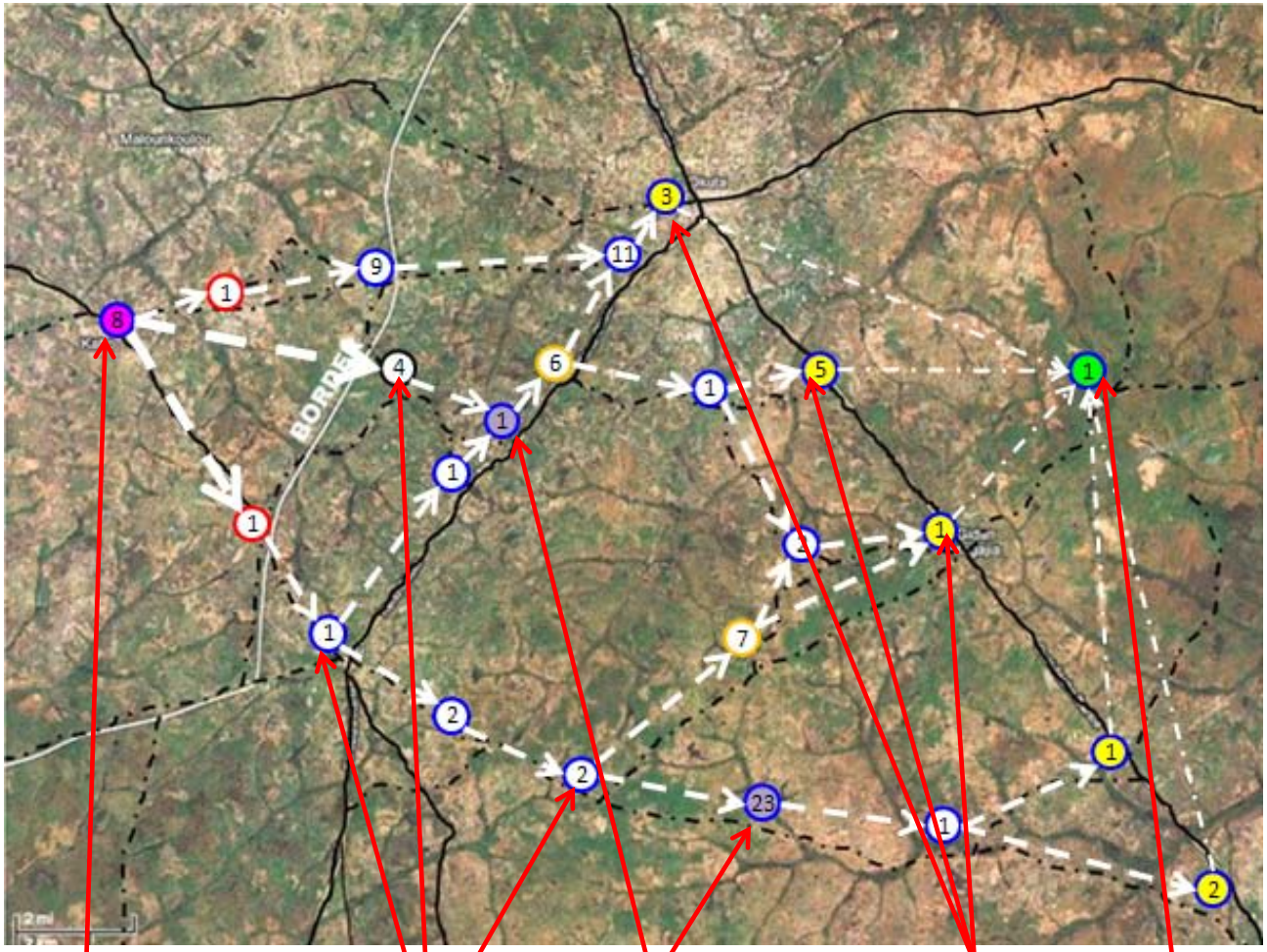


Set Node Parameters

- Fill in Node Name (optional)
- Select Node Type
  - Target: this is the node designated to be the destination goal of the smuggler.
  - Source: this is the node designated to be the entry point for the smuggler.
  - Network: these are interior intersections within the network.
  - Exit: these are the intersection points that will be your last chance to interdict the smuggler.
  - Barrier: can be placed at intersections to slow progress of the smuggler.

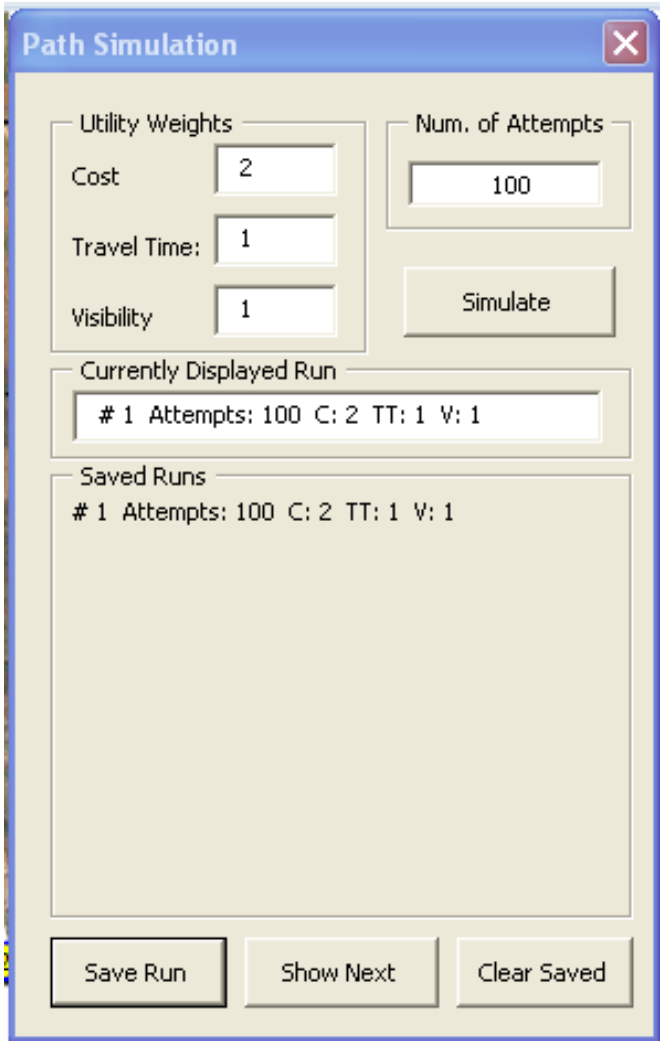


Set Node Parameters



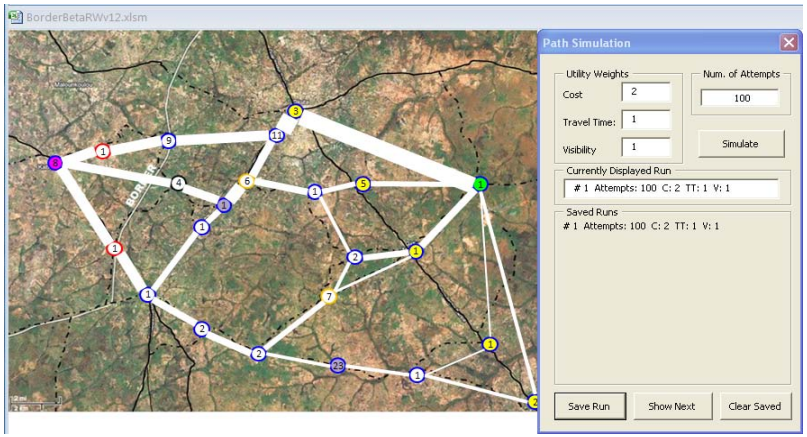
Generate Statistics - Simulate Runs

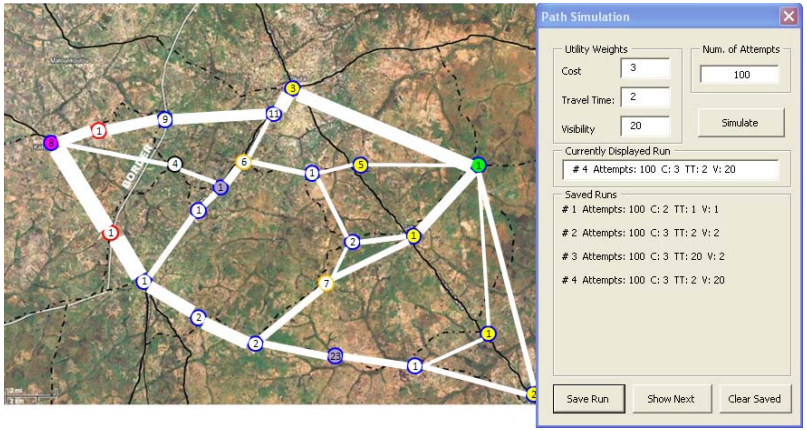
- Select Path Simulation from the Network Tool drop-down menu.
  - The random path generator can be manipulated by emphasizing one of three areas: Cost, Travel Time, or Visibility.
  - Each time the generator reaches a node, it will make a choice on which direction to turn based on Utility Weights.



Generate Statistics from Multiple Runs

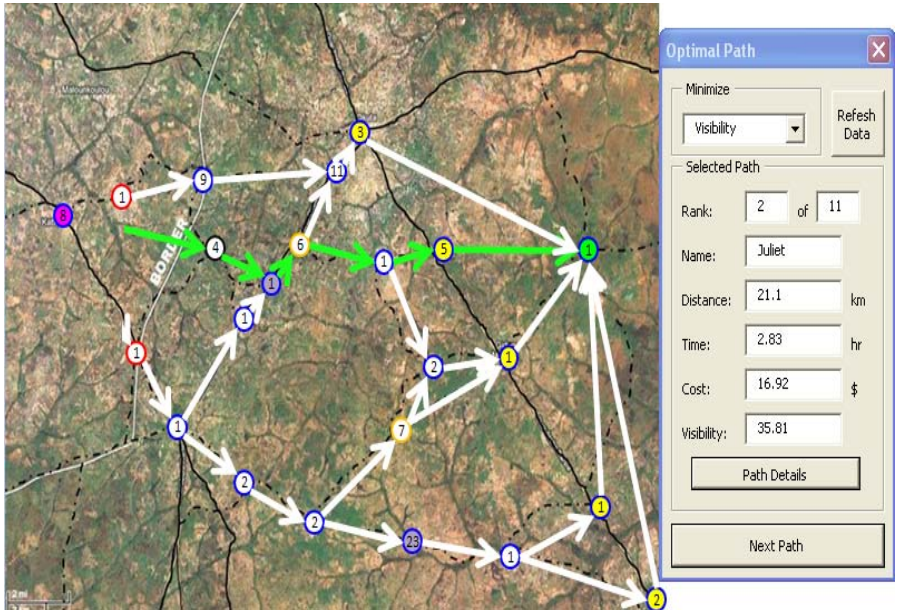
- Adjust Utility Weights for Cost, Travel Time and Visibility.
- Set the number of attempts.
- Select the Simulate Button.
  - After reviewing the results, you have the option to save your results in order to analyze multiple scenarios.





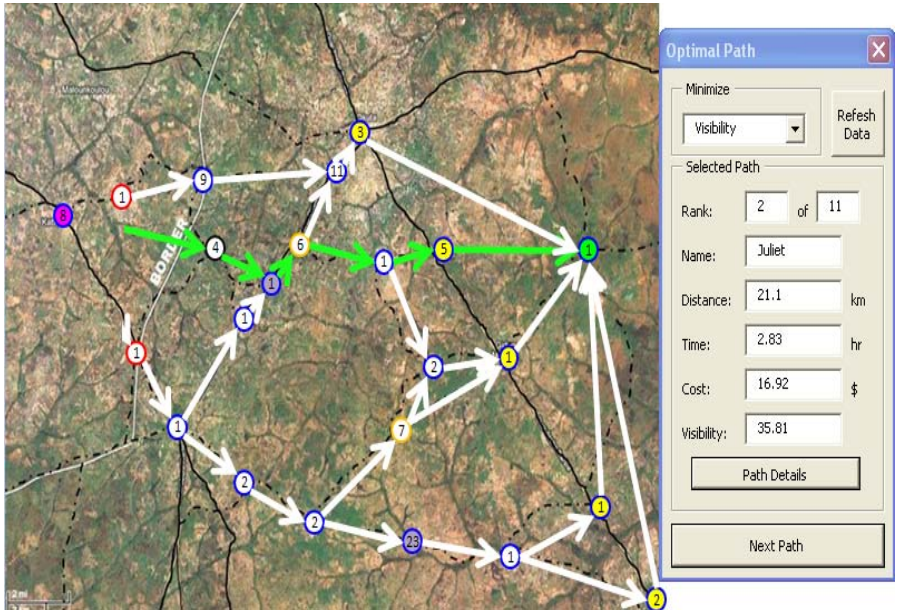
Path Optimization

- Select Path Optimization from the Network Tool drop-down menu.
  - The minimize option will allow you to analyze available routes with an emphasis on Distance, Travel Time, Cost or Visibility.
  - Selected Path displays specific details on the current path that is highlighted in green on the Networking Tool map.



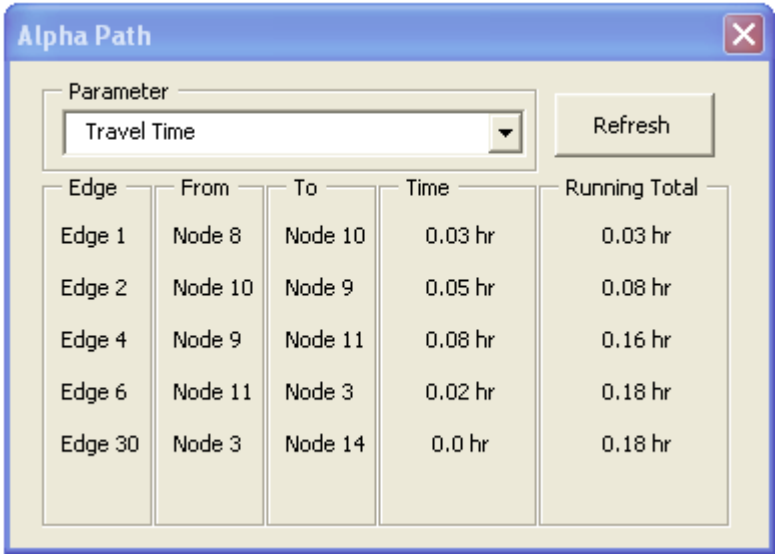
Path Optimization

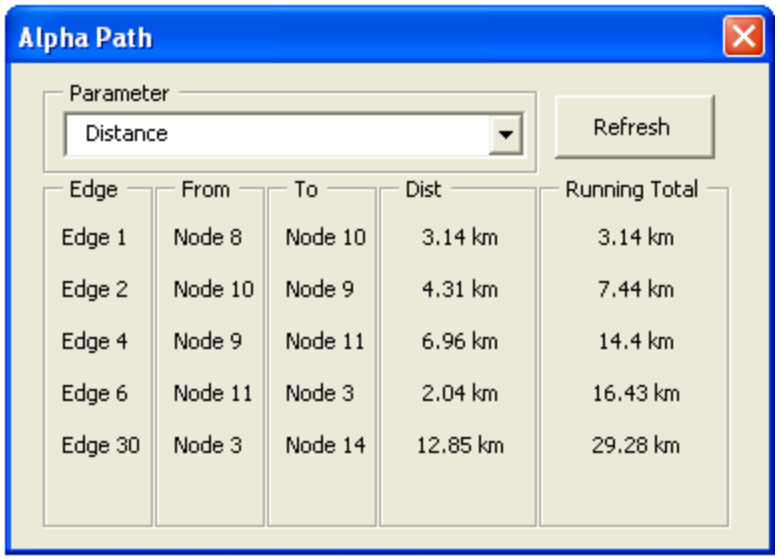
- Next Path allows you to scroll through each available route, by the Minimization option, in ascending order.



Path Optimization

- Path Details provides the ability to view:
  - Travel Time
  - Cost or
  - Distance parameters
  - By individual segment, for the current route





Demonstration

Conclusion

- You have learned the concept of Zone Analysis, the manual Network Analysis process and the Excel Route Networking tool.

- You have learned how to do zone analysis, manual network analysis, and use of a network analysis tool.

- These analyses help you determine the most likely smuggler movement avenues and locations for interdiction.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Zone and Route Network Analysis**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**4.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 03.02
GOALS AND OBJECTIVES

Instructional Goal

03.02.00 The student will understand the concept of Zone / Route Analysis and how the smuggler could use the terrain to travel to their destination.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

03.02.01 The student will demonstrate the Manual Network Analysis Process.

03.02.02 The student will demonstrate using the Excel Route Network Tool.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 03.02
CRITERION TEST

None

LESSON PLAN 03.02
SKILLS CRITERIA

03.02.01 The student will demonstrate the Manual Network Analysis Process.

a. Label each intersection, entry point and exit point.
b. Document each possible route, from entry point to exit point.
c. Using a map or GPS, calculate the distance between each road intersection.
d. Based on road or path conditions, assign an average speed to each segment.
e. Determine each route through the network.
f. Calculate total distance of each route.
g. Calculate total time required to travel each route.
h. Predict smuggler routes, based on time, distance or speed.

03.02.02 The student will demonstrate using the Excel Route Network Tool.

a. Calibrate Map
b. Edit the Network
c. Set Edge/Segment Parameters
d. Set Node Parameters
e. Generate Statistics - Simulate Runs
f. Path Optimization

LESSON PLAN 03.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Excel Route Networking Tool Applications

Visual Aids
PowerPoint slides, Lesson 03.02.00, 1-31

Handout Materials
Student Handout
Zone and Route Network Analysis Tool Manual

References

LESSON PLAN 03.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
03.02 Zone and Route Network Analysis **Student Comments**

I. INTRODUCTION

Patrol operations require thorough knowledge of the terrain and detailed intelligence preparation of the area of concern or operations. You need to examine how the smuggler could use the terrain to travel to their destination (routes & timing). Understanding this allows the border police to establish interdictions.

This lesson will discuss zone analysis, manual network analysis process and the excel route networking tool.

II. ZONE AND ROUTE ANALYSIS OUTCOMES

A. The analysis process determines the most likely smuggler avenues and locations for interdictions.

1. What will the smuggler do and where will he go?
2. Where will the border police detect the smuggler?
3. How will the border police control the interdiction?

B. Improved Operations

Border police can use this knowledge to improve their operations.

1. Checkpoints
2. Sensor Placement
3. Patrol Routes
4. Tactics
5. Technology
6. Policy

C. Terrain Constraints

Understanding terrain constraints will determine if zone or network analysis is appropriate. Zone and network analysis considerations, but not limited too:

1. Desert
    a. Observation - Excellent
    b. Cover and Concealment - Minimal
    c. Obstacles - Loose Sand/Wadis
    d. Key Terrain - Roads
    e. Avenues of Approach - Everywhere
2. Agriculture
    a. Observation - Limited, Erratic
    b. Cover and Concealment - Restricted View
    c. Obstacles - Vegetation, Irrigation
    d. Key Terrain - Intersections
    e. Avenues of Approach - Roads, People Everywhere
3. Mountains
    a. Observation - Excellent in Narrow Fields
    b. Cover and Concealment - Minimal
    c. Obstacles - Mountains
    d. Key Terrain - High Terrain
    e. Avenues of Approach - Roads/Passes

4. Water

    a. Observation - Excellent

    b. Cover and Concealment - None

    c. Obstacles - Water, Shore Boundary

    d. Key Terrain - High Ground

    e. Avenues of Approach - Shipping Lanes, Everywhere

5. Urban

    a. Observation - Minimal

    b. Cover and Concealment - Lots

    c. Obstacles - Buildings, Traffic

    d. Key Terrain - Edges, Arteries

    e. Avenues of Approach - Roads

6. Ag/Water

    a. Observation - Limited, Erratic

    b. Cover and Concealment - Restricted View

    c. Obstacles - Water Way, Vegetation

    d. Key Terrain - Intersections

    e. Avenues of Approach - Roads, People Everywhere

II. ZONE ANALYSIS

Zone analysis is utilized in areas where smuggler movement is not constrained by roads or pathways. I.e., waterways, desert and agricultural areas. The smuggler can go in any direction – the only

limit to where he might be is the length of time he has been traveling!

A. Zone Analysis Process

1. The objective is to determine the area in which the smuggler must be at any specific time, based on their speed and travel time. These are dependent on mode of travel, contraband, time and weather.

2. A set of time-based zones can be defined to display this.

3. These zones are the search areas for the Border Police – with the area expanding as time goes by.

4. If the breach location is known, the zones are established with a set of arcs (see example). Each zone should have a land feature identifier and/or call name.

5. If the border breach location is not known, the zones are represented by a series of lines parallel to the border – where the smuggler could have traveled in 5 minutes, 10 minutes, etc. As with above, each zone should have a land feature identifier and/or call name.

B. Zone Analysis Utility

Zone Analysis can be used to develop countermeasures and improve frontier capture rates.

1. Exit points are frequently locations where smugglers can blend and then merge into the next zone.

2. How long will it take a smuggler to reach the exit point?

3. Can the Border Police respond in time to interdict before the smuggler vanishes?

III. MANUAL ROUTE NETWORK ANALYSIS

A. Manual Route Network Analysis Set Up

Network analysis is most useful in areas where movement is constrained to roads, pathways and mobility corridors.

Using the results of terrain analysis, identify and manually plot:

1. Mobility Corridors
2. Roads
3. Paths
4. Intersections
5. Entry and Exit Points

B. Manual Route Network Analysis Process

Follow a step-by-step manual process to:

1. Label each intersection, entry point and exit point.
2. Document each possible route, from entry point to exit point.
3. Using a map or GPS, calculate the distance between each road intersection.
4. Based on road or path conditions, assign an average speed to each segment.
    a. AB = Fast: 55km
    b. BD = Medium: 30km
    c. DF = Slow
5. Determine each route through the network.

6. Calculate total distance of each route.

7. Calculate total time required to travel each route. Remember, these are dependent on mode of travel, contraband, time and weather.

8. Predict smuggler routes, based on time, distance or speed.

    a. Example 1

        Routes A, B, D, G, I, and K is a combined distance of 57kms, and has an estimated travel time of 2 hours, 28 minutes.

    b. Example 2

        Routes A, C, E, H, G, I, and K is a combined distance of 49kms and has an estimated travel time of 1 hour, 14 minutes.

IV. EXCEL ROUTE NETWORK TOOL ANALYSIS

The Excel Networking tool automates a time consuming manual process.

A. Excel Route Networking Tool Overview

1. Allows users to highlight primary entrance and exit points.

2. Identifies most frequently used routes.

3. Calculates the length of time to transverse routes, factoring variables such as visibility, road conditions, and means of travel.

4. Allows users to manipulate results by adding roadblocks and barriers

B. Excel Route Networking Tool Overview

1. Map Calibration
2. Nodes
    a. Source
    b. Target
    c. Exit
3. Edit the Network
    a. Set Arc Parameters
    b. Set Node Parameters
4. Simulate Runs
    a. Minimize Option
    b. Generate Statistics
5. Analyze Results

C. Calibrate the Map

1. Have a map of select border are of operations.
2. Select Map Calibration/Begin Calibration from the Network Tool drop down menu.
    a. 2 green crosses will appear in the upper left corner.
    b. Drag 1st cross to start of the scale.
    c. Drag 2nd cross to the end-point on the scale.
3. Select Map Calibration/Begin Calibration from the Network Tool drop down menu.

a. Enter distance between the two crosses in Km (i.e. 2k)

b. Select OK to close Calibrating Scale box.

D. Edit the Network

1. Add a Node and an Edge.

   From the Network Tool drop down menu, select Edit Network.

   a. Select Add Nodes

   b. Select Add Edge

   * Nodes and Edges will appear in the upper left corner of the NW Tool.

2. Connect the Node and Edge to the network.

3. Close the Update Network box.

E. Set Edge/Segment Parameters

Smuggler Values have been pre-determined, but can be modified as necessary by the user.

1. Click on an Edge/Segment

   a. Fill in the Segment Name (optional).

   b. Select the Path Type from the drop down menu.

   c. Select Conveyance from the Drop down Menu.

2. Select Save

F. Set Node Parameters

1. Fill in Node Name (optional).

2. Select Node Type

   a. Target: this is the node designated to be the destination goal of the smuggler.

   b. Source: this is the node designated to be the entry point for the smuggler.

   c. Network: these are interior intersections within the network.

   d. Exit: these are the intersection points that will be your last chance to interdict the smuggler.

   e. Barrier: can be placed at intersections to slow progress of the smuggler.

G. Generate Statistics - Simulate Runs

1. Select Path Simulation from the Network Tool drop-down menu.

   a. The random path generator can be manipulated by emphasizing one of three areas: Cost, Travel Time, or Visibility.

   b. Each time the generator reaches a node; it will make a choice on which direction to turn based on Utility Weights.

2. Generate Statistics from Multiple Runs

   a. Adjust Utility Weights for Cost, Travel Time and Visibility.

   b. Set the number of attempts.

   c. Select the Simulate Button.

After reviewing the results, you have the option to save your results in order to analyze multiple scenarios.

H. Path Optimization

1. Select Path Optimization from the Network Tool drop-down menu.

   a. The minimize option will allow you to analyze available routes with an emphasis on Distance, Travel Time, Cost or Visibility.

   b. Selected Path displays specific details on the current path that is highlighted in green on the Networking Tool map.

2. Next Path allows you to scroll through each available route, by the Minimization option, in ascending order.

3. Path Details provides the ability to view.

   a. Travel Time

   b. Cost or

   c. Distance Parameters

   d. By individual segment, for the current route.

I. Excel Road Networking Tool Demonstration

V. CONCLUSION

You have learned the concept of Zone Analysis, the manual Network Analysis process and the Excel Route Networking tool.

You have learned how to do zone analysis, manual network analysis, and use of a network analysis tool.

These analyses help you determine the most likely smuggler movement avenues and locations for interdiction.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Tactics and Technology Assessment**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**4.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture & Discussion**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

_____ / _____ _____
Prepared by **Date**

_____ / _____ _____
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
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Revision	**Date**
Revision	**Date**

LESSON PLAN 04.01
GOALS AND OBJECTIVES

Instructional Goal

04.01.00 The student will understand how to conduct a Tactics and Technology Assessment.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

04.01.01 The student will demonstrate identifying available or possible tactics and technologies.

04.01.02 The student will demonstrate determining effectiveness, strengths, weaknesses of each tactic, and supporting technologies.

04.01.03 The student will demonstrate how to build a database of possible components for developing solutions.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 04.01
CRITERION TEST

None.

LESSON PLAN 04.01
SKILLS CRITERIA

04.01.01	The student will demonstrate identifying available or possible tactics and technologies. a. Observation b. Detection c. Assessment d. Pursuit e. Interdiction f. Apprehension	LSPT p. 8-12, II, F
04.01.02	The student will demonstrate determining effectiveness, strengths, weaknesses of each tactic, and supporting technologies. a. Conduct Operational Functional Assessment b. Conduct a Tactics and technology Assessment	p. 12, II, G
04.01.03	The student will demonstrate how to build a database of possible components for developing solutions. a. Conduct Operational Functional Assessment b. Conduct a Tactics and technology Assessment c. Characterization & Resolution Assessment	p. 12, II, G

LESSON PLAN 04.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Instructor Notes

Visual Aids
PowerPoint slides, Lesson 04.01.00, 1-13

Handout Materials
Student Handout
Student Handout Notes

References

LESSON PLAN 04.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
04.01 Tactics and Technology Assessment **Instructor Comments**

I. INTRODUCTION

The purpose for conducting a tactics and technology assessment is so you can examine available or possible tactics and technologies. The critical part of the analysis process is developing an understanding of the tactics and technologies that can be applied to Border Police tasks. From there you can determine effectiveness, strengths, and weaknesses of each tactic and supporting technologies. The strengths and weaknesses of each available tactic and technology are equally important when developing border solutions. When you have completed that then we can build a database of possible components for developing solutions.

Overheads 1-3

II. OPERATIONAL FUNCTIONS

Operational functions of tactics and technology listed here are not all of the means available. During the practical exercise please feel free to suggest new or old ideas.

Overhead 4

LSPT 04.01.01
Overhead 5

A. Observation

1. Tactics

a. Fixed Observation Post

b. Active Patrol

c. Patrol Observation Post

2. Technologies

a. Binoculars

b. Fixed Telescopic Scope

c. Night Vision Scope

d. Camera

e. Unmanned Aerial Vehicles (UAV) Camera

f. Radar

B. Detection

Overhead 6

1. Tactics

a. Fixed Post Observe

b. Patrol Observe

c. Patrol Cut Sign

d. Sensor Alert

e. Citizen Alert

2. Technologies

a. Binoculars

b. Fixed Telescopic Scope

c. Night Vision Scope

d. Camera

e. Vehicle Drags

f. Unattended Ground Sensors (UGS)

g. Linear Sensor

h. Unmanned Aerial Vehicles (UAV) Camera

i. Radar

Overhead 7

C. Assessment

1. Tactics

a. Local Knowledge

b. Local Intelligence Brief

c. Stop and Question Techniques (Citizen or Community Oriented Policing)

d. Local Citizen Information

e. Checkpoints

2. Technologies

a. Be-on-the-Lookout (BOLO) Database

b. Intelligence Summaries

c. Signature Detectors

d. Sensitive Item Identification Training

e. Unusual Behavior Identification Training

f. Interdiction Standard Operating Procedures (SOPs)

D. Pursuit

Overhead 8

1. Tactics

a. Chase

b. Follow Tracks

c. Direct Deep Response

d. Predict Route

e. Disseminating Unique Identification

f. Tagging

2. Technologies

a. Binoculars

b. Fixed Telescopic Scope

c. Night Vision Scope

d. Camera

e. Unattended Ground Sensors (UGS)

f. Linear Sensor

h. Persistent Surveillance

i. Marking Tags

E. Interdiction

Overhead 9

1. Tactics

a. Checkpoint

b. Roadblock

c. Direct Convergence

d. Ambush

e. Disseminating Unique Identification

2. Technologies

a. Vehicle Obstacle

b. Vehicle Disabling Equipment

c. Communication System (SA)

d. Global Positioning System (GPS)

e. Non-Lethal Weapons

f. Vehicle Mounted Weapons

F. Apprehension

Overhead 10

1. Tactics

   a. Overwatch

   b. Containment

   c. Overmatching Force

   d. Individual Control Methods

2. Technologies

   a. Vehicle Obstacle

   b. Vehicle Disabling Equipment

   c. Individual Control Equipment

   d. Non-Lethal Weapons

   e. Vehicle Mounted Weapons

G. Characterization and Resolution (Practical Exercise)

LSPTs 04.01.02-03
Overhead 11

1. Break into analysis groups under control of an assistant instructor.

2. Conduct a tactics and technology assessment with student handouts. The assessments will concern the advantages, disadvantages, how deployed and the effectiveness of each operational function of tactics and technology assessment.

3. During the practical exercise please feel free to suggest new or old ideas when conducting the assessment.

4. When completed we will discuss your assessments with the entire class.

Subject:
04.01 Tactics and Technology Assessment **Instructor Comments**

III. CONCLUSION

A critical part of the analysis process is developing an understanding of the tactics and technologies that can applied to Border Police tasks.

Overhead 12

The strengths and weaknesses of each available tactic and technology are equally important when developing border solutions.

TACTICS AND TECHNOLOGY ASSESSMENT - LSPT #04.01		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to tactics and technology assessment.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand tactics and technology assessment analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
04.01.00		**TACTICS AND TECHNOLOGY ASSESSMENT**	**PASS**	**FAIL**	**PASS**	**FAIL**
04.01.01		The student will demonstrate identifying available or possible tactics and technologies.				
04.01.02		The student will demonstrate determining effectiveness, strengths, weaknesses of each tactic, and supporting technologies.				
04.02.03		The student will demonstrate how to build a database of possible components for developing solutions.				

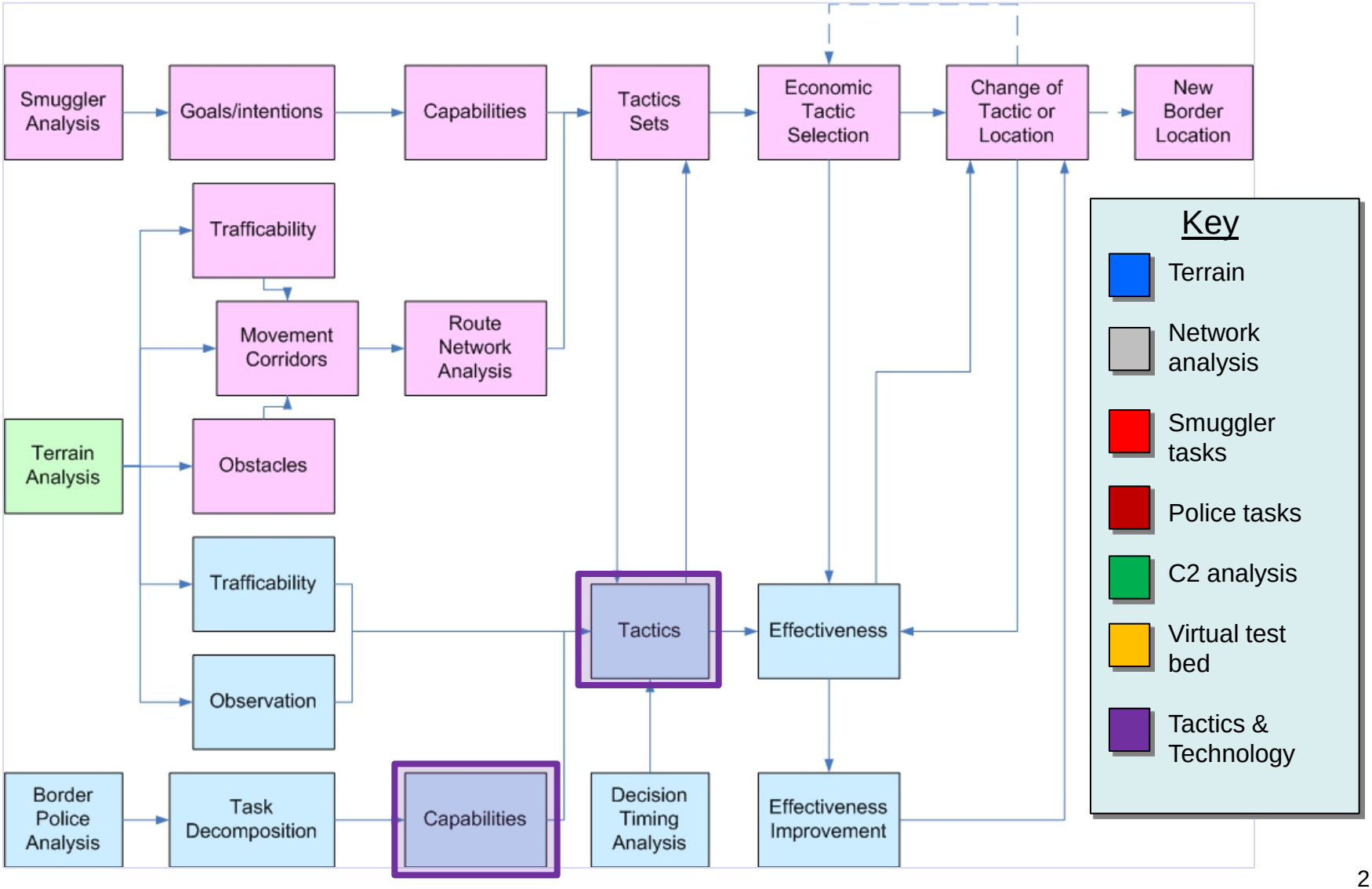
This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Module 4
Tactics and Technology Assessment

Tactics and Technology Assessment

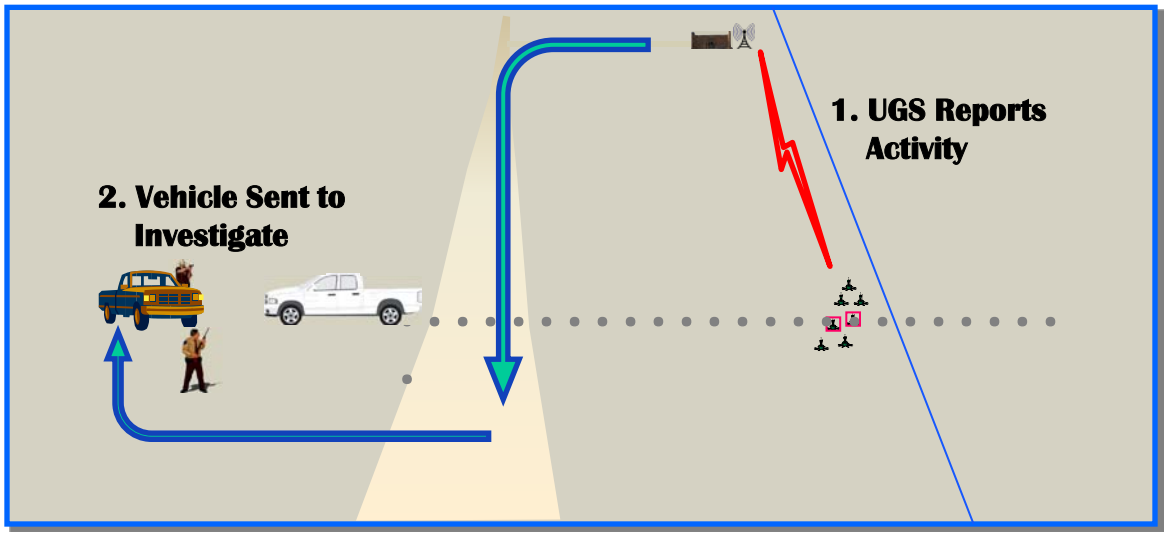


Tactics & Technology Assessment Purpose

- Examine available or possible tactics and technologies.
- Determine effectiveness, strengths, and weaknesses of each tactic and supporting technologies.
- Build a database of possible components for developing solutions.

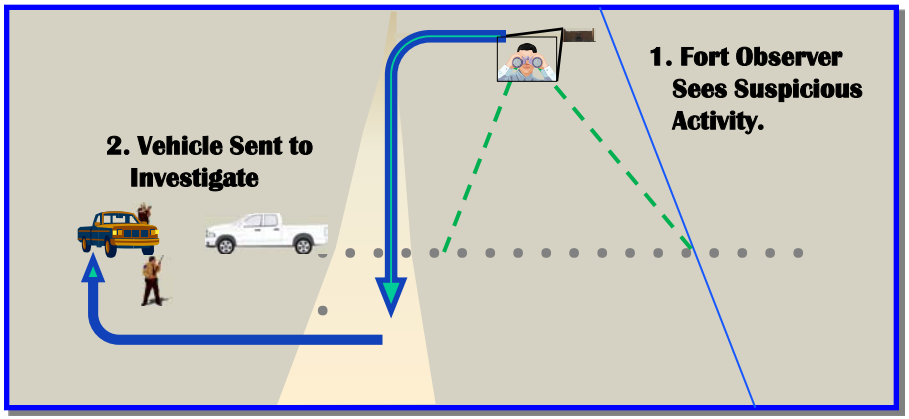
Operational Functions

- Observation
- Detection
- Assessment
- Pursuit
- Interdiction
- Apprehension
- Characterization & Resolution



Observation

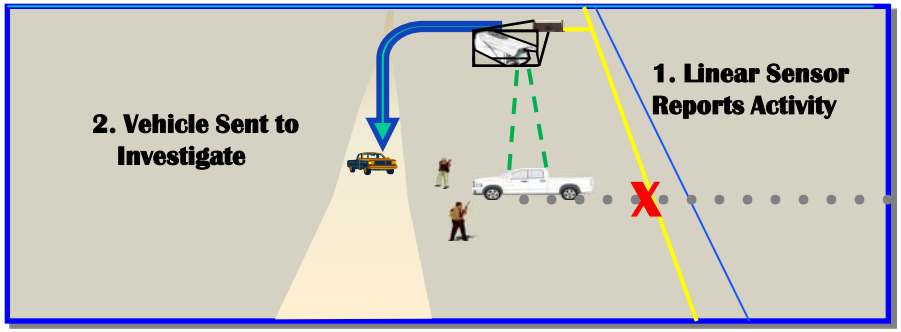
- Tactics
  - Fixed Observation Post
  - Active Patrol
  - Patrol Observation Post



- Technologies
  - Binoculars
  - Fixed Telescopic Scope
  - Night Vision Scope
  - Camera
  - UAV Camera
  - Radar

Detection

- Tactics
  - Fixed Post Observe
  - Patrol Observe
  - Patrol Cut Sign
  - Sensor Alert
  - Citizen Alert



- Technologies
  - Binoculars
  - Fixed Telescopic Scope
  - Night Vision Scope
  - Camera
  - Vehicle Drags
  - UGS
  - Linear Sensor
  - UAV Camera
  - Radar

Assessment

- Tactics
  - Local Knowledge
  - Local Intelligence Briefing
  - Stop and Question Techniques (Citizen or Community Oriented Policing)
  - Local Citizen Information
  - Checkpoints
- Technologies
  - BOLO Database
  - Intelligence Summaries
  - Signature Detectors
  - Sensitive Item Identification Training
  - Unusual Behavior Identification Training
  - Interdiction SOPs

Pursuit

- Tactics
  - Chase
  - Follow Tracks
  - Direct Deep Response
  - Predict Route
  - Disseminating Unique Identification
  - Tagging
- Technologies
  - Binoculars
  - Fixed Telescopic Scope
  - Night Vision Scope
  - Camera
  - UGS
  - Linear Sensors
  - Persistent Surveillance
  - Marking Tags

Interdiction

- Tactics
  - Checkpoint
  - Roadblock
  - Directed Convergence
  - Ambush
  - Disseminating Unique Identification
- Technologies
  - Vehicle Obstacle
  - Vehicle Disabling Equipment
  - Communication Systems (SA)
  - GPS
  - Non-Lethal Weapons
  - Vehicle Mounted Weapons

Apprehension

- Tactics
  - Overwatch
  - Containment
  - Overmatching Force
  - Individual Control Methods
- Technologies
  - Vehicle Obstacle
  - Vehicle Disabling Equipment
  - Individual Control Equipment
  - Non-Lethal Weapons
  - Vehicle Mounted Weapons

Practical Exercise

- Break into analysis groups under control of an assistant instructor.

- Conduct a tactics and technology assessment with student handouts.

• Advantages • How	• Disadvantages • Effectiveness

Tactics and Technology Summary

- A critical part of the analysis process is developing an understanding of the tactics and technologies that can be applied to Border Police tasks.

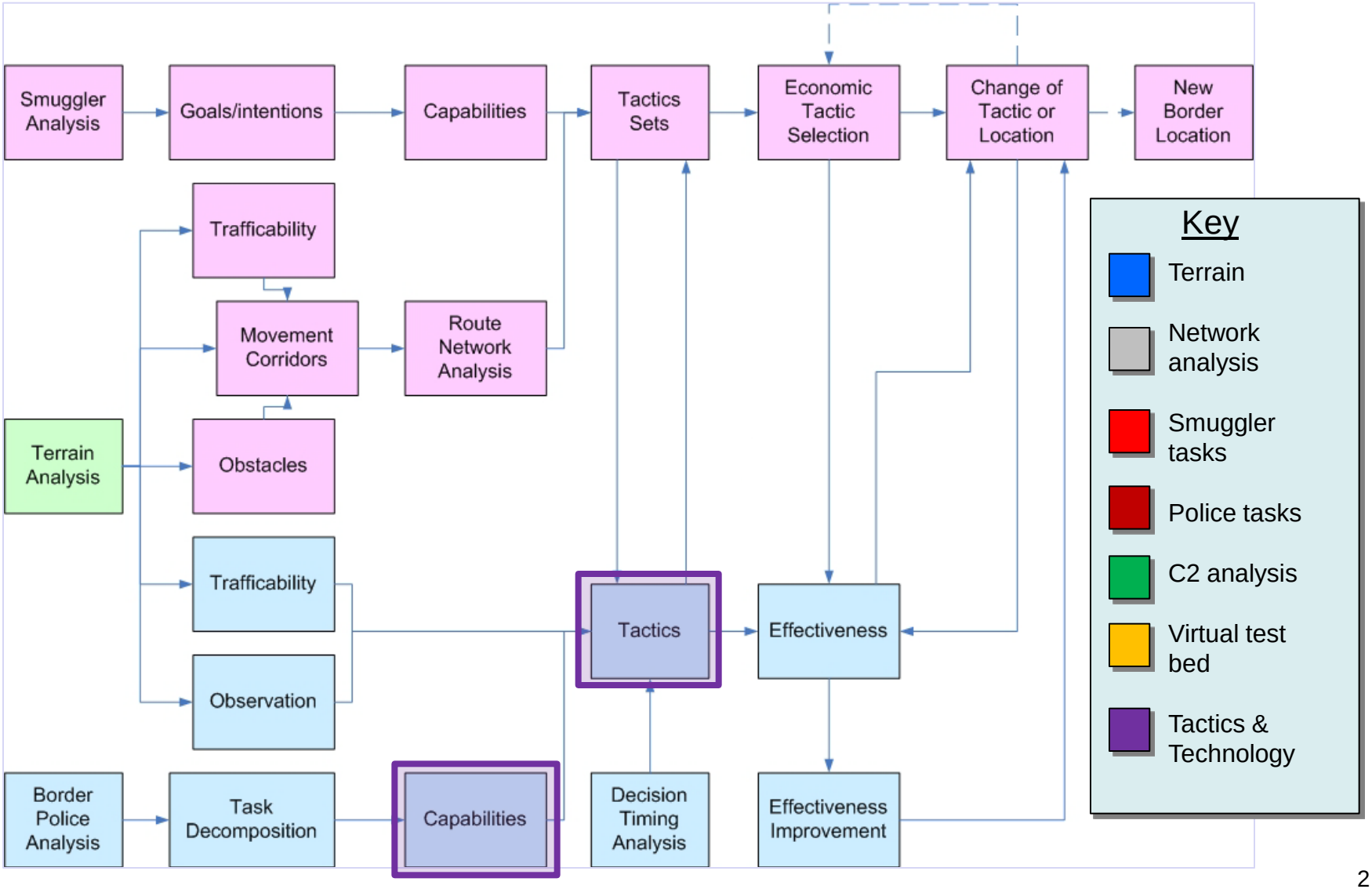
- The strengths and weaknesses of each available tactic and technology are equally important when developing border solutions.

Counter-Trafficking System Development
Module 4
Tactics and Technology Assessment
Student Exercise Handout

Print Name

Date

Tactics and Technology Assessment

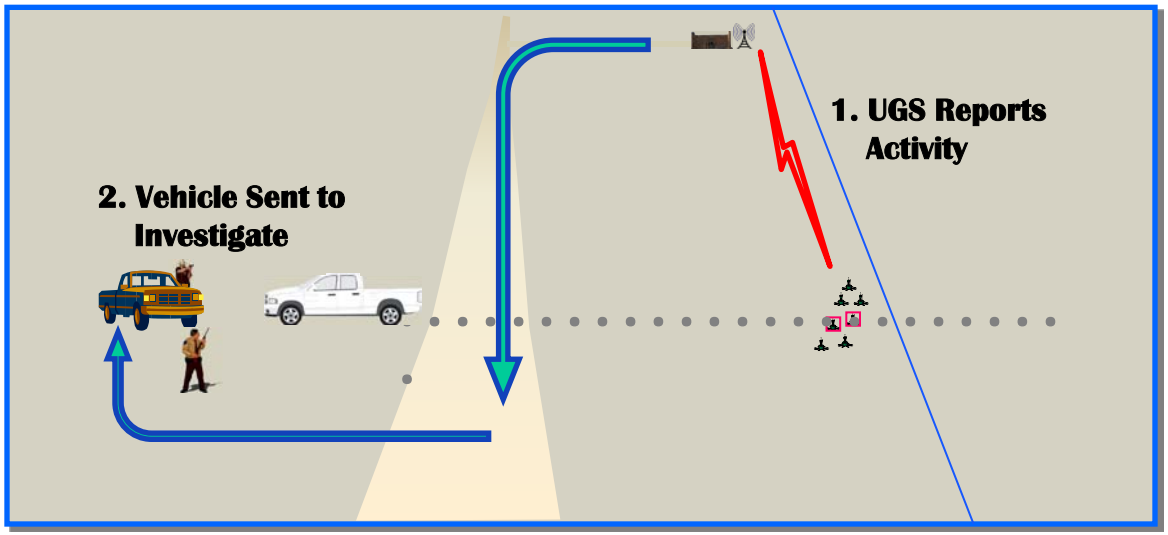


Tactics & Technology Assessment Purpose

- Examine available or possible tactics and technologies.
- Determine effectiveness, strengths, and weaknesses of each tactic and supporting technologies.
- Build a database of possible components for developing solutions.

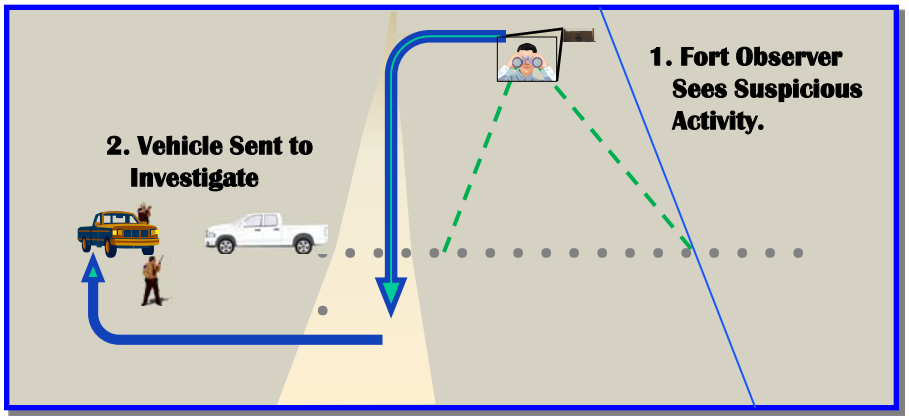
Operational Functions

- Observation
- Detection
- Assessment
- Pursuit
- Interdiction
- Apprehension
- Characterization & Resolution



Observation

- Tactics
  - Fixed Observation Post
  - Active Patrol
  - Patrol Observation Post



- Technologies
  - Binoculars
  - Fixed Telescopic Scope
  - Night Vision Scope
  - Camera
  - UAV Camera
  - Radar

Observation Tactics: Fixed Observation Post

- Advantages
- Disadvantages
- How
- Effectiveness

Observation Tactics: Active Patrol

- Advantages
- Disadvantages
- How
- Effectiveness

Observation Tactics: Patrol Observation Post

- Advantages
- Disadvantages
- How
- Effectiveness

Observation Technology: Binoculars

- Advantages
- Disadvantages
- How
- Effectiveness

Observation Technology: Fixed Telescopic Scope

- Advantages
- Disadvantages
- How
- Effectiveness

Observation technology: Night Vision Scope

- Advantages
- Disadvantages
- How
- Effectiveness

Observation Technology: Camera

- Advantages
- Disadvantages
- How
- Effectiveness

Observation Technology: UAV Camera

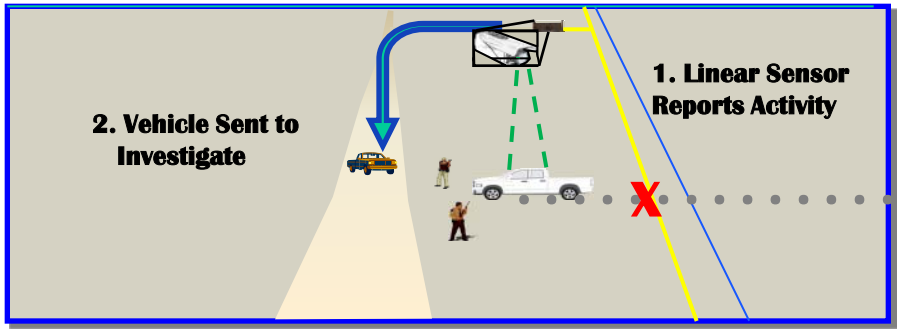
- Advantages
- Disadvantages
- How
- Effectiveness

Observation Technology: Radar

- Advantages
- Disadvantages
- How
- Effectiveness

Detection

- Tactics
  - Fixed Post Observe
  - Patrol Observe
  - Patrol Cut Sign
  - Sensor Alert
  - Citizen Alert



- Technologies
  - Binoculars
  - Fixed Telescopic Scope
  - Night Vision Scope
  - Camera
  - Vehicle Drags
  - UGS
  - Linear Sensor
  - UAV Camera
  - Radar

Detection Tactics: Fixed Observation Post

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Tactics: Patrol Observe

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Tactics: Patrol Cut Sign

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Tactics: Sensor Alert

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Tactics: Citizen Alert

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Binoculars

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Fixed Telescopic Scope

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Night Vision Scope

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Camera

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Unattended Ground Sensors (UGS)

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Vehicle Drags

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Linear Sensors

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: UAV Camera

- Advantages
- Disadvantages
- How
- Effectiveness

Detection Technology: Radar

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment

- Tactics
  - Local Knowledge
  - Local Intelligence Briefing
  - Stop and Question Techniques
  - Local Citizen Information
  - Checkpoints
- Technologies
  - BOLO Database
  - Intelligence Summaries
  - Signature Detectors
  - Sensitive Item Identification Training
  - Unusual Behavior Identification Training
  - Interdiction SOPs

Assessment Tactics: Local Knowledge

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Tactics: Local Intel Briefing

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Tactics: Stop & Question Techniques

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Tactics: Local Citizen Information

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Tactics: Checkpoints

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Technology: BOLO Database

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Technology: Intel Summaries

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Technology: Signature Detectors

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Technology: Sensitive Item Identification Training

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Technology: Unusual Behavior Identification Training

- Advantages
- Disadvantages
- How
- Effectiveness

Assessment Technology: Interdiction Standard Operating Procedures (SOPs)

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit

- Tactics
  - Chase
  - Follow Tracks
  - Direct Deep Response
  - Predict Route
  - Disseminating Unique Identification
  - Tagging
- Technologies
  - Binoculars
  - Fixed Telescopic Scope
  - Night Vision Scope
  - Camera
  - UGS
  - Linear Sensors
  - Persistent Surveillance
  - Marking Tags

Pursuit Tactics: Chase

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Tactics: Follow Tracks

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Tactics: Direct Deep Response

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Tactics: Predict Route

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Tactics: Disseminate Unique Identification

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Tactics: Tagging

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Binoculars

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Fixed Telescopic Scopes

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Night Vision Scope

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Camera

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Unattended Ground Sensors (UGS)

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Linear Sensors

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Persistent Surveillance

- Advantages
- Disadvantages
- How
- Effectiveness

Pursuit Technology: Marking Tags

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction

- Tactics
  - Checkpoint
  - Roadblock
  - Directed Convergence
  - Ambush
  - Disseminating Unique Identification
- Technologies
  - Vehicle Obstacle
  - Vehicle Disabling Equipment
  - Communication Systems (SA)
  - GPS
  - Non-Lethal Weapons
  - Vehicle mounted Weapons

Interdiction Tactics: Checkpoint

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Tactics: Roadblock

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Tactics: Directed Convergence

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Tactics: Ambush

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Tactics: Disseminating Unique Identification

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Technology: Vehicle Obstacle

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Technology: Vehicle Disabling Equipment

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Technology: Communications Equipment (SA)

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Technology: Global Positioning Satellite (GPS)

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Technology: Non-Lethal Weapons

- Advantages
- Disadvantages
- How
- Effectiveness

Interdiction Technology: Vehicle Mounted Weapons

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension

- Tactics
  - Overwatch
  - Containment
  - Overmatching Force
  - Individual Control Methods
- Technologies
  - Vehicle Obstacle
  - Vehicle Disabling Equipment
  - Individual Control Equipment
  - Non-Lethal Weapons
  - Vehicle Mounted Weapons

Apprehension Tactics: Overwatch

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Tactics: Containment

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Tactics: Overmatching Force

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Tactics: Individual Control Methods

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Technology: Vehicle Obstacle

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Technology: Individual Control Equipment

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Technology: Non-Lethal Weapons

- Advantages
- Disadvantages
- How
- Effectiveness

Apprehension Technology: Vehicle Mounted Weapons

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution

- Tactics
  - Interview
  - Inspect
  - Search
  - Collect Biometric Data
  - Data Recording
  - Check Identification and Items against BOLOs & Intelligence Indicators
- Technologies
  - Biometric Collectors
  - Intelligence & Biometric Databases
  - Communication Systems (SA)
  - Field Logging System
  - Signature Detectors
  - Reachback Database

Characterization & Resolution Tactics: Interview

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Tactics: Inspect

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Tactics: Search

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Tactics: Collect Biometric Data

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Tactics: Data Recording

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Tactics: Check Biometric & Item Info against Indicators

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Technology: Biometric Data Collectors

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Technology: Intelligence & Biometric Databases

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Technology: Communications Systems (SA)

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Technology: Field Logging Systems

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Technology: Signature Collectors

- Advantages
- Disadvantages
- How
- Effectiveness

Characterization & Resolution Technology: Reachback Databases

- Advantages
- Disadvantages
- How
- Effectiveness

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Solution Development**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**3.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/ _____ _____

Prepared by **Date**

/ _____ _____

Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 04.02
GOALS AND OBJECTIVES

Instructional Goal

04.02.00 The student will understand the importance of a System Solution Development.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

04.02.01 The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.

04.02.02 The student will demonstrate using the task decomposition tool for comparison of solutions.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 04.02
CRITERION TEST

None.

LESSON PLAN 04.02
SKILLS CRITERIA

04.02.01	The student will demonstrate how to design a solution based on a stated situation, constrained by available resources. a. Understand the Basic Principles b. Start with Border Police Task Decomposition c. Use Tactics and Technology Catalog d. Apply Constraints and Resources e. Adjust Tactics and Technology as Necessary	LSPT p. 9-10, II, C-D
04.02.02	The student will demonstrate using the task decomposition tool for comparison of solutions. a. Understand the Basic Principles b. Start with Border Police Task Decomposition c. Use Tactics and Technology Catalog d. Apply Constraints and Resources e. Use Task Decomposition Tool f. Adjust Tactics and Technology as Necessary	p. 9-11. II, C-E

LESSON PLAN 04.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Task Decomposition Tool Applications

Visual Aids
PowerPoint slides, Lesson 04.02.00, 1-14

Handout Materials
Student Handout
Task Decomposition Tool Manual

References

LESSON PLAN 04.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
04.02 Solution Development **Instructor Comments**

I. INTRODUCTION

Overheads 1-3

This lesson will cover the importance of a system solution concerning communications, logistics, training, maintenance and the environment. Then you will bring all of the analysis products together into a full-system solution. After that, you will assess the effectiveness of the solution with a task decomposition tool.

II. SOLUTION DEVELOPMENT

Overhead 4

A. Solution Development Overview

1. Examine solution development techniques and considerations.

2. Design a solution based on a stated situation, constrained by available resources.

3. Evaluate system effectiveness and adjust as necessary.

4. Fit solution to the border terrain, and adjust as necessary.

Overhead 5

B. Solution Development Philosophy

The philosophy of solution development involves combining organization, personnel, training, technology, and Concept of Operations (CONOPS) into a border control system.

Many border control solutions have failed, due to not considering all components that must interact to make the solution work.

1. Example: If want a horse patrol, must have training for riders, horses, feed, veterinary medicine, stables, saddles and tack, blacksmith and tools for horseshoeing, waste removal, etc.

2. It is often necessary to implement a solution in a phased approach.

   a. Modification of Tactics

b. Add simple Technology

c. Add more complex technology

C. Solution Development Process

LSPT 04.02.01
Overhead 6

The solution development process begins with looking at other analyses you have completed. Remember, these analyses can change with the development your solutions, so adjust as necessary.

1. Basic Principles

   a. What is the threat?

   b. What are you trying to accomplish?

   c. What resources are available?

   d. Brainstorm solutions.

2. Start with Border Police (Blue Force) Decompositions

   a. Select tasks to examine.

3. Use Tactics and Technology Catalog

   a. Identify tactics for each task.

   b. Identify technologies for each task.

4. Apply Constraints and Resources, adjust Tactics and Technology as necessary.

Overhead 7

D. Example of a Scenario

1. Overview Information

   a. 20 km of a border sector

   b. 15 border police (5 on duty each shift)

c. Two patrol vehicles

d. $20k for equipment

2. Tasks Selected for Solution

Overheads 8-10

a. Detect Border breach

b. Maintain Observation

c. Determine Level of Threat

d. Plan Interdiction

e. Predict Location for Intercept

f. Deploy Forces

g. Control Adversary Options

h. Intercept

i. Dominate Situation (force)

j. Establish Control

E. Task Decomposition Tool

LSPT 04.02.02
Overhead 11

The task decomposition tool automates a time consuming manual process of examining outcomes of solutions.

1. Allows users to assess each method as:

a. 0-33% effective = Red

b. 34-66% effective = Yellow

c. 67-100% effective = Green

2. Identifies most effective desired outcomes and allows for adjustment of solutions.

3. Allows users to manipulate results by adjusting solutions so you can select the best outcomes on results.

F. Solution Development (Practical Exercise)

Overhead 12

1. Break into analysis groups under control of an assistant instructor.

2. Conduct a solutions development assessment with student handouts. The assessments will concern the advantages, disadvantages, how deployed and the effectiveness of each operational function of tactics and technology assessment.

3. During the practical exercise please feel free to suggest new or old ideas when conducting the assessment.

4. When completed we will discuss your assessments with the entire class.

IV. CONCLUSION

Overhead 13

For solution development start with the border police task decomposition. Use a catalog to select tactics and technology. Apply constraints, resources, and adjust tactics and technology as necessary. Then use the task decomposition tool the check effectiveness, make adjustments then fit to the terrain.

SOLUTION DEVELOPMENT - LSPT #04.02		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to solution development.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand solution development analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
04.02.00		**SOLUTION DEVELOPMENT**	**PASS**	**FAIL**	**PASS**	**FAIL**
04.02.01		The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.				
04.02.02		The student will demonstrate using the task decomposition tool for comparison of solutions.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

Counter-Trafficking System Development
Module 4
Solution Development

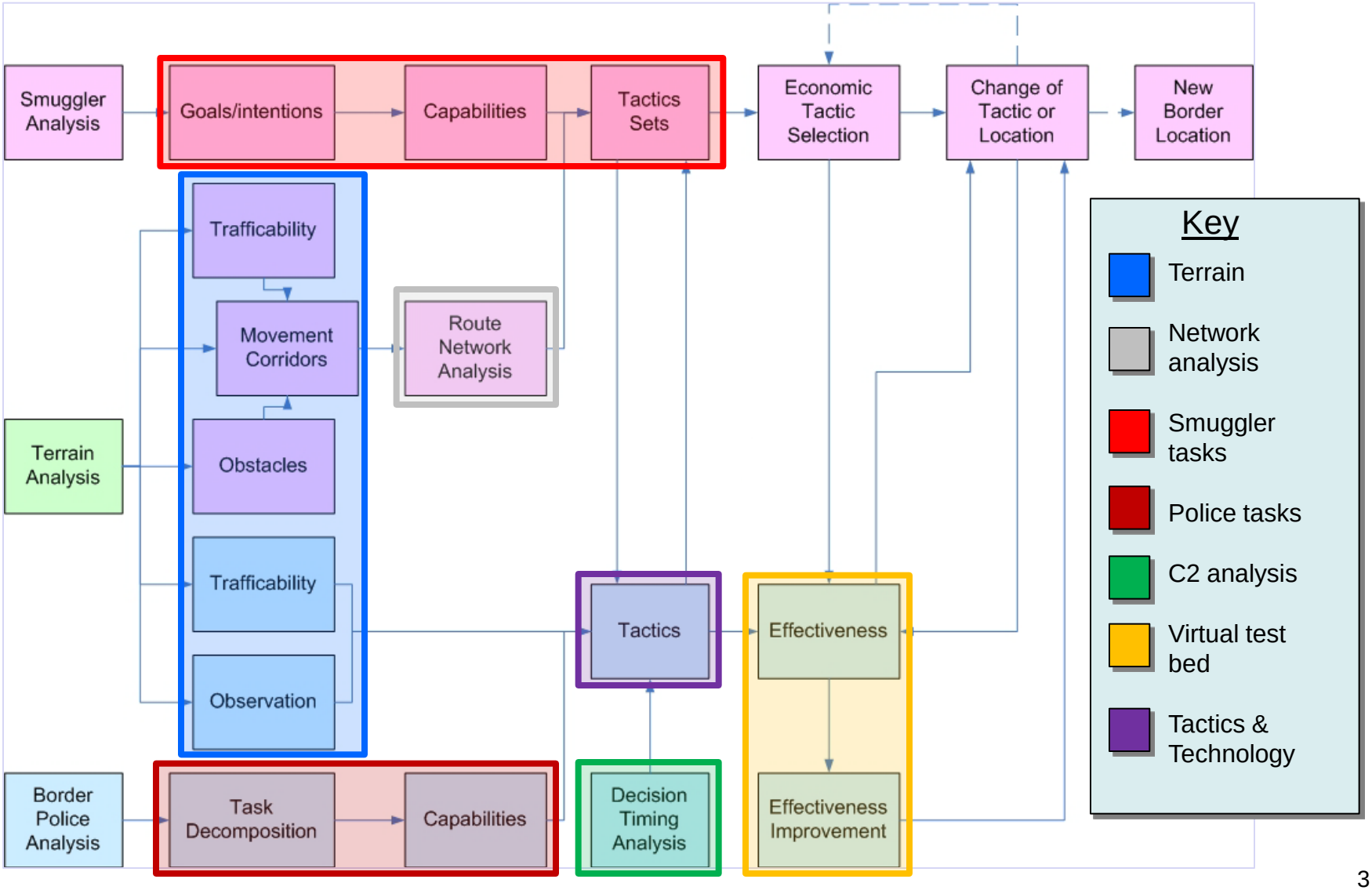
Solution Development Purpose

- Understand the importance of a system solution considering.
  - Communications
  - Logistics
  - Training
  - Maintenance
  - Environment

- Bring all of the analysis products together into a full-system solution.

- Assess the effectiveness of the solution.

Solution Development



Solution Development Lesson Outline

- Examine solution development techniques and considerations.
- Design a solution based on a stated situation, constrained by available resources.
- Evaluate system effectiveness and adjust as necessary.
- Fit solution to the border terrain, and adjust as necessary.

Solution Development Philosophy

- Solution development involves combining organization, personnel, training, technology, and CONOPS into a **border control system**.

- Many border control solutions have failed, due to not considering all components that must interact to make the solution work:
  - Example: If want a horse patrol, must have training for riders, horses, feed, veterinary medicine, stables, saddles and tack, blacksmith and tools for horseshoeing, waste removal, etc.

- It is often necessary to implement a solution in a phased approach.
  - Modify tactics
  - Add simple technology
  - Add more complex technology

Solution Development Process

- Basic Principles
  - Look at the threat
  - What are you trying to accomplish
  - Resources
  - Constraints
  - Brainstorm solutions
- Start with Blue Force Decomposition
  - Select tasks to examine
- Use tactics and technology catalog to:
  - Identify tactics for each task
  - Identify technologies for each task
- Apply Constraints and Resources, adjust tactics and technology as necessary.

Example Scenario

- 20 km of a border sector
- 15 border police (5 on duty each shift)
- Two patrol vehicles
- $20k for equipment

Tasks Selected for Solution

Solution 1

- Detect Border Breach
- Maintain Observation
- Determine Level of Threat
- Plan Interdiction
- Predict Location for Intercept
- Deploy Forces
- Control Adversary Options
- Intercept
- Dominate Situation (force)
- Establish Control

Solution 2

- Detect Border Breach
- Maintain Observation
- Determine Level of Threat
- Plan Interdiction
- Predict Location for Intercept
- Deploy Forces
- Control Adversary Options
- Intercept
- Dominate Situation (force)
- Establish Control

Effectiveness Comparison

- Use the Task Decomposition Tool.
- Assess each method as:
  - 0-33% effective = Red
  - 34-66% effective = Yellow
  - 67-100% effective = Green
- Examine outcomes and adjust solutions.
- Select best solution.

Practical Exercise

- Break into analysis groups under control of an assistant instructor.
- Conduct a solution development assessment with student handouts.
- When completed we will discuss your assessment with the entire class.

Solution Development Summary

- Start with blue force decomposition.
- Use catalog to select tactics and technology.
- Apply Constraints and Resources, adjust tactics and technology as necessary.
- Check effectiveness.
- Fit to the terrain.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Solution Development**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**3.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**September 2010**
Review Schedule:	**Annually**

/ _____ _____

Prepared by **Date**

/ _____ _____

Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 04.02
GOALS AND OBJECTIVES

Instructional Goal

04.02.00 The student will understand the importance of a System Solution Development.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

04.02.01 The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.

04.02.02 The student will demonstrate using the task decomposition tool for comparison of solutions.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 04.02
CRITERION TEST

None.

LESSON PLAN 04.02
SKILLS CRITERIA

04.02.01 The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.

a. Understand the Basic Principles
b. Start with Border Police Task Decomposition
c. Use Tactics and Technology Catalog
d. Apply Constraints and Resources
e. Adjust Tactics and Technology as Necessary

04.02.02 The student will demonstrate using the task decomposition tool for comparison of solutions.

a. Understand the Basic Principles
b. Start with Border Police Task Decomposition
c. Use Tactics and Technology Catalog
d. Apply Constraints and Resources
e. Use Task Decomposition Tool
f. Adjust Tactics and Technology as Necessary

LESSON PLAN 04.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Task Decomposition Tool Applications

Visual Aids
PowerPoint slides, Lesson 04.02.00, 1-14

Handout Materials
Student Handout
Task Decomposition Tool Manual

References

LESSON PLAN 04.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
04.02 Solution Development **Student Comments**

I. INTRODUCTION

This lesson will cover the importance of a system solution concerning communications, logistics, training, maintenance and the environment. Then you will bring all of the analysis products together into a full-system solution. After that, you will assess the effectiveness of the solution with a task decomposition tool.

II. SOLUTION DEVELOPMENT

A. Solution Development Overview

1. Examine solution development techniques and considerations.

2. Design a solution based on a stated situation, constrained by available resources.

3. Evaluate system effectiveness and adjust as necessary.

4. Fit solution to the border terrain, and adjust as necessary.

B. Solution Development Philosophy

The philosophy of solution development involves combining organization, personnel, training, technology, and Concept of Operations (CONOPS) into a border control system.

Many border control solutions have failed, due to not considering all components that must interact to make the solution work.

1. Example: If want a horse patrol, must have training for riders, horses, feed, veterinary medicine, stables, saddles and tack, blacksmith and tools for horseshoeing, waste removal, etc.

2. It is often necessary to implement a solution in a phased approach.

a. Modification of Tactics

b. Add simple Technology

c. Add more complex technology

C. Solution Development Process

The solution development process begins with looking at other analyses you have completed. Remember, these analyses can change with the develop your solutions, so adjust as necessary.

1. Basic Principles

   a. What is the threat?

   b. What are you trying to accomplish?

   c. What resources are available?

   d. Brainstorm solutions.

2. Start with Border Police (Blue Force) Decompositions

   a. Select tasks to examine.

3. Use Tactics and Technology Catalog

   a. Identify tactics for each task.

   b. Identify technologies for each task.

4. Apply Constraints and Resources, adjust Tactics and Technology as necessary.

D. Example of a Scenario

1. Overview Information

   a. 20 km of a border sector

   b. 15 border police (5 on duty each shift)

c. Two patrol vehicles

d. $20k for equipment

2. Tasks Selected for Solution

a. Detect Border breach

b. Maintain Observation

c. Determine Level of Threat

d. Plan Interdiction

e. Predict Location for Intercept

f. Deploy Forces

g. Control Adversary Options

h. Intercept

i. Dominate Situation (force)

j. Establish Control

E. Task Decomposition Tool

The task decomposition tool automates a time consuming manual process of examining outcomes of solutions.

1. Allows users to assess each method as:

a. 0-33% effective = Red

b. 34-66% effective = Yellow

c. 67-100% effective = Green

2. Identifies most effective desired outcomes and allows for adjustment of solutions.

3. Allows users to manipulate results by adjusting solutions so you can select the best outcomes on results.

F. Solution Development (Practical Exercise)

1. Break into analysis groups under control of an assistant instructor.

2. Conduct a solutions development assessment with student handouts. The assessments will concern the advantages, disadvantages, how deployed and the effectiveness of each operational function of tactics and technology assessment.

3. During the practical exercise please feel free to suggest new or old ideas when conducting the assessment.

4. When completed we will discuss your assessments with the entire class.

IV. CONCLUSION

For solution development start with the border police task decomposition. Use a catalog to select tactics and technology. Apply constraints, resources, and adjust tactics and technology as necessary. Then use the task decomposition tool the check effectiveness, make adjustments then fit to the terrain.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Solution Testing**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**1.0 Hour**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

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Prepared by **Date**

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Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
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Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
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Revision	**Date**
Revision	**Date**

LESSON PLAN 04.03
GOALS AND OBJECTIVES

Instructional Goal

04.03.00 The student will understand how to examine border police actions against various smuggler tactics to compare solutions and select the most effective.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

04.03.01 The student will demonstrate how to test solutions using a map exercise (small group exercise).

04.03.02 To familiarize the student with ACTS-Lite as a virtual test bed to solutions.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 04.03
CRITERION TEST

None.

LESSON PLAN 04.03
SKILLS CRITERIA

04.03.01	The student will demonstrate how to test solutions using a map exercise (small group exercise). a. Determine Solution Testing Time/Distance Factors b. Determine Solution Testing Observation Factors c. Determine Solution Testing Smuggler Countermeasures d. Use Map to Determine Compare Solutions and select most Effective e. Determine Solution Effectiveness against Multiple Smuggler Tactics f. Optimize Solution for Desired Results	LSPT p. 8-10, II, A-B
04.03.02	To familiarize the student with ACTS-Lite as a virtual test bed to solutions. a. Instructor will Demonstrate ACATS-Lite on a Border Scenario Problem.	p. 10. III, A-C

LESSON PLAN 04.03
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 04.03.00, 1-15

Handout Materials
Student Handout

References

LESSON PLAN 04.03
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
04.03 Solution Testing **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will cover the importance of solution testing. You will compare solutions and select the most effective. You will then determine solution effectiveness against multiple smugglers tactics. At the end of this lesson you will know how to examine border police actions against various smuggler tactics using a map exercise. You also will be able to describe use of a computer simulation as a virtual test bed.

II. SOLUTION TESTING

LSPT 04.03.01
Overhead 5

A. Solution Testing Components

These components are not limited to the following:

Overheads 6-7

1. Time and Distance Factors

   a. Patrols

      Speed traveling on a patrol route, and time taken to cover it.

   b. Response

      Distance to interdiction points and allowable speed on routes (including startup time).

   c. Smuggler

      Time to travel through area or to point where they can blend in, based on based on possible routes, distance to travel, and smuggler speed.

Overheads 8-9

2. Observation Factors

   a. Coverage and Unobserved Areas (Map Based)

      i. Coverage based on aids, observer state, and smuggler state.

      ii. Fraction of border under observation from fixed points.

iii. Coverage from sensors

b. Patrol Route Observed Fraction

Calculate probability of patrol observing smuggler based on distance covered, distance observable from moving vehicle, and time to cover the route.

c. Day/Night and Weather Differences

Consider reduction in observed area during night and poor weather.

d. Sensor Coverage

See Coverage and Unobserved Areas (Map Based) above.

3. Smuggler Countermeasures

Overhead 10

a. Decoys

Consider how solution will operate if the smuggler is using decoy tactics (consider civilian decoys, low value smuggling decoys, animals).

b. Saturation

Consider how solution can handle multiple simultaneous interdictions while retaining effective control of area.

c. Overwhelming Force

Consider how solution will deal with a smuggler willing to employ a high level of lethal force in an attempt to overwhelm the Border Police.

B. Solution Testing (Practical Exercise)

Overhead 11

1. Break into analysis groups under control of an assistant instructor.

2. Conduct testing solutions development assessment with student handouts. The assessments will concern the advantages, disadvantages, how deployed and the effectiveness of each component.

   a. Scenario Information

   b. Map

   c. Smuggler Routes

3. During the practical exercise please feel free to suggest new or old ideas when conducting the assessment.

4. When completed we will discuss your assessments with the entire class.

LSPT 04.03.02
Overheads 12-13

III. COMPUTER SIMULATION SOLUTION TESTING

A. Virtual test bed – employs state of the art computer simulation.

1. Real terrain, real physics on movement, observation, weapons employment.

2. Accurately models technology.

3. Accurately models tactics.

B. Allows rapid what-if analysis to test different ideas and concepts.

C. Instructor will demonstrate ACATS-Lite on a border scenario problem

Subject:
04.03 Solution Testing **Instructor Comments**

IV. CONCLUSION

Solution testing involves comparing solutions and then selecting the most effective. We can determine solution effectiveness against multiple smuggler tactics for optimization of solutions. A map or virtual test bed used to analyze effectiveness. HOWEVER: Test solution on the ground in a test area with actual Border Police before implementing!

Overhead 14

SOLUTION TESTING - LSPT #04.03		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to solution testing.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand solution testing analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
04.03.00		**SOLUTION TESTING**	**PASS**	**FAIL**	**PASS**	**FAIL**
04.03.01		The student will demonstrate how to test solutions using a map exercise (small group exercise).				
04.03.02		To familiarize the student with ACTS-Lite as a virtual test bed to solutions.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

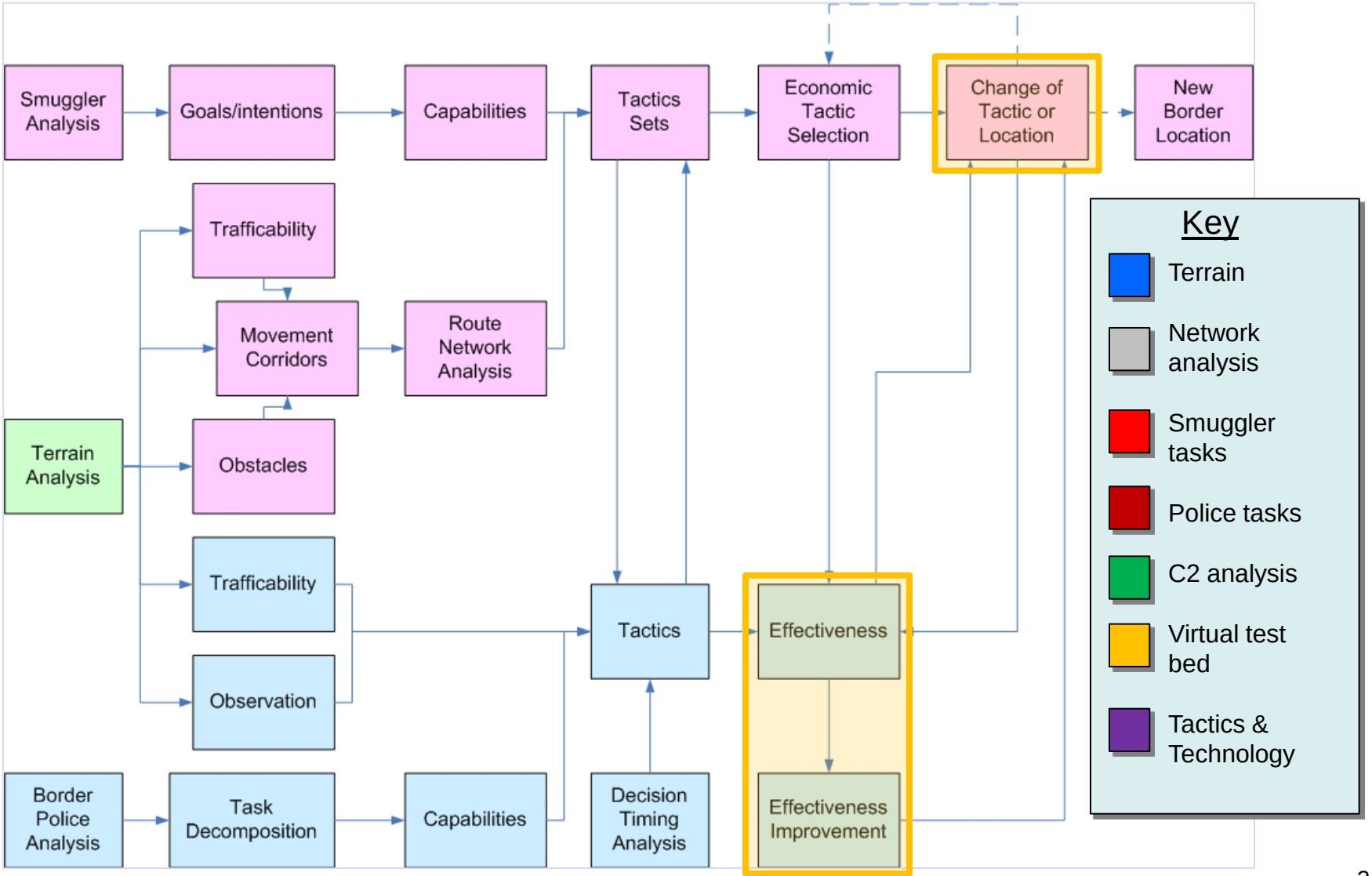
Counter-Trafficking System Development
Module 4
Solution Testing

Solution Testing Purpose

- Compare solutions and select most effective.
- Determine solution effectiveness against multiple smuggler tactics.
- Optimize solution(s).

At the end of this lesson you will know how to examine border police actions against various smuggler tactics using a map exercise. You also will be able to describe use of a computer simulation as a virtual test bed.

Solution Testing Development

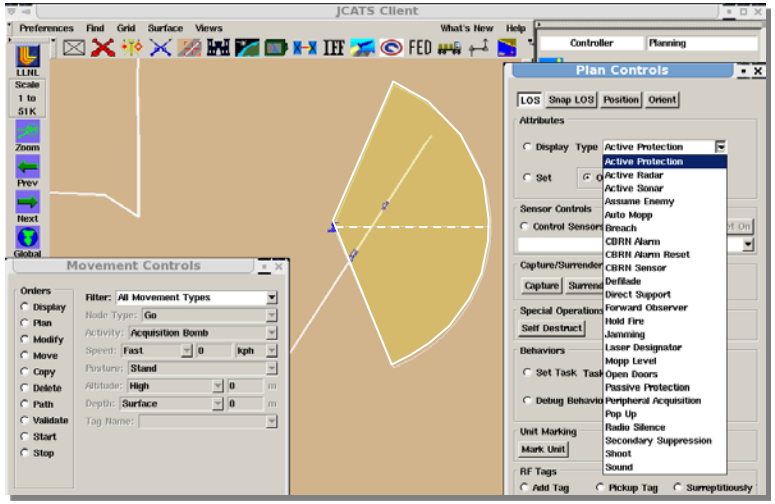


Solution Testing Lesson Outline

- Understand the components of solution testing.
- Test solutions using a map exercise (small group exercise).
- See a demonstration of ACATS-Lite.

Solution Testing Components

- Time/Distance Factors
  - Patrols
  - Response
  - Smuggler
- Observation Factors
  - Coverage/Unobserved Areas
  - Patrol Route Observed Fraction
  - Day/Night/Weather Differences
  - Sensor Coverage
- Smuggler Countermeasures
  - Decoys
  - Saturation
  - Overwhelming Force



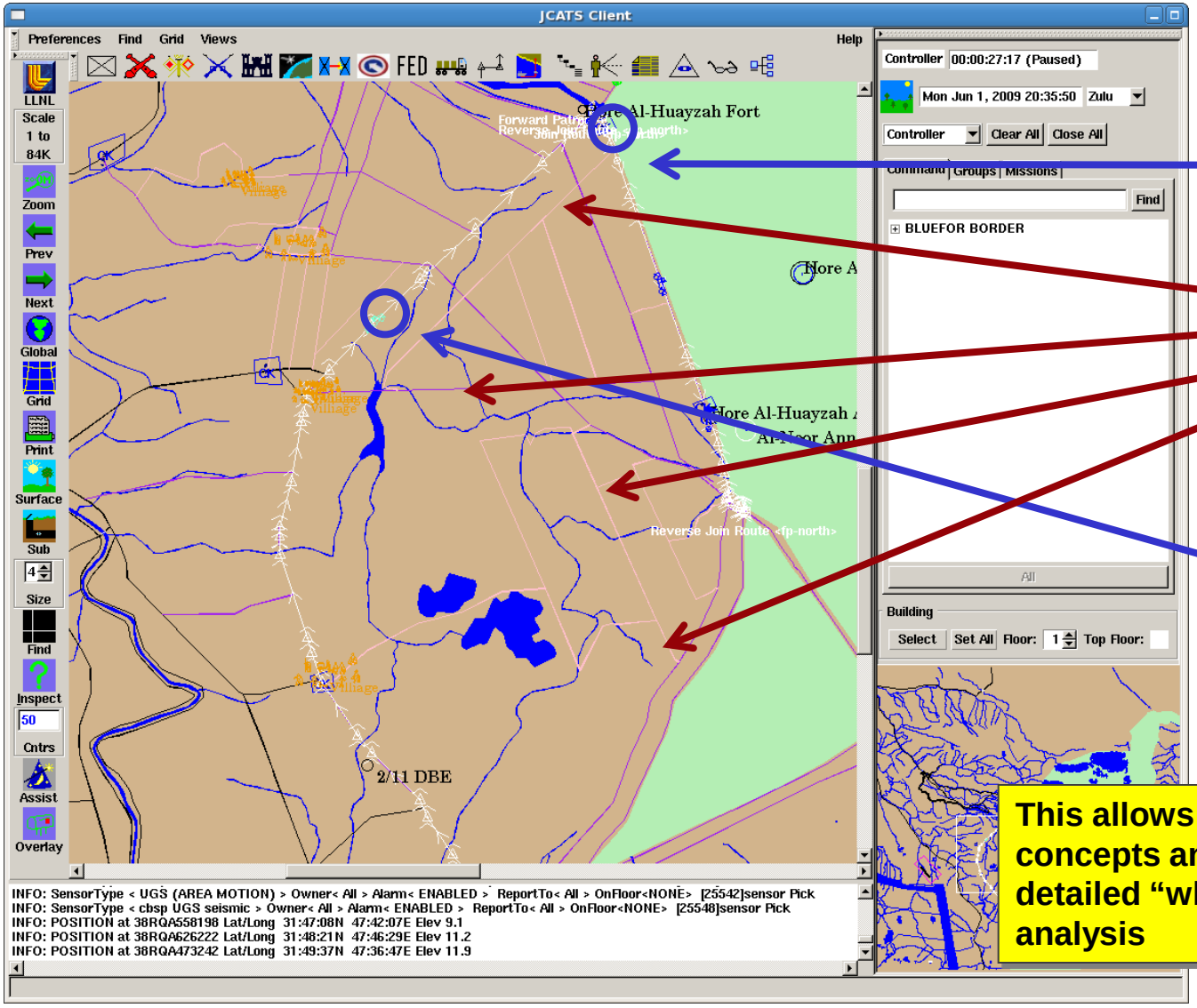
Time Distance Factors

- Patrols: Speed traveling on a patrol route, and time taken to cover it.

- Response: Distance to interdiction points and allowable speed on routes (including startup time).

- Smuggler: Time to travel through area or to point where they can blend in, based on based on possible routes, distance to travel, and smuggler speed.

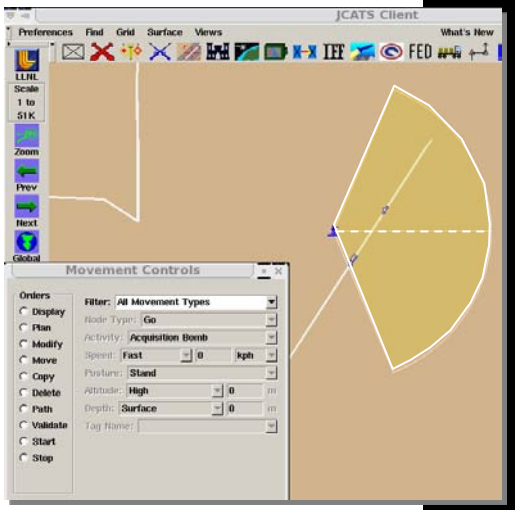
Time Distance Example

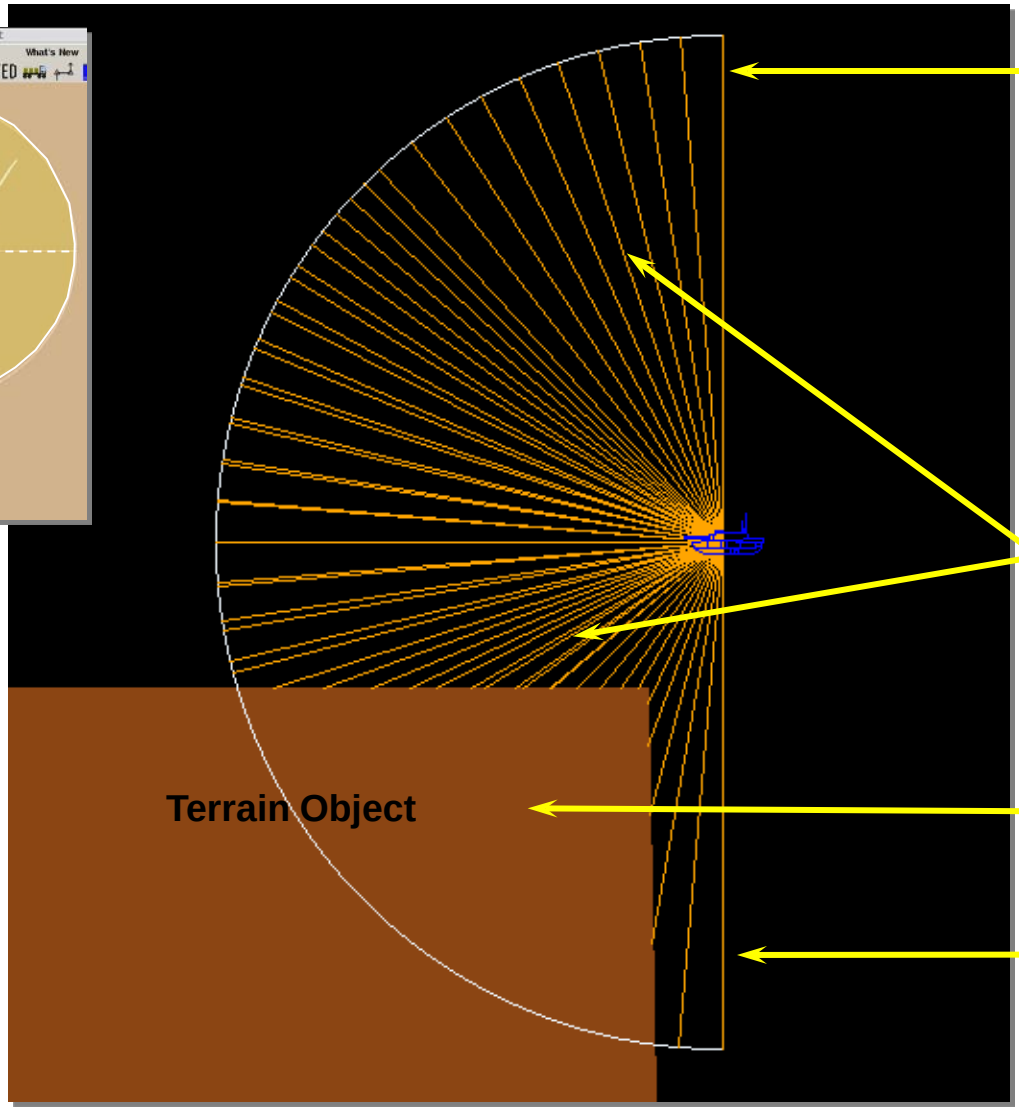


Observation Factors

- Coverage/Unobserved Areas (Map Based)
  - Coverage based on aids, observer state, smuggler state.
  - Fraction of border under observation from fixed points.
  - Coverage from sensors.
- Patrol Route Observed Fraction
  - Calculate probability of patrol observing smuggler based on distance covered, distance observable from moving vehicle, and time to cover the route.
- Day/Night/Weather Differences
  - Consider reduction in observed area during night and poor weather.

Observation Example





Right Limit of View

LOS exists (orange lines)

LOS does not exist

Left Limit of View

Smuggler Countermeasures

- Decoys
  - Consider how solution will operate if the smuggler is using decoy tactics (consider civilian decoys, low value smuggling decoys, animals).
- Saturation
  - Consider how solution can handle multiple simultaneous interdictions while retaining effective control of area.
- Overwhelming Force
  - Consider how solution will deal with a smuggler willing to employ a high level of lethal force in an attempt to overwhelm the Border Police.

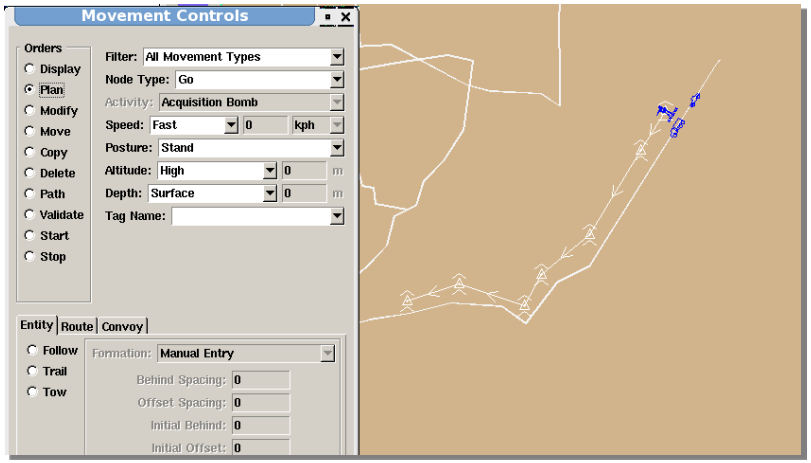
Solution Testing Practical Exercise

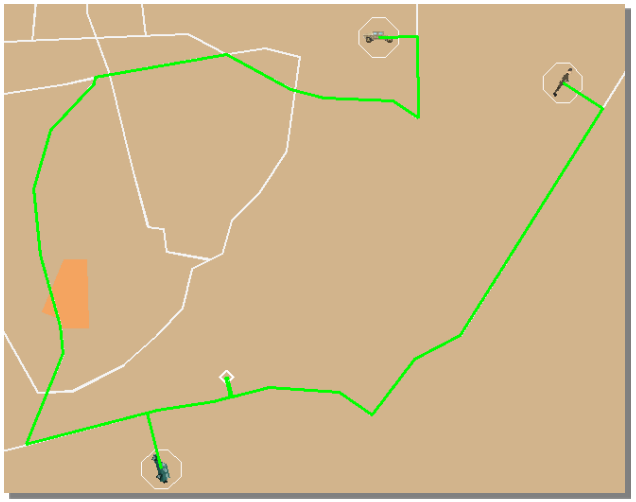
- Scenario, including map, smuggler routes, solution.
- Break into analysis groups under control of an assistant instructor.
- Conduct solution testing assessment with student handouts.

Virtual Test Bed Application

- Virtual test bed – employs state of the art computer simulation.
  - Real terrain, real physics on movement, observation, weapons employment.
  - Accurately models technology.
  - Accurately models tactics.
  - Analyzes and compares alternative solutions.
- Allows rapid what-if analysis to test different ideas and concepts.

Virtual Test Bed Examples





Solution Testing Summary

- Testing involves:
  - Compare solutions and select most effective
  - Determine solution effectiveness against multiple smuggler tactics
  - Optimize solution
- Map or virtual test bed used to analyze effectiveness
- HOWEVER: Test solution on the ground in a test area with actual Border Police before implementing!

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Introduction to Exercises**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**.5 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

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Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 05.01
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
03.01 Terrain Analysis
03.02 Zone and Route Network Analysis
04.01 Tactics and Technology Assessment
04.02 Solution Development
04.03 Solution Testing

Instructional Goal

05.01.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.01.01 To familiarize the student with Scenario / Exercise Procedures.

05.01.02 The student will demonstrate applying the Process of Analysis.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.01
CRITERION TEST

None.

LESSON PLAN 05.01
SKILLS CRITERIA

05.01.01	To familiarize the student with Scenario / Exercise Procedures. a. Form Exercise Analysis Teams b. Explain Exercise Rules c. Display/Handout Area of Concern Map d. Brief Terrain Information e. Brief Smuggler Situation f. Brief Border Police Situation g. Brief Command and Control (C2) Procedures	LSPT p. 9-11, II, A-E
05.01.02	The student will demonstrate applying the Process of Analysis. a. Identify how Terrain / Ground has an effect on the Analysis Process. b. Identify how the Red Force has an effect on the Analysis Process. c. Identify how stopping the Red Force has an effect on the Analysis Process.	p. 11, II, E, a-c

LESSON PLAN 05.01
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors. The role players will be assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the scenario, break into groups.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the scenario.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Only answer the students questions, do not give information unless asked.

LESSON PLAN 05.01
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 05.01.00, 1-17

Handout Materials
Student Handout

References

LESSON PLAN 05.01
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.01 Introduction to Exercises **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

LSPT 05.01.01

II. SCENARIO SET UP

A. Scenario

Overhead 5

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

Overhead 6

1. Terrain

   a. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

   b. The border police had virtually no capability to observe or interdict within the marsh.

Overhead 7

   c. Display area of concern.

Overhead 8

   d. The terrain is essentially flat, with no hills.

   e. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

f. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

2. Smuggler Situation

Overhead 10

a. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

b. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

c. Smugglers will seldom stand and fight. They use deception and blending techniques.

d. Smugglers penetrate at all times there is not specific pattern.

3. Border Police Situation

Overhead 11

a. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

b. Each fort contains a Captain, 25 men, and two pickup trucks.

c. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

d. The Battalion Headquarters has a 12-man response force.

B. Command and Control (C2)

Overhead 12

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

C. Assistant Instructors (Role Players) will have Multiple Roles — Overhead 13

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

D. Students (CTSD Analyst Officers) Brief / Combine Solutions — Overhead 14

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

E. Mission — LSPT 05.01.02, Overhead 15

a. Analyze the situation given.

b. Develop red and blue force decompositions.

c. Develop a probable solution on securing the border.

III. CONCLUSION

Overhead 16

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, analyses must be as detailed as possible and updated as needed.

Subject:
05.01 Introduction to Exercises **Instructor Comments**

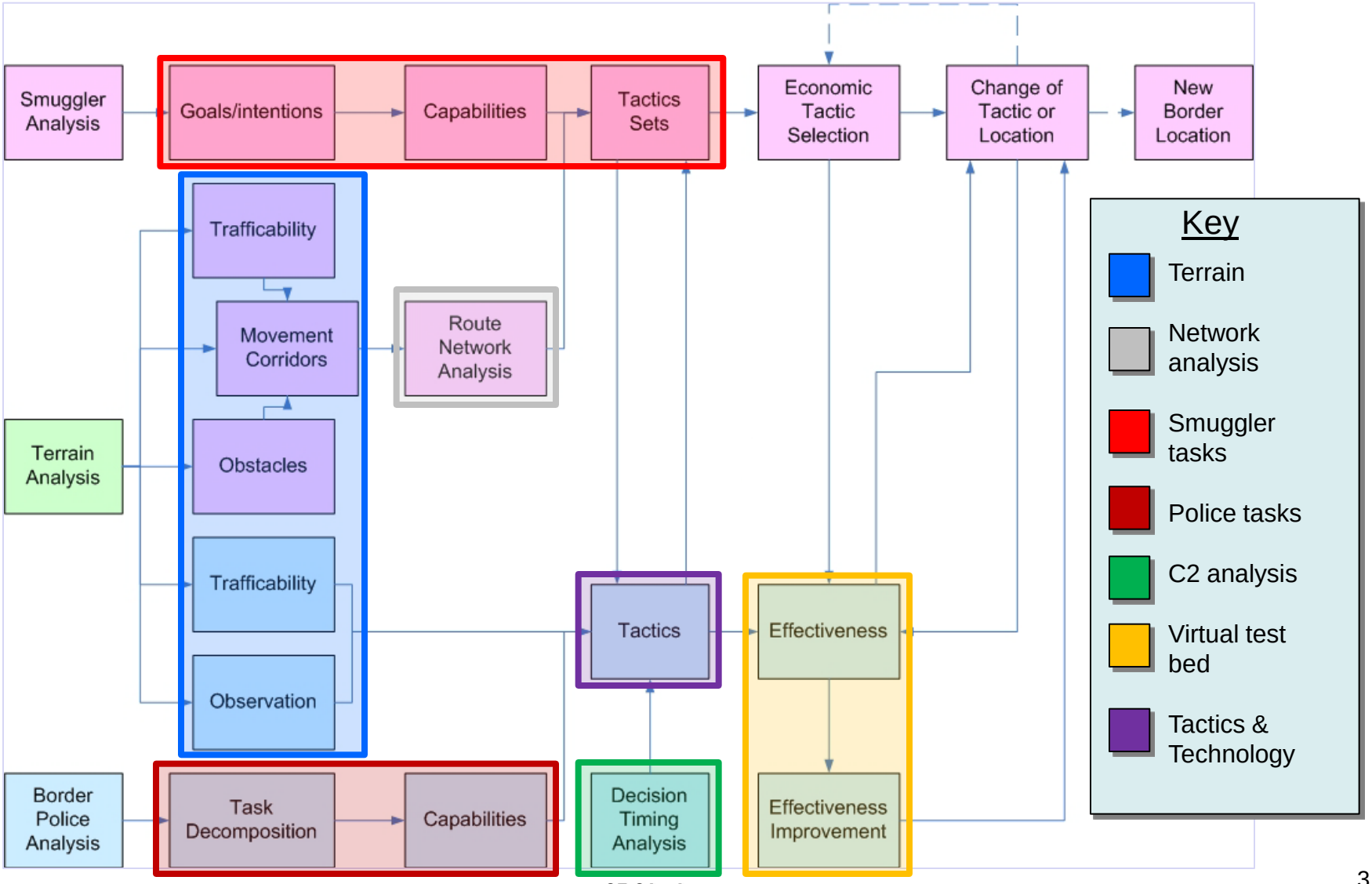
To perform successfully you must understand how to analyze and integrate that information into your patrol, response techniques, tactics and the planning of other operations. Team members must work as an adhesive unit and be able to make decision's that best serves their needs.

Counter-Trafficking System Development
Module 5
Introduction to Exercises

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - Process of Analysis
  - Smuggler Assessment
  - Border Police Tasks Decomposition
  - Timing and Decision Analysis
  - Terrain Analysis
  - Zone & Route Network Analysis
  - Tactics & Technology Assessment
  - Solution Development
  - Solution Testing

The Analysis Process



Introduction

- This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance.

- The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Form Exercise Analysis Teams

- Break into analysis groups under control of an assistant instructor.

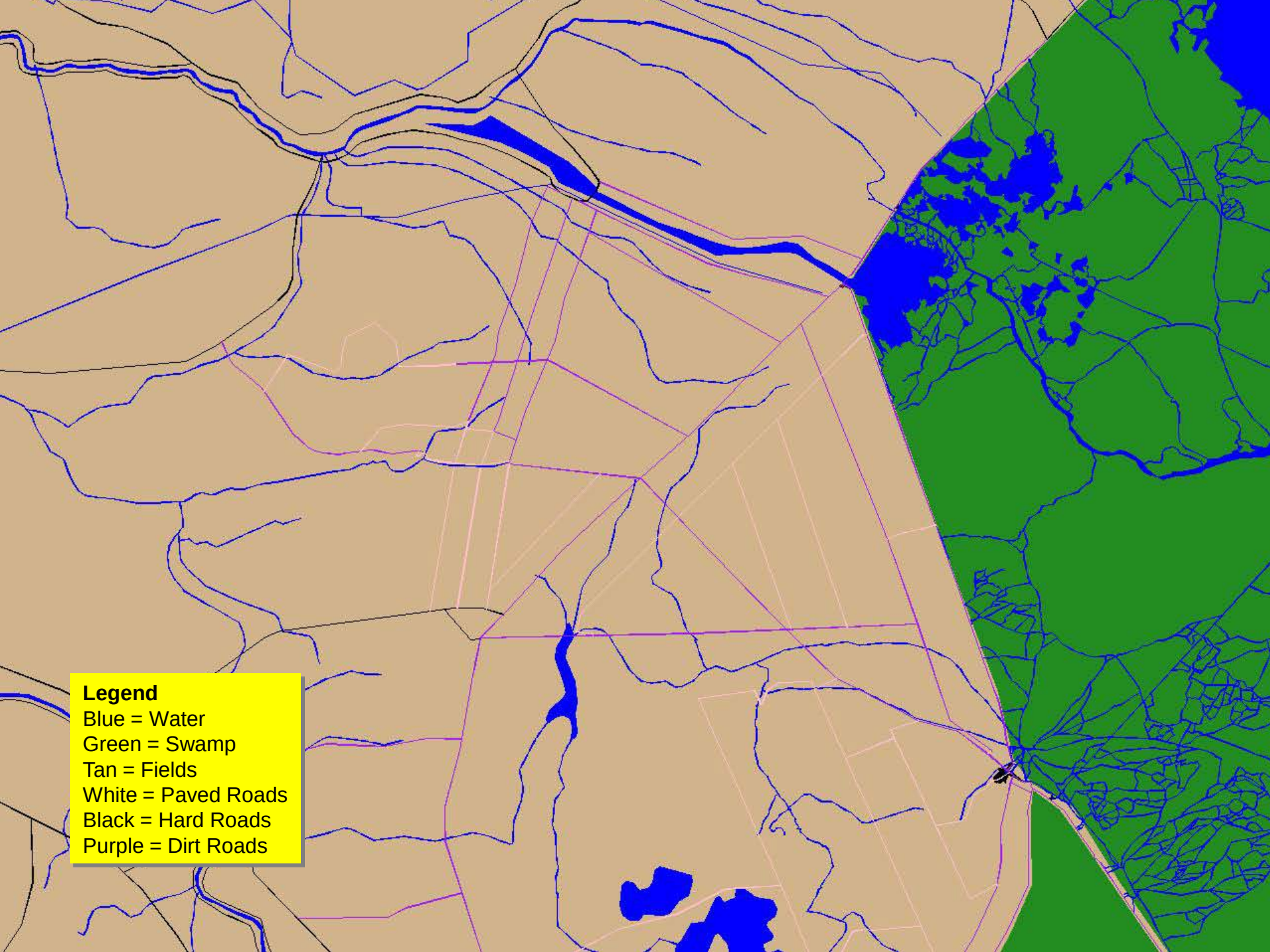
Scenario

- Terrain
  - Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.
  - The border police had virtually no capability to observe or interdict within the marsh.

Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
  - The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.


Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

Scenario, cont.

- Smuggler Situation
  - Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.
  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
  - Smugglers will seldom stand and fight. They use deception and blending techniques.
  - Smugglers penetrate at all times there is not specific pattern.

Scenario, cont.

- Border Police Situation
  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
  - Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.
  - Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Scenario Set Up, cont.

- Assistant Instructors will have multiple roles
  - Will play the role of a local border police officer.
  - Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.
  - Will advise the student group.

Student Brief / Combine Solutions

- In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

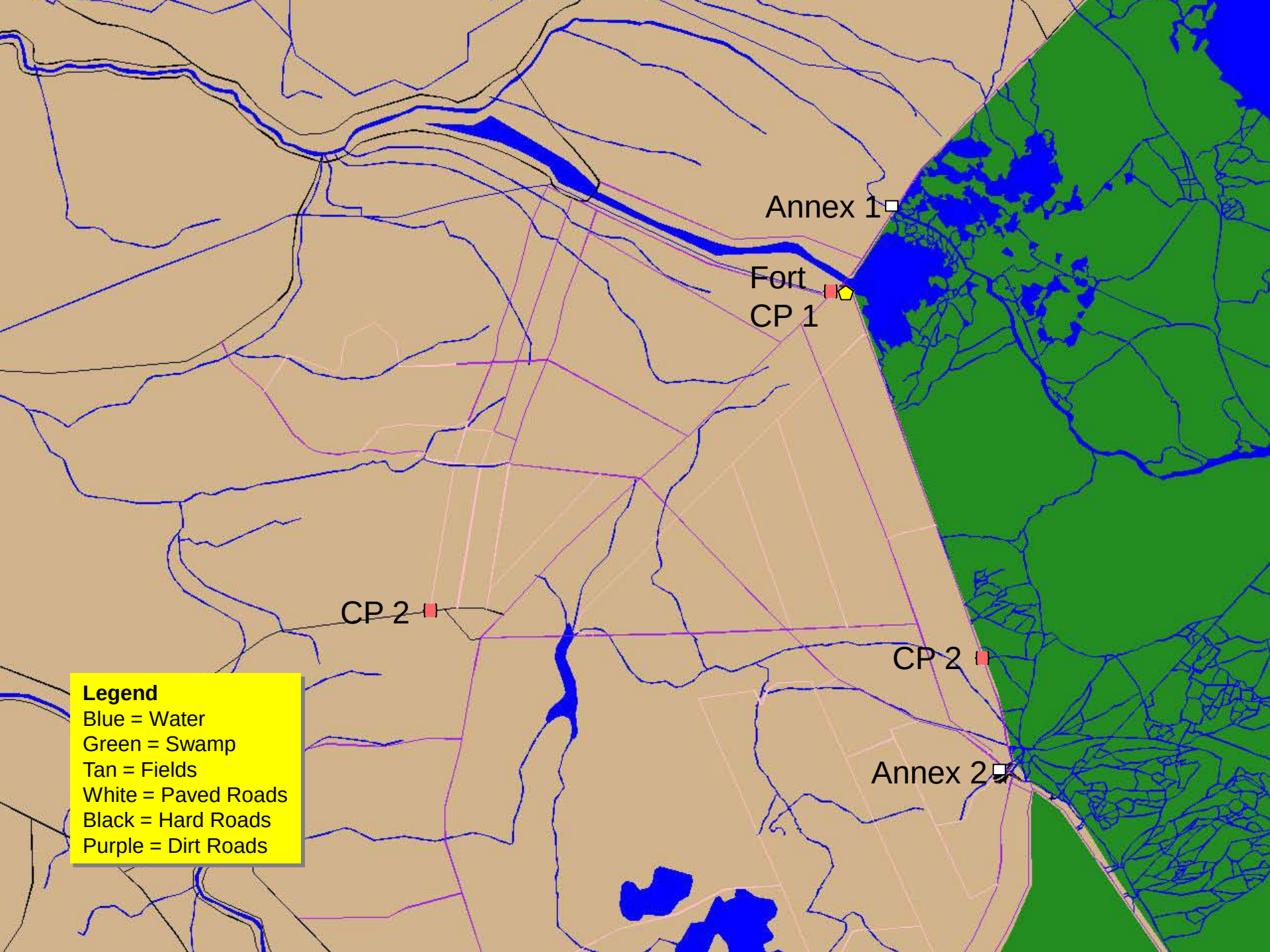
- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Exercise

- Mission
  - Analyze the situation given.
  - Develop red and blue force decompositions.
  - Develop a probable solution on securing the border.

Conclusion

- The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operation.
- Team members must work as an adhesive unit and be able to make decision's that best serves their needs.


Annex 1
Fort
CP 1
CP 2
CP 2
Annex 2
Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Task Decomposition Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**3.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
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Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
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Revision	**Date**

LESSON PLAN 05.02
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
05.01 Introduction to Exercises

Instructional Goal

05.02.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.02.01 The student will demonstrate Process of Analysis.

05.02.02 The student will demonstrate a Smuggler Assessment.

05.02.03 The student will demonstrate Border Police Tasks Decomposition.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.02
CRITERION TEST

None.

LESSON PLAN 05.02
SKILLS CRITERIA

05.02.01	The student will demonstrate Process of Analysis.	LSPT p. 13, II, G, a-c
	a. Identify how Terrain / Ground has an effect on the Analysis Process. b. Identify how the Smuggler Force has an effect on the Analysis Process. c. Identify how stopping the Smuggler Force has an effect on the Analysis Process.	
05.02.02	The student will demonstrate a Smuggler Assessment.	p. 10-11, II, B, 1-3
	a. Develop Smuggler Assessment.	
05.02.03	The student will demonstrate Border Police Tasks Decomposition.	p. 11-12, II, C, 1-3
	a. Develop Border Police Tasks Decomposition.	

LESSON PLAN 05.02
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors. The role players will be assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the scenario, break into groups.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the scenario.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Only answer the students questions, do not give information unless asked.

LESSON PLAN 05.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 05.02.00, 1-23

Handout Materials
Student Handout

References

LESSON PLAN 05.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.02 Task Decomposition Exercise **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will conduct smuggler and border police tasks decompositions.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

LSPT 05.01.01

II. SCENARIO SET UP

A. Scenario

Overhead 5

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

B. Terrain

Overhead 6

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

Overhead 7

3. Display area of concern.

Overheads 8-9

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

B. Smuggler Assessment

LSPT 05.02.02
Overheads 10-11

Think like the Smuggler - put yourself in their position.

1. Identify the <u>What</u>:

   a. What is the contraband?

   b. What is their source - or where are they coming from?

   c. What is their goal or objective - where are they going?

   d. What is their intensity, persistence, and willingness to use lethal force?

2. Smuggler Assessment Template

Overhead 12

   The first analysis process is an assessment of the smuggler's methods and capabilities. These steps will be illustrated by examining how they were used in one specific border sector analysis. A template is used to decompose the smugglers actions:

   a. Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level shows these steps on the overhead.

   b. Under each step are a series of tasks that the smuggler could perform to accomplish that step.

   c. The step to move and avoid, as well as the step to change transportation methods could happen multiple times. This model is useful to think through the smugglers capabilities and how he might be accomplishing each task. The model also can help identify protection actions to neutralize particular tasks.

d. Each step has its own breakout page, where the smuggler's capabilities to accomplish each task are defined.

i. This is where you think like a smuggler, and think through the smugglers capabilities and how they might be accomplishing each task.

ii. Identify those tasks associated with Smuggler goal / Objective.

e. The template will be used later to identify protection actions to neutralize particular tasks.

Overhead 13

3. Smuggler Situation

a. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

b. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

c. Smugglers will seldom stand and fight. They use deception and blending techniques.

d. Smugglers penetrate at all times there is not specific pattern.

C. Border Police Decomposition

LSPT 05.02.03
Overhead 14

Like with the Smuggler Force we now conduct a Border Police Force step assessments, which identify methods and capabilities. Identify desired outcomes and solutions / tasks for those outcomes.

Overhead 15

1. Border Security Task Decomposition

Each of the task boxes was then broken down into the specific methods that could or were employed to accomplish them – this forms a systematic method for understanding the security functions.

In this example, only certain outcomes were important to interdict the smuggler on the specific terrain. The outcomes we want to examine are shown in the yellow boxes. Then the tasks in the orange boxes were examined to determine current effectiveness and see where we can make improvements.

2. Methods Used to Accomplish Tasks — Overhead 16

3. Border Police Situation — Overhead 17

   a. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

   b. Each fort contains a Captain, 25 men, and two pickup trucks.

   c. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

   d. The Battalion Headquarters has a 12-man response force.

D. Command and Control (C2) — Overhead 18

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

E. Assistant Instructors (Role Players) will have Multiple Roles — Overhead 19

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

F. Students (CTSD Analyst Officers) Brief / Combine Solutions — Overhead 20

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

G. Mission — LSPT 05.02.01, Overhead 21

a. Analyze the situation given.

b. Develop smuggler and border police force decompositions.

c. Develop a probable solution on securing the border.

III. CONCLUSION

Overhead 22

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, analyses must be as detailed as possible and updated as needed.

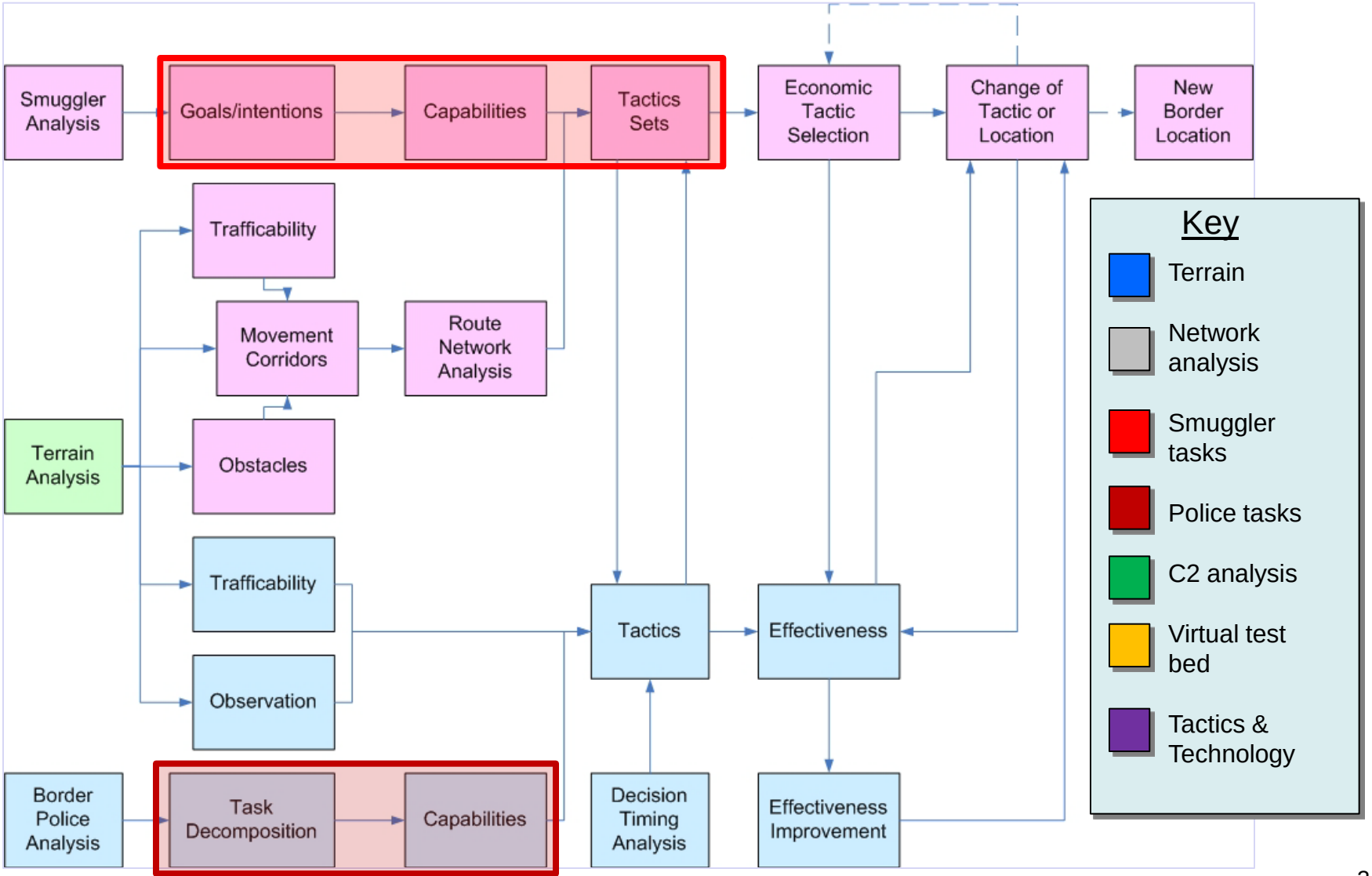
To perform successfully you must understand how to analyze and integrate that information into your patrol, response techniques, tactics and the planning of other operations. Team members must work as an adhesive unit and be able to make decision's that best serves their needs.

Counter-Trafficking System Development
Module 5
Task Decomposition Exercise

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - Demonstrate Process of Analysis.
  - Demonstrate a Smuggler Assessment.
  - Demonstrate Border Police Tasks Decomposition.

Force Task Decompositions



Introduction

- This lesson will prepare the students for analyzing a border security problem on their own.
- The students will conduct smuggler and border police tasks decompositions.
- The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Form Exercise Analysis Teams

- Break into analysis groups under control of an assistant instructor.

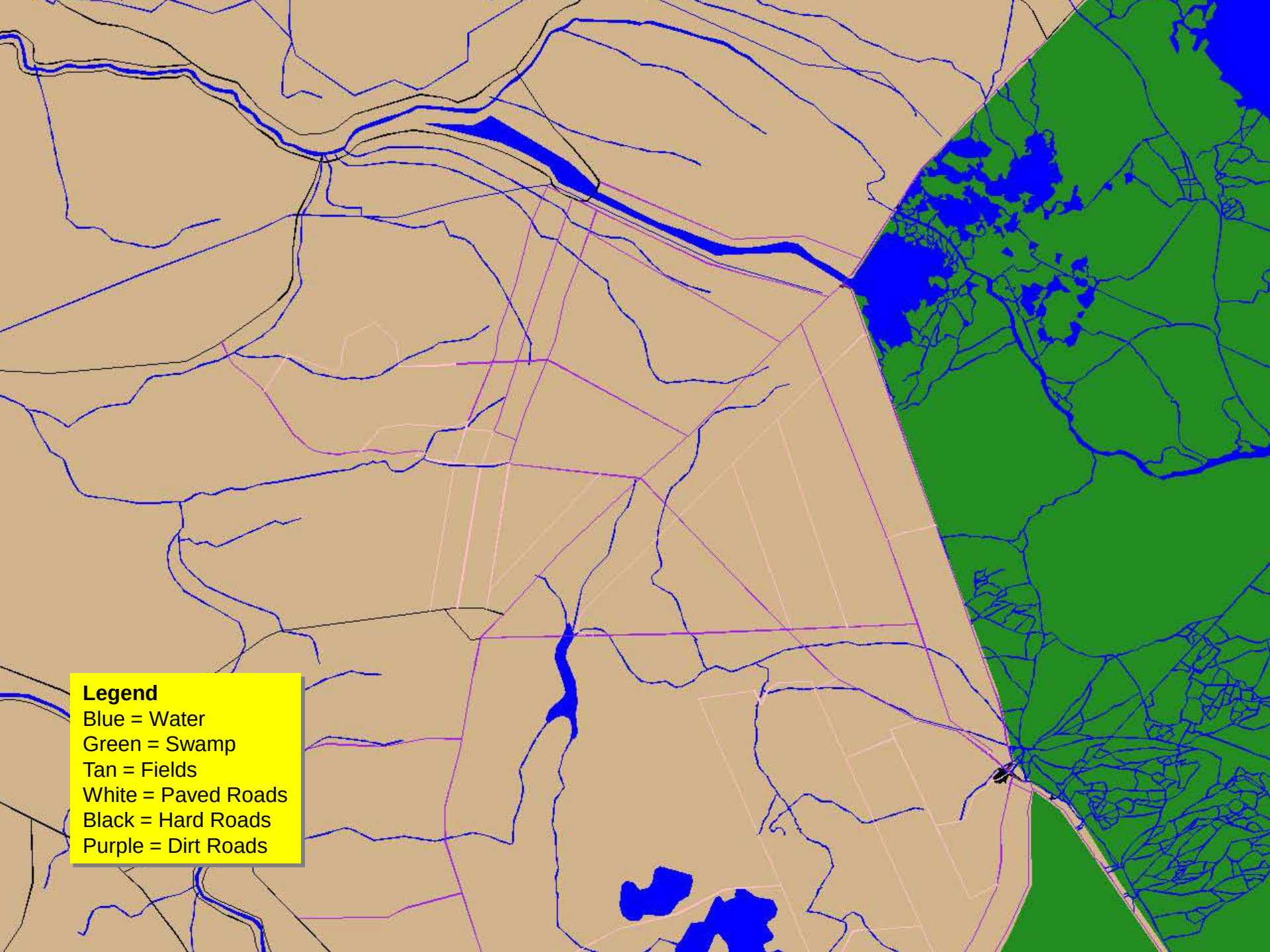
Scenario

- Terrain
  - Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.
  - The border police had virtually no capability to observe or interdict within the marsh.

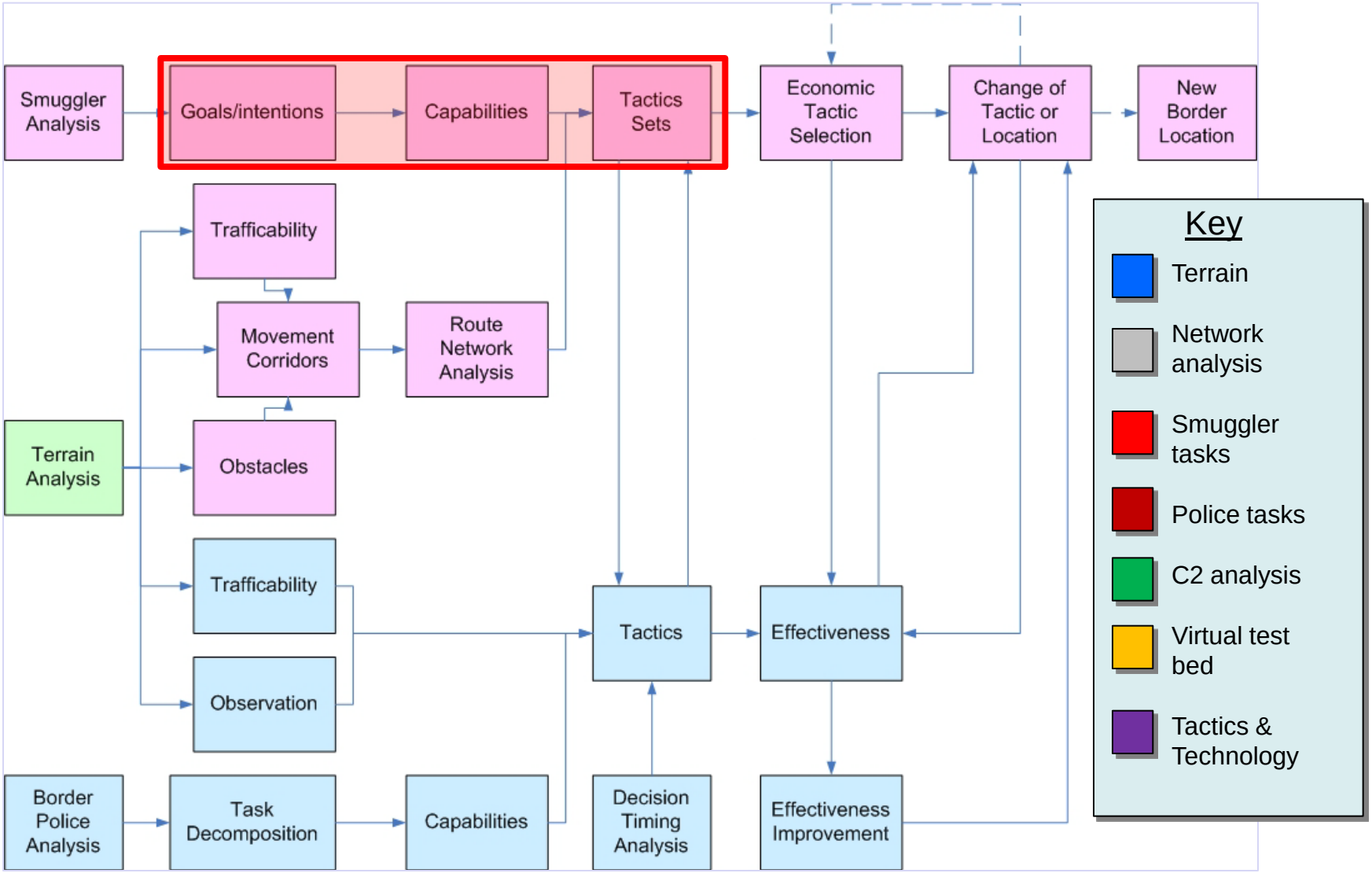
Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
  - The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.


Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

Smuggler Assessment Process

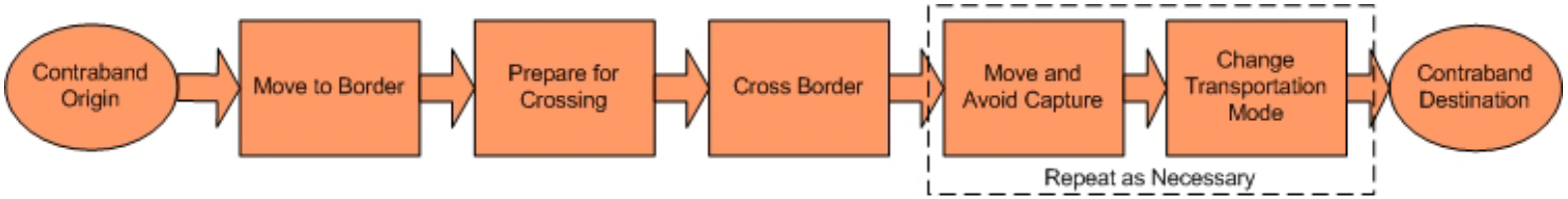


Smuggler Assessment

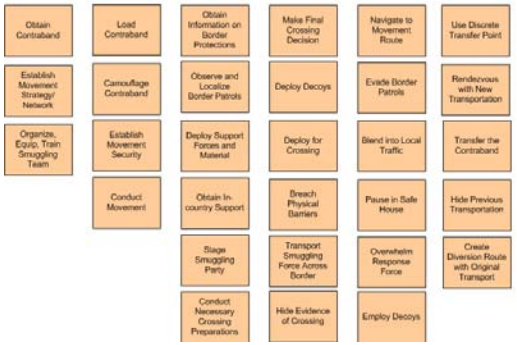
- Think like the smuggler – put yourself in their position.
- Identify the What: What are the smuggler intentions.
  - What is the contraband?
  - What is their source – or where are they coming from?
  - What is their goal or objective – where are they going?
  - What is their intensity, persistence, willingness to use lethal force.

Smuggler Assessment Process

1. A template is used to decompose the smugglers actions
   - Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level.



   - Each step consists of several tasks that could be used to do the step

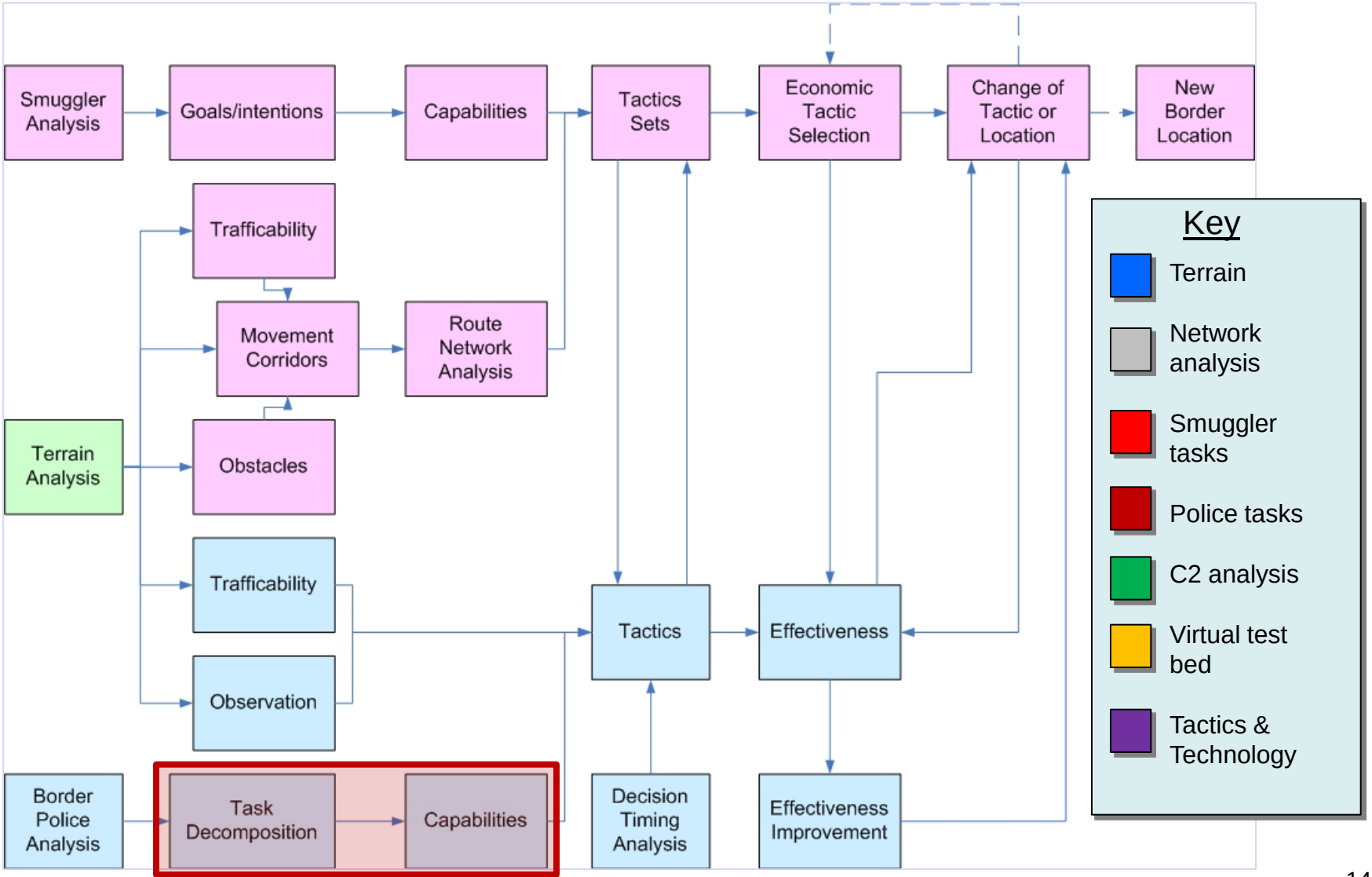


   - The step to move and avoid, as well as the step to change transportation methods could happen multiple times.

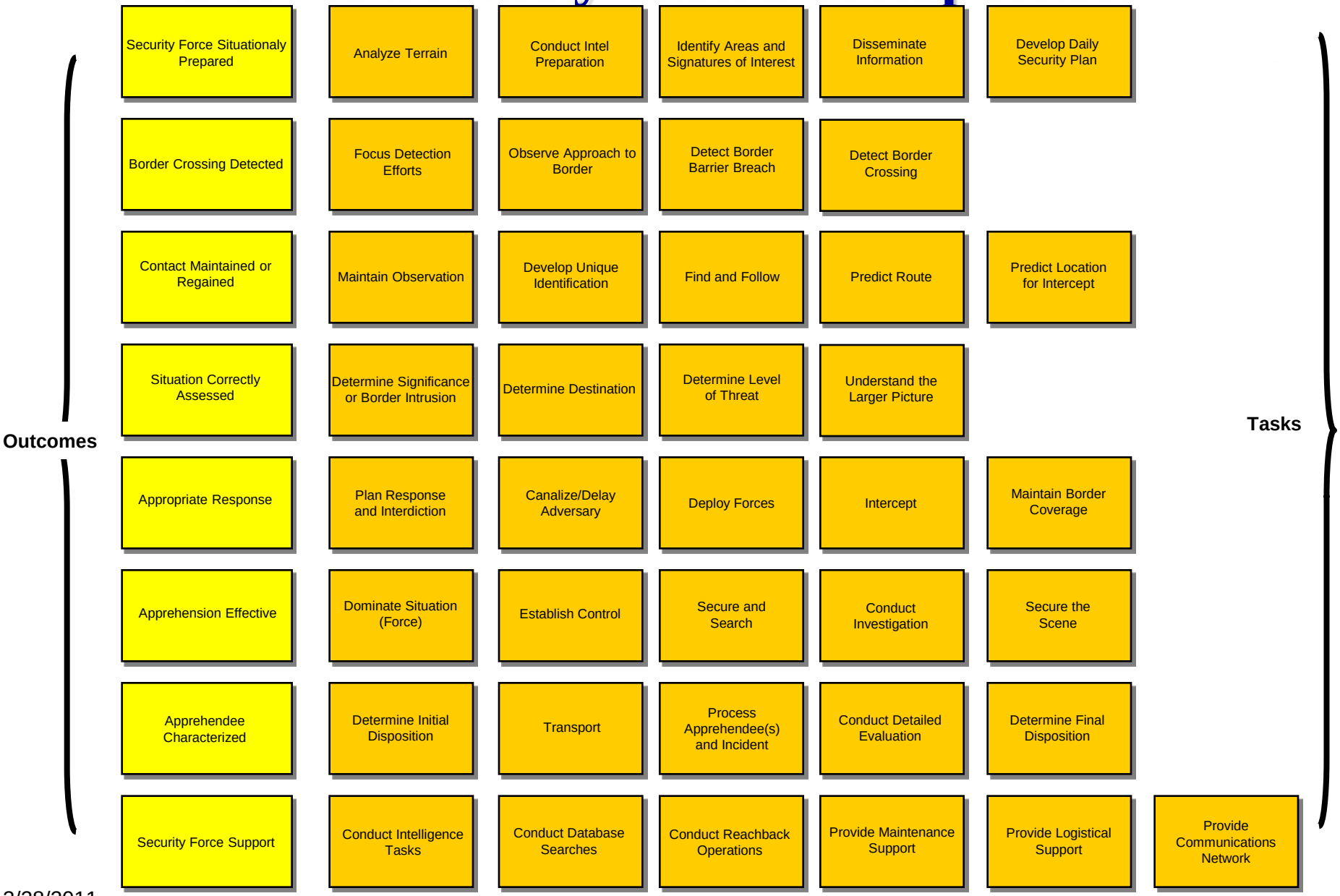
Scenario, cont.

- Smuggler Situation
  - Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.
  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
  - Smugglers will seldom stand and fight. They use deception and blending techniques.
  - Smugglers penetrate at all times there is not specific pattern.

Border Police Decomposition



Border Security Task Decomposition



Methods Used to Accomplish Tasks

Prepare the Security Force

Analyze Terrain	Understand Concealment features	Understand Trafficability features	Understand Observation features	Identify Usable Routes	
Conduct Intelligence Preparation	Understand Current Threat	Analyze and incorporate new Data	Understand Normal Background	Detect Intelligence Indicators	Build Intelligence Picture
Identify Areas and Signatures of Interest	Select Area Focus	Select Signature Focus			
Disseminate Information	Periodic Intell Summary	Current Intell Updates	Build Intell Pictures		

Scenario, cont.

- Border Police Situation
  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
  - Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.
  - Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Scenario Set Up, cont.

- Assistant Instructors will have multiple roles
  - Will play the role of a local border police officer.
  - Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.
  - Will advise the student group.

Student Brief / Combine Solutions

- In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Exercise

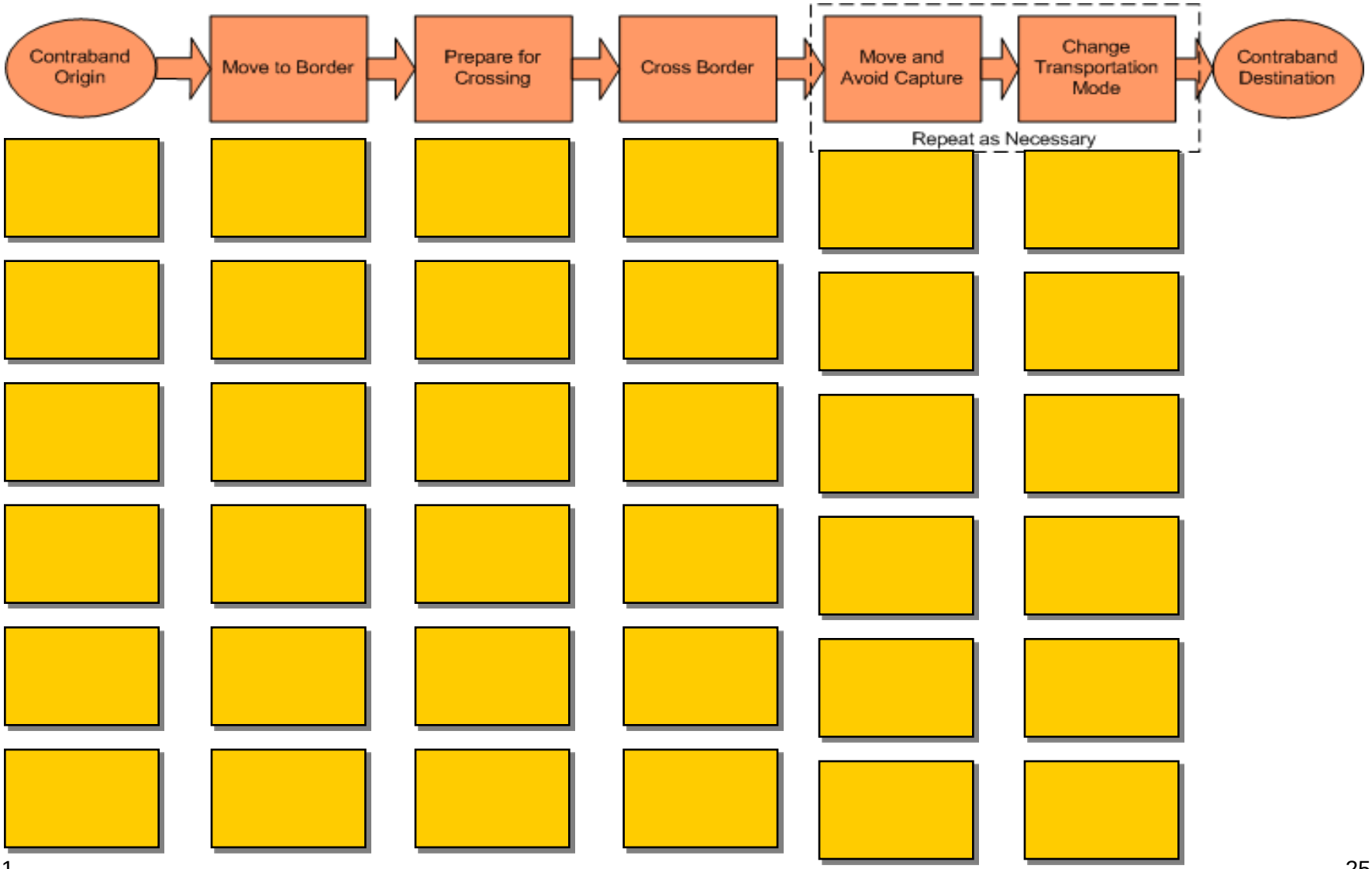
- Mission
  - Analyze the situation given.
  - Develop smuggler and border police force decompositions.
  - Develop a probable solution on securing the border.

Conclusion

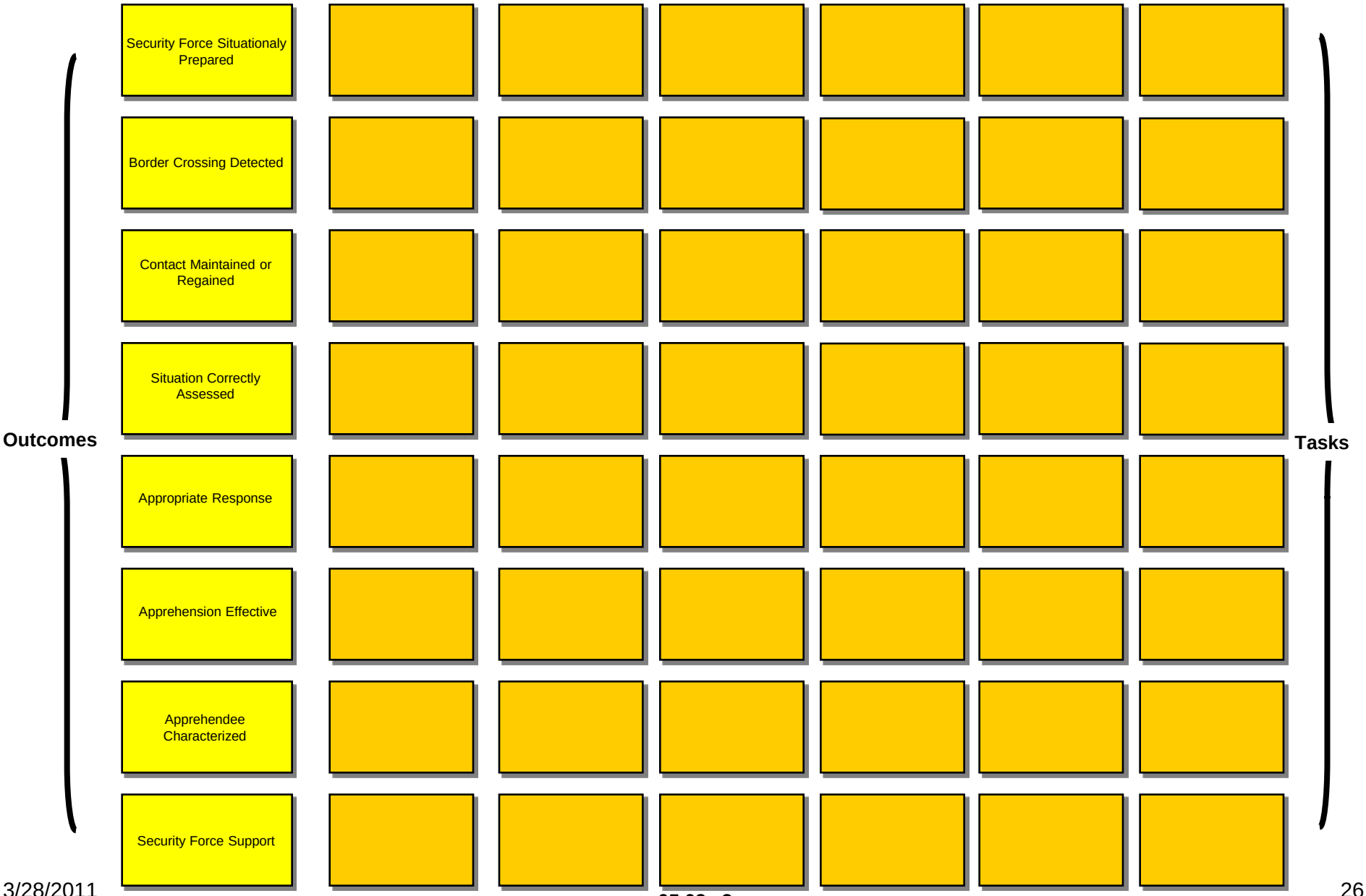
- The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operation.
- Team members must work as an adhesive unit and be able to make decision's that best serves their needs.

Student Handouts

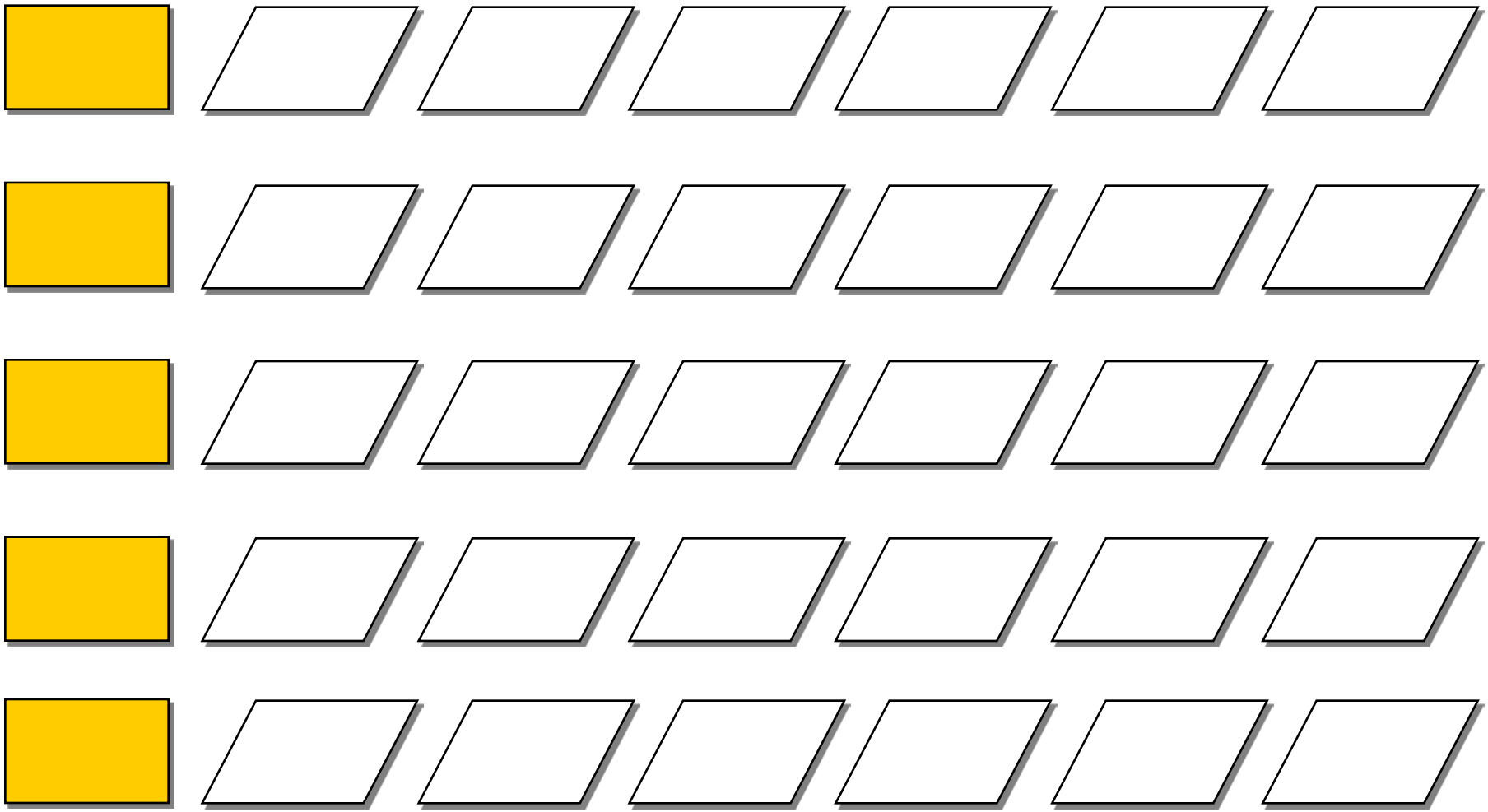
Smuggler Tactics Set Definition



Border Security Task Decomposition



Methods Used to Accomplish Tasks



Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Task Decomposition Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**3.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

/
Prepared by **Date**

/
Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 05.02
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
05.01 Introduction to Exercises

Instructional Goal

05.02.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.02.01 The student will demonstrate Process of Analysis.

05.02.02 The student will demonstrate a Smuggler Assessment.

05.02.03 The student will demonstrate Border Police Tasks Decomposition.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.02
CRITERION TEST

None.

LESSON PLAN 05.02
SKILLS CRITERIA

05.02.01 The student will demonstrate Process of Analysis.

- a. Identify how Terrain / Ground has an effect on the Analysis Process.
- b. Identify how the Smuggler Force has an effect on the Analysis Process.
- c. Identify how stopping the Smuggler Force has an effect on the Analysis Process.

05.02.02 The student will demonstrate a Smuggler Assessment.

- a. Develop Smuggler Assessment.

05.02.03 The student will demonstrate Border Police Tasks Decomposition.

- a. Develop Border Police Tasks Decomposition.

LESSON PLAN 05.02
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors. The role players will be assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the scenario, break into groups.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the scenario.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Only answer the students questions, do not give information unless asked.

LESSON PLAN 05.02
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 05.02.00, 1-23

Handout Materials
Student Handout

References

LESSON PLAN 05.02
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.02 Task Decomposition Exercise **Student Comments**

I. INTRODUCTION

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will conduct smuggler and border police tasks decompositions.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

II. SCENARIO SET UP

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

B. Terrain

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

3. Display area of concern.

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

B. Smuggler Assessment

Think like the Smuggler - put yourself in their position.

1. Identify the <u>What</u>:

   a. What is the contraband?

   b. What is their source - or where are they coming from?

   c. What is their goal or objective - where are they going?

   d. What is their intensity, persistence, and willingness to use lethal force?

2. Smuggler Assessment Template

   The first analysis process is an assessment of the smuggler's methods and capabilities. These steps will be illustrated by examining how they were used in one specific border sector analysis. A template is used to decompose the smugglers actions:

   a. Smugglers need to accomplish several steps in sequence in order to move their contraband – the top level shows these steps on the overhead.

   b. Under each step are a series of tasks that the smuggler could perform to accomplish that step.

   c. The step to move and avoid, as well as the step to change transportation methods could happen multiple times. This model is useful to think through the smugglers capabilities and how he might be accomplishing each task. The model also can help identify protection actions to neutralize particular tasks.

d. Each step has its own breakout page, where the smuggler's capabilities to accomplish each task are defined.

i. This is where you think like a smuggler, and think through the smugglers capabilities and how they might be accomplishing each task.

ii. Identify those tasks associated with Smuggler goal / Objective.

e. The template will be used later to identify protection actions to neutralize particular tasks.

3. Smuggler Situation

a. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

b. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

c. Smugglers will seldom stand and fight. They use deception and blending techniques.

d. Smugglers penetrate at all times there is not specific pattern.

C. Border Police Decomposition

Like with the Smuggler Force we now conduct a Border Police Force step assessments, which identify methods and capabilities. Identify desired outcomes and solutions / tasks for those outcomes.

1. Border Security Task Decomposition

Each of the task boxes was then broken down into the specific methods that could or were employed to accomplish them – this forms a systematic method for understanding the security functions.

In this example, only certain outcomes were important to interdict the smuggler on the specific terrain. The outcomes we want to examine are shown in the yellow boxes. Then the tasks in the orange boxes were examined to determine current effectiveness and see where we can make improvements.

2. Methods Used to Accomplish Tasks

3. Border Police Situation

   a. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

   b. Each fort contains a Captain, 25 men, and two pickup trucks.

   c. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

   d. The Battalion Headquarters has a 12-man response force.

D. Command and Control (C2)

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

E. Assistant Instructors (Role Players) will have Multiple Roles

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

F. Students (CTSD Analyst Officers) Brief / Combine Solutions

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

G. Mission

a. Analyze the situation given.

b. Develop smuggler and border police force decompositions.

c. Develop a probable solution on securing the border.

III. CONCLUSION

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, analyses must be as detailed as possible and updated as needed.

To perform successfully you must understand how to analyze and integrate that information into your patrol, response techniques, tactics and the planning of other operations. Team members must work as an adhesive unit and be able to make decision's that best serves their needs.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Decision Analysis Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**.5 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

/ _____ _____

Prepared by **Date**

/ _____ _____

Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 05.03
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
05.01 Introduction to Exercises
05.02 Task Decomposition Exercise

Instructional Goal

05.03.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.03.01 The student will demonstrate Timing and Decision Analysis.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.03
CRITERION TEST

None.

LESSON PLAN 05.03
SKILLS CRITERIA

05.03.01	The student will demonstrate Timing and Decisional Analysis. a. Identify the four steps to the Timing and Decisional Analysis Loop. b. Identify what the Timing and Decisional Analysis Loop is used for, and why it is important. c. Demonstrate using the Timing and Decisional Analysis Loop solving a Critical Task.	LSPT p. 10-14, II, D, 1-8

LESSON PLAN 05.03
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors. The role players will be assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the scenario, break into groups.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the scenario.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Only answer the students questions, do not give information unless asked.

LESSON PLAN 05.03
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies

Visual Aids
PowerPoint slides, Lesson 05.03.00, 1-25

Handout Materials
Student Handout

References

LESSON PLAN 05.03
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.03 Decision Analysis Exercise **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will perform a timing and decision analysis. The students will understand the time required to make a decision and implement and action – and how to predict it.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

II. SCENARIO SET UP

Overhead 5

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

Overhead 6

B. Terrain

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

Overhead 7

3. Display area of concern.

Overheads 8-9

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

B. Smuggler Situation

Overhead 10

1. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

2. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

3. Smugglers will seldom stand and fight. They use deception and blending techniques.

4. Smugglers penetrate at all times there is not specific pattern.

Overhead 11

C. Border Police Situation

1. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

2. Each fort contains a Captain, 25 men, and two pickup trucks.

3. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

4. The Battalion Headquarters has a 12-man response force.

Overhead 12
LSPT 05.03.01

D. Timing and Decision Analysis

The Observe, Orient, Decide and Act (OODA) Loop looks at all aspects of decision process. Then we can identify ways to accomplish each phase of OODA process. For example;

Subject:
05.03 Decision Analysis Exercise **Instructor Comments**

1. Observe: See or Detect Action

    a. Individual Observations (observation posts, patrols, etc.).

    b. Sensor Inputs (ground sensors, radar, cameras, etc.).

    c. Information from Other Commands (Intel, battalion, other area, etc.).

    Observe unfolding circumstances and gather outside information in order to orient to perceived threats.

2. Orient: Place Observation in Context

    a. Is observation something of interest?

    b. What does it mean?

    c. Based on previous experience and training.

    d. Based on Intel.

3. Decide: Course of Action is Based on...

    a. Goals

    b. Capabilities

    c. Rules of Engagement

    d. Limitations

4. Act: Follow through on your Decision

    a. Start Up Delay

    b. Time to Complete Action

    c. Ask, "If I'm going to take this action, what is the delay involved?"

d. Optimally, the action will be a skill that is so ingrained through training and rehearsal as to involve no thought. It should be seamlessly employed. Utilize training drills and practice scenarios to gain experience.

5. OODA Loop Goals

Overheads 13-14

a. Conduct multiple loops inside the enemy's loop.

b. Stop the opponent reacting to anything that is happening to them.

c. Be prepared to start the decision loop process over again and make modifications based on your opponent's actions.

d. Take specific actions to lengthen the opposition's loop.

i. **Observe**: use camouflage to avoid detection.

ii. **Orientation**: utilize decoys to cause confusion.

iii. **Decisions:** the goal is to make your opponent make the wrong decision.

iv. **Act**: place barriers in key locations.

e. Complete your OODA Loop quicker than the opponents.

Overhead 15

6. Decision Timing Insight

Remember, smugglers and border police have competing OODA loops. While the border police are going through OODA loop, the smuggler (threat) is also going through an OODA loop of their own. The smugglers are observing what you are doing and

adjusting their actions. In knowing this, you must be able to interlink the decision processes.

a. Each person or group is going through the decision process.

b. Remember, each step in the decision process takes time.

7. Increases Chances of Success — Overhead 16

a. OODA cycles create continuous unpredictable change.

b. Team tactics, strategy and supporting structures should be based on the idea of shaping and adapting to this change. And, doing it faster than one's opponent.

c. The opponent's loop can be lengthened by deception, novel actions, or fast transient maneuvering.

d. These isolate the opponent from match reality by destroying his existing mental model and denying him the means to build a new model.

8. Decision Timing Flow — Overhead 17

a. Build a decision flow chart.

b. Determine OODA times at each level.

c. Determine time necessary to communicate between levels.

d. Add times together for each route from initial observation of smuggler through to initiating an action.

e. Decision Timing Tool, Example and Results. — Overhead 19

A model linking the patrol observing the smuggler (shown in green) with there fort (shown in light blue) and the higher headquarters battalion (shown in dark blue) was made to examine the timing from the OODA loop processes at each decision level.

After entering the normal, earliest and latest times from the OODA process at each level it was possible to determine how quickly different responses could be initiated.

Results from the model are shown – if the patrol seeing the smuggler is allowed to make the decision to interdict, it takes about 2-3 minutes. If the decision must be made at the battalion, it can take almost 50 minutes.

This shows the importance of either allowing decisions to be made at the lowest level, perhaps with pre-authorized standard procedures and rules of engagement, or providing technology such as a common operational picture to the higher levels in order to speed their decision process.

E. Command and Control (C2) Overhead 20

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

F. Assistant Instructors (Role Players) will have Multiple Roles

Overhead 21

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

G. Students (CTSD Analyst Officers) Brief / Combine Solutions

Overhead 22

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

H. Mission

Overhead 23

a. Analyze the situation given.

b. To develop an understanding of the decision process and how it works.

c. Develop a probable solution on securing the border.

III. CONCLUSION

Overhead 25

Decision to interdict should be made at lowest possible level. Remember, each additional level involved in the decision process adds delay to the response. Competitive advantage comes from quickness over the entire “loop”, not just or even primarily from the O-to-O-to-D-to-A sequence.

DECISION ANALYSIS EXERCISE - LSPT #05.03		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to terrain analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand timing and decision analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
05.03.00		**DECISION ANALYSIS EXERCISE**	**PASS**	**FAIL**	**PASS**	**FAIL**
05.03.01		The student will demonstrate Timing and Decision Analysis.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

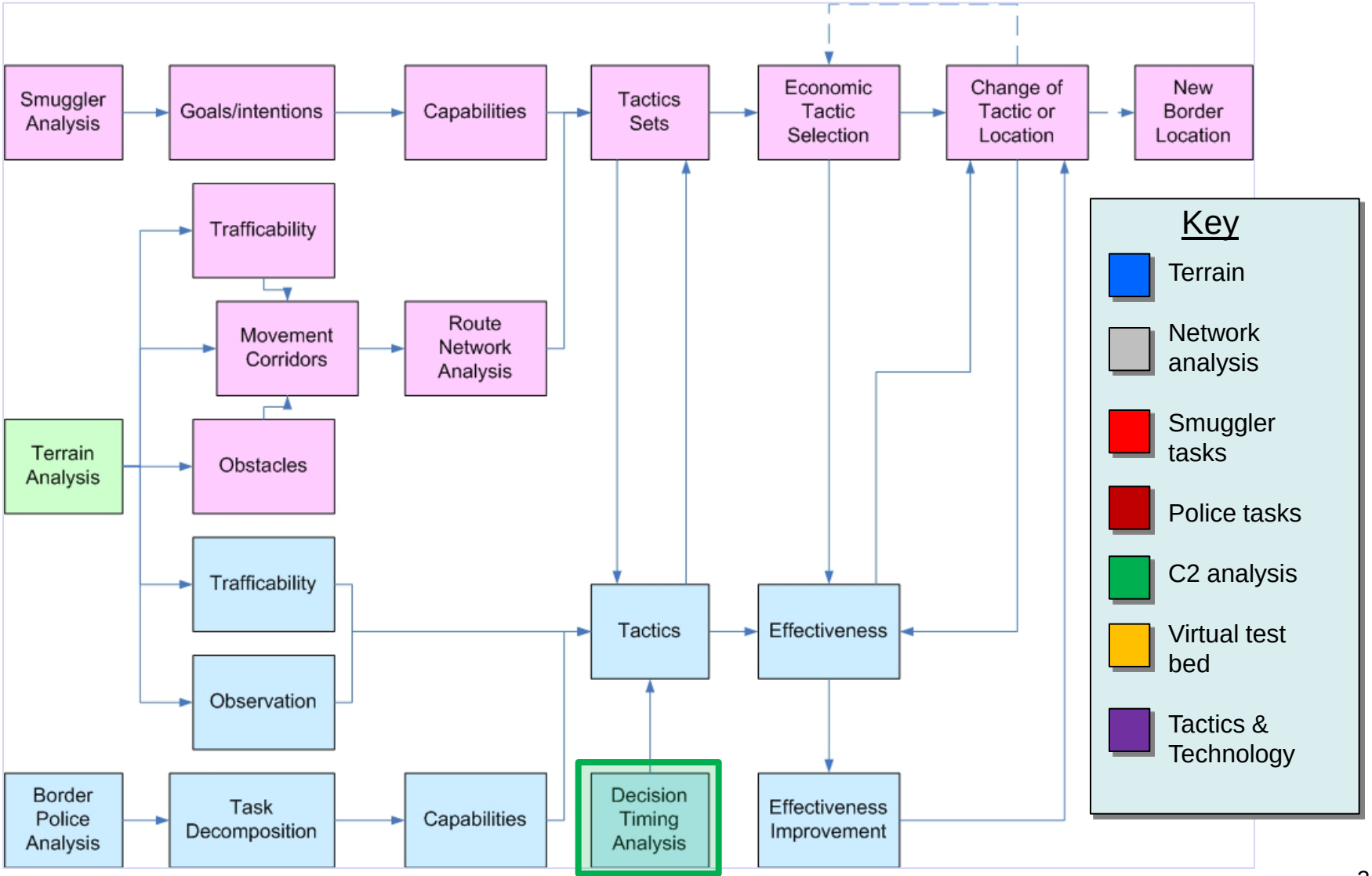
Comments:

Counter-Trafficking System Development
Module 5
Decision Analysis Exercise

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - Demonstrate Process of Analysis.
  - Demonstrate Smuggler Assessment.
  - Demonstrate Border Police Tasks Decomposition.
  - Timing and Decision Analysis.

Timing & Decision Analysis



05.03 v1

Introduction

- This lesson will prepare the students for analyzing a border security problem on their own.
- The students will understand the time required to make a decision and implement and action – and how to predict it.
- The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Form Exercise Analysis Teams

- Break into analysis groups under control of an assistant instructor.

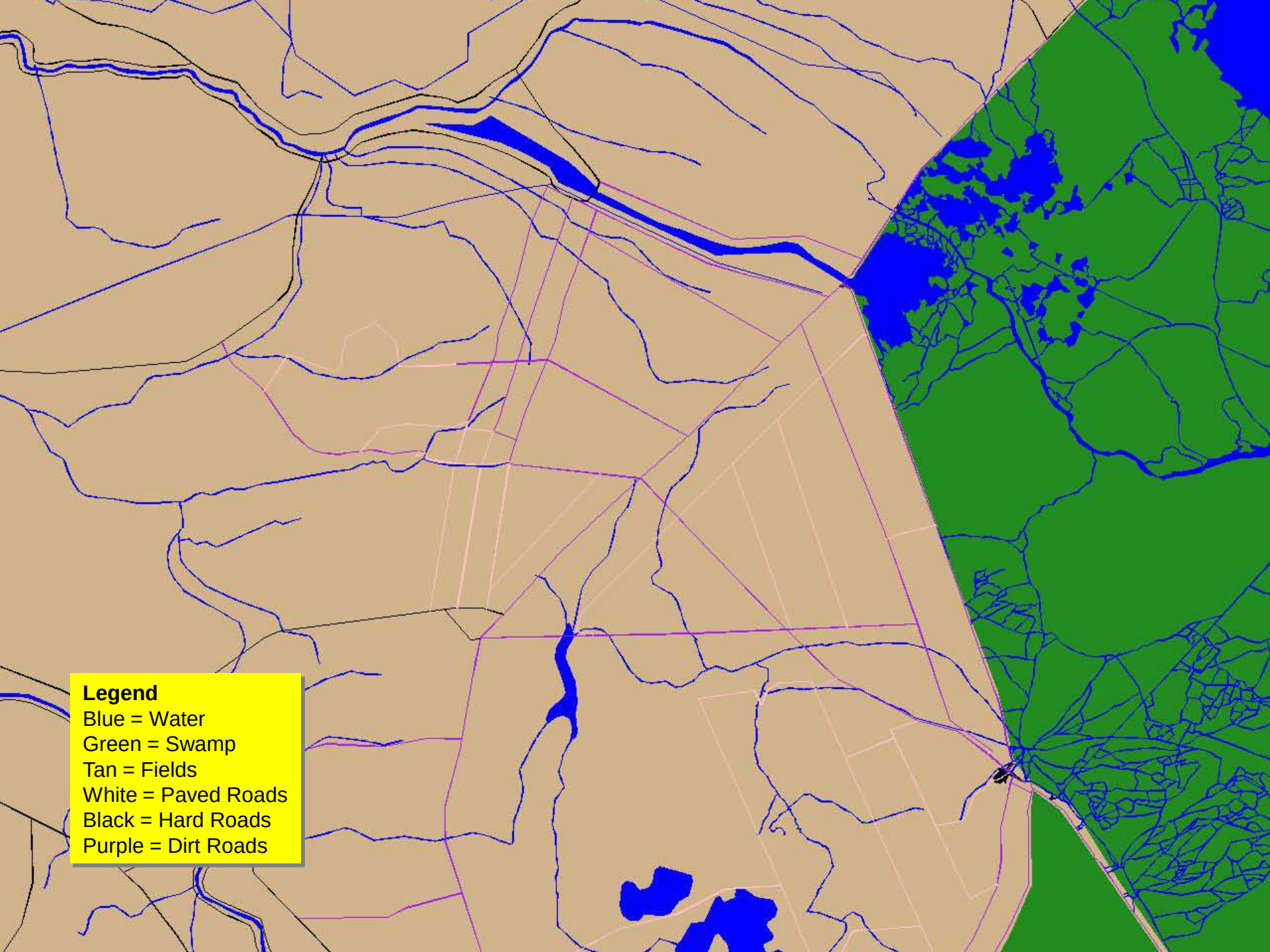
Scenario

- Terrain
  - Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.
  - The border police had virtually no capability to observe or interdict within the marsh.

Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
  - The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.


Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

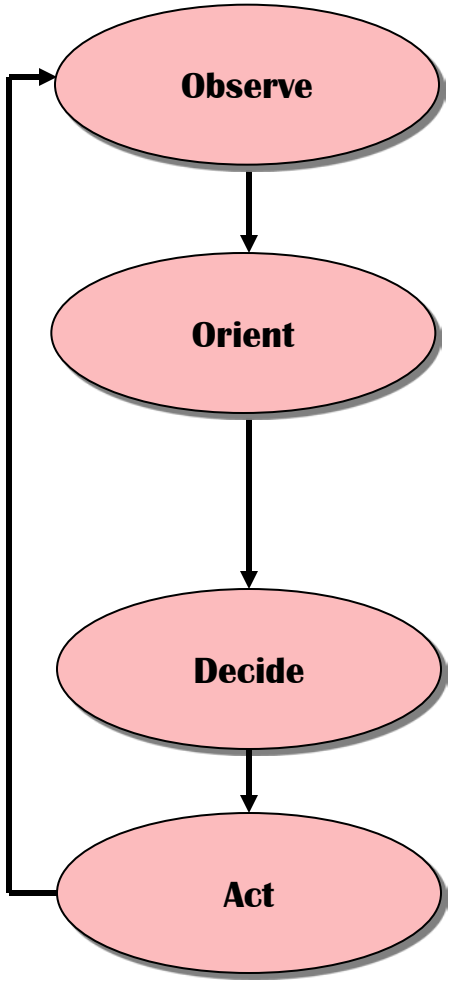
Scenario, cont.

- Smuggler Situation
  - Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.
  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
  - Smugglers will seldom stand and fight. They use deception and blending techniques.
  - Smugglers penetrate at all times there is not specific pattern.

Scenario, cont.

- Border Police Situation
  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

OODA Loop Components & Interactions

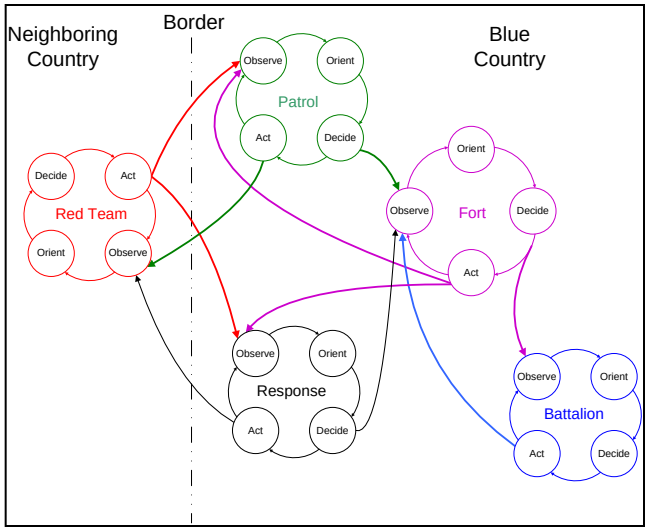


See or detect action
- Individual Observations (observation posts, patrol, etc.)
- Sensor Inputs (ground sensors, radar, cameras, etc.)
- Information from Other Commands (intel, battalion, other areas, etc.)

Place observation in context
- Is observation something of interest
- What does it mean
- Based on previous experience
- Based on intell

Decide on course of action
- Goals
- Capabilities
- Rules of Engagement

Take action
- Startup Delay
- Time to Complete Action



Decision timing impacts response effectiveness

Interlinking decision processes- each person or group involved is going through the decision process

What are the OODA Loop Goals?

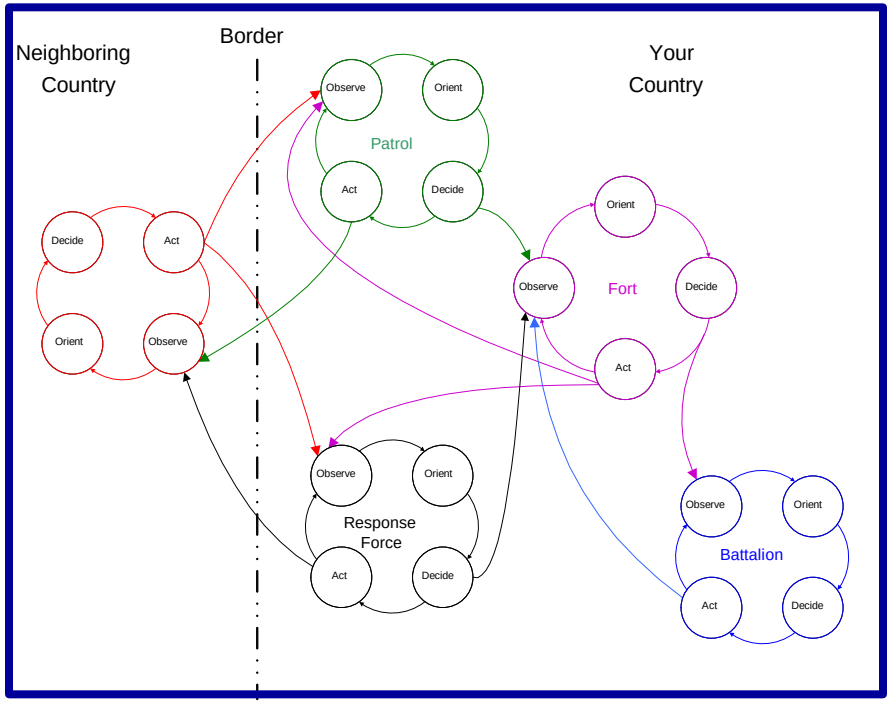
- Conduct multiple loops inside the enemy's loop.
- Stop the opponent reacting to anything that is happening to them.
- Be prepared to start the decision loop process over again and make modifications based on your opponent's actions.

What are the OODA Loop Goals?

- Take specific actions to lengthen the opposition's loop.
  - **Observe**: use camouflage to avoid detection.
  - **Orientation**: utilize decoys to cause confusion.
  - **Decisions**: the goal is to make your opponent make the wrong decision.
  - **Act**: place barriers in key locations.
- Complete your OODA Loop quicker than the opponents.

Decision Timing Insight

- Interlinking decision processes
  - Each person or group is going through the decision process
  - Each step in the decision process takes time

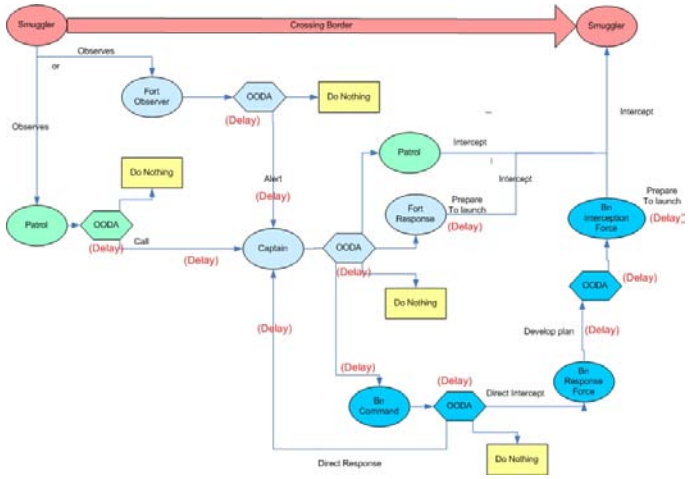


Increases Chances of Success

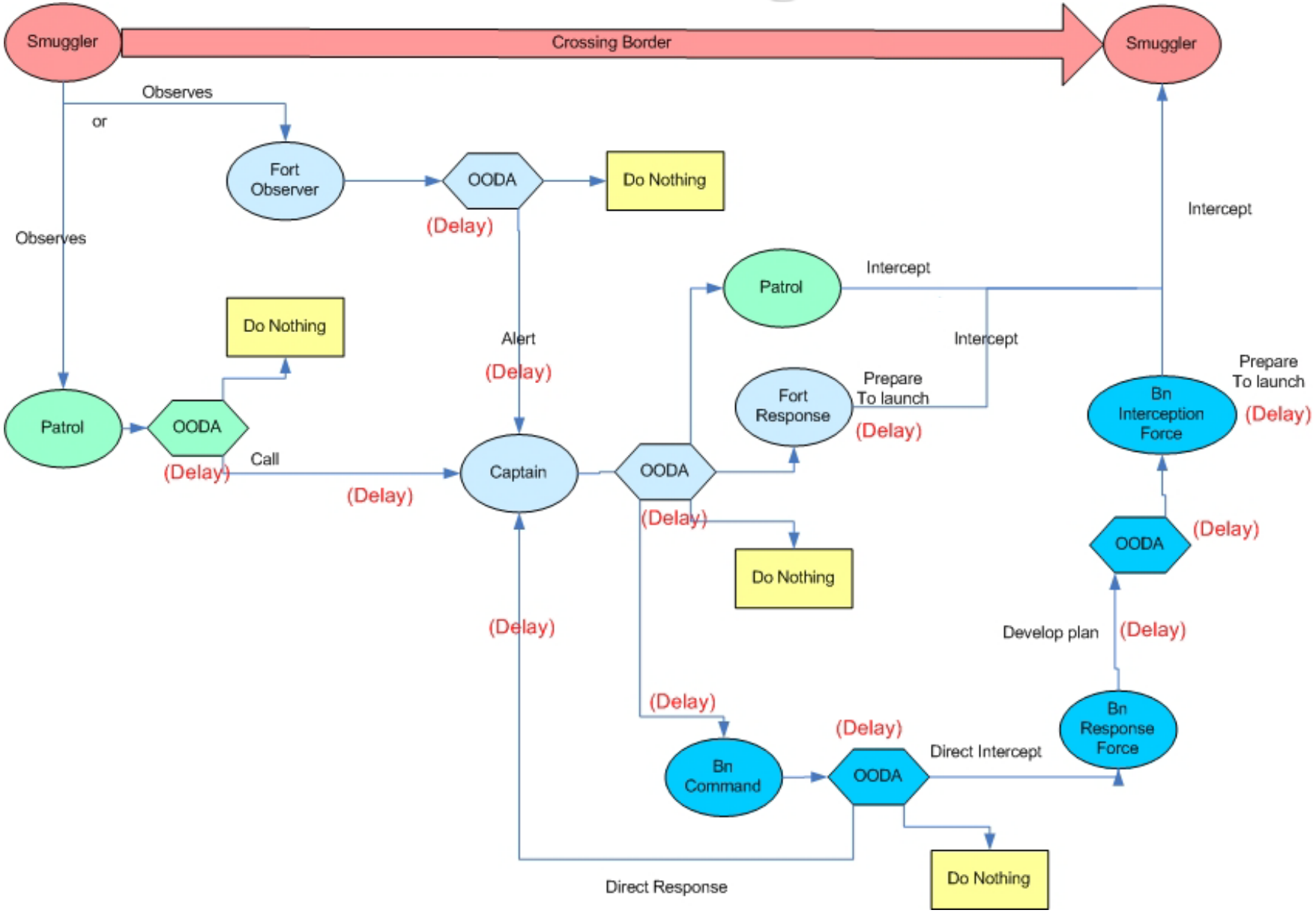
- OODA cycles create continuous unpredictable change.
  - Team tactics, strategy and supporting structures should be based on the idea of shaping and adapting to this change.
  - And, doing it faster than one's opponent.
- The opponent's loop can be lengthened by deception, novel actions or fast transient maneuvering.
  - These isolate the opponent from match reality by destroying his existing mental model and denying him the means to build a new model.

Calculating Decision Timing

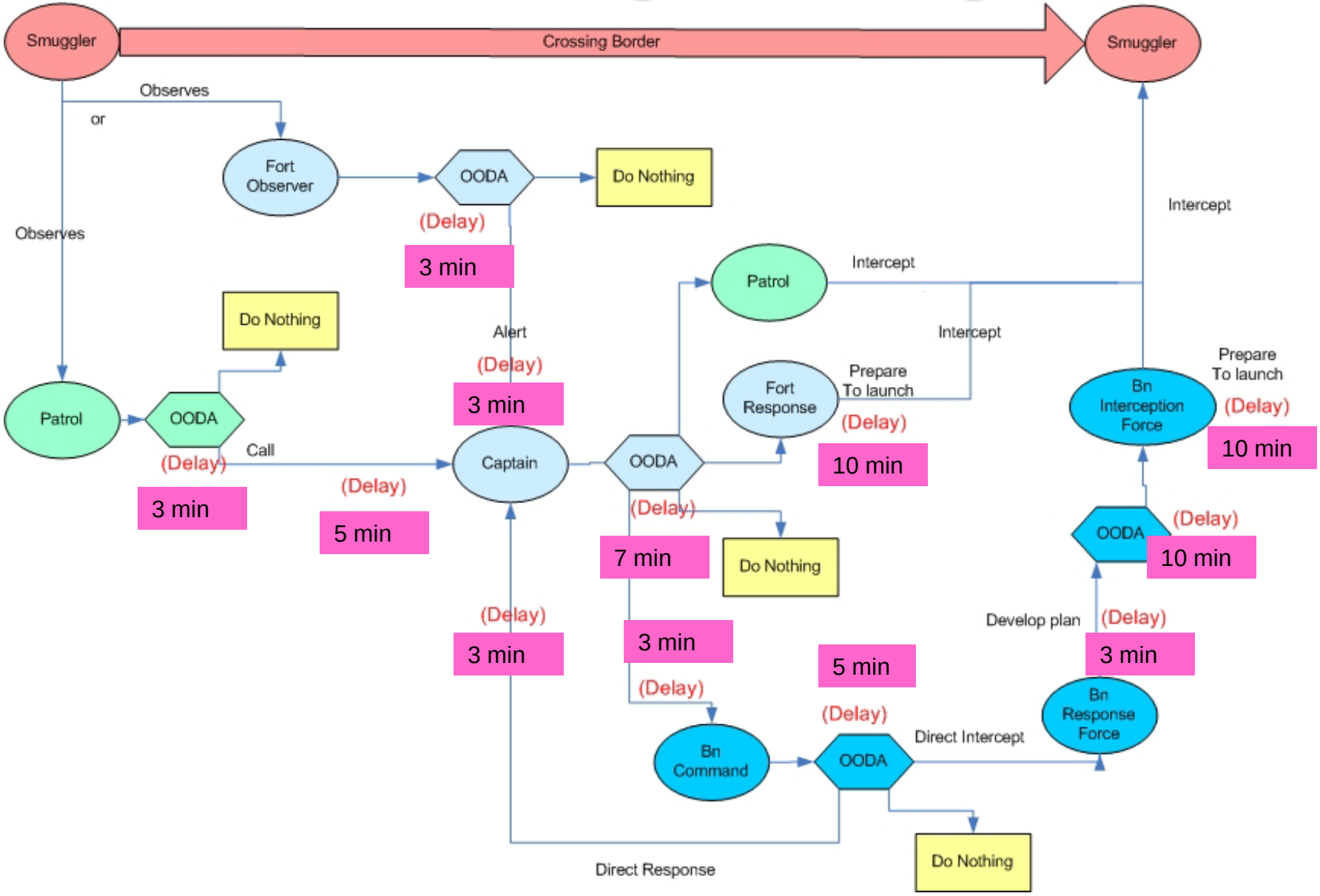
- Build a decision flow chart.
- Determine OODA times at each level.
- Determine time necessary to communicate between levels.
- Add times together for each route from initial observation of smuggler through to initiating an action.



Decision Timing Tool



Decision Timing Tool Example



Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
  - Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.
  - Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Scenario Set Up, cont.

- Assistant Instructors will have multiple roles
  - Will play the role of a local border police officer.
  - Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.
  - Will advise the student group.

Student Brief / Combine Solutions

- In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Exercise

- Mission
  - Analyze the situation given.
  - To develop an understanding of the decision process and how it works.
  - Develop a probable solution on securing the border.

Conclusion

- Decision to interdict should be made at lowest possible level. Remember, each additional level involved in the decision process adds delay to the response. Competitive advantage comes from quickness over the entire “Loop”, not just or even primarily from the O-to-O-to-D-to-A sequence.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Terrain Analysis Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**3.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

_____ /_____ _____
Prepared by **Date**

_____ /_____ _____
Approved by **Date**

Review Schedule:	
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:	
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 05.04
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
03.01 Terrain Analysis
05.01 Introduction to Exercises
05.02 Task Decomposition Exercise
05.03 Decision Analysis Exercise

Instructional Goal

05.04.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.04.01 The student will demonstrate making a Decision Support Template.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.04
CRITERION TEST

None.

LESSON PLAN 05.04
SKILLS CRITERIA

05.04.01	The student will demonstrate making a Decision Support Template. a. Step 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development b. Step 2 - Smuggler Situation Template Overlay Development c. Step 3 - Targeted Area of Interest Overlay Development d. Step 4 - Friendly Course of Action Overlay Development	LSPT p. 10-11, II, C, 1-4

LESSON PLAN 05.04
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the exercise.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the exercise.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Answer the student questions.

LESSON PLAN 05.04
COURSE MATERIALS and REFERENCES

Materials
Classroom
Computer
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
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Transparencies

Visual Aids
PowerPoint slides, Lesson 05.04.00, 1-22

Handout Materials
Student Handout

References

LESSON PLAN 05.04
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.04 Terrain Analysis Exercise **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will conduct a terrain analysis and make a decision support template.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

II. SCENARIO SET UP

Overhead 5

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

B. Terrain

Overhead 6

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

3. Display area of concern.

Overhead 7

4. The terrain is essentially flat, with no hills.

Overheads 8-9

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

C. Terrain Analysis

LSPT 05.04.01

The development of a decision support template uses products developed throughout the entire planning process. It is not something that is exclusively done after the plan is developed. The goal is to use products that are previously developed during the planning process and create a useful tool that can help the commander make decisions at critical points on the area of operations.

Overhead 10

1. Step No. 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development.

Overhead 11

   a. The first step in the development of the Decision Support Template is the development of the modified combined obstacles overlay.

   b. Here you have a map of Area of Operations, you then identify aspects of the terrain, including weather effects on clear overlays one at a time. Trace these areas on the overlay that is placed over the map.

2. Step No. 2 - Smuggler Situation Template Overlay Development.

Overhead 12

   a. Time may preclude the development of multiple smugglers course of actions, but at least two most probable courses of actions should be considered.

   b. The local police units and border agents should combine knowledge of past smugglers course of actions as they develop the smuggler course of actions.

   c. Each course of actions should be on a separate sheet.

3. Step No. 3 - Targeted Area of Interest Overlay Development.

   a. The addition of targeted areas of interest is the next step of the decision support template development process.

   b. As the commander develops each enemy course of actions, they must identify those locations and events where the smuggler may utilize potential high value access/egress routes. These areas become targeted areas of interest and are marked on each individual course of action.

Overhead 13

4. Step No. 4 - Friendly Course of Action Overlay Development.

   a. The staff develops border patrol course of actions based on the commander's guidance and the facts and assumptions identified during intelligence planning process and mission analysis.

   b. The commander's role in border patrols course of action development is to ensure that each border patrol course of action takes advantage of the opportunities that are offered by the environment.

Overhead 14

D. Smuggler Situation

Overhead 15

1. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

2. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

3. Smugglers will seldom stand and fight. They use deception and blending techniques.

4. Smugglers penetrate at all times there is not specific pattern.

E. Border Police Situation — Overhead 16

1. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

2. Each fort contains a Captain, 25 men, and two pickup trucks.

3. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

4. The Battalion Headquarters has a 12-man response force.

F. Command and Control (C2) — Overhead 17

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

G. Assistant Instructors (Role Players) will have Multiple Roles — Overhead 18

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

H. Students (CTSD Analyst Officers) Brief / Combine Solutions — Overhead 19

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

I. Mission — Overhead 20

a. Analyze the situation given.

b. Develop a decision support template.

III. CONCLUSION

Overhead 21

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

TERRAIN ANALYSIS EXERCISE - LSPT #05.04		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to terrain analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand terrain analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
05.04.00		**TERRAIN ANALYSIS EXERCISE**	**PASS**	**FAIL**	**PASS**	**FAIL**
05.04.01		The student will demonstrate making a Decision Support Template.				

This LSPT is based on Mission Essential Task List.

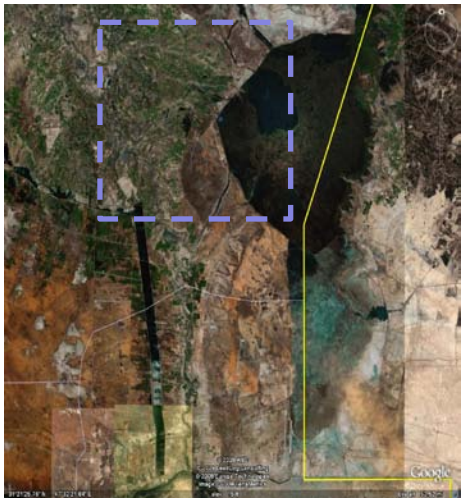
Recommend student be referred to Training & Development for further remediation…… ☐

Comments:

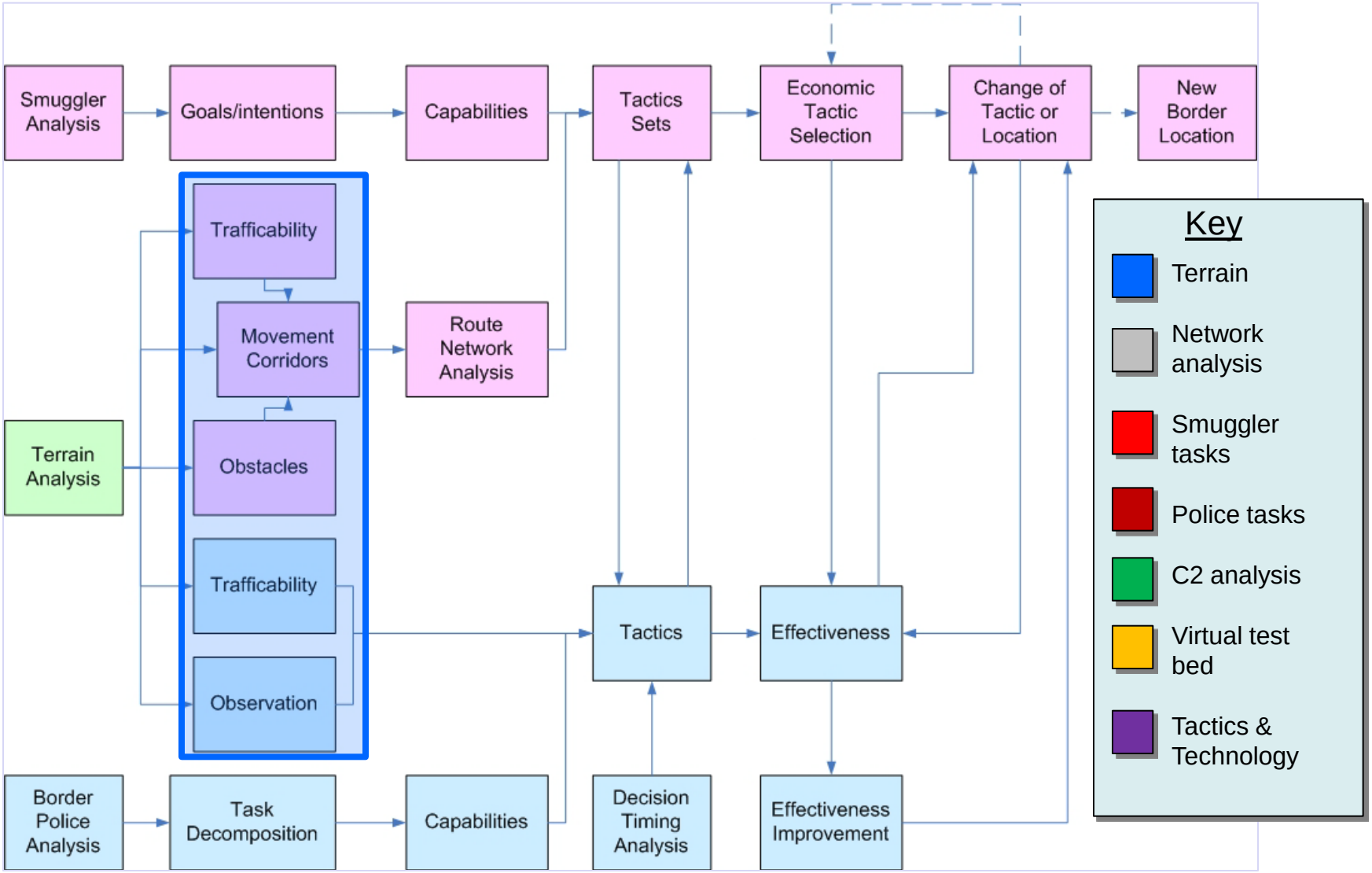
Counter-Trafficking System Development
Module 5
Terrain Analysis Exercise

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - Process of Analysis
  - Smuggler Assessment
  - Border Police Task Decomposition
  - Timing and Decision Analysis
  - Terrain Analysis
  - Introduction to Exercises
  - Task Decomposition Exercise
  - Decision Analysis Exercise



Development - Terrain Analysis



Introduction

- This lesson will prepare the students for analyzing a border security problem on their own.
- The students will demonstrate making a decision support template.
- The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Form Exercise Analysis Teams

- Break into analysis groups under control of an assistant instructor.

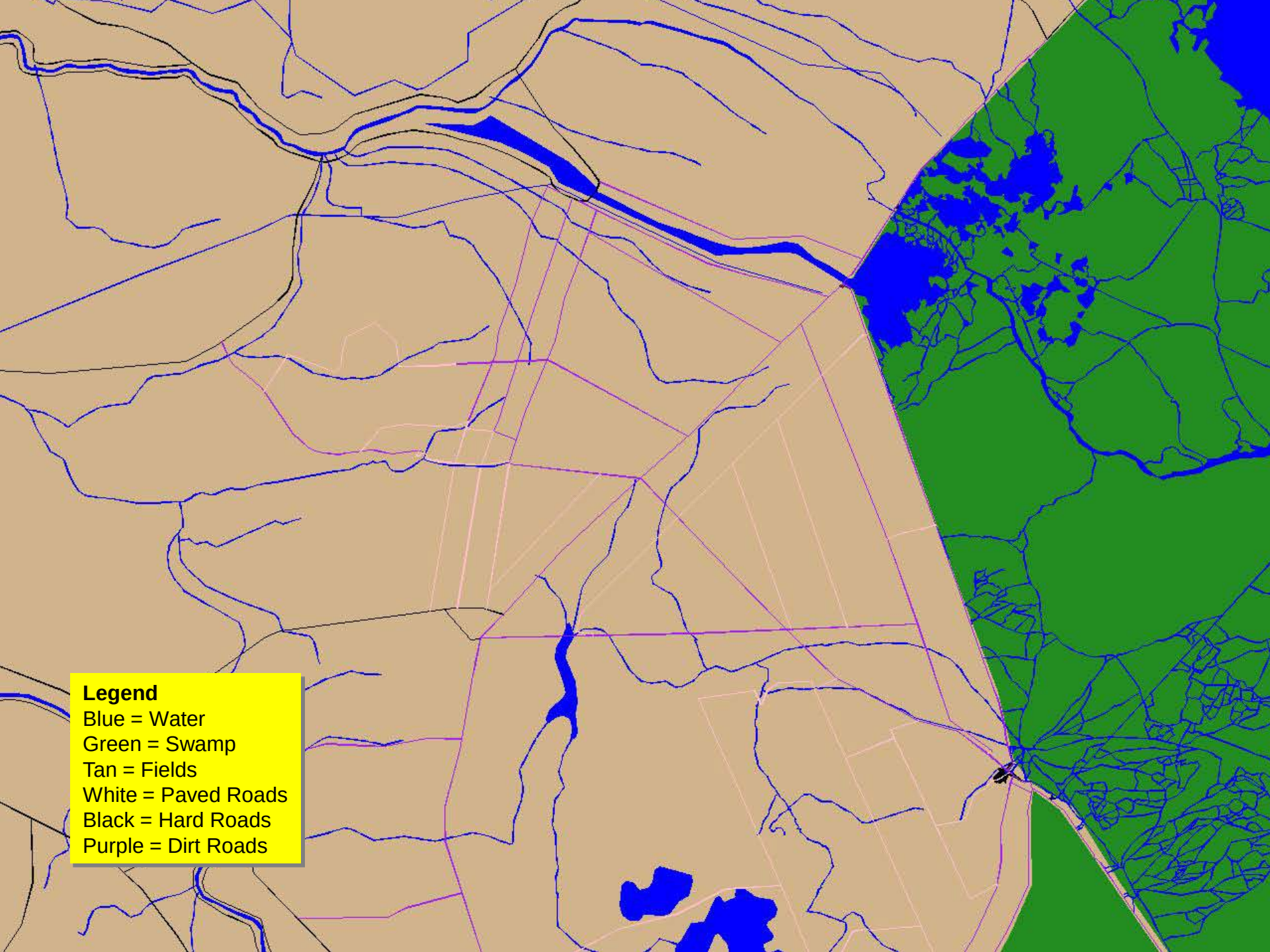
Scenario

- Terrain
  - Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.
  - The border police had virtually no capability to observe or interdict within the marsh.

Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
  - The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

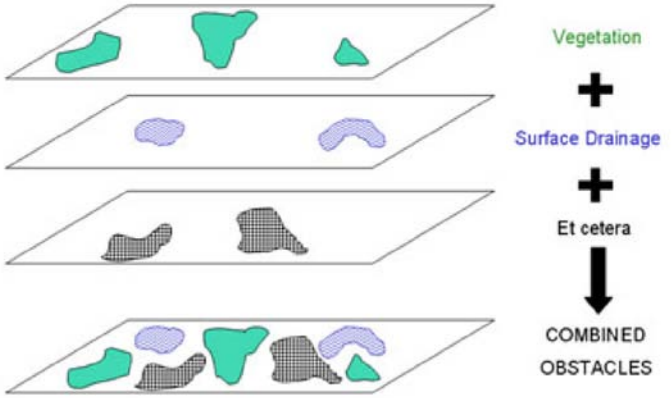

Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

Decision Support Template Four Steps

- Step 1 - Modified Combined Obstacle Overlay/Avenue of Approach Overlay Development.
- Step 2 - Smuggler Situation Template Overlay Development.
- Step 3 - Targeted Area of Interest Overlay Development.
- Step 4 - Friendly Course of Action Overlay Development.

Step 1 Modified Comb Obstacle Overlay

- The first step in the development of the Decision Support Template is the development of the modified combined obstacles overlay.
- Here you have a map of Area of Operations, you then identify aspects of the terrain, including weather effects on clear overlays one at a time. Trace these areas on the overlay that is placed over the map.



Step 2 Smuggler Situation Overlay

- Time may preclude the development of multiple smugglers course of actions, but at least two most probable course of actions should be considered.
- The local police units and border agents should combine knowledge of past smugglers course of actions as they develop the smuggler course of actions.
- Each course of actions should be on a separate sheet.

Step 3 Target Area of Interest

- The addition of targeted areas of interest is the next step of the decision support template development process.
- As the commander develops each enemy course of actions, they must identify those locations and events where the smuggler may utilize potential high value access/egress routes. These areas become targeted areas of interest and are marked on each individual course of action.

Step 4 Border Security Course of Action

- The staff develops border patrol course of actions based on the commander's guidance and the facts and assumptions identified during intelligence planning process and mission analysis.
- The commander's role in border patrols course of action development is to ensure that each border patrol course of action takes advantage of the opportunities that are offered by the environment.

Scenario, cont.

- Smuggler Situation
  - Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.
  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
  - Smugglers will seldom stand and fight. They use deception and blending techniques.
  - Smugglers penetrate at all times there is not specific pattern.

Scenario, cont.

- Border Police Situation
  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
  - Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.
  - Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Scenario Set Up, cont.

- Assistant Instructors will have multiple roles
  - Will play the role of a local border police officer.
  - Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.
  - Will advise the student group.

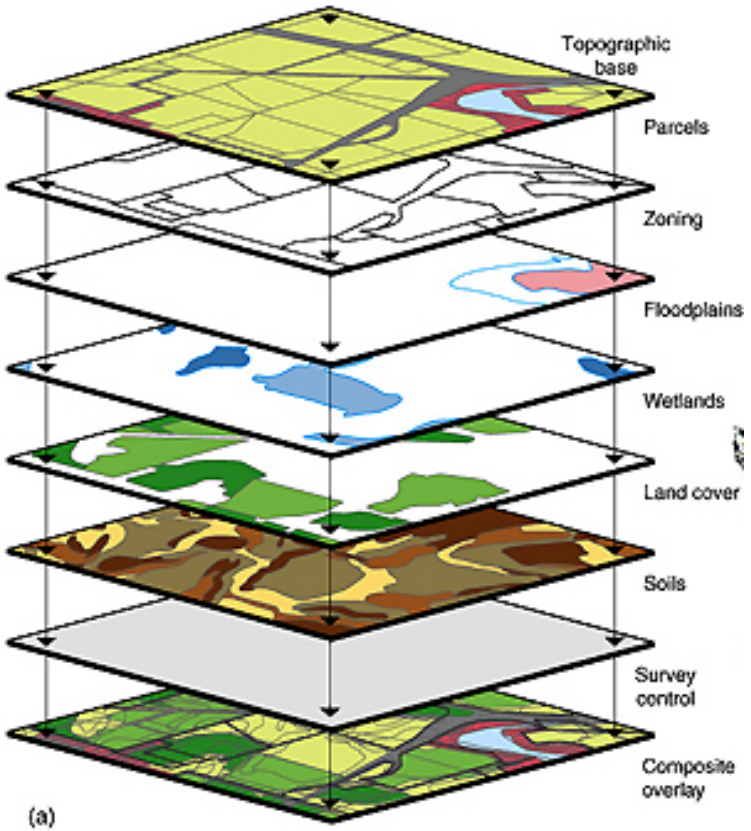
Student Brief / Combine Solutions

- In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Exercise

- Mission
  - Analyze the situation given.
  - Develop a decision support template.



Conclusion

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Zone and Route Network Analysis Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**1.0 Hour**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

/ _____ _____

Prepared by **Date**

/ _____ _____

Approved by **Date**

Review Schedule:	
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:	
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 05.05
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
03.01 Terrain Analysis
03.02 Zone and Route Network Analysis
05.01 Introduction to Exercises
05.02 Task Decomposition Exercise
05.03 Decision Analysis Exercise
05.04 Terrain Analysis Exercise

Instructional Goal

05.05.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.05.01 The student will demonstrate a Zone and Route Network Analysis.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.05
CRITERION TEST

None.

LESSON PLAN 05.05
SKILLS CRITERIA

05.05.01	The student will demonstrate a Zone and Route Network Analysis. Manual Network Analysis Process a. Label each intersection, entry point and exit point. b. Document each possible route, from entry point to exit point. c. Using a map or GPS, calculate the distance between each road intersection. d. Based on road or path conditions, assign an average speed to each segment. e. Determine each route through the network. f. Calculate total distance of each route. g. Calculate total time required to travel each route. h. Predict smuggler routes, based on time, distance or speed. Excel Route Network Tool a. Calibrate Map b. Edit the Network c. Set Edge/Segment Parameters d. Set Node Parameters e. Generate Statistics - Simulate Runs f. Path Optimization	LSPT p. 10-14, II, F, 1-6

LESSON PLAN 05.05
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the exercise.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the exercise.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Answer the student questions.

LESSON PLAN 05.05
COURSE MATERIALS and REFERENCES

Materials
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Excel Route Networking Tool Applications

Visual Aids
PowerPoint slides, Lesson 05.05.00, 1-25

Handout Materials
Student Handout
Zone and Route Network Analysis Tool Manual

References

LESSON PLAN 05.05
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.05 Zone/Route Network Analysis Exercise **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will conduct a zone and route network analysis. With this analysis you will examine how the smuggler could use the terrain to travel to their destination (routes & timing). Understanding this allows the border police to establish interdictions.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Overhead 5

II. SCENARIO SET UP

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

Overhead 6

B. Terrain

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

Overhead 7

3. Display area of concern.

Overheads 8-9

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

D. Smuggler Situation

Overhead 10

1. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

2. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

3. Smugglers will seldom stand and fight. They use deception and blending techniques.

4. Smugglers penetrate at all times there is not specific pattern.

E. Border Police Situation

Overhead 11

1. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

2. Each fort contains a Captain, 25 men, and two pickup trucks.

3. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

4. The Battalion Headquarters has a 12-man response force.

F. Zone and Route Network Analysis

Overhead 12
LSPT 05.05.01

This analysis determines the most likely smuggler avenues and locations for interdiction. What will the smuggler do and where will he go? Where will the border police detect the smuggler? How will the border police control the interdiction?

Subject:
05.05 Zone/Route Network Analysis Exercise **Instructor Comments**

1. Zone Analysis Process

Overhead 13

   a. The objective is to determine the area in which the smuggler must be at any specific time, based on their speed and travel time. These are dependent on mode of travel, contraband, time and weather.

   b. A set of time-based zones can be defined to display this.

   c. These zones are the search areas for the Border Police – with the area expanding as time goes by.

   d. If the breach location is known, the zones are established with a set of arcs (see example). Each zone should have a land feature identifier and/or call name.

   e. If the border breach location is not known, the zones are represented by a series of lines parallel to the border – where the smuggler could have traveled in 5 minutes, 10 minutes, etc. As with above, each zone should have a land feature identifier and/or call name.

Overhead 14

2. Zone Analysis Utility

   Zone Analysis can be used to develop countermeasures and improve frontier capture rates.

   a. Exit points are frequently locations where smugglers can blend and then merge into the next zone.

   b. How long will it take a smuggler to reach the exit point?

   c. Can the Border Police respond in time to interdict before the smuggler vanishes?

3. Manual Route Network Analysis

Overhead 15

Network analysis is most useful in areas where movement is constrained to roads, pathways and mobility corridors. Using the results of terrain analysis, identify and manually plot:

a. Mobility Corridors

b. Roads

c. Paths

d. Intersections

e. Entry and Exit Points

4. Manual Route Network Analysis Process

Overhead 16

Follow a step-by-step manual process to:

a. Label each intersection, entry point and exit point.

b. Document each possible route, from entry point to exit point.

c. Using a map or GPS, calculate the distance between each road intersection.

d. Based on road or path conditions, assign an average speed to each segment.

   i. AB = Fast: 55km

   ii. BD = Medium: 30km

   iii. DF = Slow

Overhead 17

e. Determine each route through the network.

f. Calculate total distance of each route.

g. Calculate total time required to travel each route. Remember, these are dependent on mode of travel, contraband, time and weather.

h. Predict smuggler routes, based on time, distance or speed.

i. Example 1

Routes A, B, D, G, I, and K is a combined distance of 57kms, and has an estimated travel time of 2 hours, 28 minutes.

ii. Example 2

Routes A, C, E, H, G, I, and K is a combined distance of 49kms and has an estimated travel time of 1 hour, 14 minutes.

Overhead 18

5. Excel Route Networking Tool

The Excel Networking tool automates a time consuming manual process.

a. Allows users to highlight primary entrance and exit points.

b. Identifies most frequently used routes.

c. Calculates the length of time to transverse routes, factoring variables such as visibility, road conditions, and means of travel.

d. Allows users to manipulate results by adding roadblocks and barriers

Overhead 19

6. Excel Route Networking Tool Overview

a. Map Calibration

b. Nodes

i. Source

ii. Target

iii. Exit

c. Edit the Network

i. Set Arc Parameters

ii. Set Node Parameters

d. Simulate Runs

i. Minimize Option

ii. Generate Statistics

e. Analyze Results

Overhead 20

G. Command and Control (C2)

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Overhead 21

H. Assistant Instructors (Role Players) will have Multiple Roles

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

I. Students (CTSD Analyst Officers) Brief / Combine Solutions — Overhead 22

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

J. Mission — Overhead 23

a. Analyze the situation given.

b. Use zone analysis, the manual network analysis process and the excel route networking tool for a solution.

III. CONCLUSION

Overhead 24

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

ZONE AND ROUTE NETWORK ANALYSIS EXERCISE - LSPT #05.05		DATE:
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to terrain analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand zone and route network analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	MOA	DESCRIPTION			REMEDIAL	
05.05.00		**ZONE AND ROUTE NETWORK ANALYSIS EXERCISE**	**PASS**	**FAIL**	**PASS**	**FAIL**
05.05.01		The student will demonstrate a Zone and Route Network Analysis.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

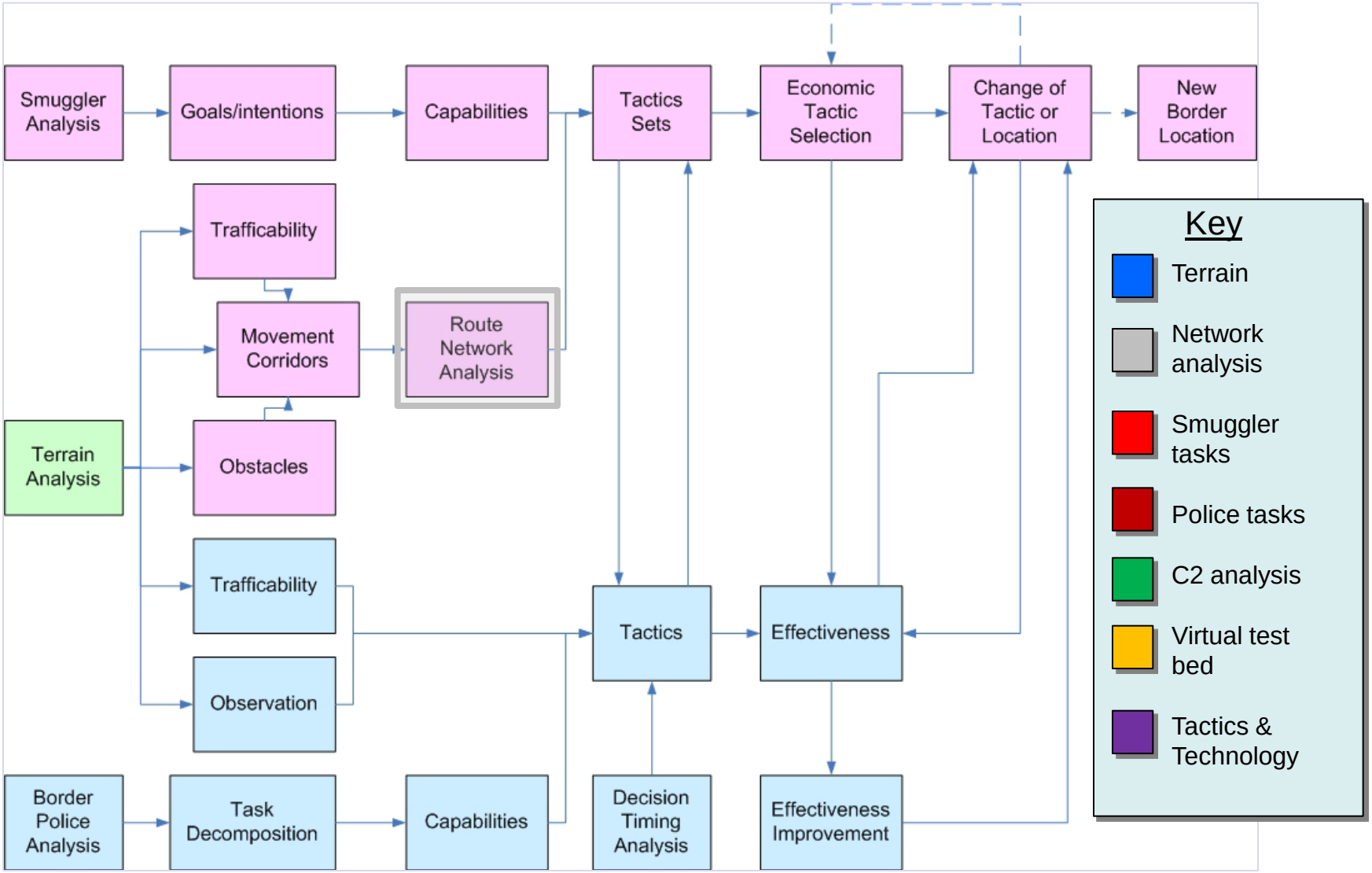
Comments:

Counter-Trafficking System Development
Module 5
Zone & Route Network Analysis Exercise

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - Process of Analysis
  - Smuggler Assessment
  - Border Police Task Decomposition
  - Timing and Decision Analysis
  - Terrain Analysis
  - Zone & Route Network Analysis
  - Introduction to Exercises
  - Task Decomposition Exercise
  - Decision Analysis Exercise
  - Terrain Analysis Exercise

Zone and Route Network Analysis



Introduction

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- Break into analysis groups under control of an assistant instructor.

Scenario

- Terrain
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Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
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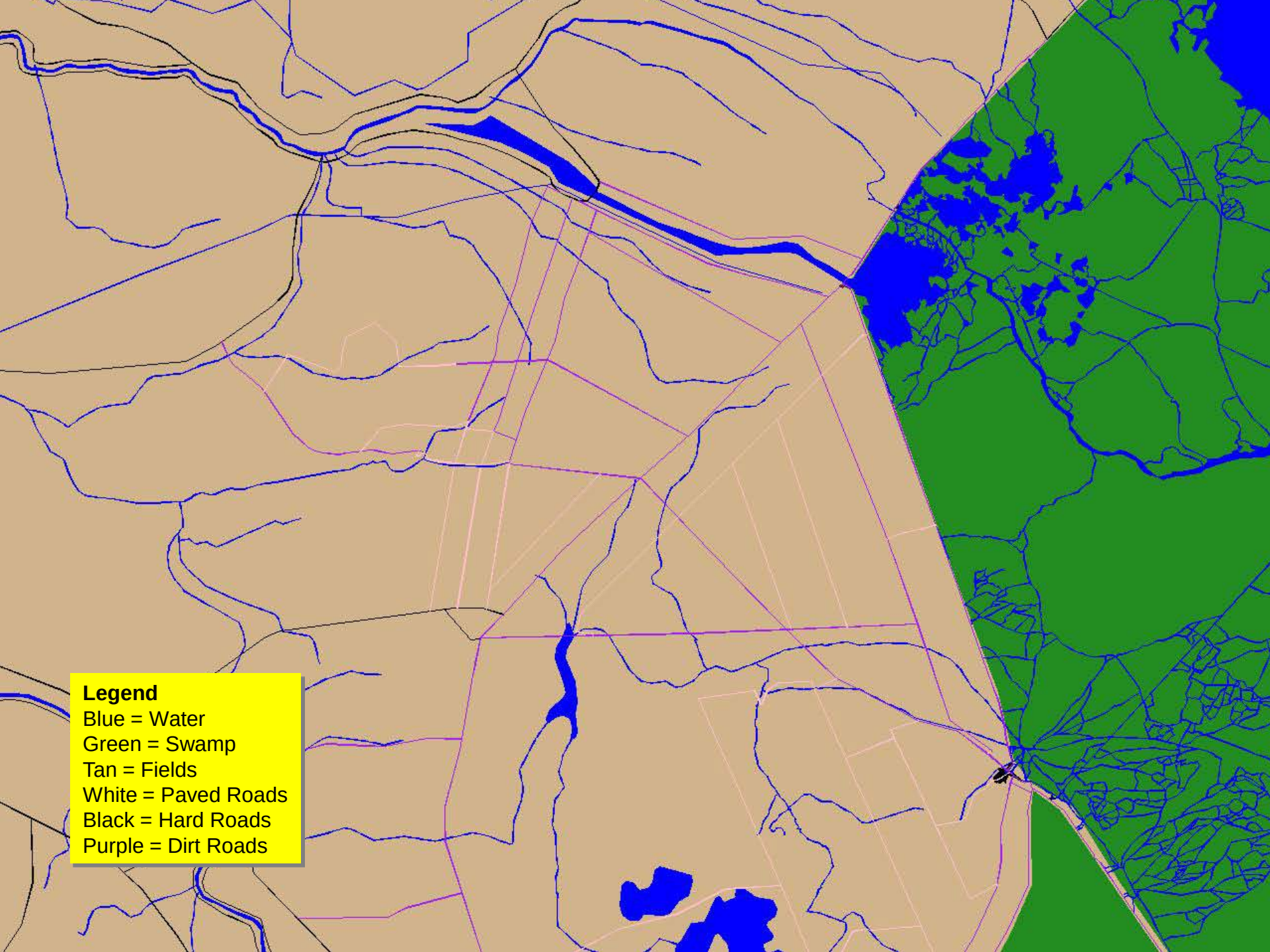
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Scenario, cont.

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  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
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  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

Zone and Route Network Analysis Outcomes

- This analysis determines the most likely smuggler avenues and locations for interdiction:
  - What will the smuggler do and where will he go?
  - Where will the border police detect the smuggler?
  - How will the border police control the interdiction?

Zone Analysis Process

- The objective is to determine the area in which the smuggler must be at any specific time, based on his speed and travel time.
- A set of time-based zones can be defined to display this.
- These zones are the search areas for the Border Police – with the area expanding as time goes by.
- If the breach location is known, the zones are established with a set of arcs (see example).
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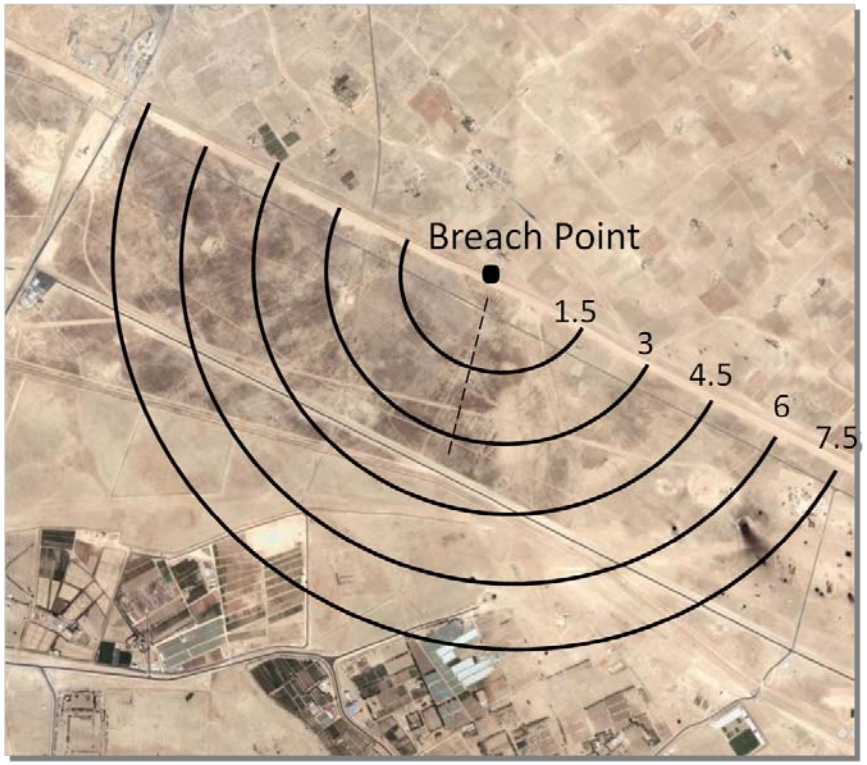

Zone Analysis Utility

- Zone Analysis can be used to develop countermeasures and improve frontier capture rates.
  - Exit points are frequently locations where smugglers can blend and then merge into the next zone.
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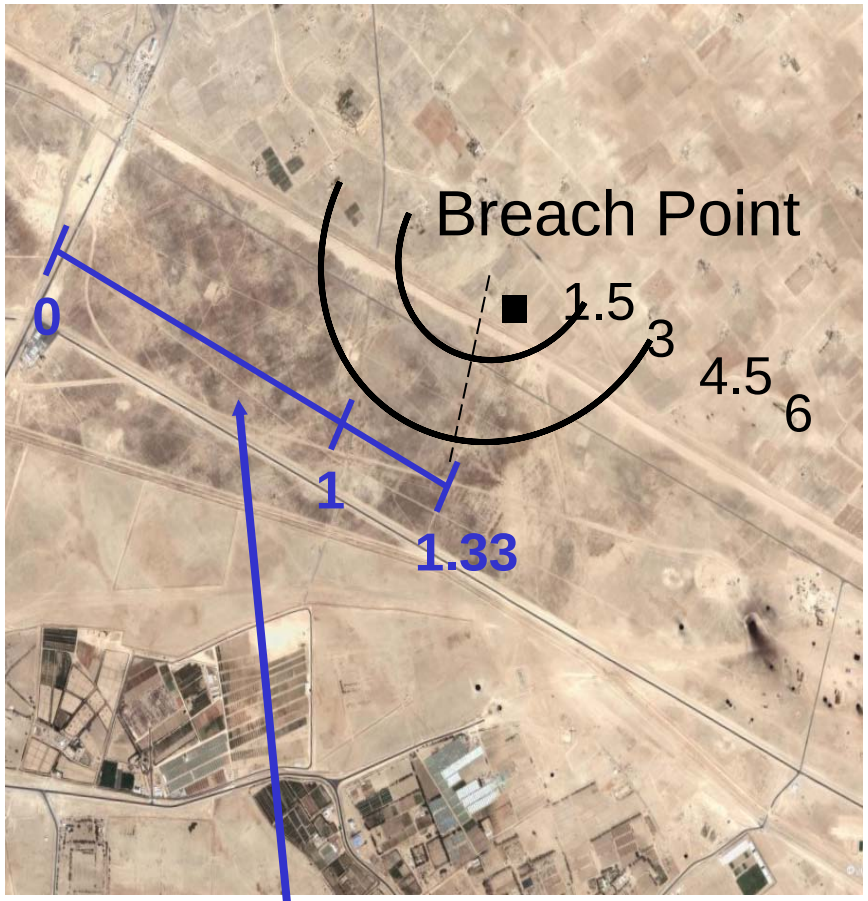

Manual Route Network Analysis

- Network analysis is most useful in areas where movement is constrained to roads, pathways and mobility corridors.
- Using results of terrain analysis, identify and plot:
  - Mobility Corridors
  - Roads
  - Paths
  - Intersections
  - Entry & Exit Points

Manual Route Network Analysis

Follow a step-by-step manual process to:

- Label each intersection, entry point and exit point.
- Document each possible route, from entry point to exit point.
- Using a map or GPS, calculate the distance between each road intersection.
- Based on road or path conditions, assign an average speed to each segment.
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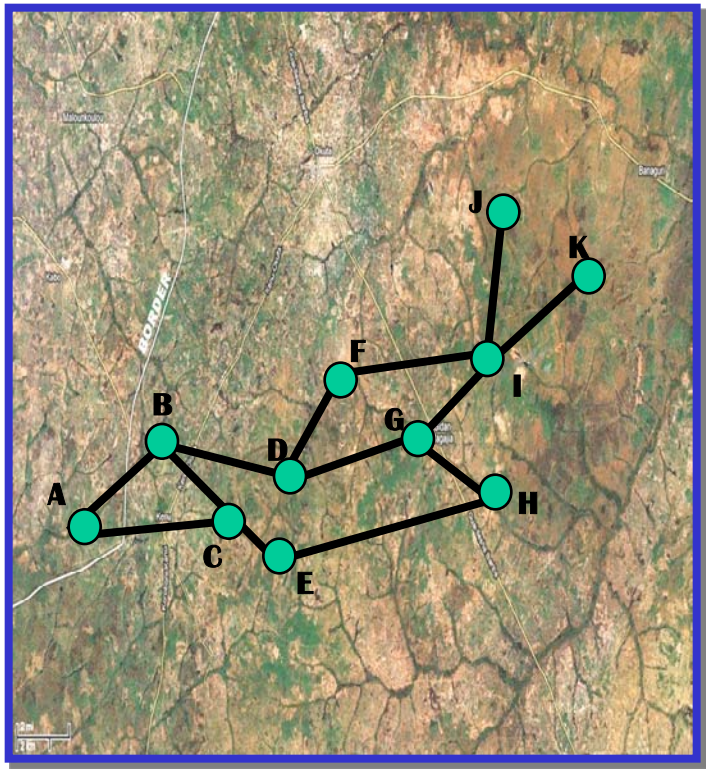

Manual Route Network Analysis

- Determine each route through the network.
- Calculate total distance of each route.
- Calculate total time required to travel each route.
- Predict smuggler routes, based on time, distance or speed.

Example 1:

Route A,B,D,G,I,K is a combined distance of 57 kms, and has an estimated travel time of 2 hours, 28 minutes

Example 2:

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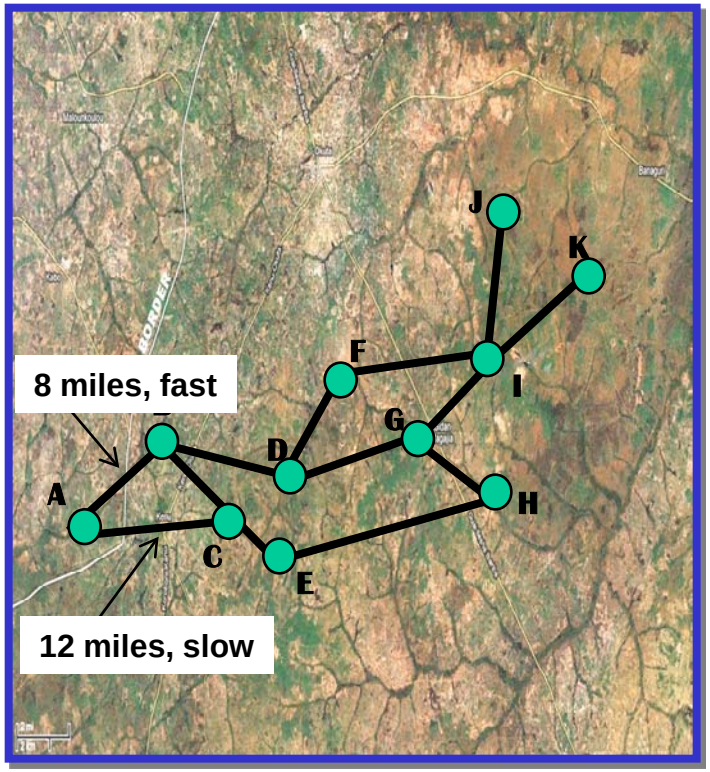
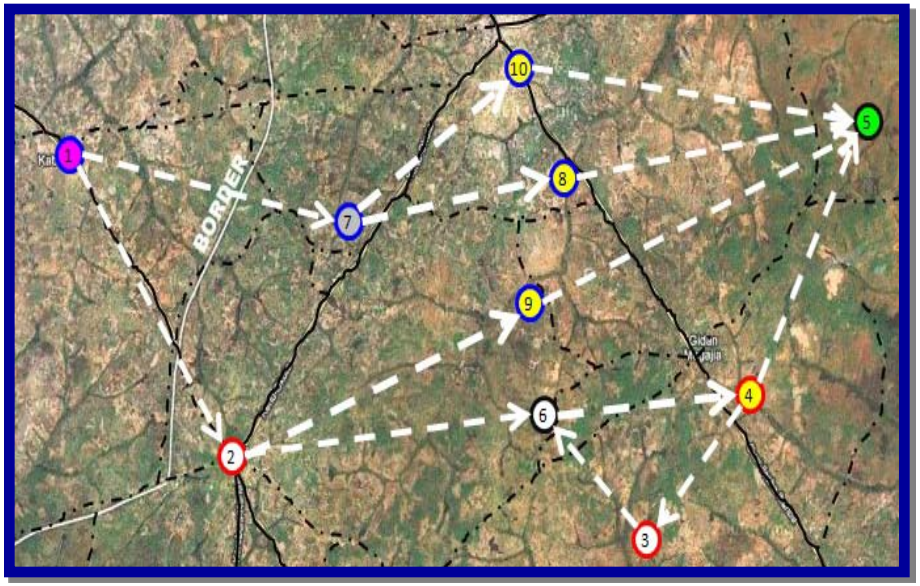


Networking Tool

- The Excel Networking tool automates a time consuming manual process.
  - Allows users to highlight primary entrance and exit points.
  - Identifies most frequently used routes.
  - Calculates the length of time to transverse routes, factoring variables such as visibility, road conditions, and means of travel.
  - Can highlight routes not designated on existing maps
  - Allows users to manipulate results by adding road blocks and barriers.

Networking Tool

- Map Calibration
- Nodes:
  - Source
  - Target
  - Exit
- Edit the Network
  - Set Arc Parameters
  - Set Node Parameters
- Simulate Runs
  - Minimize Option
  - Generate Statistics
- Analyze the Data Results



Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
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Scenario Set Up, cont.

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  - Will play the role of a local border police officer.
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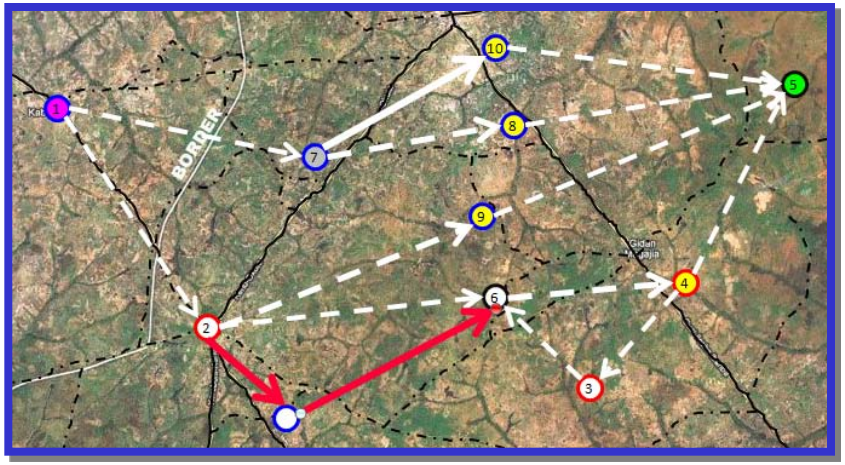
- In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

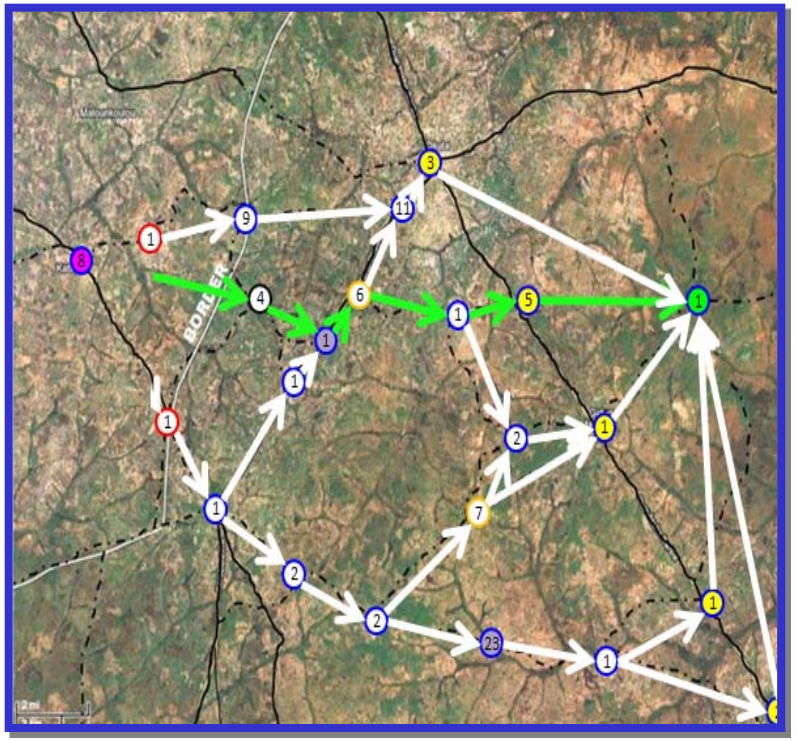
Exercise

- Mission
  - Analyze the situation given.
  - Use zone analysis, the manual network analysis process and the excel route networking tool for a solution.



Conclusion

After conducting a zone and route network analyses, it should have helped you determine the most likely smuggler movement avenues and locations for interdiction.



Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Zone and Route Network Analysis Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**1.0 Hour**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**November 2010**
Review Schedule:	**Annually**

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Prepared by **Date**

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Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
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Revision Schedule:

Revision	**Date**
Revision	**Date**
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Revision	**Date**

LESSON PLAN 05.05
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
03.01 Terrain Analysis
03.02 Zone and Route Network Analysis
05.01 Introduction to Exercises
05.02 Task Decomposition Exercise
05.03 Decision Analysis Exercise
05.04 Terrain Analysis Exercise

Instructional Goal

05.05.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.05.01 The student will demonstrate a Zone and Route Network Analysis.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.05
CRITERION TEST

None.

LESSON PLAN 05.05
SKILLS CRITERIA

05.05.01 The student will demonstrate a Zone and Route Network Analysis.

Manual Network Analysis Process

a. Label each intersection, entry point and exit point.
b. Document each possible route, from entry point to exit point.
c. Using a map or GPS, calculate the distance between each road intersection.
d. Based on road or path conditions, assign an average speed to each segment.
e. Determine each route through the network.
f. Calculate total distance of each route.
g. Calculate total time required to travel each route.
h. Predict smuggler routes, based on time, distance or speed.

Excel Route Network Tool

a. Calibrate Map
b. Edit the Network
c. Set Edge/Segment Parameters
d. Set Node Parameters
e. Generate Statistics - Simulate Runs
f. Path Optimization

LESSON PLAN 05.05
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the exercise.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the exercise.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Answer the student questions.

LESSON PLAN 05.05
COURSE MATERIALS and REFERENCES

Materials
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Excel Route Networking Tool Applications

Visual Aids
PowerPoint slides, Lesson 05.05.00, 1-25

Handout Materials
Student Handout
Zone and Route Network Analysis Tool Manual

References

LESSON PLAN 05.05
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.05 Zone/Route Network Analysis Exercise **Student Comments**

I. INTRODUCTION

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will conduct a zone and route network analysis. With this analysis you will examine how the smuggler could use the terrain to travel to their destination (routes & timing). Understanding this allows the border police to establish interdictions.

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

II. SCENARIO SET UP

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

B. Terrain

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

3. Display area of concern.

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

D. Smuggler Situation

1. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

2. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

3. Smugglers will seldom stand and fight. They use deception and blending techniques.

4. Smugglers penetrate at all times there is not specific pattern.

E. Border Police Situation

1. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

2. Each fort contains a Captain, 25 men, and two pickup trucks.

3. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

4. The Battalion Headquarters has a 12-man response force.

F. Zone and Route Network Analysis

This analysis determines the most likely smuggler avenues and locations for interdiction. What will the smuggler do and where will he go? Where will the border police detect the smuggler? How will the border police control the interdiction?

Subject:
05.05 Zone/Route Network Analysis Exercise **Student Comments**

1. Zone Analysis Process

   a. The objective is to determine the area in which the smuggler must be at any specific time, based on their speed and travel time. These are dependent on mode of travel, contraband, time and weather.

   b. A set of time-based zones can be defined to display this.

   c. These zones are the search areas for the Border Police – with the area expanding as time goes by.

   d. If the breach location is known, the zones are established with a set of arcs (see example). Each zone should have a land feature identifier and/or call name.

   e. If the border breach location is not known, the zones are represented by a series of lines parallel to the border – where the smuggler could have traveled in 5 minutes, 10 minutes, etc. As with above, each zone should have a land feature identifier and/or call name.

2. Zone Analysis Utility

   Zone Analysis can be used to develop countermeasures and improve frontier capture rates.

   a. Exit points are frequently locations where smugglers can blend and then merge into the next zone.

   b. How long will it take a smuggler to reach the exit point?

   c. Can the Border Police respond in time to interdict before the smuggler vanishes?

3. Manual Route Network Analysis

   Network analysis is most useful in areas where movement is constrained to roads, pathways and mobility corridors. Using the results of terrain analysis, identify and manually plot:

   a. Mobility Corridors

   b. Roads

   c. Paths

   d. Intersections

   e. Entry and Exit Points

4. Manual Route Network Analysis Process

   Follow a step-by-step manual process to:

   a. Label each intersection, entry point and exit point.

   b. Document each possible route, from entry point to exit point.

   c. Using a map or GPS, calculate the distance between each road intersection.

   d. Based on road or path conditions, assign an average speed to each segment.

      i. AB = Fast: 55km

      ii. BD = Medium: 30km

      iii. DF = Slow

   e. Determine each route through the network.

   f. Calculate total distance of each route.

g. Calculate total time required to travel each route. Remember, these are dependent on mode of travel, contraband, time and weather.

h. Predict smuggler routes, based on time, distance or speed.

i. Example 1

Routes A, B, D, G, I, and K is a combined distance of 57kms, and has an estimated travel time of 2 hours, 28 minutes.

ii. Example 2

Routes A, C, E, H, G, I, and K is a combined distance of 49kms and has an estimated travel time of 1 hour, 14 minutes.

5. Excel Route Networking Tool

The Excel Networking tool automates a time consuming manual process.

a. Allows users to highlight primary entrance and exit points.

b. Identifies most frequently used routes.

c. Calculates the length of time to transverse routes, factoring variables such as visibility, road conditions, and means of travel.

d. Allows users to manipulate results by adding roadblocks and barriers

6. Excel Route Networking Tool Overview

a. Map Calibration

b. Nodes

i. Source

ii. Target

iii. Exit

c. Edit the Network

i. Set Arc Parameters

ii. Set Node Parameters

d. Simulate Runs

i. Minimize Option

ii. Generate Statistics

e. Analyze Results

G. Command and Control (C2)

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

H. Assistant Instructors (Role Players) will have Multiple Roles

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

I. Students (CTSD Analyst Officers) Brief / Combine Solutions

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

J. Mission

a. Analyze the situation given.

b. Use zone analysis, the manual network analysis process and the excel route networking tool for a solution.

III. CONCLUSION

The intelligence planning process provides the framework to predict where, when, and what probable decisions border patrols and smugglers make as they interact on the area of operations. In order for a border officer to successfully interdict smugglers, terrain analysis must be as detailed as possible and updated as needed.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Solution Development Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**4.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**December 2010**
Review Schedule:	**Annually**

/ _____ _____

Prepared by **Date**

/ _____ _____

Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
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Revision	**Date**

LESSON PLAN 05.06
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
03.01 Terrain Analysis
03.02 Zone and Route Network Analysis
04.01 Tactics and Technology Assessment
04.02 Solution Development
05.01 Introduction to Exercises
05.02 Task Decomposition Exercise
05.03 Decision Analysis Exercise
05.04 Terrain Analysis Exercise
05.05 Zone and Route Network Analysis Exercise

Instructional Goal

05.06.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.06.01 The student will demonstrate how to design a solution based on a stated situation, constrained by available resources.

05.06.02 The student will demonstrate using the task decomposition tool for comparison of solutions.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.06
CRITERION TEST

None.

LESSON PLAN 05.06
SKILLS CRITERIA

05.06.01	The student will demonstrate how to design a solution based on a stated situation, constrained by available resources. a. Understand the Basic Principles b. Start with Border Police Task Decomposition c. Use Tactics and Technology Catalog d. Apply Constraints and Resources e. Adjust Tactics and Technology as Necessary	LSPT p. 10-12, II, F, 1-6
05.06.02	The student will demonstrate using the task decomposition tool for comparison of solutions. a. Understand the Basic Principles b. Start with Border Police Task Decomposition c. Use Tactics and Technology Catalog d. Apply Constraints and Resources e. Use Task Decomposition Tool f. Adjust Tactics and Technology as Necessary	p. 10-12. II, F, 1-6

LESSON PLAN 05.06
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the exercise.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the exercise.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Answer the student questions.

LESSON PLAN 05.06
COURSE MATERIALS and REFERENCES

Materials
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Excel Road Networking Tool Applications
Task Decomposition Tool Applications

Visual Aids
PowerPoint slides, Lesson 05.06.00, 1-22

Handout Materials
Student Handout
Zone and Road Network Analysis Tool Manual
Task Decomposition Tool Manual

References

LESSON PLAN 05.06
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.06 Solution Development Exercise **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will perform solution development concerning communications, logistics, training, maintenance and the environment. Then they will bring all of the analysis products together into a full-system solution. After that, the student will assess the effectiveness of the solution with a task decomposition tool, which will allow for the effective desired outcomes and adjustment of solutions.

Overhead 5

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

II. SCENARIO SET UP

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

B. Terrain

Overhead 6

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

Overhead 8

3. Display area of concern.

Overheads 9-10

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

D. Smuggler Situation — Overhead 10

1. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

2. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

3. Smugglers will seldom stand and fight. They use deception and blending techniques.

4. Smugglers penetrate at all times there is not specific pattern.

E. Border Police Situation — Overhead 11

1. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

2. Each fort contains a Captain, 25 men, and two pickup trucks.

3. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

4. The Battalion Headquarters has a 12-man response force.

F. Solution Development Process — LSPT's 05.06.01-02

The solution development process begins with looking at other analyses you have completed. Remember, these

analyses can change with the development your solutions, so adjust as necessary.

Overhead 12

1. Basic Principles
    a. What is the threat?
    b. What are you trying to accomplish?
    c. What resources are available?
    d. Brainstorm solutions.
2. Start with Border Police (Blue Force) Decompositions
    a. Select tasks to examine.
3. Use Tactics and Technology Catalog
    a. Identify tactics for each task.
    b. Identify technologies for each task.
4. Apply Constraints and Resources, adjust Tactics and Technology as necessary.
5. Tasks Selected for a Solution

Overheads 13-15

    a. Detect Border breach
    b. Maintain Observation
    c. Determine Level of Threat
    d. Plan Interdiction
    e. Predict Location for Intercept
    f. Deploy Forces
    g. Control Adversary Options
    h. Intercept

i. Dominate Situation (force)

j. Establish Control

6. Task Decomposition Tool

Overhead 16

The task decomposition tool automates a time consuming manual process of examining outcomes of solutions.

a. Allows users to assess each method as:

i. 0-33% effective = Red

ii. 34-66% effective = Yellow

iii. 67-100% effective = Green

b. Identifies most effective desired outcomes and allows for adjustment of solutions.

c. Allows users to manipulate results by adjusting solutions so you can select the best outcomes on results.

Overhead 17

G. Command and Control (C2)

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Overhead 18

H. Assistant Instructors (Role Players) will have Multiple Roles

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

I. Students (CTSD Analyst Officers) Brief / Combine Solutions

Overhead 19

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Overhead 20

J. Mission

a. Analyze the situation given.

b. Use zone analysis, the manual network analysis process and the excel road networking tool for a solution.

III. CONCLUSION

Overhead 21

Solution development involves combining organization, personnel, training, technology, and CONOPS into a border control system. After conducting numerous analyses, bring all of the analysis products together into a full-system solution, then using a catalog to select tactics and technology you apply constraints and resources, adjust tactics and technology as necessary.

ZONE AND ROUTE NETWORK ANALYSIS EXERCISE - LSPT #05.05		DATE:
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to terrain analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand zone and route network analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	MOA	DESCRIPTION			REMEDIAL	
05.05.00		**ZONE AND ROUTE NETWORK ANALYSIS EXERCISE**	**PASS**	**FAIL**	**PASS**	**FAIL**
05.05.01		The student will demonstrate a Zone and Route Network Analysis.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

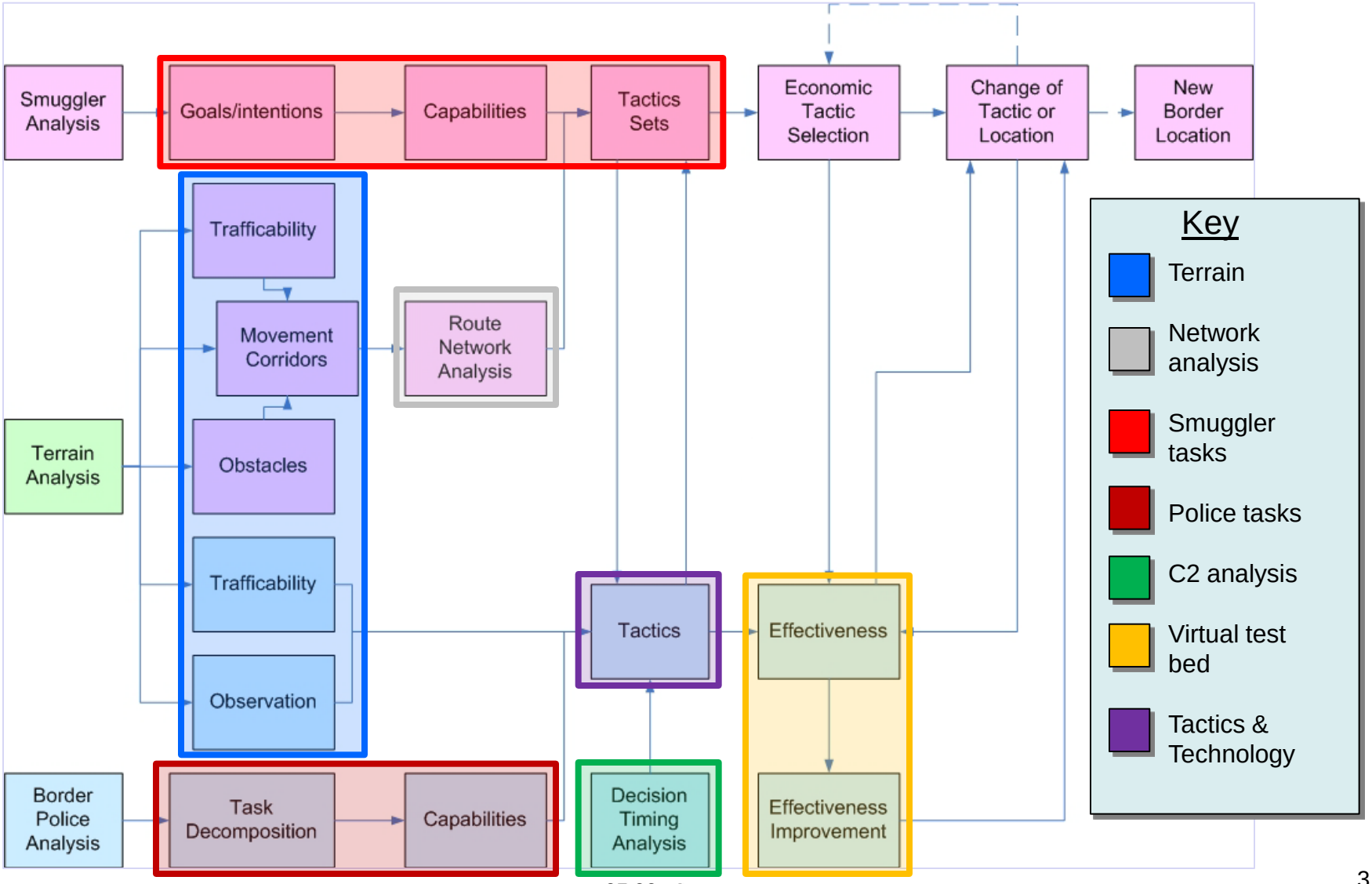
Comments:

Counter-Trafficking System Development
Module 5
Solution Development Exercise

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - Process of Analysis
  - Smuggler Assessment
  - Border Police Task Decomposition
  - Timing and Decision Analysis
  - Terrain Analysis
  - Zone & Route Network Analysis
  - Tactics & Technology Assessment
  - Development of Solutions
  - Introduction to Exercises
  - Task Decomposition Exercise
  - Decision Analysis Exercise
  - Terrain Analysis Exercise
  - Zone & Route Network Analysis Exercise

Solution Development



Introduction

- This lesson will prepare the students for analyzing a border security problem on their own.
- The students will bring all of the analysis products together into a full-system solution.
- The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Form Exercise Analysis Teams

- Break into analysis groups under control of an assistant instructor.

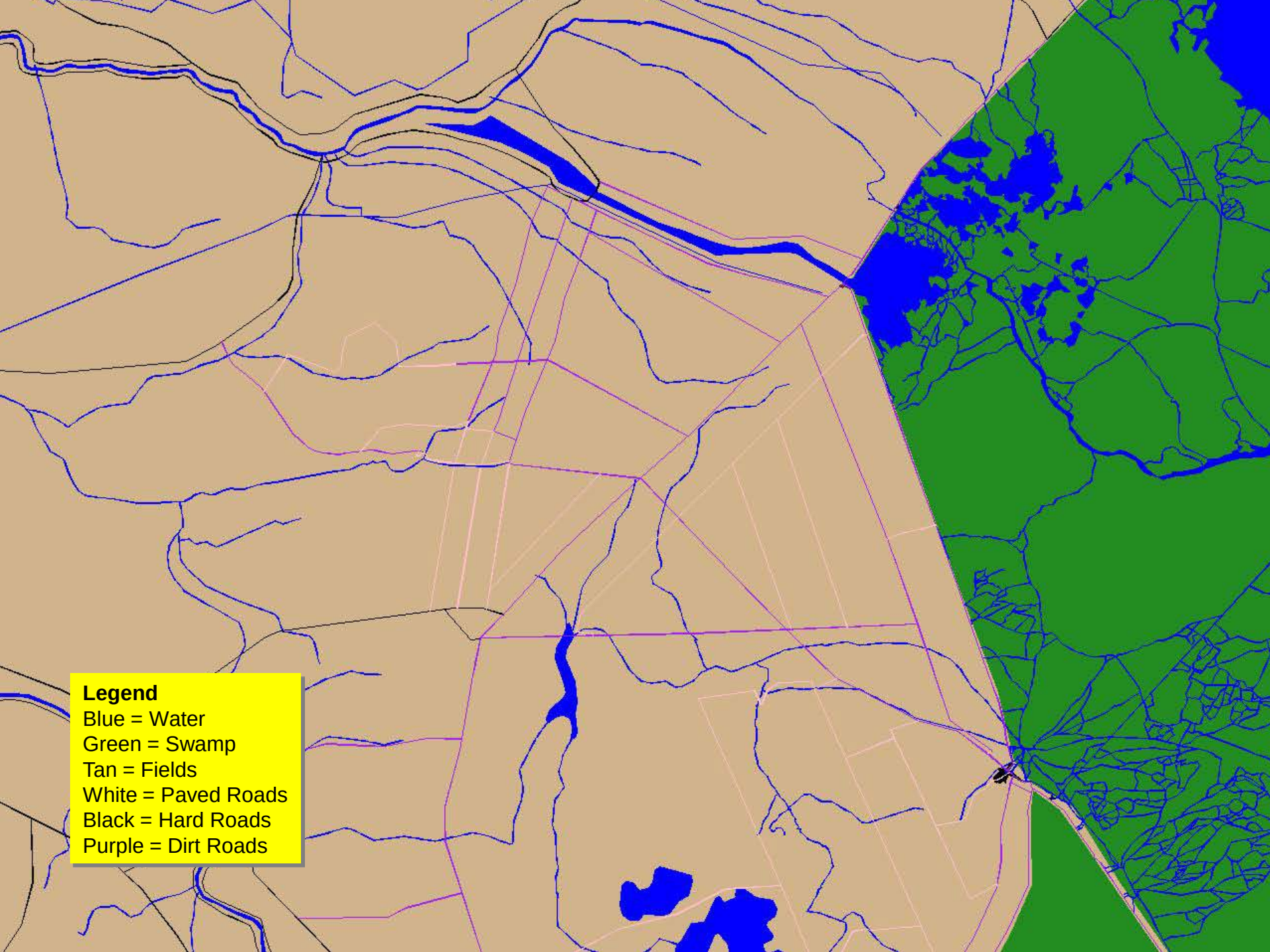
Scenario

- Terrain
  - Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.
  - The border police had virtually no capability to observe or interdict within the marsh.

Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
  - The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.


Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

Scenario, cont.

- Smuggler Situation
  - Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.
  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
  - Smugglers will seldom stand and fight. They use deception and blending techniques.
  - Smugglers penetrate at all times there is not specific pattern.

Scenario, cont.

- Border Police Situation
  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

Solution Development Process

- Basic Principles
  - Look at the threat
  - What are you trying to accomplish
  - Resources
  - Constraints
  - Brainstorm solutions
- Start with Blue Force Decomposition
  - Select tasks to examine
- Use tactics and technology catalog to:
  - Identify tactics for each task
  - Identify technologies for each task
- Apply Constraints and Resources, adjust tactics and technology as necessary.

Tasks Selected for a Solution

Solution 1

- Detect Border Breach
- Maintain Observation
- Determine Level of Threat
- Plan Interdiction
- Predict Location for Intercept
- Deploy Forces
- Control Adversary Options
- Intercept
- Dominate Situation (force)
- Establish Control

Solution 2

- Detect Border Breach
- Maintain Observation
- Determine Level of Threat
- Plan Interdiction
- Predict Location for Intercept
- Deploy Forces
- Control Adversary Options
- Intercept
- Dominate Situation (force)
- Establish Control

Effectiveness Comparison

- Use the Task Decomposition Tool.
- Assess each method as:
  - 0-33% effective = Red
  - 34-66% effective = Yellow
  - 67-100% effective = Green
- Examine outcomes and adjust solutions.
- Select best solution.

Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
  - Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.
  - Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Scenario Set Up, cont.

- Assistant Instructors will have multiple roles
  - Will play the role of a local border police officer.
  - Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.
  - Will advise the student group.

Student Brief / Combine Solutions

- In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Exercise

- Mission
  - Analyze the situation given.
  - Bring all of the analysis products together into a full-system solution for a robust border protection system.

Conclusion

Solution development involves combining organization, personnel, training, technology, and CONOPS into a border control system.

After conducting numerous analyses, bring all of the analysis products together into a full-system solution, then using a catalog to select tactics and technology you apply constraints and resources, adjust tactics and technology as necessary.

Counter-Trafficking System Development
Training Division

COUNTER-TRAFFICKING SYSTEM DEVELOPMENT TRAINING

Title:	**Solution Selections and Testing Exercise**
Task Requirement:	**TBD**
Target Group:	**CTSD and Contractor Personnel**
Time Allotted:	**3.0 Hours**
Instructor:	**CTSD Staff**
Method of Instruction:	**Lecture, Demonstration, and Practical Application**
Preparation Date:	**December 2010**
Review Schedule:	**Annually**

/ _____ _____

Prepared by **Date**

/ _____ _____

Approved by **Date**

Review Schedule:

Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**
Reviewed by	**Date**

Revision Schedule:

Revision	**Date**
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Revision	**Date**
Revision	**Date**
Revision	**Date**
Revision	**Date**

LESSON PLAN 05.07
GOALS AND OBJECTIVES

Lesson Plan References

01.02 Process of Analysis
02.01 Smuggler Assessment
02.02 Border Police Task Decomposition
02.03 Timing and Decision Analysis
03.01 Terrain Analysis
03.02 Zone and Route Network Analysis
04.01 Tactics and Technology Assessment
04.02 Solution Development
04.03 Solution Testing
05.01 Introduction to Exercises
05.02 Task Decomposition Exercise
05.03 Decision Analysis Exercise
05.04 Terrain Analysis Exercise
05.05 Zone and Route Network Analysis Exercise
05.06 Solution Development Exercise

Instructional Goal

05.07.00 The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.

Learning Objectives

Cognitive Tasks

None.

Cognitive Conditions and Standards

None.

Performance Tasks

05.07.01 The student will demonstrate testing and developing a Solution for the Border Security Scenario.

Performance Conditions and Standards

Given the appropriate equipment and materials. The student must demonstrate this task to the passing standard (pass/fail), during a Limited Scope Performance Test.

LESSON PLAN 05.07
CRITERION TEST

None.

LESSON PLAN 05.07
SKILLS CRITERIA

05.07.01	The student will demonstrate testing and developing a Solution for the Border Security Scenario. a. Determine Solution Testing Time/Distance Factors b. Determine Solution Testing Observation Factors c. Determine Solution Testing Smuggler Countermeasures d. Use Map to Determine Compare Solutions and select most Effective e. Determine Solution Effectiveness against Multiple Smuggler Tactics f. Optimize Solution for Desired Results	LSPT p. 10-12, II, F, 1-3

LESSON PLAN 05.07
INSTRUCTOR INFORMATION

I. INSTRUCTOR REQUIREMENTS:

The exercise will require a lead instructor and assistant instructors.

II. LEAD INSTRUCTOR GUIDANCE:

A. Brief assistant instructors on their duties.

B. Brief students on the exercise.

C. Supervise overall conduct of the exercise.

D. Debrief students at the conclusion of the exercise.

III. ASSISTANT INSTRUCTOR GUIDANCE:

A. Ensure that the exercise is set up and that all support materials are present.

B. Monitor student progress during exercise.

C. Identify student errors.

D. Answer the student questions.

LESSON PLAN 05.07
COURSE MATERIALS and REFERENCES

Materials
Computer (Instructor and laptops for student groups)
InFocus® projector (Voltage Converter)
PowerPoint® slides
Lesson plan
Applicable handouts
Whiteboard
Dry-erase markers
Writing materials
Maps
Transparencies
Excel Road Networking Tool Applications
Task Decomposition Tool Applications

Visual Aids
PowerPoint slides, Lesson 05.07.00, 1-18

Handout Materials
Student Handout
Zone and Road Network Analysis Tool Manual
Task Decomposition Tool Manual

References

LESSON PLAN 05.07
SAFETY CONSIDERATIONS

I. SAFETY BRIEF

This lesson plan pertains to non-hazardous classroom training only. A general facility safety briefing for the classroom in which the training is provided precedes such training.

II. PRACTICAL APPLICATION

None.

III. EXERCISE PROCEDURES

There is no exercise guide associated with this lesson.

Subject:
05.07 Solution Selections & Testing Exercise **Instructor Comments**

I. INTRODUCTION

Overheads 1-4

This lesson will prepare the students for analyzing a border security problem on their own by applying what they've learned to a real border security problem with instructor assistance. The students will perform solution development concerning communications, logistics, training, maintenance and the environment. Then they will bring all of the analysis products together into a full-system solution. After that, the student will assess the effectiveness of the solution with a task decomposition tool, which will allow for the effective desired outcomes and adjustment of solutions.

Overhead 5

The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

II. SCENARIO SET UP

A. Scenario

The lead Instructor will brief the students who are now a small cadre of CTSD Analyst Officers. They will be tasked with a smuggling operation problem and a nation border section.

B. Terrain

Overhead 6

1. Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.

2. The border police had virtually no capability to observe or interdict within the marsh.

Overhead 8

3. Display area of concern.

Overheads 9-10

4. The terrain is essentially flat, with no hills.

5. Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.

6. The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.

D. Smuggler Situation — Overhead 10

1. Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.

2. They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.

3. Smugglers will seldom stand and fight. They use deception and blending techniques.

4. Smugglers penetrate at all times there is not specific pattern.

E. Border Police Situation — Overhead 11

1. Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.

2. Each fort contains a Captain, 25 men, and two pickup trucks.

3. Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.

4. The Battalion Headquarters has a 12-man response force.

F. Solution Testing Components — Overhead 12, LSPT 05.07.01

These components are not limited to the following:

Subject:
05.07 Solution Selections & Testing Exercise **Instructor Comments**

1. Time and Distance Factors

    a. Patrols

        Speed traveling on a patrol route, and time taken to cover it.

    b. Response

        Distance to interdiction points and allowable speed on routes (including startup time).

    c. Smuggler

        Time to travel through area or to point where they can blend in, based on based on possible routes, distance to travel, and smuggler speed.

2. Observation Factors

    a. Coverage and Unobserved Areas (Map Based)

        i. Coverage based on aids, observer state, and smuggler state.

        ii. Fraction of border under observation from fixed points.

        iii. Coverage from sensors

    b. Patrol Route Observed Fraction

        Calculate probability of patrol observing smuggler based on distance covered, distance observable from moving vehicle, and time to cover the route.

    c. Day/Night and Weather Differences

        Consider reduction in observed area during night and poor weather.

d. Sensor Coverage

See Coverage and Unobserved Areas (Map Based) above.

3. Smuggler Countermeasures

a. Decoys

Consider how solution will operate if the smuggler is using decoy tactics (consider civilian decoys, low value smuggling decoys, animals).

b. Saturation

Consider how solution can handle multiple simultaneous interdictions while retaining effective control of area.

c. Overwhelming Force

Consider how solution will deal with a smuggler willing to employ a high level of lethal force in an attempt to overwhelm the Border Police.

Overhead 13

G. Command and Control (C2)

1. Each group will independently analyze the same scenario up through developing a solution.

2. Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.

3. Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Overhead 14

H. Assistant Instructors (Role Players) will have Multiple Roles

1. Will play the role of a local border police officer.

2. Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.

3. Will advise the student group.

I. Students (CTSD Analyst Officers) Brief / Combine Solutions — Overhead 15

1. In lesson 5.06 each student group will brief the class on their analytical assessments and solution.

2. The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

J. Mission — Overhead 16

a. Analyze the situation given.

b. Use zone analysis, the manual network analysis process and the excel road networking tool for a solution.

III. CONCLUSION

Overhead 17

Solution testing involves comparing solutions and then selecting the most effective. We can determine solution effectiveness against multiple smuggler tactics for optimization of solutions. A map or virtual test bed used to analyze effectiveness. HOWEVER: Test solution on the ground in a test area with actual Border Police before implementing!

SOLUTION SELECTINS & TESTING EXERCISE - LSPT #05.07		**DATE:**
	STUDENT	**INSTRUCTOR**
EMPLOYEE #		
PRINT NAME		
SIGNATURE		
Method of Accomplishment (MOA) P - Perform, S - Simulate, O - Observe, D - Discuss, N/A - Non Applicable		

GOAL: To determine the level of knowledge, and or ability, possessed by the student during a practical application exercise, in regards to terrain analysis.

PERFORMANCE CONDITIONS AND STANDARDS: The student will understand solution testing analysis duties and associated activities. Given the appropriate equipment, the student must demonstrate these tasks to the passing standard (pass/fail), during a Limited Scope Performance Test.

DIRECTIONS: Mark the Method of Accomplishment (MOA). If a student successfully performs all tasks for a given objective mark the first column “Pass”. If the student misses more than one task for a given objective, check the second column "fail". Next, attempt remedial training. If the student does not pass the remedial test, check the fourth column "fail". Any failure must be accompanied with a written explanation and critique specifying the deficiency of the task performed.

LP/TASK#	**MOA**	**DESCRIPTION**			**REMEDIAL**	
05.07.00		**SOLUTION SELECTIONS & TESTING EXERCISE**	**PASS**	**FAIL**	**PASS**	**FAIL**
05.07.01		The student will demonstrate testing and developing a Solution for the Border Security Scenario.				

This LSPT is based on Mission Essential Task List.

Recommend student be referred to Training & Development for further remediation…… ☐

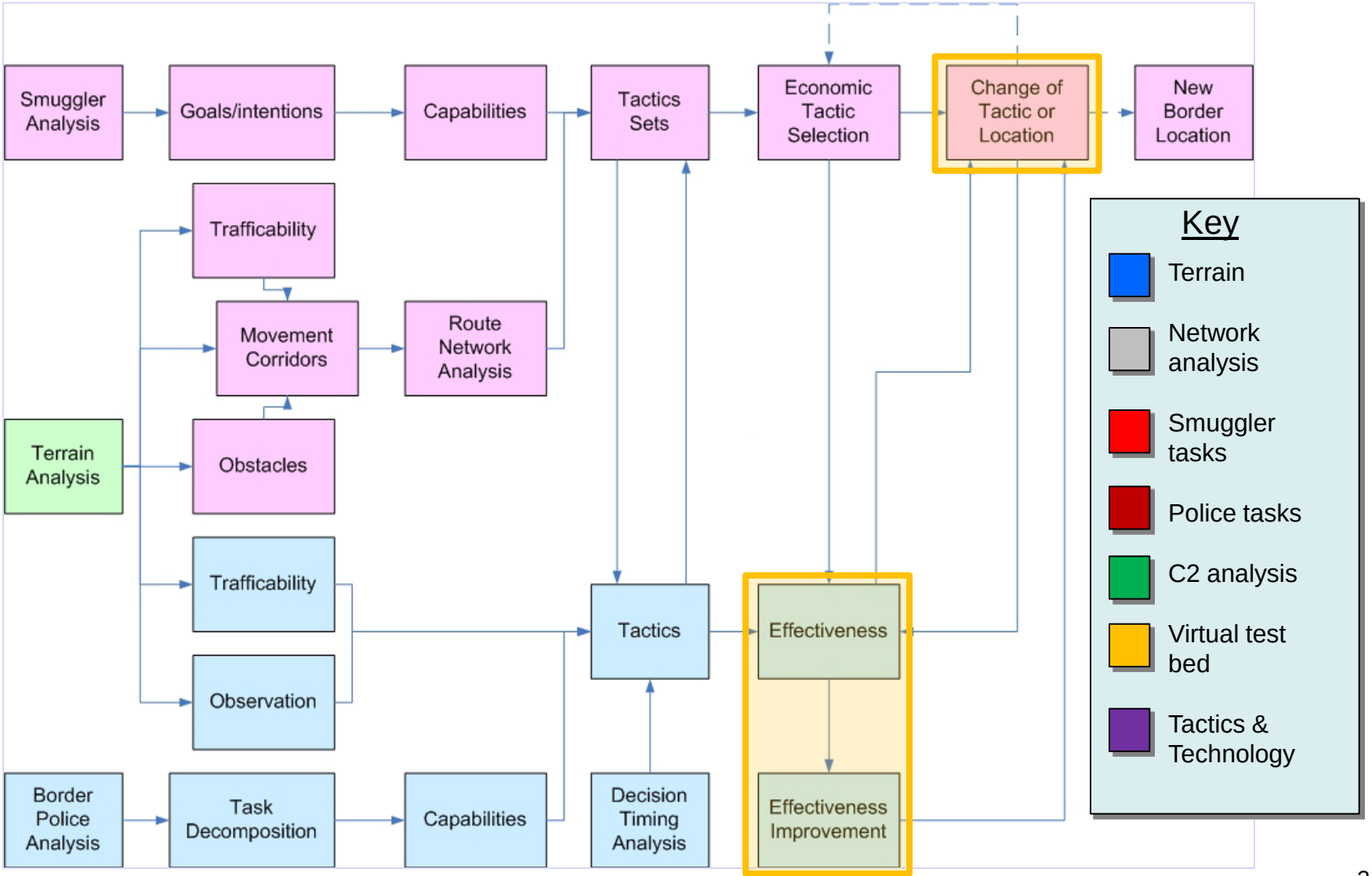
Comments:

Counter-Trafficking System Development
Module 5
Solution Selections & Testing Exercise

Objective

- The students will be presented with a border security scenario and will use the following objectives to resolve the scenario.
  - –Process of Analysis
  - –Smuggler Assessment
  - –Border Police Task Decomposition
  - –Timing and Decision Analysis
  - –Terrain Analysis
  - –Zone & Route Network Analysis
  - –Tactics & Technology Assessment
  - – Development of Solutions
  - – Solution Testing
  - – Introduction to Exercises
  - – Task Decomposition Exercise
  - – Decision Analysis Exercise
  - – Terrain Analysis Exercise
  - – Zone & Route Network Analysis Exercise
  - – Solution Development Exercise

Solution Testing Development



Introduction

- This lesson will prepare the students for analyzing a border security problem on their own.
- The students will demonstrate testing and developing a solution for the border security scenario on the effectiveness against multiple smugglers tactics.
- The class will divide into groups for individual analyses, which will be briefed back to the class. Then they will form back into one group and formulate a viable solution to the exercise by combining all solutions.

Form Exercise Analysis Teams

- Break into analysis groups under control of an assistant instructor.

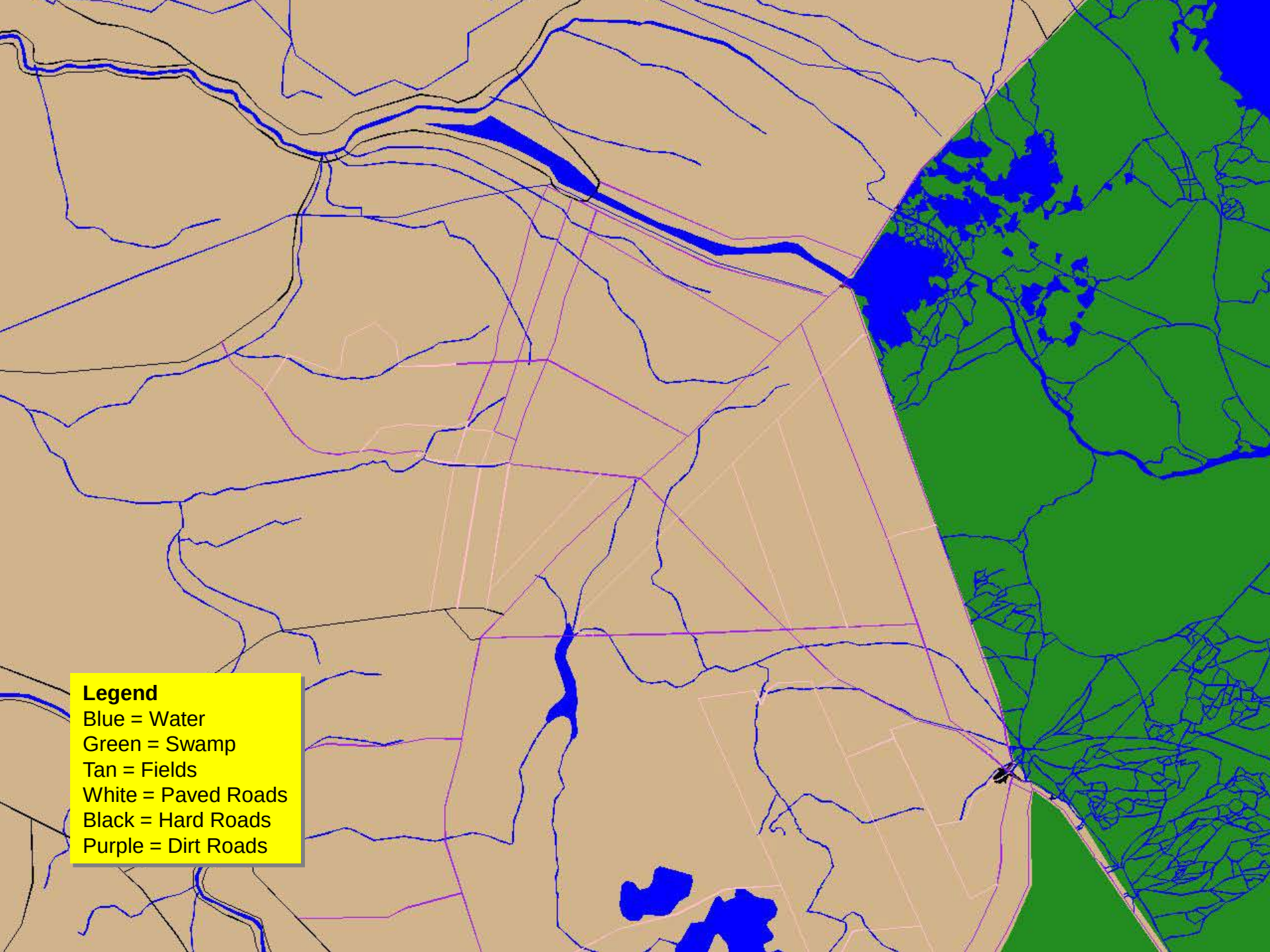
Scenario

- Terrain
  - Location of concern is basically a marsh reed (3-12 feet high) -filled marsh with the international border passing through its center. It is backed by an agricultural area with a large network of roads and trail.
  - The border police had virtually no capability to observe or interdict within the marsh.

Area of Concern

Scenario, cont.

- Terrain, continued
  - The terrain is essentially flat, with no hills.
  - Observation in the agricultural area was very good, as all of the roads and trails were elevated above the vegetation on berms or levees.
  - The elevated roads and trails form a network of many routes through the area. Travel across agricultural fields is extremely slow and difficult.


Legend
Blue = Water
Green = Swamp
Tan = Fields
White = Paved Roads
Black = Hard Roads
Purple = Dirt Roads

Scenario, cont.

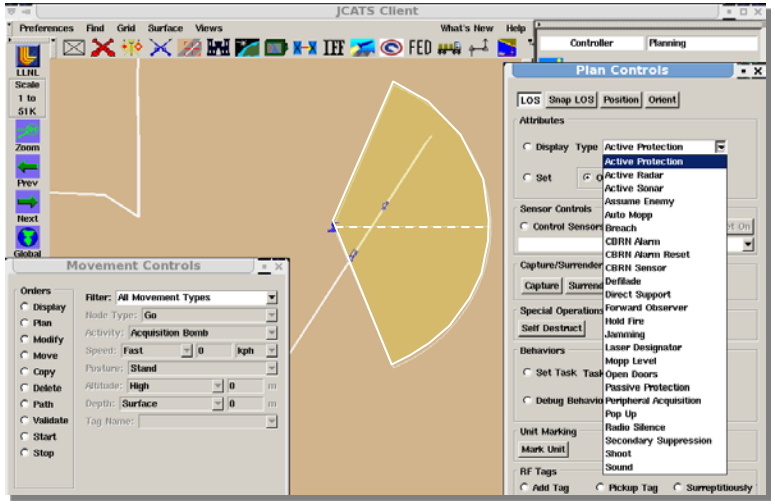
- Smuggler Situation
  - Smugglers have been penetrating the border, bypassing normal point of entries bringing in weapons and explosives.
  - They travel in small groups (2-3 people) and are lightly armed with no optical aid devices.
  - Smugglers will seldom stand and fight. They use deception and blending techniques.
  - Smugglers penetrate at all times there is not specific pattern.

Scenario, cont.

- Border Police Situation
  - Border Police, man two small forts at the edge of the swamp and a Battalion Headquarters 10 km back from the swamp.
  - Each fort contains a Captain, 25 men, and two pickup trucks.
  - Forts have an observation post on the roof. A patrol consisting of two men in a truck responds when someone is detected coming out of the swamp.
  - The Battalion Headquarters has a 12 man response force.

Solution Testing Components

- Time/Distance Factors
  - Patrols
  - Response
  - Smuggler
- Observation Factors
  - Coverage/Unobserved Areas
  - Patrol Route Observed Fraction
  - Day/Night/Weather Differences
  - Sensor Coverage
- Smuggler Countermeasures
  - Decoys
  - Saturation
  - Overwhelming Force



Exercise Procedures

- Command and Control (C2)
  - Each group will independently analyze the same scenario up through developing a solution.
  - Each group will have an assistant instructor to provide guidance during the exercise. All work will be done by the group, however.
  - Each group will identify a single student to be the lead Analyst who will brief the class on their solutions when completed.

Scenario Set Up, cont.

- Assistant Instructors will have multiple roles
  - Will play the role of a local border police officer.
  - Will also be a reference and answer student's questions to provide additional information that the analyst would normally have access to.
  - Will advise the student group.

Student Brief / Combine Solutions

- In lesson 5.07 each student group will brief the class on their analytical assessments and solution.

- The groups will then work as one group to combine their assessments into one viable solution for the exercise and test it.

Exercise

- Mission
  - Analyze the situation given.
  - Determine solution effectiveness against multiple smugglers tactics and make adjustments as needed for a viable solution.

Conclusion

Solution testing involves comparing solutions and then selecting the most effective. We can determine solution effectiveness against multiple smuggler tactics for optimization of solutions. A map or virtual test bed used to analyze effectiveness. HOWEVER: Test solution on the ground in a test area with actual Border Police before implementing!

Instructor and Training Evaluation

Student Name (optional) _____
Instructor Name(s) _____
Topic(s) of Instruction _____
Date _____

Note:
The review of information obtained from student evaluations is considered to be an important step in the training validation and improvement process. The instructor(s) of this course and the Training Section Leader review all completed evaluation forms. Your responses to the following issues are appreciated. Below statements 1 through 7, please circle the response that best describes your level of agreement or disagreement.

1. The instructor(s) helped you (the student) meet the objectives of this class.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

2. The instructor(s) was/were prepared to teach this topic.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

3. The instructor(s) made the topic interesting, and the quality of the presentation was high.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

4. The instructor(s) encouraged student involvement.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

5. The instructor(s) used effective teaching techniques.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

6. The course requires little or no improvement.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

7. The course was relevant to my job.

Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree

Please respond to questions 8 and 9 on the reverse side of this page.

Instructor and Training Evaluation

8. What was the most valuable improvement to your skills, knowledge, or abilities that you received from participating in this course?

9. What do you recommend we change to improve this course?

10. What do you recommend we change to improve safety of this course?
Note: The lead instructor will consider all recommendations. The Lead instructor will provide feedback to the student(s), safety recommendation(s) and make necessary changes as needed.