

Unrestricted Warfare Symposium

15 March 2006

Countering Common Adversary Weapons

Improvised Explosive Devices

Andy Green

Hazard Management Solutions

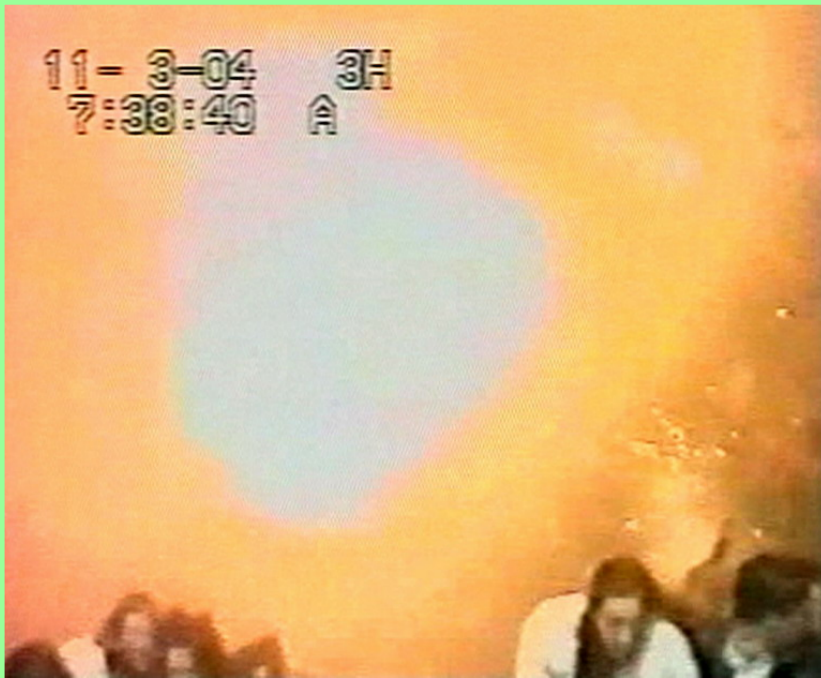


IED Taxonomy

- **Timed**
 - Mechanical
 - Electronic
 - Other
- **Command**
 - Command wire
 - Radio Controlled
 - Suicide
 - Other
- **Victim operated (Booby traps)**
- **Hybrids**

Timed devices

- Usually Mechanical or Electrical timers
- Rare in Iraq compared to other campaigns
- Used by Al Qaeda in Madrid (Using cell phone alarm as a timer)

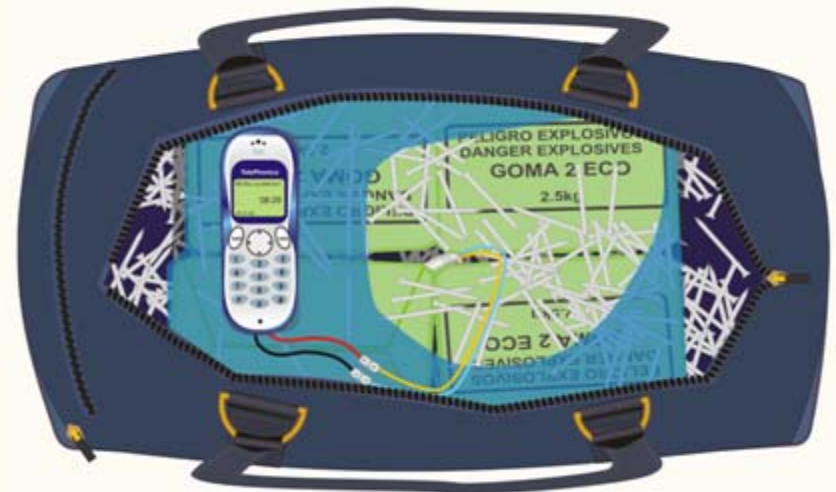


RCIED attacks on commuter trains - Madrid 11 March 2004

Attributed to a radical Islamic terror group originating in Morocco. 191 Dead - 1800+ injured

HAZARD

Management Solutions



Not to scale - colours may be changed for the purpose of illustration

HMS01003 - Apr 2004

Command Initiated

- Initiated when the target enters range of the IED by a command from the terrorist
 - Simple wire, making a series circuit
 - Radio control the radio signal closing a switch in a simple series circuit
 - Suicide switch - car or body or boat
- Pros and Cons with each from a terrorist perspective

RCIEDs

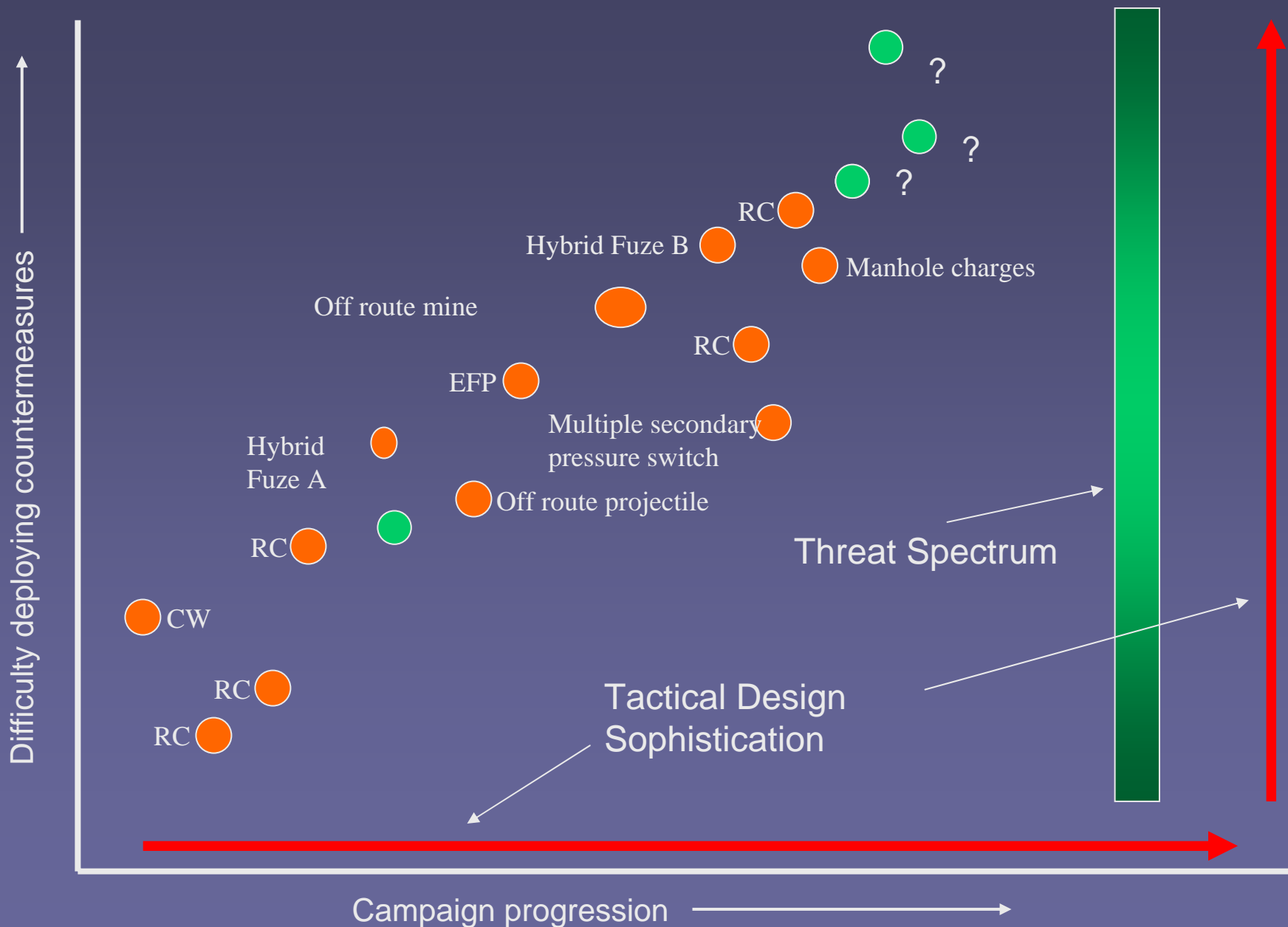
- Most common roadside devices
- Initiated when the target presents itself in a killing zone
- Any Transmitter/Receiver system is possible

IED Tactical Design

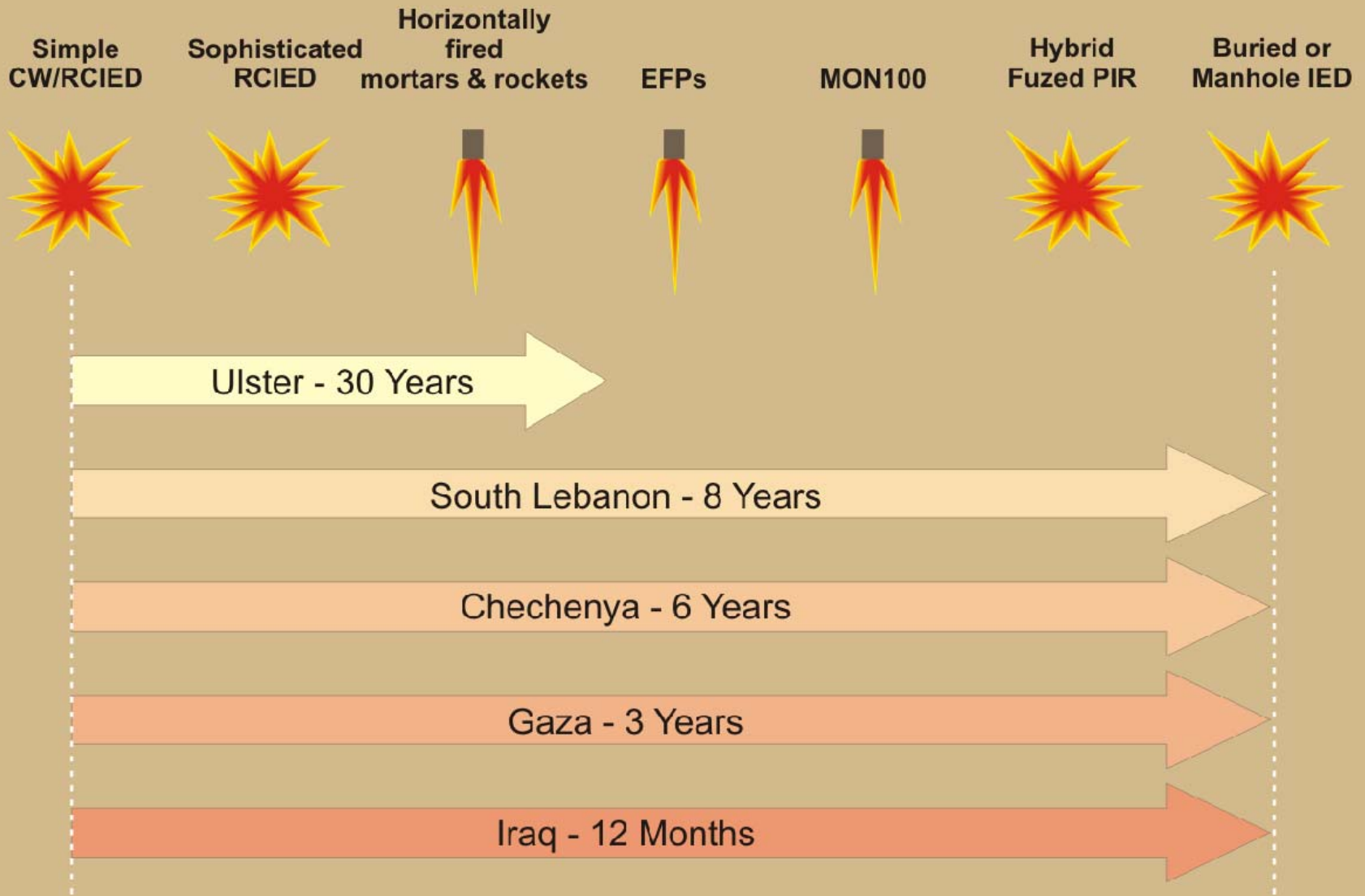
- How does a terrorist plan his IED attack?
- Many factors, including
 - Device Design
 - Assessed target vulnerabilities
 - Target predictability
 - Geography/terrain (27 factors alone)
 - Maximizing Probability of Kill

Terrorist IED Tactical development

Based on Northern Ireland, S Lebanon, Chechnya, Gaza and now Iraq



Timescale to develop/deploy sophisticated IEDs



HMS#1060 Nov04

IED as a Weapons System

F18 and IED systems compared

AIM 9 Sidewinder
missile and fuze
\$100,000



← Explosive component →



Bomb and
initiator \$200

F 18 Airframe and
engine \$40million



← Delivery system →



Mohammed's
truck \$400

Target Acquisition
Radar \$??M



← Target acquisition →



Ahmed - age 14
Convoy alert \$10
per day

IFF System
\$??m



← Target identification →



Mansour - age 12
Checks trucks \$10 a
day

E 3 AWACS
aircraft
\$150million



← Target movements →



Jamal - age 18
Records & predicts
convoy patterns \$12
a day

Command
Structure
\$??m



← Coordination →



Wafik
Coordinates
attacks \$60 a day

The
PILOT



← Critical Component →



The SUPPLIER

IED as a Weapons System

F18 and IED systems compared

Flight school



Training venue



Back yard shed

2 years



Training Time



2 weeks

R&D Plant



R&D



Workshop

15 YEARS

R & D Timescales

15 DAYS

Manufacturing plant



Manufacturing



Kitchen

F-18 versus IED system

← End Result →



Andy Green

+1 202 812 0662

andygreen@hazmansol.com