



JOINT SERVICE
EXPLOSIVE ORDNANCE
DISPOSAL

Joint Doctrine Pamphlet
2/02

JOINT DOCTRINE PAMPHLET 2/02

JOINT SERVICE EXPLOSIVE ORDNANCE DISPOSAL

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Director General
Joint Doctrine and Concepts

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PREFACE

SCOPE

- 1. Background.** The Joint Services Explosive Ordnance Disposal (EOD) Study (Apr 00) concluded that single-Service arrangements for the delivery of EOD capability required co-ordination both at the operational level as well as in training. There was, however, agreement that the three Services' EOD requirements were sufficiently differentiated for specialist capabilities to be maintained in their current working environments. It was determined that Joint Doctrine was required to provide a framework for EOD operations.
- 2. Aim.** The aim of JDP 2/02 is to set down the doctrine for Joint Service Explosive Ordnance Disposal (EOD).
- 3. Purpose of the Joint Doctrine Pamphlet.** The purpose of this Joint Doctrine Pamphlet is to inform commanders, their staff, Other Government Departments (OGDs) and senior subject matter experts of the doctrinal principles for co-ordinating defence EOD across the spectrum of operations.
- 4. Policy.** This publication takes into account many of the recommendations of the Joint Services EOD Study produced for DCDS(C) and policy subsequently agreed at the Joint Services EOD Capability Development Group meetings, chaired by ACDS(Ops).
- 5. Context.** The JDP covers the higher-level doctrinal principles for Joint Service EOD, setting out how the capability can be employed in the planning and execution of operations. The doctrine takes particular account of the intelligence, Battle Damage Assessment, protection and mobility contribution made by Joint Service EOD to operations. Furthermore it provides guidance to commanders and staff on the optimum Command and Control and use of EOD assets relative to risk and operational urgency. EOD activities on deployed operations as well as in the Military Aid to the Civil Power (MACP) role are covered. Although guidelines on the capabilities of the Components are included, the JDP does not cover detailed procedures that are more appropriately contained in Joint Service Procedures for Explosive Ordnance Disposal (JSP 364).

LINKAGES

- 6. Place of JDP 2/02 and Related Documents.** JDP 2/02 supports JWP 0-10 'UKOPSDOC', JWP 2-00 'Joint Intelligence', JWP 3-00 'Joint Operations' and JWP 4-00 'Joint Logistics'. It highlights the areas where EOD planning and operations

have a significant influence on the prosecution of a campaign. Related NATO publications are currently under revision in the joint environment.

7. **Structure.** The JDP comprises four chapters. Chapter 1 provides a description of EOD, its characteristics and its utility in joint operations. For quick reference there is a flow chart at the beginning of Chapter 1 summarising the issues in the JDP and an indication of Service EOD capability is at Annex 1C. It is designed to be of use to commanders and staff unfamiliar with the broad span of EOD. Chapters 2-4 concentrate on more detailed issues and are designed to be of use to EOD staff in joint operational staff appointments. Chapter 2 introduces the deployed Joint EOD Cell (JEODC) in discussion of Command and Control issues. Chapter 3 identifies the JEOCD responsibilities for EOD input to Intelligence and Targeting. Chapter 4 considers the EOD ethos across the spectrum of conflict. It offers more detailed guidance on EOD in humanitarian operations (Appendix 4A) than in other scenarios, for which doctrine tends to available in single Service publications.

JOINT SERVICE EXPLOSIVE ORDNANCE DISPOSAL

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JOINT WARFARE PUBLICATIONS

The successful prosecution of joint operations requires a clearly understood doctrine that is acceptable to all nations and Services concerned. It is UK policy that national doctrine should be consistent with NATO doctrine and, by implication, its terminology and procedures (other than those exceptional circumstances when the UK has elected not to ratify NATO doctrine). Notwithstanding, the requirement exists to develop national doctrine to address those areas not adequately covered, or at all, by NATO doctrine, and to influence the development of NATO doctrine. This is met by the development of a hierarchy of Joint Warfare Publications (JWPs).

Joint Doctrine Pamphlets (JDPs) are published as necessary to meet those occasions when a particular aspect of joint doctrine needs to be agreed, usually in a foreshortened timescale, either in association with a planned exercise or operation, or to enable another aspect of doctrinal work to be developed. This will often occur when a more comprehensive 'parent' publication is under development, but normally well in advance of its planned publication.

The Joint Doctrine Development Process and associated hierarchy of JWPs is explained in DCI JS 16/02.

RECORD OF AMENDMENTS

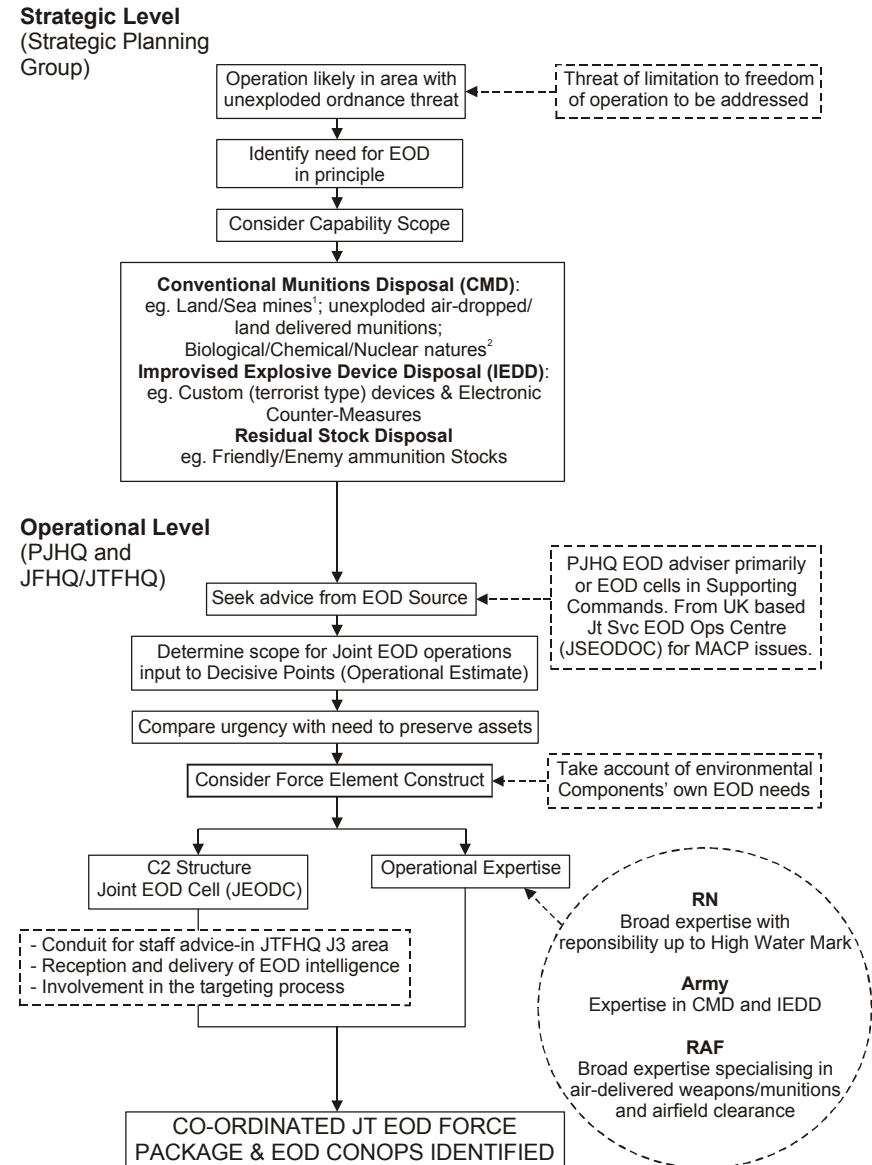
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CHAPTER 1 - JOINT SERVICE EXPLOSIVE ORDNANCE DISPOSAL

SECTION I - THE OPERATIONAL ESSENTIALS

Joint Service Explosive Ordnance Disposal Characteristics

- Joint Service Explosive Ordnance Disposal (EOD) is the combination of the specific and wide-ranging Explosive Ordnance Disposal (EOD) skills available within the Services:
 - To provide the most appropriate response to a particular threat or task.
 - To achieve economy of effort with scarce resources.
- It comprises a co-ordinating or controlling element (the staff) and the executive (the operators). The composition of these is determined by the estimate process.
- It relies on knowledge of Service EOD capabilities, training and interoperability.
- It is applicable across the complete spectrum of operations.



Notes (Figure 1-1):

1. Land or sea mine counter-measures are not primarily an EOD issue during combat, although EOD skills may be called upon for specific operations or phases.
2. Described as 'conventional' where delivery devices are conventional. Includes Sampling and Identification.

Figure 1-1 - Joint EOD Planning Factor Summary

**CHAPTER 1 - JOINT SERVICE EXPLOSIVE ORDNANCE
DISPOSAL**

SECTION I - THE OPERATIONAL ESSENTIALS

(FOLD OUT)

SECTION II - BACKGROUND

101. **The Explosive Ordnance Disposal Capability.** Explosive Ordnance Disposal (EOD)¹ is the element of Defence capability that enables the reduction of potential explosive hazards. It is an activity carried out across the spectrum of operations, primarily to provide mobility and protection required by a deployed force. As an operation develops, EOD activities assist in the restoration of normality and provide more generic protection both for friendly forces (including the Line of Communication (LOC) and the Base) and civilian populations. Its broad span is emphasised by the emergence of international terrorism as a tool of conflict. The capability extends to Military Aid to the Civil Power (MACP)² in Great Britain and Northern Ireland and to wider defence interests, where it serves to protect life and property.

102. **Explosive Ordnance Disposal in the Joint Environment.** EOD support to joint operations takes the form of both specialist staff advice, at all levels, and physical support by EOD specialists on operations. It is the means by which the military commander can ensure that the most effective use is made of limited specialist assets. EOD troops are generally deployed for one or both of the following reasons:

- a. **Joint Role.** To pursue a particular line of operation in the Joint Campaign Plan.³ In this role the synergy of cross-Service specialist expertise is exploited to achieve an outcome which may be decisive to the campaign. Planning is conducted at the highest level, which may not necessarily be in the Joint Operations Area (JOA).
- b. **Component Support.** To provide integral support to EOD units' parent Components, for example as part of the Force protection plan. In these circumstances, benefits (including opportunities for prioritisation of tasks) can accrue from co-ordinating the activities of component support.

103. **Lines of Operation.** Within a campaign plan, Lines of Operation (which seek to create the conditions for subsequent military operations or the establishment of a peaceful baseline for a return to normality) may include EOD operations. Indeed, a Decisive Point on that Line of Operation may represent the achievement of a state in which explosive hazards have been eliminated or reduced to a manageable level. Alternatively, it may represent the provision of assets in the JOA sufficient to react to

¹ The Defence EOD Capability Development Group, chaired by ACDS(Ops), endorsed the EOD vision statement on 31 Jan 01 as: 'A capability which meets the current and emerging Defence Planning Assumptions, which is sustainable and seamless across the full Spectrum of Operations, which is pro-active to potential threats, which reflects core environmental and technical skills, and which is structured and equipped to ensure effective delivery.' EOD definitions are contained in the Glossary.

² MACP is defined as: '*The provision of military assistance to the Civil Power in the maintenance of law, order and public safety using specialist capabilities or equipment, in situations beyond the capacity of the Civil Power*'.

³ See JWP 0-10 'UKOPSDOC' and JWP 3-00 'Joint Operations' for doctrine on the development of the Campaign plan.

situations arising from the discovery of unexploded ordnance or the deliberate planting of an Improvised Explosive Device (IED).

104. **Co-ordination of Specialist Component Capabilities.** Effective prioritisation of EOD tasks across Components is dependent on both an understanding of the specialist capabilities available across the Services and visibility of deployed assets and tasks. It also requires a mechanism for controlling or co-ordinating assets and providing input to the planning cycle.

105. **The Balance of Risk.** Fundamental to the success of operations involving EOD is the recognition of the need to balance safety and security against the requirement to maintain momentum. In simplistic terms the Commander is required to allocate the most appropriate EOD capability, based on his perception of the urgency of the task in comparison with the risk to the EOD operators and the surrounding population and property. Detail of the ethos driving EOD is discussed in Chapter 4, however the basic problem is illustrated by the diagram below. Whilst the perspective may be different from the various levels of command, EOD activities will reflect the risk assessment. In the two examples at Figure 1.2, a warfighting operation may dictate a proportionally greater need for speed than preservation of assets, whereas a Peace Support Operation (PSO), in a relatively benign scenario, could demand attention to safety above the need for speed. In all cases, external factors must be taken into account; the issue is not clear cut and is subject to the conduct of a careful estimate process.

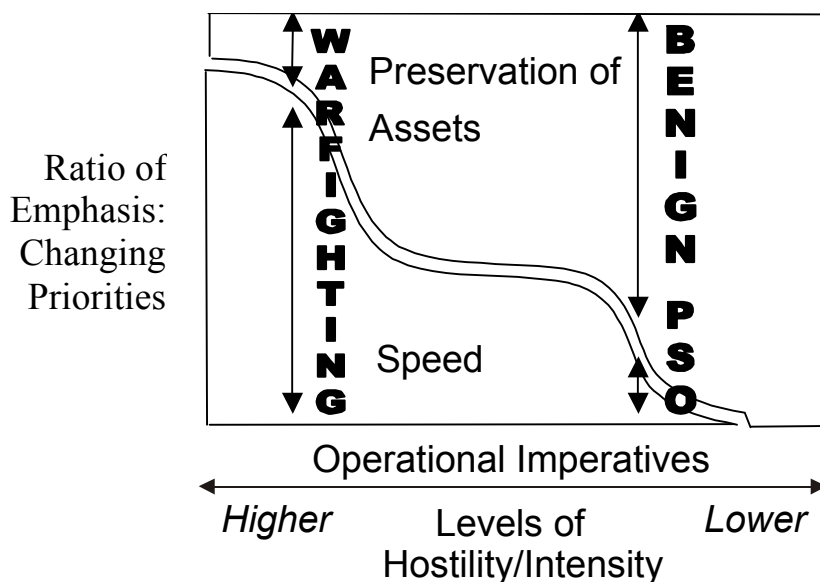


Figure 1.2 – Speed vs Urgency

106. **Functional Activities.** Central to EOD Operations is the reduction or elimination of explosive ordnance hazards. This involves the reconnaissance and planning of EOD tasks, access to and identification of explosive hazards, and their subsequent recovery and disposal. Annex 1A lists the generic elements of an EOD

operation at the operational and tactical levels; procedures for the conduct of these activities are published in specialist publications and are beyond the scope of this JWP. However, EOD in a joint context has a much broader span, incorporating the gathering and analysis of ordnance hazard-related intelligence and the implementation of threat-countering strategies at one end of the spectrum, and the provision of advice on humanitarian issues (where affected by Explosive Ordnance) at the other. Annex 1B considers Jt EOD within the Defence Capability Framework and explains its influence in more detail.

107. **Skills Base.** Service personnel with primary roles other than EOD may possess skills in specific areas of EOD, ensuring a broad and diverse base of capabilities and expertise. Employed carefully they can enhance EOD operational capability.

108. **Operational Effects.** EOD is an essential enabling element of a joint force as it provides an integral means of shaping or preserving the environment in which military assets are active or where there are security interests. EOD assets provide the means with which to counter the potentially significant destabilising operational effects on morale, access and mobility of explosive ordnance attacks. Furthermore EOD experts can provide risk assessments and hazard prediction of UK, Allied, adversary, Host Nation and former warring faction weapon systems, munitions, and munitions storage sites.

109. **Effects of International Law.** The conduct of military operations is governed increasingly by international law. The complexity and technological sophistication of many weapons has brought corresponding limitations to their employment. The UK is a signatory to a number of international agreements, including the Ottawa Convention and the UN Convention on Conventional Weapons. Whilst legal advice is now required on the study, development, acquisition or adoption of all new weapons, in ambiguous situations legal advice should be sought on the use of any weapon by own-force planners. EOD specialists can provide advice on the possible effects and implications of munitions or weapons used by opposing forces.

SECTION III - POTENTIAL THREATS

110. **Range of Threats.** The explosive ordnance threat is broad. It must be considered both in terms of an adversary's general capability as well as the potential to carry out significant individual acts, ranging from the tactical to the strategic. Threats are ever present, whether on deployed operations or in the home base. The range of EOD threat scenarios includes:

- a. **Improvised Devices.** At one extreme, the increasing emergence of asymmetric warfare accentuates the security threat posed. Examples of such threats include the use of improvised devices in inter-factional conflict during

PSO and the threats to internal security posed by a range of terrorist groups, from Irish Republican Provisionals to Animal Rights activists. UK Forces could find themselves either as the target of the hostile actions, or as impartial peacekeepers.

b. **Delivered Munitions.** At the other extreme, munitions available today range widely in both technology and quantity. Many types of munitions can now be delivered over long ranges, either to a wide beaten zone or to precise targets. Detonation may be effected either by mechanical means or electronic sensor technology. Their effects can both destroy and disrupt, and they present different EOD challenges depending on their targets. These may include operating airfields, naval operations, combat and/or supporting troops, lines of communication and non-military infrastructure. Other munitions, like sea and land mines, may be laid covertly, may be continuously active, and may require no maintenance. Also of note, not all nations are parties to or comply with conventions limiting the use of mines, anti-handling devices and other weapon systems. Finally, targeting and planning may need to take account of the threat posed to friendly forces by own ordnance, whether delivered by air, missile, artillery, helicopter or sea-launched.⁴



Munitions can cover a wide area and significantly restrict freedom to operate

⁴ As experienced in Kuwait, the Balkans and more recently in Afghanistan, UK Sea Launched Cruise Missiles or air-dropped bombs that do not detonate will eventually create an additional EO hazard to subsequent land manoeuvre, for example.

c. **Damaged or Jettisoned Munitions.** In addition to hostile munitions targeted at our own forces, recent operational experience has demonstrated that not all munitions function as designed, thereby presenting a significant clearance commitment.⁵ Furthermore, and adding to concerns over the effects of collateral damage, there are increasing occurrences of air-delivered ordnance needing to be jettisoned after aborted missions. Historically, MOD wartime sites have often been the source of ordnance disposal problems, whilst degraded wartime ordnance has occasionally been discovered on civilian sites. Each of these scenarios represents a substantially different but equally serious threat to life and property, and could pose a threat to forces or constrain their freedom of action long after the original delivery.

d. **Recovered or Surrendered Munitions.** Munitions recovered or surrendered during the course of an operation may present a significant EO hazard to UK Forces, LOC, Allies and civilians. In particular the disposal of unserviceable munitions, may become a resource intensive and protracted activity.

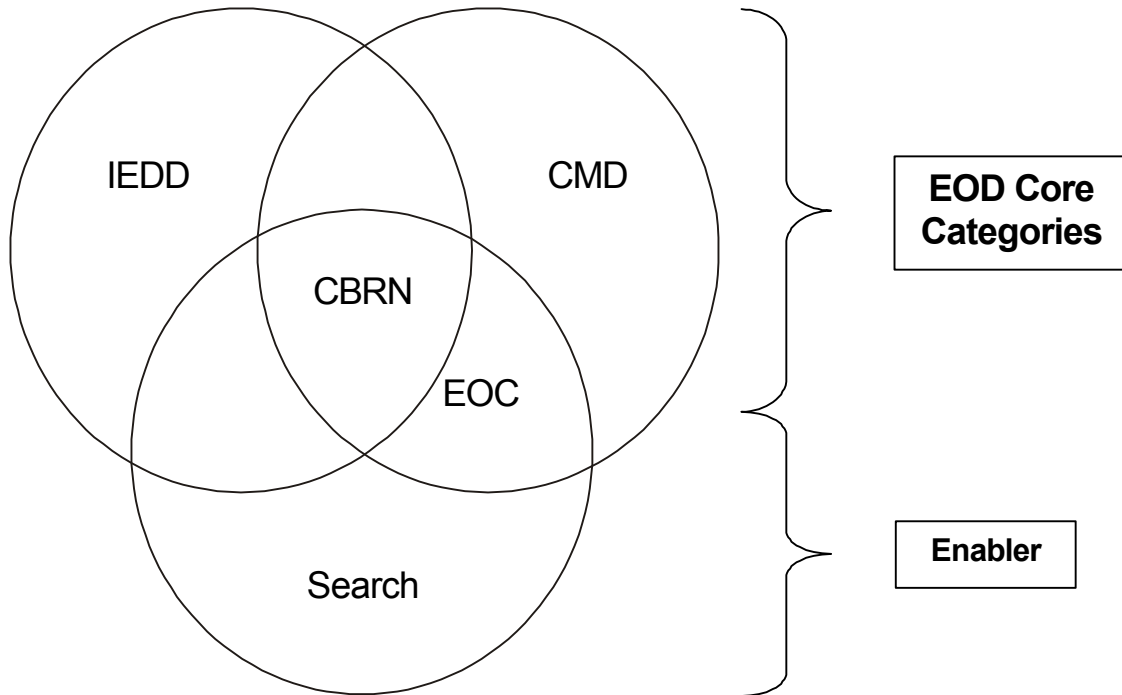
111. **Countering the Threat.** Whichever type of threat applies, the consequences of attacks involving explosive ordnance could seriously affect the plans of operational commanders at home and abroad. The ability to counter them with properly prepared forces, accurate and timely intelligence and active research and development is essential and should be kept under constant review.

SECTION IV - EXPLOSIVE ORDNANCE DISPOSAL CATEGORIES

112. Defence EOD Assets must be organised to deal with a broad range of tasks in the Maritime, Land and Air environments. To assist with the organisation, EOD tasks fall within one of two Core Categories: either **Improvised Explosive Device Disposal (IEDD)** or **Conventional Munitions Disposal (CMD)**.⁶ Specialist aspects of these core tasks include dealing with Chemical, Biological, Radiological & Nuclear (CBRN), devices and Explosive Ordnance Clearance (EOC). A related activity, Search, whilst not a core category, is an established 'enabling' process which may lead to the need for EOD operations to be conducted. The interrelationship of these activities is illustrated in Figure 1.3.

⁵ This includes the need to clear Unexploded Ordnance (UXO) that impede subsequent manoeuvre, a duty of care clearance and any humanitarian element - discussed in more detail in later chapters.

⁶ This includes Underwater Munitions Disposal (UMD).



Key

- IEDD Improved Explosive Device Disposal
 CMD Conventional Munitions Disposal
 CBRN Chemical, Biological, Radiological & Nuclear

Figure 1.3 – EOD Tasks

a. **Conventional Munitions Disposal.** CMD is the location, identification, rendering safe and final disposal of ammunition, pyrotechnics and explosive stores which have not functioned, and which may not have been fired. The term includes the disposal of all United Kingdom and foreign munitions and all explosives and detonators, whether from military or civilian sources. It does not include the disposal of Improvised Explosive Devices (IEDs). CMD also includes Biological and Chemical Munitions Disposal (BCMD) which covers any EOD operation conducted on conventional munitions containing either biological or chemical agents.⁷ EOD teams provide support to the ‘SIBCRA’⁸ process.

b. **Improvised Explosive Device Disposal.** IEDD is the location, identification, rendering safe and final disposal of IEDs. These can be defined as those devices placed or fabricated in an improvised manner, incorporating destructive, lethal, noxious, pyrotechnic or incendiary chemicals, designed to

⁷ These weapons are classed under ‘conventional munitions’ as they have historically been considered to be part of the conventional arsenal (eg. WW 1 mustard gas shells).

⁸ SIBCRA – Sampling and Identification of Biological, Chemical and Radiological Agents.

destroy, disfigure, distract or harass. They may incorporate some military explosive components, but are normally made from non-military items. The means of initiation may be victim-operated, timer or command-detonated or through impact (such as home-made mortars). Electronic Countermeasures would be deployed in support of some EOD operations in order to detect and/or inhibit radio-controlled devices.

c. **Search.** Search is a process that has wide utility across the Spectrum of Operations⁹ in combating conventional and asymmetric threats. Search is the application of systematic procedures and appropriate detection equipment to locate belligerents'¹⁰ resources and to confirm the presence or absence of EO or other munitions.¹¹ Not a specific EOD function, low-risk Search can be carried out by All-Arms and Police Teams. The application of Search procedures can provide a framework for risk management, isolation of EO threats and enabling safe access to a target.

113. **Specific Tasks.** Within the core tasks an important consideration will always be the development of intelligence and its relevant dissemination and further exploitation. In addition, the following EOD activities have elements which can be either CMD or IEDD-related:

a. **Chemical, Biological, Radiological and Nuclear Devices.** There is a requirement for a capability to deal with CBRN Devices. This encompasses Radiological Dispersal Devices, Improvised Nuclear Devices and Biological and Chemical Improvised Explosive Devices. At its lowest level, the attempt to spread agents through public utilities could fall into this category. Disposal of these weapons is classified collectively as Disposal of Weapons of Mass Effect.¹²

⁹ Many Search Operations take place in peacetime. These include MACP tasks such as Counter-terrorism and VIP Protection.

¹⁰ This includes enemy, faction or terrorist.

¹¹ In common usage, munitions (plural) can be military weapons, ammunition and equipment. (AAP-6)

¹² For example Nuclear Weapons Disposal (NWD). NWD covers EOD operation conducted on nuclear weapons or devices that might disperse radiological contamination.



Specialist skills and equipment are needed to combat CBRN threat.

b. **Explosive Ordnance Clearance.** One element of EOD is termed Explosive Ordnance Clearance (EOC). This is defined as ‘tasks to reduce or eliminate EO hazards from a defined area’.¹³ EOC needs to be carried out in dedicated areas to expand the commander’s freedom of action.

SECTION V - GENERIC AND SERVICE SPECIFIC FUNCTIONS

114. **Explosive Ordnance Disposal Skill Sets.** EOD capability comprises a range of generic skills, which are not simply delineated along single-Service lines. There is a need to have the appropriate mix of technical knowledge, skill and practical experience in the right place at the right time. Whilst certain skills are specific to Service, others are necessarily present in all Services.

115. **Single-Service Responsibilities.** Dealing with EOD at the joint level, it is important to understand areas of specific expertise and how they are represented across the Services. Current responsibilities, indicating each Service’s area of specialist expertise within the overall defence capability, are outlined at Annex 1C. The Service with the most appropriate expertise would be expected to lead on the

¹³ UK Proposed definition for NATO EOC STUDY 2187.

handling of specific incidents. The important issue is that the single Service element with the most appropriate expertise is also likely to have access to the most up-to-date methodology, techniques and experience for dealing with EOD tasks in the safest manner.

116. **Use of most Appropriate Skills.** EOD Personnel should not be put under unreasonable pressure to operate outside their skill set parameters where this can be avoided. It is therefore important that any force package is correct, consistent with the threat, the environment and the relevant circumstances within the spectrum of operations. Subsequent use of the EOD Force Elements is then determined by the Risk Balance Analysis alluded to above. The following chapters explore EOD in more detail and are specifically focussed on guidance for a specialist adviser to a joint forum.

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ANNEX 1A – GENERIC EXPLOSIVE ORDNANCE DISPOSAL OPERATIONAL ACTIVITIES

1A1. Whatever type of Explosive Ordnance Disposal (EOD) operation is being conducted, and in whatever environment, there will be certain fundamental components that apply across the levels of operation. A summary follows.

1A2. **Recognition.** Recognition is facilitated through intelligence, training and up-to-date briefing.

1A3. **Command and Control.** Command and Control (C2) is enabled through the provision of a JSEOD Cell (see Chapter 2), appropriate and rapid tasking and effective communications.

1A4. **Mobility.** Whilst own force mobility is an objective, EOD asset mobility is specifically needed to enable response to the task and to deal with the Unexploded Ordnance (UXO). This may involve access to a range of specialist techniques: heliborne, cross-country driving, fast-roping, parachuting, diving, digging, shafting and shoring.

1A5. **Protection.** Protection for EOD assets is achieved through use of armoured vehicles, Electronic Countermeasure (ECM) cover, protective clothing and remote means of dealing with hazards.

1A6. **Identification of the Threat.** The EOD operators need to identify the state and nature of the UXO, the degree of risk, potential blast and fragment hazards, secondary hazards and the optimum method of managing the hazards.

1A7. **Control of the Device.** Gaining control of the device may involve evacuation, cordon, isolation, stabilisation, reconnaissance (possibly remotely) and operator search.

1A8. **Diagnostics.** Diagnostics involves matching the UXO against known information, making use of X-rays, photographs, sampling, spectography, dosimetry and circuit-testing.

1A9. **Disablement.** Disabling the device can be achieved by defuzing, disruption (including destruction) or disassembly.

1A10. **Render Safe.** Completing an EOD operation involves separation of components, destruction of any unstable elements and declaration that the area is safe. Where possible, the collection of intelligence or forensic evidence is undertaken.

1A11. **Final Disposal.** The final disposal of EO which may include demolition or burning in place, removal to a disposal area or other appropriate means.

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ANNEX 1B - JOINT EXPLOSIVE ORDNANCE DISPOSAL ACROSS THE FRAMEWORK OF CAPABILITIES

1B1. Joint Service EOD is influential on a broad spectrum of activity within the preparation for, the execution of, and recovery from a deployed operation. At the same time, from an MACP perspective, Joint Service EOD is practised on a daily basis in ‘peacetime’ across the capability areas. Some examples of these points of influence are set out below. In general terms, Jt EOD primarily influences the military capabilities of *Inform, Prepare, Protect* and *Operate*. However, it also relevant to *Command, Project* and *Sustain*.¹

1B2. Joint Service EOD’s role to **inform** is derived from EOD intelligence gathering and timely dissemination of key information relating to capabilities available to an enemy or to subversive groups. At the operational level, the process involves input to the operational picture and to joint targeting. In particular, exploiting knowledge of the enemy’s potential weapons. Key facilitators are intelligence preparation of the battlespace (IPB), threat assessment and information exchange. Clearly, there is also a requirement to inform own forces’ staffs of our own EOD capabilities and constraints.

1B3. UK forces use Joint Service EOD to **prepare** for a campaign primarily through development of counter-measures and procedures to overcome identified explosive threats. This is achieved through the investment of resources to acquire a broad knowledge base, and is supported by appropriate training, skilled manpower and the maintenance of specialist technical equipment to neutralise specific threats.

1B4. Joint Service EOD has a role to **protect** life and property, whether in assistance to the Civil Authorities or on deployed operations. This is designed to enable and enhance UK Force Protection and, therefore, the Commander’s freedom of action.

1B5. Joint Service EOD assets are configured to **operate** proactively in support of a commander’s desired end-state in all types of operation, enhancing Force Protection, Manoeuvre and Freedom of Action.

1B6. Within the **command** process, Joint Service EOD provides the mechanism for co-ordination of individual Service specialist EOD Operations and Plans.

1B7. Deployable assets, many at high readiness, enhance UK forces’ ability to **project**. Key to the contribution is the deployability, interoperability and flexibility of EOD assets.

¹ Capability Areas identified in the ‘UK Joint Vision’ paper dated 1 Aug 01.

1B8. Joint Service EOD contributes to our ability to **sustain** as an enabler in a logistic capacity – particularly in guaranteeing access to facilities - and in the maintenance of combat power through EOD operations.

ANNEX 1C – EXPLOSIVE ORDNANCE DISPOSAL RESPONSIBILITIES AND CAPABILITIES WITHIN THE DEFENCE ENVIRONMENT

1C1. This Annex describes the capabilities in which EOD units across the Defence environment routinely have a lead responsibility (or Subject Matter Expertise). The nature of training and experience gathered allows EOD operatives to gain a broad range of knowledge and skills, allowing a limited all-round capability, in addition to areas of accepted specific expertise. Nevertheless, units with specific expertise are likely to have access to the most up-to-date methodology, techniques and experience for dealing with EOD tasks in the safest manner.

1C2. One of the responsibilities of EOD staff in a joint environment is to assist J3 staffs in the identification and allocation of the most appropriate area of expertise to deal with EOD tasks. The advice needs to be balanced with the urgency and requirement to preserve life and property in the particular circumstances.

1C3. **Joint Aspects.** Command and Control (C2), covering both deployed and Military Aid to the Civil Power (MACP) operations, is discussed in detail in Chapter 2. However, it should be noted here that a single permanent joint control organisation, the Joint Services EOD Operations Centre (JSEODOC) already exists to provide the tasking function for all three Services for UK MACP operations. Its procedures can be studied to extract lessons of best practice for deployed operations, when appropriate.

1C4. **Common Capabilities.** Whilst specific skills and capabilities are detailed in the following paragraphs, there is a basic competence across all Defence EOD assets. These common capabilities are listed below. In the interests of safety, the most appropriate agency would normally be the one nominated as ‘primary’ in that area:

- Improvised Explosive Device Disposal (IEDD) (Royal Logistic Corps (RLC) primary)
- Biological and Chemical Munitions Disposal (BCMD) (RLC primary; RAF primary on SIBCRA¹)
- Conventional Munitions Disposal (CMD)
- British Land Service Ammunition (RLC primary)

1C5. **Royal Navy.** The Royal Navy is responsible for the clearance of conventional and nuclear munitions in tidal waters, on the coastline below the high water mark, in vessels and offshore installations at sea or in port, and on or near Naval property. Under MACP in the UK in peacetime, RN EOD personnel provide both CMD and IEDD response as tasked by the JSEODOC. The RN EOD capability incorporates

¹ SIBCRA – Sampling and Identification of biological, chemical and radiological agents.

EOD Divers within the Fleet Diving Groups and also in the Mine Countermeasures Vessels.

Areas of Specialist Capability:

- IEDD (Heavy)²
- Naval Range Clearance
- Maritime MCM/Mine Information Exploitation/EOD
- Air-dropped Munitions (Below high water mark and at sea)
- Sea Mines, Limpet Mines and Torpedoes
- Clearance of crashed aircraft (underwater)
- Underwater EOD Diving



Shallow water and beach clearance

1C6. **Army.** Army EOD capability is provided by both the Royal Engineers (RE) and the RLC:

- a. **Royal Engineers.** The RE are responsible for the clearance of WWII German aircraft bombs (other than those in crashed aircraft), land mines and

² 'Heavy' IEDD involves the deployment/use of Remote Controlled Vehicles and associated equipment and is likely, although threat dependent, to have ECM support. 'Light' is a manual capability that does not involve the deployment of vehicles but may, depending on the threat, have ECM support.

military booby traps. They also deal with Service ammunition found during area clearance above the high water mark or in non-tidal waters, except those specifically within the responsibility and technical expertise of the RN, RLC or RAF. In addition, the RE can provide a High Risk Search (HRS) capability in support of IEDD. The RE may lead where an operation requires an RE support function, such as tunnelling, digging or protective works. In War or Other Operations (OO) they may also be required to conduct IEDD, along with RLC teams, should the threat so dictate.

Areas of Specialist Capability:

- Range Clearance
- WW II German Air-dropped Munitions
- Military Booby Trap IEDs
- Area/Route Clearance

b. **Royal Logistic Corps.** The RLC is responsible for the clearance of Land Service munitions and explosive items of an unusual nature, or in situations where the risk of detonation is unacceptable (except where the item lies clearly within the field of expertise of the RN, RE or RAF.) In peacetime, the RLC has the lead on all IEDD matters, and is responsible for all Army IEDD operations under the auspices of MACP; this includes operations in Northern Ireland. It also sponsors the JSEODOC, which is established and configured to support MACP operations. During war and OO, RLC Ammunition Technicians (ATs) are likely, in addition to other tasks, to be involved with ammunition technical tasks. However their contribution to EOD operations (both CMD and IEDD) will be dependent on the overall threat, type of incident and level of conflict.

Areas of Specialist Capability:

- IEDD (Light and Heavy)
- Electronic Countermeasures (ECM)
- Advanced Manual Techniques (AMT)
- Logistic Disposal
- Ammunition Stockpile Clearance



Use of remote "Heavy IEDD" Devices can reduce risks to life



An example of Conventional Munitions Disposal (CMD)



An example of Improvised Explosive Device Disposal (IEDDD)

1C7. **Royal Air Force.** The RAF provides EOD capability for the clearance of conventional munitions on RAF property and on all crashed aircraft, and air-delivered munitions (other than those found on RN or Army property or below the high water mark). RAF Teams are also engaged in the explosive ordnance clearance of former air weapons ranges and storage sites returned to public or private ownership. In war and OO the RAF provides designated Airfield EOD teams to Deployed Operating Bases as a component of the Airfield Damage Repair capability. The RAF contributes EOD teams for CMD and IEDDD tasks under MACP; these are tasked by the JSEODOC.

Areas of Specialist Capability:

- IEDDD (Heavy)
- Range Clearance
- Air-dropped Munitions
- Clearance of Crashed aircraft
- Airfield Clearance

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CHAPTER 2 – COMMAND AND CONTROL

201. Significant benefits accrue from maintaining the Command and Control (C2) of Explosive Ordnance Disposal (EOD) at the highest, normally joint, level. Successful C2 is dependent on visibility of operational activity and rapid exchange of information so that EOD implications can be incorporated into the commander's overall assessment and best use made of critical knowledge. On smaller deployments, where limited EOD resources are in place, access to a network of specialist advisors is critical both for the J3 staff and for the deployed EOD assets.

202. **Command and Control in a Joint Context.** The C2 system for EOD in a joint environment would normally take into account the specific responsibilities falling to individual Components as described at Annex 1-C. As EOD Force Elements would be deployed according to the perceived threat, joint C2 structures are likely to be flexible and may reflect the EOD deployed footprint. The C2 structure should enable the achievement of some or all of the following:

- a. Presentation to the Joint Staff of a regular, up-to-date overview of the EOD picture in the Joint Operations Area (JOA) and of advice, particularly to J3, on EOD threats and opportunities. This may be incorporated into a formal battle rhythm procedure.¹
- b. The maintenance of an all-informed EOD network across the Components.
- c. Provision of authoritative advice or, if appropriate, direction, to EOD operatives based on own knowledge, knowledge within the deployed Components or knowledge obtained through 'reach-back' channels. The aim should be to ensure incidents are dealt with in the safest way possible, commensurate with the urgency.

203. **Command and Control Tools.** To fulfil these responsibilities, a well-developed Reports and Returns system is needed, together with robust communications between Components, back to UK specialists and amongst the deployed commander's staff.

Primary EOD Command and Control Arrangements

204. **Cross-Spectrum Control.** The Deputy Chief of Defence Staff (Commitments) (DCDS(C)) maintains an EOD focal point in the Directorate of Military Operations (DMO) for co-ordination and liaison with the Permanent Joint Headquarters (PJHQ) and Other Government Departments (OGD). Through the

¹ As described in JWP 3-00 'Joint Operations'.

means of co-ordinating fora, such as the Capability Development Group, guidance is given regarding the balance of EOD effort between conventional deployed operational commitments and high-readiness Military Aid to the Civil Power² (MACP) tasks. Furthermore, the joint focal point affords the opportunity to co-ordinate Doctrine, Concepts, Structures, Sustainability, Training, Equipment, Research and Development.

205. **Control Network.** The diverse nature of EOD operations and the need to maintain high-readiness operational teams in both the Home Base and on deployment calls for a twin-track approach. Primarily, C2 is exercised through normal (PJHQ) channels where the focus is on deployed operations. Additionally, however, the infrastructure and communications required to provide permanent and rapid reaction capability to EOD incidents in UK (and British Forces Germany) necessitate a standing joint control organisation along lines separate to PJHQ channels. As both command organisations ultimately control the same EOD assets they have been incorporated on a single wiring diagram (Figure 2.1). For clarity, however, each will be described separately first.

206. **Command Arrangements in War and Other Operations.** The conventional C2 system is represented by the solid black lines in the diagram. The stages are described in more detail:

- a. Following the strategic decision to pursue EOD operations in a world-wide context, CDS, through DCDS(C) and his staff, will normally give Planning Guidance to PJHQ. At this point the estimate process,³ informed by co-opted EOD specialist advisors, will determine the level of EOD representation required to conduct joint operations, and will issue direction or advice to the Supporting Commands regarding the EOD threat to deployed Components.
- b. The Joint Commander at PJHQ usually exercises OPCOM of all assigned forces, including EOD capability, during War and Other Operations (OO). In-theatre EOD assets are OPCON to the Joint Task Force Commander (JTFC), although they are normally located within the relevant Component and provide specialist support to that Component as the primary task. Except in operations with an expected Line of Operation involving EOD from the outset, assets available for joint tasking are unlikely to be collocated as a formed joint unit.
- c. Within the Joint Task Force Headquarters (JTFHQ) a **Joint EOD Cell (JEODC)** will normally co-ordinate the theatre EOD assets. It is likely to be capable of communicating with all deployed EOD assets and have a link to

² A Civil Power is a civil authority that has constitutional or statutory responsibility for the maintenance of law order and public safety.

³ See JWP 0-10 'UKOPSDOC' and JWP 3-00 'Joint Operations'.

static specialists in UK, collating information received in reports and returns and providing advice to the J3 staffs. Depending on the situation and the nature of assets involved, the most appropriate Service to deal with the enduring threat would normally provide the C2 conduit. In the event that EOD assets were required for a joint task, the JTFC would issue instruction through J3, making best use of functional command nodes within the components and establishing a lead agency. The JEODC will be manned by a small number of experienced EOD Staff, commensurate with the expected scale of EOD Operations. It is expanded at Annex 2A.

Components are likely to maintain C2 nodes for the provision of advice to the Component Commander on the employment, tasking and co-ordination of Component EOD assets.

207. **Command Arrangements in Peace including Military Aid to the Civil Power.**

a. **Military Assistance to the Civil Power.** EOD assistance is provided as MACP which is a discrete component of Military Aid to the Civil Authorities (MACA). Requests for EOD assistance are normally received direct from the police forces concerned to the **Joint Services EOD Operations Centre (JSEODOC)**, which then tasks the most appropriate assets. MACP EOD Operations conducted in the United Kingdom are usually directed by the JSEODOC, under delegated control from the Directors of Operations (normally through Military Operations 2 (MO2)). For routine MACP operations, the JSEODOC will co-ordinate with the Supporting Commands' Headquarters. For non-routine operations involving EOD incidents from the high watermark and above, or for Special Forces operations, JSEODOC tasks EOD teams directly.

b. **Royal Naval Tasking at Sea.** In addition to the UK peacetime (MACP) CMD and IEDD tasks controlled by the JSEODOC, the RN EOD capability also incorporates EOD Divers within the Fleet Diving Squadron and in Mine Counter Measure Vessels. These units have a maritime EOD capability and JSEODOC will not be aware of the deployment and capabilities of these maritime assets. Seagoing vessels and offshore installations requesting EOD (CMD only) assistance may report to the Maritime Operational Centres (MOCs). Given the unique maritime environment, the MOC will decide if the task can be dealt with directly by the Area Clearance Diving Group or if they will need to use a RN Ship to assist in the task. If the task can be dealt with directly by the Diving Group it will be passed to them. Should the MOC decide that a RN Ship will be required to assist the Diving Group they will liaise with CINCFLEET's Duty Fleet Controller (DFC) and MOD (DNO) to seek approval to accept the task. Once MOD clearance has been given, DFC

will task the most suitable RN Ship and Diving Group. The Diving Group will always be responsible for liaising with JSEODOC for an appropriate tasking number. In addition, should a local authority report a maritime task directly to JSEODOC, the JSEODOC will task the most appropriate Diving Group. Should the Diving Group decide that in order to complete a task they will need the assistance of a RN Ship, they will contact the DFC in order for the above procedure to be followed.

c. **Northern Ireland.** EOD Operations conducted in Northern Ireland are controlled separately through the Directors of Operations in liaison with the Northern Ireland Office, as appropriate.

d. **Special Projects.** There are certain special circumstances under which Central Government will be involved in the control of Joint EOD Operations. These are principally MACP tasks in support of OGDs where political clearance is required. These arrangements involve MO2, HQ LAND and, where appropriate, the Civil Police.

e. **Overseas Permanent Commands.** EOD is a J3 function, requiring staff officers capable of co-ordinating EOD operations and advice on any required reinforcement. If necessary, a Joint EOD cell should be considered, reflecting shorter-term deployed operations (see Figure 2.1).

f. **British Forces Germany.** EOD assets are under the OPCON of J3 Support Command staff with advice provided directly by the appropriate senior operator.

g. **Other Tasks.** Other peacetime EOD tasks are conducted under command of CINCFLEET, CINCLAND and CINCSTC, eg. trials, range and impact area clearance.

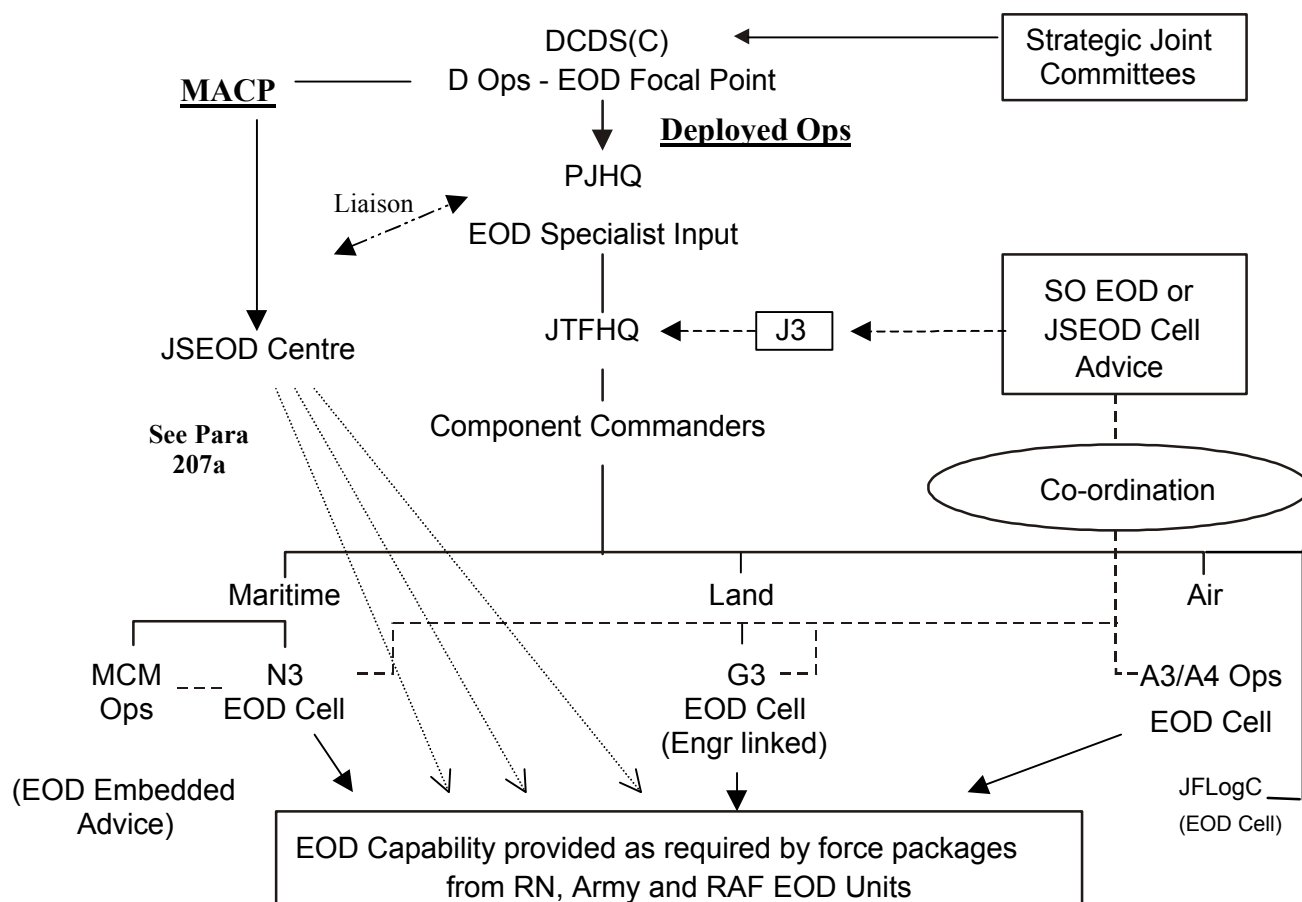


Figure 2.1– Command, Control and Tasking Arrangements

Key:

- > = Tasking and Routine C2, including Deployed Operations
-> = MACP Tasking: in emergency, direct to units; routinely, through SC HQs
- > = Co-ordination (as appropriate, functional direction)

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ANNEX 2A – DEPLOYED JOINT EXPLOSIVE ORDNANCE DISPOSAL CELL

2A1. Whilst it is not intended to provide a template for the structure and working practices of a Joint EOD Cell (JEODC) on deployment, there are underlying issues that can assist in identifying the optimum contribution for each scenario.

2A2. The most crucial principles that are likely to influence the ORBAT of the staff cell are the need for:

- a. **Flexibility.** The cell should have the capacity and experience to advise on the full range of specialist operational activities associated with EOD in the Maritime, Land and Air environments. In smaller scale operations, with little EOD activity, the senior EOD advisor may need to rely on sources outside the Joint Operations Area (JOA) for specific support. Where this is the case, discrete communications with, for example, the UK-based Joint Service EOD Operations Centre (JSEODOC) or single-Service specialists can be of assistance.
- b. **Economy.** The availability of Subject Matter Experts (SME) will need to be balanced against the need for flexibility. Collocation of the JTFHQ with one or more Components may assist, as would the pooling of EOD operating units. Where this is not pragmatic, communication links with the Component EOD units is essential, with opportunities taken for regular specialist EOD input to the Joint Staff.
- c. **Authority.** A senior EOD representative in the JOA should be nominated by PJHQ. Circumstances will dictate whether the post is collocated with the JTFHQ or with one of the Components. However the post is likely to be filled by the most appropriate specialist, in terms of the complete operation. The need to refer decisions to a competent authority will also have to be decided at the outset of an operation as the Joint Task Force Commander (JTFC) will carry ultimate responsibility for EOD decisions based on the assessment of risk.
- d. **Visibility.** The deployed JEODC will need visibility of the activities and commitments of Component EOD units in order to assist in co-ordinating activities. This is particularly important where speed is of the essence. As the focus for all EOD assets in the JOA the JEODC will require well-developed communications, backed up by a sound Reports and Returns system – and the staff to control it.

e. **Co-operation.** The JEODC should be able to represent the JTFC's aims clearly and in a way that engenders proactive co-operation amongst the Component EOD capabilities.

f. **Continuity.** However flexible the Joint Service EOD command arrangements have to be, there is a need to ensure that the Joint Staff is aware of, and used to dealing with, the Joint Service EOD representation. Efforts should be made to maintain continuity of practice from one operation to the next, ensuring that adequate input of EOD issues to the planning process remains the norm.

2A3. **Cell Models.** Based on the principles above some examples of possible cell configurations are offered below. These examples are not prescriptive – each scenario may demand a different solution. They are linked to recognised Scales of Effort and dependent on the nature and complexity of EOD input to operations. It is assumed that the SME is drawn from the most appropriate capability field for the complete operation.

a. **Single Component Operations.** Although all operations will incorporate a joint element at some point, those which are largely run by a single component may simply need a direct link from the Component's EOD staff or senior SME to the J3 staff – whether deployed, at PJHQ or within the MACP chain of command.

b. **Small Scale Joint Operations (No EOD Line of Operation).** Where EOD is unlikely to make a significant contribution to a small scale operation, it may be sufficient to provide advice to the J3 Staff through a single SME. The SME may be either collocated with the JTFHQ (where deployed) in the staff role – especially important where more than one component's EOD assets are deployed - or a senior member of a component's deployed EOD operational unit. If the latter, regular contact with the staff – at least daily – would ensure that EOD input to the Joint Operational Picture was maintained.

c. **Joint Operations with an EOD Line of Operation or significant ORBAT presence.** Whenever significant EOD contributions are made to an operation by more than one component, whatever Scale of Effort may be involved, the establishment of a permanently-staffed cell to co-ordinate EOD activities can be beneficial. The role would be to provide regular advice to the Joint Staff within the battle rhythm (especially to J2 and J3-J5), and to co-ordinate or direct EOD operations. Depending on the extent and complexity of the EOD tasks, an appropriate senior SME with sound knowledge of all components' capabilities should lead the cell, with watch-keepers drawn from all relevant Services to assist planning and direct links to the Components.

CHAPTER 3 - INTELLIGENCE AND TARGETING

301. **Co-ordination of Intelligence.** Well-informed preparation is a key factor in all stages of an operation. Explosive Ordnance Disposal (EOD) input is provided through appropriate intelligence channels. It is important to identify the contribution that can be made by the appropriate and co-ordinated exchange of EOD information and input to the Joint Operational Picture (JOP). Whilst detailed single-Service doctrine for specific operations exists¹ and operations are often carried out on a Component basis, the sharing of EOD intelligence through a joint co-ordinating point is essential. Whilst this would normally be through the Joint Task Force Headquarters (JTFHQ) staff on deployed operations and the Joint Service EOD Cell (JEODC) for Military Aid to the Civil Power (MACP), this Chapter provides more detail, focussing on the strategic and operational levels.

The Strategic Level

302. **Defence Intelligence Service.** Knowledge of the range of ordnance that will confront the Joint Force is essential to the conduct of efficient operations. The Defence Intelligence Service plays a vital role in the provision of:

- a. Technical Intelligence on foreign² ordnance, which will feed technical advice and scientific work on Render Safe Procedures and the safe storage, handling and final disposal of the munitions.³ Whilst some of this intelligence can be gleaned from other sources, some must be obtained through exploitation of deployed EOD assets.
- b. The EOD threat profile.
- c. Targeting information through which missions will be planned in order to destroy stocks of ordnance before the enemy has an opportunity to deploy.

The Operational Level

303. **Information Exchange.** EOD Commanders and operators will need access to EOD databases, with appropriate communication links, in order to collate, process, manage and advise on threat data. EOD information needs must be briefed into the overall J2 intelligence collection plan. Information requirements could include applicable international legislation and the means to interpret intelligence on

¹ As an example, Maritime EO operations can include Mine Countermeasures (MCM) conducted from ships, using a variety of manned and unmanned intervention systems to provide Mine Information and Exploitation (MIE). Certain information gleaned from these operations, such as on the nature of munitions discovered, needs to be made available both for the core EOD community and for Land and Air Components' benefit (to use as appropriate).

² This includes enemy, allied and third party nations if munitions originating there could pose a threat.

³ EOD databases should also be populated with guidance on Allied and export variants of Allied ordnance in order to complete the information/intelligence spectrum.

adversaries' explosives. Speed of access to such information is likely to be critical, allowing rapid closure of incidents using scarce EOD resources.

304. **Reporting.** Reports on operations in the field need to be passed up the command chain to inform superior commanders of progress and to activate mechanisms for support from specialist teams - should the operator discover items of ordnance that are not identified in UK EOD databases. As EOD operations are completed, units should declare progress in common formats, indicating clearance levels and residual risk.

305. **Battle Picture Input.** The JEODC is responsible for EOD input to the J2 picture, particularly concerning the level of enemy technical sophistication, but also in the field of Battle Damage Assessment (BDA). The information obtained will allow the commander to make judgements on issues relating to both the environment in which he is operating, including the psychological state of his adversary, and the physical constraints placed upon him. The nature and clarity of the information will depend on issues such as the availability of EOD teams, the density of EO and the levels of contamination existing within a Chemical, Biological, Radiological and Nuclear environment. Within the JTFHQ, timely BDA data is provided by the JEODC to:

- a. Assist in the analysis of unexploded ordnance threats.
- b. Identify the extent of the Joint Force's freedom of manoeuvre. Freedom of Manoeuvre may be constrained by either own, enemy or other munitions.
- c. Assist in future Jt Service planning, including the implications for Force Protection (FP) and Humanitarian activities of enemy munitions that remain intact but have not been fired.

306. **Targeting.** During the preparation of the Joint Integrated Prioritised Target List (JIPTL), the JEODC is available to advise on the likely enduring effects of Fires on territory over which own forces or civilians may be required to move. The JEODC can highlight the likely need to ensure humanitarian freedom of manoeuvre and protection during and after any hostilities. The stages in the targeting process (normally co-ordination meetings) in which JEODC contributions may be made are:

- a. **Target Nomination List.** The staffing of the following day's targets, based on the JTFC's guidance and the results of available BDA. At this critical stage, the JEODC can influence the production of the target list or raise issues for discussion at the Joint Fires Element.
- b. **Joint Fires Element.** At this meeting the joint, integrated target list is discussed and recommendations for prioritisation made. This meeting normally

takes place up to six hours before the Joint Co-ordination Board. Attendance by the Joint EOD representative or the appropriate senior SME is recommended.

c. **Joint Co-ordination Board.** At this meeting, any changes to the situation are briefed to the JTFC. The JIPTL is presented to the JTFC for confirmation or amendment. EOD interests may have to be represented by Chief J3 unless the nature of operations dictates that either the Joint EOD representative or the appropriate senior SME is present.

307. **Joint Explosive Ordnance Disposal Cell Responsibilities in a Multinational or Integrated Context.** Within a deployed headquarters, the JEODC staff would be expected to:

- a. Input to and obtain information from NATO commands, or other coalitions.
- b. Input to the coalition planning of aircraft munitions jettison areas, when required. The plan must be agreed early to ensure that assets are made available to monitor those areas and to carry out appropriate disposal, probably post-conflict.
- c. Agree standards and methods of reporting clearance activities amongst coalition partners and in accordance with legal requirements.
- d. Liaise with Other Government Departments and Non-Governmental Organisations present in the area of operations. More detail on this is included under Humanitarian Operations in Chapter 4.

Tactical Level

308. **Systems.** A number of tactical level systems exist for the collation and transfer of information and intelligence. Description of the systems is beyond the scope of this JDP; however, cross-Service connectivity is the key to successful management of information.

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CHAPTER 4 - CONDUCT OF OPERATIONS

SECTION I - PREPARATION

401. **Force Selection.** The Strategic Estimate dictates the size and shape of the Explosive Ordnance Disposal Force Element (EODFE) for all Explosive Ordnance Disposal (EOD) operations, although there will be substantial differences in the processes to achieve this, depending on the nature of operations (as described in Chapter 2). Nevertheless, direction will be issued to the Supporting Commands, through the Commitments organisation, to define the components that will need to be provided. Key considerations reflect the Joint and Component requirements:

- a. **Skills Balance.** There is a need to maintain a balance of EOD skills in a Joint Operations Area (JOA). Here component advice on both skills and necessary equipment will be critical and needs to be channelled into PJHQ for Expeditionary Operations. On deployment EOD operations should be conducted as seamlessly as possible across the maritime, ground and air environments. This requires careful co-ordination both prior to and during the operation using the Joint Service Explosive Ordnance Disposal Cell (JEODC), and may involve the need to conduct training in order to familiarise component EOD operators with procedures in other environments.
- b. **Components.** Requirements of individual Components will need to be met to guarantee dedicated cover for the fulfilment of component-specific tasks.

402. **Sustainment.** Sustainment encompasses manpower, equipment, logistics, a single training strategy and readiness to enable a force to maintain the necessary level of combat power for the duration required to achieve its objectives. Both in the long term and for specific operations, generation of sustainability involves all Components; each is responsible for ensuring that capability is generated in a coherent fashion, and with balance to optimise efficiency. In particular, there is a need for:

- a. Communications with both voice and real-time data links to EOD teams.
- b. Equipment that is interoperable across the Services.
- c. Sufficient appropriately trained and equipped personnel.
- d. The maintenance of an EOD intelligence capability.

SECTION II – EXPLOSIVE ORDNANCE DISPOSAL OPERATIONS ACROSS THE SPECTRUM OF CONFLICT

403. **Explosive Ordnance Disposal in War.** Substantial EOD detachments could be expected to contribute to Force Elements in a warfighting deployment,¹ which is likely to be at Medium Scale and above. A full range of Service EOD capabilities (as described in Annex 1C) are likely to be involved. Where a Joint Task Force Commander is deployed, C2 arrangements will be as described in Chapter 2. Flexibility will be called for when operations involve Alliance or Coalition partners. In addition to the complexity of Joint operations, UK EOD assets may be called upon to take a lead in multinational operations, where capabilities and expertise dictate.

404. **Explosive Ordnance Disposal in Peace Support Operations² (Other Operations).** Peace Support Operations (PSO) embrace a wide range of scenarios from Peace Keeping (PK) in a benign context to Peace Enforcement (PE) and Complex Emergencies in hostile situations. Whilst the political boundaries may dictate the nomenclature of the operation (eg. MACP in UK), it is the potential threat that determines the nature of EOD activity required. At times, an apparently benign situation requiring only ‘Small Scale’ Forces may still require a substantial EOD capability, particularly if the main threat is posed by terrorists or substantial stocks of ammunition for disposal. Best use should be made of all available expertise, based on the commander’s intent, threat and urgency. As there is a return to normality following hostilities, rehabilitation and restoration of local facilities may be required. Where this involves EOD, tasks should be carried out and recorded in order to allow handover to Non-Governmental Organisations (NGOs) who will carry out humanitarian mine clearance in the area. In assessing the nature of the operation and the balance of assets required, recognition of the relevant ‘ethos’ can be important. Some examples are considered below.

405. **Other Operations – Non-Permissive Environment.**

a. **Nature of the Operation.** EOD can contribute to the protection and manoeuvre functions in combat. Particular areas that are likely to be targeted include military Lines of Communication including Air and Seaports, concentration areas, logistic assets, security force bases and vital civilian infrastructure. Notwithstanding, EO threats may also be randomly targeted.

b. **Ethos.** The ethos in the hostile environment emphasises speed. This will often be at the expense of the preservation of property or forensic

¹ Warfighting is defined by the UK as the conduct of combat operations against an adversary. (JWP 0-0.1.1)

² Peace Support Operations can be defined as multi-functional operations involving military forces and diplomatic and humanitarian agencies. They are designed to achieve humanitarian goals or a long-term political settlement and are conducted impartially in support of an appropriate mandate. These include peacekeeping, peace enforcement, conflict prevention, peacemaking, peace-building and humanitarian operations JWP 0.01.

evidence. It must be accepted that the latest EOD equipment, in terms of remote means or ECM, may not be available or deployable in sufficient time. Under such circumstances there will be a requirement to adapt combat engineering skills to the EOD environment.



Unexploded ordnance can be rendered safe in a number of ways, depending on the urgency and the need for preservation of assets.

406. **Other Operations – Semi-Permissive Environment.**

a. **Nature of the Operation.** In the semi-permissive environment it is likely that there will continue to be a constant undercurrent of EOD activity. The threat may range from mines and Improvised Explosive Devices (IEDs) to failed enemy or even friendly munitions. In addition, the political desire to maintain a secure environment will often lead to disarmament or demilitarisation operations, to recover weapons, ammunition and explosives held by warring factions. With growing stabilisation, friendly forces will start to go firm on the ground. Whilst the ability to manoeuvre and protect the Force would remain high priorities, EOD actions may be carried out in a more deliberate, less hasty, manner. This phase of operations may last for some considerable time before a benign state is achieved.

b. **Ethos.** In a semi-permissive environment, the balance will start to shift from the need for speed in support of manoeuvre to a greater emphasis on the preservation of life, property, intelligence and forensic evidence. The joint or co-ordinated use of cross-Component EOD assets can be optimised to meet the threats under these circumstances.

407. **Operations in Peace (Permissive).**

a. **Nature of the Operation.** In peace, the emphasis is primarily on safety – both of service personnel and of the general public. Conventional Munitions Disposal is conducted with the aim of rendering military munitions safe, whether on military training areas or on civilian property. Improvised Explosive Device Disposal is carried out to deny the potential adversary, terrorist or criminal from achieving his objectives, whilst preserving both life and property.

b. **Ethos.** In peace, the philosophy is (in priority order):

- (1) Preservation of life.
- (2) Preservation of property.
- (3) Rapid restoration of normality.
- (4) Preservation of forensic evidence.

408. **Humanitarian Operations.**³

a. **Nature of the Operation.** Special circumstances apply to the employment of the EOD capability on humanitarian operations. The high profile afforded to civilian injuries caused by land mines, sub-munitions, stray ammunition and residual ordnance from dumps, coupled with the proliferation of contractors offering demining and Explosive Ordnance Clearance expertise, will drive the need for future co-operation between military EOD components and NGOs. NGO activity will normally be co-ordinated by a humanitarian organisation (eg. the UN Mines Action Co-ordinating Committee (UNMACC)); the activity of various military and civilian ‘EOD providers’ should be complementary and should make full use of remaining military EOD capacity.⁴ Failure to do so could well result in unnecessary civilian casualties and, through the presence of accessible EO, could fuel future internal security problems.

³ Humanitarian Operations are those conducted to relieve human suffering. Military humanitarian activities may accompany, or be in support of humanitarian operations conducted by specialised civilian organisations. (AAP-6) Humanitarian Operations are not normally a core Defence activity.

⁴ Such as is deemed necessary to fulfil the remit of UK Military tasks.



Clearance operations are lengthy and resource intensive

b. **Ethos.** The philosophy is one of co-operation and liaison with the humanitarian organisational structure, to the extent of seconding an appropriate officer to work with or even head an in-theatre UNMACC Region. Of greatest importance is an appropriately crafted military mission that considers humanitarian as well as military imperatives. This complex issue is not covered in lower level doctrine and is therefore expanded in Annex 4A.

The Balance

409. With the wide variation of EOD contributions to operations across the complete spectrum of tension, reflecting the differing 'ethos' from scenario to scenario, the importance of achieving the correct balance cannot be over-emphasised. Given the levels of training, skill and experience required to produce an EOD capability, the resource is often likely to be in short supply, particularly where 'just in case' cover must be guaranteed. Whilst recognising the specialist areas and responsibilities across the Services, the key to efficient provision of EOD capability is the ability to reconcile the relevant 'ethos' to the most appropriate co-ordinated structure for operations. The maintenance of a proactive joint focus advising both the UK-based and deployed joint staffs, and co-ordinating across the Services at both the operational and tactical levels, will ensure the optimum use of EOD resources in all operations.

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ANNEX 4A - JOINT EXPLOSIVE ORDNANCE DISPOSAL AND HUMANITARIAN OPERATIONS.

4A1. **Background.** Military forces may be required to carry out humanitarian relief operations as part of a wider co-ordinated project within an Other Operation (OO). Strategic and operational co-ordination is essential given that most humanitarian operations will involve a large variety of international aid agencies, Non-Governmental Organisations (NGOs) and civil sector companies. Care will be needed to avoid civilian dependency on military capabilities and military ‘mission creep’.

4A2. **UK Lead Agency.** For the UK, the Department for International Development will normally take the lead and provide strategic guidance to Defence assets where military participation has been agreed.

4A3. **Humanitarian Mine Action.** The concept of Humanitarian Mine Action (HMA) has been developed in response to the impact of landmines and other UXO on people and communities following a conflict. HMA seeks to minimise the threat to life and limb and the inherent impediment to the progress of post-conflict reconstruction and social and economic development. Humanitarian mine clearance activity will be determined by the impact of the mine or UXO threat in relation to the affected communities and the level of capability available to meet it.

4A4. **Information and Assessment.** In a post-conflict situation it is unlikely that there will be sufficient reliable data on the extent of contamination. As a priority, any military force will need to identify the type and nature of landmine/UXO threat that it faces. Information will need to be obtained from international/national forces, belligerent parties, local population, aid agencies, NGOs and other military sources. The initial picture is likely to be fragmented and incomplete, necessitating a detailed survey and assessment.¹ In some cases it will be appropriate for military EOD Cells to pass on specific intelligence to NGOs or aid agencies. The transfer of information and databases will require careful management and is only likely to be authorised once the danger of compromise to military plans has passed.

4A5. **Security.** The level of security and protection afforded to military and civilian operations will depend on the likely threat and prevailing situation. All aspects will need to be carefully co-ordinated at the outset as there will be a risk of differing objectives.

¹ The principal tool used by HMA agencies is the Level 1 Impact Survey. This identifies the amount and general location of the mines, as well as the impact on the population.

Mine Clearance and the UN

4A6. **The UN Standards.** Humanitarian mine clearance is regulated by UN standards and seeks to remove all dangerous objects from a given area. The UN standards govern both the end effect and the method of operation. Clearance will usually be implemented by commercial companies, humanitarian NGOs, local authorities and military agencies. Military advice and guidance may be sought on quality control and best practice.

4A7. **Co-ordination and Planning.** A UN Mine Action Centre will usually be established to set priorities, allocate resources, ensure quality control and provide accreditation of operators. It will work to national plans that ensure that priority areas (most needed by the population) are cleared first. It is likely that military assistance will be requested to help process data and introduce management structures.

4A8. **Development of the Plan.** Whilst the primary task will be to co-ordinate the clearance of UXO using all available resources, broader requirements may include:

- a. **Reconstruction and Development of Cleared Land.** Mine action programmes will gradually free up safe land for the population to use. It may be necessary to introduce confidence-building measures to ensure that the cleared land is fully utilised.
- b. **Mine Awareness Activities.** Mine awareness programmes will be developed to ensure that local populations are kept informed of the threat and ensure that communities limit their exposure in high-risk areas. Military expertise is well suited to assisting these programmes.

4A9. **Completion.** It will normally be in UK interests, given the paucity of military assets, to extract from the operation as soon as an alternative lead agency has control of indigenous or other assets to fulfil the task.

GLOSSARY OF TERMS AND DEFINITIONS

Airfield Damage Repair

The range of activities required to restore the operational capability of an airfield after non-nuclear attack. Airfield Damage Repair includes reconnaissance, EOD and restoration of surfaces and services. (JDP 2/02)

Airfield EOD

A set of specialist EOD techniques developed for rapid clearance of aircraft operating areas to enable air operations to recommence as soon as possible following enemy attack. (JDP 2/02)

Amended Protocol II – Conventional Weapons Convention

Amended Protocol II to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which May be Deemed to be Excessively Injurious or to have Indiscriminate Effects prohibits the use of all undetectable anti-personnel mines and regulates the use of wider categories of mines, booby-traps and other devices. For the purposes of the IMAS, Article 5 lays down requirements for the marking and monitoring of mined areas. Article 9 provides for the recording and use of information on minefields and mined areas. The Technical Annex provides guidelines on, *inter-alia*, the recording of information and international signs for minefields and mined areas.

Area Clearance

1. In countermine operations, the removal of the immediate threat from mines, unexploded explosive ordnance, improvised explosive devices and booby traps from a defined area. (JDP 2/02)
2. In naval mine warfare, an operation whose objective is to clear all mines from a defined area. (JDP 2/02). *See also countermine operation; improvised explosive devices; unexploded explosive ordnance.*

Battle (Battlefield) Area Clearance

The clearance of land over which battles have been fought. (JDP 2/02)

Booby Trap

An explosive or non-explosive device or other material, deliberately placed to cause casualties when an apparently harmless object is disturbed or a normally safe act is performed. (AAP-6)

Cleared Area (Cleared Land)

An area that has been physically and systematically processed by a demining organisation to ensure the removal and/or destruction of all mine and Unexploded Explosive Ordnance hazards to a specified depth. (JDP 2/02)

Demining

The survey and subsequent clearance of contaminated land by the detection, removal or destruction of all mine and Unexploded Explosive Ordnance hazards. Demining may be carried out by different types of organisations, such as non-Government Organisations, commercial companies, national mine action teams or military units. Demining may be emergency-based or developmental. or surgical care facility. (JDP 2/02)

Demining Organisation

Refers to any organisation (government, Non- Government Organisation, military or commercial entity) responsible for implementing demining projects or tasks. The demining organisation may be a prime contractor, subcontractor, consultant or agent. (JDP 2/02)

Detection

In the context of demining, the term refers to the discovery by any means of the presence of mines or Unexploded Explosive Ordnance. (JDP 2/02)

Detonation

The rapid conversion of explosives into gaseous products by means of a shock wave passing through the explosive (c.f. deflagration. Typically, the velocity of such a shock wave is more than two orders of magnitude higher than a fast deflagration). (JDP 2/02)

Electronic Countermeasures (ECM)

That division of electronic warfare involving actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum through the use of electromagnetic energy. There are three subdivisions of electronic countermeasures: electronic jamming, electronic deception and electronic neutralisation. (AAP-6)

Explosive

A substance or mixture of substances which, under external influences, is capable of rapidly releasing energy in the form of gases and heat. (AAP-6)

Explosive Materials

Components or ancillary items used by demining organisations which contain some explosives, or behave in an explosive manner, such as detonators, fuzes and primers. (JDP 2/02)

Explosive Ordnance

All munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature. (AAP-6)

Explosive Ordnance Clearance

Tasks to reduce or eliminate the explosive ordnance hazards from a defined area. (JDP 2/02)

Explosive Ordnance Disposal

The detection, identification, on-site evaluation, rendering safe, recovery and final disposal of unexploded explosive ordnance. It may also include explosive ordnance, which has become hazardous by damage or deterioration. (AAP-6)

Hazard(ous) Area (Contaminated Area)

A generic term for an area not in productive use due to the perceived or actual presence of mines, Unexploded Explosive Ordnance or other explosive devices. (JDP 2/02)

Humanitarian Demining

Activities which lead to the removal of mine and Unexploded Explosive Ordnance hazards, including technical survey, mapping, clearance, marking, post-clearance documentation and the handover of cleared land. (JDP 2/02)

Information Management System for Mine Action

The Information Management System for Mine Action is the United Nation's preferred information system for the management of critical data in UN-supported field programmes and at the UN headquarters in New York. Information Management System for Mine Action consists, essentially, of two modules: the Field Module and Global Module. The Field Module provides for data collection, information analysis and project management. It is used by the staffs of mine action centres at national and regional level, and by the implementing parties of mine action projects such as demining organisations. The Global Module refines and collates data from Information Management System for Mine Action Field Modules (and other field-based information systems) and provides the UN and others with accurate, aggregated information for the strategic management of mine action. (JDP 2/02)

Improvised Explosive Device

A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic or incendiary chemicals and designed to destroy, incapacitate, harass or distract. It may incorporate military stores, but is normally devised from non-military components. (AAP-6)

Joint Explosive Ordnance Disposal Cell (JEODC)

The cell which, on deployed operations, provides advice and support to J3 (and J2) staff concerning EOD in a joint environment. (JDP 2/02)

Joint Services Explosive Ordnance Disposal Operations Centre (JSEODOC)

The jointly-staffed organisation which, for Military Aid to Civil Power operations, directs EOD activities. (JDP 2/02)

Logistic Disposal

In the context of humanitarian demining, the term refers to the removal of ammunition and explosives from a stockpile utilising a variety of methods, (that may not necessarily involve destruction). Logistic disposal may or may not require the use of Render Safe Procedure. (JDP 2/02)

Mine

1. In land mine warfare, an explosive munition designed to be placed under, on or near the ground or other surface area and to be actuated by the presence, proximity or contact of a person, land vehicle, aircraft or boat, including landing craft.
2. In naval mine warfare, an explosive device laid in the water with the intention of damaging or sinking ships or of deterring shipping from entering an area. The term does not include devices attached to the bottoms of ships or to harbour installations by personnel operating underwater, nor does it include devices which explode immediately on expiration of a predetermined time after laying. (AAP-6).

Mine Action

Activities which aim to reduce the social, economic and environmental impact of landmines and Unexploded Explosive Ordnance. Mine action is not just about demining; it is also about people and societies, and how they are affected by landmine contamination. The objective of mine action is to reduce the risk from landmines to a level where people can live safely; in which economic, social and health development can occur free from the constraints imposed by landmine contamination, and in which the victims' needs are able to be addressed. Mine action comprises five complementary groups of activities:

- a. Mine and Unexploded Explosive Ordnance awareness and risk reduction education.
- b. Humanitarian demining, ie. mine and Unexploded Explosive Ordnance survey, mapping, marking and (if necessary) clearance.
- c. Victim assistance, including rehabilitation and reintegration.
- d. Stockpile destruction.
- e. Advocacy against the use of anti-personnel mines.

A number of other enabling activities are required to support these five components of mine action, including: assessment and planning, the mobilisation and prioritisation of resources, information management, human skills development and management training, quality management and the application of effective, appropriate and safe equipment. (JDP 2/02)

Mine Awareness

1. Communications strategy within mine action which aims at preventing the occurrence and reducing the number of casualties caused by mines and Unexploded Explosive Ordnance through appropriate, coordinated and well targeted programmes of public information and education for communities living in the threat of mines.
2. Programmes which, relying on information sharing, teaching and the identification of ways to avoid traversing mined areas, seek to shield populations from accidents involving mines, UXO or other devices left behind by conflicts. (UNICEF Guidelines for mine awareness). (JDP 2/02)

Mine Clearance

The process of removing all mines from a route or area. (AAP-6)

Mine Countermeasure Vessel

A ship used to hunt for and dispose of sea mines. (JDP 2/02)

Mine Information and Exploitation

The procedure by which a mine is exploited to gain intelligence on its actuation methods and operating parameters. (JDP 2/02)

Minefield

1. In land mine warfare, a defined area in which mines have been emplaced.
2. In naval warfare, an area of water containing mines laid with or without a pattern. (AAP-6).

Munition

A complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological, or chemical material for use in military operations, including demolitions. Certain suitably modified munitions can be used for training, ceremonial, or non-operational purposes. *Also called ammunition.* **NOTE:** In common usage, ‘munitions’ (plural) can be military weapons, ammunition and equipment. (AAP-6)

Other Operations

Other Operations are those that are conducted in situations other than war: it replaces ‘Operations Other Than War’ to reflect the need for similar combat capabilities in situations short of warfighting. (JWP 3-00)

Ottawa Convention (Mine Ban Treaty)

Provides for a complete ban on the use, stockpiling, production and transfer of anti-personnel mines and on their destruction. For the purposes of IMAS documents, Article 5 of the Mine Ban Treaty lays down requirements for the destruction of anti-personnel mines in mined areas. Article 6 details transparency measures required under the Treaty including on the location of mined or suspected mined areas and measures taken to warn the local population.

Render Safe Procedure

The application of special EOD methods and tools to provide for the interruption of functions or separation of essential components to prevent an unacceptable detonation. (JDP 2/02)

Risk Assessment

Overall process comprising a risk analysis and a risk evaluation. (ISO Guide 51:1999(E))

Stockpile

In the context of mine action, the term refers to a large accumulated stock of EO. (JDP 2/02)

Unexploded Explosive Ordnance

Explosive ordnance which has been primed, fused, armed or otherwise prepared for action, and which has been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installations, personnel or material and remains unexploded either by malfunction or design or for any other cause. (AAP-6)

Very Shallow Water Mine Countermeasure

Any activity to search, detect, locate, neutralize or dispose of explosive ordnance or obstructions laid in very shallow waters. This can be a component of general coastal operations or amphibious operations. (JDP 2/02)

Very Shallow Water Mine Countermeasure Unit

A small cadre which may include EOD, Marine Recon, Clearance Divers, Special Forces divers and Marine Mammal Systems specially trained to conduct Mine-Countermeasure Operations in very shallow water regions. (JDP 2/02)

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GLOSSARY OF ABBREVIATIONS

AO	Area of Operations
ADR	Airfield Damage Repair
AEOD	Airfield EOD
AMT	Advanced Manual Techniques
AP II	Amended Protocol II (see Glossary)
APM	Anti-Personnel Mines
AT	Ammunition Technician
BAC	Battle (Battlefield) Area Clearance
BCIED	Biological and Chemical Improvised Explosive Devices
BCMD	Biological and Chemical Munitions Disposal
BDA	Battle Damage Assessment
CC	Component Commander
CCW	Convention on Conventional Weapons
CMD	Conventional Munitions Disposal
COMPLAN	Communications Plan
CONOPS	Concept of Operations
CBRN	Chemical, Biological, Radiological & Nuclear
DWME	Disposal of Weapons of Mass Effect
ECM	Electronic Countermeasures
EO	Explosive Ordnance
EOC	Explosive Ordnance Clearance
EODFE	Explosive Ordnance Disposal Force Element
FM	Field Module
GM	Global Module
HRS	High Risk Search
HMA	Humanitarian Mine Action
HN	Host Nation
IED	Improvised Explosive Device
IEDD	Improvised Explosive Device Disposal
IMSMA	Information Management System for Mine Action
IND	Improvised Nuclear Devices

JEODC	Joint Explosive Ordnance Disposal Cell
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JFSFCC	Joint Force Special Forces Component Commander
JEODC	Joint EOD Cell
JIPTL	Joint Integrated Prioritised Target List
JOA	Joint Operations Area
JOP	Joint Operational Picture
JSEODOC	Joint Services EOD Operations Centre
JTFC	Joint Task Force Commander
JTFHQ	Joint Task Force Headquarters
LOC	Line of Communication
MACA	Military Aid to the Civil Authorities
MACP	Military Aid to the Civil Power
MCMV	Mine Countermeasure Vessel
MIE	Mine Information and Exploitation
MOC	Maritime Operational Centre
NGO	Non-Government Organisation
NWD	Nuclear Weapons Disposal
OC	Ottawa Convention
OGD	Other Government Departments
OO	Other Operations
OPCON	Operational Control
OPLAN	Operation Plan
PJHQ	Permanent Joint Headquarters
PSO	Peace Support Operations
RDD	Radiological Dispersal Devices
ROE	Rules of Engagement
RSP	Render Safe Procedure
SIBCRA	Sampling and Identification of Biological, Chemical and Radiological Agents.
SME	Subject Matter Experts
SOP	Standard Operating Procedure
TACON	Tactical Control

UNMACC	UN Mines Action Co-ordinating Committee
UMD	Underwater Munitions Disposal
UXO	Unexploded Explosive Ordnance
VSW MCM	Very Shallow Water Mine Countermeasure

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