



## **DEVELOPMENT OF COUNTER IMPROVISED EXPLOSIVE DEVICE METRICS**

### **Abstract**

1. IEDs (Improvised Explosive Devices) have historically been and remain the prominent threat to UK forces in Afghanistan. In recent years there has been a lot of investment in improving the UK Counter-IED (C-IED) capability by MOD, with the goal of reducing the number and severity of casualties resulting from IEDs. As a direct result of the IED threat, the Prime Minister and senior MOD leadership requested a team was set-up to provide a measurement of the UK's progress in the C-IED battle. As such, the C-IED Effects Team was set-up with the remit of providing analysis on the effectiveness of the UK C-IED capability. In order to provide the analysis a number of Measures of Effect (MOE) were developed spanning both Offensive and Defensive C-IED strands. These metrics are used to brief senior MOD leadership on a regular basis and help to inform decisions on future C-IED capability investment.

### **Introduction**

2. Improvised Explosive Devices (IEDs) are the single largest threat to life and limb for troops operating within the UK Area of Operations (UKAO) within Afghanistan.

3. The Counter IED Effects Team (CET) was set up in Jan 10 in response to a requirement from the Prime Minister to understand progress in the Counter-IED (C-IED) battle. The team is comprised of analysts with a wide range of backgrounds from across Dstl

4. The C-IED approach is broadly divided into Offensive activity (to PURSUE the IED networks and to PREVENT local nationals (LN) or insurgent (INS) involvement with IEDs) and Defensive activity (to DETECT IEDs and to PROTECT UK forces against those that we cannot). As such the MOE have been designed to assess each of these capability areas.

### **Caveats**

5. Given the classification of this paper it is necessary to discuss the metrics used in the round, rather than attribute specific trends or assessments to each C-IED strand.

### **Aim**

6. This paper aims to set out the broad methodology currently used by UK MOD to measure progress in the C-IED battle. The paper describes the strands, and provides an insight into their development and rationale.

### **Analysis**

7. The metrics developed by the CET were formed via an iterative process where each measure was developed to provide a measure, or at least a proxy measure of performance against the C-IED strands PURSUE, PREVENT, DETECT and PROTECT (which includes neutralise and mitigate).

8. The C-IED MOE have been chosen in order to inform strategic C-IED decision making across Defence by providing a mechanism for assessing UK C-IED capability and operations. These metrics inform commanders of progress within C-IED. They do not act as a substitute for

military judgment and experience, nor are they intended to. There are many operational factors influencing the metrics, and these need to be considered when interpreting any observable changes.

9. Individual MOE are of limited utility if viewed only in isolation; only by assessing them in the round do they begin to reveal more profound insights into the factors and mechanisms at work. In order to conduct such assessments, it is vital that decision makers understand the relationships between the specific metrics developed. As such, this paper describes the metrics and provides an insight into their development and rationale.

### **Campaign Level MOE**

#### ***Cause of Casualties (IED vs Direct Fire (DF) vs Indirect Fire (IDF), etc)***

10. As a campaign level metric and as the overarching consideration for commanders both in theatre and in Whitehall, casualties to UK forces were defined as the primary driver of strategy and tactics for the campaign. The cause of casualties, by proportion indicates the prevalent threat type to UK troops.

### **Operational Level C-IED MOE**

11. At the next level, three metrics are intended to provide a measure of key operational considerations - Freedom of Manoeuvre (FOM), number of UK IED Casualties and number of ANSF IED casualties.

#### ***Freedom of Manoeuvre***

12. FOM is considered key to Counter Insurgency (COIN). The ability to move unimpeded around the area of operations may indicate that INS capability is weakened, and allows increased interaction of ISAF with LNs.

#### ***Number of UK IED CASUALTIES***

13. The number of UK IED Casualties indicates how well all C-IED capabilities have combined to protect UK forces from the threat of IEDs. This is the compound effect of the number of IEDs encountered, the detection capability, and the protection of troops from explosions. It can be viewed as a useful measure of C-IED progress, but context must be sought from other measures to provide support to the assessment.

#### ***Number of ANSF IED CASUALTIES***

14. The number of ANSF IED casualties is a key measure as Afghanistan prepares itself for transition. This measure is one of four which are related to the ANSF and have been designed to assess their ability to deal with the IED threat.

### **C-IED Capability MOE**

15. Sitting below the Operational metrics in the hierarchy are a series of specific measures, intended to measure capability within Offensive and Defensive C-IED measures.

#### ***Offensive C-IED***

16. Offensive C-IED covers PREVENT and PURSUE. Offensive C-IED is concerned with restricting IED emplacement and focuses on the INS; it therefore aims to measure the effect of Offensive C-IED operations on the ability of the INS to devise, construct and emplace IEDs.

17. In order for the INS to emplace IEDs, he must have effective IED networks to fund and source components and then build, store and emplace the devices. PURSUE attempts to disrupt these INS networks through lethal and non-lethal operations. The “health” of these IED networks (since there will be a number of them) and as such the effectiveness of PURSUE can be assessed through intelligence reporting. As such, it is the least quantitative of the areas assessed.

18. As with all COIN campaigns, the acquiescence of the LN population is key to both Coalition Forces (CF) and the INS. If the INS has LN consent, then they are free to emplace IEDs. If CF have the consent of the LN population, they are more likely to deny the INS freedom to act as they please and will PREVENT the emplacement of IEDs. CF centred measures can also influence PREVENT, with area surveillance and dominance of ground being key enablers in the fight to deny the INS areas in which he can emplace IEDs.

### ***Defensive C-IED***

19. Defensive C-IED concerns itself with DETECT and PROTECT. These strands fit into two distinct phases in the IED process.

20. Once an IED has been emplaced, our top priority is to find it, and if we cannot do that, protect our troops. If devices become harder to find (and we fail to improve our capability or tactics techniques and procedures TTPs, a greater risk is presented to UK forces. Conversely, by improving TTPs and capability against a relatively constant threat, we would expect to see a more favourable operating environment. This is dependent upon a number of factors, both INS and CF centred; equipment capability, INS technologies and tempo of operations all play a role.

21. DETECT is concerned with the period after the device has been emplaced, but prior to its initiation or disposal. Improved DETECT capability affords CF troops a greater degree of safety, relatively independent of the number of devices within an area. This is a very dynamic area, with a constantly evolving set of measures and countermeasures being developed by both sides of the campaign.

22. Where we find IEDs, we use specialist capabilities to dispose of them. It is unlikely that every find will be attended (due to limitations in tactical freedom, or the availability of lift). Should we fail to find the device, the next priority is to mitigate its effects; this measure can also be used to measure how busy UK assets are and can act as an indicator of manning and training requirements.

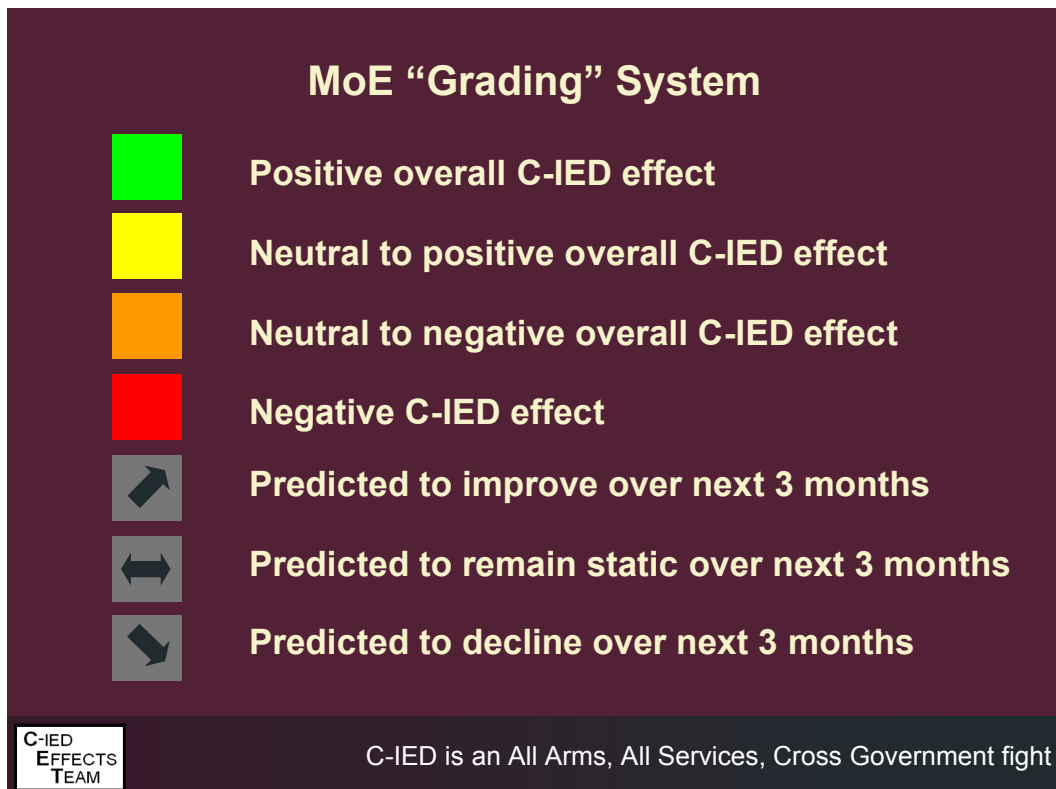
23. The PROTECT strand is concerned with improving the safety of troops in the event of a device exploding. This is primarily concerned with developing technologies for improved survivability of troops and vehicles.

### ***ANSF Defensive C-IED MOE***

24. ANSF specific measures are used to assess the developing capability of Afghanistan to run its own affairs and to be capable of finding devices, dealing with them in a safe manner, and mitigating against their effects in the event of explosion. They cover the same issues as addressed by the UK specific measures, the aim being to identify Afghan capability and equipment gaps.

### **Assessment**

25. In order to provide a visual aid to senior decision makers, the MOE metrics are coloured and future progress predicted, as shown in Figure 1. The assessment is made via a quarterly Military Judgement Panel, with experts from across the C-IED domain. The assessments and predictive assessments take into account, but are not limited to; historical trends, seasonality, changes in force density, operational activity, new C-IED capabilities, and INS training improvements, INS capabilities, and intelligence reporting.



**Figure 1: Traffic Light "Grading System" Applied to the Dashboard in order to provide assessment of progress.**

**Conclusions**

- 26. C-IED is a difficult area in which to measure effect. Multiple causes have a bearing upon individually observed effects, and must all be considered in order to provide a comprehensive and defensible assessment of C-IED progress.
- 27. There is no one metric that will adequately capture C-IED progress, and a combination of metrics must be used in order to measure progress across the C-IED fight. These metrics should not be considered in isolation, and the whole suite should be viewed as an interdependent whole.
- 28. Metrics are not a substitute for military decision making. They have been designed, and are intended to inform commanders' decisions when viewed with military experience and judgement, considering all other relevant factors.